

**PLAINTIFF'S
EXHIBIT**

ETCO-99

ETC 22315

INDEX TO "ETHYL NEWS" FOR 1939

ADVERTISING

Ethyl Goes on the Air *January*
Tune-up Time off to a Flying Start *February*
Guest Stars Shine on Tune-up Time *March*
America's First Advertising Man—Benjamin Franklin *March*
Radio Announcer Boosts Motor Tune-up *May*
Zeke and the Boys *June*
Tune-up Time 1940 Model *September*
Pennywise—A Smash Hit *December*

AUTOMOTIVE

Santa Claus Parade Thrills Toronto Youngsters *January*
Why Not an Artificial Heart, etc. *January*
Louisville Tunes Up for Top Performance *January*
You May Have a Sick Cylinder *February*
Outlook for Automobile Trade Better *February*
Make Way for Old Dobbin (Snowmobile) *February*
Spark Plugs Often Perform Like Old Faithful *March*
Garage Holds Monthly Customer Clinic *March*
Rugged Individualism Under Hood *April*
Elgin vs. Chicago *April*
Ethyl Captures Rose Bowl Cup *April*
Nation's Police Efficiency Increased by Automobiles, etc. *April*
Illinois Puts First Mobile Inspection Laboratory on Road *May*
Springfield Cuts Accident Toll *May*
Thousands of New Cars Take Water Route to Detroit *June*
Thirty Years and Still Running *June*
Louisiana's Free Auto Mechanics School *July-August*
Old and New in Transportation Parade *September*
Putting Performance on Paper *September*
Ethyl Goes to South Pole on Strange Vehicle *September*
Jalopy Jamboree *October*
Syracuse Auto Races *November*
Admiral Byrd's Snow Cruiser Starts Long Voyage *December*

AVIATION

Triumph of British Aircraft Construction *January*
Fabric Fuel Tank Developed for Aircraft *February*
International Pan-American Airport *April*
Planning Highways from Sky *April*
Pre-Testing Flying Power *May*
Memorial Park to Mark Birth of American Aviation *May*
Canada's National Air Service *June*
Yankee Clipper of '39 Recaptures Ocean Record *July-August*
Wings Over Elmira *July-August*
Tankers of the Air *September*
Philadelphia Post Office Pioneers New Air Mail *September*
Roscoe Turner and Ethyl Win Third Thompson Cup *October*
They Must Be Tough—Uncle Sam's Birdmen *October*
American Built Planes Sensation on Allied Front *November*
National Guard Aviation *December*

BUS AND TRUCK

Forest Giant Falls Near Astoria, Oregon *January*
The Early Days of Greyhound *March*
Modern Equipment Replaces Old at Pikes Peak *July-August*
Through Khyber Pass with Ethyl *September*
First Electric Transit Line Keeps Pace, etc. *September*
New Type Truck Shows Efficiency *September*
Ethyl's Superiority on Texas Highway Job *September*
Let Your Truck or Bus Earn More Dollars *October*
Maintenance Problems of Large Bus Company *October*
Stethoscoping the Bus *November*
Ethyl Holds Fleet Conference *December*
Heavy Jobs Easy for "Big Bertha" *December*

CLINIC

Army Holds Meetings at Ethyl Clinic in Washington *January*
Head of National Auto Dealers Becomes Ethyl Minded *January*
Texaco Service Station Inspection Car at Clinic No. 9 *January*

Ethyl Entertains Western Pennsylvania Refiners *February*
Nebraska Capital City Welcomes Ethyl Clinic *February*
Oil Company Executives Meet at Clinic New Orleans *February*
Pennsylvania Railroad Tunes-up *March*
Ethyl Clinic Welcomed to Mobile *April*
Perfect Circle Company Entertains at Clinic *May*
Ethyl Cooperates with Uncle Sam *May*
Ethyl Clinic Invades Westchester *May*
West Virginia Network Puts Clinic on Air *June*
Standard Oil at Clinic, Jackson, Mississippi *June*
Noted Tenor Guest at Preview Dinner *June*
Radio Supplements Clinic Program *July-August*
A Clinic Moves *July-August*
Putting Performance on Paper *September*
Meeting in Columbus, Georgia, for Wofford Oil *October*
Atlanta Admen See How Ethyl Completes Job *November*
Atlanta Clinic's Final Showing *December*
Ethyl Clinic on Air in Utica *December*

CUSTOMER CAMPAIGNS, EDUCATIONAL MEETINGS AND EXHIBITS

Standard Oil Sales Program North Carolina Nets Gain *February*
New York City and World's Fair Prepare for Millions *February*
Petroleum Industry Exhibition's Directors View Fair *February*
Ethyl Sponsors Automobile and Fleet School in Atlanta *May*
Cowboy Music Wins Attention for Ethyl *September*
Combined Efforts of Oil and Automobile Industries Promote Better Performance *November*
Kansas Town Boasts Tune-up Equipment *December*

CORPORATION ACTIVITIES AND PERSONNEL ITEMS

Personnel Changes in Gasoline Testing Department *February*
New Ethyl Chloride Plant, Baton Rouge *March*
James T. Grady Honored by American Institute *March*
Ethyl Host at New Tulsa Laboratory *April*
Ronan Comes to New York General Offices *April*
Changes of Management in Sales Division *April*
Ethyl-Dow's Championship Softball Team *May*
New Research Laboratory Combines Miniature United States as Proving Ground *May*
Fifteen Year Service (Drs. Edgar and Kehoe) *June*
Baton Rouge Personnel *June*
Fifteen Year Service (Armstrong and Mescher) *July-August*
Will Supervise New Ethyl Chloride Division *July-August*
O. V. Tracy Leaves Baton Rouge *July-August*
Fifteen Year Service (Sortman) *September*
Ethyl Opens Graduate Training School *October*
Fifteen Year Service (Mehring) *October*
Ethyl Graduate Training School *November*
Vice-President Graham Edgar Predicts More Miles *December*
Four Million Dollar Expansion at Baton Rouge *December*
New Chemical Research Laboratory at Detroit *December*
Hubner Heads New Refinery Technology Division *December*
New Sales Division on West Coast *December*

SPECIAL FEATURE ARTICLES

You Can Help FBI *January*
Historic Cow Path in Chicago Loop *January*
Malthusian Theories of Oil Reserves *March*
Photographing Mother Earth Fifteen Thousand Feet Underground *March*
Providing Skilled Workers for Industry (David Rankin, Jr., School) *March*
Natchez—Where Old South Still Lives *March*
New York World's Fair Traffic *April*
Little Known Industry Marks Fortieth Year (Fisheries) *April*
We Own Industry *May*
Tulip Time in Holland, Michigan *May*
Woolaroc Retains Atmosphere of Old West *May*

[OVER]

Europe Seeks Oil *June*
Vancouver Pioneers in Plan to Curb Highway Death Toll *June*
Highway is Foundation of Nation's Social Order *June*
Tour Service DeLuxe *July-August*
Tolls for Road Construction *July-August*
First English Incorporated City of New World Relives Past *July-August*

What's Over the Hill (TrafficScope) *July-August*
Germany Shifting from Alcohol to Ethyl Fluid Blend *July-August*

Cooperative Research *July-August*
Will as You Will—But Will You Should *July-August*
Carlsbad Cavern of New Mexico *July-August*
Navies Without Oceans *September*
Through Khyber Pass with Ethyl *September*
Just Supposing *September*
The Panda Lady and Su Lin *September*
A Long Name *September*
Power and Heat and Food *October*

New Safety Glass for 1940's Cars *October*
Building an Oil Tanker *October*
New Reactions (Dr. Calingaert) *November*
Scientist Says America Could Supply World's Petroleum Needs *November*

The Mariners' Museum *November*
Sealed Beam for Night Driving *November*
For Safety's Sake on New York Highways *November*
Business Man Views Thresher *November*
Mr. Average American's Wealth *December*

TRACTOR

Record Crowd Views International Plowing Match *January*
Student Farmers at Pennsylvania State Study Modern HC Tractors *May*
Funk Farms and Hybrid Corn *June*
Ford Announces New Tractor *July-August*
Battle of Tractor Giants Looms for 1940 *November*
Farmers' World Series *December*

eds
her

TUNE-UP
TIME

ETHYL

JANUARY 1939

ETC 22318



AN INVITATION

The Ethyl Gasoline Corporation extends to its friends and customers a cordial invitation to attend the studio broadcasts of "Tune-Up Time." When planning a trip to New York, write for tickets. Address requests to Ethyl Gasoline Corporation, Advertising Department, Chrysler Building, New York, N. Y.

Ethyl Goes on the Air

*Company's First National Radio Program Starts January 12th
45 Minute Show to Feature O'Keefe and Kostelanetz*



ETHYL GASOLINE CORPORATION
CHRYSLER BUILDING
NEW YORK CITY

W. CARY HARRIS
Editor

EDWIN DOWNS
RUSSELL B. WESTON
Associate Editors

Correspondents

J. A. COSTELLO.....	Atlanta
F. S. CRONIN.....	Baltimore
D. S. FLYNN.....	Boston
A. B. WYRICK.....	Chicago
R. R. FALLER.....	Dayton
H. L. NIXON.....	Kansas City
CARL ABELL.....	Los Angeles
R. L. GOLTZ.....	New York
J. N. FITZGERALD.....	Toronto
H. C. DEES.....	Tulsa
R. K. SCALES.....	Engineering Dept.
ARTHUR P. STOVER.....	Mfg. Dept.
J. C. POPE.....	Gasoline Testing Dept.
E. J. NIESER.....	Administration Dept.
HUBERT FOSSETT.....	Export Dept.

THE MATERIAL IN THIS PUBLICATION
MAY BE REPRINTED PROVIDED DUE
CREDIT IS GIVEN THE "ETHYL NEWS"
OR ETHYL GASOLINE CORPORATION
UNLESS IT IS A COPYRIGHTED ARTICLE.

VOL. 6, No. 1

WHEN the moving finger of the studio clock ticks off the second after ten o'clock (E.S.T.) on the evening of January 12th, a hand will wave in the control room of the Columbia Broadcasting System's Playhouse Number 1 (New Amsterdam Theatre) in New York City, signaling the start of a great new radio series, the first to be sponsored nationally by the Ethyl Gasoline Corporation.

The hand signal from the director will send the program, called "Tune-Up Time," out over 63 stations in the coast-to-coast network of the Columbia Broadcasting System to a potential audience of 22,894,162 radio homes. It will launch one of the most important promotional activities undertaken by the Company in many years. Designed to benefit automotive men as well as customer oil companies, "Tune-Up Time" is a further extension of Ethyl's established policy of cooperation with the automotive and petroleum industries.

From an entertainment standpoint, "Tune-Up Time" will rank as one of the most spectacular shows on the air. With an audience of more than 1,000 filling the radio theater, no less than 60 performers will be heard every Thursday evening on the great stage which has been enlarged specially for this program.

Headlining the talent as master of ceremonies is handsome Walter O'Keefe, nationally-known wit, who will go down in history as the man who popularized the "Man on the Flying Trapeze."

The musical side of "Tune-Up Time" brings back to the air a brilliant and versatile organization unequalled by any currently competing program. The director is André Kostelanetz who, with his forty-five piece orchestra, has won wide popularity through his spectacular and strikingly beautiful arrangements of new and old music. Supplementing Kostelanetz and his men is Kay Thompson and her twelve Rhythm Singers. Miss Thompson was the originator of a new style of vocal swing and like O'Keefe and Kostelanetz, has been heard with her chorus on many big-time radio shows.

LILY PONS FIRST GUEST STAR

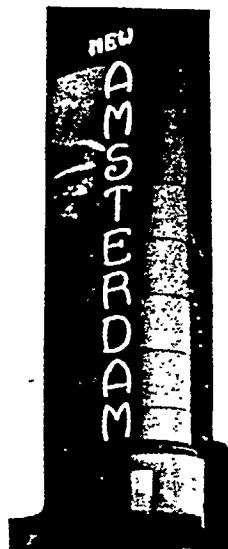
Additional special features will make the opening program of the "Tune-Up Time" series one of the big radio events of the year. Arrangements have been completed for the guest appearance of Lily Pons who, in private life, is Mrs. Kostelanetz. This will be the first time Miss Pons and Mr. Kostelanetz have been together on the same program since their marriage last summer.

Irving Berlin, the famous song-smith of Tin Pan Alley, has made another headline for "Tune-Up Time" by writing a new song which Kostelanetz and his orchestra will play for the first time.

Plans for succeeding programs call for the guest appearance of an outstanding personality every week. These guests will be drawn from many fields of the entertainment world and will include the biggest names of Hollywood and Broadway.

PROGRAM TO SELL COMPANY'S BASIC PRODUCT

"Tune-Up Time" inaugurates an important change in the Company's advertising policy. Beginning with the radio program, the advertising will





Walter O'Keefe will act as master of ceremonies at Ethyl's radio program "Tune-Up Time" which goes on the air over the Columbia Coast-to-Coast network January 12th.



Lily Pons and Andre Kostelanetz, her husband, who conducts the 45-piece orchestra in "Tune-Up Time," during a moment of relaxation. As guest star on the opening night she will make her first appearance on the air with Mr. Kostelanetz since their marriage.

promote more than the sale of "Ethyl" alone; it will speak for all "leaded" gasolines. These sales messages are designed particularly to be of real service to automotive and oil men by giving car-owners the basic facts about the relation of better gasoline, tune-up, and correct spark settings to car performance.

Customer oil companies and their dealers will benefit through commercials which explain to motorists that no automobile can cash in on the extra performance in better anti-knock gasoline unless the spark is properly advanced and the motor given a tune-up at regular intervals. They will also benefit through commercials which tell car-owners how tetraethyl lead improves the anti-knock quality of gasoline.

Automotive men, on the other hand, will benefit through "Tune-Up Time" commercials in this way: Car-owners will be told that the advice of their service men is sound advice and will save them money

de of
for all
mes-
ly to
e and
s the
on of
orrect
nce.

their
com-
orists
in on
anti-
rk is
notor
rvals.
com-
how
anti-

other
Tune-
way:
e ad-
ound
oney

in the long run. They will be told that no service man can give an automobile a grade of performance better than the grade of gasoline in the tank. They will also be told to go to their car dealer or motor service man at regular intervals for complete motor adjustment.

Two-page advertisements announcing "Tune-Up Time" are appearing in January issues of leading oil and automotive trade papers. The advertisements emphasize the importance of the new program to both industries by enumerating the selling points just described. Substantially the same points will be stressed in all 1939 advertising.

Aside from its influence on car-owners generally, "Tune-Up Time" is expected to be an important aid to the Ethyl field force and to the Motor Clinics. This opportunity will be exploited to the fullest possible extent through special promotion effort. The first step in this direction has been the mailing of reprints of the "Tune-Up Time" advertisements to more than 60,000 oil company jobbers and automobile dealers throughout the United States. Postcards and telegrams will also be used to give "Tune-Up Time" the widest possible publicity in the petroleum and automotive industries.

"Tune-Up Time" will be "sold" to the public through an intensive publicity program and through advertisements in newspapers in the 63 cities in which are located CBS stations broadcasting the program.

THE STORY BEHIND "TUNE-UP TIME"

The Company's first venture as a national network advertiser dates back almost a year ago when it was decided to give radio a 26-week test on a local basis. The program chosen for the experiment was "Curtain Calls" broadcast over KF-WB, Los Angeles. The show had been sponsored by the Sunset Oil

Kay Thompson with her Rhythm Singers.
will be a regular feature of Ethyl's "Tune-
Up Time" each Thursday night.





Andre Kostelanetz conducts his orchestra during a rehearsal of "Tune-Up Time" at the Columbia Playhouse.

Company for more than two years and had proved its value as an effective merchandising aid. Used to back up the program of the Los Angeles Motor Clinic, "Curtain Calls" brought excellent results. The knowledge gained through this local program, combined with developments in the oil industry, indicated that the time had arrived for the Company to go on the air nationally.

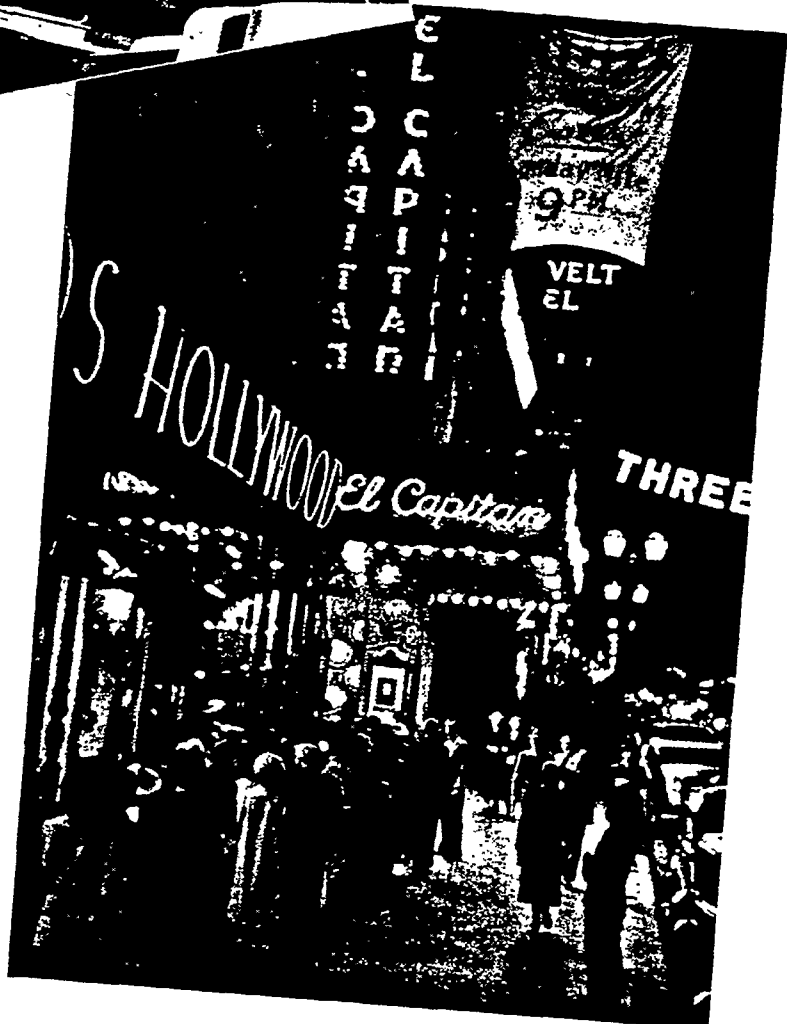
The work of building a program to meet the Company's requirements began as far back as October. Under the direction of Arthur Pryor, Jr., radio chief of Batten, Barton, Durstine and Osborn (Mr. Pryor, incidentally, is the son and grandson of the famous band masters), various talent and entertainment possibilities were explored. On October 24th a preliminary version of "Tune-Up Time" was recorded for audition. Approximately three weeks later the final make-up of the program was settled.

Page four

This Month's Cover

WABC transmission towers of the Columbia Broadcasting System at Wayne, N. J., from which "Tune-Up Time" will be speeded on its way to millions of listeners from 10 to 10:45 E.S.T., every Thursday evening, beginning January 12th.

The towers, erected in 1921, are 550 feet high, resting in 4-foot square insulators, with a sending capacity of 50,000 kilowatts.



Ethyl presented "Curtain Calls," which was broadcast to the west coast during the summer, at the El Capitan in Los Angeles. Picture shows a portion of the ticket line on the opening night.

ETHYL NEWS

ETC 22323

Army to Hold Series of Meetings at Ethyl Clinic in Washington

THROUGH the courtesy of the commanding general of the Third Corps Area, the Ethyl Clinic of the Baltimore Division has inaugurated a series of meetings for the troops within a fifty mile radius of Washington.

The series was started in true Army style, when a group of one hundred and seventy-eight men and seventeen officers were convoyed from Fort Meade, Maryland to Washington for the first of these demonstrations. The column of eighteen trucks was met at the District Line by a selected group of mounted police who led the formation to the clinic site. It was truly an impressive picture to observe the convoy forming on Constitution Avenue, just within the shadows of the Nation's Capitol and directly in front of the Clinic. From this point the men were marched indoors where they heard the program.

The equipment and the person-

nel assigned to this detail represent a new era in the U.S. Army set-up. It is a well-known fact that the Armies of the World are no longer dependent on the ability of men to march from one place to another, but rely on mechanical means of transportation. It is essential, therefore, that those who are appointed to drive and maintain this equipment must be of the highest calibre and experts in their field. This picture of personnel and equipment clearly describes the activities of Fort George G. Meade where are

to be found modern tanks and trucks along with such other mechanized equipment as is deemed necessary in modern warfare.

This meeting at the Ethyl Clinic in Washington was the opening of a series to be held for Fort Washington, Fort Belvoir, Fort Meyers and the Washington Transportation Depot. Incidentally this last named group is responsible for the maintenance and fueling of the Presidential and Cabinet members' cars, as well as those of a number of the high ranking army officers.

Officers and men of the Third Corps Division about to march in to the Ethyl Clinic in Washington, D. C.



Forest Giant Falls Near Astoria, Oregon

HAROLD AKERSTEDT, Svensen logger, was in Astoria one Sunday relaxing from a job that would have wearied the limbs of brawny Paul Bunyon.

For three days Akerstedt bucked large saws through the biggest tree in the Astoria watershed, logged by Crown Willamette Paper Company. At the butt the giant of Clatsop county's dwindling forests measured 13 feet. Cutting it up in seven pieces, Akerstedt was credited with a scale of 52,000 feet, three times that of ordinary trees.

This overgrown yellow fir was one of the toughest ever grown. Akerstedt dashed 12 gallons of oil on his saws, the longest being 12 feet, in fighting pitch, for each cut opened a pitch seam.

The city of Astoria is interested in preserving the butt log, measuring 13 feet at the bigger end and 12 on the other, to impress future generations with the mighty trees their

grandads brought to earth. This latest monster was laid down by Arthur Thompson and Hans Larsen, husky Astoria fallers.

The accompanying pictures show sections of the forest giant during handling by contractor Christensen who does all the hauling for Crown-Willamette. His equipment is composed of Macks, all of which have been high compressioned and are fueled with Ethyl. Whereas formerly it was necessary to grind valves every 5,000 miles, two of the trucks

have gone 2 years without any work being done on them whatsoever. Christensen figures these jobs operate about 25,000 miles a year with most of them running in second and third gear, wide open, empty or loaded.

In one of the views shown here the powerful Mack is about to get under way with a sixteen foot length of yellow fir measuring eleven feet in diameter. It scaled 10,500 feet of lumber and its weight was approximately 63,000 pounds which, with truck, made a total of 76,600 pounds. No small task, even for Ethyl Gasoline.



(Left) Butt of the great tree.

(Right) Some idea of the huge size of the trunk may be gained by comparing its diameter with the man standing on the truck.



Record Crowd Views International Plowing Match

THE 1938 International Ploughing Match and Farm Machinery Demonstration, celebrating the 25th Anniversary of the Association and held near Barrie in Simcoe County, Ontario, October 11th to 14th, will go down in history as setting an all-time record to date for number of contestants, its colossal exhibit of farm machinery and for attendance. It is estimated that approximately 130,000 people visited the competition.

His Excellency Lord Tweedsmuir, Governor-General of Canada, was an interested spectator who showed keen enthusiasm in the exhibits and ploughing contests. On one occasion he was seen between the handles of a plough, symbolic of the interest the Royal Family have always taken in agriculture. The Governor-General is not altogether unacquainted with the art of farm-

ing. As John Buchan he organized the Department of Agriculture in the Union of South Africa, and was their first Minister of Agriculture.

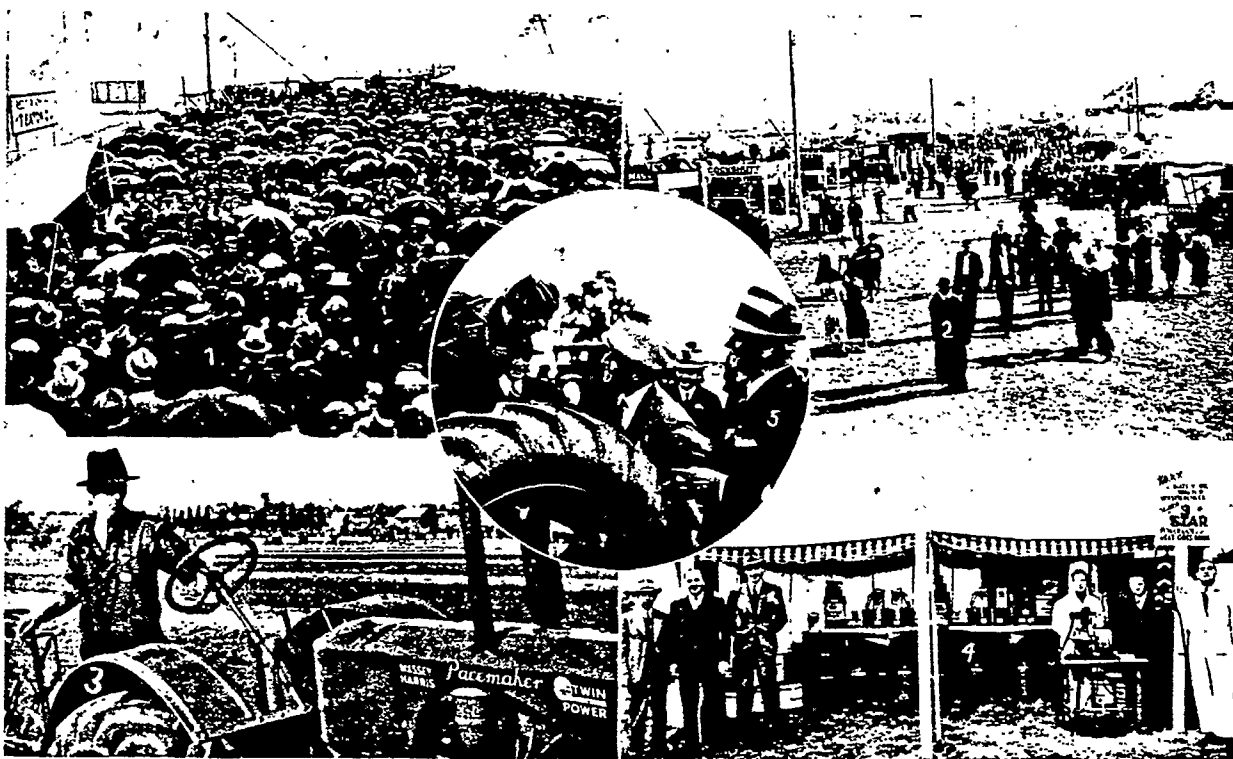
Several young women were in the competition with tractors and while they did not excel the men in the various classes in which they were competing, the feminine contestants proved that they could handle their tractors with skill and that they knew how to plough a straight furrow. There were several girls who had won honors at their local ploughing match and they made a very creditable showing at this meeting place of champions.

One of the most interesting events seen at the Match was the competition in shoeing horses and in making shoes. Several anvils and forges were set up in a large enclosure and here blacksmiths competed for honors in their calling which is fast

becoming a lost art in the Province of Ontario.

The achievement of Massey-Harris high-compressed tractors operating on leaded fuel was noteworthy as they won 34 out of a possible 76 tractor plow contests. The Company's exhibit was spoken of with great enthusiasm and crowds thronged around the model plow, the stoves, tractors, the combine, the power mower and the hammermill.

Ethyl Gasoline Corporation's demonstrating engine was installed in the Imperial Oil Company's booth and was operated at frequent intervals during the four-day session. Messrs. FitzGerald, Turnely and MacEwen of Ethyl's Toronto staff were on hand and report that exhibitors and spectators, who in many instances were viewing the demonstration for the first time, were enthusiastic over leaded gasolines.



1—In spite of rain, this day accounted for the largest one-day attendance—approximately 60,000 visitors.

2—One of the tent streets showing machine exhibits at the 1938 International Plowing Match at Minesing, Ontario. Ethyl's demonstrating machine located in Imperial Oil Company's tent at extreme right.

3—Alex Black who won two firsts and one fourth with his Massey-Harris Pacemaker Twin Power using leaded fuel.

4—Imperial Oil Tent exhibit showing Ethyl Gasoline Corporation's demonstrator which operated frequently each day during the session.

5—Fair young plough girl talks with the Governor-General. While this conversation takes place, Col. J. J. Duifus, M.P., Peterborough, standing at the right, is an interested listener.

Why Not an "Artificial Heart" for Cylinder Study?

MEDICAL scientists, by studying *living* tissues and organs which are kept alive in a perfusion pump (artificial heart), hope to make many new discoveries about the complex chemistry of the human body. In similar fashion, automotive engineers can study the simulated operation of *any* cylinder of *any* automobile engine, by modifying the standard C.F.R. single-cylinder engine. Such studies to date have shown that operating variables can influence decisively the knocking tendency of any cylinder, and exert their influence independently of the anti-knock value of the fuel that enters the gasoline tank.

When an automobile is operated on the road, it is difficult to analyze the conditions which influence the operation of any one cylinder. While this can be and has been done, it takes a great deal of time for each cylinder, let alone each individual car. Any attempt to determine such data with a large number of cars of the same or different makes is a monumental task.

Yet variations in fuel composition, air-fuel ratio, spark advance and temperature from one cylinder to the next may produce or suppress a knock independently of the anti-

knock value of the fuel. Since the rating assigned to a fuel by a given car may be determined by one knocking cylinder, it seems advisable to study in the laboratory under controlled conditions the constantly changing pattern of operating variables encountered on the road.

The Ethyl Gasoline Corporation has attacked this problem in the following manner: Conditions surrounding the operation of each cylinder of a number of cars were determined in road tests. These data included carburetor air-fuel ratios and ignition timing, mixture temperatures, air-fuel ratios and knocking tendencies of the individual cylinders. With this information, the standard C.F.R. single-cylinder engine was modified to permit supplying to the cylinder various combinations of vaporized and unvaporized portions of the fuel mixed with air in the proportions found in the individual cylinders of the automobile engines.

Several types of modified manifolds for the C.F.R. engine shown in the figures on this page have been used. In Figure 1 a short spacer bolted directly to the engine cylinder is fitted with a thermometer for the indication of mixture temperature. A standard C.F.R. mani-

fold, with its mixture heater, is bolted to the spacer, the flange normally bolted to the carburetor being attached to the spacer. A specially designed water-jacketed manifold section is provided with two flanges, one of which is connected to the standard C.F.R. manifold and the other to the standard C.F.R. carburetor body.

After the fuel-air mixture leaves the carburetor, it is forced to flow down through the jacketed section of the manifold and up through the standard C.F.R. manifold before entering the cylinder. Unvaporized fuel which is not carried into the cylinder by entrainment in the air stream drains from the jacketed section of the manifold into a graduated burette. The degree of fuel vaporization is controlled by the temperature of the water that enters the manifold jacket. Any final mixture temperature higher than that existing in the jacketed manifold may be obtained by the use of the standard C.F.R. mixture heater.

In order that the rate of carburetor fuel consumption may be measured the standard C.F.R. integral float bowl and fuel container assemblies are replaced by separate float bowl and fuel container assemblies. Three-way cocks and

(Continued on Page 12)

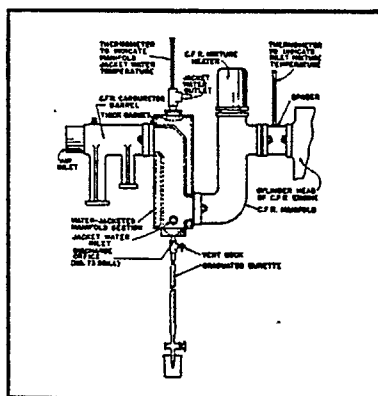


Fig. 1. Special intake manifold for the C. F. R. engine designed to permit a study under controlled conditions of the effects on knocking caused by variations of fuel distribution in the multicylinder engine.

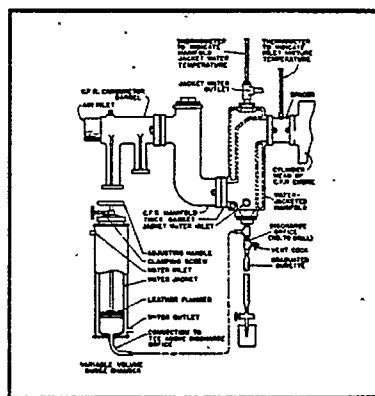


Fig. 2. A second type of special manifold which effects a more complete separation of liquid fuel from the air-fuel mixture than the design in Figure 1, although it does not permit high final mixture temperatures under conditions of partial vaporization.

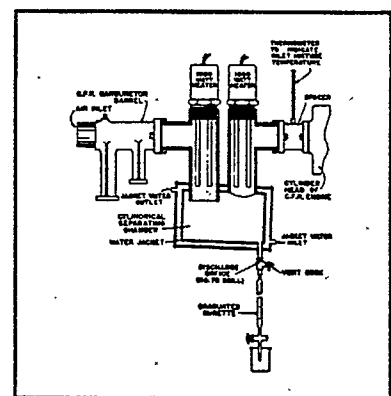


Fig. 3. This third type of manifold permits the use of any final mixture temperature higher than approximately 175 degrees F., effects as good separation of vaporized and liquid fuel as the manifold shown in Figure 2, and requires no surge chamber.

You Can Help the FBI

WE are engaged in a constant war against criminals and every person should be vitally interested in the progress of this war. All of us are potential victims of crime so long as criminals are at large," J. Edgar Hoover, Director of the Federal Bureau of Investigation, United States Department of Justice, related. "Every citizen pays either directly or indirectly for the damages due to the depredations of criminals, and for the cost of their apprehension and conviction. Consequently, looking at this problem, either from the standpoint of the personal safety of ourselves, our families and friends, or from the standpoint of what crime is actually costing the citizens of this Nation, it behooves every organization and individual to assist law enforcement agencies in every way possible."

An Interview with J. Edgar Hoover

by ROBERT W. HOGAN



J. Edgar Hoover, Director of Federal Bureau of Investigation, U. S. Dept. of Justice.

"Crime can be curtailed," asserts Director Hoover, "and concerted effort on the part of the oil and automotive industries can be a tremendous help to us. These two industries, with their service stations, cover the entire country like a huge net — and many nationally known criminals have already been caught through the splendid cooperation of officials and employees of these industries."

The Federal Bureau of Investigation has on record numerous cases where service station attendants have been robbed, beaten, or even shot down in cold blood by fugitives from justice, or by escaped or paroled convicts. Numerous instances are on record where service station attendants have been instrumental in the apprehension of desperate criminals, of which the Lindbergh case is perhaps the best

Though they may not realize it, these men stand in the shadow of the death house as they prepare to carry out their crime.



erts
ef-
to-
en-
lus-
ons,
uge
own
ght
of
in-

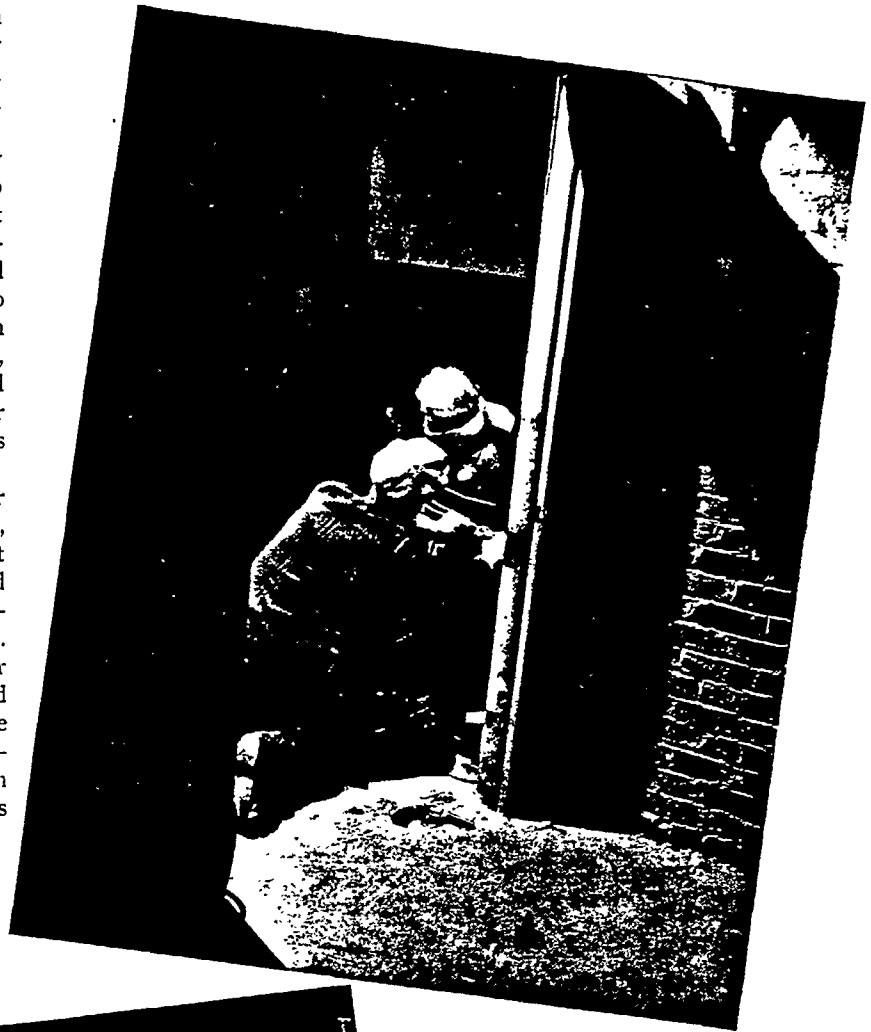
sti-
ous
nd-
or
fu-
ped
in-
vice
tru-
les-
ind-
best

known, where the service station attendants noted the license number of Hauptmann's car, when he paid for services to his car with a gold certificate.

Another case is that of Olin Clay Fogleman and James Napier, two escaped federal prisoners, who shot a service station attendant at Leaksville, North Carolina. The FBI and local authorities hunted these two men over several states. Fogleman was finally captured in Cincinnati, convicted of the murder, charged and electrocuted. Napier was later killed in a gun battle with officers at Whick, Kentucky.

Two criminals, last known under the names of Norris and Cassaday, operated for several years over most of the southern states. They robbed a service station near Moore, Oklahoma, and beat up the attendant. They later abandoned the stolen car in which they were traveling, and the Technical Laboratory of the Federal Bureau of Investigation secured valuable evidence in the form of latent fingerprints on magazines

In his efforts to protect his employers' property the watchman is often a victim of the gangster's gun and murder is added to the crime.



It is sometimes an easy matter to bind and gag the old and trusted employe of the institution which is to fall a prey to the gang.



left in the car. Later, while these men were robbing a service station in North Little Rock, Arkansas, the attendant made it a point to remember their license number. This information led to their arrest and, together with the fingerprint identifications made by the FBI, brought about their conviction on the charge of armed robbery of the service station at Moore, Oklahoma.

Some of the worst crimes are committed by paroled convicts and J. Edgar Hoover briefly outlined one of the many cases of inexcusable abuse of the parole system. A seventeen-year-old boy named Rufe



Technicians analyzing evidence at the laboratory of the F.B.I.

Fingerprint classifier making an identification.



Persful was convicted of murder and robbery of an aged man in Arkansas. Persful was sentenced to fifteen years in the Arkansas State Penitentiary, later became an armed trusty, then soon shot and killed a prisoner whom he claimed was escaping. Less than four years after his original sentence, Persful was paroled, two years later he shot a woman, and two years later he was apprehended and returned to the State Penitentiary as a parole violator. Again he was made a trusty and again he shot a convict alleged to have been escaping. During the same year he was paroled again, convicted of armed robbery, sentenced to five years in the penitentiary, again made a trusty, and again shot four convicts said to be attempting an escape, received his third parole, returned to prison on parole violation, and again became a trusty. During the following year, 1933, Persful killed another prisoner, said to be escaping, and he received another parole in 1934. Later, Persful and two other criminals robbed a store at Paragould, Arkansas, and a service station at Siloam Springs, Arkansas, from



A portion of the fingerprint files section of the Identification Division of the F.B.I. where finger impressions are classified.

which they forced the service station owner and his wife and sister to accompany them over into Oklahoma, where the victims were released. A week later one of Persful's confederates was killed while the three were attempting to rob a service station at Leach, Oklahoma. Three days later, Persful and his remaining companion were captured by the Sheriff of Blytheville, Arkansas, identified by the service station owner at Siloam Springs, convicted for violation of the Federal Kidnaping Statute, and sentenced to twenty and fifteen years respectively, in the Federal Penitentiary at Atlanta, Georgia.

Today practically all criminals use automobiles to travel across the country, and the people who service these cars can assist in their capture and in protecting themselves and others from their further acts of murder, cruelty, and robbery, by the following means:

1—When bills of unusually large denomination are offered in payment, note the number of the bill itself, particularly after a kidnaping or a nearby bank robbery.

2—When you are suspicious of a party, note the nicknames used, if any, in their conversation, because the Federal Bureau of Investigation

Tracer bullets being fired from machine guns on the range in the basement of the Department of Justice Building. Quick gunplay is often demanded of the Bureau's special agents.

maintains a file designated as the "Monicker File," which has been of frequent help in tracing criminals who go by nicknames among their associates.

3—In the event extra license plates, guns, sirens, or special smoke screen attachments are seen in or on a car, this should be reported to the local police.



Exhibit room at the Technical Laboratory of the Bureau in the U. S. Department of Justice.



4—If a car appears to have been in a gun battle, you should pay particular attention so as to be able later to describe the car and its occupants, and notify the nearest law enforcement officer at once.

5—Auto thieves often attempt to pawn accessories such as heaters, radios, and spare tires, at service stations in order to get gasoline. This should usually arouse suspicion.

6—Credit cards are often wrongfully used by persons who have illegally obtained possession of them. Sometimes individuals wearing uniforms and having fictitious credentials impersonate government employees, often giving checks in an amount larger than the cost of service on the car. It is particularly helpful in the investigation of these frauds, if the station attendant can describe the individual passing the checks.

7—In the event service stations are burglarized, special care should be taken not to destroy any latent fingerprints which might have been left by the burglars. This is very important to experienced law enforcement officials and often completes the chain of evidence necessary for ultimate solution of the case and conviction of the criminal.

A Triumph of British Aircraft Construction

GR^{EAT} BRITAIN has again acquired one of the four "absolute" air records — Speed, Distance in a Straight Line, Distance over a Closed Circuit, and Height — by beating the World's Distance in a Straight Line Record on November 5th, 6th and 7th.

Three standard Vickers Wellesley monoplane bombers, modified to carry extra fuel and oil, with single 1,010 h.p. Bristol Pegasus XXII motors, took off from a specially built runway 1,200 yards long and 50 yards wide at the R.A.F. Station, Ismailia, on the Suez Canal at 03.55 hrs. Greenwich Mean Time on November 5th. No. 2 machine landed at Koepang on Timor Island, Netherlands East Indies, early No-

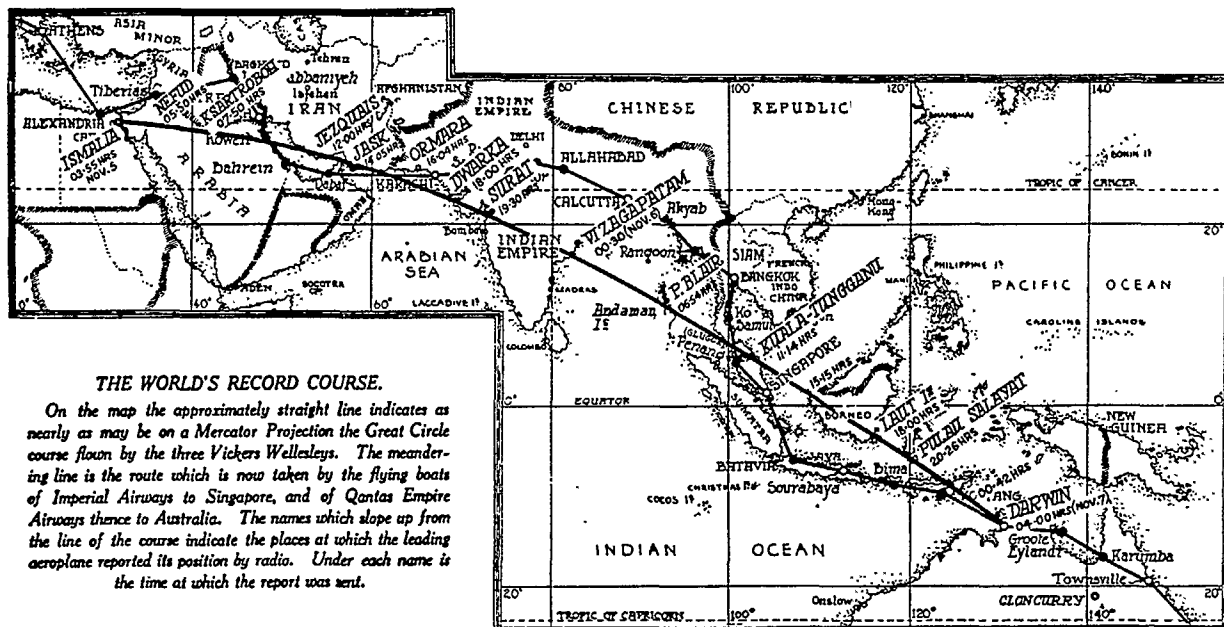
vember 7th, Nos. 1 and 3 landed at Darwin at 04.00 hrs. G.M.T. (about 13.10 hours local time) on November 7th. The distance from Ismailia to Darwin is calculated to be 7,162 miles, which beats the alleged Russian record (Moscow — Rudolf Island — San Francisco) of 6,306 miles by 856 miles, so whether the Russian record was ever made or not no longer matters.

The three planes were high compressioned and used a leaded fuel of 100 octane value. The normal crew of two men for each plane was increased to three and it is felt that no praise can be too high for these nine young men. Sitting for two days and two nights cramped up in an aeroplane, flying for much of the

time over open sea, calls for a large supply of that three-o'clock-in-the-morning courage which Napoleon Bonaparte admired so much. The flyers were, however, relieved of much of the strain of such a long flight by the R.A.E. automatic-pilots which were fitted in each machine. Sperry blind-flying instruments, gyro-horizon and gyro-compass were also used.

This triple beating of the Long Distance Record — the machine which landed at Koepang covered 6,600 miles — is considered "eminently satisfactory" by Great Britain as it will help to recover the prestige of the British Aircraft Industry.

From "The Aeroplane" (British)



"Artificial Heart"

(Continued from page 7)

graduated glass bulbs permit the volumetric measurement of fuel entering the carburetor. An air-conditioning unit maintains carburetor air at constant temperatures and humidity and provides for air measurement by means of a round edge orifice.

The arrangement shown in Figure 2 has been found to effect a more complete separation of liquid fuel from the mixture of air and vaporized fuel. It is impossible, however, to obtain with this manifold a final mixture temperature higher than that of the liquid in the jacket under conditions of partial vaporization of fuel in the manifold.

The manifold shown in Figure 2 permits the use of any desired final

mixture temperatures higher than approximately 200 degrees F., effects as good separation of vaporized and liquid fuel as the manifold shown in Figure 2 and requires no surge chamber.

Another set-up is under study in the laboratories of the Ethyl Gasoline Corporation, who have had this problem of fuel distribution and its effect on anti-knock values under study for years.



Humpty Dumpty.



Old Mother Goose.

Santa Claus Parade Thrills Toronto Youngsters

EAGERLY looked forward to by the younger generation, and by lots of grown-ups, too, the annual parade of Santa Claus officially opened the Christmas season in Toronto on Saturday, November 19th.

Inaugurated many years ago, the first parade was, compared to present-day occasions, a modest affair. It started from the railway station where Santa had arrived by train and the journey was not just the triumphal event anticipated, due to the accuracy of the boys who saw it as an opportunity to prove their skill as snowball throwers.

However, the parade survived the type of reception so often accorded innovations and year by year increased in splendor and appeal and

it now possesses the affectionate regard of the entire population of the city.

Various features of novel interest have been incorporated in this parade from time to time. Now there are bands and clowns, and floats with tableaux groups illustrating well-known nursery rhymes. Children stare in wild-eyed wonder at the spectacle; some of the younger ones may be just a little awed by the proportions their favorite bedtime story character has attained but they get a real thrill out of it.

One year real reindeer accompanied Santa Claus but the uncertainty of snowfall for the occasion makes it necessary to provide wheeled transport. This year, for the first time in its history, the

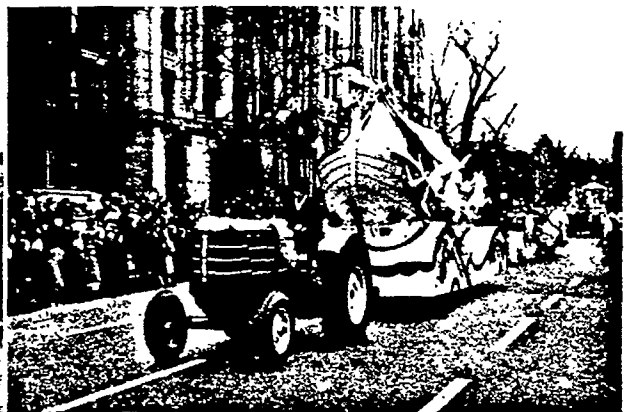
floats were pulled by tractors — Massey-Harris 101 Tractors of which eleven were required.

Perhaps nothing better illustrates the tremendous advance in tractor engineering than the fact that Massey-Harris 101's were desirable for the Santa Claus parade. Their design and striking appearance gave a touch of distinctiveness that was most pleasing. No doubt many of the spectators had never seen a tractor before and therefore could not appreciate the contrast between the tractor of today and that of a few years ago.

Quietly and smoothly the eleven tractors conveyed the Santa Claus parade floats through miles of crowded city streets under the awe-inspired gaze of the thousands of kiddies.



The Candy Cane.

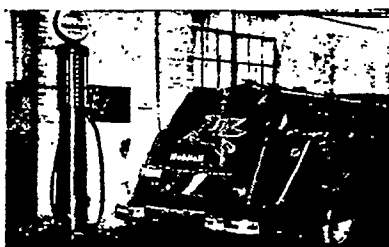
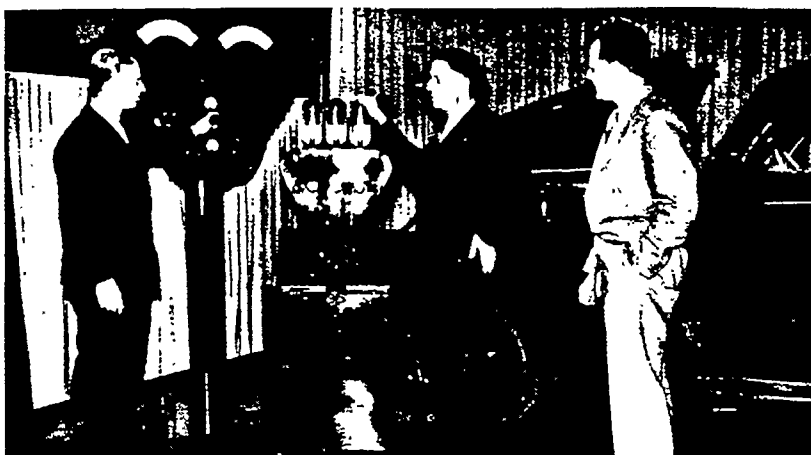


Noah's Ark.

Head of National Auto Dealers Becomes Ethyl-Minded

THE accompanying pictures tell a story of how the President of the National Automobile Dealers Association became an enthusiastic Ethyl booster.

On November 22nd a meeting at the Ethyl Clinic, located in Shreveport, La., was arranged for the Roby Motors Co., Plymouth and DeSoto distributors in that city, of which Mr. J. W. Roby is owner. This gentleman also enjoys the distinction as stated above, of being President of the National Association. Up to the time he visited the



Clinic he had been using a non-leaded gasoline but he became so impressed with the operation of his cars on Ethyl, when tuned for peak performance, that he gave instructions to members of his organization to use Ethyl in all demonstration and used cars.

In addition he went one step

further and had an Ethyl pump installed in his garage as may be seen in the picture shown at lower left. In the vein just above, note Mr. Roby, in center of the group, exhibits very evident interest as Stuart Forbes of the Ethyl Clinic demonstrates the difference between the three grades of gasoline.

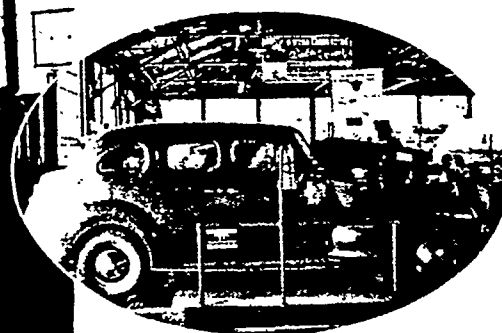
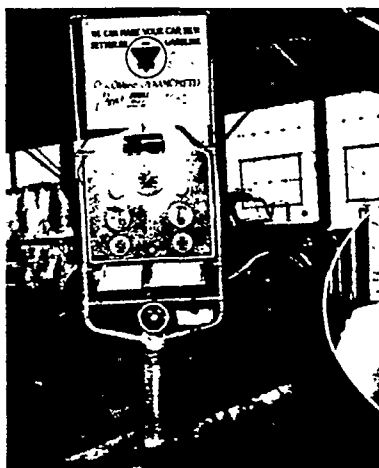
Louisville Tunes Up for Top Performance

EVER since the Louisville Raybestos Company installed its Bendix-Feragen chassis dynamometer Ethyl's Dayton Division engineers have worked closely with this concern acquainting their automotive and petroleum customers with its possibilities. Mr. F. X. Eggenspiller, the proprietor, specializes in all kinds of automotive maintenance and repair using the latest scientific equipment, the most recent addition to which is the dynamometer. As a result of such a program Mr. Eggenspiller's shop is known as Safety Corner.

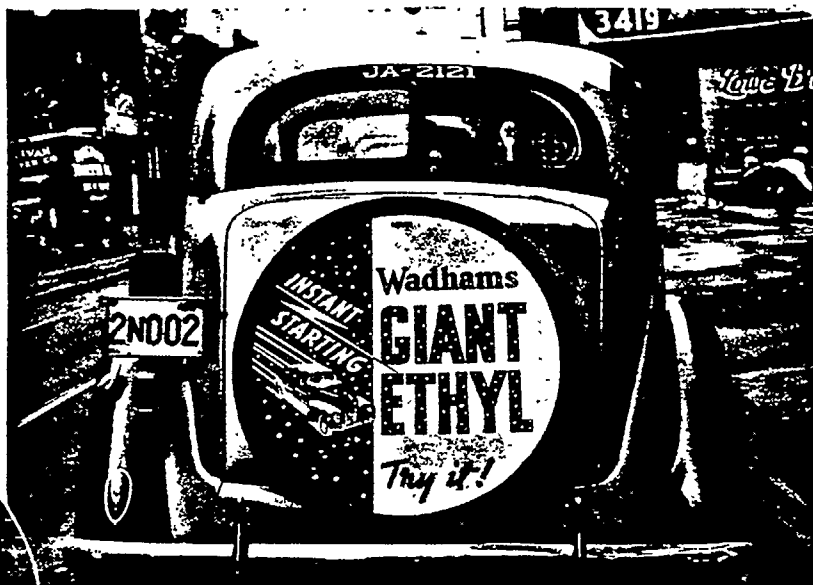
In order to secure the greatest benefit possible from the installation, members of the Division have conducted meetings at Safety Corner, with the cooperation of Mr. Eggenspiller and his staff, for all large oil and automotive companies in Louisville. At each of these meetings the importance of proper motor tune-up was effectively demonstrat-

ed on the dynamometer but to no less degree was the necessity for good fuel illustrated. As a result of this work service stations are recommending tune-up and Ethyl Gasoline with Mr. Eggenspiller getting a large portion of the mechanical work. Evidence of his sincerity and

belief in the program is shown by the fact that he has prominently displayed on his dynamometer an attractive sign headed by an Ethyl insignia telling of the importance of good fuel in proper motor tune-up. Mr. Eggenspiller and his men recommend Ethyl Gasoline because it permits them to tune motors properly for top performance. This is illustrated in the accompanying photograph along with a general view of the installation.



This ad appeared on 350 Checker and Yellow Cabs in the City of Milwaukee to promote the sale of the Wadhams Company's Ethyl Gasoline. It was estimated that the weekly mileage covered by the cabs was about 280,000 as each cab averaged approximately 800 miles per week.

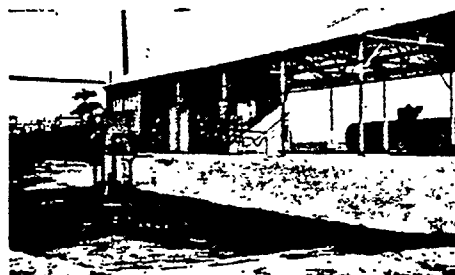


"Ayrbrook Ethyl," a white sow owned by J. E. Nobbs of Ayrbrook Farm, Aldgate (Australia), produced a litter of 25 piglets and thereby created a record, at least for Southern Australia. Some weeks ago when this report reached us twenty of the squealers were still living and doing well. Most of them will be seen in this picture. The mother pig was not christened because of her good performance alone but from the fact that her owner who is the leading caterer in Adelaide has for sometime provided the refreshments at the Ethyl Clinics held there. Mr. Nobbs, aside from conducting a catering business, is one of the most influential and wealthiest business men of the district and controls restaurants and movie theatres. He has become very much interested in the work that the Clinic is doing which accounts for his selection of a name for his prize sow.

TIME MARCHES ON



Old drum blending plant of Standard Oil Company at Charleston, S. C., recently abandoned in favor of a new one.



The new plant, spic and span in every respect, where drums can be handled efficiently and safely.



This Texaco Service Station Inspection Car was tuned for Ethyl and best performance for its tour of Minnesota and Wisconsin at Ethyl's No. 9 Clinic in Minneapolis, Minnesota.

Perfect running condition is necessary for the car's long trip on the inspection of Texaco Dealers' Service Station Rest Rooms as part of a nationwide program being carried on by that Company to assure traveling motorists and their families clean, well equipped rest rooms at all registered dealers.

Following the car check-up, a large group of Texaco dealers and officials from the Minneapolis division attended an exclusive showing at the Clinic.

Historic "Cow Path" in Chicago's Loop

IN 1833, one Willard Jones migrated to that portion of the "Wild West" known as Chicago, and, going to the outskirts of town, purchased for \$200 a plot of ground. This land is now practically the center of Chicago's Loop district. On the property he erected his house and barn and settled down. To insure himself and family of a plentiful supply of fresh dairy products he bought a cow which he pastured at the rear of his property. Daily he drove his "herd" to and from this pasture, going always along the property line, until within a short time he had established a well beaten track.

In 1834, however, neighbors began crowding Mr. Jones and offers came for portions of his property, so he divided it into plots suitable for a family and one by one sold these off. In each case, however, he made a stipulation, which at the time did not seem unreasonable—that he reserved the right, for himself and future owners, to use the cow-path extending to the pasture. This privilege was also granted to all purchasers of individual strips—and to make sure that it would stick, he took the precaution of writing it into the deeds in such a way that it would carry on in perpetuity.

As the city of Chicago began growing around this district, cows became scarce in the neighborhood and later, after the Chicago fire for which Mrs. O'Leary's cow received the blame, the city council passed an ordinance forbidding cows the use of the streets but as right of way for the "cow path" was written into the deeds, it could not be affected by the new decree.

In 1900, the Hamilton Club erected a building on the site of Mr. Jones' holdings, after collecting titles to all of the property involved, but because of the clause in the deed they were obliged to leave the strip occupied by the "cow path" clear. For a time a peanut vendor's stand stood at the entrance to this alley, but any cow which happened along could have forced him to move his

Every so often descendants of Mrs. O'Leary's cow lend color to a celebration commemorating Chicago's old "Cow Path."



place of business.

In 1926 the 100 West Monroe Corporation was formed and took over the property for the purpose of erecting an office building. Going into court on the matter they secured the air rights over the strip of land and in 1928 they erected a 22-story building on the site but were obliged to leave the alley open. The construction of the building, with floors from 2 to 22 over the alley necessitated the use of a cantilever type construction, and it is estimated that this increased the cost of the building by approximately \$200,000. Thus today the path has become a tunnel 10 feet wide by 18 feet high and 177 feet long. It is entered from Monroe Street by swinging doors and leads to the rear of the building where it ends, not in the lush green meadow where Mr. Jones pastured his cows, but against the wall of the Chicago Board of Trade Building which

stands on the site of the old pasture.

There have been, however, only four cows and a calf over this costly "cow path" in more than half a century. In 1932 as a feature of the opening of the livestock exposition, a cow and calf were transported to the downtown area and led down the path much to the delight of spectators, some of whom may never have seen such an animal before. Then again in 1934 three more cows were put through their paces on the concrete in connection with the Brookfield exhibit at the World's Fair.

It may be of interest to note that the areaway occupied by this glorified cow-trail is valued at approximately \$177,000 and the building estimates that the annual loss of rental is in the neighborhood of \$12,500.

In 1937 a bronze plaque was erected over the entrance of the alley to mark the historic spot.

SERVICE AWARDS

	5 Year	10 Year	15 Year
1936	193	39	—
1937	37	18	—
1938	38	21	5

THE FOLLOWING SERVICE AWARDS HAVE BEEN

MADE AS OF JANUARY 1, 1939

TEN YEARS

C. F. GOODWIN.....*Detroit Engineering*
FRANK T. SHARTLE.....*Detroit Engineering*

FIVE YEARS

GERALD FORSDICK.....*General Sales*

NEWSBRIEFS

Eva Leinow, a newcomer to the Stenographic Department, attended Lincoln High School in Los Angeles, American Institute of Banking and Spanish Academy of Language in Los Angeles. Her business experience includes association with Standard Oil Company of California, California Lands, Inc., and California Bank. She recently resigned her position with Standard in order to make New York her permanent home. Eva lives in Brooklyn with her family.



Ralph W. Hutchinson, a newcomer to the Administration Department, is a graduate of Rider College where he was awarded the degree of Bachelor of Accounts. Prior to joining the Ethyl family Ralph was associated with the Chevrolet Motor Division of General Motors in North Tarrytown, N. Y. He is married and lives in Weehawken, N. J. His favorite form of amusement is bowling.



CONGRATULATIONS. Mr. and Mrs. George Rick on the arrival of your first offspring on December 3rd. Little Miss Carla Marie arrived at the Methodist Episcopal Hospital in Brooklyn weighing 5 pounds 5¾ ounces. And we, in the New York office, extend our hearty thanks to you, Poppa Rick, for the swell seegars and generous supply of candy.

Regina D. Gilligan, a recent addition to the Administration Department, will serve in the capacity of Lou Volz's Secretary. Regina graduated from the Mercy Junior College, Brooklyn, Class of 1936 and before coming to Ethyl, was in the insurance business. She lives in Lynbrook, L. I., and her pet form of recreation is swimming.



We welcome to the Manufacturing Department, Joseph H. Fulmer who joined the Corporation in October. Joe graduated from Bucknell University in 1923 with a B.S. degree in chemical engineering. For 8½ years he was in charge of the Pentane Chlorination Department of the Sharples Solvents Corporation at Belle, West Virginia and Wyandotte, Michigan. He has also been associated with the Acheson Colloids Corporation at Port Huron, Michigan.



Joe is married and has no children. He is acting in a technical capacity at the new Ethyl Chloride Plant at Baton Rouge.

The Detroit Chemical Research Department welcomes George William Thomson to its midst. George, a native of Glasgow, Scotland, first became associated with the Ethyl Gasoline Corporation in 1934 when he worked as laboratory assistant while attending Lawrence Institute of Technology. In 1937 he received his B.S.E. in Chemical Engineering and B.S.E. in Mathematics at the University of Michigan which give him a pretty good background for his work in engineering calculations and general research in our Detroit Laboratories. George is unmarried. His favorite form of recreation is hiking, and he is Assistant Leader of one of the Detroit News Hiking Units.



Congratulations and best wishes to Mr. and Mrs. Charles O'Donnell. Mrs. O'Donnell is the former Florence Mistretto of the Administration Department. The wedding took place on Thanksgiving Day at St. Bonaventure's Church in St. Albans, Long Island, and was followed by a reception at the home of the bride's parents, Mr. and Mrs. Frank Mistretto, Jamaica, Long Island. The young couple spent their honeymoon at Buck Hill Falls and are making their home in Sunnyside, Long Island.

From the Tulsa Division comes the following telegram:

"THE STORK WAITS FOR NO MAN, ITINERARY TEMPORARILY CANCELLED"

Upon investigation we find that on November 1st Mr. and Mrs. Lynn M. Phillips were presented with a daughter, Sylvia Anne, who weighed almost nine pounds. Lynn, who joined the company last August is our San Antonio representative. We extend our rather belated, but none the less hearty, congratulations to the proud parents.

A new member of the "Ethyl Infantry" arrived in Kankakee, Illinois, on November 3rd — Master Robert Arthur Roberts. He is the son of Mr. and Mrs. Arthur Roberts and boasts a birthweight of seven and three-quarter pounds. Art, who hails from Denver, Colorado, joined the Chicago Division in May, 1938. He tells us that since Robert Roberts wasn't twins they had to double up on the name in order to "keep up with the Joneses" or perhaps they mean Murphys and Martins. We send our hearty congratulations to Mr. and Mrs. Roberts.

Viola D. Wells, who has been associated with the Accounting Department quite a few months, is an alumna of Ohio State College. She is the widow of the late Russell D. Wells, a former employee of the Corporation. Viola makes her home in New York City.

IN THIS ISSUE

ETHYL GOES ON THE AIR
ARMY TO HOLD SERIES OF MEETINGS
AT ETHYL CLINIC IN WASHINGTON
FOREST GIANT FALLS NEAR ASTORIA,
OREGON
RECORD CROWD VIEWS INTERNATIONAL
PLOWING MATCH
WHY NOT AN "ARTIFICIAL HEART"
FOR CYLINDER STUDY?
YOU CAN HELP THE FBI
A TRIUMPH OF BRITISH AIRCRAFT
CONSTRUCTION

SANTA CLAUS PARADE THRILLS TORONTO
YOUNGSTERS
HEAD OF NATIONAL AUTO DEALERS
BECOMES ETHYL-MINDED
LOUISVILLE TUNES FOR TOP PERFORMANCE
HISTORIC "COW PATH" IN CHICAGO'S
LOOP
SERVICE AWARDS
NEWSBRIEFS



"Reckon I put tew much volatility in thet batch!"

THERE'S nothing as dramatic as an exploding moonshine still to tell you that the gasoline you use in your trucks or buses is too volatile or not volatile enough. There is plenty of practical evidence in the way those trucks and buses run.

When gasoline does not have enough volatile fractions, or light ends, it shows up in slow starting and repeated choking, resulting in crankcase oil dilution and poor mileage. The superabundance of heavy ends in such gasoline also contributes to

fuming and obnoxious exhaust odors.

When gasoline has too many highly volatile fractions, it causes vapor lock and poor mileage, the latter due to excessive evaporation from gas tank and carburetor vents.

How can you be sure of avoiding both these extremes? By buying gasoline with balanced volatility—enough light ends or fractions for quick, easy starting, and enough medium and heavy ends to supply the power for sustained economical operation. The best way to be sure of

getting this kind of gasoline is to buy from a reputable oil refiner or marketer. When you do, you'll usually find other advantages in the same gasoline—correct vapor pressure, low gum content and high anti-knock value.

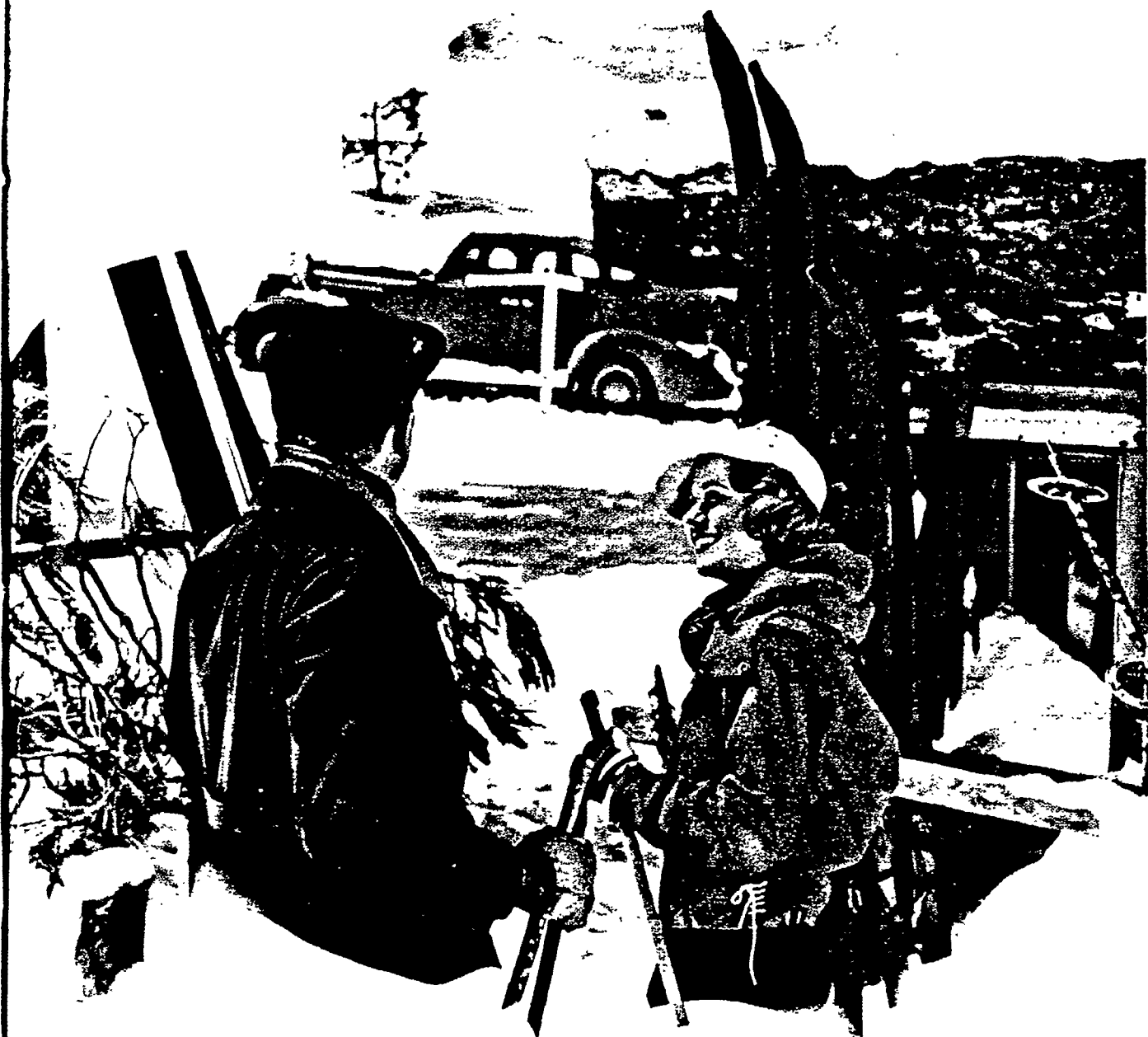
If you have any questions on bus or truck fuels and their specifications or characteristics, write or get in touch with the Ethyl Gasoline Corporation, Chrysler Building, New York, N. Y., manufacturers of anti-knock fluids used by oil companies to improve gasolines.

4 RULES FOR GOOD GASOLINE				
	VOLATILITY should be balanced, for full power and best economy.	VAPOR PRESSURE should be adjusted to meet operating conditions.	GUM CONTENT should not exceed $\frac{1}{4}$ of a gram (4 small drops) per gallon.	ANTI-KNOCK VALUE should be high, of at least 68 octane number.

THE BETTER THE GASOLINE THE BETTER THE PERFORMANCE

ETC 22337

uy
ar-
lly
me
ow
ue.
ous
ns
in
or-
ew
.ti-
ies



FEBRUARY 1939



ETC 22338

PRAISE



Praise is a funny thing. Very few receive it, very few give it, yet all of us are looking for it and expecting it. Remember when you first went to school, how the teacher occasionally patted you on the back and told you how well you were doing? Made you feel real good and you worked diligently and were sorta looking for another little pat. When you were further along in school you did your best but the pats on the back were scarce and you wondered if your effort really paid. No one said so. Then you tried harder and worked and worked, but thoughts of praise seldom materialized. You wondered if your effort was worthwhile.

Today, when some one from the office dies you make a contribution for flowers. Everyone makes highly complimentary remarks about the individual who has dropped out of the daily routine. The words of praise are as dead as the individual. They are words that should have been spoken months before in his presence. Those words of praise would have meant more to that individual than to anyone else and they were his due.

Conscientious effort is always worth a word of commendation. There is no better tonic to stimulate one's energy. Let each one of us be a bit more generous with a word of praise and pat a fellow on the back for a deed well done.

"Fisher Plant Life"

Outlook for Automobile Trade Much Better—Large Gain in Sales Seen



ETHYL GASOLINE CORPORATION
CHRYSLER BUILDING
NEW YORK CITY

W. CARY HARRIS
Editor

RUSSELL B. WESTON
NORTHROP CLAREY, JR.
Associate Editors

Correspondents

J. A. COSTELLO.....Atlanta
F. S. CRONIN.....Baltimore
D. S. FLYNN.....Boston
A. B. WYRICK.....Chicago
R. R. FALLER.....Dayton
H. L. NIXON.....Kansas City
CARL ABELL.....Los Angeles
R. L. GOLTZ.....New York
J. N. FITZGERALD.....Toronto
H. C. DEES.....Tulsa
R. K. SCALES.....Engineering Dept.
ARTHUR P. STOVER.....Mfg. Dept.
J. C. POPE.....Gasoline Testing Dept.
E. J. NIESER.....Administration Dept.
HUBERT FOSSETT.....London

THE MATERIAL IN THIS PUBLICATION
MAY BE REPRINTED PROVIDED DUE
CREDIT IS GIVEN THE "ETHYL NEWS"
OR ETHYL GASOLINE CORPORATION
UNLESS IT IS A COPYRIGHTED ARTICLE.

VOL. 6, No. 2

THE automobile industry passed out of 1938 with no regrets—a year recording a 47 per cent decline in production—but looks to 1939 to regain at least 25 to 30 per cent of its losses. The 1938 production of some 2,635,000 units was the poorest showing since 1933, when output dropped to 1,985,000 although even this was a gain from the bottom level of 1,434,000 in 1932.

It was not until the latter part of 1938 when new models were introduced, that real improvement in the automobile market developed. At this time, however, production rose to better than 1,000,000 units in the last quarter, against only 1,650,000 in the preceding nine months. This upward trend in sales and production continued through December and gives promise of real firmness during the winter and a revival of buying in the spring.

Summarizing results during the past year and prospects for 1939, Alfred Reeves, Vice President and General Manager of Automobile Manufacturers Assn., states:

"A rapid rise in automobile buying during the late Fall forecasts an output of 3,500,000 cars and trucks during 1939, automobile manufacturers believe, unless there should be reversal of the current trends of business generally. This would represent an advance of one-third over the year just closing.

"Immediate public acceptance of new models at the Fall shows stimulated production and sale of nearly 1,000,000 units in the United States and Canada, during the last three months, which comprised the first quarter of the new manufacturing year.

"This represents an increase of 194 per cent from the quarter preceding and it is within 7 per cent of the final quarter in the calendar year of 1937, that having been the second highest year in automobile history.

"The Automobile Manufacturers Association estimates the wholesale valuation of the 1938 output at \$1,616,000,000. This includes 2,110,000 passenger cars, valued at \$1,283,000,000 and 525,000 trucks at a wholesale value of \$333,000,000.

"Parts, accessories, service equipment and replacements of parts and tires were manufactured to the estimated value of \$980,000,000 during the year. Thus the total value of new vehicles, tributary products and manufactured replacements for the year 1938 amounted to \$2,596,000,000. This was nearly 41 per cent below the corresponding figures for 1937.

(Continued on page 5)

IN THIS ISSUE

OUTLOOK FOR AUTOMOBILE TRADE
MUCH BETTER — LARGE GAIN IN
SALES SEEN

NEW YORK CITY AND WORLD'S FAIR
PREPARE FOR MILLIONS

PETROLEUM INDUSTRY EXHIBITION'S
DIRECTORS VIEW FAIR PROGRESS

MAKE WAY FOR OLD DOBBIN

S. O. SALES PROGRAM IN NORTH
CAROLINA NETS GAIN

ETHYL ENTERTAINS WESTERN PENN-
SYLVANIA REFINERS

"TUNE-UP TIME" OFF TO A FLYING
START

FABRIC FUEL TANK DEVELOPED FOR
AIRCRAFT

NEBRASKA CAPITAL CITY WELCOMES
ETHYL MOTOR CLINIC

YOU MAY HAVE A "SICK" CYLINDER
IN YOUR CAR

OIL COMPANY EXECUTIVES MEET AT
CLINIC PREVIEW IN NEW ORLEANS

PERSONNEL CHANGES IN GASOLINE
TESTING DEPARTMENT

NEWSBRIEFS

INDEX TO "ETHYL NEWS" 1938

SERVICE AWARDS

ETC 22340

New York City and World's Fair Prepare for Millions

AS RECENTLY reported by President Grover A. Whalen of the Fair Corporation, less than 10% of the New York World's Fair 1939 remains to be built.

With some 10 weeks still to go before the opening on April 30th, the \$155,000,000 exposition is still ahead of schedule, Mr. Whalen declared.

"This harbinger of 'peace and progress in the World of Tomorrow,'" he said, "will open on the 150th anniversary of George Washington's inauguration on the bal-

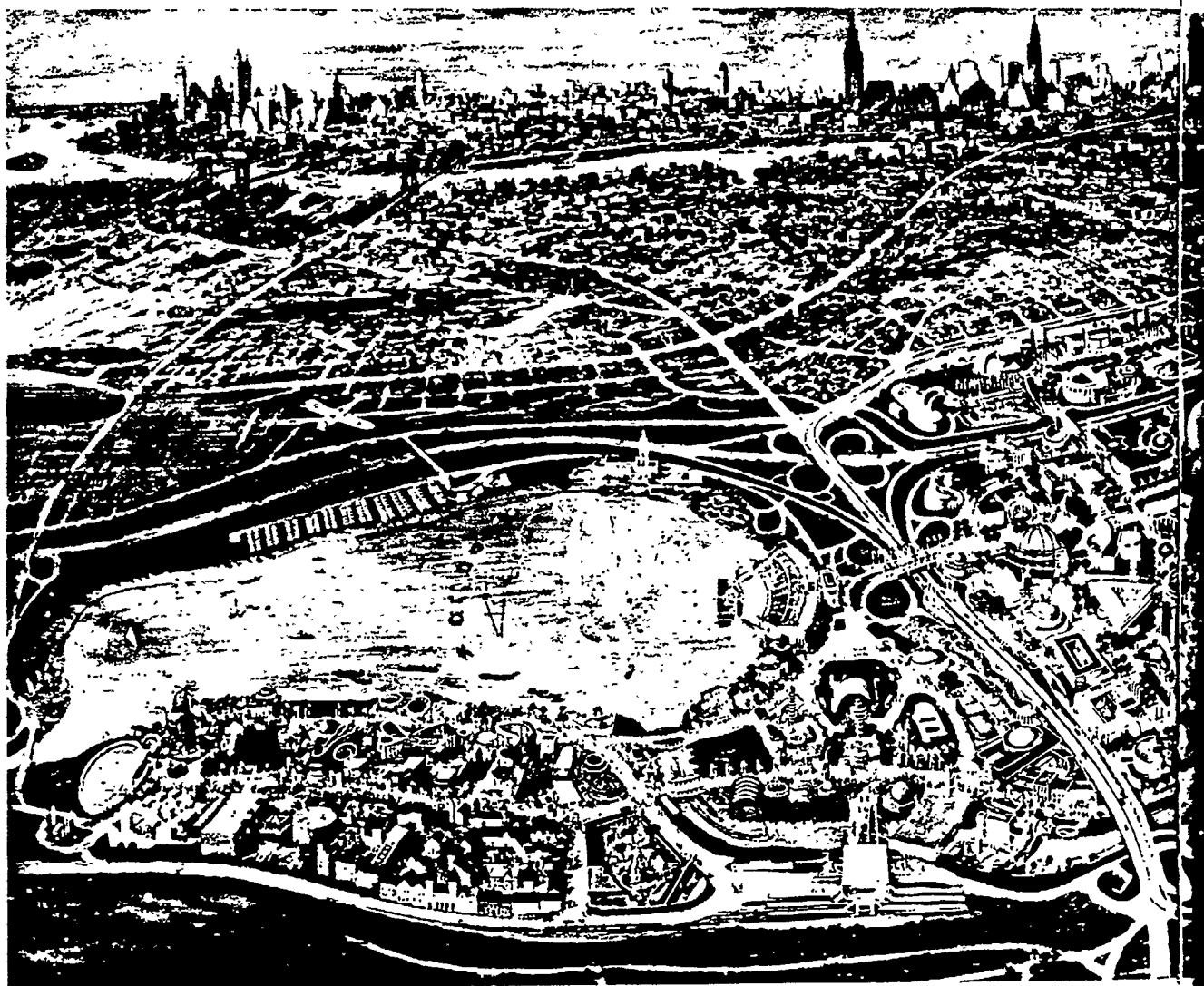
cony of Federal Hall at Broad and Wall Streets in New York."

With work on the 1,216½ acre Fair grounds 90% completed, the Fair Corporation itself has virtually wound up its construction program and is now in the "clean up and polish" stage. Exhibit buildings have been embellished with murals, statuary and all the colors of the rainbow; startling lighting effects have been realized; 10,000 trees and 2,000,000 other plants are in the ground, and the famed Trylon and Perisphere have shed their scaffold-

ing and are being prepared within for the dramatic theme exhibit of "Democracy."

On avenues radiating from this theme center some 1,400 leading industrial, commercial and professional organizations are setting up their exhibits—exhibits which in their entirety and aside from their educational aspects, promise to rival the Amusement Area as entertainment attractions.

Novel exhibits in course of preparation include: a working model of a rocket gun, the largest model



railroad ever built; puppet manufacture of automobiles; a block-long diorama of New York; a half-mile auto ride—in a building; creation of artificial lighting; animated characters from "Alice in Wonderland"; a full-scale street intersection of the World of Tomorrow, and a perfume fountain.

In the Government Zone sixty-three nations, including the United States, are seeking to outdistance each other in speed of construction and in lavish outpourings of millions of dollars for displays. "Around the world in 80 minutes" promises to be the slogan of this 100-acre zone, while a further trip around this country will be provided by exhibits of 34 states concentrated

for the most part in the Court of States.

The 280-acre Amusement area has begun to mushroom up, with twenty-five concessions already burgeoning in steel, timber, lath and plaster and fifty others about to be launched. Here is to be found a 250-foot Parachute Jump, rides of every known variety, novel shows and walk-thrus, cabarets and night clubs, spectacles and a dozen villages ranging from a Children's World to Merrie England.

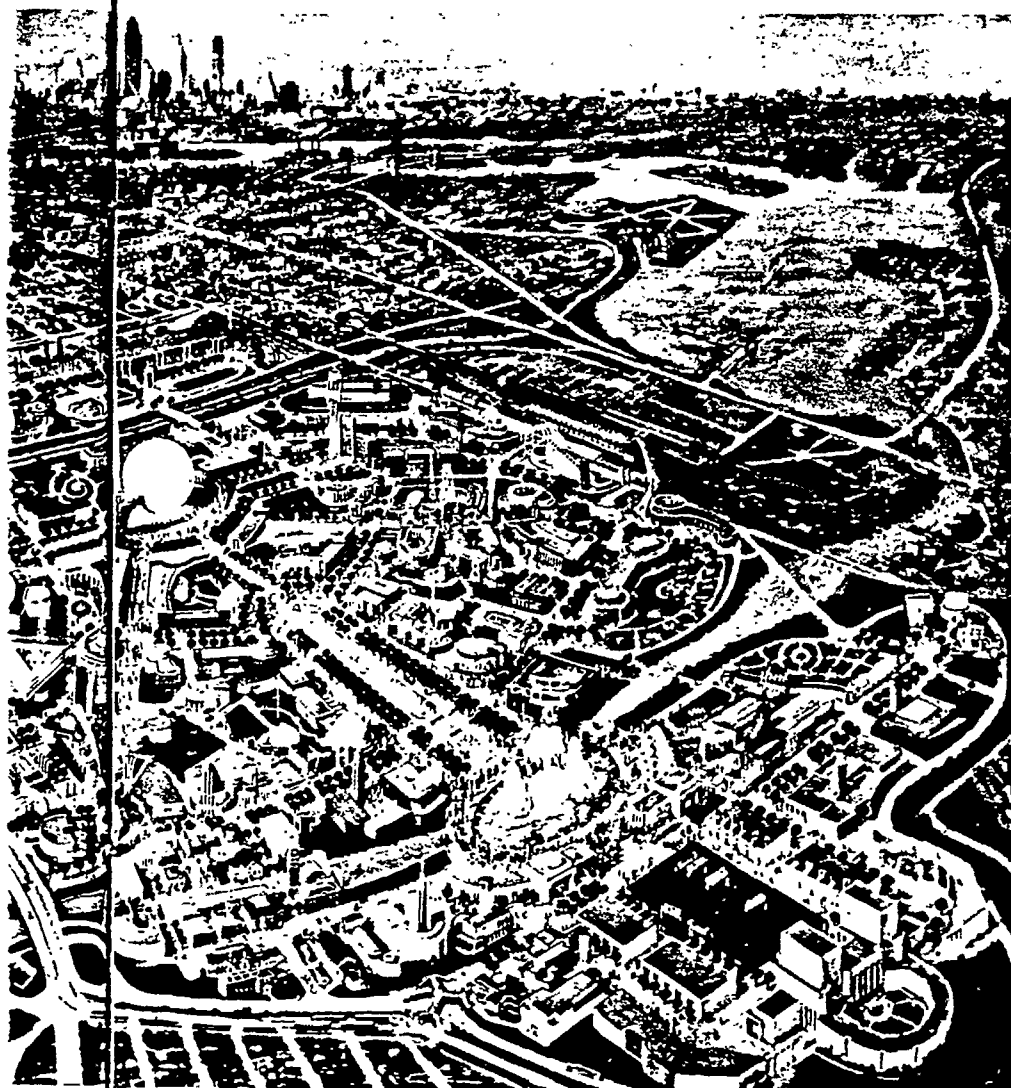
Operating staffs are already preparing for a million visitors on opening day and averages of 300,000 daily thereafter. Outside surveys indicate the Fair is too conservative in estimating total attendance at

only 60,000,000.

The accompanying illustration is the first official painting of the Fair as it will appear at the opening. Beyond the colorful structures of this "metropolis of a New Day" rise the slender spires of the host city, New York. From the Executive offices of the Ethyl Gasoline Corporation in the tower of the Chrysler Building (top center), the Fair grounds are clearly visible.

The picture shows the major arterial, subway, railroad and other lines which tie the Fair to the mainland. At the extreme upper right is the Whitestone Bridge route from New England to Canada; next in order come the Flushing Bay boat piers, North Beach Airport and Grand Central Parkway Extension to the Triborough Bridge. Paralleling this side of the grounds are the tracks of the Long Island Railroad and the I.R.T. - B.M.T. subways, while the Fair station of the Independent Subway may be seen at bottom center just left of World's Fair Boulevard, which bisects grounds and connects directly with the Queensborough Bridge. Other main arteries lead to Williamsburg, Manhattan and Brooklyn Bridges.

The Main Exhibit Area of the Fair lies north of World's Fair Boulevard with buildings and displays of 1,400 exhibitors on tree-shaded avenues radiating in rainbow colors from the pure white Perisphere and Trylon. Extending diagonally to the lower right from this Theme Center is the richly embellished Constitution Mall leading to the fountain-studded Lagoon of Nations and Government Zone where the twin-towered Federal Building and exhibits of 62 nations center on the 7-acre Court of Peace. Between the Lagoon and Boulevard rises the 12-acre Court of States group, housing displays of most of the 35 exhibiting commonwealths. South of the Boulevard lies the Amusement Area, its quaint villages, gay restaurants, thrilling rides and shows fronting on Fountain Lake, the scene of nightly fire and water shows.



Petroleum Industry Exhibition's Directors View Fair Progress

PRECEDING the semi-annual meeting of the Board of Directors of the Petroleum Industry Exhibition, Inc., on December 12th, fifty-eight executives of the oil industry made a tour of inspection of the New York World's Fair grounds.

Included in the party were the Petroleum Industry Exhibition's fifteen directors, as well as sales managers, advertising managers and sales promotion executives of the fifteen companies sponsoring the petroleum industry's exhibit at the World's Fair. The tour included a bus trip through the grounds and a closer inspection of the giant, triangular petroleum building in the "Blue Section" of the Fair. Inside the partially completed building an explanation was given of the final form it is to take, after which the oil men went up to the roof for a long-range view of the grounds.

At the luncheon preceding the board meeting, Grover Whalen, president of the World's Fair, spoke of the high motives which had actuated the industry in all its Fair activities, pointing out that the interests of the industry as a whole, not of individual companies, had always been placed first. He predicted outstanding success for the

efforts which the petroleum industry is putting forth and for the entire Fair. Construction activities, he said, were ahead of schedule, and such great interest in the Fair has been aroused that the original estimate of an expected attendance of 50,000,000 has now been raised to 65,000,000.

T. H. Taylor, of Standard Oil of New Jersey, president of the Petroleum Industry Exhibition Corporation, was chairman of the meeting. He outlined the origin of the petroleum project and introduced a number of the persons now responsible for carrying it out, including S. F. Voorhees, chairman of the Board of Design of the New York World's Fair and senior member of Voorhees, Gmelin & Walker, architects of the Petroleum Building.

The extensive program for publicizing the Petroleum Industry Exhibition was sketched in a number of talks and illustrations were given of the considerable volume of publicity already received. Particular interest has been aroused by a full-page picture spread in the Sunday Rotogravure Section of the New York *Herald-Tribune*. Three of the murals to be hung in the Petroleum Building have been completed and work on the fourth is under way.

Joseph Losey, director of the technicolor sound film being made for the petroleum exhibit, reported that work was progressing favorably. He expressed the opinion that the story, color, music and novelty of this unique puppet film were such as to assure its enthusiastic reception in commercial theatres throughout the country, should it be decided to distribute it generally after the closing of the Fair.

Petroleum Industry Exhibition directors present at the meeting were: T. H. Taylor, Assistant to President, Standard Oil Co. of New Jersey, D. T. Pierce, Sinclair Refining Company, and E. E. Puryear, The Texas Co., of the exhibition corporation's executive committee; H. D. Frueauff, Cities Service Oil Co.; B. B. Jennings, The Socony-Vacuum Oil Co., Inc.; R. R. Griffin, Shell Union Oil Corp.; C. H. Hathaway, Gulf Oil Corp.; W. C. Burns, The Richfield Oil Corp. of N. Y.; R. E. Wilson, The American Oil Co.; W. C. Pew, Sun Oil Co.; H. B. Stone, The Atlantic Refining Co.; J. Coard Taylor, Ethyl Gasoline Corp.; L. S. Westcoat, The Pure Oil Co.; S. W. Candee, Tide Water Associated Oil Co.; and K. S. Adams, Phillips Petroleum Co.



Grover Whalen, President of the New York World's Fair Corporation, addresses the semi-annual luncheon meeting of the members of the Petroleum Industry Exhibition Board of Directors held at the Terrace Club. Vice Pres. J. Coard Taylor, of the Ethyl Gasoline Corp., is seated second from left at speakers' table.

Make Way for Old Dobbin

SASKATCHEWAN snowmobiles as a "menace" to the horse-drawn vehicles of rural residents came in for considerable discussion at a session of the rural municipality convention in Regina recently.

"The snowmobile is a great thing for getting around in during winter months—but when it begins forcing horse-drawn vehicles from rural roads, it is high time regulations be enforced to protect old Dobbin," delegates decided. They therefore passed a resolution asking the Saskatchewan Government to pass legislation to safeguard the horse-drawn vehicle from the menace. What next?

Meanwhile the factory of R. J. Fudge in Moosomin, Saskatchewan, now in its seventh year, continues to supply the ever-increasing market for their Snow-sedan. This vehicle, although not uncommon in the Dominion, is rather a rarity

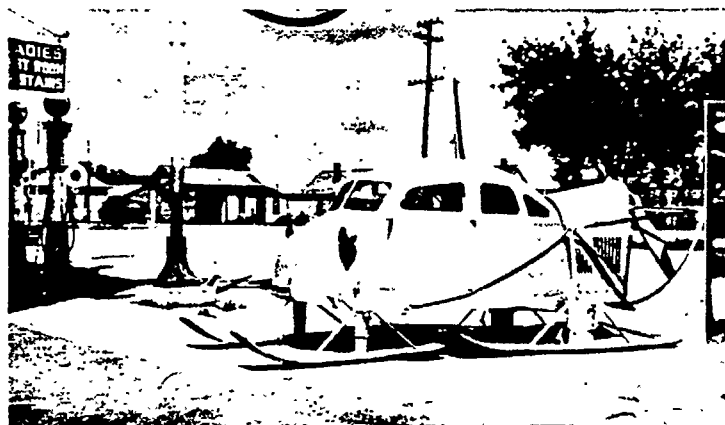
in the States. The current model is a remarkable improvement over the machines of previous years, the body being completely streamlined, equipped with two doors and so arranged that one has vision practically on all sides. Four runners are used, the distance between being the width of sleigh tracks and fuel consumption is reduced varying from 10 to 15 miles per gallon according to the surface traveled over. The runners are made of hickory, shod with steel and attached in a manner which prevents side-sway. These machines operate without difficulty under almost any conditions.

Speed will, of course, vary according to tractability. With soft, heavy snow and having to make a new track, 25 m.p.h. with open throttle is the limit but with a good, hard sleigh track 40 to 50 m.p.h. is a comfortable speed. The pitch of the propeller is something to

which a great deal of time and study has been given and great improvements have been made in those installed on the latest models. It is the manufacturer's own design and in the event that an owner has the misfortune to break one he may have a new one shipped from stock at short notice as all propellers are interchangeable.

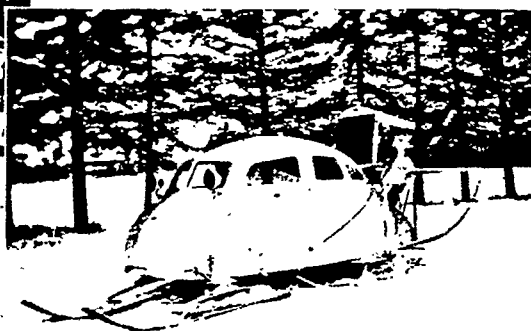
The snow-sedan has seating capacity for four. The steering is on the same principle as an automobile and the brake is operated by the foot controlled steel prongs which dig into the snow. It is equipped with both hand and foot accelerator, head light, green and red lights on propeller guard and the weight is approximately 800 pounds.

These jobs are powered with a Ford motor and therefore require a lead treated gasoline. They can operate on a leaded regular but for best performance require Ethyl.



Somewhat out of its element, the Snowmobile poses for its picture with a late model streamlined hood.

Outside, the propeller stirs up a wind of 50 miles per hour—but inside the streamlined cab it's warm and cozy.



Outlook for Automobile Trade Much Better—Large Gain in Sales Seen

(Continued from page 1)

"Foreign trade constitutes a substantial proportion of the market for American cars and trucks. In

the year just closed it accounted for the extraordinarily high proportion of almost one vehicle in every five being sold outside the United States.

"The 492,000 motor vehicles sold abroad during the year, together with parts and tires exported from the United States and Canada, were valued at \$286,340,000.

"Highway travel and transporta-

tion of goods continue to increase in all parts of the world. World registrations of motor vehicles now number 42,900,000, according to the latest estimate of which 68 per cent, or 29,400,000 vehicles are registered within the confines of the United States. Of the latter total, 25,150,000 are passenger cars and 4,250,000 commercial vehicles.

—From Oil Marketer

FEBRUARY, 1939

Page five

ETC 22344

S. O. Sales Program in North Carolina Nets Gain

BACK in September of 1938, the Standard Oil Co. of N. J., North Carolina Division, decided on a sales campaign for the purpose of increasing their Esso gallonage during the balance of the year. Accordingly, a meeting was held for all the North Carolina officials at which Esso sales promotion ideas and suggestions were discussed. The outcome of this meeting resulted in a campaign to be carried out over the entire state beginning October 1st and lasting throughout the month of December. The main feature of this program was the offering of prizes to all Esso dealers in North Carolina who increased their gallonage for the combined months of October, November and December over the same period of 1937, by 100% or more. In this way every dealer was in a position to win a prize, since he was not competing with other Esso dealers but was endeavoring to better his own record of a year ago. In addition to this prize competition

a series of large sales meetings, twenty in all, were held throughout the state, each meeting being climaxed by a dinner. At these gatherings Ethyl's two moving pictures, "All the Answers" and "A Better Run for Your Money" were shown coupled with a talk delivered by Mr. R. T. Hammett, Standard Oil's merchandising manager for North Carolina. In his talk Mr. Hammett discussed the technical qualities of Esso and methods of increasing sales of the product. Practically every key dealer in North Carolina was present and enthusiasm ran high. Needless to say, much valuable information was gained by all.

The Standard Oil Company, however, did not stop here but in addition, designed and delivered approximately five hundred Esso window displays which were carried in station windows for a period of two months or more.

At the conclusion of the campaign, many prizes were earned by dealers all over the state. Each station had

been advised in September what gallonage it must sell in order to be eligible for a prize. Although in a number of instances the full 100% increase was not obtained, in every case a substantial increase was shown.

All dealer stations, excluding company owned stations, showed an increase for the period of 59%, and even more gratifying was the fact that approximately 100 that did not handle Esso prior to October are now doing so.

At the beginning of the campaign it was decided by the North Carolina officials to put all of their company owned passenger car equipment and their late model trucks on Esso. On top of this, every employee was quite strongly urged to use Esso in his personal car.

Since the results were so satisfactory, Standard will continue this sales promotion work through 1939 in one way or another in their efforts to double the 1937 Esso sales.



The photograph above shows the very elaborate display which was set up especially for the Champion Spark Plug Company meeting, during showing of the Ethyl Motor Clinic in Cincinnati, Ohio. This exhibit was approximately 23 feet long and incorporated the complete ceramic story of a spark plug insulator to-

gether with innumerable cut-away models clearly showing the component parts of a Champion plug and illustrating just what is meant by "hot" and "cold" plugs. The display attracted a great deal of attention and greatly facilitated the answering of questions which were asked by individuals from the audience.

Ethyl Entertains Western Pennsylvania Refiners

THIS year we were very fortunate in being able to arrange our annual Western Pennsylvania Refiners' Dinner in combination with a Preview Clinic Meeting at Clinic No. 4 which had just opened in Oil City, Pennsylvania. The meeting and dinner, held on Thursday, January 5th, was attended by a very representative group of our customer company executives from Bradford to Butler, Pennsylvania.

The Clinic meeting preceded the dinner. R. C. Murphy, Ethyl's New York Division Manager, welcomed our guests after which M. P. Murdock, Clinic Manager, presented the program.

During the dinner, held at the Wanango Country Club, H. W. Kaley and Paul McElroy, our Sales and Advertising Managers respectively, spoke about our plans for this year. We also presented our films "Guilty or Not Guilty" and "All the Answers."

These annual meetings for our Western Pennsylvania Refining customers seem to be increasing in popularity as is evidenced by the

following attendance list totaling 42 people:

Continental Refining Co.: Messrs. W. J. Anderton, Receiver & Gen'l Mgr.; C. H. Thomas, Sales Mgr.; I. L. Klein, Ref. Supt. *Kendall Refining Co.:* Messrs. W. T. Moffat, Adv. Mgr.; R. B. Keck, Gasoline Sales Mgr.; E. E. Bown, Ref. Supt. *Pennsylvania Oil Products Refining Co.:* Messrs. M. F. Cowden, Pres.; H. S. Hayden, Sales Mgr.; G. E. Cowden, Vice Pres. *Pennsylvania Refining Co.:* Messrs. John A. Beck, Pres.; Paul R. Beck, Secretary & Treasurer; A. C. Moser, Ref. Supt.; W. Kennedy; C. A. Sherwin, Chief Chemist.

Pennzoil Co.: Messrs. C. L. Suhr, Chairman of Board; W. S. Zehrung, Pres.; D. S. Grant, Asst. to Pres.; R. A. Browne, Secy. & Sales Mgr.; M. A. Brewster, V. P. & Treas.; W. R. Birkmayr, Mgr. Gasoline Sales; E. E. Bellan, Asst. Mgr. Gasoline Sales; D. J. Harvey, Ref. Supt. *Quaker State Oil Refining Corp.:* Messrs. S. Messer, V. P.; L. J. Forker, Purchasing Agent. *Sterling Oil Div. of Quaker State:* Messrs. G. B. Hunter, Gen'l Mgr.;

R. S. Newton, Sales Mgr.; A. L. Weller, Asst. Sales Mgr.; A. H. Shorts, Sales Promotion; N. R. Watts, Merchandising; E. E. Ebner, Charge of Refineries.

James B. Berry Sons Co.: Messrs. H. E. Shoemaker, Ref. Supt.; Paul Beary, Asst. Ref. Supt. *Bradford Pennsylvania Refining Corp.:* Mr. A. D. David, Gen'l Mgr.; *United Refining Co.* Messrs. H. A. Schmidt, Secy.; MacLean Houston, Gen'l Supt. Ref.; H. D. Hubbs, Sales Mgr. *Wolverine Empire Refining Co.:* Messrs. W. J. Daily, Sales Mgr.; A. L. Larkin, Sales Mgr. *Franklin Creek Refining Corp.:* Messrs. C. F. Felton, Sales Mgr.; C. H. Alsberg, Ref. Supt. *Pennsylvania Grade Crude Oil Assn.:* Mr. W. W. Dunlop. *Oil City Derrick:* Mr. John O'Donnell, Jr.

In addition to those already mentioned, the following Ethyl representatives were present: Messrs. Gelston Howell, Western Pennsylvania Representative; H. R. Ten Eyck, Western New York State Representative; J. S. Krick, Safety Engineer; W. G. Ball, Jr., Clinic Automotive Engineer.



Some of the Refinery Executives who attended the meeting inspecting clinic equipment. A number may be identified from the attendance list.

Photo courtesy "Oil City Derrick"

ONE THOUSAND people sat hushed. It was fifteen seconds before 10 p.m., January 12th, in Columbia Broadcasting's Studio No. One. A light blinked; a hand in the control room waved; Andre Kostelanetz snapped his baton—and "Tune-Up Time" went on the air from 63 stations, coast to coast.

This new radio show sponsored by Ethyl is assured a spot among "big" shows of the air, as it brings

together Walter O'Keefe as master of ceremonies, Andre Kostelanetz with his renowned 45-piece orchestra, and Kay Thompson with her 12 Rhythm Singers, plus a famous guest star each week. Lily Pons, Metropolitan Opera soprano and the wife of maestro Kostelanetz, sang three numbers as the first guest artist. Dick Powell and Joan Blondell co-starred on the second program, with Lupe Velez and Edward Everett Horton the following

Life of the party—Maestro Kostelanetz, Paul McElroy and the petite Miss Pons chuckle at Walter O'Keefe's remark to the photographer. Kay Thompson, Coard Taylor and Harry Kaley join in the fun.



Geraldine Farrar, distinguished Metropolitan Opera star, joins Mr. and Mrs. Kostelanetz with Walter O'Keefe.

"Tune-Up Time" of Distinguished Guest Artists and Rec

week. Douglas Fairbanks, Jr., joined the fourth show.

"Tune-Up Time" is unique as a commercial program in that it is designed to do more than sell a product. Rendering a service to the automotive and oil industries, the show attempts basically to "sell" the motoring public one great idea—the fundamental truth that high grade gasoline and periodic engine tune-up by an auto service expert are essential to best motor performance. The obvious benefits of this program to the gasoline business in general have brought out an amazing spirit of voluntary cooperation. Already fifteen of Ethyl's client



"And so until next Thursday night . . ." The studio clock reads 10:45 as Dan Seymour (at extreme right) reads his closing commercial to the microphone. Lily Pons, in white, and husband Andre Kostelanetz, who bends over her, return the clasped hand salute of Walter O'Keefe as he dodges between music rack and cello to whisper.

ne" Off to a Flying Start

Guests Attend Ethyl Premiere and Reception

companies have given their support in bulletins or company magazines, while several have prepared mailing pieces and other promotional material urging employees and customers to listen in. One oil company even requested a number of the "tune in" stickers to use on out-going mail.

To accommodate the huge cast of performers, the stage in the broadcasting theatre had to be extended over the first three rows of seats. The premiere audience was highly enthusiastic, applause and laughter threatening several times to run the show over its time limit. Before the opening broadcast 900

people outside of the organization had written in for tickets. Requests still pour in at the rate of 50 to 75 a day.

After the first show, a reception for the artists of the program was held in the South Garden on the roof of the Astor hotel. Over two hundred people attended, including an impressive group of Metropolitan Opera stars and luminaries of the concert world, as well as radio

editors of New York newspapers and syndicated features, the editors of oil, automotive and radio trade journals, and a number of Ethyl and BBDO executives with their wives. So many persons distinguished in society and music were at the premiere broadcast that a society-page columnist wrote the following day: "Everything but Andre's baton was wrapped in mink!"

Edward G. Robinson takes someone for a "ride" off the screen. "Kosty" gets a good-natured ribbing from his friends, the witty master of ceremonies and the menacing Little Caesar who was a guest at the "after the show" reception.



"The (at ex- l to the husband turn the as he whisper,

"Nice work, Andre." Taken from a box overlooking the enlarged stage, this picture reveals the typical informality of a studio broadcast. Kay Thompson's charming young Rhythm Singers are just filing in at the left, under the first box, for their share of the enthusiastic applause of the studio audience.



Valentine Parera (husband of Grace Moore) arrives at the broadcast just in time. Laughing, he said to the caddy: "Here's an extra quarter. Next time get Ethyl!"

FEBRUARY, 1939

Page nine

ETC 22348

Fabric Fuel Tank Developed for Aircraft

A SCIENTIFIC instrument of torture which vibrates airplane gasoline tanks more constantly and destructively than actual flying, and finally a tank made of light-weight, treated fabric which remains leak-proof, after 700 hours of grueling vibration tests, is the story of the "Mareng Fuel Cell," latest contribution of the engineers of the Glenn L. Martin Company, to increase flying safety.

Glenn L. Martin Company Patents Fabric "Fuel Cell" Which Tests Prove More Vibration-Proof Than Metal Tanks

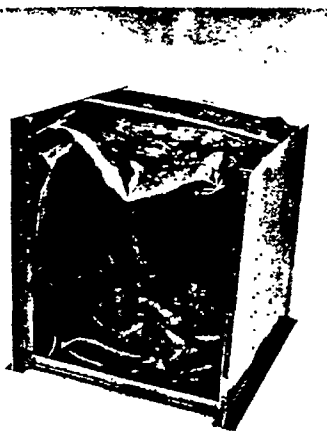
At the end of 700 hours of combined vibration and rocking—that is to say, 650 hours beyond what the devisers of the vibration test had calculated would be the maximum

An automobile gas-tank holding fifteen gallons weighs up to forty-five pounds, empty. Such a tank uses three pounds of metal for each gallon of liquid content but in airplane construction every ounce of weight is subject to rigid censorship. The same weight of containing metal in airplane practice, would be regarded as shirking the "job" if it did not hold upwards of one hundred and ten gallons of fuel.



This high-frequency, low-amplitude vibration table is standard equipment for testing airplane gas-tanks. The arm at right (added by Martin engineers) supplies a rocking motion.

"Mareng FUEL Cell," used for testing purposes, showing loose-fitting lining of treated fabric installed in a shell representing an interior compartment of a wing, fuselage or float.



Upper section: Compartment wall, showing hole left in metal by steel-jacketed rifle bullet. Lower section: fuel cell, partially removed, showing two bullet-made punctures, before repairing.



Same cell, after ten minutes' repair work. Total elapsed time for removing, repairing and reinstalling cell, 85 minutes.



No new design for an airplane gasoline tank can win official approval until its vibration-resistance has been demonstrated by standardized accelerated disintegration test, on a high frequency, low-amplitude vibrating table—a test which, when devised, was calculated to destroy the usefulness of any tank within 50 hours.

So brutal is this ordeal, so far more severe than conditions met in actual flying, that, for some uses, a tank which can withstand even 15 hours' vibration on the table is adjudged qualified for use, 25 hours resistance being the maximum requirement in any service.

The new "Mareng Fuel Cell" not only passed successfully this test but, to make the demonstration even more searching and conclusive, it was made to undergo, simultaneously, additional punishment from a rocking motion.

possible performance of any tank—the "Mareng Fuel Cell" emerged triumphant fuel-tight. Moreover, the tank was tested at various stages from full to quarter full, so that the liquid contents could move freely within the cell in order to reproduce actual flying conditions. During the test it was necessary several times to repair the supporting structure but the fabric and the synthetic rubber with which it is impregnated remained undamaged.

Efficient design in airplane gasoline tanks is an unending battle between strength-factors and weight-factors. The type of tank-construction, which is adequate for the family bus and rides unscathed over miles of rough roads and pavements is, by aeronautical standards, sadly inefficient.

Obviously the lighter weight tanks cannot be as abuse-proof as their automobile counterparts and, as a result, under the strains and vibrations of flying, are more susceptible to leakage.

With the new type of gas-tank, already produced in sizes as large as 185-gallon capacity, all need is eliminated for building metal tanks which will remain leak-proof under

the punishment of continued vibration. The structure of wings, fuselage or float afford compartments in which the fabric cells are installed, not unlike the manner in which inner tubes are installed in casings.

Instead of fitting these compartments exactly, the cells are designed in every case to be slightly larger in each dimension than the walls and under-surfaces against which

they are to rest. This over-sizing is an important feature for because of it the impregnated fabric is never subject to stretching or twisting but serves solely as a static, vibration-proof container for its contents, all strains and stresses being taken by the surrounding structure of the wing, fuselage or float.

In addition to being vibration-proof, double safeguards against the dangers of corrosion are afforded by this construction.

Gasoline in the fabric cells does not touch metal, as it is in contact only with synthetic rubber, which (unlike ordinary rubber) is not affected by gasoline. To demonstrate this, a Mareng Cell was filled with gasoline and left untouched for 12 months. Inspection at the end of that time failed to disclose deterioration of any sort.

Quick repairs are another advantage afforded by this construction.

A "Mareng Fuel Cell" can be pierced in several places, through

(Continued on page 14)



Three-cell, 185 gal. Mareng Fuel Tank in wing compartment. Above: before bottom plate is fastened in place. Below: bottom plate in place, showing hand-hole through which cells may be removed for repairs and reinstalled.

Nebraska Capital City Welcomes Ethyl Motor Clinic

IN THE opening presentation before an exceptionally interested audience, Ethyl Motor Clinic No. Five was officially introduced and welcomed to Lincoln, Nebraska, by Mayor Copeland, who expressed to Clinic Manager Cottrell his gratitude to the Corporation for bringing such an educational and beneficial program to the "White Spot" Capital. The Preview Showing on the evening of Thursday, January

5th, was the largest in the history of Clinic No. Five, at which Ethyl was host to several hundred oil and automotive executives, officials and representatives, professors and instructors from the University of Nebraska and officials of the city, county and state.

Adding much to the color interest of the initial meeting was the demonstration of the Assistant Fire Chief's official car on the chassis

dynamometer. The cooperation of the Lincoln Fire Department, through Chief F. W. Donnelly, in furnishing the car for demonstration purposes had much to do with the excellent showing which was offered.

Through the combined efforts of the Kansas City Division office, Field Representative Howard Lappe and the personnel of the Clinic, a splendid audience was brought in to attend the first regular showing in Lincoln and arrangements were made with several organizations for carrying out plans to make this stay of mutual benefit to members of both the oil and automotive industries. Much interest was shown by the various automotive companies in the National Tune-up Program planned for the coming year, and many expressed their desires to give it full support in giving the motoring public and commercial operators a better run for their money.



Preview showing of Clinic No. 5 in Lincoln, Nebraska, Thursday, Jan. 5th, 1939.

You May Have a "Sick" Cylinder in Your Car

IS THE child sick or well? A Doctor would take his temperature as the first step in a diagnosis. A similar procedure at several points in an automobile engine may reveal wide variations in the temperatures of individual cylinders and of the mixtures entering the cylinders. Such differences change the knocking tendencies of individual cylinders.

Variations in atmospheric temperature alone may cause a difference of several octane numbers in the anti-knock rating of a fuel in an automobile engine.

Other temperature variations may have just as marked an influence on the knocking tendency of any one cylinder. These occur in the engine itself. Since a single knocking cylinder may rate the anti-knock value of the fuel, these other temperature variations seem to deserve further study.

In the intake manifold, temperature variations are caused by the fact that the hot spot arrangement found on most automobile engines today applies more heat to the center of the manifold than to the ends. Also, the front of the manifold receives the greatest cooling effect from the fan blast and the central and rear parts less, as the air is warmed by the exhaust manifold in its journey to the rear of the engine. Such differential heating and cooling result in variations in the rate of vaporization along the length of the intake manifold, which cause differences in air-fuel ratios and temperatures of the mixtures entering the cylinders.

The cylinders themselves and the cylinder head are subject to further differences in temperature. Variations in coring in the foundry cause inequalities in cylinder wall thickness. En bloc design prevents each cylinder from being subjected to the same effect of the cooling liquid. Consequently, there are variations in cylinder and cylinder head temperatures which cause differences in the knocking tendency of individual cylinders and in the

ratings of fuels.

The large differences in the temperatures of cylinder, cylinder head and piston head surfaces and the relative inaccessibility of these parts preclude a direct determination of the integrated temperature conditions within the cylinder. These integrated mixture temperatures may, however, be reproduced approximately in the cylinder of the laboratory knock testing engine by adjusting the temperature of the cylinder or mixture to give the same knock ratings on a group of widely different fuels, other conditions of operation being the same as in the cylinder of the multicylinder en-

gine. When this condition has been obtained, the temperature of the combustion chamber may be more uniform than the multicylinder cylinder under study, but the integrated effect is the same. The same over-all temperature effect may be obtained in a single-cylinder engine with a cooling liquid temperature much different from that measured in the multicylinder engine.

The laboratories of the Ethyl Gasoline Corporation have had the problem of mixture distribution temperature and spark advance and their effect on the anti-knock value of gasolines under study for some years.

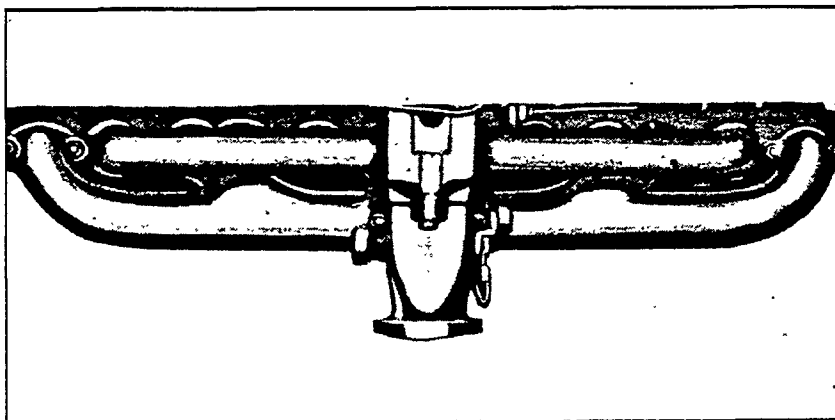


Fig. 1. DIFFERENTIAL HEATING and cooling along the length of the intake manifold contribute to variations in temperatures and air-fuel ratios of the mixtures entering the cylinders.

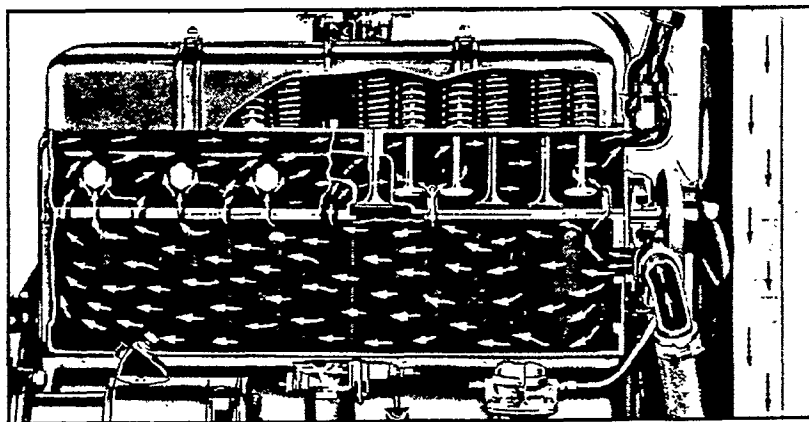


Fig. 2. THE ARROWS in the above diagram indicate the direction of flow of the cooling liquid in an automotive engine. All of the cylinders are not subjected to exactly the same effect of the cooling liquid even in the best of modern "en bloc" designs.

Oil Company Executives Meet at Clinic Preview in New Orleans



Atlanta Division
(Clinic No. 11) holds
Oil Company Execu-
tive Dinner at Count
Arnauds Restaurant.

ON MONDAY, December 12th, the Atlanta Division Clinic held its first preview in the city of New Orleans for 146 of the local oil company men and their city salesmen and on the following day another special showing was held for 131 of the heads of the local automobile

agencies and parts houses.

Climaxing the first two previews was a presentation on Wednesday by Mr. J. G. Martin for the executives of all the major oil companies operating in this Division and a number of the prominent civic and local business leaders. This was followed by a dinner for the entire

group of 60 men at Count Arnaud's famous restaurant. The dinner was presided over by Mr. W. G. Munding, Ethyl's Louisiana representative. Short talks were made by Mr. J. A. Costello, Atlanta Division Manager, Mr. Charles Man-ship, owner of Baton Rouge newspapers and the radio station and Col. M. A. Dyer of the Texas Co. who is looked upon as the dean of local oil men. He commented on the fine Clinic program and the gathering which was quite unusual inas-much as it was the first time in the history of the local oil industry that all of the executive heads had gotten together at one time.

The Clinic remained in New Orleans until early February, at which time it moved on to Jackson, Mississippi, where the next showing is scheduled. Attendance in New Orleans has lived up to expectations with more than 1,700 at the first fifteen meetings.

Personnel Changes in Gasoline Testing Department

THE year 1938 marked the opening of a new Ethyl Gasoline Testing Laboratory at San Bernardino, California, where it is housed in the Engineering Research Laboratory building. Last year also saw a number of shifts in the ranks of the Testing Laboratory managers.

Laboratory for eight years, became manager of the new San Bernardino Laboratory, where he spent some busy weeks supervising the installing of equipment. The Laboratory commenced testing operations December 1st.

1932, is now assisting in business matters connected with the administration of the Department.



Mr. Merritt E. Collins, who has managed the North Kansas City



Mr. John R. Murphy, for years associated with the Yonkers Testing Laboratory, and Manager since



Mr. Hudson W. Kellogg, who has been manager of the Testing Laboratory in Detroit since 1930, moved to Yonkers to take over the managership of the Yonkers Testing Laboratory. He now resides in Dobbs Ferry.



Mr. Coleman L. Davidson, formerly manager of the Baton Rouge Testing Laboratory, succeeded Mr. Kellogg as manager of the Testing Laboratory in Detroit.



Mr. Tucker E. Dawson became the new manager of the Baton Rouge Laboratory. He has been a chemist there for some time.



Mr. Harold L. McIntire, who for some years has been chemist at the North Kansas City Laboratory, took over the management of that Laboratory, succeeding Mr. Collins.

Fabric Fuel Tank Developed for Air Craft

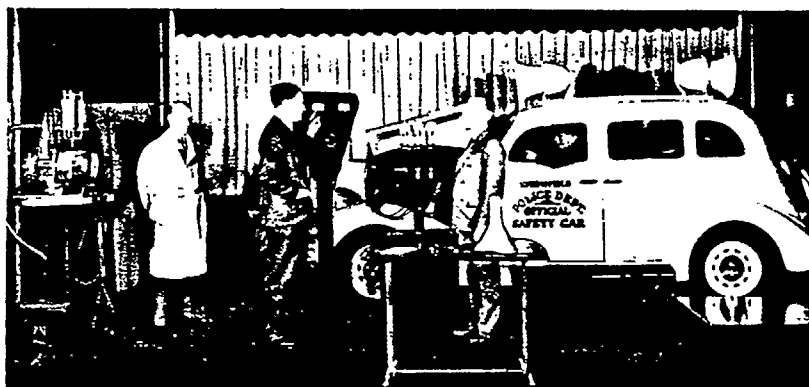
(Continued from page 11)

both fabric and surrounding structure, and even though gaping holes are left in the adjacent structure, a few minutes' repair work, not greatly unlike repairing an automobile inner tube, make it as good as when new. A repaired Mareng cell will resist as much abuse as in its original state.

It has also been demonstrated that, even when the cell is pierced

during a flight, the resultant leakage of gasoline is definitely retarded. Piercing treated fabric leaves a slit rather than a definite hole. Under the internal pressure of the gasoline, the fabric snaps back into place and tends to close the slit against rapid leakage.

In this connection, a case is known in which, on a foreign war-front, one of the new Martin tanks was pierced by enemy bullets, without putting the plane out of action. Instead of being forced down, the pilot successfully flew something more than one hundred miles after his plane was struck and returned safely to his base for repairs.



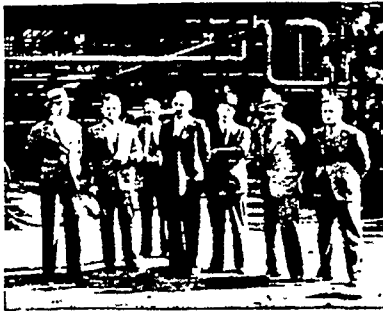
A drama of modern science, in which the official safety car of the Springfield (Ill.), police department was put through an unusual test on an "indoor proving ground," was witnessed recently by the mayor and sixty other prominent guests, shown above.

Farmers Take More Gasoline

A tremendous increase in the use of gasoline on farms during the last three years is indicated by gasoline consumption figures recently made public by the United States Bureau of Public Roads. In 35 states for which data are obtainable the total increase in gasoline consumption for non-highway purposes, which means mostly farm use, amounted to 435,968,000 gallons, an increase of 50 per cent. In 1935 gallonage amounted to 903,866,000. In 1937 it rose to 1,349,834,000. In one state, Michigan, the rise was 127 per cent.

at a special preview, which opened the one-month run in that city of the Ethyl Motor Clinic. The demonstration with the safety car came as the climax of a series of revelations concerning what goes on in a running motor. The car was driven by Police Officer Fred Donovan up to sixty miles an hour, and then a steep "hill" was built under its rear wheels. By the end of the test Officer Donovan had "driven" ten miles, but not once had he moved off the clinic stage. In the photo, Mayor John W. Kapp of Springfield (right), observes dial readings as indicated by Clinic Mgr. E. R. Jones.

NEWSBRIEFS



Members of the Atlanta Division Clinic taking a break in the normal week's work to inspect the Atlas Pipeline Corporation refinery at Shreveport, La. Left to right, Martin McCooley, Ethyl Safety Engineer; Jack Pruitt, Rod McKenna, Mr. Charles Christman, Supt. of Atlas Refinery, Stuart Forbes, John Murphey and Joe Williams.

On Saturday, October 29th, 1938, Torbin F. Yates, Junior Engineer of Chicago's Clinic No. 9, was married to Miss Florence G. Olson, daughter of Mr. and Mrs. R. A. Olson of Chicago. The wedding took place in the Rogers Park Baptist Church at 8:30 P.M. after which a reception was held in the Georgian Hotel in Evanston, Illinois. There were some 200 friends and relatives present, including Mr. and Mrs. J. E. Boudreau.

We take this opportunity of wishing Torbin and Florence much happiness.

Francis J. Pahalek, a new member of the Ethyl family, joined the Detroit Engineering Laboratory on December 12th. He attended the University of Detroit and the Detroit Institute of Technology, receiving a B.S. Degree in Accounting in 1932. Before joining our ranks, Francis was connected with the Kroger Grocery and Baking Company. His hobby is hunting small game. Having been born on March 17th, his nickname is very appropriately, Pat. He makes his home in Detroit with his wife and daughter, Patricia. He is a member of the Alpha Gamma Upsilon Fraternity and the Detroit Sportsmen's Congress.

En route to Houghton, Michigan, in order to appear upon a program before the College of Mining and Technology,



Lowell A. Dollahan had his radio tuned to the station at Calumet, Michigan. It was just noon and the next fifteen minutes was devoted to a special news broadcast. Imagine Lowell's surprise when it was announced that he was to deliver a special address before the college and that a resumé of the automotive and oil industries would be given together with sound movies and a motor demonstration.

When Lowell arrived at the college, he thanked Professor Damon for giving him such a good send-off for the meeting and mentioned the publicity on the air, together with the article that appeared in the local paper at Houghton. The Professor was as surprised as Lowell had been, when he heard about the radio announcement, as it had not been arranged by the college. Presumably, the Calumet station picked the article out of the newspaper and broadcasted it over their mid-day news program.

FLASH!!

Minneapolis, Minn. — Jan. 8, 1939

Today at 2:15 P.M. at the Abbott Hospital, the latest addition to the Ormsby family was made in the form of a seven-and-a-half pound baby boy. This 1939 Ormsby Model's arrival was announced officially by a notice giving full particulars as to its lung power, ignition system, etc.

Master Ralph H. Ormsby the Second and his proud mother are at home and it is reported that they are both doing nicely. The condition of Ralph the First, however, is still somewhat doubtful, although the doctor is holding out highest hopes for complete recovery.

We welcome to the Ethyl family, Lillian Carolyn Weis, a new member of our Stenographic Department. She comes to us from the New York office of Montgomery Ward & Co. Lillian is a graduate of the Grover Cleveland High School. She is an accomplished swimmer and the proud owner of a Girl's Scout Life Saving Medal.



A group of the fair sex from the Detroit Laboratory at their Christmas Party on December 22nd. From left, sitting: Barbara Fritchey, Jewel Ahonen, Marian Ziegler, Marie M. Martin, Phyllis Southwell; Standing: Sylvia Roxie, Emalee Pipal, Ellen Faulkner, Rose Lipsitz, Ann Manson Caplan, Helmi Burklee, Joan Boyer, Margaret Ferrety and Carrie McMillan.

From Toronto comes word of the addition of Beryl Winters to their staff. Beryl is a native of Brockville, Ontario, a graduate of the Faculty of Arts of Queen's University, Kingston, and of the Brockville Business College. This is her first entry into the commercial world and we extend a hearty welcome.



Edythe E. Kimball, another newcomer to the Stenographic Department, is a graduate of Brownes Business College. Her business experience includes 3 years with Shippers Car Line Corp., 3 years with the J. Henry Schroder Banking Corporation and 6 years with the Bankers Trust Company. Edythe lives in Brooklyn and her favorite sports are golf and swimming.

THE FOLLOWING SERVICE AWARDS HAVE BEEN MADE AS OF
FEBRUARY 1, 1939

TEN YEARS

C. L. DAVIDSON.....*Detroit Gasoline Testing Lab.*
RICHARD K. SCALES.....*Detroit Sales*

FIVE YEARS

VIDA C. EBELL.....*Manufacturing*
J. W. MORRISON.....*Administration*

FEBRUARY, 1939

Page fifteen

ETC 22354

Index to "Ethyl News" 1938

Advertising

"Ethyl Ads in the Making".....	February
"Ethyl Road of 1938".....	April

Miscell. Articles

"Vice Pres. Midgley Addresses Houston Chamber of Commerce".....	January
"America, A Country Competition Built".....	January
"Ethyl Gasoline".....	January
"Ethyl on Top of the World"—McFarlane's Alaskan Flight.....	January
"Novel Device on Louisiana Farm"—Hider's Invention.....	January
"American Industry Leads in Research".....	February
"Canadian Forest Fires".....	February
"G-Man of the Rails"—Sperry Detector.....	February
"Ethyl in New Paramount Production of 1938".....	February
"Ethyl to the Rescue"—Toronto Harbor Police.....	February
"Declares Wealth Now Widely Diffused".....	March
"What is a Friend".....	March
"Carter Carburetor School Expands".....	March
"America's 11 Million Used Car Families".....	April
"Mexico-Alaska Highway".....	April
"Five Thousand Years of Glass Making".....	May
"The American Way".....	May
"Putting the Camera to Work at Blending Plants"—Baldwin.....	May
"American Opportunity Contributes to High Living Stand'd".....	June
"World's Most Precious Element"—Radium.....	July-August
"Louisiana State Police".....	July-August
"Petroleum Brain Trust Saves U.S.".....	July-August
"Day of Diesels Far Off".....	July-August
"Sound Business Management America's Success".....	September
"Blue Water International Bridge"—U.S.-Canada.....	September
"N. Y. World's Fair Mecca for 1939 Travel".....	September
"Ethyl in Turner Valley, British Columbia".....	October
"Taxation and Your Savings".....	October
"New England Swept by Wind and Wave".....	November
"From Strawberries to Oil" (Centralia, Ill.).....	November
"Yearly Model Change Stabilizes Work in Auto Plants".....	November
"Do You Know Some Cylinders in Your Car are Undernourished".....	November
"Mr. Kettering Looks Ahead".....	December
"South's Tallest Highway Bridge Opens".....	December
"Highway Lighting in Ontario".....	December
"Only One Fuel Leaves the Pump".....	December

Army Tests & Equipment

Mobility of Army's Mechanized Brigade Astonishes Observers.....	July-August
Ethyl Becomes Daughter of the Regiment.....	December

Automotive

AUTOMOBILES

English Royalty Select American Cars.....	May
Horseless Carriage Makes Appearance Again in Helena, Mont.....	September
Transport—Ancient and Modern.....	December
Ethyl Wins Pacific Coast Stock Car Championship.....	December

BUSSES AND TRUCKS

Tank Truck at Globe Pump, McPherson, Kansas.....	January
Standard N. J.'s Display at National Motor Truck Show.....	January
Dave Steel Co. Truck, Ashville, N. C.....	January
Goodwin Co. Truck, Jackson, Miss.....	January
"Truckers Urge Repeal of Federal Gasoline Tax".....	January
Sunset Oil Co. Tank Truck and Pump.....	February
Richmond, Va., Delivery Service Truck at Clinic.....	March
Dominion's Oldest Express Company, etc.....	April
Strange Vehicle for Lincoln Tunnel Service.....	April
Unusual Haulage Problem Aided by Ethyl.....	April
New Equipment for New Product—Bachmann Pet.—Century Ethyl.....	May
Continental Oil Co.'s New Streamliner.....	May
Novel Exhibit Tours with Ethyl—Achesnet Process Co.....	May
A Million Miles on Ethyl—Still Going Strong—Paulsen & March.....	June
Ethyl Brings Beauty of "Smokies" to Tourist—Bridgers Tours Co.....	July-August
Unusual Truck Job Gives Designer Good Results—Dual Engine.....	July-August
Nature Puts on Annual Flower Show—Martin & Moran Fleet.....	July-August
Pacific Coast Div.'s Motor Clinic—Chevrolet Truck.....	September
Ethyl Engineer Instructs Capital Transit Men.....	October
N. J. Trucking Concern Steps up Operating Economy—Cardinale Corp.....	October
Three Sponsors Conduct Road Test—1939 Ford Truck.....	October

Issue

Appalachian Electric Power Co. Trucks.....	November
Yosemite Transportation Co. Gives Luxury Ride.....	December
Century-Old Brewing Concern Goes Modern—Labatt Limited.....	December

GENERAL MOTORS PARADE OF PROGRESS

Baltimore Div. in Charge of Ethyl Exhibit.....	March
Ethyl Takes G-M Caravan over Mexico's Mountains.....	April
G. M. Parade of Progress Featured in N. Y. World's Fair Preview.....	June

MOTORCYCLES

Their Aim is Service Equal to Their Product—Harley-Davidson.....	June
Louisiana State Police.....	July-August
Motorcycle Club Visits Des Moines Clinic.....	September
Citizens of Jackson View Mississippi's New Highway Patrol.....	September
Two Motorcycle Records in as Many Hours—Roland Free.....	December

RACING

Sir Malcolm Campbell Shatters Speed Boat Record.....	January
Eleven-Year-Old S. African Champion to Race at Akron—Soap Box Derby.....	May
Ethyl Wins Pacific Coast Stock Car Championship Race.....	December

TRACTORS AND FARM EQUIPMENT

Massey-Harris Offers Twin Power.....	January
Snow Plow Outfit Conquers Minnesota Drifts.....	April
An Iron Horse of the Plains.....	May
\$25 Tractor Saves One Team.....	June
High Compression Tractor Saves \$50.40 in Oil.....	June
Memphis Carnival Features Streamlined Parade—Oliver Tractors.....	July-August
Illinois Man Steps Up Power of 287 Tractors.....	July-August
A Hobby That Has Lived for Three Generations—Elk Farm & Tractors.....	September
Tractor Performance Dramatized for Indiana Farm Bureau.....	September
The Birth of a Name—"Tractor" is Born.....	October
Minneapolis-Moline's 1939 Comfortactor Makes its Debut.....	November
Alberta Gathers Richest Crop in Decade.....	December
Three Out of Four—Rees & Wheatland Fuel Economy Test.....	December

Aviation

Ethyl on Top of The World.....	January
New Type Plane Developed for the Novice.....	January
With Sir Hubert Wilkins in the Arctic.....	March
Government Training School at Randolph Field, San Antonio.....	March
Junior Birdmen of the Navy View Ethyl Film.....	June
Activity of Materiel Division—Army Air Corps.....	July-August
Man's Latest Creation Visits Stone-Age New Guinea.....	July-August
First of Pan Am's New Fleet Takes the Water.....	October
Portable Mooring Mast for Goodyear Blimps.....	October
They Saw Five Suns in 91 Hours.....	October
Col. Roscoe Turner and Plane.....	November
Landscape and Skyscape—Glenn L. Martin Co.....	November

Clinic

Here & There—Dayton Clinic.....	January
Make Toledo an Ethyl City.....	February
The Clinic Gives the Answers.....	February
N. J.'s Governor Hoffman Visits Ethyl Clinic in the East.....	February
New York Clinic Meeting for General Office Staff.....	March
Richmond Clinic Scores in First Round.....	March
Ethyl Motor Clinic at Columbus Attracts State-Wide Attention.....	April
Clinic Clippings.....	April
Clinic Clippings.....	May
Ethyl's Pacific Coast Div. Open New Home—Permanent Clinic.....	June
San Francisco Mfr. Tests Clinic's Appeal.....	June
Sunset Oil Co.'s Motor Clinic.....	June
Ponca City Man Pioneers New Service in Oklahoma.....	June
Oklahoma Highway Patrol Helps Open Motor Clinic.....	June
Ethyl Clinic at Akron Gets Official Welcome.....	June
Clinic Clippings.....	June
National Meeting of Clinic Managers.....	June
Associated's Motor Check Service in Los Angeles.....	July-August
Special Motor Clinic Meetings for Baltimore High Schools.....	July-August
100 New York Guardsmen at Motor Clinic Review.....	July-August
Atlantic Refining Co. Executives Attend Special Clinic Showing.....	July-August
Ethyl Host to Army Transport Men, Camp Holabird, Md.....	July-August
Kingston, N. Y., Mayor Gives Ethyl Clinic Official Welcome.....	July-August

Issue	
Ethyl Clinic Holds "Fight" Party in Indianapolis	July-August
Service Manager Appreciates Clinic—Columbus, O.	July-August
Penn. Farm Bureau Men at Pittsburgh Clinic	July-August
Garage Organization Starts Own Tune-Up Class—	September
Motor Trades Assn.	September
Allen Tune-Up School First Graduation	September
Motorcycle Club Visits Des Moines Clinic	September
Yellow Cab Company Entertains at Cleveland Motor Clinic	September
Iowa's Governor Opens Ethyl Clinic in Des Moines	September
Tractor Performance Dramatized for Indiana Farm Bureau	September
Ethyl's Baltimore Division Clinic Has Preview	September
Activities at Pacific Coast Div.'s Motor Clinic	September
Dynamometer Service Now Available to Manhattanites	October
Army Engineers Include Ethyl Clinic in Their Training—	October
Ft. DuPont	October
Motor Clinic Welcomed at Hagerstown, Md.	October
Request from Richmond for Clinic's Return	October
N. Y. Division Clinics Open Fall Season	October
Wood Esso Servicenter Tunes-Up with Chassis	November
Dynamometer	November
Chicago Div. Motor Clinic for Rose Polytechnic Inst.	November
Terre Haute	November
Nebraska's Governor Opens Ethyl Clinic in Omaha	November
Knoxville Gives Its Approval of Motor Clinic	November
Ethyl Visits National Capital	November
Joplin (Mo.) Hotel Guests Show Interest in Clinic	December
Newburgh Area Gets Another Ethyl Booster	December
Shreveport Sees the Clinic	December
Ethyl Raises Pressure on Davey Units	December
Socony Vacuum's "Flying Red Horse" Sound Car Tuned	December
For Ethyl	December

Customer Campaigns & Service Stations

Modern Merchandising Their Slogan—Rhoads Bros.	January
Ethyl on Top of the World—Service Motor Co.	January
Pump Markers Proclaim Grade as Consumption Makes Record	January
Service Station has Novel Feature—F. I. Dewey	February
Sunset Ethyl Gasoline Pump	February
Gulf Service Station Salesman on Skates—Toledo	February
Another Ethyl Booster—Stand. Indiana Station	March
A Servistation for City of Tomorrow	March
Oklahoma Jobber Features Modern Merchandising—	March
Claire Robbins	March
D-X Ethyl Balloon Makes 1,300 Mile Flight	April
An All-Ethyl Station—J. S. Farmer Gas & Oil Co.	April
New Premium Fuel for Canfield Oil	April
Sales Down—Profits Up—Noyes Garage, Evanston	June
Standard Oil Co. (Kentucky) Sales Campaign	June
Shell Ethyl Campaign in Northern New England	June
Cooperation Sells Ethyl—F. & G. Auto Supply Co.	July-August
Dynamometer Service Now Available to Manhattanites—	October
Gulf Station	October

Births

		Born		Issue
Mr. & Mrs. C. E. Colvin	Jane Mayfield	December	11, 1937	January
Mr. & Mrs. Helmer A. Abramson	Ruth Ann	November	24, 1937	January
Mr. & Mrs. Edward Johnson	Son	November	2, 1937	January
Mr. & Mrs. James V. Carlisle	Carol Ann	January	1, 1938	February
Mr. & Mrs. Merritt E. Collins	Robert Cromwell	January	22, 1938	March
Mr. & Mrs. Roy J. Monahan	Mary	April	5, 1938	May
Mr. & Mrs. Richard C. Murphy	Richard Landis and Meredith Warren	May	4, 1938	June
Mr. & Mrs. Howard Pearsall	Marjorie	May	15, 1938	June
Mr. & Mrs. Paul Johnson	Glen Arthur	April	7, 1938	June
Mr. & Mrs. Gordon Conner	Son	June	11, 1938	July-August
Mr. & Mrs. Merritt Martin	Twin Daughters	July	28, 1938	September
Mr. & Mrs. Frank Stabile	Nancy Ann	September	12, 1938	October
Mr. & Mrs. Eugene F. Garner	Barbara Anne	September	4, 1938	October
Mr. & Mrs. Matthew A. Taylor	Patricia Ann	August	28, 1938	October
Mr. & Mrs. C. H. Johnson	Paul Leroy	September	10, 1938	November
Mr. & Mrs. Irvin O. Wolf	Skippy	October	1, 1938	November
Mr. & Mrs. Fred Nixon	Jane Malvia	October	19, 1938	November
Mr. & Mrs. John P. Doohar	Pat	October	6, 1938	November
Mr. & Mrs. R. F. Broquet	Janice Gail	August	30, 1938	December
Mr. & Mrs. Charles M. Gambrell	Elizabeth	September	20, 1938	December
Mr. & Mrs. Ferd Gillig	Jim	October	1, 1938	December
Mr. & Mrs. Lowell A. Dollahan	Craig Atwood	October	26, 1938	December

Marriages

		Married		
Alan Tully to Lady Kingsford Smith	Dec. 2, 1937			January
Lawrence Myatt to Kay Ford	Dec. 20, 1937			January
Dwight Andrews to Nina Geddes Nelson	May 7, 1938			May
Robert R. Mead to Roberta Clark	April 18, 1938			June
Marion Hofstetter to Walter E. Reitz	May 21, 1938			July-August
Donald H. Pulleyblank to Elizabeth A. Anderson	June 4, 1938			July-August
Edah Rhodes to Ralph Mackenzie Hudson	July 2, 1938			September
Ruth Allen to William M. Rice	Sept. 21, 1938			September
Robert C. Burns to Mary C. Naber	Sept. 13, 1938			September
Thomas J. Keenan to Marie T. Lambert	July 23, 1938			September
Winifred V. Porter to John Alfred Sanders	Sept. 2, 1938			October
John Edward Hendricks to Joan Wiewell	Sept. 5, 1938			November
Grahame Denham to Emma Murdock	Aug. 27, 1938			November
Idan Flaa to Ruby Hill	Oct. 8, 1938			December

Issue	
Ethyl Takes Part in Humble Oil Sales Contest Meetings	October
Even the Old Horse & Buggy Boost Ethyl	October
Wood Esso Servicenter Tunes up With Chassis	November
Dynamometer	November
New England Swept By Wind and Wave	November
Newburgh Area Gets Another Ethyl Booster	December

Exhibits & Expositions

Stand. of N. J.'s Display at National Motor Truck Show	January
The Gilmore Quincublets	January
Phila.'s Shrine to Benjamin Franklin and Advancement of Science	January
Hartford Auto Dealer Has Own Show	January
Millions Will Travel Highways to 1939 Fairs	March
Engineering-Architecture Day, Clemson's Annual Show	May
North Carolina State Chemistry Students Exhibit Model Ethyl Dow	May
International Petroleum Exposition	July-August
N. Y. World's Fair Mecca for 1939 Travel	September
Unique Exhibit at Michigan Petroleum Exposition	September
Ethyl Demonstrates in Novel Tie-Up at Tennessee Festival	October
National Ref. Co.'s Exhibit at Washington Co. Fair	November
Golden Gate Exposition Petroleum Exhibitors, Inc.	December

Safety

Traffic Safety Becomes a Science	March
Safety Topics	March

Personnel Items

Meet Mr. Tully	January
Meet Mr. Fricker	February
R. L. Jordan & A. B. Wyrick at Springfield Airpor	February
Chicago Farewell Party for Dees & Colvin	February
Organization Changes	February
Meet Mr. Costello	March
Ethyl Heroine—Allie Grady	April
Chicago Division Meeting	April
Meet Mr. Martin	April
Ethyl's First Fleet School	May
Meet Mr. Pope	May
Pacific Coast Division's New Building	June
Meet Mr. Krieger	June
Ethyl-Agency Golf Match	July-August
15 Year Service Awards	September
Baltimore Div. Fishing Party	October
New Plant at Baton Rouge	November

ALMOST AS IMPORTANT AS GASOLINE ITSELF

.... *tetraethyl lead!*



LIQUID... volatile... powerful... tetraethyl lead has a mysterious and valuable effect upon gasoline. Just a small quantity added to a gallon of gas improves its anti-knock value. It acts to prevent the power-wasting "knock" or "ping" that years ago might well have throttled the development of the modern automobile's high compression engine.

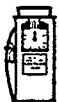
Today tetraethyl lead is the active ingredient of the anti-knock fluids used by oil companies the world over to improve the anti-knock quality of their gasolines. This enables car owners to take advantage of the high compression engines built by the automobile industry in recent years.

Today every car has 3 grades of performance

Because there are different grades of gasoline sold today, your car has different grades of performance, depending on the gas you buy and your spark setting. Use the chart below to help you make your choice:



BEST PERFORMANCE—with gasoline marked "Ethyl" on the pump or globe. It is highest in anti-knock and all-around quality. Contains enough tetraethyl lead so that your engine's spark can be *fully advanced* for maximum power and economy without "knock" or "ping."



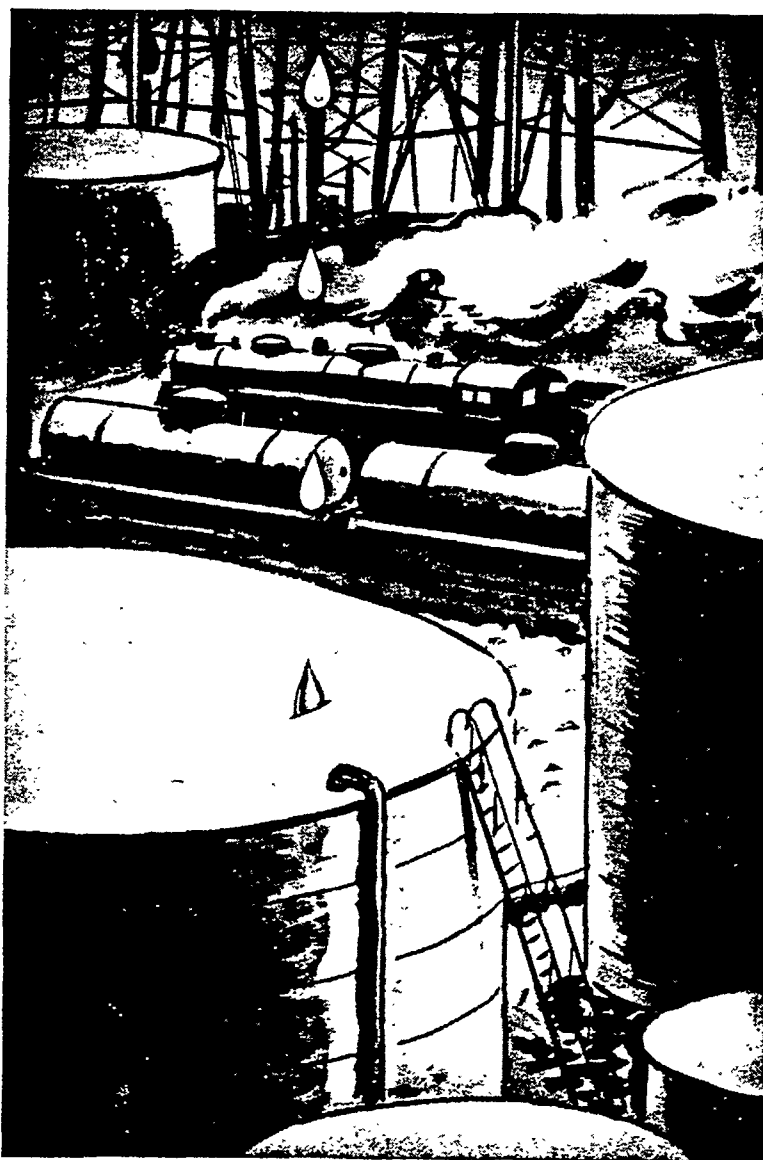
GOOD PERFORMANCE—with "regular" gasoline which permits the spark to be considerably advanced without "knock" or "ping." Most "regular" gasolines now contain tetraethyl lead, as shown by the "Lead" signs on the pumps.



POOR PERFORMANCE—with low-grade gasoline, poor in anti-knock quality. With low-grade gasoline in a modern car, the engine's spark must be *retarded*—which means *loss* of power and economy.

TUNE IN ON "TUNE-UP TIME"

featuring Walter O'Keefe, Andre Kostelanetz Orchestra... Kay Thompson and Rhythm Singers... Thursdays... Columbia Broadcasting System, 10 p. m., Eastern Standard Time



ETHYL GASOLINE CORPORATION, sole manufacturer of anti-knock fluids containing tetraethyl lead

ETC 22357



MARCH 1939



ETC 22358

Beatrice Lillie (otherwise Lady Peel) first played with Walter O'Keefe in the "Second Little Show" when Walter introduced that song about Yoda, his tuba and a thumb. Now appearing in Noel Coward's "So to Music" she is booked for the Ethel program on March 15th.



Best-loved figure on the American stage, George M. Cohan postponed his vacation after 21 months as the dancing president of "I'd Rather Be Right" to match his Irish wit against the Irish wit of O'Keefe.



Gene Autry receives 5,000 fan letters every week. A railroad magnate's work of ten years ago he made into the entertainment business in Doc West's Medicine Show. His films now lose all others in box office appeal.

Guest Stars Shine on "June-up Time"

Edward Everett Horton is Hollywood's number one show leader. His daffy, shy manner and bubbling impulsiveness have created hilarity to several of the Astaire Rogers pictures.



Lupe Velez is as gay and vivacious on the set as she is in her movies. This hot-blooded Latin beauty appeared as a guest on the Ethel show opposite the diffident Edward Everett Horton.



Gladys Swarthout has twice been voted one of America's ten best-dressed women. Talented, lovely, glamorous, this Missouri beauty is at home on the air, making movies, or on the stage of the Metropolitan Opera.

Malthusian Theories of Oil Reserves Called Unsound



ETHYL GASOLINE CORPORATION
CHRYSLER BUILDING
NEW YORK CITY

W. CARY HARRIS
Editor

RUSSELL B. WESTON
NORTHROP CLAREY, JR.
Associate Editors

Correspondents

J. A. COSTELLO.....Atlanta
F. S. CRONIN.....Baltimore
D. S. FLYNN.....Boston
A. B. WYRICK.....Chicago
R. R. FALLER.....Dayton
H. L. NIXON.....Kansas City
CARL ABELL.....Los Angeles
R. L. GOLTZ.....New York
J. N. FITZGERALD.....Toronto
H. C. DEES.....Tulsa
R. K. SCALES.....Engineering Dept.
ARTHUR P. STOVER.....Mfg. Dept.
J. C. POPE.....Gasoline Testing Dept.
E. J. NIESER.....Administration Dept.
HUBERT FOSSETT.....London

THE MATERIAL IN THIS PUBLICATION
MAY BE REPRINTED PROVIDED DUE
CREDIT IS GIVEN THE "ETHYL NEWS"
OR ETHYL GASOLINE CORPORATION
UNLESS IT IS A COPYRIGHTED ARTICLE.

VOL. 6, No. 3

ABOUT 150 years ago Thomas Robert Malthus, an English economist, set forth the Malthusian theory of population—the doctrine that population tends to increase faster than food supply and that lack of food would limit the size of the nations of the world. Malthus looked at the Oriental civilizations of India and China, where famine and death for centuries followed failure of the rice crop and where an increase of the food supply resulted in a rise in the birth rate. He believed that England's population was close to the saturation point and most of the learned world shared that view.

The population of England then was about 6,000,000 and the overcrowding was one of the chief reasons given for the colonization policy of the Empire. But with the development of the factory system, the country's population expanded rapidly and by 1830 it had grown to 14,000,000. In 1931, England's population was 37,000,000, a condition which Malthus would have regarded as impossible.

The course of history has disproved the Malthusian theory just as it will disprove many of the beliefs of today. Any theory that is based upon a static society, which fails to consider the possible play of modern human ingenuity in meeting new conditions of life, is likely to be wrong. There are some men who, like Malthus, predict that the automobile production of the United States is growing faster than the ability of nature and human ingenuity to provide food in the form of gasoline. These modern profits predict that the time is not far distant when a shortage of gasoline will starve the automobiles off the roads. But as a matter of fact, if the early Malthusian oil economists had been right, the nation's petroleum reserves would have been exhausted before the automobile was born. America would still remain in the horse and buggy era. In 1889, David T. Day, head of the U. S. Geological Survey, solemnly declared that the nation's oil would last only a few years and that the light of the kerosene lamps throughout the world would be dimmed. If anyone in those days had declared that the fuel and oil to make possible the operation of 30,000,000 horseless vehicles on the nation's highways would come from the bowels of the earth, that prophet would have been laughed down.

A quarter of a century later, in 1915, the U. S. Geological Survey issued a report saying that the total oil reserves in the United States amounted to only 7,500,000,000 barrels. The survey was so bold as to say that that covered all of the oil in the nation, yet during the next 20 years nearly

(Continued on page 14)

IN THIS ISSUE

MALTHUSIAN THEORIES OF OIL RESERVES CALLED UNSOUND	NATCHEZ — WHERE THE OLD SOUTH STILL LIVES
PENNSYLVANIA RAILROAD TUNES UP	GARAGE HOLDS MONTHLY "CUSTOMER CLINIC"
NEW ETHYL CHLORIDE PLANT AT BATON ROUGE	AMERICA'S FIRST ADVERTISING MAN—BENJAMIN FRANKLIN
PHOTOGRAPHING MOTHER EARTH 15,000 FEET UNDERGROUND	JAMES T. GRADY HONORED BY AMERICAN INSTITUTE
PROVIDING SKILLED WORKERS FOR INDUSTRY	ETHYL IS SET TO MUSIC
THE "EARLY DAYS" OF GREYHOUND	NEWSBRIEFS
SPARK PLUGS OFTEN PERFORM LIKE "OLD FAITHFUL"	LAMENT OF AN ETHYL WIFE

ETC 22360

Pennsylvania Railroad Tunes Up

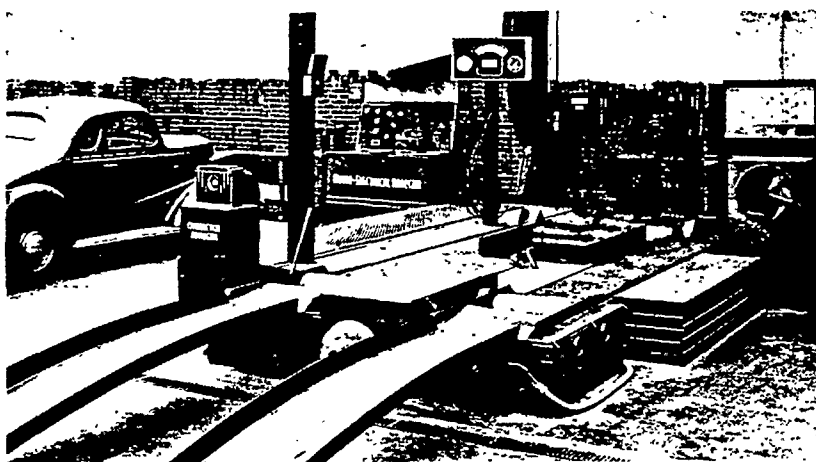
DURING the recent showing of the Ethyl Motor Clinic No. 7 at Altoona, Pennsylvania, a meeting was conducted for the American Society of Testing Engineers. The Pennsylvania Railroad operates the largest railroad repair shops in the world in that city and there were present a number of representatives from their Testing Department. Later, several members of the Clinic were extended the courtesy of visiting the Pennsylvania Railroad's Testing Department.

The oil and automotive industries are becoming more conscious than ever of the need for accurate engine adjustment. The sound basis for this program can be realized by comparison with methods adopted by other modern transportation industries.

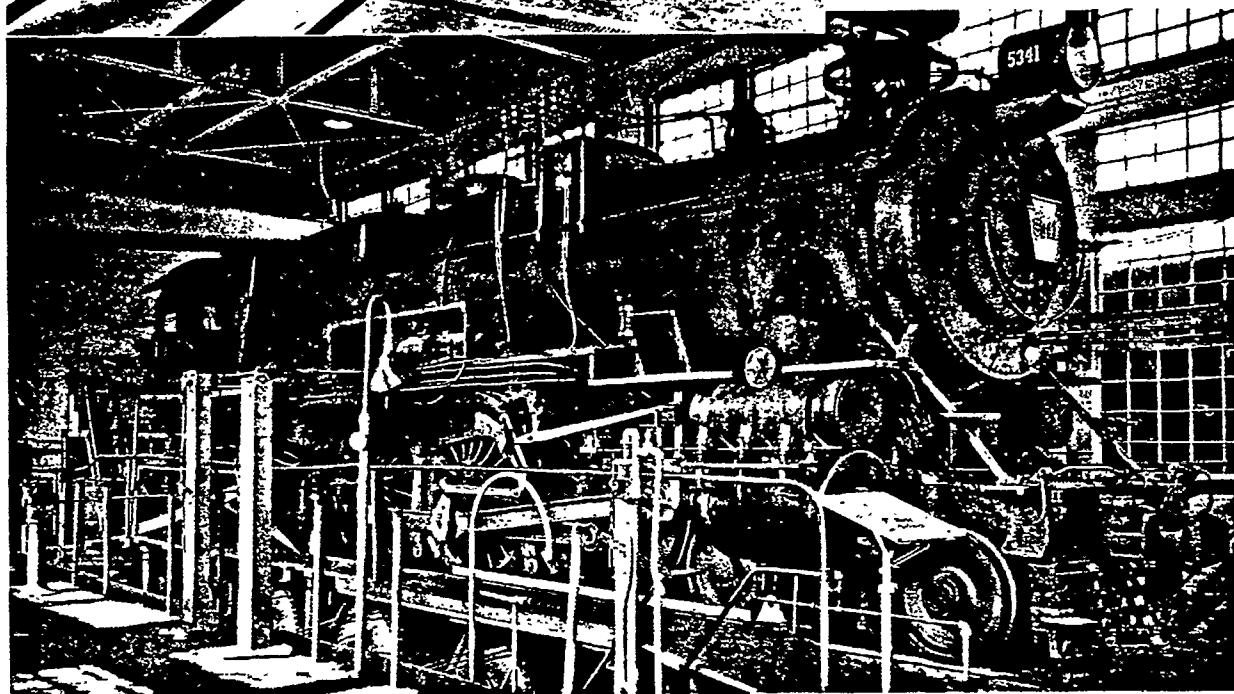
The Ethyl engineers were extremely interested in the large Locomotive Testing Plant illustrated in the photograph. This Seller's spring

dynamometer can measure up to 80,000 pounds pull. The wheel speed is determined by recording apparatus so horsepower can be easily calculated. Over 50 different types and kinds of locomotives developing up to 5,500 H.P. have been tested and accurately adjusted by this dynamometer.

The typical chassis dynamometer used in Ethyl Clinics is similar to that shown in the photograph and is a bit small by comparison. It can absorb up to 150 H.P. at the rollers and yet the same variation in power as that recorded by the giant locomotive dynamometer will make possible those important adjustments for maximum efficiency.



Left: A typical automobile chassis dynamometer.



Below: A mighty "K4s" engine on the locomotive dynamometer.



Above—The night shift goes to work in a plant lighted as if for an "opening night."



Right—Two large Hortonspheres gleam in the darkness behind a storage shed.

Ethyl's "E.L.A." Plant Works 24 Hours a Day to Supply Anti-Knock Needs of Oil Industry

New Ethyl Chloride Plant at Baton Rouge

THE expression "There's nothing new under the sun" may be correct when applied to human nature and politics, but it has been pushed around mercilessly by the chemical industry. Indeed, it has taken its most recent beating at the hands of Ethyl's new ethyl chloride plant in Baton Rouge, more familiarly known as the "E.L.A. Plant."

Not only is the plant itself new, having started production as recently as last September, but also the process used in manufacturing ethyl chloride is receiving its first commercial test.

Production to date indicates a successful future for the new plant and process. Approximately 75 men are employed in the operation, which

consists of three stages, or "sections."

"A" Section makes HCL gas by burning hydrogen with chlorine, the latter a by-product from Ethyl's new sodium plant at the Baton Rouge works. "B" Section makes ethylene gas by high temperature "cracking" of by-product refinery gases. "C" Section takes the HCL gas from "A" Section and ethylene from "B" Section, and puts them into chemical reaction to form ethyl chloride. The ethyl chloride thus produced is used directly in the manufacture of tetraethyl lead.

This new plant is an important part of Ethyl's Baton Rouge establishment, which will be, on the completion of present construction early

in 1939, a complete manufacturing unit—not only for tetraethyl lead, but for the intermediate materials necessary in its manufacture as well. A new sodium plant will produce all the sodium required from raw salt and the ethyl chloride plant, utilizing by-product chlorine from the sodium plant and hydrogen and other by-product light gases from a nearby refinery, will supply the ethyl chloride intermediate.

The ethyl chloride unit was included in a panorama photo of the manufacturing plant at Baton Rouge in the November, 1938, "News." In the view of the plant published at that time, the "E.L.A." section was visible in the extreme upper right corner.

ONLY a few years ago it was common talk in the oil industry that the known supply of petroleum would be used up within 30 years; that the world had been so thoroughly explored for surface indications of possible oil-bearing structures that all the obvious ones had been found; and that finding any more major deposits would be largely a matter of wildcat exploration in territory where the surface structures had been completely obliterated. This would make the discovery of oil very expensive and accompanied by a heart-breaking high percentage of dry holes.

But instead of facing a threatening shortage of petroleum, the oil industry today finds itself with greater proved reserves than ever before in history. At the latest A.P.I. convention, it was reported on the authority of men of high standing in the industry, that we need not worry about complete depletion of our petroleum resources for at least 200 years.

The amount of oil in the earth has not increased — the percentage of error in looking for it has been decreased.

Let's look into the facts of the matter as related to the physical

structure of the earth and the improved means of locating possible oil deposits, and find out what it is all about. Two conditions must be present simultaneously to form an oil field—first, an oil bearing stratum; and second, a structural trap for the accumulation of the oil, which may be the result of faulting, folding or gradual bending of the earth's crust, or of the natural manner in which the stratum or strata were originally deposited.

There are undoubtedly many productive areas yet to be found, and they may contain many times the amount of oil discovered in the past, but the richest and largest oil territories in the world have a great deal more unproductive than productive areas. Take, for example, the San Joaquin Valley in California. During the past six years, at least seven important deep fields have been discovered, namely, Coalinga, Ten Section, Canal, Greely, Rio Bravo, Wasco and most recently, the Elk Hills extension. Coalinga is the only one of the seven which is the result of out-and-out wildcat drilling. The other six were proved on sites selected by a new method of X-raying the deep structures of the earth. This new method is called the "Re-

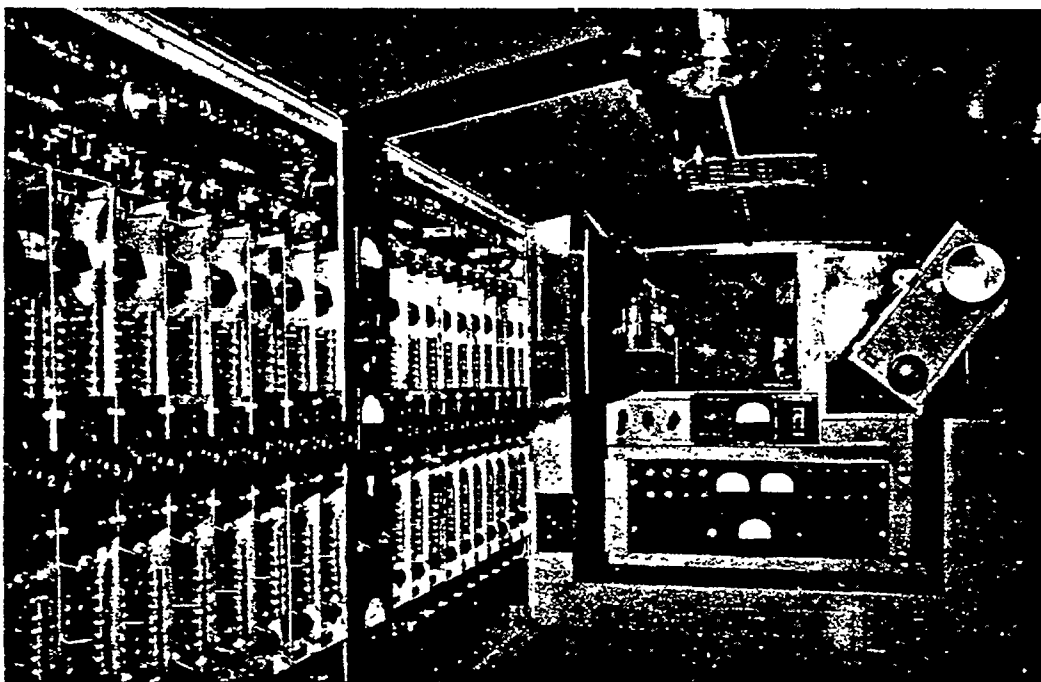
Photographing 15,000 feet

This material furnished through courtesy Herbe

flexion Seismograph" method of geophysical exploration which has been actively used for about six years. Today it is in almost universal use and constitutes one of the most valuable tools at the command of the petroleum geologist.

Contrary to the popular conception, the seismograph does not indicate definitely the presence of oil. It does, however, indicate clearly where it is possible that oil may be found.

The geophysical seismograph, as developed for this work, is an adaptation of two instruments which have been in scientific use for a considerable period of time. Seismograph machines in scientific institutions throughout the world have been used for the recording of earthquakes. These, of course, are actuated by the natural vibrations and movements set up by the cooling and shrinking of the earth's crust. The geophysical or reflection seismograph, as adapted for petro-



Inside of recording truck. The seismograph instruments are in the forward end of the truck, and are controlled from the lower panel. On the left are the nineteen amplifiers used with this particular outfit.

ing Mother Earth feet Underground

y Herbert Hoover, Jr., President United Geophysical Co.

Seismograph exploration, consists of a group of seismograph instruments actuated through a series of pickup units, or Geophones, which are spotted over the territory being explored. The impulses sent in by the geophones originate from a shot of dynamite placed below the surface. The pickup units transmit not only the direct impulses of the blast, but also a series of reflections transmitted back to the surface from the successive strata encountered by the impulse or vibration as it travels downward into the earth. The records produced by the seismograph are interpreted in exactly the same manner as are the sound waves reflected back from the bottom of the ocean to the recording instrument of the "sonic depth finder," which has supplanted the old familiar lead formerly used by navigators.

These reflected vibrations follow the laws of optics, i.e., the angle of reflection from the surface of the strata is equal to the angle of incidence. They travel at rather definite velocities, ranging from as low as 1,500 feet per second through the weathered layer of loose, unconsolidated surface material, to about 20,000 feet per second through granite beds at great depths.

A seismograph party usually con-

sists of about fifteen men and five trucks. First, a surveyor and rodman lay out the profile lines, set stakes to guide subsequent operations, determine the elevations of important points, and obtain permits if necessary. Second, a drill crew, using equipment that is essentially a miniature, easily portable, reproduction of an oil well rig, bore and shot holes.

After the holes have been drilled the shooting and recording crews take over. A small charge of dynamite — about one to ten pounds — is placed in the bottom of the hole and detonated electrically. The force of the explosion, while barely perceptible on the surface, generates a seismic or sound wave which spreads out in all directions. Each time this wave encounters a new bed of material as it travels downward, a small amount of it is reflected back toward the surface where it is picked up by the instruments associated with the recording truck. These exceedingly small reflection vibrations are received by the pickup units, which are called geophones, placed on the surface of the ground, amplified by vacuum tubes and finally photographed on a strip of paper by a recording oscillograph.

In the latest types of recording equipment there are from twenty to thirty separate recording positions, each with its individual amplifier and associated equipment. Each amplifier is fed by four or more geophones, making a total of approximately eighty to one hundred and

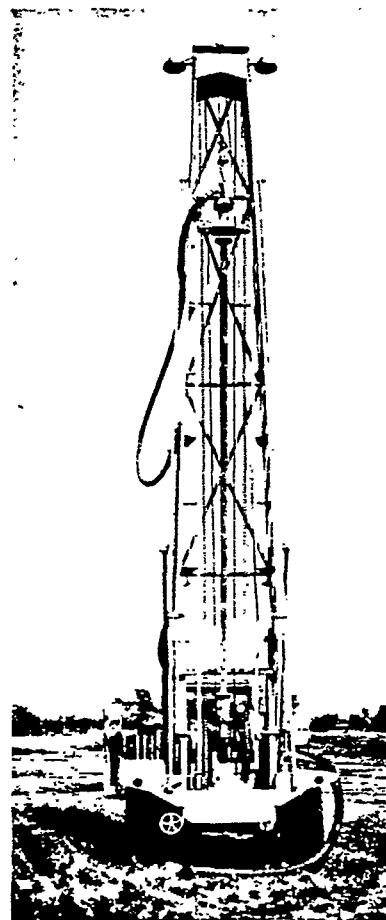
twenty of these units in use at one time.

A geophone may be roughly compared to a microphone in a telephone circuit. While the latter converts sound waves from the air into corresponding electrical currents, the geophone converts vibrations from the ground upon which it rests into similar electrical impulses.

The frequencies involved are at the low end of the audio spectrum — from 10 to 200 cycles per second — as compared to the relatively high frequencies involved in radio, television and telephone technique. The amplifiers must have a maximum voltage gain of about 95 decibels. Some form of automatic volume control is desirable which can hold the output amplitude constant while the input is varying at a rate of from



The drill tower folds up and moves to the location for the shot hole.

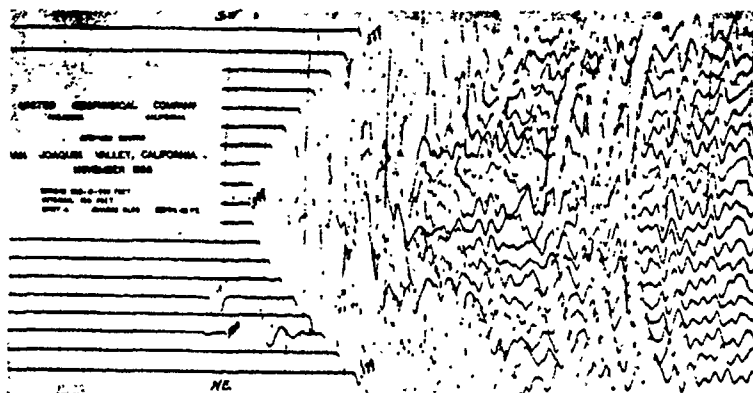


The drill tower is a complete miniature oil well drilling outfit, with draw works, rotary table, kelly, and mud pump. Power comes from the truck engine.

MARCH, 1939

Page five

ETC 22364



This is the record shown by the nineteen seismographs. The surface of each structure encountered in the downward travel of the vibration sends back an echo, which is recorded on the paper.

10 to 20 decibels per second. The strength of the vibrations sent back to the geophone is in inverse proportion to the square of the distance down and back, consequently the vibrations coming back from great depths must sometimes be multiplied by as much as 100,000 times by the automatic volume control in order to get a record which can be deciphered.

The twenty odd amplifiers in each truck must be absolutely identical in their characteristics, and the sensitivity, frequency response, phase shift and transient response must be held within equivalent limits of one decibel or less. Inasmuch as all of the equipment must be portable and operated from batteries, the filament and plate power consumption must be held to a minimum. Some idea of the technical complexity of the

equipment may be gained from the fact that about 150 vacuum tubes of various types are used in each of the modern trucks.

A recording oscillograph, in the usual applications to electrical or communications problems, is a seemingly complicated three-element affair designed to be operated under laboratory supervision. For seismograph work it has been necessary to increase the number of elements to twenty or thirty, each of which will record identically with the others. In addition to this, the unit must be capable of maintaining accurate operation over years of service in deserts, swamps or jungles; being transported by trucks, dugouts, camels, manpower, or whatever may be available.

The photographic records are turned over to the field office for

interpretation and calculation. A cross section or contour map is then prepared, showing the depth and position of each of the beds in the earth, together with the dip and strike at that point. This work is done almost entirely by men having geologic training as a background. They, in turn, go over the results with the geologists of the oil companies, who evaluate the interpretations and calculations and finally determine the probability of the existence of a possible oil field.

In actual practice, it is not unusual to map the substrata as deep as 10,000 feet so accurately that subsequent drilling has encountered the strata within 10 feet of the depth predicted in the survey.

The engineer and physicist have thus provided the geologist with a new and immensely valuable tool. To use it intelligently, the geologist must understand the general principles by which it works, its advantages and limitations and evaluate the results in relation to all of the other information which may be at hand. The older and more experienced members of the profession have been able to familiarize themselves with it during the process of its development, but many of the younger men find themselves at a decided disadvantage and in this respect unless the fundamental principles of geophysics have been a regular part of their college curriculum.



The shot is fired electrically. Up comes a little mud—and a record which enables the geologist to draw a map of structures 15,000 feet underground.



In shallow holes, the shot is lowered by means of poles which hook together. When the charge reaches bottom, a simple twist unhooks the lowest joint and the poles are recovered.

Providing Skilled Workers for Industry

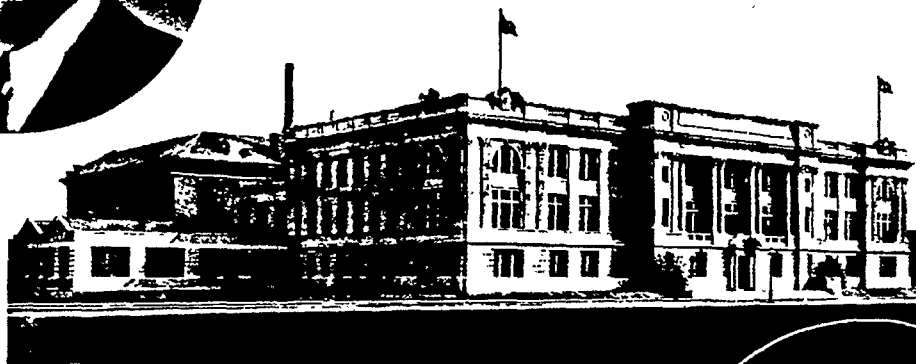
THE David Ranken Jr. School of Mechanical Trades, in St. Louis, was founded in 1907 to assist men in preparing and improving themselves in the mechanical trades of their chosen craft, that they might rise to positions of greater responsibility. Through the full-



rounded training course in craftsmanship. In performing these operations under rigid supervision for the duration of the courses, each of the students becomes more valuable to his employer. Every year the Institution's placement service receives more calls for trained workers than it has been able to supply. The annual enrollment approximates 2,000.

The evening Motor Tune-Up courses at the Ranken school recently have become quite popular with automobile mechanics in the

Mr. M. Reed Bass, Director of David Ranken Jr. School of Mechanical Trades in St. Louis.



The beautiful and well equipped building which houses the David Ranken Jr. School.

fillment of these desires it was hoped that they would be taught the dignity of labor and craftsmanship.

The original endowment has been augmented by other bequests and at present the sum available for the purpose totals more than four million dollars, the income from which is used to pay salaries and other costs of instruction. A small fee is charged each student and the institution is operated on a non-profit basis.

In the past few years the facilities for training Automobile Mechanics have been enlarged so that now the modern service equipment here enables the students to receive practical training from competent instructors. Lectures, shop talks, and actually working on problems with automobiles comprise a well

area. Various shop problems encountered are duplicated, analyzed and the necessary adjustments performed for peak performance. The necessity of good gasoline is stressed together with correct engine tune-up and an Ethyl demonstrating engine serves to assist the instructors in emphasizing the relative importance of good motor fuel. Mr. Louie Wilson, Ethyl's St. Louis Representative, has worked with Mr. M. Reed Bass, Director of the David Ranken Jr. School for the past several years. Mr. Bass has been quick to take advantage of the possibilities afforded his students in attending the Ethyl Motor Clinic and after his first visit early in January, had this to say, in a letter to Division Manager Harold Berg:

"I am pleased to inform you that

I attended your most interesting Motor Clinic last evening. It was indeed a well put-on affair and was interesting from start to finish.

"It was of special interest to me because for many years I was a member of the Society of Automotive Engineers and I recall that Mr. Midgley and 'Boss' Kettering once put on a demonstration in New York at the S.A.E. convention. At that time they took the knock out of an engine by adding iodine. 'Boss' Kettering stated that when they found some way in which to neutralize the corrosive action of



A David Ranken student makes a bench test on ignition unit.

iodine they might have an anti-knock gasoline. Later, Ethyl was produced.

"Therefore, I tied up the demonstration last night with the one I saw many years ago and, of course, reacted to the thought 'Isn't Modern Science Wonderful.'"

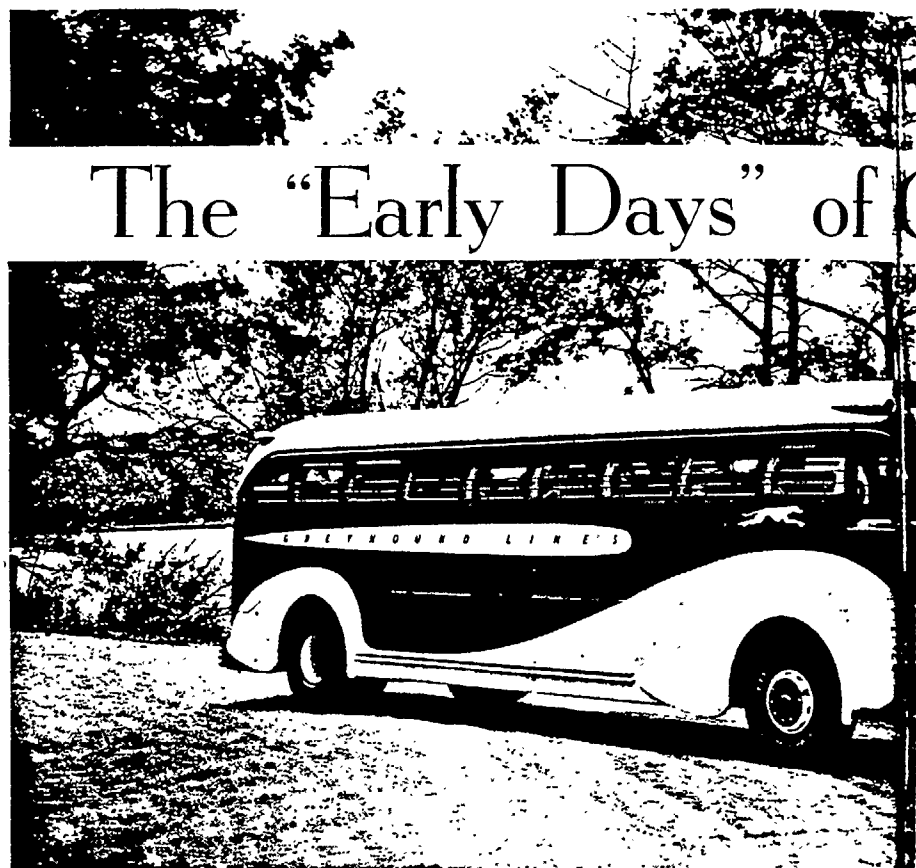
LAST year the three thousand buses of the Greyhound system ran up a mileage total equal to 600 trips to the moon. Their combined routes form a vast network of trails linking together every important city in 45 states. If all the buses in daily operation were lined up side by side, fender touching fender, they would form a wall $4\frac{1}{2}$ miles long. The largest single user of leaded fuel in America, Greyhound's annual gasoline consumption runs to fifty million gallons.

Today, when the very name "Greyhound" calls to mind a picture of streamlined luxury liners shuttling thousands of passengers across the United States, it is highly interesting to look back—only a short while back—to the early days of the business.

The world's greatest bus system may be said to have begun in 1914 with two young men, a battered Hupmobile, and an idea. The locale was Hibbing, Minnesota — "Iron Ore Capital of the World." The two young men were Andrew G. Anderson, better known as "Big Andy," and Carl Eric Wickman, an energetic chap of Swedish descent, who is today the operating genius of Greyhound. Their idea was to carry the miners from Hibbing to the town where most of them lived, on regular scheduled runs at 15¢ a ride—round trips 25¢.

Hibbing at this time was a town of amazing vitality. There were 3,000 inhabitants and 70 saloons. In the spring, when the lumberjacks came in from the surrounding forests to spend their payday, the sheriff would cruise up and down the streets in a truck. Stopping at each bar, he would load the disabled on board like so many sacks of potatoes and cart them off to the jailhouse. The roads were dirt, in dry weather; when it rained you stayed on the wooden sidewalks. With the iron ore in the nearby mines being stripped from beds sometimes only four feet under the surface, the region was developing rapidly.

And as the iron ore business grew, so did the bus business. For a brief while, a young fellow named



The "Early Days" of

Beginning of the World's Greatest

Charles Wenberg, had been a partner, but he did not enjoy driving cars and went back to the powder business. After a while another partner joined the two; they purchased a Buick and opened a second route from Hibbing out to the mines themselves. Soon they bought a Hupmobile sedan for special trips. This was the first closed car in Hibbing—people walked miles to see it.

Business continued to grow. The partners bought several truck chassis and mounted their own bodies on them. Serving the Mesaba iron ore range, they incorporated in 1916 as the Mesaba Transportation Company. That year they ordered a bus with upholstered seats . . . green plush seats! It was on exhibition for three days.

In 1917, the thriving little company took a bold step and opened a route to Duluth. Nearest city to Hibbing, Duluth lay 75 miles dis-

tant. There were no towns along the way—just an occasional farmhouse standing by itself in a lonely waste of fallen timber. The road itself was a thin layer of gravel sifted over the clay, at times crossing miles of treacherous muskeg bogs. In winter, there was the constant threat of being snowed in along the way. Another line had already announced plans to open a rival run. There were a dozen reasons against it—but people had to be carried to and from the city, and the Mesaba company was too young, too hardy to be stalled along the road to its destiny.

So they purchased a Packard "Twin Six" and lengthened chassis and body to accommodate 14 passengers. Top and side curtains of leather were fitted. The exhaust tailpipe was led along the floor for a heater, and passengers were bundled deep in blankets against the bracing

of Greyhound



ates Bus System

air of northern Minnesota.

It took a hero to pilot such a behemoth, but Mesaba found him in the genial "Cliff" Graves. Six feet two, he was the pattern for the ideal bus driver of today—tireless, clear-eyed, and always just a little bigger than any trouble that came along. His passengers were lumberjacks, miners, traveling salesmen, and once in a great while, a woman. Tiled rest rooms did not dot the road, as today. When a passenger wanted to stop, Cliff would bring the car to a lumbering halt near a clump of bushes and wait.

One winter morning the bus left for Duluth in a heavy snowstorm. Aboard were two lumberjacks, a piston ring salesman, and a Hibbing policeman on his way to the Mayo clinic for a rheumatism cure. On the way they rescued a group from a stalled car. Heavily freighted, the bus would not ride over the drifts

but would nose into them, piling up a heap in front. Twenty-three miles from Duluth late in the afternoon, the Packard finally met its match in a five-foot drift, and snapped a universal trying to buck through it. In gathering dusk, with the thermometer at ten below zero, the passengers stumbled through banks of snow until they came to a lumber camp three miles down the road. The next day they hiked into Duluth, at one point walking right over the roof of a stalled car.

Indeed, any trip in those early days was liable to be pitched on a note of high adventure. One time a stalled bus was being towed by a pair of touring cars pulling tandem. The towline led around the tie rod as well as the front axle, and before long both front wheels were toed in at an angle of 20 degrees. The caravan stopped; two burly lumberjacks bent the tie-rod straight, and — heigh, ho! — the party was again on its way. Another few miles, and the bus threw a wheel. The passengers moved into the touring cars, arrived in Hibbing at two in the morning, and stormed a restaurant for their first meal in twelve hours.

Luckily, the Mesaba Transportation Company was staffed with tireless workers. For them the day began at five in the morning and ended at eleven o'clock or midnight. But they were putting through night runs, newspaper and mail contracts had been secured and with all the profits they purchased new equip-

ment. By 1921, they were running coaches in all directions out of Hibbing. "Big Andy," driver of the original Hupmobile, was in charge of a crack run from Hibbing to Grand Rapids.

In those days, when the bus was crowded inside, extra passengers rode the roof. Six stalwart fellows flagged down the bus one day at the Stevenson mine, paid their fares, and climbed to the roof. Andy was late that trip. He pushed along, making up time, till he came to a dip in the road where the highway ran under two railroad bridges then climbed a hill on the other side. With his foot to the floor, he roared down the slope and shot under the trestles at a mile a minute. He was halfway up the other slope before he remembered the miners. With something of a jolt he remembered also that passengers on the roof usually rode with their backs to the wind—and the clearance under the trestles was exactly 18 inches!

With his fingers crossed, he stopped and climbed to the bus top. All six men were spread-eagled on the roof, roaring with glee at their "airplane ride."

All this while, other bus lines were growing throughout the 48 states. The Mesaba Transportation Company had been such a good training school that a number of the executives, including Mr. Wickman, sold their shares and bought up smaller lines. Several of these lines came together in a larger company

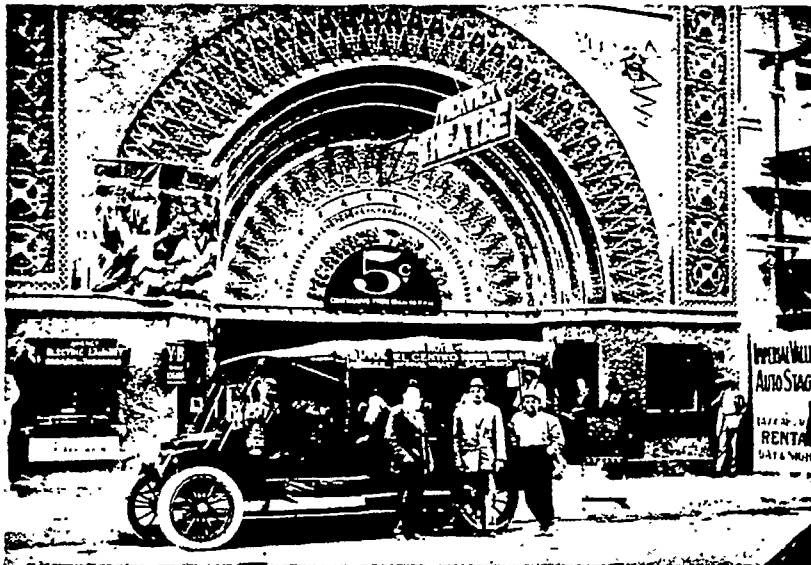
1915 Packard "Twin Six" lengthened for bus service—ancestor of today's coast-to-coast streamliners.



MARCH, 1939

Page nine

ETC 22368



Pickwick Stages, now a unit of the vast Greyhound System, was originally the Imperial Valley auto stage. The name Pickwick was wished on the line from the nickelodeon in front of which it stood in San Diego.

Greyhound was able to absorb other powerful bus lines. Alliances with several railroads produced Central Greyhound, Pennsylvania Greyhound, and others . . . until today, a map of the Greyhound routes makes an intricate and wonderful spiderweb covering the face of America. Over these routes are carried thousands and thousands of passengers each year, riding at their ease in swift, luxurious coaches—riding at rates low enough to make possible for them all the wonders of traveling the great open road.



The "luxury liner" of fifteen years ago. Blue Goose was one of the many lines absorbed in what was to become the Greyhound System. Other colorful names of the time were Swallow, Oriole and Purple Swan.

dominated by the Great Northern Railroad; then there were more ambitious young men from that company who started their own lines, only to have them bought back into the fold. Gradually, out of the welter of offshoot companies, intermarriages and absorptions that leave a genealogy too tangled to describe, there emerged one great powerful system of coach lines unchallenged in its supremacy throughout the middle west, bearing the name of Greyhound.

By a number of bold strokes,



C. L. ("Chih") Graves, now vice-president of Capitol Greyhound, when he was driving a 4-cylinder White between Hibbing and Grand Rapids in 1915.

Spark Plugs often Perform like "Old Faithful"

"OLD FAITHFUL" erupts hourly, but seldom at exact 60-minute intervals. The same pattern of variation may occur in the ignition timing of an automobile. If differences occur in the spark advance for individual cylinders, they cause variations in the relative knocking tendency of the cylinders and thus complicate the problem of rating the anti-knock value of fuels.

Advancing or retarding the ignition timing of an automobile engine increases or decreases the tendency of the engine to knock. Any variations in the ignition timing of individual cylinders under any fixed condition of speed and load cause differences in the knocking tendencies of the cylinders.

These effects, in conjunction with variations in knocking tendencies due to differences in air-fuel ratio and cylinder temperatures, determine the knocking tendencies of individual cylinders.

Variations in ignition timing in the several cylinders may be due to distributor characteristics or the distributor drive, usually the latter. The Ethyl Gasoline Corporation has

devised a method for measuring these variations in ignition timing between cylinders.

The instrument used is shown diagrammatically in Figure 1 and a representative film record obtained with it in a road test is shown in Figure 2.

A full description of this apparatus is given in a report which has been prepared, summarizing the studies made over several years on the effect of imperfect distribution and manifolding on the anti-knock ratings of fuels in multi-cylinder engines.

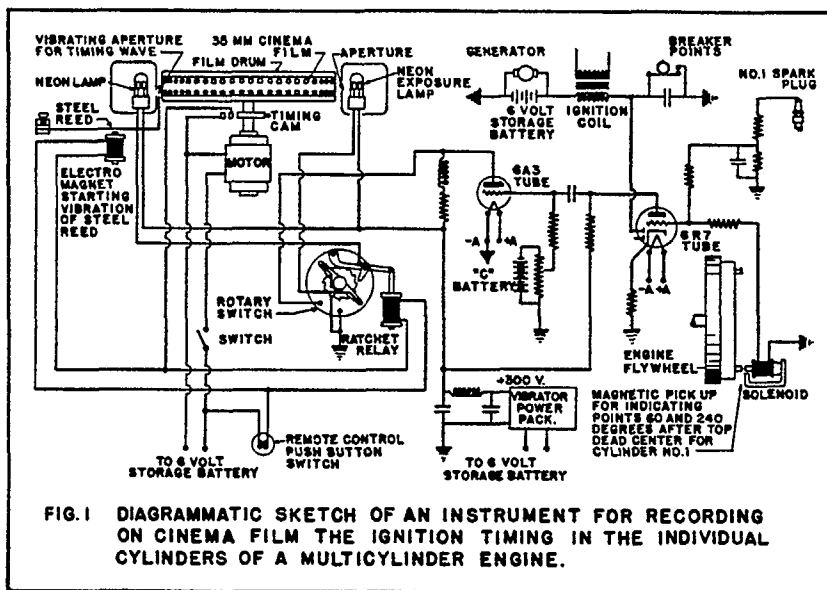


Fig. 2 This cinema film, exposed by the instrument shown diagrammatically above during acceleration of an eight-cylinder car on the road, is a record of the ignition timing of each cylinder. The left edge of the firing mark under each number indicates the instant of ignition. The unnumbered lines are fly-wheel reference marks, 180 degrees apart. The oscillatory curve at the top is a record of the movement of the constant-frequency vibrator. Note that the firing mark for number one cylinder is intentionally made wider by the apparatus in order to identify that cylinder and thus the firing order. Ignition timing of the individual cylinder is read from a curve of angular displacement of the crankshaft versus time, obtained from the flywheel reference points.



Front door and unusual stairway at COTTAGE GARDENS, home of the Foster family. Built in the 1790's and at one time owned by Don Jose Vidal, acting Governor of the Natchez Territory at the time of Spanish evacuation (1798).



RAVENNA. Home of Mrs. R. I. Metcalfe, built by the Harris family in 1835 or 1836. Purchased by Oren Metcalfe shortly before the war between the States. During the war, the bayou which surrounds the place, was used by Mrs. Metcalfe to slip supplies through the Yankee lines to the Confederates camped on the edge of town.

Natchez—Where the Old South still Lives

FOR the eighth consecutive year, historic Natchez, Mississippi, is busily preparing to welcome her guests for the Annual Pilgrimage of the Natchez Garden Club. From March 20th through April 2nd visitors will converge from every state

in the Union and from several foreign countries—if last year's registration is any indication.

These thousands of cars bearing the nation's assortment of license plates — traveling the road to the Old South — will present a strik-

ing contrast to the travelers of by-gone times. Rolling along the historic old Natchez Trace, autoists may picture the former succession of Indian runners, Pony Express, stage coach, stately plantation carriages and spirited horses. As these



Home of Dr. and Mrs. Dunbar Shields and of Mrs. A. R. Baldwin. Built in 1824 by William Bisland on lands granted his Father, John Bisland, by the Spanish Crown in 1782. House and lands still in possession of the descendants of the original owners.



ROSALIE. Built by Peter B. Little about 1820, of home burned bricks and materials collected in the Natchez district over a period of seven years. The grounds (up hill behind house) include the site of the Old Fort Rosalie of French and Indian days, the scene of the bloody massacre of 1729.

"horseless carriages" pour into Natchez their "fodder" requirements pyramid gasoline sales in a way extremely gratifying to the industry.

With the proverbial hospitality of the Southland, Natchez throws open its portals. One steps back into the past—to the halcyon days just preceding the war between the states, to those leisured, courtly days before the serene and happy reign of King Cotton was cut short. And back much further to the many races and flags that have striven for possession of that rich land — Indian, French, English, and Spanish. Each regime has left its romantic flavor to enrich the atmosphere.

As one follows the route of the tour from each famous Antebellum mansion to the next, he is told of the dozens of historic happenings and personalities that centered in Natchez. Connelly's Tavern on the original Natchez Trace, restored and reopened last year, where Andrew Ellicott raised the first American flag in the great southwest. This was in the year 1796, after he had been commissioned by President Washington to determine the boundary between the U. S. and Spanish territory. At the same inn,

Aaron Burr and Blennerhasset met in 1807. Here may be seen the house where the great Audubon made many of his finest bird studies; the fine old plantation where Henry Clay was a frequent visitor; the home where gifted John Howard Payne, author of *Home, Sweet Home*, was a favorite guest; the delightful plantation perched on the high bluffs of the Father of Rivers,

where Jefferson Davis was married to the "Rose of Mississippi." Jeff Davis' carriage lamps now light the front columns of this beautiful example of the more intimate cottage-type of architecture.

Entering the mansions — each distinguished for its particularly fine entrance, or its unusual hanging stairway, or its gracious collection of priceless china and silver, or perhaps for the rare beauty of its original furnishings, draperies, wallpaper, oil paintings — one is greeted by charming hostesses in the treasured costumes and jewels of their forebears — former belles of the old Natchez. Countless candles give the illusion one is indeed back in the olden days. The whole atmosphere is quiet, soothing, mellow and wholly appropriate to the setting of fine mansions in their lovely gardens.

A modern touch is noted in the almost inevitable architect or artist eagerly making thumb-nail sketches of an unusual portico or stair, cornice or door-jamb, mirror, chair or silver service. For in Natchez, the present fully appreciates the past and this Pilgrimage is one of America's ever-increasing gestures to bridge the gap, keep alive the pioneering spirit and build on the foundations laid by our forefathers.

CONNELLY'S TAVERN on ELLICOTT'S HILL, where Aaron Burr and Blennerhasset held secret conclaves in 1807. This once famous inn of the Natchez Trace, built during the Spanish regime in 1795 (or earlier), was kept first as a tavern by Patrick Connelly.



Garage Holds Monthly "Customer Clinic"

AN enterprising service station operator in Chicago, Victor Meyer of Vic's Super Service, holds an open house "customer clinic" once a month in his own tune-up shop — and the enthusiasm with which his friends and regular customers attend the meetings is really surprising.

Representatives of various automotive equipment and supply companies are given the opportunity each month of addressing the group, which is seated in the shop connected with the filling station. At first glance it would seem a discouraging task, trying to interest

customers into coming to such meetings, but attendance so far has exceeded all expectations. At the second meeting, devoted to the story of Ethyl Gasoline, 65 people came in spite of bad weather.

Questioning of the customers in the audience, to find their reasons for coming, revealed they were really interested in what Meyer had to say to them because he had won their confidence by giving consistently good service. Though his shop is small in size, it is remarkably complete — equipped for battery, tire or brake service, general repairs, scientific tune-up, and prac-

tically anything else a motorist might need including "headlamp reflectors re-silvered while you wait." The garage has not only attracted attention in its own neighborhood, it has won a loyal following through such services as pulling stalled cars out of mudholes and snowdrifts, changing batteries in the motorist's own garage, or sending out truck and service car whenever needed. "Vic" has also won many supporters by improving the performance of their cars. Knowing how they appreciate this, he consistently pushes Ethyl and scientific tune-up.

Victor Meyer, inaugurator of regular "customer clinic" meetings in his own shop, talks tune-up with a customer as an attendant fuels the car with Ethyl.



Malthusian Oil Theory

(Continued from Page 1)

twice that amount — 14,260,000,000 barrels of crude oil — was taken from the earth. In 1921, the same agency reported 9,000,000,000 barrels available but in the 12 years following, there was produced in excess of 10,000,000,000 barrels of oil. In 1934, the Geological Survey, undaunted, raised its estimate of petroleum reserves to 13,250,000,000.

For many years the discovery of

oil has proceeded more rapidly than its consumption and estimates of oil reserves are constantly being revised upward. Improved methods of discovery are tapping immense supplies of oil two or more miles below the surface of the earth, the existence of which would not have been believed possible until comparatively recent years. Deeper and deeper goes the search for oil.

Increasing knowledge indicates that the petroleum reserves are far more extensive than generally sup-

posed. But even when and as the petroleum reserves are depleted in the future, there will be no shortage of gasoline. According to experts of the U. S. Geological Survey, enough gasoline can be made from the nation's coal deposits to supply American motorists for 2,000 years.

Human ingenuity and inventive genius thus have before them a period of time longer than the Christian era in which to develop new sources of fuel to feed the nation's automobile.

America's First Advertising Man—Benjamin Franklin

THE Poor Richard Club of Philadelphia annually pays tribute to Benjamin Franklin, whom they consider America's first advertising man, on his birthday. The 233rd anniversary, celebrated this January 17th with impressive ceremonies during the day, reached a climax at the club banquet in the golden splendor of the Bellevue-Stratford Hotel ballroom. This yearly banquet is one of the most important events on the advertising calendar.

David Sarnoff, President of the Radio Corporation of America, was present this year to receive the Club's Gold Medal of Achievement

for his accomplishments, and as an able representative of the new television industry. Mr. Sarnoff's entertaining address was made even more interesting by an actual television broadcast. He spoke from a nearby studio, from which his face and voice were televised to a screen and loud speaker on the banquet hall stage. This was the first time in the world such a presentation was ever made. Television, he declared, will probably be presented to the public this year.

Guests at the banquet were entertained by headline acts from the radio, screen and stage before and after Mr. Sarnoff's talk. Walter

O'Keefe, master of ceremonies on "Tune-Up Time," presided over the festivities with his usual enthusiasm and wit.

Ethyl was represented by Mr. Webb, as well as Messrs. Kaley, McElroy, Gonzalez and Weston. From Ethyl's New York Division were Messrs. Murphy, Goltz, Littlefield and Locher.

Mr. E. O. Bretz, Chairman of the Poor Richard Club's banquet committee, made arrangements for Ethyl's share in the program. Mr. Bretz and his associates in the Gulf Oil Corporation, through their kind interest, helped make the celebration most enjoyable for everyone.

James T. Grady of Corporation's Staff Honored by American Institute



JAMES T. GRADY, consultant in public relations for the Ethyl Gasoline Corporation, for more than a dozen years, has been elected a Fellow of the American Institute of the City of New York "for distinguished service in the interpretation of science." A certificate of Fellowship, presented to Mr. Grady at a dinner of the American Institute at the Hotel Pierre in New York City on the

evening of Thursday, February 2nd, cited him "for his pioneer work in promoting accuracy of science reporting which has resulted in a heightened confidence and appreciation of the work of scientists in the public mind."

John J. O'Neill, science editor of the New York Herald Tribune, in presenting Mr. Grady for the Fellowship, said:

"It is my privilege and pleasure tonight to present a man who has intentionally remained unknown to fame but who has made scores of other men famous, who has brought into existence a new profession — human relations engineering — and who has created an intellectual super-power system.

"It is impossible to tell in a few minutes the story of this craftsman of the newspaper profession who became a master moulder of public opinion, and who put all of our universities on a higher plane of usefulness. I must confine myself to a few brief comments.

"Mr. Grady was born in Winsted, Conn., educated at Harvard and at Columbia Law School and worked

for many years as a practical newspaperman. After long editorial service on the New York Tribune, he was called to the School of Journalism, Columbia University, to teach practical newspaper work. Always an indefatigable worker, he also assumed direction of the publicity of the university a little over twenty years ago.

"At that time universities did not recognize the need of organized public information. They lived in a state of splendid isolation, but when Mr. Grady came into the picture, the change was a remarkable one.

"He demonstrated that there is romance and news of primary importance in fields that were formerly considered dry as dust. He demonstrated that the most difficult scientific or engineering story could be reduced to simple terms and could be told accurately in straight newspaper style with enough punch to enable it to hold its own against the best murder, political or financial story.

"For this accomplishment he richly deserves the recognition bestowed on him tonight."

Ethyl Is Set to Music

AT the recent banquet for the Chicago Division, the quartet of Yates, Dollahan, Roberts and Crane created quite a stir by rendering the "Song of the Lead Field Mice," which they had composed for the occasion. Sung

in the key of C, to the melody of "When It's Springtime in the Rockies," the song makes quite a piece of music. It was sent in to the "News" by Jim Boudreau, and runs as follows:

*"When it's Tune-up time for Ethyl
And O'Keefe is on the air,
Kostelanetz wields the Baton,
For Kay Thompson's singers fair.*

*All the world will hear our story,
How we tune for Ethyl Gas,
And the other cars move over
As ours go gliding past.*

*Now their knocks are but dim memories,
And their over-heating too,
As they're getting better mileage,
Thanks to Ethyl and her crew.*

*Now we all take pride and glory,
In this program and its Stars,
And within another year or two,
We'll have Ethyl in all cars."*

NEWSBRIEFS

We welcome to the Accounting Department, Mrs. Eunice Cabot Sauls. Eunice is a graduate of Hampton Bays High School and attended Bucknell University for three years. In her spare time at the University she did secretarial work in the Laboratory of Bacteriology. Before joining the Ethyl family she was associated with the Standard Oil Company of New Jersey. Eunice's favorite hobby is her nineteen-months-old daughter.

For the fourth consecutive year, a representative of the Baltimore Division of the Ethyl Gasoline Corp. has been assigned to the General Motors Caravan. William J. Ryan has already joined and he and Charlie Welch from the Kansas City Division will be in charge of the exhibit for the coming year.

Fritz Mercer, who was in charge of the Ethyl exhibit during 1938 and who has now returned to the Baltimore Division, will make his headquarters in Charlotte, N. C. Roy Musick has joined the Field Staff of the N. Y. Division.

At a recent monthly meeting of the General Motors Club of Atlanta, Joe Costello was elected President for the ensuing term of six months. These Clubs, which are operated under the direction of the Department of Public Relations in New York, are composed of the Managers and Assistant Managers of the various divisions of General Motors in key cities throughout the United States. There are somewhere between 40 and 50 of the Clubs at the present time and it is the intention to increase them in other cities as they are warranted.

This election was all a big surprise to Joe as he was on a business trip when the meeting was held and knew nothing about it until he got back.

After nine years of faithful service to the Company, Jean Basch Carswell resigned her position as Secretary to Paul McElroy and departed for Baton Rouge, La. A farewell surprise party was given in her honor a few nights before she left and about fifteen girls joined in the business of making Jean's departure not too sad a one.

Jean's husband, Joe, joined our E.L.A. Plant in Baton Rouge during the summer and she finally has headed for the southland to join him.

We wish you luck, Jean, and don't forget to stop in and see us when, as and if you ever get back to New York.

Benjamin Pecherer, a recent addition to the Chemical Research Laboratories, Detroit, was born and received his early education in that city. He attended the University of Michigan from 1933 to 1938; received the degree of B.S. with Distinction and Honors in Chemistry in June, 1937, and the following year was awarded an M.S. degree. He specialized in organic and physical chemistry, mathematics and physics. Ben was an Alumni Scholar from 1933 to 1937 and Paul Bagley Scholar in Chemistry from 1936 to 1937. He was elected to Phi Beta Kappa and Phi Kappa Phi fraternities. His favorite forms of diversion are music, reading and walking.



We extend our hearty congratulations to Mr. and Mrs. Daniel C. Walsh who were married on February 4th. The bride is the former Miss Frankie Troups of Baton Rouge and the groom is a chemist in our Control Laboratory in that city.

It is with sincere regret that we announce the death, on February 19th, of Kenneth Paul Murray at the Mount Vernon Hospital, following an illness of two months. He was twenty-six years old and was control chemist for the Yonkers Laboratory.



Kenneth Murray was born in New York City and moved to Mount Vernon with his parents, Mr. and Mrs. Edward V. Murray, at the age of six years. He attended DeWitt Clinton School, and after being graduated from Davis High School entered Manhattan College, New York City, where he was awarded a Bachelor of Science degree in 1934.

During the year following he was instructor in the chemistry department at Manhattan. He joined the Yonkers Laboratory Staff in May, 1936. Just prior to his illness he was making preparations to leave with his wife for Kansas City, where he was to have continued his association with the Ethyl Gasoline Corporation.

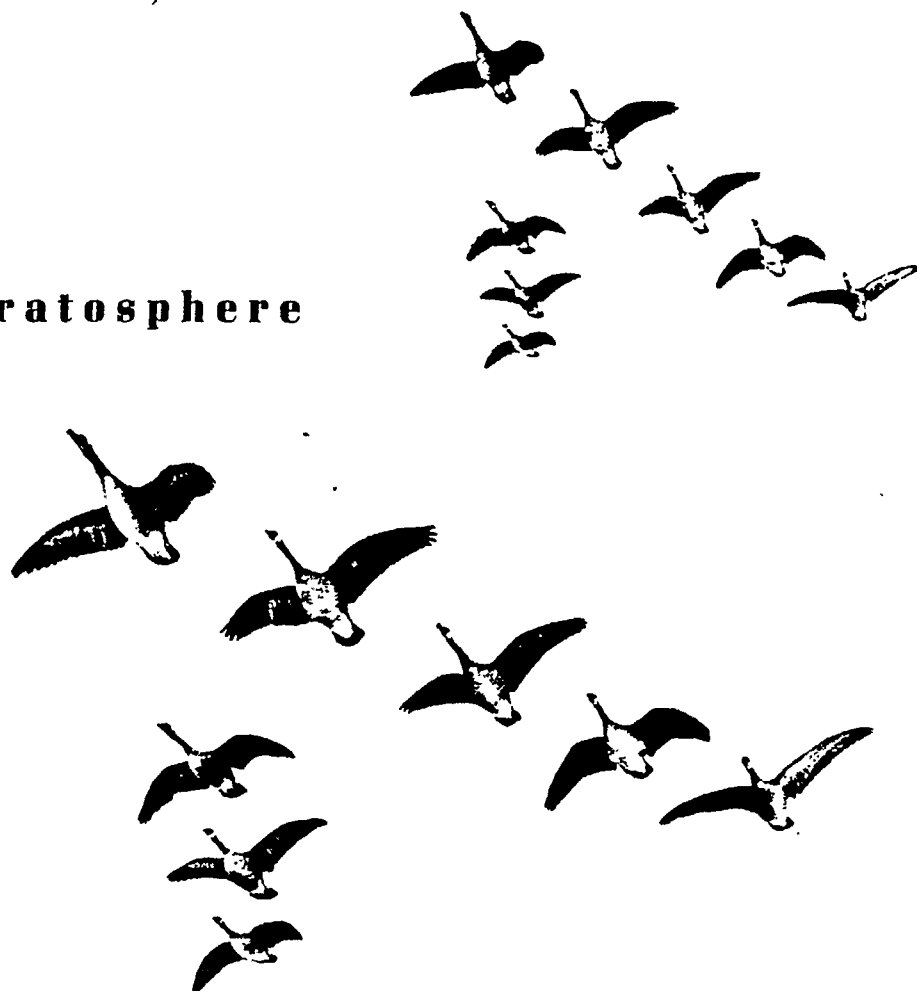
Lament of an Ethyl Wife

*I can't live life as some wives can,
My husband is an Ethyl man.
He phones, he writes reports in piles!
(That's when he's home) and ugly files
Fill up my rooms; no shows I've seen—
We live, breathe, talk, eat gasoline!
And then—so good wives could turn cynics
They had to think up Ethyl Clinics!
I'm low, I'm down, I'm in the dumps—
I'll go throw rocks at Ethyl pumps!*

*What's that you say? You never could
See that this Ethyl was much good?
Oh! You're mixed up! It's full of lead
So doesn't burn your piston head
Or grind your valves; it keeps the gum
From getting in the sparks, and some
Small octane thing, when lessened,
Will always keep you well compressioned.
There's not a ding—or is it ping?
This Ethyl is the only thing!*

—Author Unknown

Stratosphere



THEY HOLD the altitude record for birds. High in the rare, thin air . . . the earth 29,000 feet below . . . geese are the unchallenged masters of the stratosphere . . . until a gasoline-propelled bird climbs high above them. Up, up, up the man-made bird flies . . . up where even the strongest goose could not find enough air to flap his wings against or to supply his overworked lungs. For even nature's fliers have their limits.



But what is man's limit? There is none...unless it is possible to believe a limit can be reached in improvements of fuels and engines. And *that* you will never admit. Advances in aviation will continue to come from the steady improvements of fuels and engines. It is with this in mind that Ethyl engineers are daily aiding in research so that aviation will always have available fuels that permit further progress.

ETHYL GASOLINE CORPORATION, *manufacturer of anti-knock fluids containing tetraethyl lead*

ETC 22377



APRIL 1939



ETC 22378

Leaders Preferred

THE BOSS drives his men;

THE LEADER coaches them.

THE BOSS depends upon authority;

THE LEADER on good-will.

THE BOSS inspires fear;

THE LEADER inspires enthusiasm.

THE BOSS says "I";

THE LEADER says "We."

THE BOSS assigns the tasks;

THE LEADER sets the pace.

THE BOSS says "Get here on time";

THE LEADER gets there ahead of time.

THE BOSS fixes the blame for the breakdown;

THE LEADER fixes the breakdown.

THE BOSS makes work a drudgery;

THE LEADER makes it a game.

THE BOSS says "go";

THE LEADER says "Let's go."

What the Motorist Owes the Chemist



ETHYL GASOLINE CORPORATION
CHRYSLER BUILDING
NEW YORK CITY

W. CARY HARRIS
Editor

RUSSELL B. WESTON
NORTHROP CLAREY, JR.
Associate Editors

Correspondents

J. A. COSTELLO.....Atlanta
F. S. CRONIN.....Baltimore
D. S. FLYNN.....Boston
A. B. WYRICK.....Chicago
R. R. FALLER.....Dayton
H. L. NIXON.....Kansas City
CARL ABELL.....Los Angeles
R. L. GOLTZ.....New York
J. N. FITZGERALD.....Toronto
H. C. DEES.....Tulsa
R. K. SCALES.....Engineering Dept.
ARTHUR P. STOVER.....Mfg. Dept.
J. C. POPE.....Gasoline Testing Dept.
E. J. NIESER.....Administration Dept.
HUBERT FOSSETT.....London

THE MATERIAL IN THIS PUBLICATION
MAY BE REPRINTED PROVIDED DUE
CREDIT IS GIVEN THE "ETHYL NEWS"
OR ETHYL GASOLINE CORPORATION
UNLESS IT IS A COPYRIGHTED ARTICLE.

VOL. 6, No. 4

CREDIT for a large share of the reduction in the retail price of the automobile was given to the chemist recently by Mr. T. A. Boyd, head of the Fuel Department of General Motors Research Laboratories and co-discoverer with Mr. Thomas Midgley, Jr., of tetraethyl lead, in a discussion of "The Motorcar's Debt to the Chemist." His address was in the nature of an interview of the "Mysteries of Chemistry" and the program was broadcast by WCAU in Philadelphia in co-operation with the Philadelphia Section of the American Chemical Society.

The speaker related a dramatic story of the chemist's role in the development of the automobile, all of which has helped materially to reduce the price of cars to the buyer. He pointed out that between 1925 and 1937 the retail price of cars was lowered on an average of \$300 per vehicle, thus saving the purchaser 30 per cent at the same time he was getting a bigger and a better automobile.

Mr. Boyd, a research worker in the automobile industry for nearly 20 years, started with tires to trace the chemist's contribution to the automotive industry. He cited the discovery 100 years ago by Charles Goodyear, who began his experiments with rubber in the yard of a Philadelphia prison to which he had been committed for debt, that mixing rubber with sulphur and then heating the mixture changed gum elastic from a useless stuff, sticky and runny in summer and hard and brittle in winter, into one of the most useful materials in the world. Besides the fact that "tires now cost only one-third as much and last five times as long as they did 30 years ago," the research chemist pointed out that "each car now has 250 or more parts of rubber" and that "80 per cent of all rubber goes into automobiles."

To the chemist and metallurgist, he gave credit for the elimination of waste in the iron and steel industry, and for the development of alloy steels as materials of construction, as high-speed cutting tools and as means of resisting oxidation and reducing the necessity of frequent valve-grinding. Also, "the materials with which cars are being finished nowadays are almost entirely synthetic chemical products," thereby "reducing the time needed to paint a car body from the four to nine days, formerly required, to but a few hours."

Citing the chemist's gift in the matter of the investigation of petroleum, back in 1855, and the subsequent developments in the refining of gasoline, Mr. Boyd explained that, "while all these improvements have been yielding more and better gasoline, the retail price of gasoline, exclusive of taxes, has

(Continued on page 16)

IN THIS ISSUE

LEADERS PREFERRED

WHAT THE MOTORIST OWES THE
CHEMIST

THE INTERNATIONAL PAN AMERICAN
AIRPORT

THEY'RE "FROM MISSOURI" AND GIVE
"TUNE-UP TIME" A HAND

ETHYL CLINIC WELCOMED TO MOBILE

RUGGED INDIVIDUALISM UNDER THE
HOOD

ELGIN VS. CHICAGO

PLANNING HIGHWAYS FROM THE SKY

EXTRA: ETHYL CAPTURES ROSE BOWL
CUP

NATION'S POLICE EFFICIENTLY IN-
CREASED BY AUTOMOBILES AS CRIME
FIGHTERS

A LITTLE KNOWN INDUSTRY MARKS ITS
FORTIETH YEAR

NEW YORK WORLD'S FAIR TRAFFIC

ETHYL IS HOST AT NEW TULSA LAB-
ORATORY OFFICES

RONAN COMES TO NEW YORK GEN-
ERAL OFFICE

CHANGES OF MANAGEMENT IN DIVI-
SION

SERVICE AWARDS

NEWSBRIEFS

ETC 22380

The International Pan American Airport

MIAMI, Florida, has rightfully been called "The Gateway of the Air between the Americas," for here is located the Pan American International Airport.

This port bounded by Biscayne Bay on the East and South Bayshore Drive on the West, has been classified by aviation authorities as

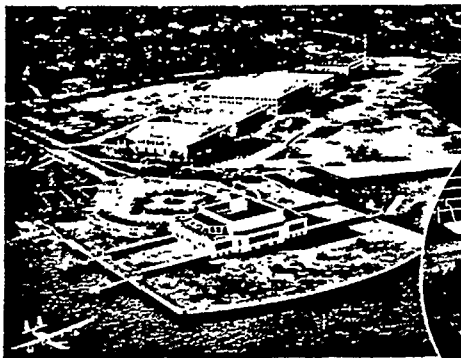
The large fleet of giant Sikorsky flying boats maintains strict schedules between the Americas with railroad regularity. These Clippers are powered by four huge engines, having 750 horsepower each. They have a capacity of 19 tons, including 32 passengers, crew of 6, 3½ tons of fuel (1,240 gallons) and tons of mail, express and baggage. Their

cated here. These samples are shipped from every point on Pan American's 54,066 miles of system and tests are made to make certain that all the gasoline and oil meets exacting company specifications.

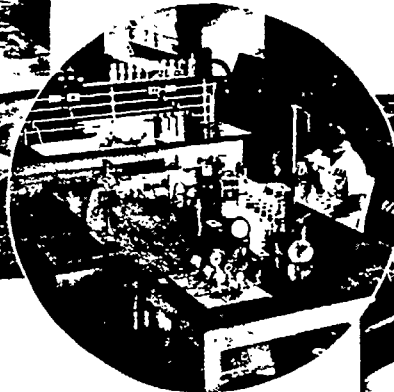
Gasoline of the following octane numbers is used throughout the System: 73, 80, 87, 90 and 95 (C.F.R. method), the last four being leaded fuel.

Pan American's fuel specifications are as follows:

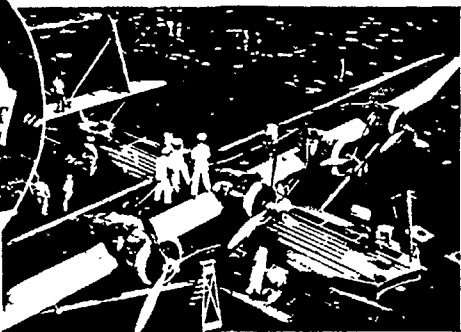
Distillation Range.



Aerial view of world's largest marine base—the International Pan American Airport at Miami, Fla.



Pan American Airway's Chemical Laboratory, located at the International Pan American Airport.



Refuelling and dressing down one of the famed flying Clippers of Pan American Airways.

one of the world's finest marine air bases. Since more than 50,000 passengers arrive and depart from here annually, it leads all cities in the Western hemisphere as a port of entry for air travelers from foreign lands.

This beautiful airport is one of Florida's outstanding show places and attracts up to 100,000 visitors per month during the winter season and an average of 25,000 a month the year around. The terminal building overlooking Biscayne Bay is one of the world's finest, being similar to Pan American's terminal at Rio. It is flanked by four sheltered piers where a like number of Clipper ships can be loaded or unloaded simultaneously.

The trip from here to Havana, Cuba or Nassau by flying Clipper ships requires only two hours. Between breakfast and lunch time Haiti, Jamaica and Mexico are reached and all the West Indies to Puerto Rico and even Panama and Northern South America are easily within a day's journey. With no night flying, the trip to Rio de Janeiro, which is 6,000 miles away, is made in five days.

cruising speed is 150 miles per hour, top speed 190 and they have a flying range of 1,200 miles non-stop.

The world's largest aircraft hangar is located at this base. This enormous steel structure, three stories high, houses one of the most modern equipped aircraft shops. It was designed to accommodate the Clipper ships of the future, whose wing spans, officials say, will be enormous.

The central control room in the terminal building is the nerve center of Pan American's Eastern Division. It is connected with the near-by powerful radiotelegraph station whose transmitters flash messages to other ground stations to the South and to Clipper ships in the air.

From the four corners of the earth, Hong Kong, China; Southampton, England; Fairbanks, Alaska and Buenos Aires, Argentina, fuel is sent to be tested in Pan American's Chemical Laboratory lo-

Not less than 10% evaporated at 158° Fahrenheit.

Not less than 50% evaporated at 212° Fahrenheit.

Not less than 90% evaporated at 257° Fahrenheit.

The vapor pressure at 100° F. shall not exceed 7 pounds/in². The sulphur content shall not exceed 0.10%. The gum content shall not exceed 6 m.g. per gallon.

Here are some interesting facts pertaining to the operation of the Pan American Airway System:

Miles of airways in operation, 54,066; Countries and colonies served, 51; Passengers carried, over 1,086,000; Passenger miles flown over, 398,200,000; Ground radio control stations operated, 143; Airliners in operation, 130; Regularity of schedule maintained, 98.09%; Persons employed, 5,000, of which 650 are located in Miami.

They're "From Missouri" and Give "Tune-Up Time" a Hand

THE following "Resolution" drawn up in proper parliamentary form, was sent recently to the Program Director of the Columbia Broadcasting System who in turn forwarded it to our office in the Chrysler Building. Although we receive hundreds of letters each week concerning the Radio program, "Tune-Up Time," the testimonial from these five young attorneys in Missouri is so unusual and evidently sincere, we print it herewith:

RESOLUTION

WHEREAS we, the undersigned, are all residents of the cities of Liberty and Excelsior Springs, State of Missouri,

WHEREAS we, the undersigned, at certain hours on the nights of Monday, Tuesday, Thursday and Friday of each week are all passengers in one and the same automobile and have made it our custom and practice to listen to the various commercial radio programs then and there produced and presented over various radio stations,

WHEREAS we, the undersigned, are members of the male sex, range in age from twenty-three to twenty-six years and are not entertainers or are specialists in any way in the field of radio,

WHEREAS we, the undersigned, have carefully listened to and and considered the various commercial programs being produced at such times and have discussed the merits and possible demerits of such programs among ourselves.

NOW THEREFORE BE IT RESOLVED that the program entitled "TUNE-UP TIME," featuring Walter O'Keefe and others, and being sponsored by the Ethyl Corporation, be singled out and chosen by the undersigned as the best, most entertaining and most enjoyed radio program presented over the radio during such times and that the producers of said program be duly notified of such a selection.

IN WITNESS WHEREOF we have hereunto set our hands and seals this 27th day of February, A.D. 1939.

E. Keller Bell
E. Keller Bell, Liberty, Mo.

Ralph A. Cooper
Ralph A. Cooper, Liberty, Mo.

Ben W. Morse
Ben W. Morse, Exc. Springs, Mo.

Jason L. Palmer, Jr.
Jason L. Palmer, Jr., Liberty, Mo.

William B. Waters
William B. Waters, Liberty, Mo.

Ethyl Clinic Welcomed to Mobile

THE Mobile showing of Ethyl's Atlanta Division Clinic was inaugurated on the night of February 16th before a preview audience of 154 men representing the following industries: Gulf Refining Company, Standard Oil Company of Kentucky, Ford Motor Company, The Texas Company, Pure Oil Company, Sinclair Refining Company, Shell Petroleum Corp., Kitrell Milling Dodge Company, Packard Motors, Quigley Specialty Company (Buick and Pontiac), Quigley Motors (Cadillac-Olds GMC), Adams Chevrolet Company, Hamrick Nash, Gulf Coast Studebaker Company, Barnes Chrysler Company, Cobb Hudson Company, Alabama Power and Light, Pan Am. Petroleum Corp., Wofford Oil Company (Pure Oil), International Truck. Also present were representatives from ten fleets and from the press.

Judge B. H. Turner, one of Mobile's leading citizens, was introduced by Mr. T. H. Tennent, Alabama representative for the Ethyl Gasoline Corporation, who presided over the meeting. Judge Turner officially opened the show and welcomed the Clinic to the city. He remarked that Mobile would derive considerable benefit from the extensive program being carried out by the Clinic and that speaking for the city as well as for every man in the audience, the Atlanta Division Clinic would receive all possible cooperation.

The car for the demonstration was secured from Mr. Quigley, President of the Alabama Motor Dealers Association, and judging by the comments heard after the meeting, was a direct factor in switching several fleets over to Ethyl.

The Clinic remained in Mobile until March 28th, going there following a very successful stay of almost two months in New Orleans.

Rugged Individualism Under the Hood

AUTOMOBILE engines are composed of 4 to 16 individual cylinders. Each is an engine in itself. Each has its own temperatures and ignition timing and burns different fuels at unlike mixture ratios. Only one or two of the cylinders may knock on a given fuel, yet they are the ones which determine the knock rating. Automobile engines must be "taken apart" cylinder by cylinder in order to get a correct understanding of fuel knocking characteristics.

Under conditions of low-speed operation at wide-open throttle, where knocking usually occurs, gasoline is only partially vaporized in the intake manifold of the automobile engine. The vaporized portion is distributed approximately equally to the cylinders, but the unvaporized heavy ends are differentially distributed.

The unequal distribution of the unvaporized heavy ends gives rise to three typical mixture conditions in a multi-cylinder engine as follows:

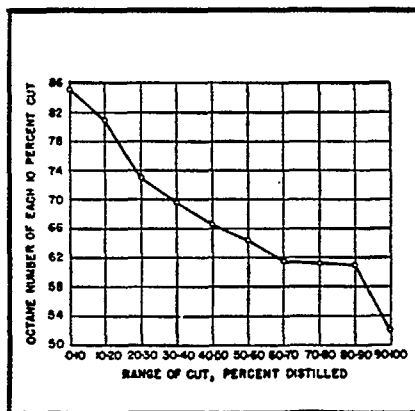
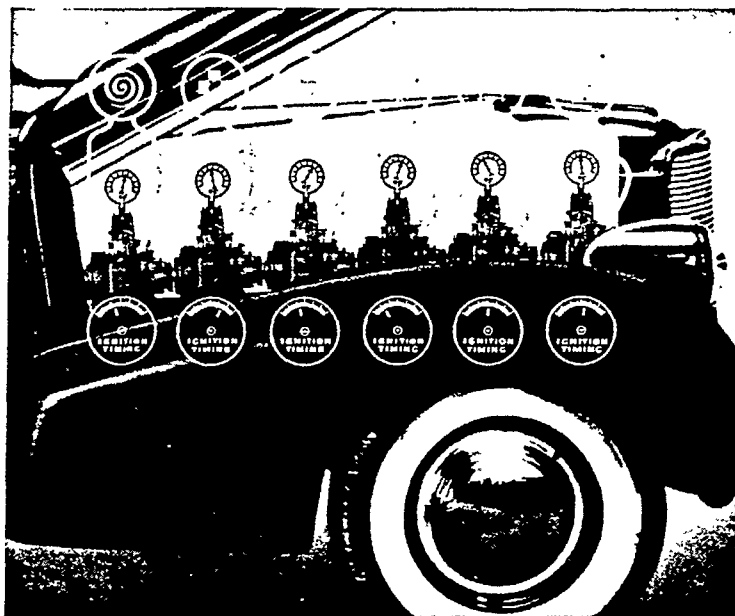
1. One or more A-type cylinders

may receive only light ends vaporized in the carburetor and manifold, and substantially no liquid heavy ends.

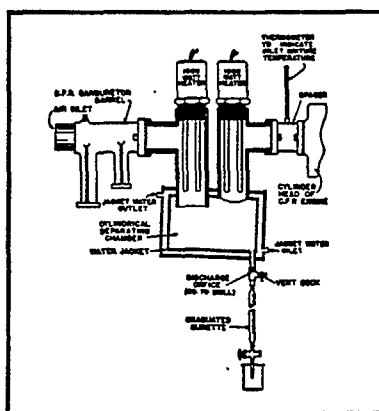
2. One or more B-type cylinders may receive vaporized light ends and liquid heavy ends in such proportions that the composition of the fuel and ratio of weight of air to weight of fuel are substantially the same as for the mixture leaving the carburetor.

3. One or more C-type cylinders may receive a normal charge of vaporized light ends and liquid heavy ends similar to that entering the B-type cylinders, and, in addition, the liquid heavy ends which under conditions of perfect distribution would have entered the A-type cylinders.

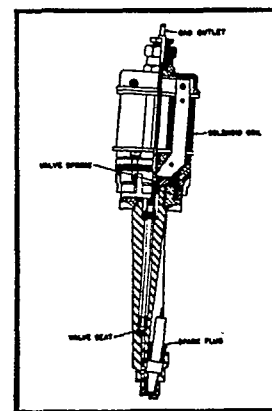
The fuel in the A-type cylinders has the highest *intrinsic* anti-knock value and the mixtures in these cylinders are usually nearest the air-fuel ratio for maximum knock. The fuel in the C-type cylinders has the lowest *intrinsic* anti-knock value and the mixtures in these cylinders are ordinarily farthest from the air-fuel ratio for maximum knock. The mixtures in the B-type cylinders are intermediate in both respects. It has been found that differences in the air-fuel ratios of the mixtures in the cylinders have a greater influence on the relative knocking tendency of the three types



The anti-knock value of 10 equal cuts of a typical commercial base gasoline, separated by simple distillation, is shown on this graph. Note that the octane value varies from 85 for the first 10%, or lightest fraction, to 52 for the last 10%, or heaviest fraction.



Special intake manifold for the C. F. R. engine designed to permit a study under controlled conditions of the effects on knocking caused by variations of fuel distribution in the multicylinder engine.



This combination spark plug and gas sampling valve withdraws samples of exhaust gas directly from each cylinder in studies of fuel distribution.

of cylinders than variations in the *intrinsic* anti-knock value of the fuel in the cylinders. As a consequence, lean cylinders of the A-type have the greatest knocking tendency and rich cylinders of the C-type the least.

Through the use of special manifolds on the single-cylinder fuel knock testing engine, it is possible to stimulate the effects of differential distribution of heavy ends of the fuel in the car engine.

Variations in ignition timing due to wear of the distributor or distrib-

utor drive and differences in temperatures from cylinder to cylinder further influence the knocking tendency of the individual cylinders.

Differences in fuel distribution, temperatures and ignition timing among the cylinders are of great importance to manufacturers of automobiles and gasolines. Automotive engineers and oil refiners are studying this problem as related to their products in an effort to reduce differences in operating conditions among individual cylinders and to

minimize the effects of such differences.

The laboratories of the Ethyl Gasoline Corporation, in cooperation with the oil and automotive industries, are engaged in continuous studies of the inseparable problems that arise in the development of engines and fuels. The indication of increased complexity of such problems in the future suggests the desirability of the closest possible cooperation in research on these mutual problems.

Elgin vs. Chicago

SKILLED craftsmen have always taken great pride in competing with other craftsmen of ability. It is not surprising that the new interest created in engine "Tune-up" and the expert instruction available has stimulated contests between teams.

The Allen Electric Company has organized Tune-up Schools and

to perform the job expertly and efficiently after which he is given an examination to prove his ability. A certificate or diploma is awarded a man completing the course, certifying to his training and qualifications.

With the cooperation of the Leech Auto Parts Company and the Brown Battery and Electric Company, both located in Elgin, Illinois, an Allen

They carefully checked, also graded each successive step in properly tuning the engine. Five points was considered a perfect score for each of these steps.

The two Elgin teams took first and second place with scores of 100 and 99, the Chicago men following right behind with 95 and 90 respectively. Each service man in the contest un-



Elgin and Chicago teams together with judges. Photograph taken at the start of the contest.

every phase of modern automobile engine maintenance and adjustment is included in the twelve weeks' course. Classes consist of a lecture period with illustrations, followed by practical demonstrations and actual application of the theory previously discussed. Each man participates to the extent of being able

Tune-up School was conducted in that city. Nine men took the course which created so much enthusiasm, that they proposed a tune-up contest with a similar group who had previously taken the course in Chicago.

The contest was held in a large Elgin garage and the Judges acted in the capacity of service managers.

questionably derived a tremendous amount of good from the experience.

The Ethyl Gasoline Corporation was very fortunate in having one of the Ethyl Motor Clinics in Elgin at the time the Allen Tune-up School was being conducted. Lesson No. 8, covering combustion theory and fuels, was given by the Clinic.

Planning Highways From the Sky

IN a heavily wooded area in a mid-western state, recently, a survey crew from the state highway department had worked for more than two months to get a line through the dense growth. The proposed highway was to run a little more than thirty miles in almost a straight line, and the field crew had stumbled and hacked its way for only eighteen miles since the project had started. Thick underbrush had made progress especially slow, and the entire crew was mighty tired of the whole job.

An aerial survey company, hearing of the trouble, outlined to highway engineers a speedy remedy for their problem. The area was flown one morning in a special mapping airplane, carrying an aerial photographic camera. A mosaic strip map was constructed in the aerial survey laboratories and in less than three weeks the highway engineers knew all they wanted to about the section and had sketched on the aerial map just where the highway was to be constructed.

Highway engineers all over the country are rapidly realizing the value of aerial photographs as a preliminary study in highway planning, construction and maintenance. Their accuracy is unsurpassed, for the map is an actual picture of the area, and no details are lacking.

When an aerial survey is to be made for a highway department, a preliminary survey is made by taking the locating engineer up in a plane and flying back and forth over the area, eliminating every possible route except one. Then, a mapping plane piloted by an expert aviator and carrying a camera operated by an aerial photographer is sent up to fly over the terrain. The route is photographed as a strip about two miles wide.

The photographs are then made into a "mosaic" map, constructed by taking the center portions of the prints and matching them much the same as in a jig-saw puzzle. The matching is necessary to get greater accuracy by eliminating any distortion near the edge of the prints. This mosaic, mounted on cloth, may be conveniently rolled when not in use.

Highway engineers, after studying the area, draw their location lines directly on the air map. Every ditch, gully, hill and structure is clearly shown on the photographs and contours may be studied and measured through the use of a stereoscopic instrument called a "contour finder."

Even though flat country, aerial

maps are being used to study property along a proposed right of way preparatory to buying whatever land is needed.

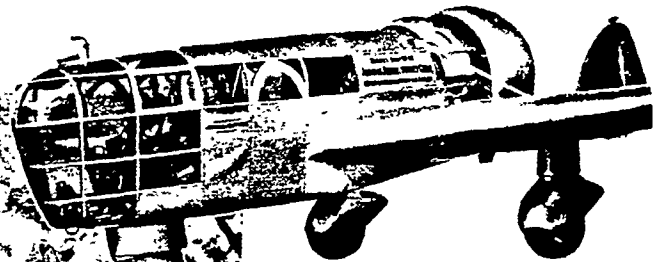
In some cases, country and state highway departments have co-operative maintenance systems. Here, aerial maps have proved valuable in checking the county certification of the mileage of roads under their care. In several instances, counties have reported roads where aerial surveys proved no roads existed!

Economy, especially on a government project where the taxpayer has to be considered, is a dominant factor. Under normal conditions, a survey party working on the ground will cover about two miles a week. It costs approximately \$1,000 a month to keep a six-man party in the field, according to figures from one state highway department. With only eight miles covered in a month, the cost per mile averages \$125.

Aerial surveys cost roughly one-fourth this amount.

These are just a few of the reasons why the highways of the future are being planned from the sky.

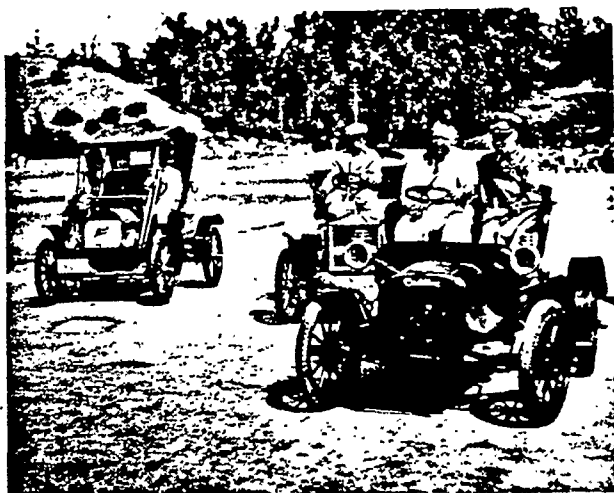
—Courtesy "The Buick Magazine"



Abrams "Explorer" manufactured by Abrams Air Craft Corp. — a division of Abrams Aerial Survey Corp., Lansing. Ship made especially for aerial photographic mapping.

Pennsylvania farm land from 14,000 feet.

Extra: Ethyl Captures Rose Bowl Cup



A 1904 Brush, 1904 Oldsmobile, and 1906 Cadillac warm up their one-cylinder engines for the big race. The "scorcher" at the wheel of the Cadillac is Barney Oldfield himself.

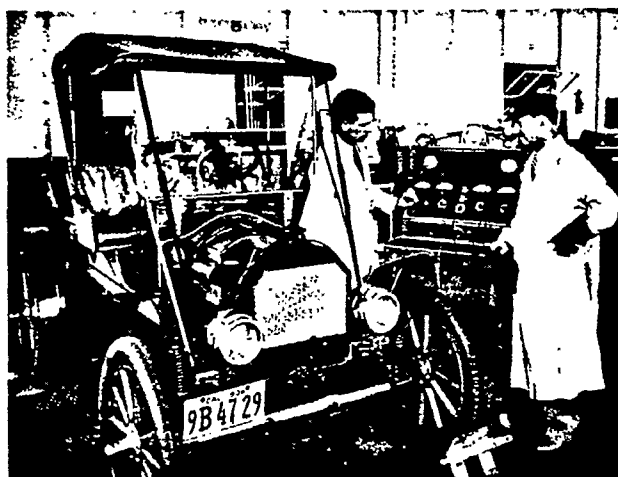
from his face and modestly made a statement for the press:

"Races are run on the track, but they are won in the days and weeks before the race takes place. Every unit of the car must be as nearly perfect as it is humanly possible to make it. But more important, the units must all function correctly in relation to each other. Ignition, carburetion and fuel must all be coordinated to produce the best possible balance, and thus the absolute maximum in performance. With modern precision methods of tuning the engine, combined with the amazing qualities of Union Ethyl Gasoline I could have won this race in a wheelbarrow."

EXHAUSTS roared and barked a staccato song of defiance. Wheels churned up clouds of dust; pebbles flew; the crowd cheered wildly. Three cars fought into the home stretch. Barney Oldfield—that almost legendary figure of racing—gritted his teeth and clung to the wheel of his 1906 one-cylinder Cadillac. Fighting for position against him were a 1904 Oldsmobile, driven by Pasadena's Fire Chief, and a 1904 Brush, single-cylindered like the others, driven by Earl Cooper, A. A. A. headliner of former years. The race was the Old Timers' event in the celebration of Pasadena's fiftieth anniversary. The stands cheered as Earl Cooper pulled into the lead; they rocked with applause as he crossed the line inches ahead of the others.

For Ethyl, this race adds another victory to a list already impressive. Fueled with Union Ethyl, the winning car had been "souped up" and carefully tuned on a chassis dynamometer for the event, at the Union Oil Company's Motor Measure Unit No. 1 in Los Angeles.

Stemming the tide of congratulations, the veteran pilot wiped the dust



"Races are won in the days and weeks before they take place." Note the wooden front axle and chassis, and the 1904 version of coiled front springs.

Mrs. Cooper congratulates her husband... he gives the credit to Ethyl and scientific tune-up.



Nation's Police Efficiently Increase



A message is about to go on the air over New York City's radio-telephone system. At police headquarters the dispatcher has before him large maps of the city's five boroughs with metal discs showing the location and number of every car on duty. In right background is the 500 watt transmitter.

PARTNERS in suppressing crime, the automobile and short wave radio have quickened and lengthened the arm of the law.

Almost 12,000 units of motor equipment are operating in 689 of the 982 larger municipal police departments in the United States, a recent compilation by the International Association of Chiefs of Police shows. More than 2,000 new passenger cars were purchased for police work in the first six months of last year alone.

Speed and mobility afforded by the automobile are giving the police such a decided advantage in the fighting of crime that motor vehicles are coming into increasingly greater use, even to the extent of making a relic of the beat patrolman in some cities.

Long a factor in police work, the effectiveness of automobiles has been increased through the addition of short wave radio, which has come into wide-spread use in the past ten years.

The first police official to establish a municipally-owned radio station devoted to police calls, W. P. Rutledge, who did pioneering work in Detroit as early as 1921, made this observation a few years ago as the result of Detroit's successful experience:

"Seconds are precious to the law breakers; they spell the difference between escape and capture. By use of radio-equipped cars we are catching the criminal red-handed, thus eliminating the introduction of circumstantial evidence in trials by indisputable proof of guilt.

"We are cutting the cost of law enforcement by catching the crook with the goods on. The psychological effect of quick capture acts as a powerful deterrent to crime." And as a very necessary aid in carrying on such a program, the Police Departments of many of the large cities the country over, specify Ethyl for their equipment.

Detroit's remarkable record of making 600 important arrests in the average time of 80 seconds per arrest attracted the attention of police officials everywhere. The growth that followed is evidenced by the fact that now 694 municipal police stations are authorized by the Federal Communications Commission to broadcast, as well as 210 state police stations, 55 zoned police stations and 21 inter-zone police stations.

New York City has nearly 500 radio cars operating over the city's 317 square miles, which is one patrol car for each two-thirds of a square mile.

In all, 625 motor vehicles carry radio equipment. With the old signal box system it would take a patrolman 20 minutes to reach the scene, according to Thomas W. Rochester, chief engineer of the New York City police department, while the radio car's average time is 45 seconds. "And these 45 seconds are significant," he says, "since it has been estimated that the small hold-up job takes just about this length of time to carry out. Thus, the criminal is very likely to be



Behind the scenes with the police. They whom they captured as they answer.

caught in the act or at least apprehended before he has time to make a getaway."

The year after New York City equipped its cars for radio patrol duty, patrol car arrests rose from 1,029 to 3,330. The police department reports that \$1,100,000,000 worth of property is being recovered annually in the city by radio car crews.

Some of the achievements resulting from the use of these twin units of law enforcement are among the outstanding events in police annals. In Brooklyn, a radio car raced to the scene within a minute after two men had begun to hold up a mail truck

Used by Automobiles as Crime Fighters

driver. A woman in a nearby apartment, hearing the driver cry out, telephoned the police. A message was flashed to a squad car crew and the capture was made.

Detroit police caught a murderer within two minutes of the time he committed his crime. A telephone call was received, the alarm broadcast, the message was picked up by a car near the spot, and the killer arrested as he was about to cast his gun into a nearby creek. In another in-

land abandoned the foot patrolman and put virtually its entire crime fighting and safety force on wheels.

San Francisco has radio-equipped every one of its 115 patrol cars. Chicago has more than 200 automobiles so outfitted, New Orleans has 56, Kansas City 103, Denver 58.

Nearly half of Boston's 163 patrol cars have radio receivers and the Massachusetts state police has all its 122 cars equipped.

Two headquarters cruisers, one patrolling the east side of the city and the other the west end, comprised Detroit's radio units in 1924, while today, 161 cars are outfitted for this high-speed activity.

Following its experience trying to capture the Dillinger gang in 1934, when the department had but few cars, the Indiana state police department in the last few years has brought its radio fleet up to 177 units.

Along with police of cities and states, the Federal Bureau of Investigation has found the automobile an invaluable weapon in crime fighting. G-men credit motor vehicles with making possible the breaking of some recent kidnapping cases.

In addition to apprehending criminals, many other useful purposes are served by radio patrol cars.

Messages broadcast on police radio channels often include instructions requesting a check on traffic conditions, accidents and emergencies. Pressed into service to aid the Fire Department eliminate false alarms, the radio squad in four months enabled New York City to reduce false alarms from 35 to 5 a day. Since each fire brings out an average of three engines and costs Father Knickerbocker an estimated \$200, the drop in false alarms amounted to a daily saving of \$6,000 or more than \$2,000,000 a year.

Two-way radio, which makes it possible for police officers to talk to headquarters and receive instructions, is growing in use, giving added protection to 45,000,000 citizens living in areas where such facilities are operating. With the growing and widespread use of both the one and two-way equipment, authorities suggest that in the next five years it is conceivable that there will be no place in the entire country where a criminal will be beyond the range of police radio cars.



They got their man. Radio Police shown with the culprit answered a police radio alarm reporting a holdup.

stance, the alarm of a bank hold-up was flashed to cruisers. A patrol car was near the bank and the police officers got their man within 60 seconds of the receipt of the message.

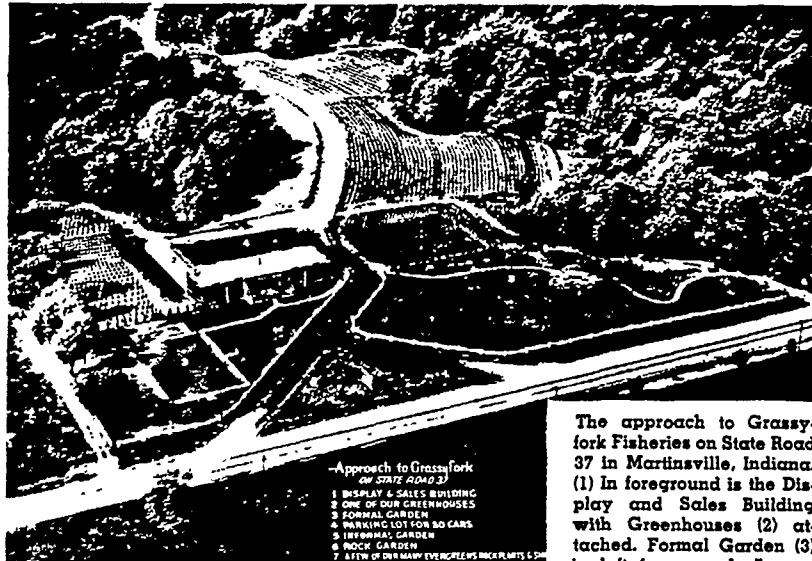
After five months' experience with police radio cars, the Evansville, Indiana, police department reported 179 arrests against 134 the preceding year. Yet, before radio squad cars patrolled the city robberies had been 72% more prevalent and 13% more cases of burglary had been reported.

Police departments from coast to coast are engaged in this modern type of crime fighting. In reorganizing its policing methods last summer, Cleve-



Chances of escape diminish as police cars move through the night in pursuit of the lawless.

A Little Known Industry Marks Its Fortieth Year



The approach to Grassyfork Fisheries on State Road 37 in Martinsville, Indiana. (1) In foreground is the Display and Sales Building with Greenhouses (2) attached. Formal Garden (3) in left foreground. A considerable acreage (7) is devoted to the raising of evergreens, rock plants and shrubs.

A MOST unusual and interesting industry is that of the Grassyfork Fisheries, Inc., of Martinsville, Indiana. This is the headquarters and main plant of the company though branches are located at Saddle River, N. J.; Toronto, Canada, and Southampton, England. Here are raised goldfish and water lilies, the former by the hundreds of millions, which are sold through dealers and wholesale houses throughout the world.

The business started with two hundred goldfish, a swamp and a contract with a chemical company in 1899. Mr. Eugene C. Shireman owned the swamp and decided to put it to work when a friend in the washing powder business hit upon the idea of giving a souvenir bowl and two small fish as a premium with every order. The idea worked so well that all the fish were sold but by the time more fish could be hatched, the chemical company had gone out of business. There were other companies using goldfish for the same purposes, however, and orders came in as fast as they could be filled.

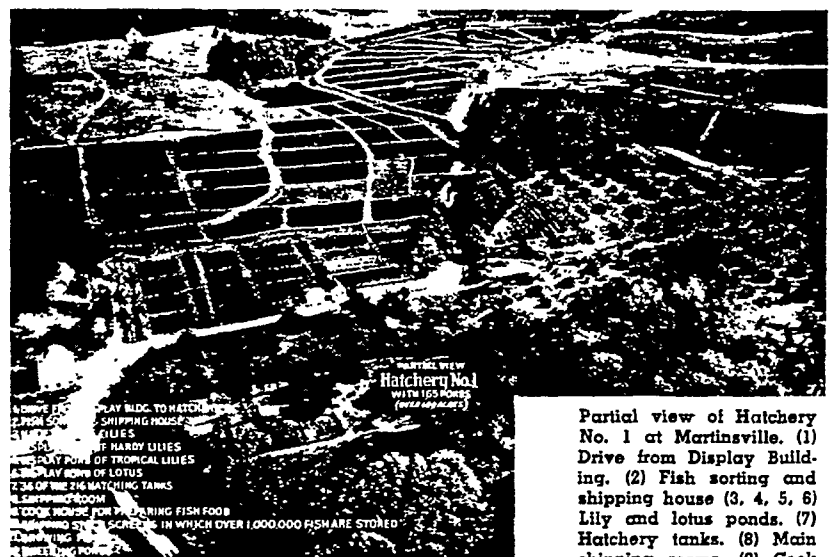
Most of the fish were used as premiums in the early years, but gradually new markets were developed. Fishermen learned that, when bass won't strike anything else, they can

nearly always be counted on to fall for a goldfish. Over a million goldfish were shipped to the city of Memphis, Tennessee, during one season for use as bait, as goldfish live longer in the bucket and on the hook than minnows do. Another use for them is that of feeding large fish kept in captivity. An example is when a forty-pound muskellunge was being displayed in Chicago recently. He was

said to be the largest muskellunge in captivity at the time but he went on a hunger strike. Nothing was good enough to eat and it looked as if he soon would be nailed to a plank. However, the timely suggestion of a menu of goldfish by the superintendent of Lincoln Park Zoo solved the problem. The muskie looked at the goldfish, tried one and from then on would eat nothing else.

Caring for the present stock of fifty million goldfish at Grassyfork is a major undertaking. Over a hundred and twenty-five men are employed and the food alone costs seventy-five thousand dollars a year. This is more than the feed bill of any other livestock producer in the state of Indiana. Wheelbarrows, wagons and motor trucks haul the food which consists of tons of egg yolks, carloads of flour and enough corn meal mush to feed an army.

The fish are hatched in a chain of outdoor pools fed by natural springs and flowing from one to another, finally emptying into Grassyfork and Clear creeks. There are six hundred and forty-five ponds covering an area of three hundred and fifty acres and varying in size from fifty feet square to the largest which covers eighteen acres. Two of the ponds contain no



Partial view of Hatchery No. 1 at Martinsville. (1) Drive from Display Building. (2) Fish sorting and shipping house (3, 4, 5, 6) Lily and lotus ponds. (7) Hatchery tanks. (8) Main shipping rooms. (9) Cook house for preparing fish food. (10) Shipping stock screens storing over one million fish. (11) Growing ponds and (12) breeding ponds.

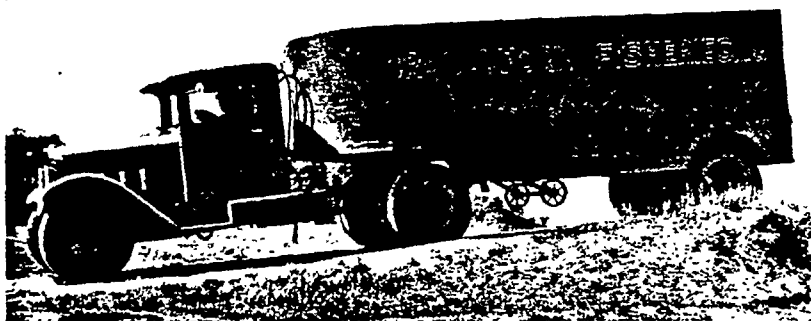
fish but are given over to the raising of almost microscopic daphniae or water fleas, which are scooped from the surface on cool summer mornings and fed to the fish. These tiny daphniae use oxygen and care must be taken not to put too many in a pond of small fish lest they smother them. Breeding pools are lined with nests made of wire cloth covered with Spanish moss. A female, some of the veterans being over twelve years old, may lay as many as seventy-five thousand eggs in a season. Spawning begins about sunrise and lasts till about noon, after which the nests are transferred to small hatchery tanks. About sixty per cent hatch into fry no larger than mosquito larvae. Their first diet is powdered egg yolk but as the fry grow larger and stronger, they are transferred to other pools and are given other food — mostly wheat flour, then corn meal — till they are ready for the market. The average age of fish leaving Grassyfork is about four months. One problem of goldfish hatcheries is to bring about the change to rich golden color at an early age. The fry are dark when hatched and become blacker as time goes on, being darkest just before they change to gold. A method of color change by artificial means has never been discovered. Fish have been fed everything and nothing; they have lived twenty-four hours a day under arti-

ficial sunlight and they have lived in total darkness. They still change color when they want to.

Fish harvesting time is one of activity and excitement. Men wade up to their waists in the pools, dragging long nets. Then the water is drained from the pools and the mud worked with scoops. The fish are hauled to shipping pools near the main building where they are dumped into screen cages hung in the water. Inside the shipping depot they are quickly sorted for size over oil cloth tables, counted into metal cans provided with ice compartments for hot weather and shipped by express. A recently acquired giant tank truck, accommodating two hundred thousand fish, packed in layers of screen baskets, and insulated against heat and cold, supplements express ship-

ments. It is equipped with a small gasoline engine that pumps fresh air through the water from the time it is loaded till it reaches its destination.

A new and rapidly developing phase of the business is the Grassyfork Water Gardens. Beautiful water lilies and other water plants are grown here for the market and are sold either individually or in attractive groupings. More than a hundred varieties of lilies are listed in this year's catalog. While nearly all of the goldfish raised are sold through dealers, the water plants are sold directly to individuals. Orders come from all parts of the country in increasing numbers because people are learning that no back yard is too small to be made attractive by a pool of lilies with a few fish to keep down the mosquito larvae.



An especially equipped truck recently acquired by Grassyfork Fisheries which can accommodate two hundred thousand fish.

New York World's Fair Traffic

MANY car owners who plan to visit the New York World's Fair this summer may be tempted to "leave their car home in the garage, and take the train to avoid traffic." For the benefit of those who have anticipated unpleasant congestion, lack of parking space, or difficulty in finding their way to the Fair by car, the following information has been assembled to put their minds at ease.

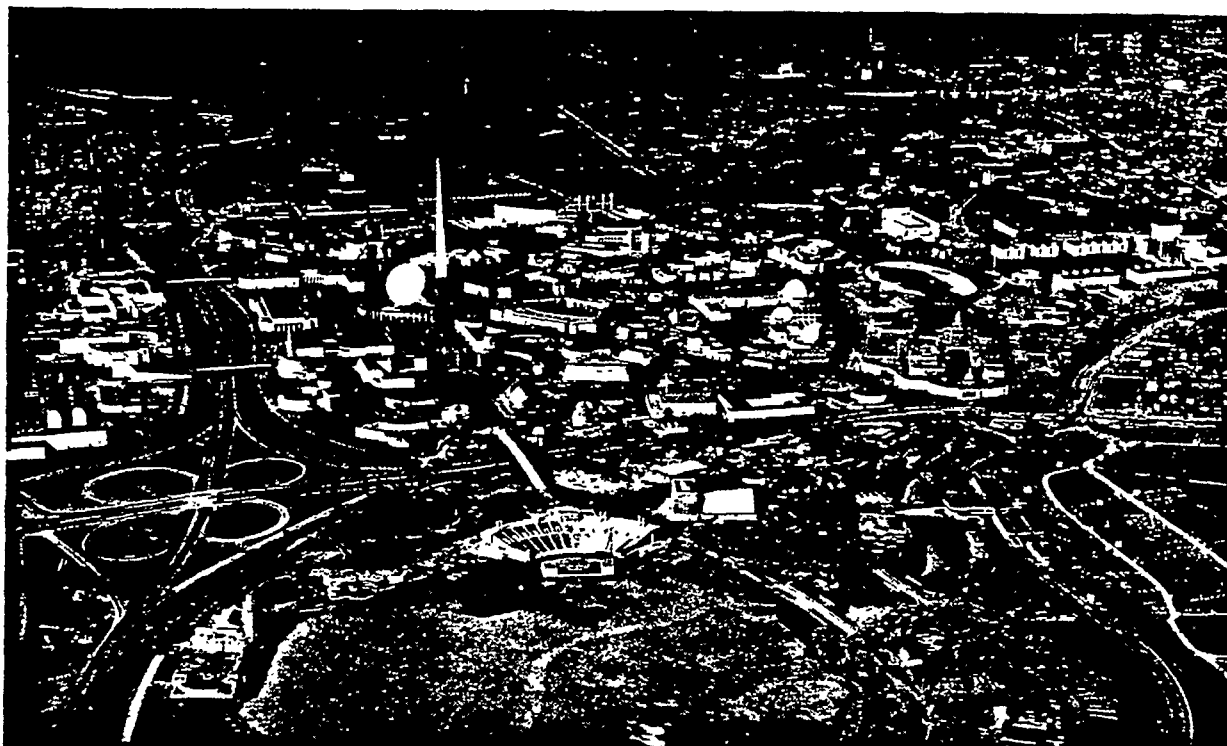
Since the preparations for the World's Fair first began to take shape, traffic experts connected with the Fair itself, the highway department of New York and adjacent

states, and the Police Department of New York City have collaborated on express routes and highways to handle the Fair traffic. In New York City itself, construction on the new White-stone Bridge, the Major William Deegan Boulevard leading to the Triborough Bridge, and the New York approach to the George Washington Bridge has been rushed through in record time to be ready for the opening. An effectively simplified system of through arteries has been laid out by metropolitan traffic engineers. Recent additions to the parkways and express highway systems throughout Westchester, Connecticut, New Jer-

sey and Long Island will feed into Fair approaches.

For a radius of many miles around the metropolitan district of New York, the best routes to the Fair will be conspicuously identified by World's Fair markers — Trylon and Perisphere — in white, against an orange background with a blue base. Turns to left or right will be indicated by an "L" or "R" in the center of the Perisphere. Plans are under way at the moment for also installing a system of amber-colored lights to mark routes at night.

Information booths in the shape of a miniature "Theme Center" — Try-



An airview of the New York Fair during construction. In the foreground on the shore of the Lake is the New York State Marine Amphitheatre where Billy Rose's lavish Aquacade will be staged. Directly across World's Fair Boulevard lies the Main Exhibit Area dominated by the Perisphere and Trylon. One of the Fair's huge parking fields may be seen in the distance with the Flushing Bay boat basin directly beyond it.

McLaughlin Air Service

Ion and Perisphere — will be located at the entrances of both the Holland and Lincoln Tunnels entering New York from New Jersey and will be spotted at other strategic points. Here maps will be given out, as well as information on housing facilities, parking, trailer camps, etc.

Visitors driving along the Boston Post Road between New York and New England will have the opportunity of avoiding New York traffic.

For those who would enjoy a boat ride across Long Island Sound, "water taxi" service in speed boats is under consideration from various points in New York City. Trailer Town, City Island and possibly Mamaroneck.

The parking problem has been met with five huge paved parking fields, able to accommodate 28,000 cars in all. Four of these will be operated by the Fair and the fifth one by the City of New York. From all but one of these fields, shuttle buses will carry visitors direct to the nearest Fair entrance. The plan for this service is

tentatively fixed at 5¢ a passenger. For those who like their home life on the road, a special trailer camp with facilities for 1,200 cars has been built at Trailer Town in the Bronx near the Whitestone Bridge.

Practically all the large oil companies have gone to elaborate extremes to make the problems of their motoring customers as simple as possible. Many have prepared special maps of the Fair grounds and maps of the surrounding metropolitan area, with recommended routes of approach carefully marked.

Many people, of course, will take advantage of the special low rates offered by leading bus companies to visit both fairs. There also will be special bus service from points near the New York Fair for groups who wish to charter them. To handle bus traffic there is a special parking field with a capacity of 575 buses, especially designed to facilitate quick loading and discharge of passengers.

To accommodate those people who own power boats and wish to travel

to the Fair by water, a boat basin has been prepared with about 250 moorings. There is a 72-hour maximum anchorage limit, but no charge each way per passenger. Arrangements are being developed for boat supply services — fuel, oil, food, etc. Buses from the boat basin will carry visitors direct to the Administration Gate entrance.

Inside the Fair itself, motorized transport will simplify the problem of covering the 1,200 acres of exhibits. One hundred specially constructed buses, 9 feet wide and 43 feet long, will operate over a ten-mile road around the grounds. Rows of seats facing outward will accommodate 60 persons, with room in rush periods for 60 standees. There will also be tractor trains of three canopy-covered cars, towed behind a gasoline engine at three to four miles an hour.

For "taxi" service within the grounds there are electrically operated chairs, as well as chairs pushed by college students trained to show the various points of interest.

Ethyl Is Host at New Tulsa Laboratory



New Home of the Tulsa Sales Division and Laboratory.

Corporation officers from New York and Division Managers greeted Ethyl's guests at a housewarming late in February. From left: Vice Pres. Coard Taylor; Pres. Earle Webb; Gen'l. Sales Mgr. H. W. Kaley.

THE Ethyl Gasoline Corporation was host to refining and marketing executives of its customers and other invited guests at the enlarged office and laboratory building, 305 South Kenosha Street, Tulsa, Oklahoma, on Saturday, February 25th. President Earle W. Webb and Vice President J. Coard Taylor, Messrs. Kaley, and Martin from the New York general office as well as the Tulsa Division Sales and Tulsa Laboratory staffs were on hand to greet the guests.

The occasion furnished an unusual opportunity for executives of the oil industry and members of the Ethyl Gasoline Corporation to become better acquainted in an informal manner and at the same time brought to the attention of many licensees the facilities available for service to them.

The addition to the building, which was completed a few months ago, permits a new office layout and the im-

Office of Div. Mgr. Ronan on the second floor of the new building.



provements include new furnishings and equipment. On the first floor there are now a reception room, a private office for the laboratory manager, a safety engineer's office and a stock room. The offices of the division manager, assistant division manager and their secretaries are on the second floor.

The only unfortunate occurrence was the fact that an unexpected ice storm, the only one of the season, prevented a number of those in outlying territory from attending. However, notwithstanding, there were about seventy-five present. Among these were:

Messrs. I. A. Anson, B. I. Lubell and M. L. Freese of the Bell Oil and Gas Company; Mr. Herbert Miller of the Carter Oil Company; Messrs. L. C. Trapp, L. D. Mann, H. W. Camp and Neil Buckley of Cities Service Oil Company; Mr. H. E. Collinson of Continental Oil Company; Messrs. A. Danciger, J. Hausem, O. W. Crick and E. W. Evans of Danciger Oil and Refineries; Messrs. T. E. Fitzgerald, J. D. Curtin, M. C. Shipley, R. C. Groffman and C. L. Dorris of Mid-Continent Petroleum Corporation; Messrs. R. C. Gwilliam and J. O. Webber of The Ohio Oil Company; Mr. George J. Collins of Omar Refining Company; Mr. C. W. Cahoon, Jr., of Onley Oil and Refining Company; Mr. H. C. Allen of Rock Island Refining Company;

The Personnel of the Tulsa office and laboratory were on hand to help entertain the guests. From left, back row: H. C. Dees, Martin Alsbaugh, C. B. Bartholomew, C. A. Rankin and Herbert Green. Second row: J. Dicus, H. Kuhe, T. E. Ronan and Harold Shaw. Front row: L. D. Reis, Gladys Rogers, Helene McNally, Elizabeth Medlin, Ruth Stegall and L. L. Huxtable.





Laboratory Mgr. C. R. Bartholomew's office is located on the ground floor.

Messrs. G. R. Ames and D. V. Peters of Phillips Petroleum Company; Messrs. J. F. Nagle and Russ Stam-

per of Skelly Oil Company, Mr. H. E. Perkins of Tide Water Associated Oil Company; Messrs. A. V. Bour-

que and J. C. Day of Western Petroleum Refiners Corporation; Dr. C. K. Francis, Messrs. P. C. Lauinger, S. H. Rourke and Paul Reed of Oil and Gas Journal; Mr. Allen S. James, National Petroleum News; Mr. Andrew M. Rowley of Tulsa Tribune; Mr. J. M. Linehan of Cosden Pipeline Company; Mr. W. P. Jacobi of Wadhams Oil Company; Messrs. W. K. Warren, J. A. LaFortune and Sam Hulse of Warren Petroleum Company; Mr. Campbell Smith of Ozark Chemical Company; Mr. Harold Skyrn of General American Transportation Company and Mr. T. L. Holland of Lubrizol Company.

Ronan Comes to New York General Office

THOMAS E. RONAN, who for more than six years has ably managed Ethyl's Tulsa Division, has returned to the home office in the Chrysler Building to assist Robert L. Jordan in directing the activities of the field representatives. Being located in New York, however, is nothing new to Mr. Ronan, as during his early years in the business world his activities were, for the most part, confined to the east. Born in Athens, Pa., on October 15th, 1898, he received his preparatory education in the local schools and then entered Holy Cross College at Worcester, Mass. He graduated from there in the Class of 1921 with an A.B. degree and two years later received a Master's de-



Thomas E. Ronan

gree in Chemical Science. Mr. Ronan also did graduate work at both Cornell and Columbia. Prior to his association with the Ethyl Gasoline Corporation, he was engaged for a time as a chemist at the Astoria lab-

oratories of the Consolidated Gas Company of New York and later, for a brief period, with the New York Central Railroad.

Early in 1926 he joined the Ethyl Corporation and was located as a research chemist at the Yonkers Laboratory. Later, he was engaged in field work. In 1929, when the Gasoline Testing Department was created, he was placed in charge of the work and both the Kansas City and Tulsa Testing Laboratories were erected under his supervision. However, in 1930, he once more returned to the Sales Department and was appointed Manager of the New York Division until his transfer to Tulsa some two years later.

Changes of Management in Sales Divisions

EFFECTIVE early in April, changes will be made in managers or assistant managers of four of Ethyl's sales divisions. The divisions affected are Baltimore, Boston, Kansas City and Tulsa.

Due to the transfer of T. E. Ronan, manager at Tulsa, to the Corporation's general office in New York, which is mentioned elsewhere in these columns, L. W. Shank of the Baltimore office will replace him in that

territory. Mr. Shank is a native Baltimorean and received his education there, attending the city schools, Baltimore College and finally Johns Hopkins from which institution he was graduated with B.A. degree in chemistry in 1922. The next two years were occupied with teaching at Baltimore College but in 1924 he entered upon a business career. His first position was with the Commercial Credit Co. of Baltimore and later



L. W. Shank

with Levitt-Ferguson Co. In 1930, he joined the Ethyl Gasoline Corporation as a field representative in the Baltimore Division and in 1935 was promoted to the position of Assistant Manager. Within the year, however, he was appointed Manager of the Division and has continued in that capacity until his present transfer to Tulsa.

* * *



H. Claire Dees

Claire Dees, who for a little more than a year has been Assistant Manager at Tulsa, will replace Mr. Shank in the Baltimore office. Mr. Dees was born in Oblong, Ill., in August, 1908. After attending local schools he entered the University of Kentucky from where he graduated in 1929 with degree of Bachelor of Science in Metallurgical Engineering. After one more year in the University, doing post graduate work, he became associated with the American Rolling Mills at Middletown, Ohio, but shortly thereafter, went to Standard Oil Company of New Jersey and took the training course at Bayway, N. J. Upon completing this, he was assigned to Standard Oil Company of Louisiana, being occupied with hydrogenation work at Baton Rouge. In 1931, he came to Ethyl and was sent to the Chicago Division as a field representative with headquarters at various cities in that territory until February, 1936, when he was appointed Assistant Manager of the Division. His transfer to Tulsa as As-

sistant Manager to Mr. Ronan became effective late in 1937 when Mr. Kuhe, who had occupied that post, was sent to Mexico City.

* * *



Harry Kuhe

Harry Kuhe, who will resume his former duties as Assistant Manager of the Tulsa Division, was born in New York City, November, 1903. Traveling started at an early age as he began his primary schooling at Cleveland, finishing at Sharpsburg School, Winnetka, Illinois, and thence to college where he received a degree in Chemical Engineering in 1925 at the University of Wisconsin. The next year and a half was devoted to study abroad, principally in the cities of London, Paris, Berlin and Vienna. While abroad, he attended lectures at the Technische Hochschule zu Darmstadt.

Returning home, he became associated with the Continental Paper Bag Company at their Oconto Falls, Wisconsin, mill as chemist. A year later, he accepted a position in the Strom Ball Bearing Company, Chicago, Illinois, as designing engineer. Work in this capacity continued until he joined the Ethyl family on October 7th, 1929, with headquarters at Indianapolis covering the state of Indiana. During April, 1932, he was transferred to Tulsa to cover the state of Oklahoma as field representative and later as assistant division manager.

In February, 1938, the Company decided to avail themselves of his experience, gained on trips to blending plants in Mexico and he was sent to Mexico City as Ethyl's representative in that country. This arrangement was short lived, however, due to expropriation proceedings and Mr. Kuhe returned to his old division.

* * *



D. S. Flynn

Donald Flynn, who has been transferred to the Kansas City Division as Assistant Manager, was born in Providence, Rhode Island, on April 23rd, 1908. He received his preparatory education in the public schools of his native city and then entered Brown University. Graduating from Brown in June, 1930, with a degree of Bachelor of Science in engineering, he went immediately to the Bayway Refinery of Standard Oil Company of New Jersey, where he took the student engineers training course.

In January, 1931, Mr. Flynn joined the Ethyl Gasoline Corporation and after some preliminary training at the Yonkers and Detroit Laboratories, was assigned to the Boston Division as a field representative. During the next few years, he at one time or another served in the various territories which comprise the Division until early in 1935, when he was appointed Assistant Division Manager. His chief hobbies are golf, swimming and bowling. He is a mem-

with Levitt-Ferguson Co. In 1930, he joined the Ethyl Gasoline Corporation as a field representative in the Baltimore Division and in 1935 was promoted to the position of Assistant Manager. Within the year, however, he was appointed Manager of the Division and has continued in that capacity until his present transfer to Tulsa.

* * *



H. Claire Dees

Claire Dees, who for a little more than a year has been Assistant Manager at Tulsa, will replace Mr. Shank in the Baltimore office. Mr. Dees was born in Oblong, Ill., in August, 1908. After attending local schools he entered the University of Kentucky from where he graduated in 1929 with degree of Bachelor of Science in Metallurgical Engineering. After one more year in the University, doing post graduate work, he became associated with the American Rolling Mills at Middletown, Ohio, but shortly thereafter, went to Standard Oil Company of New Jersey and took the training course at Bayway, N. J. Upon completing this, he was assigned to Standard Oil Company of Louisiana, being occupied with hydrogenation work at Baton Rouge. In 1931, he came to Ethyl and was sent to the Chicago Division as a field representative with headquarters at various cities in that territory until February, 1936, when he was appointed Assistant Manager of the Division. His transfer to Tulsa as As-

sistant Manager to Mr. Ronan became effective late in 1937 when Mr. Kuhe, who had occupied that post, was sent to Mexico City.

* * *



Harry Kuhe

Harry Kuhe, who will resume his former duties as Assistant Manager of the Tulsa Division, was born in New York City, November, 1903. Traveling started at an early age as he began his primary schooling at Cleveland, finishing at Sharpsburg School, Winnetka, Illinois, and thence to college where he received a degree in Chemical Engineering in 1925 at the University of Wisconsin. The next year and a half was devoted to study abroad, principally in the cities of London, Paris, Berlin and Vienna. While abroad, he attended lectures at the Technishe Hockschnle zu Darmstadt.

Returning home, he became associated with the Continental Paper Bag Company at their Oconto Falls, Wisconsin, mill as chemist. A year later, he accepted a position in the Strom Ball Bearing Company, Chicago, Illinois, as designing engineer. Work in this capacity continued until he joined the Ethyl family on October 7th, 1929, with headquarters at Indianapolis covering the state of Indiana. During April, 1932, he was transferred to Tulsa to cover the state of Oklahoma as field representative and later as assistant division manager.

In February, 1938, the Company decided to avail themselves of his experience, gained on trips to blending plants in Mexico and he was sent to Mexico City as Ethyl's representative in that country. This arrangement was short lived, however, due to expropriation proceedings and Mr. Kuhe returned to his old division.

* * *



D. S. Flynn

Donald Flynn, who has been transferred to the Kansas City Division as Assistant Manager, was born in Providence, Rhode Island, on April 23rd, 1908. He received his preparatory education in the public schools of his native city and then entered Brown University. Graduating from Brown in June, 1930, with a degree of Bachelor of Science in engineering, he went immediately to the Bayway Refinery of Standard Oil Company of New Jersey, where he took the student engineers training course.

In January, 1931, Mr. Flynn joined the Ethyl Gasoline Corporation and after some preliminary training at the Yonkers and Detroit Laboratories, was assigned to the Boston Division as a field representative. During the next few years, he at one time or another served in the various territories which comprise the Division until early in 1935, when he was appointed Assistant Division Manager. His chief hobbies are golf, swimming and bowling. He is a mem-

ber of the Society of Automotive Engineers, Brown Club of Providence and Phi Sigma Kappa National Fraternity. Mr. Flynn is married and has two sons.

* * *

B. R. (Casey) Jones, who will take up the duties of Assistant Manager in the Boston Division, was born at Petersburg, Indiana, on February 6th, 1903. He obtained his early schooling in Petersburg and in 1921 entered the University of Illinois,



B. R. Jones

graduating from there in 1926 with an A.B. degree in Chemistry.

He entered the business field with Studebaker Corporation at South Bend, Indiana, the same year in connection with their Sales Department. Shortly after this, he joined the distributorship at Reading and Allentown, Pa., where he was Retail Sales Manager until 1931.

Mr. Jones joined the Chicago Division of the Ethyl Gasoline Corporation in February, 1932, as a representative in the Indianapolis territory, covering the entire state of Indiana for a period of four years.

In 1936, he was made Automotive Engineer for the Chicago Division and a year later was placed in charge of Ethyl Motor Clinic No. 2, the first of the Clinics to start operations on a national basis.

Page sixteen

(Continued from page 1)
gone down from an average of 26 cents per gallon in 1921 to 14 cents in 1936."

"Every element of the motorcar, except the few wooden pieces and possibly the water in the radiator, is either a chemical or metallurgical product, or else it has chemistry involved in its manufacture," the speaker asserted. However, Mr. Boyd did not entirely exclude the water in the radiator as being free from the chemist's influence. For he explained that "much of the water put into radiators has been chemically treated in filtration plants and in the winter time the cooling liquid has to be chemically treated.

"It is even a chemical reaction namely, the burning of gasoline and air, which makes the automobile go," the speaker continued. "I haven't

even talked about storage batteries or about the extraction of bromine from sea water (at the Ethyl-Dow plant, Kure Beach, N. C.) to put into gasoline along with tetraethyl lead. I have not mentioned safety glass, aluminum, brass, bronze, bearing metals, spark plugs, nor many other items."

Emphasizing the automobile's improvement from work in many laboratories, Mr. Boyd concluded: "One-fourth of all the industrial research laboratories in the country are maintained either by the automobile industry itself or by the makers of materials used in motorcars. Thousands of chemists are busy in these laboratories, and their combined efforts have contributed to the modern motorcar a great deal of that which makes it so beautiful, so satisfactory and so cheap."

THE FOLLOWING SERVICE AWARDS HAVE BEEN MADE AS OF APRIL 1, 1939

TEN YEARS

COLIN J. McFARLANE.....	Toronto Sales
EDWIN F. REHWOLDT.....	Administration
LOUIS L. WILSON.....	Kansas City Sales

FIVE YEARS

ADDEN N. GRAY.....	Administration
--------------------	----------------

NEWSBRIEFS

From Detroit comes word of the arrival on February 14th, of Master Frederick Charles Sortman. His proud parents, Mr. and Mrs. Charles W. Sortman, report that their husky young son weighed 10 lbs. 5½ ozs. at birth.

Our most sincere congratulations, Chick and Mrs. Sortman, on your very fine accomplishment. This marks the first 1939 arrival in the Detroit Division.

Paul R. B. Dixon, who is with our Manufacturing Department in Baton Rouge, has very recently become engaged to Miss Louisa Mary Ogden, daughter of Mr. and Mrs. Edwin Bennett Ogden of Natchez, Miss. and Havana, Cuba. Paul, who comes from Old Greenwich, Conn. and is a graduate of McGill University in Montreal, has been a member of the Ethyl family for the past five years. The young couple plan to be married in Natchez this coming June and we take this opportunity to offer them our hearty congratulations.

The Pacific Coast Div. added a new member to their staff on February 13th, in the person of Monroe F. ("Bo") Weill, formerly associated with the Union Oil Company of California.

An engineering graduate of Purdue University, "Bo" later attended the University of Kentucky and Western Kentucky State. He received aeronautical training with the U. S. Army Air Corps, and at present has a Captain's commission in the Officers' Reserve Corps.

His hobbies range from big game hunting to ping pong. With his wife and small son, Larry, "Bo" makes his home on Alamitos Bay, Long Beach, California.



ETHYL NEWS

ETC 22396



Miss Lois Holsinger, comely newcomer to the Advertising Department, has the difficult task of handling requests for tickets to Ethyl's radio program, "Tune-Up Time." So far more than six thousand people have written in for tickets aside from many more who have telephoned. Each must receive an answer whether tickets are available or not. To-date close to fifteen thousand have attended broadcasts in the studio as guests of Ethyl. The accompanying picture gives some idea of the volume of mail which is handled.

We welcome Walter Arthur Cosgrove to the Payroll Division of the Administration Department in the Graybar Building. Walter was previously associated with the Hotel St. George in the Auditing Department. He graduated from Duke University with an A.B. degree. Golf is his favorite form of diversion.



Franklin E. DeVore joined the Ethyl Gasoline Corporation February 20th last.

He was born at Independence, Kansas, attended public schools there and in 1926 received a degree in Mechanical Engineering at the University of Kansas.

After spending some time in various departments of the Mack Truck factory in Allentown, Pennsylvania, as an apprentice engineer, he was assigned to the Mack Engineering Department and was later transferred to sales. While in the Kansas City Mack branch he became associated with the Missouri Motor Distributing Corporation, a company headed by the Mack branch manager.

In 1934, the Kansas State Highway Commission decided to place engineers in charge of equipment supervision and Frank spent two years in that work. He then accepted a position as Kansas City manager of a fleet operation which position he was occupying at the time he joined the Tulsa Division of the Ethyl family.



The Chicago Division welcomes to its ranks Gerald A. Lofquist. He is a native of Chicago and a graduate of the University of Illinois. Class of 1921, with a B.S.M.E. degree. He was previously connected with Ford, Bacon and Davis and General Motors Truck Corporation. Gerald will assume the responsibilities of field representative in Illinois. He is married and has one son.



There occurred a very severe sleet storm in Detroit recently which resulted in many casualties to trees. The accompanying picture shows results of the storm in the oak grove where Ethyl's semi-works chemical laboratory is located on the Eight Mile Road. It also shows, incidentally, that the versatility of chemists and chemical engineers can extend as far as to cover a woodsman's trade when circumstances demand. The particular tree was obstructing the road and five minutes after the picture was taken it came down within a few inches of where chief woodsman, E. J. Johnson, had decided that it should be. A couple of hours later it was neatly piled up as fire-place logs. From left to right: Larges, Goulay, Johnson and Lee.

Vital Statistics from Atlanta

We are asked, by the Atlanta Division, to kindly refer to the September, 1937, Newsbriefs in which their contribution reads as follows:

"Viewing the recent issues of the NEWS, we are struck with the large number of announcements of additions to the Ethyl family and are filled with remorse that we have no items to add. However, we shall see—we shall see—"

They claim that this was a remarkable prophecy and feel that they out-Winchell Winchell as they proudly announce an addition to their branch of the family in the person of Miss Nancy Byrd Tennent. Nancy is the daughter of Tom and Mrs. Tennent and arrived on March 1st, 1939, weighing 8 pounds. Her father, who is our Alabama representative, has been doing an awful lot of raving about his third child and seems to be as proud as a peacock about the whole thing. We are also glad to report that Mrs. Tennent is doing beautifully, and we want to take this opportunity to send our heartiest congratulations to both proud parents.

To prove that they (Atlanta Division) are not "flash in the pan" prophets, they predict that three eligible bachelors in their Division will step off the precipice in the following order:

Stuart Forbes _____ March
Whitney Sweeney _____ May
Jack Pruitt _____ May-be??

The Baltimore Clinic has a recent addition to its staff in the person of Matthias F. Reese, Jr., who joined the Ethyl family the latter part of March.

Matt is a native of Baltimore and a graduate of the Forest Park High School in that city. He also attended the Lawrence Institute of Technology in Detroit where he graduated with the degree of Mechanical Engineer. His first position was with the Packard Motor Car Company as Zone Engineer. After this Matt worked with the Glenn L. Martin Company, which concern he left to join us.

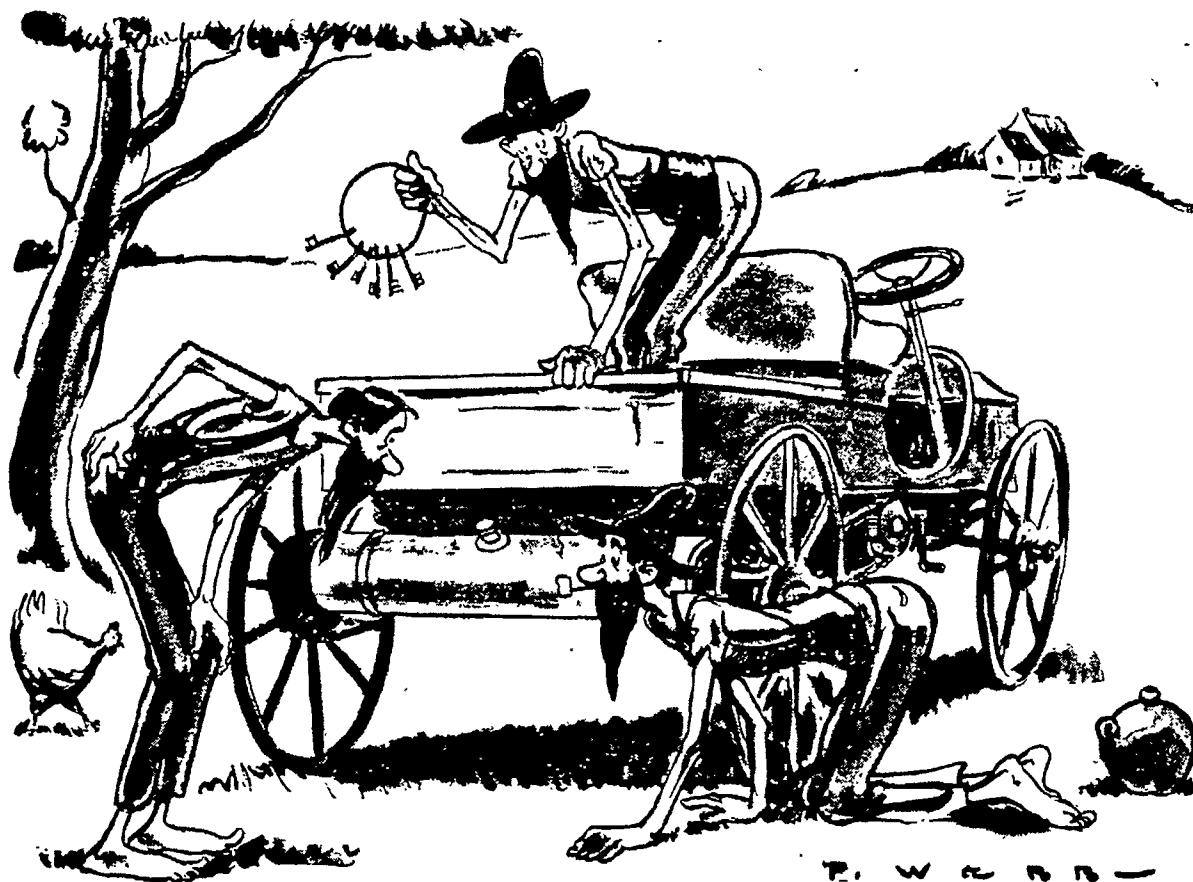


On March 8th the crew from the Boston Clinic visited the East Providence Refinery of the Socony-Vacuum Oil Company located at Riverside, Rhode Island, where an opportunity was afforded to see how petroleum products are made. This Refinery is very progressive and has been pioneering more efficient operation.

Left to right: H. A. Rickett, Refinery Superintendent, William Perry, R. W. Richardson, Frank Huyler, Bruce Crane, R. S. Coveney, Walter Cady, Assistant Superintendent of Refinery.

Arthur C. Acken, a recent addition to the field staff of the Boston Division, was born in New York and received his early education in that city. He completed a course in Business Administration at New York University and has also taken Automotive, Economics and Salesmanship extension courses at Columbia University. For the past ten years Art Acken has been engaged in automobile service work in New York and prior to coming with the Ethyl Gasoline Corporation in January he was Service Manager for one of the largest Ford dealers in the Metropolitan New York area. Art's chief hobbies are sailing and riding.





"Willy, whar in tarnation is thet vapor lock?"

HOLD ON a minute, boys. Don't let a highfalutin term fool you. Keys won't help with vapor lock. And vapor lock isn't something you can normally see.

Vapor lock is caused by a stoppage in the fuel line due to bubbles formed by vaporized gasoline. Ordinarily a reasonable degree of volatility is desirable in gasoline. But when there are too many light ends or volatile fractions (which vaporize and become gases very easily), the inside of the fuel line looks like a

freshly opened bottle of warm soda water. Eventually these bubbles become so numerous that they may stop the normal flow of gasoline through the fuel line and starve the carburetor. The resulting lean mixtures cause the engine to sputter and stall and make starting nearly impossible.

The way to avoid vapor lock is to check the vapor pressure characteristic of the gasoline you buy. Reputable refiners or marketers include this as one of the necessary specifications of good gaso-

line. They establish a vapor pressure which is low enough to prevent vapor lock except under the most unfavorable conditions. At the same time, good gasoline gives you balanced volatility, low gum content and high anti-knock value.

If you have any questions about bus and truck fuels, write the Ethyl Gasoline Corporation, Chrysler Building, New York, N. Y., manufacturers of anti-knock fluids (containing tetraethyl lead) used by oil companies to improve gasolines.

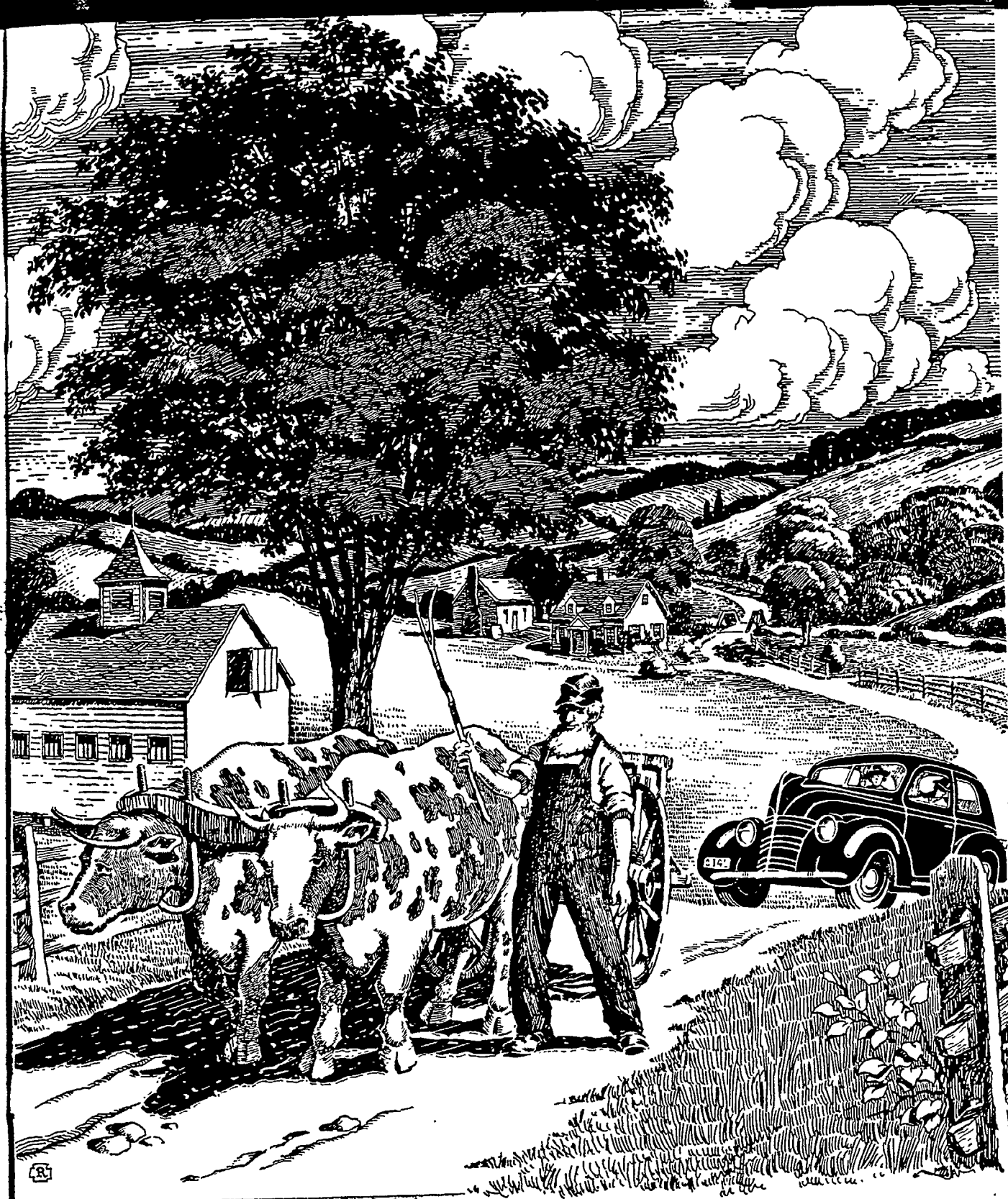
4 RULES FOR GOOD GASOLINE	LIGHT MEDIUM HEAVY VOLATILITY should be balanced, for full power and best economy.	VAPOR PRESSURE should be adjusted to meet operating conditions.	GUM CONTENT should not exceed $\frac{1}{2}$ of a gram (4 small drops) per gallon.	ANTI-KNOCK VALUE should be high, at least 68 octane number.
---	---	--	---	--

THE BETTER THE GASOLINE THE BETTER THE PERFORMANCE

re
or
od
y,
ck

us
ne
w
ti-
d)
es.

-
E
-



MAY 1939



ETC 22399

GO BY CAR— *See America on the Way*

● Everyone is talking about the business the Fairs at New York and San Francisco will bring, particularly to the transportation companies. To stimulate travel by automobile and thus increase the gasoline consumption, the oil companies are featuring the slogan "Go by car—see America on the way."

● The center spread of the June 10th issue of the Saturday Evening Post will depict in photographs, the Ethyl Gasoline Corporation's idea of how this slogan looks in color. In it are views of both Fairs and striking colored photographs of leading scenic spots throughout the country such as: Niagara Falls, Sequoia National Park, the Capitol at Washington, D. C., Yellowstone National Park, Independence Hall at Philadelphia, Hollywood's movie center, Governor's Palace at Williamsburg, Va., Grand Canyon of Arizona, Old World street scene in New Orleans, Carlsbad Caverns in New Mexico, and Surf Bathing in New England.

● "Remember," the advertisement reads, "there are no time-tables, no schedules, no restrictions when you travel by car. Just go as you please, when you please . . . and save money on the way, too."

● Reprints of this advertisement, suitable for use as window posters or on bulletin boards, are being prepared and will be distributed throughout the oil and automotive industries. We are glad of the opportunity to make this contribution to the cooperative advertising effort of these industries.



ETHYL GASOLINE CORPORATION
CHRYSLER BUILDING
NEW YORK CITY

W. CARY HARRIS
Editor

RUSSELL B. WESTON
NORTHROP CLAREY, JR.
Associate Editors

Correspondents

J. A. COSTELLO.....Atlanta
F. S. CRONIN.....Baltimore
B. R. JONES.....Boston
A. B. WYRICK.....Chicago
R. R. FALLER.....Dayton
H. L. NIXON.....Kansas City
CARL ABELL.....Los Angeles
R. L. GOLTZ.....New York
J. N. FITZGERALD.....Toronto
H. KUHE.....Tulsa
R. K. SCALES.....Engineering Dept.
L. BARNUM.....Mfg. Baton Rouge
C. WASSERMAN.....Mfg. Deepwater
J. C. POPE.....Gasoline Testing Dept.
E. J. NIESER.....Administration Dept.
HUBERT FOSSETT.....London

THE MATERIAL IN THIS PUBLICATION
MAY BE REPRINTED PROVIDED DUE
CREDIT IS GIVEN THE "ETHYL NEWS"
OR ETHYL GASOLINE CORPORATION
UNLESS IT IS A COPYRIGHTED ARTICLE

VOL. 6, No. 5

We Own Industry

MOST of us realize that the ordinary American company is owned by many people, its stockholders. But who are these people? What are they like? Who are the real living men and women behind the names on the ledgers—the vast majority, those who own one or two or five or ten or a hundred shares of common stock?

Recently a typical American company set about answering these questions. And the facts discovered should be of interest to everyone who has pre-conceived notions concerning the ownership of industry.

The company found that nearly twelve thousand individuals or groups—men and women, or organizations representing them—had invested their money to buy the equipment and make jobs possible for its more than six thousand employees. Among these stockholders there were 4,300 men, 4,084 women, and 2,708 groups such as insurance companies, investment companies, and universities.

But far more interesting than these facts were the things the company found out about the day-to-day lives of its stockholders. They found a clerk and a director in one company, each with shares of the stock. They found a salesgirl in a downtown store, and the wife of one of the city's wealthier citizens, both stockholders. They found a university professor and one of his students, benefiting equally from the success of a manufacturing enterprise hundreds of miles distant from them.

To put the matter in a few words, the survey went a long way towards answering the old question, "Who owns American industry?" And the answer, if you could take the voices of all those twelve thousand stockholders and blend them together in one great chorus, would sound something like this:

"We own American industry. We live all over the face of this broad land, and the lives we live are mostly ordinary lives, just like yours—and yours—and yours. We are butchers, bakers, candlestick makers, doctors, dentists, factory workers. The country over, there are ten million like us. What happens to industry vitally affects all of us and the tens of millions who are dependent on us.

"We—millions of your American neighbors—own industry. Our investments provide the jobs, materials and machinery that have combined to make the United States the nation with the highest standard of living the world has ever seen."

IN THIS ISSUE

GO BY CAR—SEE AMERICA ON THE WAY
WE OWN INDUSTRY
NEW ETHYL RESEARCH LABORATORY COMBINES MINIATURE "U. S." AS PROVING GROUND
ILLINOIS PUTS FIRST MOBILE INSPECTION LABORATORY ON THE ROAD
STUDENT FARMERS AT PENN STATE STUDY MODERN HIGH-COMPRESSION TRACTORS
4,000,000 CARS BOUGHT WITH \$50 "CASH DOWN"
PRE-TESTING FLYING POWER
IT'S TULIP TIME IN HOLLAND—MICHIGAN!
MEMORIAL PARK TO MARK BIRTH OF AMERICAN AVIATION

PERFECT CIRCLE CO. ENTERTAINS, SPRINGFIELD CUTS ACCIDENT TOLL
"WOOLAROC" RETAINS ATMOSPHERE OF OLD WEST
ETHYL COOPERATES WITH UNCLE SAM
ETHYL SPONSORS AUTOMOTIVE AND FLEET SCHOOL IN ATLANTA
RADIO ANNOUNCER BOOSTS MOTOR TUNE-UP
ETHYL CLINIC INVADERS WESTCHESTER
ETHYL-DOW'S CHAMPIONSHIP SOFTBALL TEAM
TRAVEL STATISTICS
ETHYL GETS THERE FIRST—BY TELEVISION!
NEWSBRIEFS
SERVICE AWARDS

New Ethyl Research Laboratory Combines

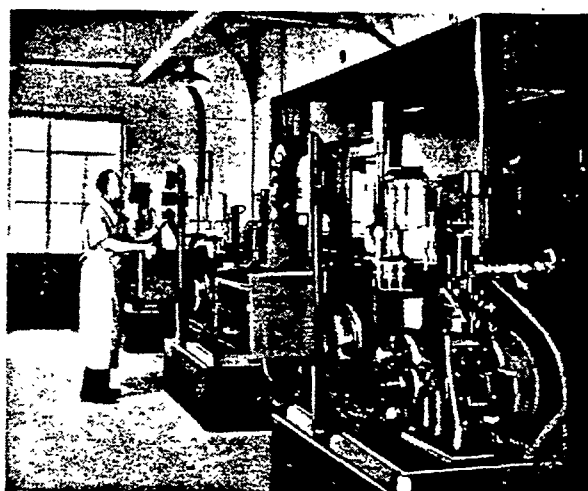


Ethyl's new "proving ground," photographed from the summit of Cajon Pass.

THE Ethyl Gasoline Corporation recently announced the completion of a new laboratory at San Bernardino, California. From its doors stretches a great natural proving ground which approximates, in its remarkably varied topography, most of the road conditions to be found in the United States.

This new laboratory, designed and

equipped to facilitate the conduct and analysis of a wide variety of road tests with a high degree of precision, supplements the Corporation's research laboratories at Detroit. It is the tangible expression of a conviction that the next ten years will bring the greatest progress yet seen in the development of fuels and engines.



View of the knock-testing engine room. The laboratory is completely equipped for making exhaustive analyses of fuels.

This enterprise is the result of a search of several years for a locality having a sufficiently wide range of topography and climate to permit tests on fuels and engines the year round under conditions approaching those encountered in any section of the country.

The natural proving ground finally selected lies near San Bernardino, California, and covers an area that includes the San Jacinto, San Gabriel, Santa Ana, and San Bernardino Mountains and the Mojave Desert.

The roads which traverse this area drop to 200 feet below sea level and rise to 7,000 feet above; vary from the billiard table flatness of a dry lake bed to 12% grades encountered in a 36-mile climb. Temperatures vary from blistering desert heat as high as 115 degrees F. to winter cold at high mountain altitudes.

The laboratory building, located on a 25-acre plot facing U. S. Highway No. 66, is T-shaped and is de-

ines Miniature "U. S." as Proving Ground



The beautiful new laboratory building is T-shaped, allowing for expansion in three directions.

signed to permit expansion in three directions. The office wing provides offices and drafting room for the technical staff as well as rooms for technical files and photographic processes. The engine and fuel testing wing houses complete fuel inspection laboratories equipped with four C.F.R. engines and chemical apparatus. Other laboratories are equipped for exhaust gas analysis, ignition research and instrument calibration. Instrument storage and shipping

rooms are also located in this wing.

The third wing contains the garage, fuel blending equipment, chassis and engine dynamometer and associated equipment and the machine shop. Cars and all types of commercial vehicles can be serviced. Eight 1,000-gallon underground gasoline storage tanks are tied into a central fuel blending system and eight gasoline pumps in the garage dispense the fuels to the test vehicles. An automatic system also de-

livers the fuels to the dynamometers.

Blowing equipment in connection with the chassis dynamometer is capable of producing an air blast of 85 miles an hour against the front of a vehicle on test. Fuel in drums and cans is stored in a separate building which is equipped for the precision blending of fuels in quantities of 100 gallons or less. A commercial motor truck scale is provided for the determination of the weight of test vehicles. A shelter protects instru-

Standing—left to right: M. E. Collins, R. W. Adams, J. C. Renfro, C. A. McHenry, H. Hughes, Ray H. Seymour, R. C. Beaubler, Byron C. Lord, E. D. Lindsay, M. Prior, Arthur Stahlheber, W. O. Schulze.

Second Row: Elmer Malke, T. H. Hilor, Iva F. Feil, Ethel Mischnick, Anna Lee Moulder, Wesley Price, J. S. Winttingham.

Front Row: T. P. Henahan, Don Hendrickson, Arthur Sortman, Minor L. Gamble, Michael A. Remondino, Rollin E. Gish, Richard M. Rice, Gilbert Way.



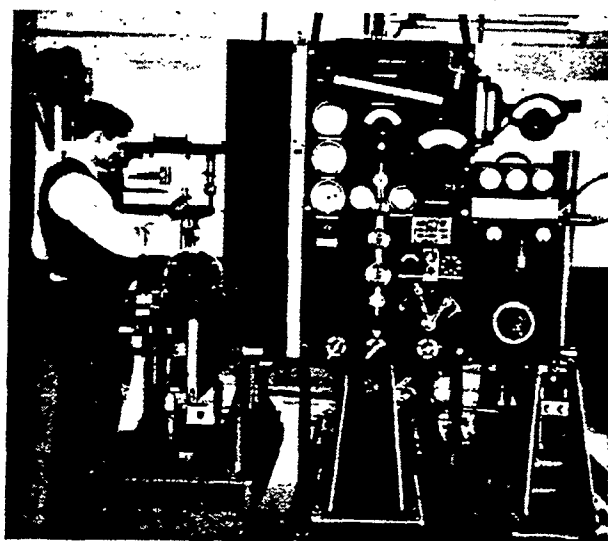
MAY, 1939

Page three

ETC · 22403



This car is bucking a gale of 85 miles an hour — blown through the large duct facing it.



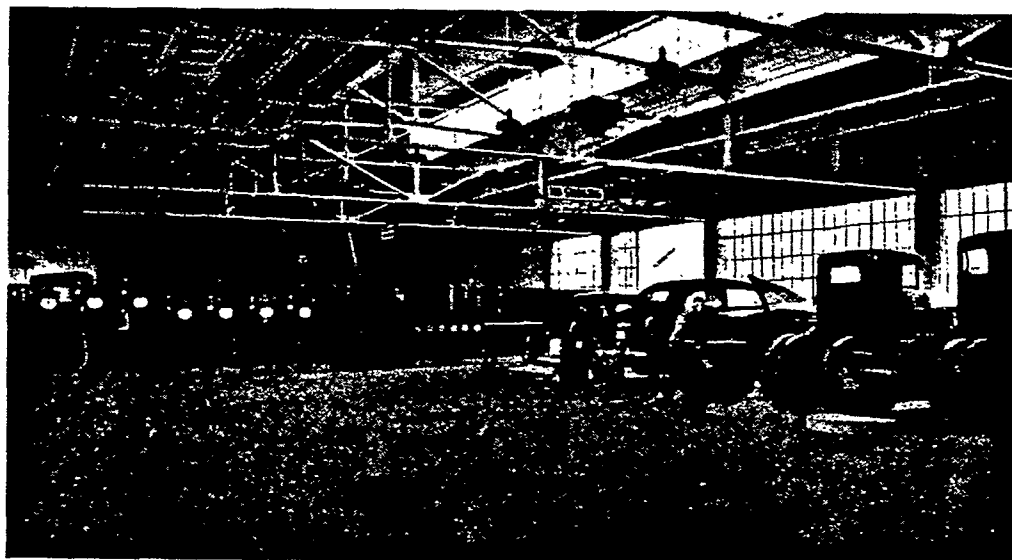
Spark plug resistance and firing voltage during actual engine operation are determined by means of this special equipment.

ments which record weather conditions.

All offices and fuel inspection laboratories are air-conditioned and intercommunicating telephone and paging systems connect all parts of the building.

For years the Ethyl Gasoline Corporation has engaged in a continuous and comprehensive program of research on fuels and engines, much of which has been carried out in cooperation with the oil and automobile industries. This new laboratory adds to the facilities available for such cooperative research in the years to come, when the problems in connection with the development of fuels and engines will be even more complex.

The garage has eight gasoline pumps, each supplied from a separate 1,000-gallon tank underground. There are complete facilities for vehicle maintenance, repair, lubrication, and washing.



Illinois Puts First Mobile Inspection Laboratory on the Road

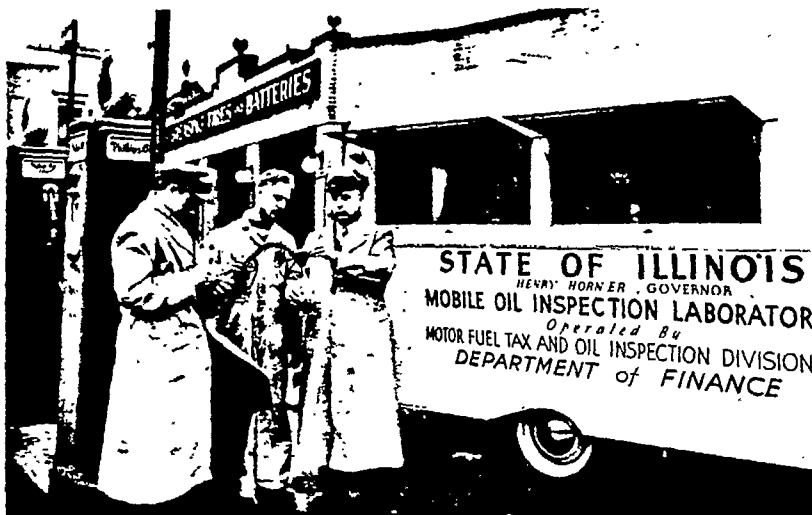
DURING January last, the Department of Finance of the State of Illinois inaugurated a new service to the public by the introduction of the first of a fleet of mobile oil inspection laboratories to check up on petroleum products at the point of sale. The initial tests were conducted in the Chicago area. This unit is the forerunner of a number which the state plans to place in operation as soon as this one has proven itself and the Inspection Bureau feels that all the "kinks" have been ironed out.

The purpose of the laboratory is to test samples of gasoline and other petroleum products being sold to the public through filling station outlets. Although samples have been inspected for some time in connection with the original delivery in truck, tank car and barge lots, "fuel received in this manner may not necessarily be the fuel dispensed to the public," says the Superintendent of the State Inspection Bureau.

Analysis of the distillation tests makes it possible also to determine whether or not any non-taxable products have been blended with taxable products, in violation of the provisions of the Motor Fuel Tax Act, thus guarding against tax evasion. The Laboratory is driven into a filling station, samples taken from all the dispensing equipment and the tests are run while the Laboratory is there. If the tests show that any of the products do not meet state specifications the pumps are immediately labeled "sub-standard."

The Laboratory has no set route to travel and no one knows in advance when a particular station will be visited. This fact alone has a wholesome psychological effect.

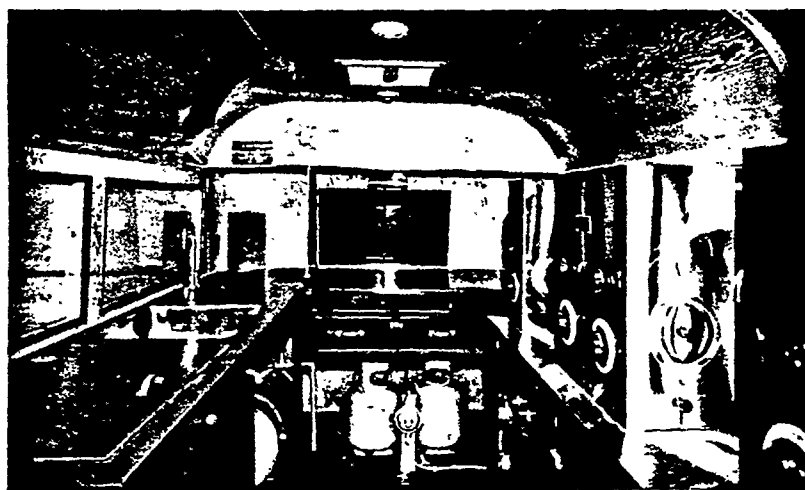
Although other states conduct field inspection, Illinois has pioneered in the use of the mobile laboratory built into a trailer. The unit is replete with the most up-to-date testing equipment of its type and



presents several new developments of special interest to petroleum technologists.

The general arrangement of the mobile laboratory has been very carefully worked out to secure the greatest efficiency for the crew. The entrance to the trailer opens into a spacious compartment partitioned off from the rest of the interior so as to form a dressing room. The laboratory contains an ice box, a metal

sink with running water and tanks for compressed "cylinder" gas for operating distillation gas burners. There is also a Saybolt Chronometer and a complete 4-unit Front View Distillation outfit. Altogether it is apparent that all space has been utilized to the fullest extent without crowding. The center aisle is 2½' wide and 8½' long, providing ample room for two operators to work.



Interior of the Mobile Laboratory, seen from the dressing compartment. From left to right—ice chest, sink with water tank underneath, closed cup flash tester (on box in corner), tanks for compressed gas, under storage drawers, and front view distillation outfit.

Student Farmers at Penn State Study Modern High-Compression Tractors

THE present marked trend towards higher compression in farm tractors is a movement being closely watched by students of farm machinery. This is particularly true in agricultural colleges, or colleges offering agricultural courses, where both faculty and students have shown a keen interest in the economics and conveniences of modern high-compression tractors which promise to make farming a simpler and more profitable occupation.

A recent example is the annual "short course" in power farm equipment at Penn State College, where Mr. Frank Stablein, tractor representative of Ethyl's New York Division, was asked by the faculty to address the students on High Compression and its relation to gasoline as a tractor fuel.

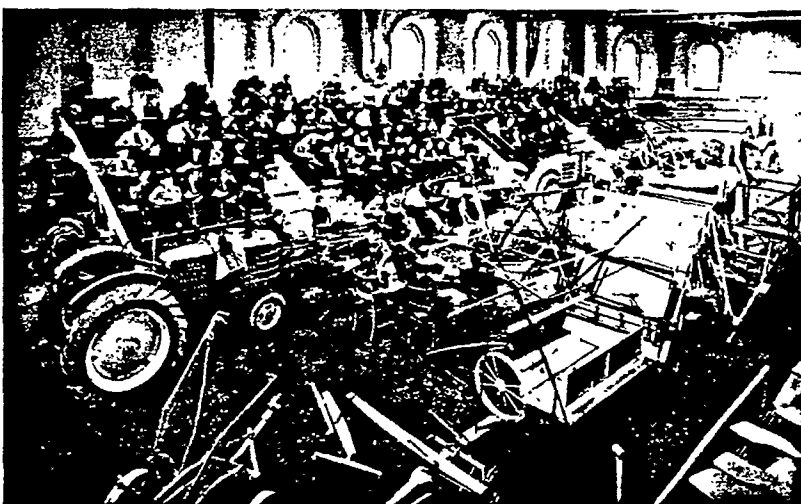
TWO-DAY SYMPOSIUM

The "short course" in the agricultural school at Penn State is an intensive two-day symposium in the mechanized branch of farming, which comes at the end of the regular term. Holding this study period as an annual event gives the students a chance to see a display of the latest and most modern equipment each year, under the auspices of a leading tractor manufacturer. This

year's course, arranged by the head of the agricultural engineering department, Professor R. U. Blassingame, was sponsored by Massey-Harris, who filled the pavilion-auditorium with a fine display of their high-compression tractors and other up-to-the-minute equipment.

Besides Mr. Stablein's talk and those by members of the faculty, other discussions were given by Massey-Harris executives, among whom were Mr. J. M. Davidson, farm machinery research engineer; Mr. F. A. Sundquest, assistant sales manager; and Mr. E. E. Adams, experimental engineer—all of Racine, Wisc. Messrs. M. A. Watts, of the engineering department at Toronto, and Lester Carver of Batavia, N. Y., lectured on various aspects of power tools.

A Goodyear representative, Mr. Gillian, spoke on the use of rubber tires for farm machinery. Among the outstanding talks by members of the college faculty was that of Professor Clyde on "The Practical Application of Machinery," and a discourse by Professor Sprague, who spoke from the viewpoint of the metallurgist on the treatment of steel and other metals used in tractors and power tools.



Agricultural students at Penn State learn about high-compression tractors and other up-to-date farm equipment at a series of class lectures arranged in cooperation with Massey-Harris. Meeting is held in the school's stock-judging pavilion.

Page six

4,000,000 Cars Bought With \$50 "Cash Down"

7,679,000 Cars Sold

During 1938

NO one has to be a millionaire to buy an automobile nowadays. In fact, a majority of the cars sold in the United States in 1938—more than 4,000,000—were purchased by people who did not lay out more than \$50 in cash as a down payment, according to an automobile-buying report of the American Petroleum Industries Committee.

During the year approximately 7,679,000 automobiles were sold in the United States. Of these, about 30 per cent were new cars. The others were used cars. Preliminary figures indicate that about 85 per cent of the new cars were bought with trade-ins constituting a part of the purchase payment. About 60 per cent of the new cars were sold on installment terms and although no comprehensive figures are available, because of the large percentage of trade-ins, it is believed most of the new purchases involved little or no initial cash outlay. Installment payments on the new cars generally averaged \$50 a month, according to the National Association of Sales Finance Companies.

In the case of used cars, it is estimated slightly more than half of them were sold with trade-ins. About 60 per cent of the used cars were financed, the time payments averaging something less than \$25 per month.

The annual special automotive tax bill paid by the typical motorist exceeds \$50 more than the initial down payment on most of the cars sold during 1938.

—Oil Marketer.

ETHYL NEWS

ETC 22406

Pre-Testing Flying Power

WHEN a man makes his first visit to an airplane factory, almost without exception he will ask: "But, after you have finished designing a new model, how on earth do you know it will fly?"

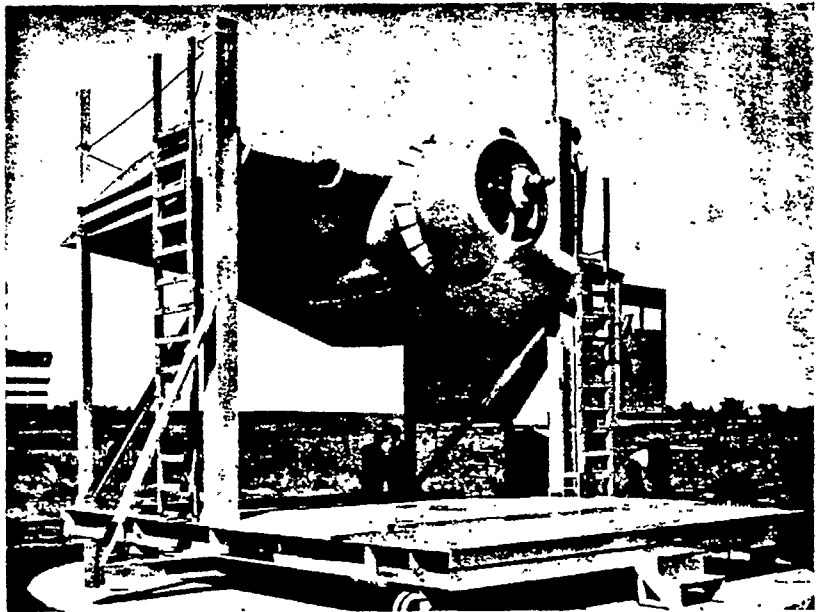
That's a fair question. Here is how, months before a new design of airplane takes the air, The Glenn L. Martin Company makes sure of the proper performance of its power plant on an engine "Test Rig." The rig consists of a turntable, on which is a dummy section of an airplane wing with an engine in its nacelle, mounted on a framework several feet above the turntable platform. Necessary instruments are attached.

In an "Observer's Balcony," located on a level with the engine but shielded from it by a wall, are instruments for analyzing and recording temperature and pressure conditions throughout the fuel, oil and cooling systems. Separately mounted as a portable unit on the ground is complete equipment for intensive vibration study.

By the use of this combination of "mock-up" and testing instruments it is possible, months in advance of a trial flight, to determine the operating characteristics of a future airplane's power plant.

After a crew of specialists have spent four weeks with this rig, they will have diagnosed every condition affecting engine operation which might otherwise have made trouble if left until the plane's flying tests. They have also determined whether the power plant can be operated on the ground within allowable temperature limits. These men have accurately reproduced many of the conditions the ship's test pilot will face, and by anticipating them have materially lightened his responsibilities and reduced the risk-factor in the first trial flight.

In that four weeks of pre-testing they have probably cut down by a third or a half the number of test-flight hours which will later be required of the finished plane—an im-



portant saving when the future airplane may be a new super-transport for transoceanic service.

They have made sure that the cowlings around the engine is efficiently designed and will assure sufficient air-flow around the engine to provide proper cooling even under the least favorable condition — that of "ground cooling." They have ascertained that the cooling system and fuel system will operate with proper efficiency under all combinations of engine speed and wind-conditions — the turntable making it possible to head the plane "down-wind" or "up the wind" or "across the wind." They have made sure that back pressure is not developed in the exhaust system. They have had the opportunity for recommending improvements in the oil cooling system, or a change in the design of the engine controls. They have made sure that the engine is mounted for minimum vibration and that the propeller is similarly safe from developing vibration-trouble. They can tell the airplane's future owner just exactly how long it should take his men to change a propeller or replace an engine part.

Obviously the construction and

operation of an engine test rig is an expensive undertaking, in terms of both materials and man-hours. However, it pays for itself by three separate economies:

First, is the fact that it may speed up the delivery of the completed plane by as much as two months, which, when the Company has several hundred thousand dollars of labor and material tied up in its construction, means a very considerable saving.

Second, as mentioned, it reduces the time and expense of test-flying before delivery to the buyer.

Third — significant, even to the layman—the engine rig has reduced insurance premiums paid during the experimental period on new models.

Although such a rig involves an investment and expenditure financially practicable only in connection with large-scale projects, its conception and adoption helps to explain the successful design and manufacture of high tonnage aircraft of transport, naval and military types.

Scientific instruments, in the hands of painstaking engineers, pre-test every factor affecting engine operation thus saving weeks in launching a new transport or army plane.



HUNDREDS of wooden shoes klop-klop down the street. An army of men and women

in quaint costumes—the men in pantaloons, the women wearing wide-winged caps of white lace—advance behind a tide of soapsuds. There is much scrubbing, mopping and banging of buckets. The town is being “washed behind the ears” for visitors, for it is the formal opening of the tulip season in Holland. Holland, *Michigan*, that is.

“Tulip Time” in the town of Holland is a community festival, and open house season when neighbors and tourists for many miles around visit this spotless little community to admire the three million imported tulips which are planted about the town. Holland is appropriately named, for 90% of the residents are of Dutch descent. A glance at the business signs along one block of the main street reveals such names as Fris’ Bookstore, Pieper the optometrist, Yonkers’ Drugs, Du Saar photographers’ supplies, and many others—DeVries & Dornbos, John De Jonge, Kroll’s plumbing shop, etc.

So great is the enthusiasm of these people for the colorful bulbs that double lines of tulips are planted at the curbs along eight miles of streets, with regular beds at intersections. More elaborate beds decorate the public parks, while bulb

It's Tulip Time in H



Wooden Shoes—Tulips—Lace Caps—and



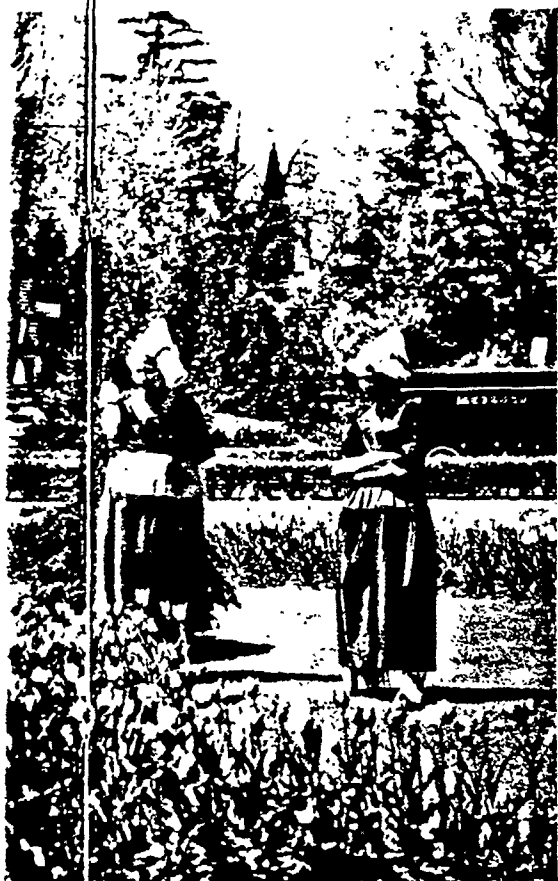
Below—One and a half million tulips growing in community bulb farms greet visitors at the outskirts of Holland.



farms on the outskirts of town contain a million and a half plants. The loyalty of the townspeople to their flowers is strikingly shown in the fact that during the months when the bulbs are planted and coming to bloom, hardly a one is trampled or injured.

On the opening date of Holland’s “Tulip Time” festival—the Saturday nearest the middle of May—a colorful ceremony takes place. Early in the afternoon the Burgemeester (at other times, the mayor) and the Gemeente Raad (otherwise the city aldermen) tour the city in velvet pantaloons and bright jackets, looking for all the world like characters

n Holland — Michigan!



wooden shoes marches along beside the college president who has been knighted to the order of Orange-Nassau by Queen Wilhelmina. Milkmaids and fishmongers follow, their pails and baskets hung from wooden shoulder-yokes as the custom is even today in the Netherlands.

After the klomping procession of grown-ups has gone by, there is a clickety-clack of younger feet romping to the rhythm of old folk-tunes. In the parade there are few floats, but a great number of brightly painted milk carts with fittings of polished brass. These are drawn by powerful, shaggy dogs whose ancestors in the old country padded along under similar carts as they bumped over cobblestone paths beside the canals. There are even carts piled with straw for youngsters of kindergarten age.

The whole ceremony, especially the preliminary scrubbing, is so colorful as to draw crowds of visitors every year. For the past several years it has been broadcast from 72 radio stations. It is a pleasant way for the older folks to welcome those who have come to admire the tulips. And for the youngsters, it helps to keep alive some of the richer traditions of the splendid little country from which their ancestors came.

—and More Tulips!



from a Rembrandt or Van Dyck miniature. Having inspected the streets, they call out the citizens to scrub them. Hundreds upon hundreds of hearty burghers respond—all in costume—loaded with buckets, brooms and brushes. There is a great clatter of wooden shoes, there is plenty of fun and tomfoolery—but the suds really fly.

After the streets are clean, bugles and drums start off the annual *volksparade*. The broom and bucket brigade is followed by hundreds of townspeople in the regalia their forefathers wore in Volendam, Marken, and Zeeland. A shoemaker who has spent the week carving



This rather unusual service station is located on Highway 21, half-way between Holland and Zeeland, Mich. It is known as the "Midway Station."

It seems that the building was put up in Holland about six years ago for a vegetable stand, but the City Council objected to it as a "hideous monstrosity." At that time a Mr. Nicodemus Bush was Mayor, so the building was nicknamed "Old Nick." It caused so much comment and bickering, however, that to preserve the dignity of the Mayor's office, the City of Holland bought the building and moved it far out of town—where it has stood until its present owner purchased it recently and converted it into a filling station.

"Spotless Town" comes to life. From the running-board of his streamlined Pontiac this burgher watches re-enactment of an ancient scene: Dutch girls with bright cheeks dusting and scrubbing the streets in preparation for Tulip Time.



Memorial Park to Mark Birth of American Aviation

IN commemoration of the 35th anniversary of the first sustained flight made by the Wright brothers on Kill Devil Hill at Kitty Hawk, North Carolina, on December 17th, 1903, the city of Dayton publicly acclaimed the surviving brother, Orville Wright (Wilbur died in 1919) with appropriate ceremonies. The celebration was attended by such national figures as Henry Ford, Colonel E. A. Deeds, chairman of the board of the National Cash Register; Charles F. Kettering and Brigadier General A. W. Robins, Commandant of Wright Field.

Dayton has the unique distinction of being not only the birthplace of aviation, but of the automobile self-

appropriate shaft made of North Carolina pink granite with an engraved bronze plate serves as a marker.

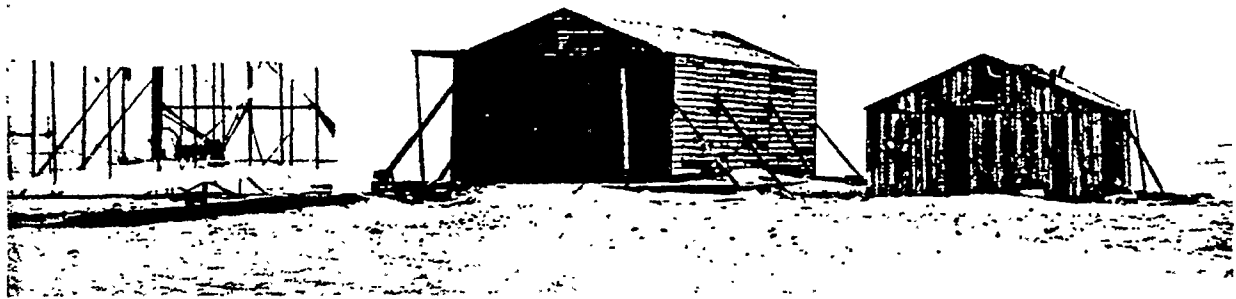
The Wright brothers conceived their first-ideas of flight in Dayton,



actually flew across the street.

But this marked only the beginning of their problems. The next difficulty came through the absence of accurate information on propellers. Although this type of locomotion had been known for almost a century, there was little design data recorded. To face the situation the Wrights experimented and tested theories, producing a propeller that converted two-thirds of the power applied into useful effort. This was about 30% better than anything used up to that time.

In the same manner, through sheer necessity, these early investigators studied air pressures, building and using the first wind tunnel. Through this source they collected



America's first aeroplane hangar—Kitty Hawk, 1903. Above, the celebrated Wright brothers.

starter and Ethyl fluid, both of which have contributed so much to transportation.

In a simple program, complying with Mr. Wright's request, the part played by these intrepid brothers in the field of American invention was traced by Mr. Kettering, after which Colonel Deeds announced that a memorial park dedicated to the Wright brothers for their contribution to science and aviation was to be opened in 1939. This park, which will be available to the public, will overlook to the east the site of the first Wright hangar and to the west the Army's air base, Wright Field. An

where they operated a bicycle repair shop—now preserved in Henry Ford's Dearborn Village. With very little authentic data established by previous scientists, the Wrights began their experiments first with gliders. Basing their calculations on the Lilienthal tables of aerodynamics, their results proved erroneous and discouraging. With fortitude, however, the brothers proceeded to carry out other experiments in order to build their own set of aerodynamic tables, which would be reliable. Translating these findings into further building the Wrights produced their first successful glider, which

data which were correct and reliable. While these difficulties were experienced in preparation for their ultimate object, another appeared during flight. Ever since their glider experiments the matter of stability had been a problem — tailspins were nothing new to them — but through dauntless effort they worked out a satisfactory solution.

Kitty Hawk, on the coast of North Carolina, was selected for the experiments because it was isolated and offered the type of air currents over the sands which they thought were best suited for their studies. Even here trouble pursued them.

They had built their own gasoline engine especially for the proposed flight. It was a four-cylinder horizontal job with a bore and stroke of four inches, developing 12 h.p. Compared with aviation engines of today it hardly seems possible that such a small power plant could lift the ship into the air and sustain it in flight. After two days of testing, one of the tubular propeller shafts broke. This caused a delay of almost two weeks, since Orville had to return to Dayton to build a new part.

On December 17th, 1903, everything was again in readiness. Despite the handicap of small patches of ice which had formed during the night and a brisk wind they finished their preparations, and with the help of John T. Daniels and Adam Etheridge of the United States Coast Guard, the brothers launched their aeroplane. On that memorable day the first sustained flight of 57 seconds was made—and marked the beginning of a new era in transportation. The brothers sent their father, Bishop Milton Wright, in Dayton, a telegram—the full significance of which we can appreciate only after these many years—

"SUCCESS FOUR FLIGHTS THURSDAY MORNING ALL AGAINST 21 MILE WIND. STARTED FROM LEVEL WITH ENGINE POWER ALONE. AVERAGE SPEED THROUGH AIR 31 MILES. LONGEST FLIGHT 57 SECONDS. INFORM PRESS. HOME CHRISTMAS."

Perfect Circle Co. Entertains At Ethyl Clinic



300 Perfect Circle representatives at Ethyl's St. Louis clinic.

AFTER holding a successful series of 56 major meetings in St. Louis, Ethyl's Kansas City Division Clinic, in cooperation with the Perfect Circle Company, through their District Manager, Mr. Jack Taylor, reached out to secure an audience of over 300.

Included in this gathering were five members of the Galloway Machine and Electric Company, who attended with Mr. J. W. Galloway from Hooperstown, Ill., 225 miles distant. The Acme Auto Supply Co.

was represented by four members from Cairo, Illinois, which is 151 miles from St. Louis. Mr. V. A. Williams, owner of the Williams Motor, Chevrolet dealers, attended with six of his organization from Salem, Illinois, a distance of 71 miles. These several groups from points so far distant gives evidence of the great amount of interest the Clinic has evoked.

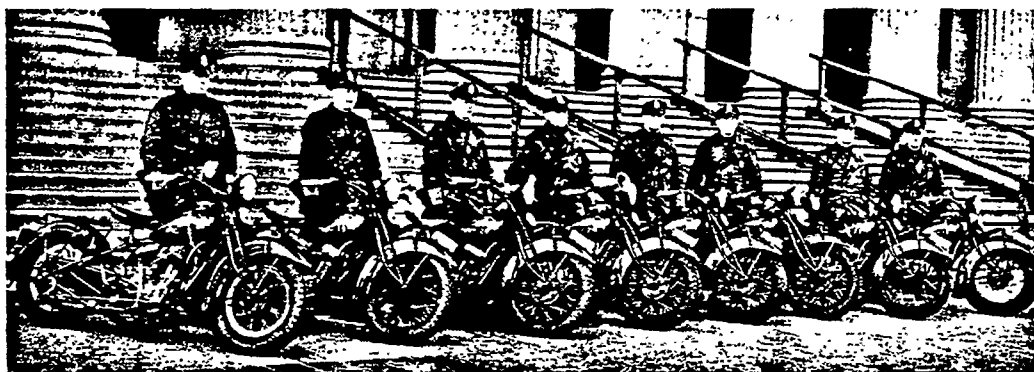
The audience was comprised mainly of automobile agency mechanics, guests of the Perfect Circle Jobbers.

Springfield Cuts Accident Toll

NEWSPAPERS, auto owners, pedestrians and the police force of Springfield, Massachusetts, all worked together last year in an intensive drive to reduce the number of traffic accidents. The city-wide "safe-driving" campaign began in July, with excellent newspaper support, and ran until the end of the year. As a result, traffic deaths in the last half of 1938 were only 66% of the corre-

sponding figure for the year before, with 27 less pedestrians injured.

Much of the success of this campaign is due to Chief John F. Maloney, who concentrated motorcycles and patrol cars at those intersections which had proved danger spots in the past. Chief Maloney, however, gave most of the credit to the drivers themselves for recognizing that a high death toll was preventable, and trying to overcome it.



Part of the motorcycle squad of the Springfield police force. All motorcycles and cruising cars are fueled with Ethyl.

"Woolaroc" Retains



Frank Phillips, the founder of Woolaroc Museum and Lodge.

MANY oil company executives have at one time or another had the privilege of visiting and being entertained at "Woolaroc" Lodge on the beautiful ranch of Mr. Frank Phillips, Chairman of the Phillips Petroleum Co., of Bartlesville, Okla.

Perhaps Mr. Phillips' purpose in

building Woolaroc Lodge and Museum can best be summed up in his own words. He says: "I came to Oklahoma thirty-five years ago and have seen the old give way to the new. I am trying in a small way to preserve the atmosphere and memory of the old Oklahoma Indian country." How well he has succeeded in his de-

sire is evidenced by the fact that in 1930 he was officially adopted into the Osage Indian Tribe — the only white man ever to be so honored.

Despite the sound, the name "Woolaroc" is not of Indian origin but was inspired by the *woods, lakes and rocks* which are included in the Frank Phillips Ranch. The Lodge is built of rough logs and comprises two main structures, joined by a patio. The smaller wing, the dining room, is a replica of the Nebraska home of Mr. Phillips' father in the early days, where the son was born, being one of the first white children in Greeley County. This early home served the elder Phillips, who was a judge, as court house for the community.

The great living room has huge fireplaces built of native stone. A fine collection of Navajo rugs cover the floor and on the walls one will find some of the best examples of mounted heads and horns to be seen in the country. Here also are oil paintings depicting Indian and pioneer life which form one of the most complete groups of pictures of this type in the Middle West.

MUSEUM DEDICATED TO FRIENDS

Probably the most unusual feature of the Ranch is the Woolaroc Mu-



The Woolaroc Museum, built of native stone and dedicated to "the Osage Indians and other friends whose emblems and tokens have made the collection possible." It stands on the highest ground of the ranch.



Inside the Museum are many exhibits and relics portraying Indian life in early Oklahoma. The airplane, purchased by Mr. Phillips for Col. A. C. Goebel, won the annual Dole flight in 1927.

ins Atmosphere of Old West

seum, which is situated on the highest point in the enclosure. Mr. Phillips has dedicated this to: "The Osage Tribe of Indians, various organizations and many good friends who have honored me with emblems and tokens making the collection possible."



H. R. Cunningham, Sales Promotion Manager, shown with first tankwagon of the Phillips company.

The building is constructed of native stone procured on the Ranch and is designed and erected to stand for many generations. Although the collection contains in great part relics devoted to Indian life and early Oklahoma, it also includes a wide variety of articles from all over the world. An outstanding exhibit is the "Woolaroc," an airplane purchased by Mr. Phillips for Colonel Arthur C. Goebel, who, with Lt. W. V. Davis, won the Dole race from Oakland, California, to Hawaii in 1927, in 26 hours, 17 minutes. It was one of only two planes out of eight starters to complete the flight. On view are the official ceremonial costumes and articles

presented to Mr. Phillips on his induction into the Osage Indian Tribe.

The land on which the Ranch is located has an interesting history. In 1871, the Federal Government moved the Osage Indians from Kansas to the Osage Nation, the reservation including what is now Osage County. Here large herds of cattle, owned by both whites and Indians, found ample grazing. Fences were unknown and cattle trails the only roads. For many years the area was a favorite hunting ground for the Indians and white settlers but later it became an outlaw hangout. "Outlaw Gulch," with its fresh spring water, was for years the favorite headquarters for desperados and cattle thieves. The very nature of the uneven, almost inaccessible land made it an ideal hiding place. Quite recently evidences of a prehistoric village have been discovered within the Ranch boundaries and various implements and crude utensils which were found are on display in the Museum.



A striking sundial—Indian with tom-tom—marks the bright hours at the ranch. It stands in front of the lodge house.

The main buildings of the Ranch are situated on a hill overlooking Outlaw Gulch and the largest of the lakes. At the water's edge are bath houses and bathing beach and across the lake is the picnic grounds with pavilion, barbecue pits and even an Indian tepee. In short, Mr. Phillips, while securing many of the comforts and luxuries of the present day, has with all preserved the primitive beauty of the Osage hills and captured as well the atmosphere of the Old West.



Above: Woolaroc Lodge, on the FP ranch, is built of rough logs. Two large structures are joined by a patio. Smaller wing, a dining room, is a replica of the home of Mr. Phillips' father many years ago. It was in such a room as this that the senior Phillips presided as County Judge of Greeley County, Nebraska.



Left: Across the lake from the lodge — the picnic pavilion where large parties are frequently entertained.

Ethyl Cooperates with Uncle Sam

THE following unsolicited letter was received recently at the Dayton office of the Ethyl Gasoline Corporation, from Brigadier General Adna R. Chaffee, Commanding officer of the Seventh Cavalry Brigade (Mechanized), Headquarters, Fort Knox, Kentucky.

"I desire to express my appreciation to you and the other members of your Clinic for the time and effort devoted to my command. Your conferences and demonstrations on the relationship between fuels and horsepower and the special sessions on modern engine tune-up were excellently arranged and convincingly presented.

"The instructional assistance which you gave so wholeheartedly, is bound to reflect in immediate and material improvement in operation and maintenance. As preventive maintenance is being emphasized during this period of instruction, your cooperation

could not have been more timely.

"I would appreciate you transmitting to your headquarters my sincere appreciation, as well as the appreciation of the hundreds of officers and men of the Seventh Cavalry Brigade (Mechanized), for the opportunity afforded us to better qualify ourselves

in carrying on the important role of mechanization in the Army."

Very truly yours,

Adna R. Chaffee
Brigadier General, U. S. A.



Ethyl Sponsors Automotive and Fleet School in Atlanta

DURING the closing days of March, an Automotive and Fleet School was held in Atlanta, Georgia, at which representatives from eleven of the largest fleets operating in the southeast and most of the oil companies marketing in the area were in attendance.

The first session was opened on Monday, March 27th, by Mr. J. A. Costello, Manager of the Ethyl Gasoline Corporation's Atlanta Division,

who outlined the purpose of the gathering, the program which had been scheduled and introduced the various speakers. Those who addressed the meetings during the balance of the week included Messrs. H. B. Trevathan of the Carter Carburetor Co. of St. Louis; Martin Archangeli of Wilcox-Rich Co., Detroit; Sumner Howard of A.C. Spark Plug Co., Flint, Michigan, and E. F. Wenzel from Detroit, representing Strom-

berg Carburetor Co. Also Messrs. Theron Bradshaw of Perfect Circle Piston Ring Co. from Hagerstown, Md.; H. E. Miles and George Baker of Atlanta, representing the Hall Manufacturing Co. and Champion Spark Plug Co., respectively, and from Ethyl's Detroit Engineering Laboratory, Messrs. Julian Frey and Errol Gay. A great deal of interest was shown for the entire program and for the session on oils the Standard Oil Company of Kentucky had their field representatives in the State of Georgia attend in a body.

As a result of the meetings it is reported that additional schools are to be held by some of the oil companies later in the year to which a large number of the fleet operators in the territory will be invited. Much of the material which was supplied by the Fleet School in Atlanta will be used as a basis for these other educational meetings.

The school ended on Friday with a banquet and floor show for those who had been in attendance throughout the week.



Radio Announcer Gives Boost for Motor Tune-Up

MR. VOLNEY T. JAMES, of the firm of Volney T. James and Associates, Radio Advertising, Los Angeles, stopped in a Rio Grande service station at 1000 Wilshire Boulevard recently and asked for Ethyl. The attendant asked if he had had his engine tuned for Top Performance.

Mr. James remarked that he had been using Ethyl Gasoline for years, but had never had the engine adjusted for its use—like a great many other people, it was simply his habit to use the best. Learning that a special tune-up to match the gasoline would give him better performance, he waited while the job was done in the modern tune-up shop connected with this station.

LIKE A NEW CAR

After driving the newly adjusted car for about fifteen minutes, he came back and reported that the improvement in performance was so marked that it really seemed like another automobile. He carried his enthusiasm a step further. A few nights later, during the course of one of his broadcasts over station KMTR, he related the experience to his radio audience, even giving the name and address of the service station.

The next day the station telephone was ringing almost constantly. Over 80 telephone calls were received, asking the details of engine tune-up, and during the day 23 owners brought their cars in for tuning.

Naturally the tune-up operator was delighted with the business, which developed as a result of the chance contact with Mr. James and the radio publicity which it brought him. He gave a complete report of the incident to the Ethyl Motor Clinic in Los Angeles.

MAY, 1939

Ethyl Clinic Invades Westchester



Mr. R. L. Jordan, Ethyl Gasoline Corporation's Director of Field Activities; Mr. F. R. Banks from London, England; Mr. L. B. Roberts, Buenos Aires, S. A.

WITH representatives from England and South America attending the same meeting, the New York Division's Ethyl Motor Clinic No. 7 can perhaps claim a record for an audience from the most widely divergent points. Mr. F. R. Banks, of London, specializes in aircraft engine developments in Europe and Mr. L. B. Roberts hails from Buenos Aires, to which post he was assigned almost three years ago. They both were present at the opening meeting April 10th, in New Rochelle, New York.

Westchester County and City Officials, as well as oil and automotive representatives, gave the Clinic an excellent start at this new location. Clinic Manager Littlefield and Au-

tomotive Engineer Guy Donohue shared in the presentation. The accompanying informal pictures were taken after the meeting.



In oval above: Editor W. Cary Harris—wondering, no doubt, about copy for the next issue.

Right: Messrs. George McDaniel, Socony Vacuum's Assistant District Manager; Roy Goltz, Ethyl's Assistant New York Division Manager; R. Brown, Socony Vacuum District Manager and R. C. Murphy, Ethyl's New York Division Manager.



Page fifteen

ETC 22415



Ethyl-Dow's Championship Softball Team

LAST year's champions of the Wilmington City League, the Ethyl-Dow softball team shown above came through a brilliant season with the record of 17 games won, 3 lost. They then clinched the championship by defeating Atlantic Coast Line Railway's team three consecutive games in a "round robin." Included in the league were teams from the following organizations: White's Ice Cream Company, City Optical Company, Smith Shoe Repair Company, Atlantic Coast Line and Ethyl-Dow.

Players shown above are: back row, left to right—W. S. McKeithan, SS; Roy Jones, 2B; Dick Saunders, C; Shep McKeithan, 3B; Joe Elakes, OF. In the middle row, the pretty mascot is Olive Smith, official scorekeeper. Standing with her are Billy High, 1B; Captain Harlan

McKeithan, C; Glenn Cantwell, P; Plant Manager C. M. Shigley, OF; Carroll Koonce, OF. Front row—J. A. Brown, P; James Peterson, OF; Dan Jones, OF; Tom Grainger, OF; and the team's manager-catcher, Max Register.

This year's team will again consist of Harlan McKeithan as captain, Max Register as manager and W. S. McKeithan, Shep McKeithan, Roy Jones, Billy High, Glenn Cantwell, C. M. Shigley, Carroll Koonce, J. A. Brown, James Peterson, Dan Jones and Tom Grainger. New additions are Heywood Moore and E. F. Anderson. L. C. Marshall is secretary and treasurer. They will play in the Independent League, against teams from the Atlantic Coast Line, City Optical Company, White's Ice Cream Company, Taylor-Colquitt Company and Wertheimer Bag Company.

Travel Statistics

RESEARCHERS are looking for many a statistic to be developed this year when the American people drive their motor vehicles to two simultaneous World's Fairs. Already it is estimated that at least one-third of all American motorists will drive to one or the other of the fairs. This means that upward of 9,000,000 motor cars will be on the roads this summer.

The simultaneous fairs, one on each coast, provide the first real opportunity the motorists have had to put to good use the roads for which they have been paying gasoline taxes since 1919. Advance estimates indicate these folks will roll up a total of 45,000,000,000 passenger miles, a figure which will set a record for mass movement of population.

The states haven't overlooked the possibilities of making themselves a bit of money on the deal. Those through which pass roads leading to the fairs have fixed up their highways to encourage motor travel and the consequent payment of millions in gasoline taxes. Local business is cutting itself in on the party, for highways traditionally create new business along their entire length.

If all the hot dogs which will be consumed by fair-bound motorists were put end to end . . . !

Ethyl Gets There First— By Television!

One hundred and fifty television sets at the World's Fair have been installed by RCA-Victor, spotted at different points throughout the grounds. Ten hours of entertainment every day will be telecast from a studio in New York and

picked up for the benefit of Fair audiences.

Some of these programs will be telecasts of talking motion pictures—and among them will be a specially adapted version of the Ethyl film, the "Long Road."

On Tuesday, March 21st, there arrived a new member of the Cronin family—who will be known as Peter Hayward Cronin, we are told. The many friends of the Cronins are busy congratulating them on their lusty youngster, who is shown here heartily vocalizing at the tender age of one day.

Master Peter was born at the Johns Hopkins Hospital in Baltimore, and weighed 8 3/4 pounds at birth.

We add our own very hearty congratulations to those already received by Frank and Mrs. Cronin—and a bouquet also to the photographer who snapped one of the most appealing baby pictures we've ever had the pleasure of seeing!

Josephine Nelson, a graduate of the Bay Ridge High School, is a new member of the New York General Sales Department. She has joined Russ Weston's staff and is filling the vacancy left by Jean Harmon, who has taken up the duties of Secretary to Ed Downs. Before coming to Ethyl, Jo was with a cotton broker for two years.

Her favorite forms of diversion are swimming, skating and dancing. Being a very attractive blonde Norwegian, it's very difficult not to call Jo, Sonja.

Stuart Forbes, Automotive Engineer with the Atlanta Division Clinic, journeyed back to his home town of Flint, Michigan, and on March 25th married Miss Margaret Dodds of that city. Marge is a graduate of the University of Michigan where she was a member of Phi Beta Phi. The "Lament of an Ethyl Wife," published in the March "News," worried Stuart considerably but he managed to keep it out of sight until after the ceremony. Our hearty congratulations to Mr. and Mrs. Stuart Forbes.



On March 1st, 1939, Howard B. Hudiburg joined the Chicago Clinic as Junior Engineer. He is a graduate of Kansas State University where he received a B. S. degree in Chemical Engineering in 1935. Prior to joining the Ethyl family, Howard was with the Standard Oil Company of Indiana as chemical engineer in their Research Department.

He is married and has a daughter.

When Grace Katherine Donohue and Joan Ellen Musick start reminiscing a few years hence, they will have a lot in common. First of all, Grace was born March 28th, 1939, and Joan, April 5th, 1939, which is about a week apart. But most important is the fact that their respective fathers, Guy Donohue and Roy Musick, are making history in Ethyl's New York Division. Guy, our No. 7 Clinic automotive engineer, is an old hand at raising a family, having two children already, but Roy Musick, our new eastern Pennsylvania representative, is going through his first experience. Grace Katherine Donohue hit the scales at 8 lbs., 4 ozs., and Joan Ellen Musick weighed 6 lbs., 13 ozs. These two new little girls put the New York Division further ahead than ever and the year is not even six months old. We extend our sincere congratulations to the Donohues and the Musicks.

The Yonkers Gasoline Testing Laboratory welcomes Eileen Fitzgerald to its staff. She graduated from the Gorton High School and then attended business college. Her favorite forms of amusement are tennis and singing.



From the middle-west plains of Michigan to the sun-kist valley of San Bernardino has come Elmer "Cactus" Mahlke. "Cactus" has been transferred to the Test Lab at San Bernardino to assist "Buck" Renfro on the C.F.R.'s.

Frederick K. Cody joined the Ethyl family as Junior Engineer of the Atlanta Clinic on April 10th. Fred came to us from the General Motors Parade of Progress and prior to that time had been with McCann-Erickson, advertising agency. He is a graduate of the University of Michigan.

Mr. and Mrs. Lawrence D. Reis of Tulsa, Oklahoma, are receiving congratulations on the birth of a son, Master Robert Richard Reis, who weighed six pounds, nine ounces on his birthday, March 13th, 1939.

John Amos Fischer, a new member of the Ethyl family, joined the staff of the Kansas City Testing Laboratory on March 20th. He is a native of Findlay, Ohio, and a graduate of the Findlay High School and the International Correspondence School.

After being associated with the National Refining Company's laboratory for nine years, where he was promoted to Assistant Chief Chemist, he accepted a position with the Lima Crude Refining Company as Chief Chemist, later becoming Superintendent.

John is married and makes his home in North Kansas City.



THE FOLLOWING SERVICE AWARDS HAVE BEEN MADE AS OF MAY 1, 1939 TEN YEARS

WALTER A. BAUER.....	Yonkers Laboratory
HENRY E. COTTRELL.....	Tulsa Sales
TUCKER E. DAWSON.....	Baton Rouge Laboratory
STEPHEN H. DROEGE.....	Yonkers Laboratory
ETHEL HARLING.....	Administration
RICHARD C. MURPHY.....	New York Sales
MATTHEW A. TAYLOR.....	Boston Sales
JAMES TERRELL.....	Kansas City Laboratory

FIVE YEARS

PAUL E. McELROY.....	New York General Sales
GLADYS RODGERS.....	Tulsa Laboratory



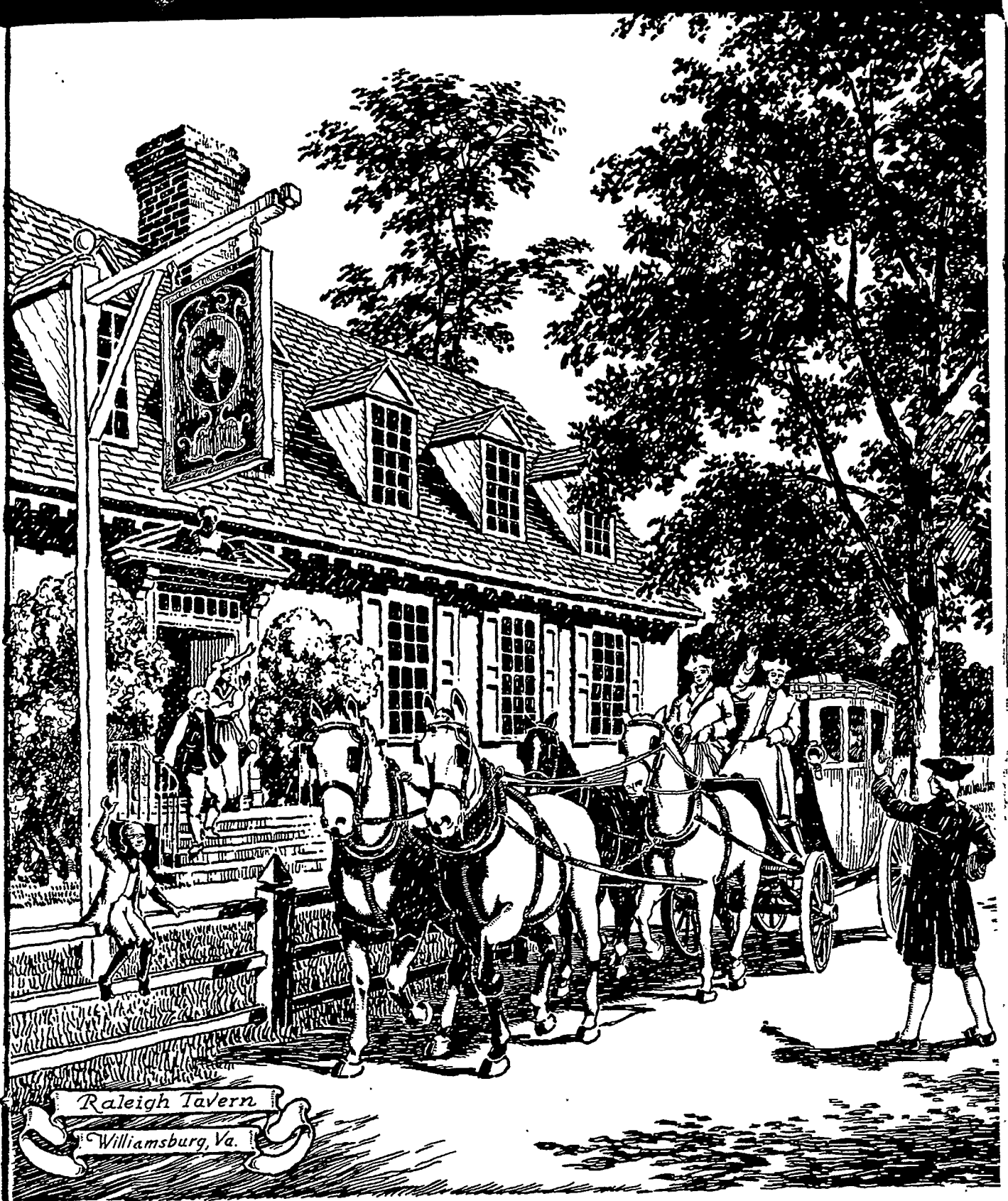
CRUISING RANGE...

3000 miles

ALASKA to HAWAII . . . 3,000 miles over open, treacherous water . . . the Golden Plover wings his way. To give himself greater cruising range for the hazardous trip he has fattened up his body with extra "fuel."

For years these little fellows have been demonstrating two vital requirements of long-distance flying . . . capacity for carrying sufficient fuel and the ability to use that fuel efficiently. And year after year aviation has been learning to meet those requirements. Through continuous improvements in fuels and engines we have seen long over-water "hops" become routine flights.

And because of improvements to come, routes that are still impractical for regular scheduled flights will be bridged by the planes of tomorrow. To this end the Ethyl engineers are working with aviation engineers in a program of continuous research . . . to help develop the fuels and engines that will power those planes . . . give them an ever-increasing cruising range.



JUNE 1939

ETC 22419

"Specifications of a Man"

TO respect my country, my work, and myself. To be honest and fair with my fellow men as I expect them to be honest and square with me. To be a loyal citizen of the United States of America. To speak of it with praise and act always as a trustworthy custodian of its good name. To be a man whose name carries prestige wherever it goes.

"To base my expectations of a reward on solid foundation of service rendered. To be willing to pay the price of success in honest effort. To look upon my work as an opportunity to be seized with joy and made the most of, and not as painful drudgery to be reluctantly endured.

"To remember that success lies within myself, my own brain, my own ambition, my own courage and determination. To expect difficulties and force my way through them. To turn hard experience into capital for future use.

"To believe in my work heart and soul. To carry an air of optimism in the presence of those I meet. To dispel ill temper with cheerfulness, kill doubts with strong convictions, and reduce active friction with an agreeable personality.

"To make a study of my business. To know my work in every detail. To mix brains with my effort, and use system and method in my work. To find time to do every needful thing by never letting time find me doing nothing. To hoard days as a miser hoards dollars. To make every hour bring dividends, increased knowledge or healthful recreation.

"To keep my future unmortgaged by debts. To save as well as earn. To cut out expensive amusements until I can afford them. To steer clear of dissipation, and guard my health of body and peace of mind as a precious stock in trade.

"Finally, to take a good grip on the joys of life. To play the game like a man. To fight against nothing so hard as my own weaknesses, and endeavor to grow in strength, a gentleman, a Christian.

"So I may be courteous to man, faithful to friends, true to God.

These, indeed, are "Specifications of a Man."

From "DELCO DOINGS."

Europe Seeks Oil



Ethyl Gasoline Corporation

CHRYSLER BUILDING
NEW YORK CITY

W. CARY HARRIS
Editor

RUSSELL B. WESTON
NORTHROP CLAREY, Jr.
Associate Editors

Correspondents

J. A. COSTELLO	Atlanta
F. S. CRONIN	Baltimore
B. R. JONES	Boston
A. B. WYRICK	Chicago
R. R. FALLER	Dayton
D. S. FLYNN	Kansas City
CARL ABELL	Los Angeles
R. L. GOLTZ	New York
J. N. FITZGERALD	Toronto
H. KUHE	Tulsa
R. K. SCALES	Engineering Dept.
L. BARNUM	Mfg. Baton Rouge
C. WASSERMAN	Mfg. Deepwater
J. C. POPE	Gasoline Testing Dept.
E. J. NIESER	Administration Dept.
HUBERT FOSSETT	London

THE MATERIAL IN THIS PUBLICATION
MAY BE REPRINTED PROVIDED DUE
CREDIT IS GIVEN THE "ETHYL NEWS"
OR ETHYL GASOLINE CORPORATION
UNLESS IT IS A COPYRIGHTED ARTICLE

Volume 6, Number 6

BETWEEN headlines, Europe searches for oil. New discoveries will not go far in supplying the demand, experts believe, but they look promising, particularly since a great deal of territory is still unexplored, according to a release just issued by the American Petroleum Institute.

In France, deep drilling followed the geophysical exploration begun in 1937. A 3,814-foot test well at Pezenas showed traces of oil at 2,640 feet. No increase in the 52,500-bbl. annual production at Pechelbronn and Gabian in southern France is expected. Reitbrook, one of the new German fields developed within the last few years, was an important factor in bringing production in that country up to about 3,864,000 bbl. in 1938. Through incorporation of Austria, the Reich has obtained an additional supply of more than 42,000 barrels a month from the Zistersdorf field in the Vienna Basin and a larger output is expected.

Despite extensive new drilling, Italy's 1938 production declined to about 92,260 barrels for aside from a small output of methane gas at Rosalina in the Venice Basin and more traces of gas in the Po Valley, efforts to open up new production have been unsuccessful. Areas slated for tests include Fontevivo, Podenzano and parts of southern Italy. Albanian production, developed by Italian capital, remains the major source of supply, although it did not reach anticipated levels in 1938.

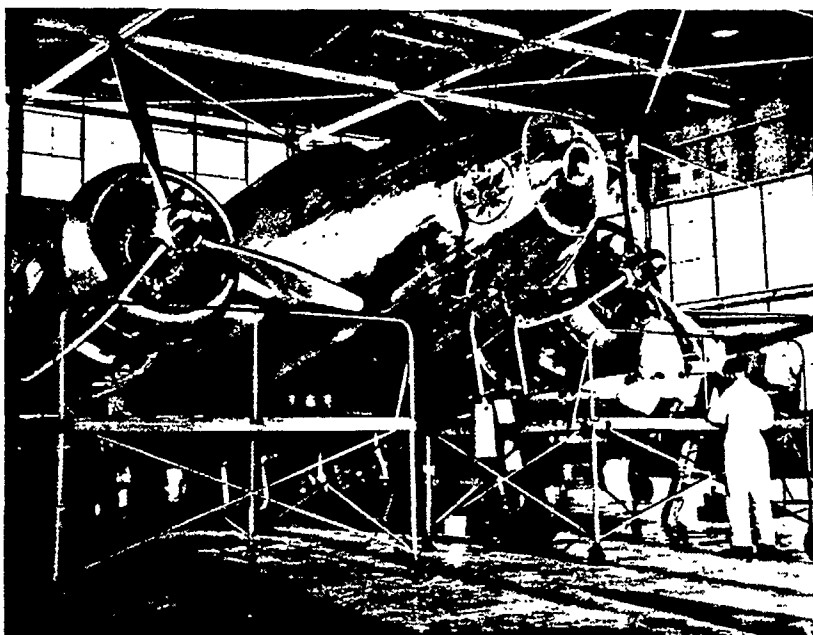
American development in Hungary is showing the results of systematic preparation over a period of years. At Lispe in southwestern Hungary, production amounts to about 2,100 barrels daily. Natural gas output including smaller quantities produced in the north totals approximately 245,000,024 cubic feet. As a result, Hungary has become, in large measure, self-sufficient. Interest in exploration is active.

No important oil discoveries were made in Czecho-slovakia and Yugoslavia during 1938 but Germany plans further exploration in Slovakia, it is believed. Leading international oil companies are applying for concessions in Yugoslavia. Holland, so far, has not found oil in commercial quantities, but is continuing the search, as are also Denmark and Sweden.

In Greece, hopes are centered on the Kalanas Valley, believed to be a continuation of the Albanian oil belt. Drilling will be continued in this area and in the Epirus province, where there are large asphalt deposits. In Bulgaria, the Preslav, Sliven and Varna areas will be tested. Exploration is planned in Portugal. Traces of oil have been found in many parts of Switzerland, but it is believed that state assistance will be necessary before the country can be completely explored.

In This Issue

Specifications of a Man	The Story of the Funk Farms and Hybrid Corn
Europe Seeks Oil	Ketteringisms
Canada's National Air Service	Vancouver Pioneers in Plan to Curb Highway Death Toll
Zeke and the Boys	Noted Tenor Guest at Preview
West Virginia Net work Puts Ethyl Clinic on the Air	Highway is Foundation of Nation's Social Order
Thousands of New Cars Take Water Route from Detroit	Ethyl Motor Clinic Itinerary
Standard Oil at Motor Clinic, Jackson, Miss.	New Ethyl Gasoline Corporation Personnel at Baton Rouge ELA Plant
Thirty Years Old—And Still Running!	Service Awards
	Newsbriefs



A huge Lockheed 14. One of Trans-Canada Air Line's fleet receives a regular check-up in Winnipeg hangar.

Canada's National Air Service

LIGHTED by the flares of newsreel cameramen, cheered by a throng of spectators, a big Lockheed taxied down the strip at Montreal's airport on the night of April 1st and took off toward Ottawa, on the way to Vancouver, the other side of the continent. That was at 9 o'clock, Eastern Standard Time. Three quarters of an hour later (6:45 Pacific Standard Time), another plane started from Vancouver and headed east. The passenger service of the Trans-Canada Air Lines had begun.

The climax of two years' organization and development was marked by ceremonies at both ends of the long line. At Montreal, Hon. C. D. Howe, Minister of Transport and Philip G. Johnson, vice president of the T.C.A., spoke for the newsreels. Flying as far as Ottawa, Mr. Howe was one of the first passengers. He recalled a survey flight he and H. J. Symington, K.C., a T.C.A. director, made two years ago as a preliminary to the organization of the air line, when the route was covered between dawn and dusk. At Vancouver, citizens staged a little pageant. In costumes of the eighties, they reminded the public of the coming of the first railroad train to the Pacific

as Indians in full regalia admired the white man's thunderbirds. A little girl "christened" the plane with the mingled waters of the Fraser and St. Lawrence rivers symbolizing the closer union of Canada's widespread communities brought about by the new transcontinental air service.

The T.C.A. was incorporated by Act of Parliament on April 10th, 1937. Capitalization was \$5,000,000 and it was stipulated that a majority of the 50,000 shares must be held by the Canadian National Railways. S. J. Hungerford, Chairman and President of the C.N.R., heads the organization as President and Philip G. Johnson, prominent air lines executive with more than 20 years' experience in the organization and operation of large-scale commercial flying, was appointed Vice President.

The route extends from Moncton, in the Atlantic province of New Brunswick, 2,839 miles to Vancouver on the Pacific coast, going through such important centres as Montreal, Ottawa, Toronto, North Bay, Winnipeg, Regina, Lethbridge; goes from Lethbridge up to Calgary and Edmonton (288 miles), and from

Vancouver to Seattle (122 miles). Auxiliary lines operated by other companies carry on to Moose Jaw, Saskatoon, Prince Albert and North Battleford and across to Victoria. Plans are being discussed for services from Toronto to Windsor and Detroit and to Buffalo, for a Quebec "loop" and for lines from Moncton to Halifax, Saint John and Charlottetown.

It was in the north that the Dominion for years maintained first place in the world for the carriage of freight by air. Today it is exceeded only by the U.S.S.R. Many important mining properties in the Canadian north owe their development to air transport.

Following years of study, the Canadian government made a coast-to-coast survey in 1928 and construction of the trans-Canada airway began. Two years later, air mail service went into effect over short distances but this was discontinued, because of the depression, in 1932. Work on the airway went on, however, as a means of alleviating unemployment.

Until the end of 1937, activities of the Trans-Canada Air Lines consisted largely of organization, al-

Swiftly passing over the great prairies of Manitoba a Trans-Canada plane wings its way to the coast



ETHYL NEWS

[2]

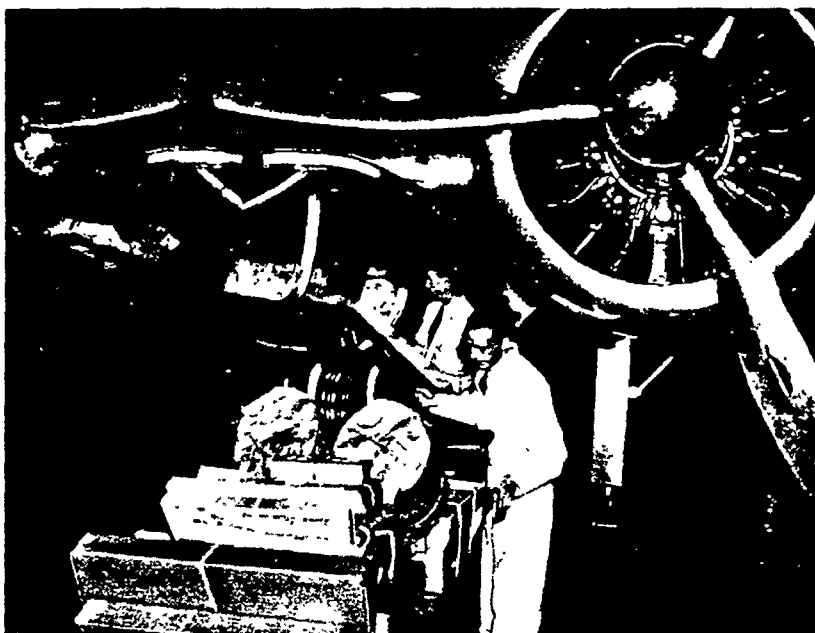
ETC 22422

though commercial operations began as early as September of that year, with the Vancouver-Seattle service acquired from the Canadian Airways. Two Lockheed Electras were purchased immediately and three others, ordered in April, were delivered in October. At the end of the year, the company had 41 employees, and carefully selected pilots were undergoing a rigorous course of training.

At the close of 1938, the staff had grown to 330, a fleet of 14 Lockheeds had been assembled and nearly 2,000,000 miles had been flown. Mails and express were being carried across the continent. Hangars had been built, at Winnipeg and Lethbridge, and another was under construction at Malton Airport, Toronto. In the erection of these buildings, as in the construction of airports by the Government and by various municipalities, allowances were made for the future. The Canadian people, benefitting by the experience of the United States and other countries saw to it that their facilities were large enough or capable of expansion.

Experimental daily mail service between Winnipeg and Vancouver began on March 1st, 1938 and became a regular night mail seven months later. In the meantime, the

Mail is loaded aboard a T. C. A. plane at Winnipeg.



Loading first express shipments at Montreal upon inauguration of service late in 1938.

planes had begun carrying Canadian National express. On December 1st, mail service by day started between Montreal and Winnipeg. The full overnight service, which went into effect on March 1st, was followed, a month later, by the beginning of passenger service. In the first two weeks, 497 revenue passengers were carried, as well as 13,007 pounds of mail.

Leaving Montreal at 9 p.m., Ottawa at 10 and Toronto at 10:30, the planes reach Vancouver at 11:35 the following morning. In the opposite direction they take off at 6:45 p.m., reach Ottawa and Toronto at 11:50 the next morning and Montreal at 12:50.

The Trans-Canada fleet at present consists of five Lockheed Electras and nine Super Electras or "14H"

Lockheeds. The latter have accommodation for ten passengers and a crew of three, a Captain, a First Officer and a Stewardess. Their cargo compartments are capable of carrying 2,800 pounds and they have a fuel capacity of 536 Imperial gallons. Powered by twin Pratt & Whitney 850-horsepower Hornets, they have a cruising speed of 209 miles an hour and a maximum of 244 miles an hour. They are equipped with the latest type of radio and gyro instruments. The test house and shop where they are periodically overhauled is attached to the Winnipeg hangar and is one of the most modern on the continent.

This Month's Cover

Raleigh Tavern at Williamsburg, Virginia, has been completely reconstructed on the original foundations with the guidance of inventories of two of its keepers during the 18th century. The Tavern has been furnished throughout but is not conducted as an inn. The original Tavern was more than a gathering place for casual visitors to Virginia's capital city during the 18th century. It may be said to have had a profound influence on the business, political and cultural life of the colony. Here the Burgesses met on at least two occasions after they had been dissolved by royal governors.



Zeke and the Boys

How Ethyl Gasoline Hitched Up with Them Kentuckians
and Produced Ingenious Copy Angle

Reprint from Printers' Ink

YOU have seen, of course, the cartoons drawn by Webb for Esquire and the like, the ones that show the Kentucky mountaineers at home. Just about everybody has come across them by now in one form or another—if not in the magazine pages, perhaps as they were interpreted by the Ritz Brothers in the movies. Advertising men working on Ethyl Gasoline reckoned about the same thing with the result that they hitched up with them Kentuckians for a very special campaign.

It was directed at commercial vehicle operators, who account for somewhere between 15 and 20 per cent of the total gasoline purchases in the country. This is a market not to be overlooked. It is also a market which requires special handling, because the buyer of gasoline for trucks, etc., has to keep costs down to a minimum and performance up to a maximum or go out of business.

With these considerations in mind, Ethyl's advertising men decided to do an educational job on the vehicle operators, acquainting them with the salient facts on gasoline containing tetraethyl lead. Six advertisements were to cover the subject of "What is good gasoline." But that looked like a rather formid-

able title and one which might be overlooked by the buyers. Something was needed for interest value and to take the dry-as-dust out of the campaign. That's where Zeke and the moonshine boys came in.

Insertions were placed in eight commercial vehicle publications starting last November. They appeared on a staggered schedule of roughly every other month. In these magazines, incidentally, most of the advertising pages are heavy with pictures of products, and the mountaineers were so unusual and attractive an addition to the usual make-up that they stood out like an oasis in the desert. That, in the main, is why they were used—for attraction value.

In each case, however, very little copy was devoted to the boys. The swing-in into the commercial text came early in the first paragraphs, leaving the cartoons and captions pretty much to do the work of livening the advertisements by themselves.

On the pages, cartoons came first, a caption in dialect second and then the educational sales material. At the bottom was a simplified presentation of "four rules for good gasoline," explaining with diagrams

what is the meaning of volatility, vapor pressure, gum content and anti-knock value.

As an example of what the advertisements are like, take the one on volatility. It shows Zeke being blown through the roof of his still and landing in a rather unsophisticated pose on the limb of a tree; "Reckon I put tew much volatility in thet batch!" he says, while two of his cousins look on in mild surprise.

Paragraph one, below this reads: "There's nothing as dramatic as an exploding moonshine still to tell you that the gasoline you use in your trucks and buses is too volatile or not volatile enough. There is plenty of practical evidence in the way those trucks and buses run."

And paragraph two goes on with the technicalities: "When gasoline does not have enough volatile fractions or light ends, it shows up in slow starting and repeated choking, resulting in crank-case oil dilution and poor mileage. . . ."

"When gasoline has too many highly volatile fractions, it causes vapor lock and poor mileage, the latter due to excessive evaporation from gas tank and carburetor. . . ."

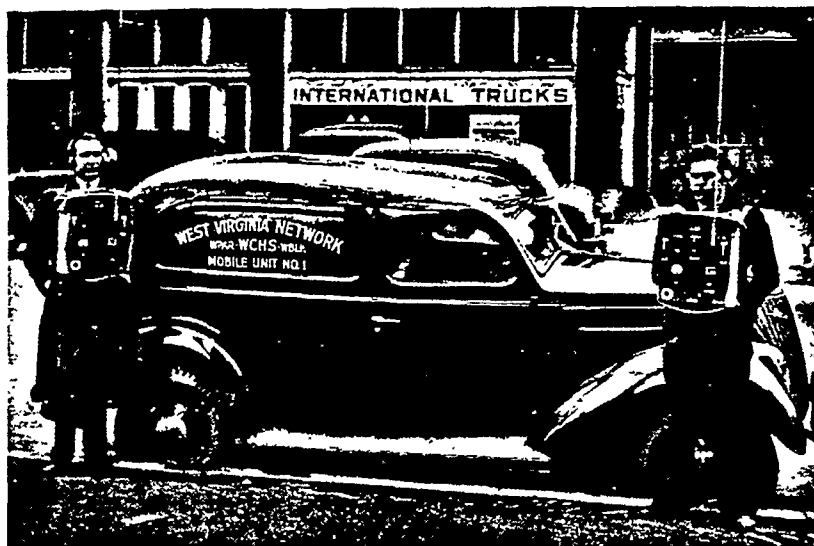
Notice that the copy ties-in with the truck and bus business at the earliest opportunity. The text ends with the suggestion that anyone desiring further information on the subject get in touch with Ethyl Gasoline Corporation in New York. To those who write in, the company sends one of their sales promotion engineers who are kept in the field all the time. They are competent to discuss all the technicalities on gasoline in terms of the particular problem of whoever inquires and through the service which they offer spread considerable good-will for Ethyl.

There is really nothing more to say about Ethyl's unusual bus and truck campaign. A definite market, something to say to it, and a snappy way of saying it; that's all there is to the story. That is, except for the fact that it took some dern good brains to realize that Zeke and the boys were capable of explaining the technicalities of good gasoline, and also some dern good advertising sense to have them offer it effectively.

ETHYL NEWS

[4]

ETC 22424



Short wave equipment of WCHS radio station's Mobile unit which visited Ethyl Clinic in Charleston.

West Virginia Network Puts Ethyl Clinic on the Air

PREPARATORY to the arrival in Charleston, of Ethyl's Dayton Division Clinic, Mr. Hamilton B. Greenup, the Corporation's West Virginia representative contacted Mr. Nicholas Pagliara, who is program director of the local radio station WCHS. One of the features of this station is the "Roving Caravan" which broadcasts interesting happenings from their mobile units. Mr. Pagliara attended the Preview showing of the Clinic and was so impressed with the educational value of the program that he requested a special showing for a half hour broadcast over the "Roving Caravan" hook-up.

On the evening of May 6 Mr. Pagliara arrived with his announcer and short wave equipment. At 7:30 the Clinic went on the air when the regular announcer introduced Clinic Manager William A. Newman to the radio audience and he in turn, introduced Mr. Greenup. It was explained that the Clinic had been

brought to Charleston to work with the petroleum and automotive industries regarding the relationship of good gasoline to correct motor tune-up. Afterwards various members of the Clinic staff were presented and each in turn explained his particular work and invited those interested to stop at the Clinic during its stay in Charleston. Following these formalities, Mr. Newman took the microphone and spent the next 28 minutes going through the usual

program including the knock testing engine, bomb demonstration and a complete car demonstration. This broadcast went over the West Virginia network which, in addition to the local station WCHS, includes WPAR at Parkersburg and WBLK in Clarksburg. The listening audience to the "Roving Caravan" hour is estimated at approximately 300,000.

When the broadcast started there was practically no one in the auditorium as it was not a scheduled showing, but at the close, 42 minutes later, almost 100 people had parked their cars outside and had come in to view the performance. Inquiry brought out the fact that these people had been driving in and about the city and hearing the beginning of the broadcast on their car radios, became interested enough to drop in. It was further reported that the knock came over the air very clearly as did the sound of the car engine speeding up and the elimination of the knock when the change to Ethyl Gasoline was made.

The radio station has since advised us that they have received numerous communications congratulating them on putting on such interesting programs and requesting that they broadcast more of this educational type.



Announcer of the "Roving Caravan" questions Clinic Manager William A. Newman who describes the purpose of the Ethyl Motor Clinic to West Virginia audience of over 300,000.

JUNE 1939

[5]

ETC 22425



Line after line of 1939 cars awaiting shipment by lake steamer from Detroit to Cleveland and Buffalo

Thousands of New Cars Take Water Route from Detroit

JUST as soon as navigation opens on the Great Lakes in the Spring, big steamers are called into service to help carry away shipments of new automobiles from the port of Detroit. This is the time of year when thousands of car buyers all over the country are expecting deliveries on their new cars. Production is at its heaviest. The big cargo steamers and even the passenger vessels of the Detroit and Cleveland Navigation Company lines are called into service to transport millions upon millions of dollars worth of automobiles from Detroit to Cleveland and Buffalo.

The handling of the great shipments of new cars during the navigation season has become a very important link in the chain of distribution. Big car carriers, vessels designed particularly for the purpose, make daily trips and many additional cars are loaded on the passenger vessels which the D & C lines operate daily. Besides these new cars shipped by the factories, the

passenger vessels carry large numbers of tourists' private automobiles. These tourists save themselves the long drive between Detroit and Cleveland or Detroit and Buffalo while enjoying the relaxation and comfort of the water voyage. They arrive at their port of destination refreshed and ready to go on their way, a very moderate charge being made to transport their cars.

The big steamships designed as

car carriers will take several hundred cars on their spacious decks. The S.S. Morris S. Tremaine, operated by the D & C lines is shown in one of the illustrations on this page, loaded with 410 cars. It has four decks which can be used for the purpose. During the busy season this vessel is in almost continual operation plying between the lake ports.

From the piers one gazes over acres and acres of car roofs during the heavy production periods in the industry. It would seem almost impossible to load the cars on the vessels fast enough to take them away. The scenes at loading time are fascinating. The skill with which the loaders drive these cars into position with never a bit of paint marred, is almost beyond belief.

Automobile dealers welcome the arrival of their cars by boat. They get fast delivery and that in turn pleases their customers. During the summer the D & C lines have twelve sailings per week from Detroit to Buffalo and twelve from Detroit to Cleveland. Warehouse space for the cars is maintained at Detroit, Cleveland and Buffalo.

In the Spring when the busy season is fully under way at the factories it very often happens that the

Continued on Page 12



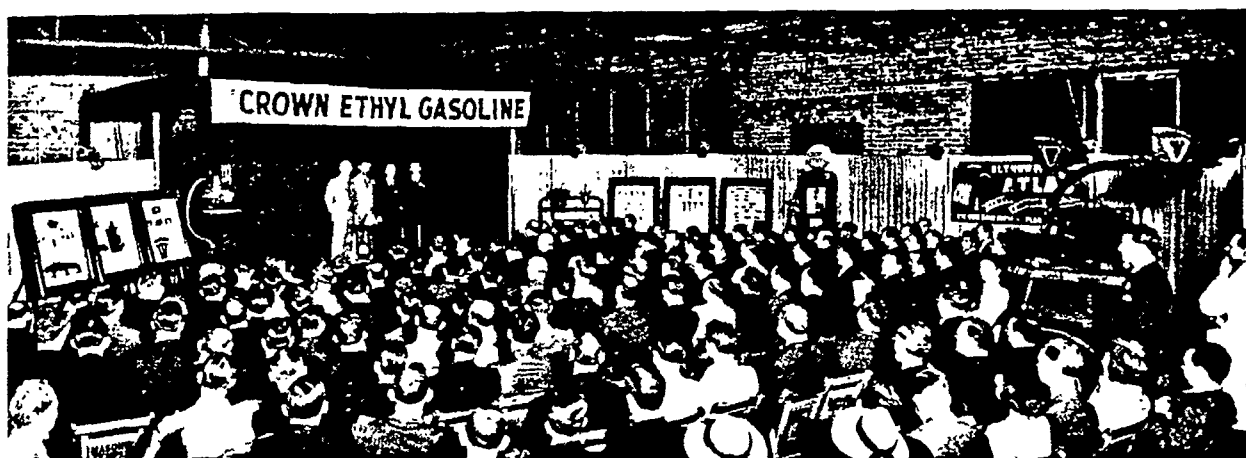
Completing the loading of the S.S. Morris S. Tremaine which was designed as a car-carrier for the Detroit & Cleveland Navigation Co.

ETHYL NEWS

| 6 |

ETC 22426

Standard Oil at Motor Clinic, Jackson, Miss.



TWO hundred and fifty representatives of Standard Oil Co. of Kentucky attended the Ethyl Gasoline Corporation's Atlanta Division Motor Clinic at Jackson, Miss., during the Clinic's stay in that city. The group included many officials, salesmen, agents, dealers and customers from thirty-one towns in the State. Mr. R. B. Dodson, District Manager for the area, opened the meeting by introducing Mr. T. H.

Tennent, Ethyl's local representative. Mr. Tennent then introduced Clinic Manager S. T. Pruitt who conducted the evening's demonstration. Mr. Dodson spared no words in describing what a fine job the Motor Clinic was doing in Mississippi and went on further to say, "This meeting is being sponsored by Standard Oil because they feel there is a great need for a better understanding on the part of service men, between good

fuel and good motor performance."

After the audience was seated and the meeting about to start the accompanying photograph was taken. Standing from left to right on the platform with Mr. Tennent are officials of the Standard Oil of Kentucky. They are: Messrs. R. B. Dodson, Mississippi District Manager; M. H. Utley, Assistant District Manager; T. A. Darden, City Manager; and T. H. Tennent.

Thirty Years Old—And Still Running!

FOR more than thirty years, while the world has watched the motor car graduate from an experiment to a necessity, the little Cadillac shown at the right in the accompanying picture has been chugging noisily through the streets of the village of Stouffville, northeast of Toronto. With its single cylinder, its steel tires, its exposed chain drive, its lofty buggy seats and coal-oil lamps, this shadow from the automotive past is believed by its present owner, Harry Burgess, and by Cadillac engineers, to have been built between 1903 and 1908. In this picture, Burgess (at wheel) is seen proudly displaying the relic to J. R. Beattie, President of Toronto Cadillac Pontiac Sales Limited, who discovered it while passing through Stouffville in his 1938 Cadillac "60 Special."



JUNE 1939

[7]

ETC 22427

The Story of the Funk Farms and Hybrid Corn



Mr. E. D. Funk, President of Funk Bros. Seed Co., Inc., of Bloomington, Illinois.

A YOUNG man standing in front of his rude cabin built of poles and clapboards; on one side of him the primeval forests—on the other, the trackless prairie. He was without money and in debt; without schooling; the owner of two or three horses, a cow, an axe, and meager equipment consisting of the rudest of agricultural implements. This was the picture of Isaac Funk, father and grandfather of the founders of the Funk Brothers Seed Company of Bloomington, Ill., now one of the largest producers of Hybrid Seed Corn in the country.

Just about every farmer and a sizeable proportion of city folks as well, knows of hybrid corn. It has been called "the greatest boon to agriculture since the invention of the steel-bottom plow." They know what can be expected of it; bigger yields and resistance to adverse growing conditions, better uniformity of stand and quality of grain, greater ease of husking and many

To produce this hybrid seed corn, much care must be taken. Covering bags are used on both the tassel and silks. By inbreeding, attained through fertilizing the silks by the pollen from their own tassels, the process is begun.

other factors. What many do not know is that it is not a "mushroom" affair, for Mr. Eugene Funk, now President of the company, inbred corn as early as 1902. In 1916 Funk Bros. Seed Co. shipped their first orders of FUNK'S HYBRID CORN and although only a limited supply was available it was a start.

To produce this corn, much care in production operations must be taken, and the finest machinery used. Inbreeding, whereby the plant's silks are fertilized by the pollen from its own tassel, is the beginning of the process. This breaks the corn variety into its many pure breeding lines. Inbreeding requires that the silks be protected from stray pollination by the use of a covering bag; a similar bag is used over the tassel to collect the pollen. The pollen is then showered over the silks. This is called "selfing."

Thus, the good and poor characteristics are separated. Inbreds are not of any value to a corn grower because of their relatively low yield—their value is in transmitting their better performance characteristics to the ultimate hybrid.

Selecting only the hardy, higher-yielding plants, the corn breeder then continues inbreeding for from



Dr. J. R. Holbert, Vice President of Funk Bros. Seed Co., shows results of inbreeding. The tall inbred and the dwarf are from the same parent ear. The dwarf will be discarded, the larger plant further improved.

five to eight years, until his inbred strains are relatively free from visibly inferior qualities.

Now a "single cross" is made by crossing two entirely unrelated inbred strains. Since only one strain is to be used as a seed producer, and



ETHYL NEWS

[8]

ETC 22428

On this high compression tractor is mounted a corn picker, pulling behind a farm wagon. Corn picking operations are on a production basis with a minimum of labor.

the other as a pollinator, all tassels are removed from the ear-parent inbred. The detasseled strain becomes the female parent, the silks on this strain being fertilized by pollen from the tassels of the other unrelated strain.

Next, two single crosses are combined to make a double cross. In commercial hybrid production, this is accomplished by detasseling the female parent rows to assure that the male parent pollen will come from one strain only. At Funk Farms, the ratio is 6-2; that is, for every six detasseled rows, there are two pollinator rows. The detasseled rows are of one single cross strain; the pollinator rows, the other.

Thus, the heredity of the hybrid produced is controlled. For the resulting seed is the hybrid corn that the farmer plants.

It's a real treat to visit Funk Farms when detasseling is in full swing. Tassels must be pulled at exactly the right time, and a warm summer rain means a big day's work. Funk employed 800 men last year for detasseling alone.



Samples of inbreds. These unimpressive "nubbins" are the base for bigger yields and better quality corn. Through controlled heredity, yields are increased from 15 to 30%.



Hybrid corn production requires the finest, yet the most economically operated machinery. Tractor power, which is the base unit of motive power for the farm operations, has been constantly improved and developed.

High compression has played its part in that this company is now operating a fleet of ten high compression tractors which are all ser-

viced and maintained in their own shops.

With the development of special farm equipment now operating on these farms, the modern high compression tractors, which are using better grades of gasoline, have fully proven their advantages, not only in economy of operation, but also in the flexible and full development of power.

Ketteringisms

We should all be concerned about the future because we will have to spend the rest of our lives there.

• • •

Research is an organized method for keeping you reasonably dissatisfied with what you have.

• • •

An experiment that fails is simply an experiment in which you were wrong.

• • •

A research problem is not solved by apparatus; it is solved in a man's head.

No problem looks difficult when you start it.

• • •

An experiment is an impartial judge of your thinking.

• • •

It is not what we know that is so important. it is what we do not know.

• • •

A problem is only difficult when you don't know anything about it.

• • •

If you are satisfied with what you have, you stay where you are.

Vancouver Pioneers in Plan to Curb Highway Death Toll



FIRST in all Canada, British Columbia steps into the forefront of motor accident control with the new and scientifically appointed Police Motor Vehicle Office and Testing Station. The combination of drivers tests, mechanical inspection and issuance of licenses in the one building, it is believed, provides a public service unequalled elsewhere on the continent. Although similar police inspection has been undertaken in various locations in the United States, we know of no instance where such complete service is available.

In the new and imposing \$170,000 two-story concrete structure is embodied all that science and skill of man can contribute to make driving safer. The conception is a monument to Attorney-General Gordon S.

Wismer, K.C., and a tribute to the personnel of the provincial and city police. It places Vancouver and British Columbia in first place in the universal drive to curb highway accidents. It will attempt to stop accidents before they occur.

The mechanical testing is under the supervision of City Police Inspector John Murdoch, who has assisting him a trained crew of operators carefully selected for their courtesy and efficiency. In fact, courtesy has been emphasized throughout the organization and is apparent in all relations between officers and the

The complete plant housing (LEFT), the Motor Vehicle Inspection Station (RIGHT), the Provincial Government Building where Drivers' Licenses, Motor Vehicle Licenses are issued and where Drivers' Tests are made.

The executives, examiners and stenographers under whose direction the Vehicle Testing Station is operated. Inspector Murdoch is seated in the center. At right, three representatives of the Bear Manufacturing Company.

driving public. Each member of the staff has been impressed with the fact that upon him depends the success of the whole venture in the drive on highway accidents.

The mechanical inspection of cars, for which a fee of 50 cents is charged, calls for one original inspection and two subsequent check-ups. If a car fails to pass the original test, the driver is requested to have the defects remedied and submit the car for re-examination.

Inspections begin with a routine check of driver's license and the



ETHYL NEWS

[10]

ETC 22430



An interesting photograph showing Vancouver's newest modern piece of Fire Fighting Apparatus being tested on the Brake Tester at City's Motor Vehicle Inspection Station.

data on the make and serial number of the car. Next the headlights are tested for luminosity, co-ordination and angle beam. From there the car is taken on a Scuff Detector that records the alignment of wheels. Then a quick-acting hydraulic lift picks up the front end of the car to disclose the condition of wheel bearings, tie rods, muffler, tires and steering mechanism. Final check is on a Brake Tester, which registers accurately the number of pounds of brake pressure per wheel.

Inspection cards are printed in duplicate; each operation is marked on the card and the result of each test punched by the examiner, one copy being given to the driver and one retained by the Police Department. Complete Motor Vehicle Inspection is demanded twice a year. A very attractive numbered window transfer has been prepared which is attached to the lower right-hand corner of the windshield when the vehicle has been passed as O.K. and this is good for six months from the date of inspection.

It is interesting to note that on account of the very large number of narrow gauge English cars in operation in British Columbia, it was nec-

essary to specially design the Scuff Detectors and Hydraulic Brake Testers to permit the accurate check of these English vehicles. The engineering in connection with this special equipment was accomplished with the co-operation of the Bear Manufacturing Co. of Rock Island, Illinois, in conjunction with G. S. Armstrong and C. G. Smith, the British Columbia representatives for Bear, under the direct supervision of the Engineering Department of the City of Vancouver.

Hon. Gordon S. Wismer, K.C., Attorney-General of British Columbia, describes in the following words the reason for, and the necessity of, establishing the Motor Vehicle Inspection Service. He says: "Dead men DO tell tales—and never more poignantly and brutally than when death has struck suddenly in an automobile accident. To an imaginative eye, the twisted metal, the shattered glass, the tortured frame of a wrecked automobile tell a graphic story of human bodies horribly mutilated and not the least tragic part of the story is the load of sorrow and grief it thrusts upon relatives and friends. Adding bitterness to the cup is the reflection that these things need not happen—should not happen. The realization that so many tragic accidents result from avoidable causes spurred the Provincial Government to action—and so it was that the Testing Plant came into being."

But, Stop Speeding! Stop Cutting In! Stop Passing on Hills! Stop Taking Chances! Motor Inspection cannot control this. It is up to you, Mr. Driver.



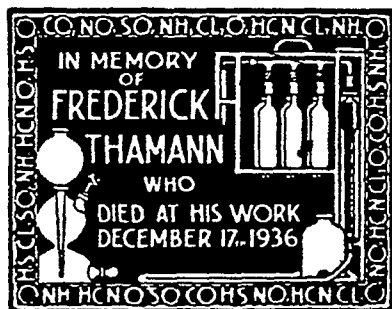
Interior view of Motor Vehicle Inspection Station showing three lanes in operation—passenger cars on left and truck lane on extreme right.

Thousands of New Cars Take Water Route from Detroit

(Continued from page 6)

ice is not entirely out at the Buffalo end of Lake Erie. In this case the boats deliver the cars to Cleveland, Ohio and Erie, Pa. The deliveries are made either direct to the dealer or to the trucking companies. The automobiles are completely insured from the time they are received until delivered to the dealer or the trucking company. The Detroit and Cleveland Navigation Company is justifiably proud of its fine record in the handling of automobile shipments both for the trade and the tourist. The line was established in 1868, long before automobile shipments were dreamed of, and the changes made in the design of boats during the past 30 years have been in many ways influenced by the fact that today they must be ideally adapted to the handling of motor cars.

Each year more and more cars are delivered by dealers to their customers, with Ethyl in the tank. The dealer, realizing the superior performance of a car with a high anti-knock fuel is thus assured of satisfied customers.



This tablet to the memory of Frederick Thamann has been placed in the library of the Kettering Laboratory of Applied Physiology in the College of Medicine of the University of Cincinnati. For Thamann's associates the tablet bears tribute to his patience and his care; and for all men, testimony of the respect and affection in which he was held.

Noted Tenor Guest at Preview Dinner in Kansas City



ONE of the highlights of Ethyl's Motor Clinic opening in Kansas City, Mo., on the evening of May 2nd, was the attendance of Mr. James Melton, the well known radio and opera singer who will be one of the new stars on the Gulf Headliners program over the Columbia network Sunday evenings. This Preview marked the beginning of a ten weeks' showing of Clinic No. 10, attached to the Corporation's Kansas City Division.

Before the Preview Mr. J. Coard Taylor, Vice President of the Ethyl Gasoline Corporation, was speaker at a dinner in the Muehlebach Hotel for officials of many of the leading oil companies marketing in the area.

The guests were welcomed by Mr. Harold Berg, Ethyl's Kansas City Division Manager and by other members of the Division. In his talk Mr. Taylor described the aims and objectives of the motor Clinic program in general.

A feature of the dinner was the unexpected entertainment volunteered by Mr. Melton who sang several songs which were most enthusiastically received. Mr. Melton appeared at the dinner as a guest of Mr. Elmer Cooper, President of the Chanute Refining Co. Among others present were prominent executives of the Barnsdall Oil Refineries, Inc.; Chanute Refining Co.; Cities Service Oil Co.; Continental Oil Co.; Great Lakes Pipe Line Co.; Mid-Continent Petroleum Co.; National Refining Co.; Phillips Petroleum Co.; Sinclair Refining Co.; Skelly Oil Co.; Socony-Vacuum Oil Co.; White Eagle Division, and the Standard Oil Co. (Indiana).

Following the dinner, the Clinic Preview was held before an audience of approximately 400 representatives of the automobile and petroleum industries. Mr. Ralph DeMotte, President of the Kansas City Chamber of Commerce, opened the meeting by welcoming the Clinic to Kansas City and introduced Mr. Carl M. Berry, Clinic Manager, who conducted the remainder of the program.

Highway is Foundation of Nation's Social Order

OUR modern highway system is the foundation upon which our complicated social order rests," declared Louis J. Taber, Master of the National Grange, in a recent address on transportation.

"Let it not be forgotten that every ton of freight, that every passenger, that every piece of mail that moves over railways, airways, or waterways, must somewhere be moved by an automobile or truck, he said. Not a pound of produce leaves the farm and comes to the city without first moving over the highway. Not a piece of mail gets from the Post Office to the citizen without the

highways or the streets of the Nation getting into the picture."

He pointed out that in the vast highway development that has made it possible for one person out of every five to make use of his own car, "the automobile and the truck user, through license fees, through state and federal gas and oil taxes and other taxation methods pay their full share of highway costs."

The only demand this group makes is that there be "no taxation to equalize transportation costs between types of carriers and, equally important, that there shall be no diversion of highway funds to other purposes."

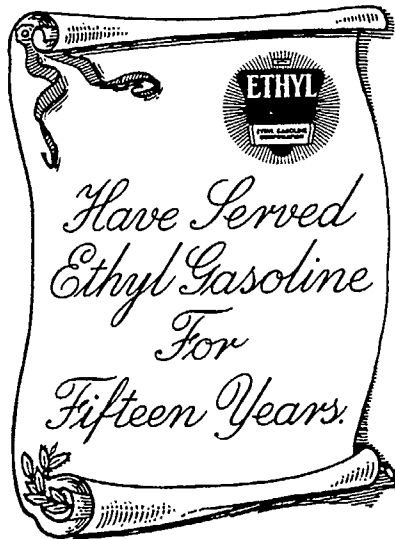
ETHYL NEWS

[12]

ETC 22432



DR. GRAHAM EDGAR, Vice President
June 1924



DR. ROBERT A. KEHOE, Medical Adviser
June 1924

Ethyl Motor Clinic Itinerary

<i>Clinic Number</i>	<i>Division</i>	<i>Present Location</i>	<i>Remains Approx.</i>	<i>Next Location</i>	<i>Opens Approx.</i>
1 E. L. Cline, <i>Manager</i>	Pacific Coast	977 W. 8th Street Los Angeles		Permanently	
2 L. A. Dollahan, <i>Manager</i>	Chicago	149 E. Jefferson Street Joliet, Ill.	6/17	Rockford, Ill.	6/22
3 W. A. Newman, <i>Manager</i>	Dayton	312 Dickinson Street Charleston, W. Va.	6/16	704 8th Avenue Huntington, W. Va.	6/22
4 M. P. Murdock, <i>Manager</i>	New York	364 State Street Elmira, N. Y.	7/21	Syracuse, N. Y.	7/28
5 H. E. Cottrell, <i>Manager</i>	Tulsa	1819 Travis Street Houston, Texas	7/1	Beaumont, Tex.	7/7
6 E. Lowell Mason, <i>Manager</i>	Baltimore	Hotel Roanoke Garage Roanoke, Va.	7/15	Asheville, N. C.	7/21
7 M. Littlefield, <i>Manager</i>	New York	1119 Atlantic Avenue Brooklyn, N. Y.	8/6	Atlantic City, N. J.	8/14
8 R. J. Coveney, <i>Manager</i>	Boston	2226 Fairfield Avenue Bridgeport, Conn.	7/1	Waterbury, Conn.	7/6
9 C. Fred Naylor, <i>Manager</i>	Chicago	400 Janes Street Saginaw, Mich.	6/17	Pontiac, Mich.	6/22
10 Carl M. Berry, <i>Manager</i>	Kansas City	1735 McGee Trafficway Kansas City, Mo.	7/15	Undetermined	
11 S. T. Pruitt, Jr., <i>Manager</i>	Atlanta	412 Bibb Street Montgomery, Ala.	6/23	Columbus, Ga.	6/26

JUNE 1939

[13]

ETC 22433

New Ethyl Gasoline Corporation Personnel at



JUDSON T. BIEHLE was employed by Ethyl January, 1938, at Deepwater and transferred to Baton Rouge for work in the ELA plant in August, 1938.



CLINTON W. BOND came to Ethyl March 1, 1939, from the Standard Oil Company of Louisiana, where he was employed as a chemical engineer in 1931.



JOSEPH P. CARSWELL was employed as a chemist at the ELA plant on July 1, 1938. He was formerly employed as chemist by Hanson-Van Winkle-Munning Co.



RANDOLPH S. CHARLTON was employed by Ethyl March 1, 1939, prior to which time he had been employed by Standard Oil Co. of Louisiana for thirteen years.



ROY N. CLOTHIER joined the Ethyl ranks February 1, 1939, coming from Alco Products, Inc., for whom he supervised construction of part of the ELA ethyl chloride plant.



JOSEPH H. FULMER, before coming to Ethyl in October, 1938, was employed by the Sharples Solvent Corp., Great Lakes Steel Co., and Acheson Colloids Corp.



WILLIAM J. HENRY was in charge of construction of the ELA plant for Standard Oil Co. of Louisiana, by whom he was employed until he came to Ethyl March 1, 1939.



SYLVESTER A. LECROY was for five years before coming to Ethyl on March 1, 1939, employed as chemist by the Standard Oil Co. of Louisiana.



BERLIN E. PERKINS, JR., came to Ethyl April 1, 1939, from Standard Oil Co. of Louisiana, where he was employed since graduating from Louisiana State University.



LLOYD L. SCOTT was employed by Standard of Indiana and by Pan-American Petroleum and Transport Co. at Aruba, N.W.I. He joined Ethyl March, 1939.



WILFORD H. THOMAS was employed May 8, 1939, as chemist, receiving his B.A. degree in 1936 and M.Sc. in 1938 from Ohio State University.



MARCEL J. VOORHIES, JR., came to Ethyl February 1, 1939, from Standard Oil Co. of Louisiana where he was employed as a chemical engineer.

ETHYL NEWS

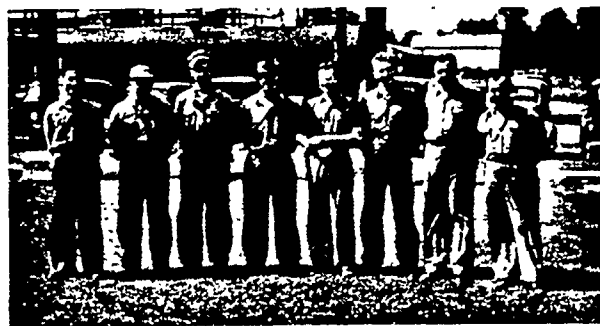
[14]

ETC 22434

Baton Rouge ELA Plant

Since midsummer of 1938 seventy-one men have been added to the Ethyl personnel in connection with the operation of the Ethyl chloride units of the Baton Rouge Manufacturing plant. These men are shown here and on following page. On the left those in a supervisory capacity and on the right and on the next page others in the plant in their various groups.

MAINTENANCE

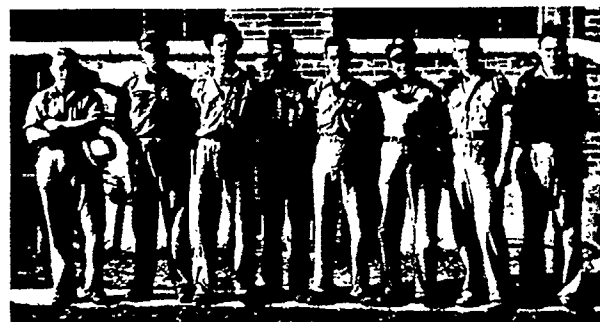


Left to Right: Zachariah, Brookshier, F. Smith, Bourgeois, Neal, Williams, Fagot, Day

ELA OPERATORS



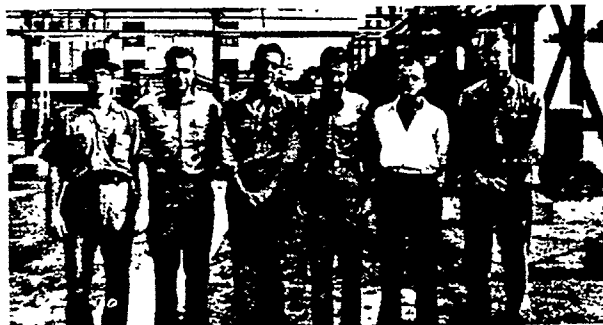
Left to Right: Shirley, Sanders, Auter, Poche, F. Bunch, Jacobs, Holcombe, Walton



Left to Right: Golson, Daniel, Mehaffey, Myers, Harris, Breedon, Forgey, Bilbo



Left to Right: Richardson, Carter, Adams, Jackson, Norwood, Amos, C. Smith, O'Rourke



Thompson Luker Fendlason C. Smith Nettles Brummett



J. R. Black King L. Davis Noland Curry

JUNE 1939

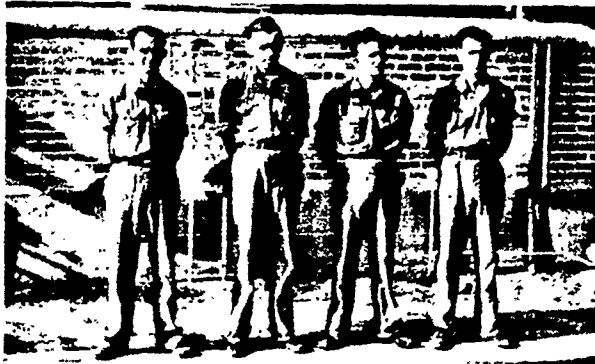
[15]

ETC 22435

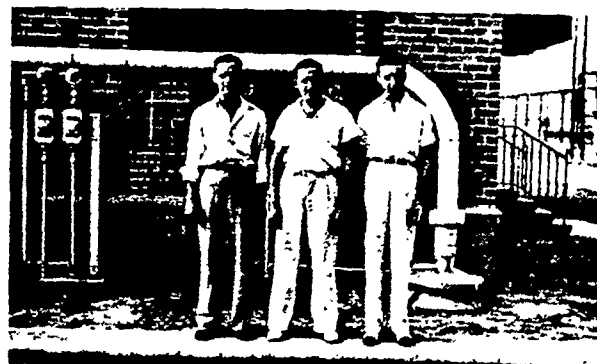
New Ethyl Gasoline Corporation Personnel at Baton Rouge

(Continued from page 15)

FREI OPERATORS



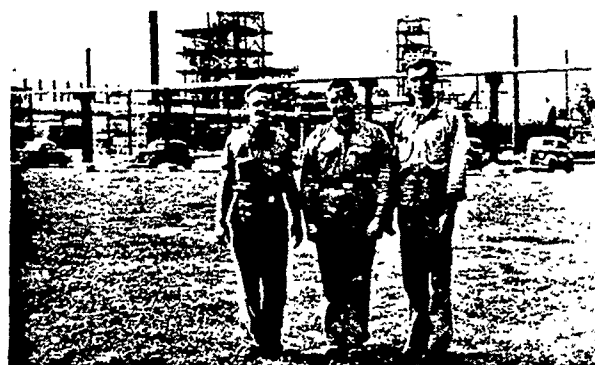
J. P. Black D. Bunch Phillips Devall



Depew Gooch Wisener



Henagan Thomas Crawford



Sharkey McCraine I. Davis

PORTERS



White Brooks Tillotson Walker Hayes Marshall

ETHYL NEWS

[16]

ETC 22436

NEWS BRIEFS

On Saturday, June 10th at 12 o'clock noon, Janet Faulds Wood and Louis Cancro were married in the Community Methodist Church, Roselle Park, N. J. They sailed immediately after the Reception for Nassau. Janet, who has been a member of the Ethyl family since 1931, is Secretary to Walt Resler, Manager of the Statistical Department. In June, 1935, she broke into print when she received her Master's Degree at New York University.



We offer the young bride and groom our warmest congratulations and best wishes for their happiness.

Mr. and Mrs. E. G. Staebler of Ann Arbor, Michigan, have announced the engagement of their daughter, Doris, to Elmer F. Mahlke, son of Mr. and Mrs. O. L. Mahlke of Montgomery Ave. The wedding will take place on July 1st and after July 10th the couple will live in San Bernardino, California, where Mr. Mahlke is employed in the Ethyl Gasoline Testing Laboratory.

Both are graduates of Ann Arbor High School and of the University. Miss Staebler, who was graduated in 1937, has been teaching physical education since then in the public schools of St. Johns. Mr. Mahlke received his bachelor's degree in 1933 and his master's degree in 1935.

Grant Penrose, son of our Grand Rapids representative, lost in a forest of tulips at the Holland Tulip Festival (May, 1939, "News"). Master Penrose was somewhat put out to find that he couldn't gather all the tulips his tiny hands would hold.



Robert Gordon started his business career when he joined up with Ethyl last month. He was born in Huntington, West Virginia. He attended the Brooklyn Technical High School for four years and the Madison Business School. Bob has his own orchestra and specializes in "Music on the Sentimental Side." He plays the saxophone, clarinet and violin. Incidentally, Ken Morse, who joined the Administration Department in January, is Drummer in Bob's orchestra.

Nora Breshnan, a newcomer to the Purchasing Section of the Administration Department attended Notre Dame de Stambidge Boarding School in Canada, the Bristol High School and Morse College in Hartford, Conn. Before joining the Ethyl family Nora was with General Motors in their New Departure Division at Bristol. Her favorite forms of diversion are fencing and swimming.

We think we might start a "Heart Throb" column because we've got an excellent excuse. One of the girls in the New York office received a most appealing fan mail letter from an admirer who saw her picture in a recent issue of the "News." He's from Oklahoma but is thinking seriously of coming on for the New York World's Fair and who are we to prophesy what might happen. We'll keep you posted on any further developments but we don't think it's exactly "cricket" to tell you their names. Incidentally, we're under the impression that this is the first "heart throb" this column is responsible for. Are we right?



This is a photo of Charley Welch who, with William J. Ryan, are Ethyl's two representatives with the General Motors Parade of Progress. Charley and Bill joined the Caravan early in the year, replacing Fritz Mercer and Roy Musick who were on the assignment during 1938. The picture was snapped by Miles Kinley while Charley was giving a demonstration during the Caravan's stop at LaPorte, Indiana.

At long last, on May 4th, 1939, Miss Deborah Weston made her official debut at Yonkers General Hospital. Her very proud Mother and Father are Mrs. and Mr. Russel B. Weston to whom we all extend our very hearty congratulations. We almost forget to mention two very important things about "Debbie"—she weighed 7 lbs. 4 ozs. and arrived on the first birthday of the Dick Murphy twins. And thanks, "Pappy," for the seegars and candy, they were swell.

The following Service Awards

have been made as of
June 1st, 1939

15 YEARS

DR. GRAHAM EDGAR Administration
DR. ROBERT A. KEHOE
Medical Advisor

10 YEARS

MELVIN L. GOULD
Detroit Gasoline Testing
HUDSON W. KELLOGG
Yonkers Gasoline Testing
HAROLD MCCAULEY
Yonkers Laboratory

CHARLES C. MUMMERT
Detroit Engineering
A. F. WILT
Detroit Sales

5 YEARS

RUDY F. WILLIAMS Manufacturing



Little Margaret C. Spaulding (she's only 5 ft. tall) joined Russ Weston's Jobber Department on April 24th, 1939. After a temporary position with Standard of New Jersey she went with the Tide Water Associated Oil Co. in Newark where she was employed prior to joining the Ethyl family.

And while we're on the subject of Margaret Spaulding we want to offer our best wishes and congratulations. On Saturday afternoon, June 10th she was married at her family's residence in Belleville, to Dr. Gilbert C. Freeman. They have taken an apartment on East 40th Street, a good two blocks from the Chrysler Building, which should reduce commuting to a minimum.

We welcome to the Administration Department, Shirley E. Morris, who joined the Ethyl family on April 24th. Shirley was born in Rutland, Vermont, and graduated from the Rutland High School. She took a two-year Secretarial Course at Columbia University and worked in the Archaeological Institute for a year and a half.

JUNE 1939

[17]

ETC 22437



"Maw's a goin' ter wash tha gum outa hit!"

MAW, let us give you a tip right now. Save your soap and water and elbow grease. Once gum has done its dirty work in an engine, it takes more than soap and water to get it out.

The only practical way to keep an engine free from gum is to keep it out of the gasoline that goes into the engine. Even though you can't see gum in gasoline, you can check the specifications on gum content when you buy gasoline. The tentative specification of the Ameri-

can Society for Testing Materials (D439-37T)* limits gum content to a maximum of seven milligrams of gum per 100 cubic centimeters of gasoline, just about four small drops per gallon.

When you buy better grades of gasoline from a reputable oil refiner or marketer, you'll find other advantages besides low gum content—high anti-knock value, balanced volatility and the correct vapor pressure to prevent vapor lock.

If you have any questions on bus and

truck fuels and their characteristics, write the Ethyl Gasoline Corporation, Chrysler Building, New York, N. Y., manufacturers of anti-knock fluids (containing tetraethyl lead) used by oil companies to improve gasolines.

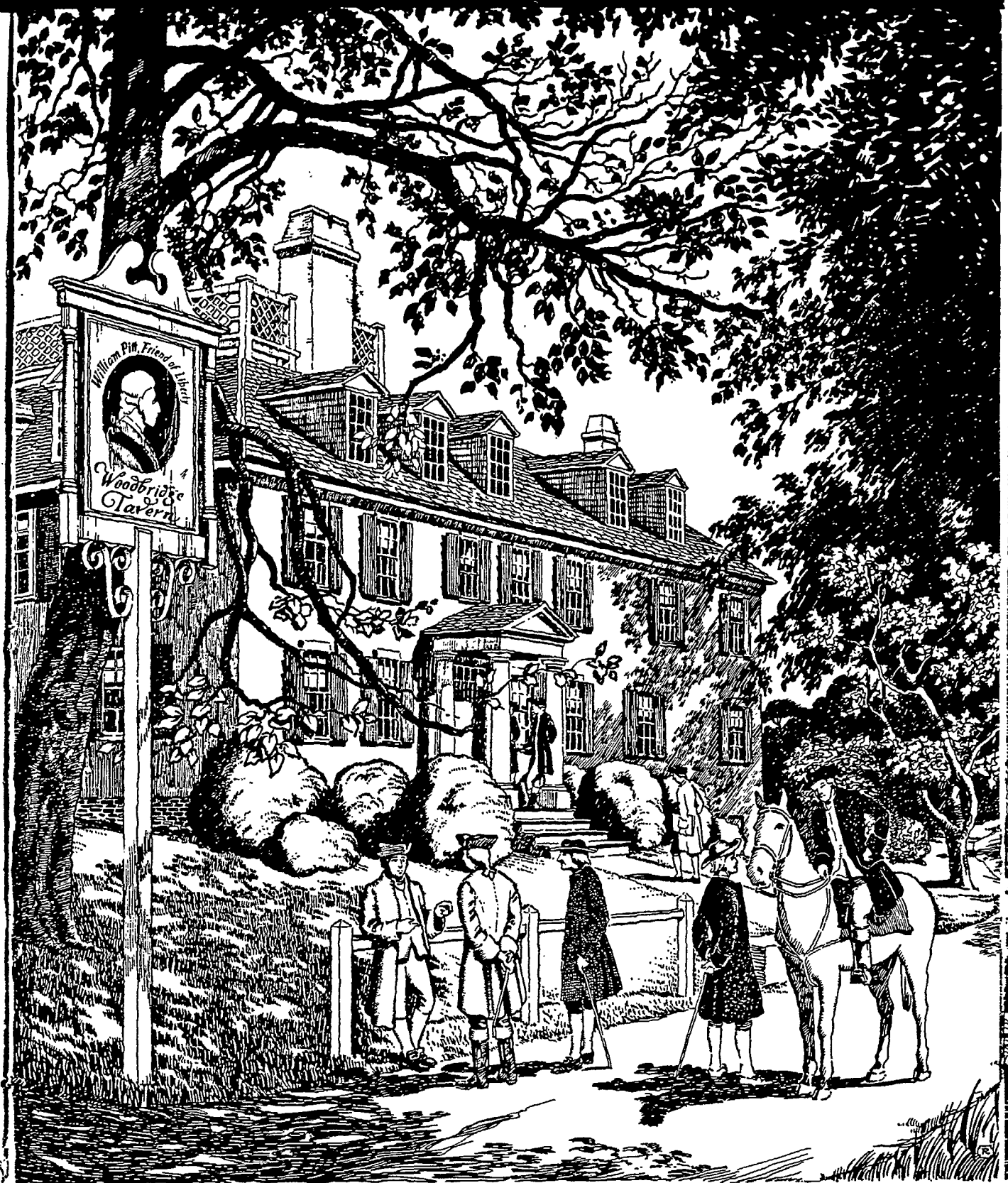
*As determined by ASTM test method D381.

THIS MONDAY NIGHT . . . Tune in "Tune-Up Time" featuring Walter O'Keefe . . . Andre Kostelanetz' Orchestra . . . Kay Thompson Rhythm Singers . . . Columbia Broadcasting System. 7 P. M., E. S. T.; 6 P. M., C. S. T.; 9 P. M., M. S. T.; 8 P. M., P. S. T.

4 RULES FOR GOOD GASOLINE				
	VOLATILITY should be balanced, for full power and best economy.	VAPOR PRESSURE should be adjusted to meet operating conditions.	GUM CONTENT should not exceed $\frac{1}{4}$ of a gram (4 small drops) per gallon.	ANTI-KNOCK VALUE should be high, at least 68 octane number.

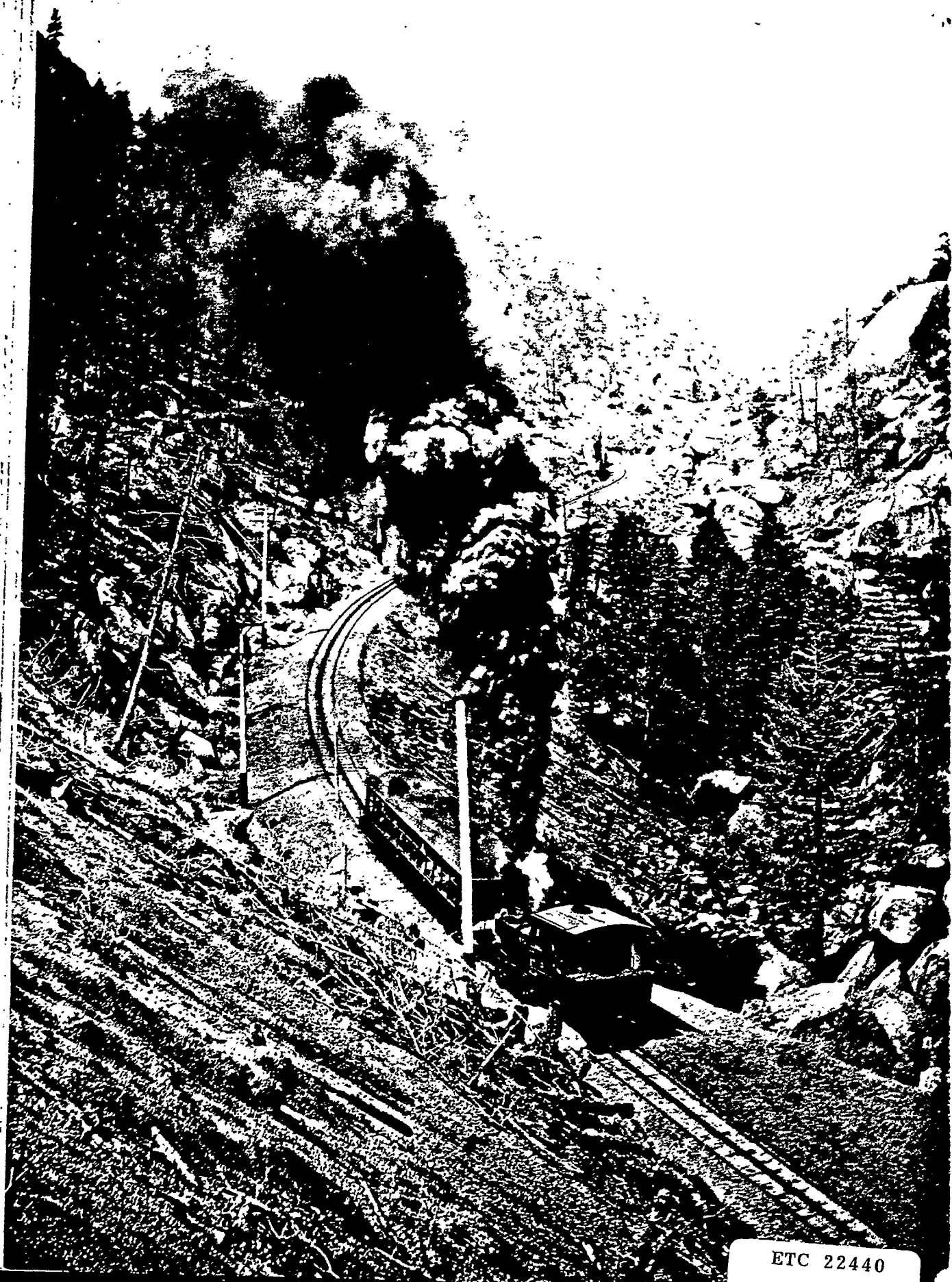
THE BETTER THE GASOLINE THE BETTER THE PERFORMANCE

ETC 22438



JULY-AUGUST 1939

ETC 22439



ETC 22440



Ethyl Gasoline Corporation
CHRYSLER BUILDING
NEW YORK CITY

W. CARY HARRIS
Editor

RUSSELL B. WESTON
NORTHROP CLAREY, Jr.
Associate Editors

Correspondents

J. A. COSTELLO	Atlanta
F. S. CRONIN	Baltimore
B. R. JONES	Boston
A. B. WYRICK	Chicago
H. F. DEDO	Dayton
D. S. FLYNN	Kansas City
CARL ABELL	Los Angeles
R. L. GOLTZ	New York
J. N. FITZGERALD	Toronto
H. KUHE	Tulsa
R. K. SCALES	Engineering Dept.
L. BARNUM	Mfg. Baton Rouge
C. WASSERMAN	Mfg. Deepwater
J. C. POPE	Gasoline Testing Dept.
E. J. NIESER	Administration Dept.
HUBERT FOSSETT	London

THE MATERIAL IN THIS PUBLICATION
MAY BE REPRINTED PROVIDED DUE
CREDIT IS GIVEN THE "ETHYL NEWS"
OR ETHYL GASOLINE CORPORATION
UNLESS IT IS A COPYRIGHTED ARTICLE

Volume 6, Number 7, 8

"Tolls" For Road Construction And Maintenance Reach Huge Sum

THE motorist contributed more than a billion and a half dollars last year to build and maintain the country's highways and nearly three-fifths of the amount was collected in payments made at 380,000 "toll gates" along the road. These figures were announced in a recent issue of "Automobile Facts and Figures," the statistical annual of the Automobile Manufacturers Association.

For each gallon of gasoline that was pumped into the tank of a passenger car or truck last year, an average of 4.96 cents was collected at the gas station. The aggregate yield of \$977,734,000 from Federal, State, County and Municipal gasoline taxes was equal to \$33.20 for every motor vehicle registered at the end of the year.

This means approximately \$28.77 for every passenger car and \$59.52 for each commercial unit.

The gas tax "toll" is in addition to the license fees, Federal excise on equipment and other taxes which combined last year to make a total tax bill for the motorist of almost \$1,530,000,000.

On the basis of recent Government studies indicating averages of 8,850 miles a year for passenger cars and 10,100 miles a year for trucks, the gasoline taxes paid would represent a yield equivalent to tolls of 0.32 cents per mile of road use for passenger cars and 0.59 cents per miles for trucks.

As regards trucks it may be interesting to note how rapidly their use by railroads is increasing. American railroads are now operating nearly 63,800 motor trucks in terminal transfer, intercity haulage and store-door delivery services, according to the above mentioned survey.

The railroads are also operating more than 5,200 buses on more than 50,000 route miles of highways and streets in branch line and terminal operations. On many routes which parallel the rails they run on schedules integrated with train times, giving more frequent service.

The new total of railroad operated trucks represents a twenty per cent increase in highway haulage equipment during the past year. This figure, however, is in addition to the more than 10,000 trucks owned and operated by the Railway Express Agency in conjunction with the services of the railroads.

Way freight and local passenger services are the fields in which the railroads are expanding their motor vehicle operations most rapidly. Ten important western lines are especially active in carrying on this development.

In This Issue

Tolls for Road Construction
First English Incorporated City
This Month's Cover
What's Over the Hill?
Louisiana Free Automobile
Mechanics School
Tour Service DeLuxe
Radio Supplements Clinic Program
Modern Equipment Replaces
Old at Pikes Peak

Ford Announces New Tractor
Germany Shifting from Alcohol
A Clinic Moves
Will As You Will
Yankee Clipper
Carlsbad Cavern
Wings Over Elmira
Service Awards
Will Supervise New Chloride Div.
Ethyl Motor Clinic Itinerary
Newsbriefs

*For many years this little locomotive has
forged its way up the famous Old Cog
Railroad to the summit of Pikes Peak*

ETC 22441



"Old Gaol Museum" Built in 1675. Dungeon-Court Room and Sheriff's living quarters are intact today. It contains collection of firearms used by settlers and Indians. Nathaniel Hawthorne used records of this prison when he wrote *The Scarlet Letter*.

First English Incorporated City of New World Relives Past

DURING the summer many visitors from the middle and far west who are on the Atlantic seaboard for the purpose of viewing the World's Fair, may wish to get some of that atmosphere of the early Colonial days, which is peculiar to this section of the country. New England is especially rich in 17th and 18th Century tradition and probably

nowhere in the United States are more points of historic interest to be found in a like area.

For one interested in such things an excellent opportunity is offered during the latter part of August (20th and 21st) by a visit to old York Village, Maine, where one can re-live the days of our forefathers. With its ancient buildings and houses, its graveyard and bridge, this quaint spot adjoining York Harbor was in 1740, under the name of Georgiana, the first English city corporate of the North American continent.

Among the points of interest is Sewall's Bridge, built in 1761 by the great engineer and architect, Major Samuel Sewall, who won international fame as the builder of this, the first pile bridge in America. It spans the Yorke River and was so advanced in its manner of construction that England and other old world countries sent leading engineers of the time to the American Colony to view and study it. Although the original piling was cut down in 1849, in order to make the bridge safe for travel, the ends of the piles can still be seen at low tide.

The Old School House, built in

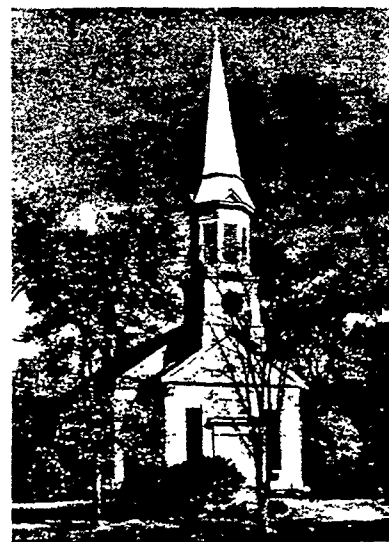
1745, is another landmark of interest to the antiquarian. It is believed that this school house is the oldest extant in America. For years it remained an eyesore to the villagers and summer residents serving only as a shelter for hobos and tramps. Last year it was restored to its original state and now houses dummy figures representing the school-master and pupils. Here also, lovers of rare old books will find literary treasures.

The Kings Prison, sometimes called Olde Yorke Gaol, built in 1657, is now a Museum and open to the public the year round. In it are found the old sheriff's quarters and Court Room with the dungeons and a collection of instruments of torture recognized in 1657 as disciplinary necessities. The Meeting House with the original Sir Christopher Wrenn steeple, is another landmark.

During the celebration of "The Days of Our Forefathers," a number



The Rev. Walter H. Millinger, impersonating his famous predecessor, Father Samuel Moody, preaches from the original script, that eminent divine's famous sermon "Ye Doleful State of ye Damned". Portrait by Susan Ricker Knox, well known New England painter.



The Meeting House with original Sir Christopher Wrenn steeple. Here annually, Rev. Walter H. Millinger impersonates the eminent Father Moody by preaching his famous sermon.

ETHYL NEWS

[2]

ETC 22442



Built in 1745, the old School House is said to be the oldest school extant in North America. Handhewn planks secured with wooden pegs and the clam shell plaster give evidence of its ancient origin.

of private residences built in the seventeenth and eighteenth centuries will be opened to visitors. Among the many interesting homes which contain rare treasures of portraits, silver, furniture and documents, including an invitation to the Coronation of King George III are the Frost Garrison, Sayward Barrell House, the Cutts House and Piggan House.

The six hundred residents and visitors fortunate enough to attend the SABBY DAY services at the old Meeting House on Sunday morning

Local Girl Scouts at grave of Lucy Moody, daughter of Father Samuel Moody who died at the age of fifteen 236 years ago. Adopted by local Girl Scout troops, they tend the grave regularly.



when the eminent Father Moody (1698 to 1747) will return in the person of the local Congregational Minister to hold worship according to the custom of his time, will indeed relive the days of our forefathers. Worshippers will be drummed to church by a drummer boy. While "Father Moody" preaches his famous sermon "The Doleful State of the Damned," the tithing man will keep order and the Continental soldiers with muskets on shoulders will watch for possible attacks of Indians. The congregation may listen to the "shade" of this famous preacher expound upon the terror of Hell Fire and the Bottomless Pit and take part in the singing of the psalms and hymns with the use of a pitch pipe.

One of the special features of the celebration will be Monday's fash-

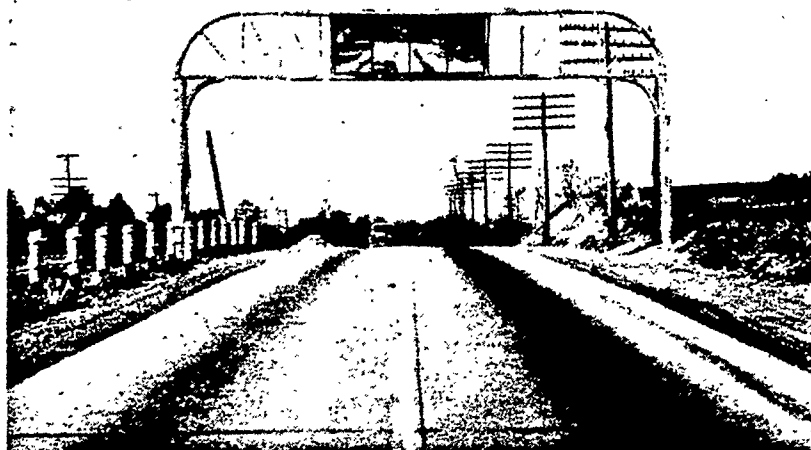
ion show, "Brides of Four Centuries," to be held at the home of Mrs. Andrew Murray Williams. Descendants of the founders of York Village will model the wedding dresses of their ancestors representing the 17th to 20th century styles.

Proceeds from the celebration are to be used by the Association for the Preservation of Historical Landmarks, who are sponsoring the event, to establish a foundation for the preservation of historic houses and public buildings that future generations may have a visual record of the early history of our country.

The committee in charge has arranged for ample parking facilities, for sleeping and eating accommodations and for guide and other services visitors may desire. Nearby beaches and resorts offer recreational facilities.

This Month's Cover

Woodbridge Tavern, York, Maine. In 1770 John Adams, afterwards President, stopped frequently at the Tavern while traveling to Falmouth where he held court on the very edge of civilization. It was kept by one Paul Dudley Woodbridge, a very ardent Whig and the sign he hung outside of his inn was a portrait of William Pitt with the motto "Friend of Liberty." Sometimes he had out a sign "Only Friends of Liberty Need Apply." It was here that Mr. Adams discussed the Boston Massacre, which precipitated the war a few years later and because Adams argued for the British Captain Preston, who was in command of the troops who fired into the civilian crowd, Adams was accused of being a Tory.



What's Over the Hill?

The "Traffiscope" Gives Drivers a Clear View of Highway Conditions on the Far Side

EVERY man since Adam has had a lively curiosity about what was going on over the next hill. Often his life depended on how much he knew about it, or how far he could see. The faster he learned to travel the more vital it became for him to see greater and greater distances ahead and up to now, this meant that for safe visibility at modern automotive speeds he required a fairly level straightaway.

But motorists traveling on important highways at top road-speeds may shortly have a clear view of traffic conditions on the down side of certain hills long before their cars approach the crest.

This is accomplished by a new and scientifically designed safety appliance known as a "Traffiscope." A

test installation has been in actual use on a highway near Minneapolis for the past three or four years. Another, of improved design, was erected last winter on Route 230 southeast of Harrisburg, Pennsylvania; and a third has recently gone up in Connecticut, about eight miles south of Hartford, on Route 5, which is the main highway to New Haven.

The "Traffiscope" consists of a series of prisms assembled into a single lens area about 13 feet long by five-feet high, and suspended above the highway by a steel bridge-like structure placed at the crest of a "vertical curve" in the road. Approaching drivers receive the optical effect of a flattening out of the grade ahead, so that cars coming from the other direction, stalled

The local milkman's horse may be puzzled by this new device which gives him a giraffe's-eye view, but automobile drivers feel a lot safer when it's there.

vehicles or other hazards show up on the far side, beyond the natural line of vision.

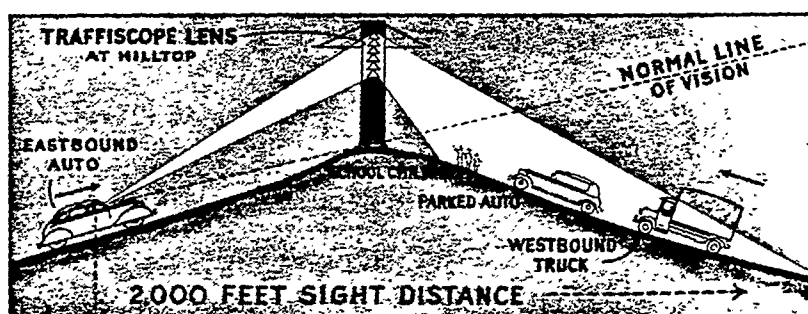
Hillcrests have long been considered danger spots by highway and safety engineers, who today seek a minimum sight distance of 2,000 feet wherever possible in the construction of modern highways. Yet only 10 to 15 years ago the performance of the automobile was such that a sight distance of only 300 to 500 feet over a hilltop was conceded to be ample. With statistics to show that between 25 and 50 percent of all highway accidents that might be eliminated by engineering occur near the crest of a hill, highway departments have been faced with the colossal and costly task of regrading and resurfacing hills on comparatively modern highways to bring them abreast of today's needs.

For this problem the "Traffiscope" offers the first practical alternative, and at a construction cost claimed to be about that of a fully automatic four-way traffic-actuated set of Stop and Go lights.

The new appliance operates through the familiar optical principle that a beam of light passing through a prism is bent. The angle between the line that the light was following and the new line to which it is bent is called the angle of refraction and this angle may be varied by changing the shape of the prism.

To avoid the cost of moulding and grinding glass lenses, the original conception of the "Traffiscope" called for a single large prism. This was formed by two panes of plate glass set in a steel supporting structure and filled, fishbowl fashion, with a non-freezing liquid. Visually, the idea worked. But after months of experiments under actual weather conditions at the Minnesota installation, it had to be discarded because no liquid was found that would not deposit a film on the plate glass and so dim the reflected image.

Delving further into optical pr-



ETHYL NEWS

[4]

ETC 22444



At night tail lights of a car going down the far side of the hill show up in true position as do on-coming headlights.

ciples, the inventors found a way of arranging many small prisms above each other in a frame to form in effect a single large curved lens. In this form the "Traffiscope" has been perfected. For the usual installation designed for a four-lane highway, four banks of prisms are used. In each bank 17 prisms, each 40 inches long but only 4 inches high and an inch and a half thick at its base, are placed one above the other. The prisms are so ground that those at the bottom of the lens deflect the line of vision downward to a greater degree than do those at the top.

By this method, the approaching driver's normal line of vision is deflected downward increasingly by each prism. Thus the image he sees ranges from the distant background at the top of the lens to the roadway just over the summit of the hill in the bottom part of the lens. The lower prisms are set to deflect the driver's vision downward so far that there is no "blind spot." As an on-coming car approaches the summit, the image seen by the driver coming in the opposite direction travels toward the bottom of the lens, finally disappearing a few seconds after the actual automobile has come into sight over the crest.

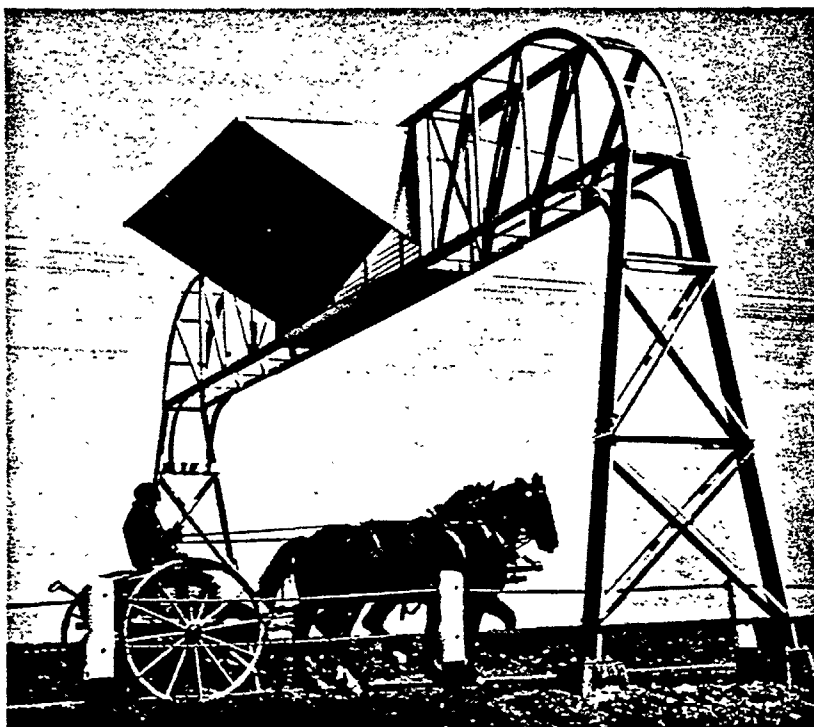
"Traffiscope's" protective hood is designed to create a pocket of dead air in front of the prisms to avoid deposit of moisture.

At night the tail lights of the car going down the far side of the hill show up in true position, as do the headlights of oncoming cars. Yet no headlight glare is transmitted through the lens. A specially designed hood protects the lens from rain, snow, sleet and moisture deposited by fog.

A survey which has just been made of the Connecticut installation will provide data from which high-

way authorities can visualize the opportunities for reducing accidents caused by vertical curves. Analysis of the answers obtained from motorists during the survey in question, indicates that the average driver's reaction to the "Traffiscope" increases rapidly with frequent use. Forty percent of those interviewed had driven under it only once or twice. In answer to the question, "Is the 'Traffiscope' confusing?" all but 6 percent answered in the negative. Of those stating that it was confusing a majority indicated that though they were confused the first time they were becoming accustomed to it.

One of the questions asked of each driver was whether he preferred the "Traffiscope" to the usual white guide line as a protection on hill-tops. Of those seeing the device for the first time 79 percent expressed preference for the "Traffiscope." In the case of drivers familiar with it, 83 percent favored it and among the truck drivers 100 percent gave their approval. *(Continued on page 6)*



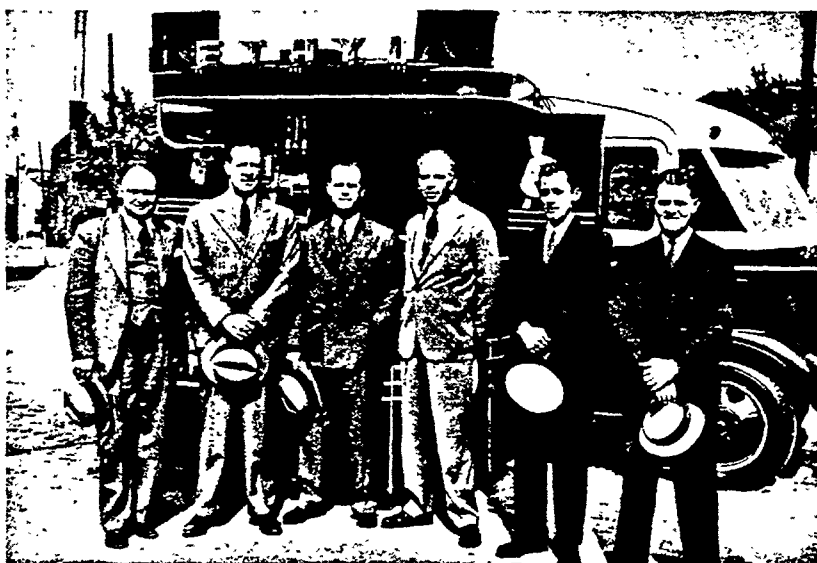


At present a number of highway commissions, public works departments, safety groups and insurance companies are continuing an intensive study of the several installations now in operation.

The above picture illustrates how line of vision is bent and thrown downward. These two men are sit-

ting side by side at the same desk yet the one on the left appears to be moved backwards. Actually the view through prisms is bent downward so that the camera's eye sees the floor directly in front of the stand on which it rests.

This material courtesy of "Shell Progress" and Mr. Harvey L. Williams of Greenwich, Conn.



Four Ethyl executives from New York inspect General Motors Caravan in Detroit under the guidance of Ethyl's Parade of Progress representatives. In group reading from left are: R. L. Jordan; Vice President; Coard Taylor; Harry Kaley; Paul McElroy; C. H. Welch and W. J. Ryan.

Louisiana's Free Auto Mechanics School

FOR sixteen years Mr. E. G. Ludke, State Supervisor of Trade and Industrial Education, searched for a means of bringing a free educational program to the Automobile Mechanic.

In January 1938 his idea took the first definite step when Mr. W. Morton Evans was named as his assistant to be in charge of a new Automotive Department. In turn, Mr. Evans employed an experienced mechanic and service manager as chief instructor.

In less than one year the system was set up and three instructors from the ranks were employed and given special training.

A room was secured in Baton Rouge for Tune-Up classes and one for Carburetor instruction in Alexandria. Later a third for Front End Alignment was made available in Baton Rouge. Only employed mechanics were enrolled for the twelve weeks course. The men were divided in five groups, one group for each night in the week, to take one of the three subjects offered.

At the end of six months 242 men have received certificates on Motor Tune-Up, 330 on Carburetion and 70 on Front End Alignment.

All of these men came from the areas surrounding Baton Rouge and Alexandria. Seventy-five per cent of those receiving certificates have had more than five years actual working experience and all of them average thirty years of age.

As a regular part of the Tune-Up course, Ethylman W. G. Mundinger has given talks on carburetion and fuels to each group. In fact Mr. Mundinger has cooperated with Mr. Evans ever since the inception of the school.

This work is set up to continue throughout the State and additional subjects will be covered as time goes on. The school is unique inasmuch as everyone connected with it has had practical experience. The underlying idea is to make not *more* but *better* mechanics. It is said to be the only free school of its kind in the country.

ETHYL NEWS

[6]

ETC 22446

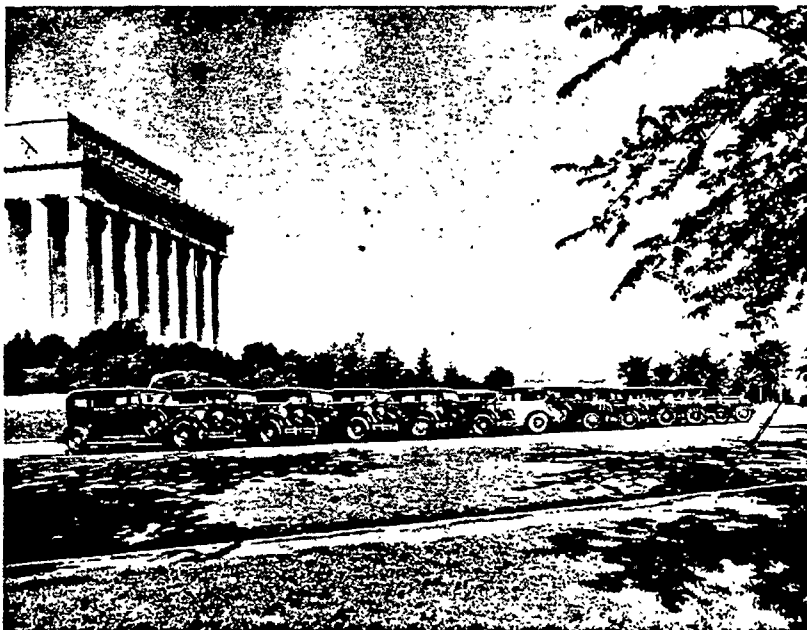
A Tour Service DeLuxe

THERE is probably no spot of equal area in the United States that has more to offer the sightseer than the Nation's capital and its environs. However, much ground must be covered to in any way do it justice and for that reason the Clancy Motor Tours have established a service which has won for it an enviable reputation.

Included in their five scheduled tours are all points of interest such as the stately government buildings, houses of foreign representatives, Arlington National Cemetery, Alexandria, Washington's house at Mt. Vernon, Annapolis, the capital of

equipment at the highest standard thereby eliminating delays and inconvenience. The management are particularly careful that motors are kept in perfect mechanical condition, to be ready at a moment's notice for a trip of indefinite length for they will contract on an hour, trip, daily or mileage basis. Some time ago one of their cars left with a party to tour Virginia but the trip ended in New York City after covering 3,000 miles and many of the cars have made trips ranging from 500 to 1,000 miles.

In addition to serving this high



Units of the Clancy Tours fleet are always in readiness for trips which may cover as much as several thousand miles.

Maryland and home of the U. S. Naval Academy and many other places of national and historical import.

These tours are conducted by well-trained and courteous guides whose principal interest is to serve and please at all times. It is the aim of Clancy Motor Tours to provide perfect comfort for its patrons. In order to assure this they maintain their

class sightseeing clientele, the company is frequently called upon to furnish extra cars for Presidential trips and various other tours of White House parties.

It is interesting to note that the entire fleet is a 100% user of Ethyl Gasoline and the drivers are all instructed to purchase nothing but an Ethyl gasoline either on local calls or on trips away from Washington.



Radio Supplements Clinic Program

As a part of their promotional activity in Montgomery, Alabama, the Ethyl Motor Clinic of the Atlanta Division presented a series of three 15-minute radio broadcasts over one of the local stations, WSFA. These were arranged and presented by Mr. Fred Cody, Junior Engineer on the unit.

The broadcasts themselves were both educational and promotional in scope. The subject matter traced the development of the oil and automotive industries and concluded with a description of the Clinic and the benefits of the use of better fuel and tune-up.

Before the presentation, a recording was made of the operation of the demonstrator motor and this was used quite effectively to point out the effect of fuel too low in anti-knock value.

These programs were sold not only on the merits of their contents, but also because Clinic staff members were able to sell several parts houses, oil companies, automotive agencies and service stations on the idea of placing tune-up or gasoline spots on the air. A total of 42 such plugs were used while the Clinic was in Montgomery.

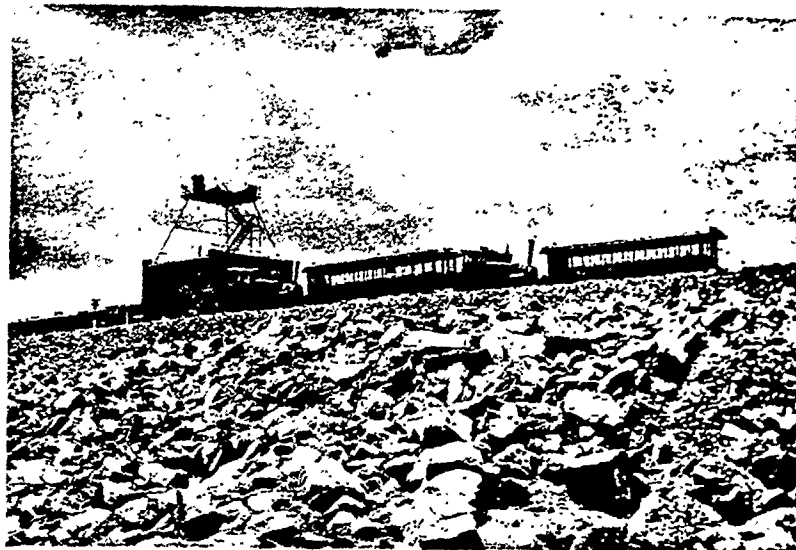
The radio broadcasting was only part of an extensive tune-up campaign run in Montgomery during the five weeks the Clinic was located there, since nearly every shop started a campaign in their own place of business and used not only the radio but newspapers as well.

Shown above are Fred Cody, Atlanta Div., junior engineer, and Bill Perdue, WSFA news-commentator during one of their fifteen minute broadcasts.

JULY-AUGUST 1939

[7]

ETC 22447



Modern Equipment Replaces Old at Pikes Peak

FOR almost half a century a trip to the top of Pikes Peak has been included in the itinerary of visitors to Colorado Springs and tourists from all over the world have gazed upon the grandeur of the stupendous panorama which is unfolded from its summit. For many years now the Peak has gained additional notoriety as the location for many hill climbing contests. These events have formed the basis for advertising the stamina of most of the automobiles of the past at one time or another. But it was the old cog rail-

road that first brought the fame of Pikes Peak before the public. After many years of faithful service the management of the line decided, during the summer of 1938, to replace the little coal-burning locomotives with new equipment and in keeping with the modern trend had a streamlined conveyance designed and built.

This new car is powered with a G.M. 707 cubic inch gasoline engine which at sea level would normally develop about 175 horsepower. However, at the 5,000 ft. level, where

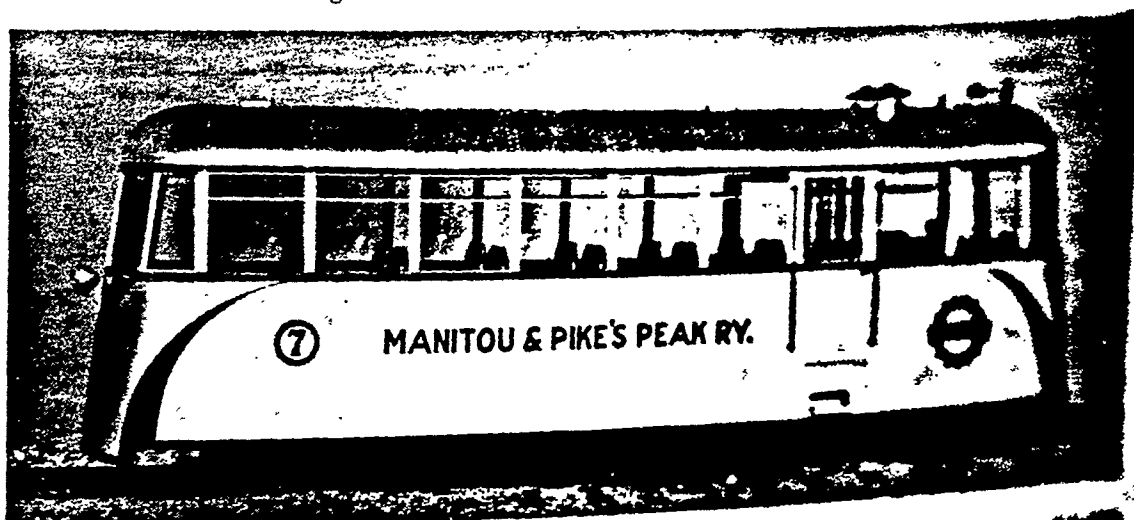
Observatory at the summit of Pike Peak 14,106 feet up, showing the stream driven equipment which has been in operation for many years.

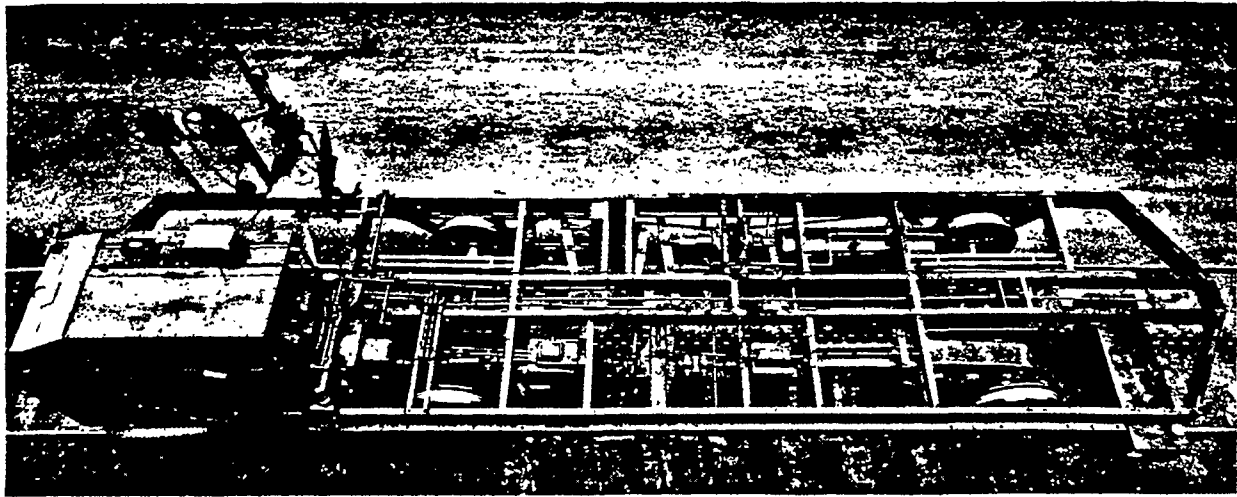
the ascent begins, the engine has already lost 15% of its sea level horsepower output and of the 14,106 feet mark the loss is 30% of normal sea level output. In consequence 2-1/2 tons were extremely disappointing because of loss of power due to the high altitude and not sufficient calibration which is due to the fact when altitude must be considered.

At this point the El Paso Corporation entered the picture and Mr. Charles Webb, representative of the Corporation, Kansas City Division, had his engineers take off of 6.0 to 1 compression ratio after the truck supplied by General Motors Truck was examined and work was undertaken to install a more adequate engine with 2-1/2 tons. These changes increased the power to a point where the car could take the climb in a fairly satisfactory manner.

In September of 1938 the El Paso Car of the El Paso Corporation (El Paso) was tested and found to be much better equipped than the old car which was replaced by the new one. The new car is a 2-1/2 ton car and is a 14,106 feet car.

One of the new streamlined cars which replace the old steam driven car of the summit of Pike Peak. The car is a 2-1/2 ton car and is a 14,106 feet car.





tional changes involved:

- 1 Use of 6.75 compression ratio pistons.
- 2 Installation of a different type of air cleaner and air intake system to insure a larger supply of cool air into the engine.
- 3 Installation of a special manual carburetor mixture control enabling the operator to adjust air fuel ratio as he ascended. (This was supplied by Stromberg and is a copy of their aircraft mixture control adopted for the DDR5 carburetor. It is believed to be the only one of this type in existence on a commercial engine.)
- 4 Installation of a Cambridge Instrument Company's aircraft air fuel mixture indicator to enable operator of the car to hold mixture strength to maximum power throughout the climb.
- 5 Reworking of the distributors to give a more satisfactory spark advance for the extremely high compressioned heads.

The installation of this equipment, during May of 1939, plus the use of 80 octane grades of Ethyl Gasoline, has made a tremendous improvement. The passenger carrying capacity of the car is twenty-four, not including the conductor and operator. It consumes approximately 16 gallons of gasoline for each round trip, whereas the old steam driven equipment required a standard four-man railroad crew of engineer, fireman, brakeman and conductor. The engine used $2\frac{1}{2}$ tons of coal per trip. Thus the operating cost of this new

vehicle is much less than that of the old equipment.

The climb to the peak of the mountain, which is 14,109 feet above sea level, requires about an hour and fifteen minutes to cover the $8\frac{1}{2}$ miles. Grades vary anywhere from 8% to 25% with long stretches of 14 to 16% grade. The last few thousand feet to the summit is all 25% grade. In negotiating such inclines, problems in braking came up that have been met very cleverly. All braking is done on the cog rather than on the wheels which guide the car along the track. Were this not so, the wheels would act like sled runners on ice if forced to hold the vehicle on the 25% grade. A standard locomotive air brake control is used but a small stream of water is directed against each brake

Chassis of the new car showing the two transmissions in the drive line between the engine and the front axle.

drum during the down hill descent. About thirty gallons of water is required to cool the drum during this period.

There are two transmissions in the drive line between the engine and the front axle which delivers the power transmission to the cog rack. With the present power output of the engine, only one of these transmissions is needed and possibly, at some later date, the second transmission may be removed. It is estimated that this engine with the 6.75 compression ratio now is capable of delivering sea level horsepower at the 5,000 foot level.

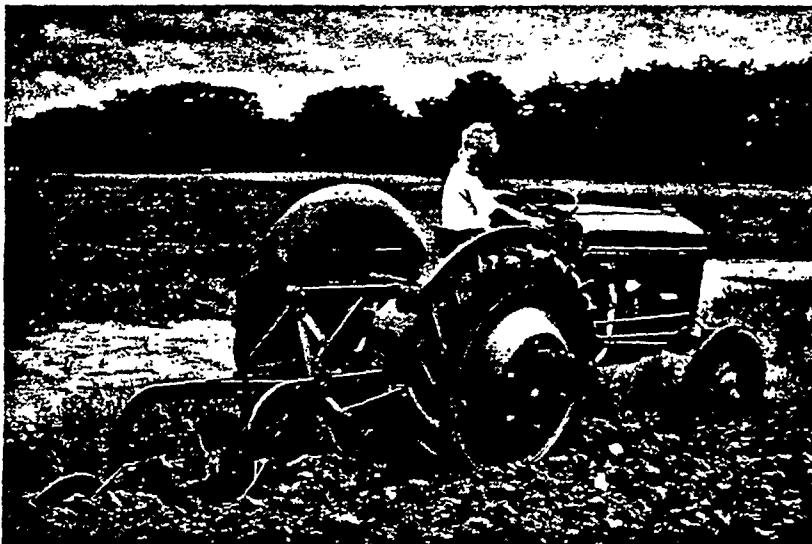


During the recent tour of the United States by the Crown Prince of Norway, a stop was made by his caravan at Decorah, Iowa. The Scott Oil Company, Skelly jobbers, supplied the cars with Skelly Aromax Ethyl. Mr. Scott (at left) owner of the concern, with several of the caravan cars lined up for service at his station.

JULY-AUGUST 1939

[9]

ETC 22449



Ford Announces New Tractor

Plans to Make Horse as Rare on Farms as on Roads

HENRY FORD'S new tractor is now on the market. On June 29, he invited reporters, representatives of farm magazines and agricultural experts to witness a demonstration.

The tractor was first shown in the process of construction on an assembly line set up in the famous Ford "B" plant at River Rouge. Later, on the Ford estate at Dearborn, the finished tractor was put through its paces.

The most unusual feature of the new tractor is the Ferguson automatic depth control, for the manipulation of implements. The control is actuated by a four cylinder hydraulic lift. A finger tip control lever located on the operator's right raises and lowers the implements. This unit is so powerful that four men standing on the plows may be easily lifted high into the air. The control lever can be set to a pre-determined depth and regardless of soil conditions or uneven ground, will give a uniform depth of cut.

A patented linkage for implements is largely responsible for the reduction in the weight of the tractor. The line of draught keeps the implement in even the hardest ground, and when an obstruction is met the additional load is automatically placed

upon the front and rear wheels, thus making it possible to continue operation without shifting gears.

The tractor, four-wheeled, is equipped with rubber tires. Front and rear sets can be extended or retracted on the axles for various row crop widths. The motor is high compression, designed exclusively for regular grade gasoline, and there are three forward speeds and reverse.

Even before this machine was announced to the public, orders for many carloads had been received from dealers who had full confidence in Mr. Ford's new development. Messrs. George Krieger and Ed Downs, of the Ethyl Corporation, were given the rare privilege of watching it demonstrated on the Ford estate only a few days after Mr. Ford himself had first seen it. This was a month before it was shown to members of the press.

One of Mr. Ford's hopes is that his new tractor will enable farmers to escape from the laborious and uneconomical "upkeep" of horses and mules. Thomas Edison once said, "A horse is the poorest motor ever built. He eats 10 pounds of food for every hour he works. He eats 12,000 pounds of food a year—the output of 5 acres. His thermal effi-

If there is a small boy around, he will insist on doing the plowing, because the steering and all the controls are extremely light and simple to operate.

ciency is but 2%." Nevertheless, oddly enough, there are still approximately 16 million horses and mules on American farms, as compared to a little over 1½ million tractors.

As a loyal and hardworking friend of man, the horse is a noble animal but when he is considered as an economic factor in the life on the farmer, he is a bad investment. Mr. Ford plans to demonstrate, through advertising, how unprofitable it is to farm with animals. Behind a horse, a man can plow only one furrow at a time. On a tractor he can plow twelve in the same length of time. Moreover a horse requires 750 cubic feet of barn area and with his feed, 3250 cubic feet.

Mr. Ford has been keenly interested in farmers and their problems for many years and has done much to create industrial uses for farm products. Into his new tractor he has poured all of his hopes of easing the farmer's toil and this machine is so simple that it can be operated by a child. It is designed with the idea of making farming so attractive to the youth of America that they will have no desire to leave agriculture for work in cities.



The operator levels the Ferguson unit plow and other implements by a small control lever.

ETHYL NEWS

[10]

ETC 22450

Germany Shifting from Alcohol to Ethyl Fluid Blend

(Reprint from Oil & Gas Journal, May 11th.)

THE uneconomic compulsory admixture of ethyl alcohol to motor fuel in Germany is to be abandoned. Facilities for blending tetraethyl lead with motor fuel are being expanded in Germany and before the year is ended the partial relinquishment of ethyl alcohol productive capacity for nonfuel purposes will be completed. The plan for reorganizing the existing system of compulsory admixture of alcohol in motor fuel is intended to be "definitive" in character and to solve Germany's alcohol-motor fuel problem by establishing stability in blending requirements, according to the report from the American consul at Frankfurt-on-Main distributed by the U. S. Bureau of Mines.

Under the plan the German motor fuel market will be divided into two major distributing districts, north and south of an imaginary line running east and west across the country from Bentschen to Bentheim. The northern distributing area accounts for about one-third and the southern area, including the former Austria, for about two-thirds of Germany's total motor fuel consumption. In the southern area the existing legal requirement of the blending of alcohol with all light motor fuel will be completely abolished and will be replaced by the required admixture of tetraethyl lead as antiknock agent instead of alcohol. In the northern district the admixture of alcohol in light motor fuel will continue to be required, at least temporarily.

Reorganization of the motor fuel blending requirements will cause a sharp contraction in the German consumption of alcohol for motor fuel purposes, about two-thirds of the present levels. Originally designed as a financial aid to distressed potato farmers by creating an artificial market for their excess potato crops at an inflated price, alcohol was established in 1930 as a legally required admixture with light motor fuel. The rate of admixture was originally fixed at only 2%, but was progressively raised to 10%. With increasing difficulty of procuring ade-

quate supplies of alcohol for motor fuel purposes, the rate of admixture of ethyl alcohol was reduced. To stretch the ethyl alcohol supply, methanol was increasingly called upon as a required component of the alcohol admixture. Substitution of methanol for ethyl alcohol reduced the quality of motor fuel. During the fiscal year of 1937-38, Germany's alcohol admixture requirements called for 2,392,400 hectoliters, or about 6,315,936 gallons. Of the 2,392,400 hectoliters of admixture required for the fiscal year 1937-38, a total of 1,594,900 hectoliters was ethyl alcohol and the remainder methanol. Germany's alcohol consumption for all purposes during the same period totalled 4,056,800 hectoliters. The ethyl fluid, of a grade designated as "Q" suitable for automobile fuel blending, will consist of 63.3 per cent of tetraethyl lead, 25.8 per cent of ethylene dibromide, 8.7 per cent of ethylene dichloride, and small amounts of other ingredients. The compound is manufactured exclusively by the concern Ethyl G.m.b.H., with headquarters in Berlin. One half of the capital of this concern is controlled by the I. G. Farbenindustrie A.G., of Frankfurt-on-Main and the other half by Ethyl Gasoline Corporation. The company will market its output to consumers and distributors who have entered into special contractual relations.

The price of antiknock agent "Ethyl fluid" at present is 1.2 reichspfennigs (\$0.0048) per cubic centimeter, f.o.b. works at Capel-Westhavelland. The blending will be restricted to a maximum of 0.4 cc. per liter (1.5 cc. per U. S. gallon) of gasoline, or an amount sufficient to give the motor fuel an octane number of at least 74. Its incorporation in motor fuel will represent an increase in cost of the latter of 0.48 reichspfennig per liter (\$0.007 per U. S. gallon), equivalent to around one-third the cost of the existing requirement of alcohol blending. It is understood that, despite differences in cost, retail prices of gasoline fuel in Germany will be unaffected by this shift from alcohol to ethyl fluid.

Cooperative Research

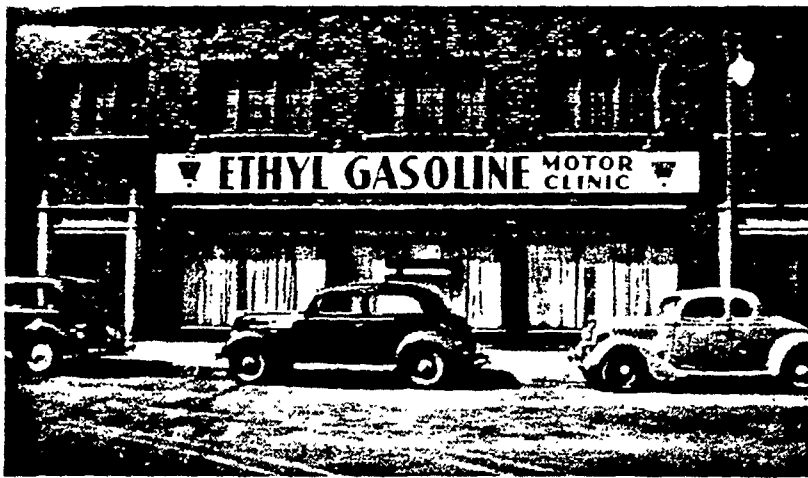
RESEARCH in the petroleum industry is carried on cooperatively, not only in various branches of the industry itself, but in many other fields.

About \$12,000,000 is spent annually for research by the American petroleum industry alone, with the results of investigation and experiment generally made to the entire industry. Example is the discovery and development of the cracking process which started around 1920. Its rapid progress has been based largely on equipment developed from basic and improved patents. Refiners have been encouraged by advertising and sales promotion to utilize these processes at uniform rates based on the quantity of material treated.

As a result of this system, small refiners are relieved of the burden of unending and costly research, at the same time obtaining a first-class consulting and advisory service without the anxiety of being involved in expensive patent litigation. In effect, the system works as a cooperative enterprise, the benefits being shared by all users. Although ownership of the patent remains in the hands of the central research and licensing corporation, the bulk of the royalty payments is utilized for further research. Without cracking, more than 2,000 million barrels of crude oil would have had to be produced to obtain the motor fuel needed in 1938. Disposal of other products, such as fuel oil, would have been almost impossible.

The same plan is being carried out with equal success with other processes, such as catalytic cracking, the solvent refining of lubricating oils and the use of chemical inhibitors for the improvement of motor fuel. Many refiners are now building small polymerization units to convert part of their waste refinery gases to high-octane motor fuel. These could never have been constructed were it not for the experience and profits derived from designing and installing large units.

A CLINIC MOVES



1 Exterior of a typical Clinic building. A similar building has been selected in the next city, and it is time to pack up and move.



2 Nearing the close of the last meeting with all members of the staff ready to begin the task of dismantling the equipment when the audience leaves.



3 Work gets underway immediately with the stage overhead being lowered so its lights, curtains, motors and other parts are readily accessible.

WHILE thousands of people have already visited Ethyl Motor Clinics in over one hundred cities, few realize that each of the eleven units has over twelve tons of expensive and delicate equipment which must be dismantled, packed, transported, and reassembled for each city. A Clinic will average about ten moves per year.

The Clinics carry their own lights, seats, stages, wall curtains, and other special apparatus. These were designed and built by Ethyl engineers not only to present the unusual shows but to permit an entire Clinic to be dismantled in one day.

The Ethyl News takes you behind scenes for a glimpse of the problems which confront the five-man staff of a Clinic when moving day arrives.

***We wish to thank the Chicago Division for the idea behind this presentation, and the Boston and New York Divisions for additional pictures.

ETHYL NEWS

[12]

ETC 22452



4 The special lights are disconnected and packed in nest-like containers.



5 Curtains are folded and put in one box, rods fit in cradles in another.



6 Control tower and projection apparatus must be stored in lined cases.



7 The unique portable filling station has its individual box.



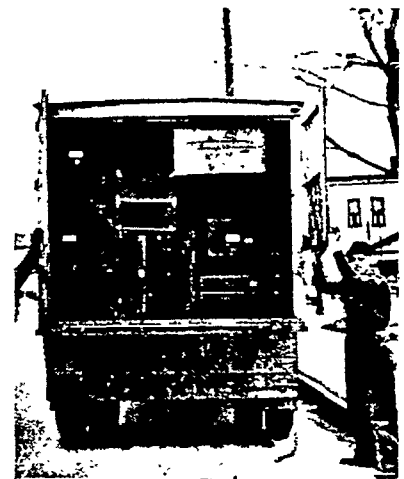
8 The upholstered chairs are packed twenty-five to a container.



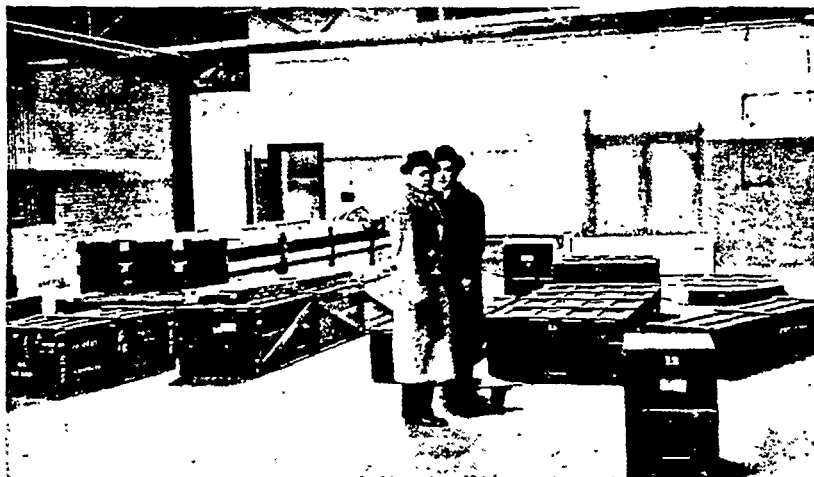
9 Each section of stage is numbered to facilitate next assembly.



10 Sensitive instruments require extra care in handling as well as packing. Sponge rubber cushions insure against shipping hazards.



11 The seventy-five boxes are loaded and ready for the journey.



12 Part of the equipment has reached the new building, and the second truck will bring its share of problems, and work for everyone, soon.



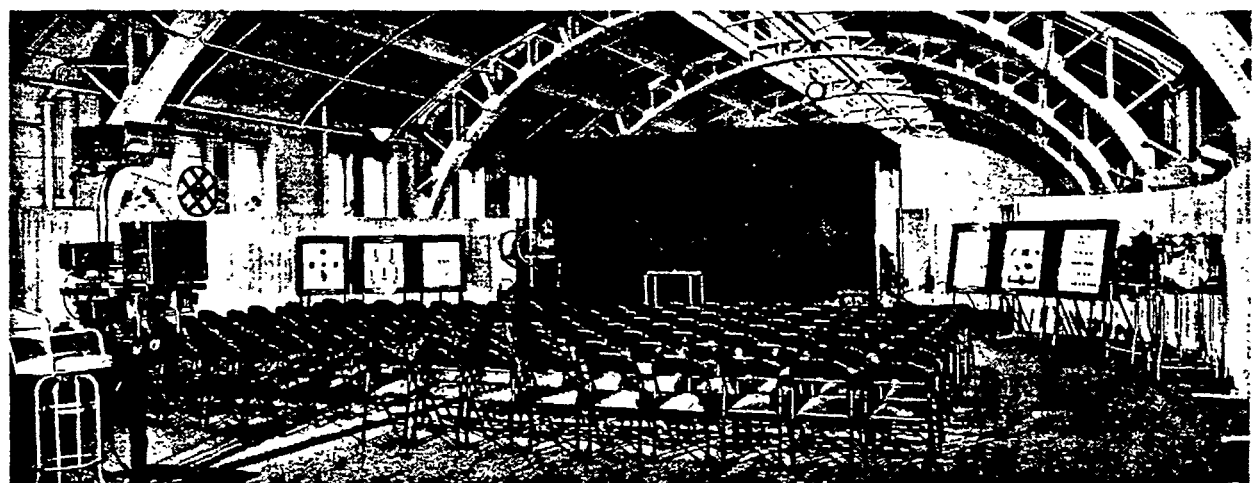
14 Meanwhile a telephone with special loud bell is installed.



13 The all-important three-ton dynamometer is moved to its carefully selected location and acts as a foundation for the stage.



15 With everything in place final electrical connections are made.



16 After cases are stored, debris removed and an automobile tuned and in position on the stage, everything is in readiness for the first audience in the new location.

ETHYL NEWS

[14]

ETC 22454

Will As You Will—But Will You Should

FEW like to think about death and yet it is something that everyone must face at one time. This being so, one of our greatest obligations is to see that our families are provided for to the best of our ability. One of the most necessary requirements in this respect is that final will and testament. Do you know how to draw up a simple will that will protect your heirs as you want them to be in the event of your sudden departure from this life? For many, the mere mention of a will gives rise to unpleasant thoughts—death, legal red tape and the like—and results in the postponement of the task of preparing one to the detriment of the heirs who must bear the burden.

"But," you may say, "why should I draw a will, I am young and healthy." Unfortunately, however, one of the most unpleasant phases of death is its uncertainty and furthermore there are very practical reasons why one should make a will regardless of age or station. Not only is it logical that one would wish to direct disposition of his estate but practical economy dictates the need of it. Should one die intestate the court will appoint an administrator with the incurring costs, lawyers and administration fees, being deducted and the heirs may find little consolation in that portion of the estate remaining for their welfare. This is particularly true in cases of moderate estates.

Contrary to popular conception, the making of a will can be quite simple for the average man whose estate is not extensive or involved. There is no rule or law which prevents a person writing his own will and he may safely do so when his estate is small and he has no complex disposition of his property in mind. However, in any case where the estate is considerable and complications of any nature are apt to be involved, the advice of a lawyer should be obtained.

Although legal counsel and service is not always necessary, for the sake of accuracy we have discussed the matter with a member of our legal staff and believe that the fol-

lowing information may be helpful.

The laws in the various states differ as to certain requirements, as for example the number of witnesses, age of testator, validity of holographic wills and the like, therefore it is difficult to state a general rule. However, it is his belief that the form outlined here constitutes a valid will in substantially all of the states, with the possible exception of Louisiana. The provisions of the laws of that State respecting wills have unusual and particular limitations as to disposition of estates, as well as certain specified formalities for the execution of three distinct types or classes of wills. Consequently, it is suggested that anyone domiciled in Louisiana obtain advice before attempting to execute a will.

The ordinary will, involving no complicated bequests or devises, can be put in simple language and drawn in concise form. Generally speaking, no particular words or expressions are required and all that is necessary is that the will be properly executed and that the intent of the testator be clear. A hand-written or type-written will complies with the requirements, except for so-called holographic wills, still valid in many states. Such wills must be entirely in the hand-writing of the testator and can be executed without certain formalities, including the presence and signatures of witnesses, but their execution should only be attempted in cases of emergency and when the testator has definite knowledge that his particular state of domicile recognizes wills of this nature.

Whenever possible, it is advisable to execute a will in the presence of at least three witnesses to comply with the requirements of certain states, particularly when real property is involved. Care must be taken to select witnesses who have no interest under the will and also who are apt to be available for the probate proceedings.

The following form may be used as a guide in the preparation of the ordinary will:

Last Will of _____
I, _____, being of sound

mind, do make, publish and declare this my last Will, hereby revoking any and all wills and codicils heretofore made my me.

1. I direct that all my just debts, if any, be paid by my Executor out of my estate.

2. I hereby give, devise and bequeath all property, real, personal and mixed, which I may own or be interested in at the time of my death, to my beloved wife, _____.

3. I hereby appoint _____ as Executor (Executrix) of this Will and of my estate to serve without bond.

In witness whereof, I have hereunto set my hand and seal this _____ day of _____, 19____.

(Signature)

Signed, published and declared by said testator, as his last Will, in the presence of each of us, who, at his request, and in his presence, and in the presence of each other, have hereunto subscribed our names as witnesses this _____ day of _____, 19____.

Suggested Alternatives to Paragraph 2.

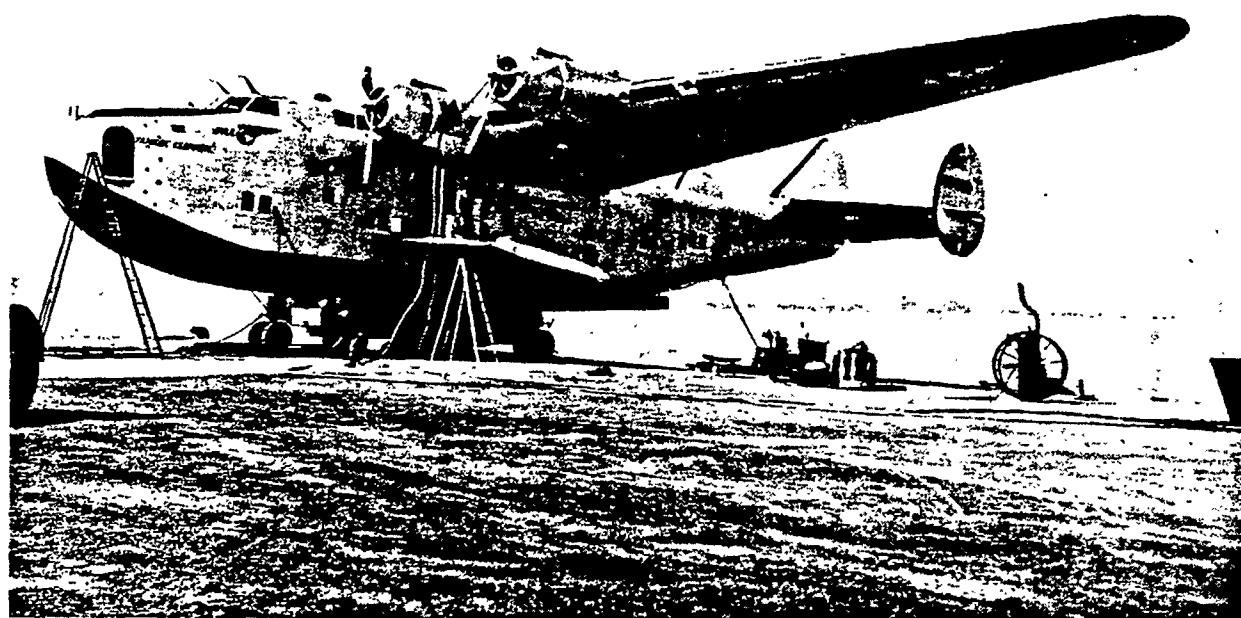
2. I hereby give, devise and bequeath all property, real, personal and mixed, which I may own or be interested in at the time of my death, to my beloved children (names) _____ share and share alike.

2. I hereby give, devise and bequeath all property, real, personal and mixed, which I may own or be interested in at the time of my death, to my beloved son (daughter) _____, in fee simple.

Any person of sound mind, over twenty-one years of age, may execute a will and in some of the states, including California and Connecticut, over eighteen years of age. Certain other states, including New York and Rhode Island, fix the age at eighteen and over for bequests of personal property and twenty-one years for the disposition of real property.

Generally speaking, a will disposing of personal property is governed by the law of the testator's domicile at the time of his death but this does not necessarily follow as it relates to a will disposing of real property.

Yankee Clipper of '39 Recaptures Ocean Records



WHEN the Yankee Clipper swept out over the Atlantic on its maiden trip, carrying a distinguished roster of newspaper publishers as well as the first air mail bound for Europe, she brought to a climax one of the most thrilling and significant chapters in the history of our transportation. In barely more than a decade, America has risen from a position as the least important commercial air power to an undisputed leadership on the aerial trade routes of the world and Pan American's new Yankee Clipper is the proud flagship of her air fleet.

This is the first of a fleet of six new "super clippers" built by the Boeing Aircraft Company for passenger service over the Atlantic and the Pacific and the first designed for Atlantic service.

On her initial trip there were

aboard her such notables of the newspaper world as Amon Carter, Publisher of the Fort Worth Star Telegram; Roy W. Howard, President of Scripps Howard Newspapers; Mrs. Odgen Reid, Vice President of the New York Herald Tribune; Thomas H. Beck, President of the Crowell Publishing Company; John Cowles, President of the Minneapolis Star; Paul Patterson, President of the Baltimore Sun; M. C. Meigs, Publisher of the Chicago Evening American; James A. Stahlman, Publisher of the Nashville Banner; James Furay, Vice President of the United Press Association and officials of Pan American Airways.

One of the passengers was not on business but on an errand of mercy. Guido Coen, an Italian formerly of Florence and now in this country for the purpose of becoming a citizen,

4200 gallons of leaded 100-octane aviation gasoline go aboard — enough to carry the great bird 4275 miles.

learned that his son was desperately ill in his native city with infantile paralysis. Special place on the flight was made for him so that he could reach the bedside of the boy who it was feared was dying.

The Yankee Clipper and her two sister ships, the Dixie Clipper and the Atlantic Clipper, are the largest aircraft in the world, either military or commercial. They are double-deck monoplane flying boats, all metal, equipped with auxiliary "sea wings" for lateral stability in choppy water. Their over-all length is 109 feet, their wing spread 152 feet. They stand 28 feet six inches high and fully loaded, each weighs over 41 tons.

ETHYL NEWS

[16]

ETC 22456

Power to lift this weight into the air and keep it flying at speeds between 150 and 190 miles an hour is supplied by four 1500 horsepower motors operating on 95 octane leaded aviation fuel. These four motors — Wright "Cyclone" radial double row 14 cylinder air-cooled engines — are mounted in wing nacelles, constructed to permit servicing while the plane is in flight. An idea of their power may be gained from the fact that each motor drives a propeller fourteen feet from tip to tip. They will carry 5,000 pounds of cargo and 74 passengers, with sleeping accommodations for 40.

These ships are a far cry from the aircraft of a dozen years ago. Looking back just twelve years to that morning of May 20th, 1927 when Col. Lindbergh flew out over the sea into a grey sky, we recall that he was heading toward a Europe where air transportation was already a highly developed science. A network of air lines carried passengers, mail and express between every important city. Already England, France, Ger-

many and Holland looked upon the transport aeroplane as an important new factor in international relations. Air lines were pushing southward into Africa, westward across Asia Minor toward India. Detached "advance guard" units had set up outposts of European air line interests in Asia, in South Africa, even in Latin America.

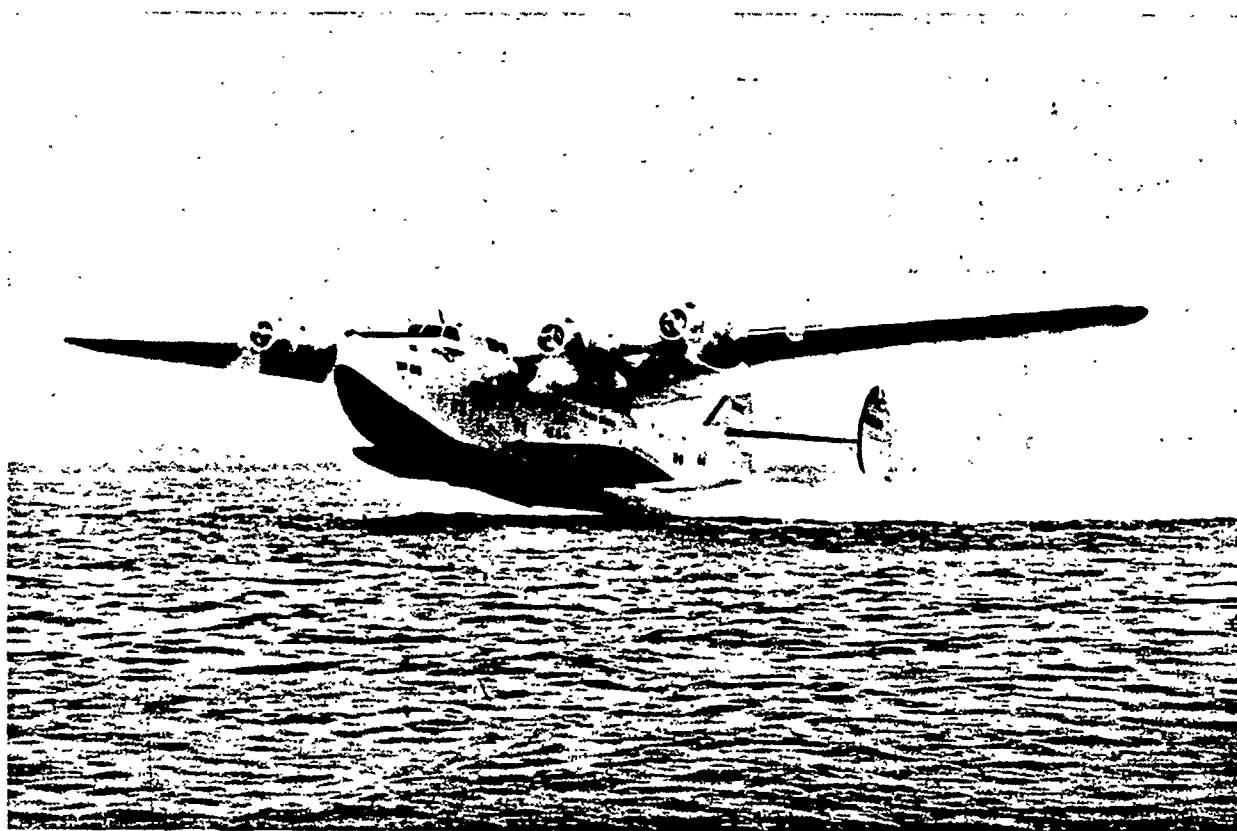
In the United States by comparison, air transportation had hardly made a start. The most vital part of our present transcontinental air line network—between Chicago and New York—was still being operated by the United States Post Office and our domestic air lines were almost entirely limited to transportation of air mail. In the international field, the United States did not possess a single important air route beyond our borders. Almost over night Col. Lindbergh's flight to Paris awakened the American public to the possibilities of aviation. The American aeronautical industry at last began to stride forward at a speed which was limited only by the progress

of its engineers and its designers.

Today our magnificent network of international air lines is the envy of all nations. From Nome at the Arctic Circle to Santiago, Chile; from Hong Kong to Marseilles, the house flags of American air lines give proof of a renewed American leadership in the trade routes of the world. To compare records, all foreign nations together have flown *less than half* the four and a half million miles of actual ocean flying Pan American Airways alone have logged in the Pacific and in the Atlantic.

For the first time in nearly a hundred years the Yankee Clipper and her sister ships promise to restore to the United States leadership in world-wide transportation—a position first established by hard headed Yankee skippers who drove their lean, lithe ships down the seas to China—and left in their bubbling wakes a record for a proud nation to recapture.

The Yankee Clipper lifts herself from the water, like a great flying fish at the moment of takeoff



JULY-AUGUST 1939

[17]

ETC 22457



Ice Chamber, showing fantastic formation of stalactites.

Thomas Boles is superintendent of the Cavern and under his direction Government Forest Rangers act as guides in escorting visitors through it.

Now let us join a party under the guidance of courteous Rangers and explore this Wonderland. On arriving at the Cavern entrance we find quite a party of sightseers already on hand, many of whom are admiring the Cactus Gardens around the Government buildings while others make preparations for the start. Finally all gather at the head of the entrance to await the signal which comes promptly at ten-thirty. Most of the party carry light coats and wraps to wear underground as the temperature in the Cavern is 56 degrees the year round and outer covering is comfortable due to the extreme dampness encountered. Many also have on easy walking shoes, although the trails are so well constructed that no discomfort is experienced with ordinary footwear. In the party are people from all walks of life including the woman tourist who carries on a rapid fire conversation with her companions as she struggles along the trail, to

Carlsbad Cavern of New Mexico

OF the many points of interest that the Southwest offers for the traveller, one of the most outstanding is the Carlsbad Cavern of New Mexico. Located 25 miles southwest of the city of Carlsbad on Highway No. 18, the Cavern is easily accessible from the Transcontinental Highways. It may be reached over U. S. Highways by the tourists who visit El Paso, Albuquerque, Santa Fe and other Texas and New Mexico points.

The Cavern lies beneath the Guadalupe (Wahd-ah-loop-eh) Mountains of Southeastern New Mexico and the entrance is at an elevation of 4,400 feet. Each year over 200,000 persons visit this, the largest cavern known to man.

It is estimated that the Cavern was formed by water erosion and deposits some 60,000,000 years ago, and traces of human occupancy by the Basket Maker Indians date back 4,000 years. In the fall of 1901, Jim White, a cowboy, stumbled upon the original entrance and made, as far as is known, the first exploration of this underground fairyland. Twenty-two years later the U. S. Geological Survey and the Department of the

Interior made surveys and shortly thereafter Carlsbad Cavern was designated a National Monument by the Government and finally a National Park. Now under the jurisdiction of the National Park Service, the Cavern has been well lighted and miles of easy, safe trails constructed.



The Lily Pads

ETHYL NEWS

[18]

ETC 22458

a-
—
of
n
is
h

ie
d
-
d
y
r-
e
s
i-
r
h
st
d
e
-
r
e
l
g
l
-
l
1
3
3
3
3

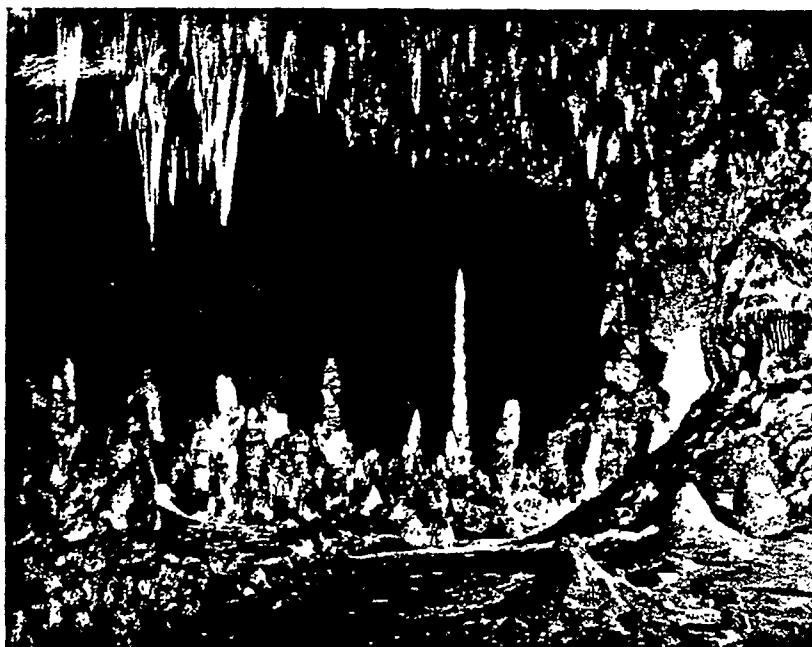
the general annoyance of the rest of the party who wish to listen to the guide.

As we go through the entrance double-file the Rangers regulate our speed so that no one will become tired from the two hour walk over the inclined trails and stairways. Frequent rest periods are taken, the first being at the "Bat Cave" shortly after going through the entrance. This spot where millions of bats of every species live, is not, however, open to tourists. The flight of the bats at sundown during the summer months is one of the sights of the Cavern and one which many visitors wait over to see after going through. The bats live in the Cave flying out at night in search of food in the surrounding countryside and returning at daybreak.

Leaving the "Bat Cave" we descend with frequent stops to admire the ever increasing beauty of the stalctites hanging from the ceilings and stalagmites rising from the chamber floors. After going through many rooms and seeing many wonderful sights we reach the underground lunch room about twelve-thirty. The party, wearied from the two hour walk and hungry from the exercise in the cool atmosphere, are glad to stop and enjoy the appetizing food and steaming coffee served 750 feet below the surface. After lunch and a rest we continue our tour of what proves to be the most beautiful part of the Cavern, a veri-



Giant Dome in Big Room, largest stalagmite in the World.



The Totem Poles

table fairyland with myriads of stalactites and stalagmites, frozen cascades, grotesque formations all, finally we reach the "Big Room." This is the largest and most impressive of the many chambers of the Cavern. It is more than three-quarters of a mile long, 625 feet at its widest part and at one place the ceiling arches 350 feet high. The trail around it is 2½ miles and the massive formations are magnificent. Here is the Giant Dome, the world's largest stalagmite 62 feet high and 16 feet in diameter and reliably estimated to be 60 million years old. Soon we approach the "Rock of Ages" and are met by Mr. Boles, the superintendent who welcomes the party and describes more fully the wonders on all sides. While we sit down to rest the marvelous indirect lighting system, which is used throughout the Cavern, is turned off for 30 seconds and the place is thrown into absolute darkness. If one has never been in the dark 700 feet underground he may be assured that it is an unusual sensation. After this brief period of inky-blackness and death-like stillness a Ranger sings "Rock of Ages"—truly an awe-inspiring experience.

After the ceremony at the "Rock of Ages" the party divides into two groups, some wishing to walk out

while others elect to ride on the high speed elevators which in 1 minute are at the surface 700 feet above. These are the second longest single-lift elevators in the world, surpassed only by those in the Empire State Building in New York City.

We are told that there are 210 in our party with people from 24 states and 3 foreign countries. A smaller group than usual as on some days there are as many as 4,000 persons in a party.

Photos by Jay Leck.



The Jumping Off Place in the Big Room.

JULY-AUGUST 1939

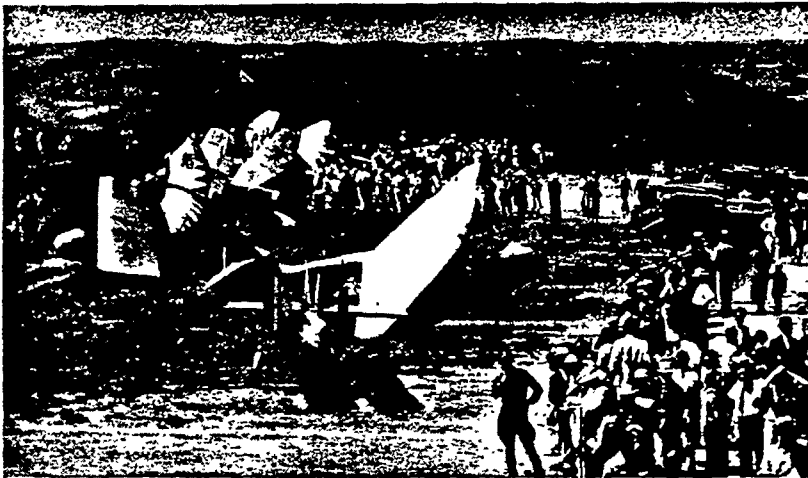
[19]

ETC 22459

WINGS



A winch truck for launching gliders by tow-line. Powered with Ethyl, the motor reels in the cable at speeds up to 75 miles an hour.



Gliders ready to take off, waiting only for wind.



Aerial view of Harris Hill, scene of National Soaring Contest where elevation is such that soaring planes may be launched directly into powerful slope wind up-drafts which carries them upward to still greater heights.

ON a hot August day in 1930, an enthusiastic Irishman, one Jack O'Meara, brought his glider to Elmira, N. Y. to investigate the soaring possibilities in a country about which he had heard so much. He stayed up 34 minutes—a national record. On the following day he went up again for 1 hour and 15 minutes.

These two achievements—spectacular at the time—established Elmira as the soaring center of the United States. Plans were immediately launched for a national glider contest the following month, and from that day to this every national soaring meet has been held there. This year saw the 10th annual contest on Sunday, July 9th.

The prize for best performance went to Chester A. Decker, 1936 champion. The Warren E. Eaton Trophy, in memory of the man who gave motorless flight its start in this country, was awarded to Richard C. DuPont, one of the most colorful figures in American soaring. DuPont's award was for the "most outstanding contribution to motorless flight."

In 1933 he doubled the American distance record with a flight of 122 miles, only to bring it to 158 miles the next year. He was national champion in 1934, 1935 and 1937. Since 1937 he has been President of the Soaring Society, at one time edited the magazine "Soaring" and has established two glider factories. Twice during the Elmira meets he established altitude records: 6,516 feet in 1936 and 6,700 feet in 1938.

There are two basic types of gliders—utility gliders and high-performance soaring ships which can climb even on the up-drafts attending cumulus clouds. When drifting from cloud to cloud, these graceful and delicate ships resemble a flock of great, wheeling birds. Some of the high-performance types are equipped with elaborate instrumentation—meteorological instruments, flying instruments and even short-wave two-way radios for keeping in touch with ground crews. Many are built to carry two passengers.

ETHYL NEWS

[20]

ETC 22460

Over Elmira

Gliders are launched either by being towed behind an aeroplane or car, or by a tow-rope attached to a winch. This year, the winch truck was tuned up for the meet at Ethyl's Motor Clinic No. 4, of the New York Division which was at that time lo-



Soaring is an exact science. Each little "thermal" air-current must be utilized to keep the glider up.

cated in Elmira. Mr. Fred Schwenke, President of the Elmira Soaring Society, expressed great appreciation at the increase in power produced by tuning the truck motor. Both winch truck and towing trucks are run on leaded gasoline and the towing planes, which need every bit of power they can command, are fueled with aviation Ethyl.

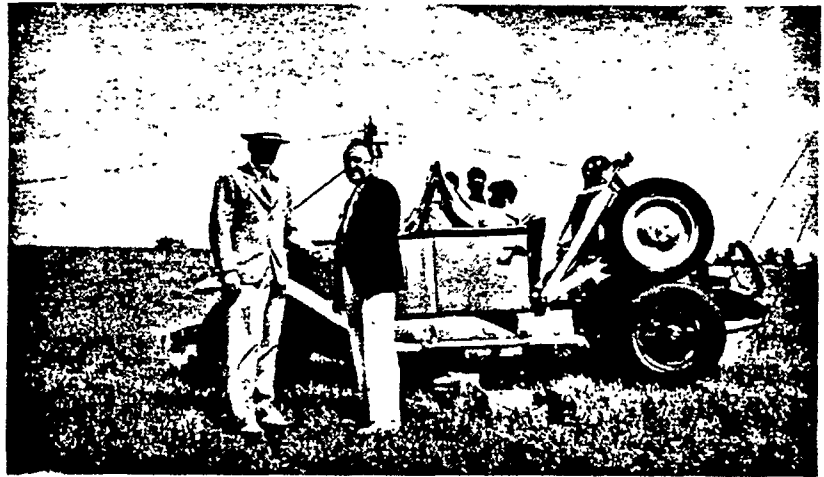
• • •

The Treasury recently released a story to the effect that if all the money in circulation were divided equally, every person in the United States would have \$50.38. What the Treasury failed to add was that if the national debt were divided the same way, every person would owe approximately \$285.

The Commentator

JULY-AUGUST 1939

[21]



Fred Schwenke, President of the Elmira Soaring Society, welcomes W. G. Ball of Ethyl's Clinics staff. Winch truck was tuned-up at Clinic No. 4.



This car, used for launching the soaring ships, tows them behind just as a motorboat tows an aquaplane.



A towing plane needs all the power at the take off it can command—Aviation Ethyl is in the tank.

ETC 22461



LEROY W. ARMSTRONG is a member of the Manufacturing Department staff at Deepwater, N. J. He first entered the employ of the General Motors Chemical Company in July 1924, located at Dayton, Ohio, where he was in charge of the storeroom. This was in the very early days before the formation of the present Corporation and when Ethyl Gasoline was mixed at the service station pumps by the very simple process of adding Ethyl Fluid directly to the gasoline. At that time the mixing devices were an important item in the Dayton inventory. Still another curio of the past that was supplied from the Dayton storeroom was the old type methyliter can.

During the year 1926 and after the Ethyl Gasoline Corporation had come into being, blending operations were begun at Deepwater, N. J. Mr. Armstrong was then transferred there to assume charge of shipping for the Manufacturing Department and has been associated with that Department ever since. For the past nine years he has held the position of special shipping supervisor, the most important function of which consists of the education and training of the responsible officers of a ship's personnel to assure the proper handling, loading and storage of drums of Fluid in boat shipments.

Mr. Armstrong is married, he has three children and makes his home at Penns Grove, N. J.



The Following Service Awards

have been made as of

JULY

15 YEARS

J. E. MESCHER Detroit Engineering

10 YEARS

CARL BARTHOLOMEW

Tulsa Gasoline Testing

HAROLD J. CHALK

Detroit Engineering

HUGH B. GEBHART Administration

C. G. KRIEGER, JR. Detroit Sales

MEREDITH LITTLEFIELD

New York Sales

CHARLES D. REMSBURG

Manufacturing, Deepwater

5 YEARS

JOHN DICUS Tulsa Gasoline Testing

PAUL R. B. DIXON

Manufacturing, Baton Rouge

ALBERT H. FRANCIS Administration

AUGUST

15 YEARS

L. W. ARMSTRONG

Manufacturing, Deepwater

10 YEARS

ROBERT R. FOSTER

Yonkers Laboratory

GEORGE H. GIER

Yonkers Laboratory

CLIFFORD E. WILSON

Detroit Engineering



J. E. MESCHER was born in Cincinnati, Ohio, August 18th, 1881 but at an early age moved to Dayton.

His first association with Ethyl Gasoline was in the early days before the Corporation was formed, at which time he was employed by the General Motors Research Corporation in Dayton having charge of road testing work in connection with the experimental mixes of Ethyl Fluid.

In 1927 when work was started on the early knock testing engines, Mr. Mescher was put in charge of this new activity. At the time the Corporation set up its engineering laboratories in Detroit, he moved there and continued in charge of the development and production of the so-called Delco knock testing engines as well as the Ethyl demonstrating engines which made their appearance at this time.

Besides the production of these machines, which later became the Series 30 Ethyl Gasoline Corporation engines and the production of the demonstrating engines, the Detroit machine shop, under his supervision, produced a large variety of experimental equipment necessary for the research laboratories. Mr. Mescher has continued in charge of the machine shop up to the present time.

He is married and still maintains a home in Dayton, Ohio. He has one son, Robert, who is also employed in the Detroit Engineering Laboratories.

ETHYL NEWS

[22]

ETC 22462



C. W. BOND



R. N. CLOTHIER



H. A. DEMOY



W. J. HENRY

Will Supervise New Ethyl Chloride Division

ETHYL is pleased to announce that effective July 1st, the new ELA Ethyl Chloride Plant at Baton Rouge was transferred directly to the management of the Manufacturing Department, headed by J. H. Schaefer, General Manager and A. P. Stover, Assistant General Manager. The new plant had been operated for ten months, proving design performance and establishing operating procedures, by Hydro Engineering and Chemical Company who constructed the plant for Ethyl.

The following direct operating supervision has been appointed for the newly formed Ethyl Chloride Division: Clinton W. Bond, Plant Manager, Roy N. Clothier, Assistant Plant Manager, Harry A. Demouy, Operating Superintendent and William J. Henry, Mechanical Superintendent.

Mr. Bond, an L. S. U. graduate, B.S. in Chemical Engineering, 1931, came to Ethyl March 1st, 1939 after seven years as a chemical engineer with Standard Oil of Louisiana, his last Standard assignment having been with the Hydro Company in the construction and preliminary operation of the ELA Plant.

Prior to joining the Ethyl organization early in 1939, Roy Clothier had been with Alco Products, Inc. since 1931, and had supervised Alco's installation of one of the most important sections of the ELA plant. Mr. Clothier is a native of Oklahoma, where he began his career in the oil industry in 1922 with the Marland Oil Company, later working with Cosden Oil and Foster-Wheeler Corporation.

Harry A. Demouy came to Ethyl July 1st as Operating Superintendent of the new plant with the wide background of over twenty years of operating experience with Standard of Louisiana. Mr. Demouy has been engaged in ELA plant operation for the past several months of trial production runs.

William J. Henry, Mechanical Superintendent, has been with Ethyl since March 1939. Prior to that Mr. Henry supervised construction forces during the building of the new plant. He has been engaged in construction and maintenance work in Standard's Bayway and Baton Rouge refineries since 1930, the year he was graduated from University of Pittsburgh with a B.S. degree in Chemical Engineering.

Research and development in connection with the new plant will be coordinated with the Chemical Research Department under Dr. Calingaert's direction at Detroit.



O. V. Tracy Leaves Baton Rouge

ETHYL is indebted to O. V. Tracy of Hydro Engineering & Chemical Co. for an excellent job in directing its new Ethyl Chloride process from an idea on paper to a smoothly running, concrete and steel reality—the ELA Ethyl Chloride Plant.

"Otz" Tracy supervised construction of the new Plant and since it started actual operation in September 1938, through 10 months and some 12,000,000 pounds of production he has been in direct charge, perfecting operating technique, and solving the thousand-and-one difficulties that show up in every new project.

The bare fact that a new and untried process of such magnitude and complexity has emerged from its trial spins and can now take its place in daily routine operations within so short a time, is a real tribute to Mr. Tracy's experience and ability.

Mr. and Mrs. Tracy are moving their home to New Jersey where he will continue his association with the Standard Oil Development Company in an even more responsible capacity.

His many friends in the Ethyl organization regret having reached the crossroad but in sincere appreciation of a job well done and the fine friendships made in the doing, we wish him the best of luck.

NEWS BRIEFS

We welcome to the Ethyl family, Helen Romer who, on June 29th, joined Elmer Chellborg's Purchasing Department in the Graybar Building. She is a graduate of the Lincoln High School in Jersey City, N. J., and attended New York University with the intention of becoming a teacher. However, she exercised her feminine birthright and decided on a business career instead for which she has no regrets. She has but one hobby and that is her son.



Willard J. (Bill) Heggen, who has been writing articles for farm publications in connection with our high-compression tractor program for the past nine months, joined the Ethyl organization on July first. He will continue the same work and also write and stimulate writing of similar articles in the truck and bus fleet fields. Prior to working with us, Bill was Executive Editor of United Press Association for three years and before that, Associate Editor of the Press Radio Bureau. He is a Harvard man (A.B. 1928) but also took post graduate work at Columbia in playwriting. Although a native of Cambridge, Iowa, Bill and Mrs. Heggen both prefer New York apartment life to the suburbs and live on Tenth Street, Manhattan.

The following notice reaches us from Detroit:

AND SO THEY WERE MARRIED. . . George William Thomson (Detroit Research) and Thelma Merilla McKelvy were married Saturday, June 24th, 1939, at three o'clock in the afternoon. The ceremony took place in Stanton Park Baptist Church, Detroit. Miss Essie Cope and Joseph J. Biernat, friends of the bride and groom, were the attendants.

Mr. and Mrs. George William Thomson will be at home after August 1st, following their trip to the Muskoka Lake Region.

And now the Manager of all Clinic Managers has a new assistant. Jack and Mrs. Martin are the very proud parents of a son, born July 5th at the South Nassau Communities Hospital, Rockville Centre, L. I. Junior weighed in at 7 lbs. 3 ozs. and we are delighted to report that both Mother and son are doing splendidly. Jack, who lost no time at all in passing around birthday cigars and delicious candy, seems to be getting his strength back gradually and we hope he'll be able to take a little nourishment before long.

On the afternoon of June 23rd, Betty Rose, daughter of Mr. and Mrs. Charles Bedell Rose, was married to Benjamin Patterson VanInwegen, at All Saints Church, Great Neck, L. I. Immediately after the ceremony a reception was held at the home of the bride's sister, Mrs. George Russell of Manhasset, L. I. After a wedding trip to Bermuda, the young bride and groom plan to settle down in an apartment in Tudor City. Effie Dow Courtney (Julian Gonzalez's secretary), was one of Betty's bridesmaids. Mrs. VanInwegen is the third June bride from the New York office and incidentally is the second one of John Schaeffer's secretaries to get married within a year. Wyn Porter Sanders, Betty's predecessor, deserted the ranks last September. Betty, however, plans to "stick with the gang" and keep her job with Ethyl.

Henry G. Rudolph, Jr., who joined Ethyl's Boston Division May 31st, 1939, attended Jamaica High School, Jamaica, New York, from where he entered Stevens Institute of Technology at Hoboken, N. J., and graduated in June, 1938. At Stevens he engaged in athletics and received a letter for soccer. He is a member of the Chi Psi Fraternity. Before coming with the Ethyl Gasoline Corporation he was employed by the Anchor Cap and Closure Corporation of Long Island City.

Rudy's hobbies include golf, tennis, swimming and other outdoor sports.

Frank A. McCoy, who joined the Ethyl Gasoline Corporation in June, received his bachelor of science degree in chemical engineering from Montana State College, Bozeman, Montana, in 1937, and his master's degree from the University of Michigan this year.

Frank was employed as a production apprentice for the General Chemical Company for a short time before attending the University of Michigan. He is interested in all sports but prefers football, likes to fish and hunt, though his special hobby is doing inlay work with different colored wood.

Announcement is made by three-year old Teddy Oliver, son of Mr. and Mrs. Bert Oliver of Toronto, of the arrival of his sister, Jean Eldeen. She made her official debut on April 2nd, weighing 7 lbs. 14 ozs.

Our very hearty congratulations to the entire Oliver family.

MANUFACTURING DEPARTMENT REPORTS PRODUCTION INCREASE—NEW RECORD ESTABLISHED

At the approach of the busiest time of year for shipments at Deepwater the following report is announced with much pride: On May 10th—within an interval of a few hours—the E. J. Darraghs and Stanley Eskridges were presented with additions to their families. Carol Anne is the second daughter born to the Darraghs whereas Master Richard Stanley is the first child to arrive in the Eskridge household.

We extend our rather belated congratulations to both families and our deepest respect to the Manufacturing Department for such an admirable twin-production job.

Katherine Kerns, a native of Houston, Texas, joined the Stenographic Department on July 3rd. She is a graduate of the East Orange High School, Katharine Gibbs Secretarial School and took courses at New York University for three years, specializing in Journalism.

Katharine's previous business experience includes six months with the Women's Metropolitan Golf Association, a year with the Royal Bank of Canada and 2 years with the Nautical Gazette.

It is with regret that we announce the resignation of Mary Louise Furst who has been our able Receptionist on the 36th Floor of the New York office for the past two and a half years. Mary-Louise's main reason for leaving is so that she can spend more time with her family which consists of a husband and two children.

On June 5th, 1939, George Mattson joined the Detroit branch of the Ethyl Gasoline Corporation as Junior Engineer. He is a native of Hancock, Michigan, and a graduate of Hancock High School. Michigan College of Mines & Technology awarded him a B.S. degree in Chemical Engineering in 1938. On a teaching fellowship George worked as a laboratory instructor at his Alma Mater while doing work toward a master's degree during the past year.

Skating and swimming are George's favorite outdoor sports and photography his pet hobby.



ETHYL NEWS

[24]

ETC 22464

May we take this opportunity to wish happiness and success to Mr. and Mrs. Walter A. Cosgrove who were married on June 17th at St. Joan of Arc Church, Jackson Heights, Long Island. The bride is the former Miss Winifred Greenwood of Jackson Heights and the groom is a member of our Payroll Section in the Administration Department. After a honeymoon in Maine they can be found at home in Kew Gardens, L. I.

Certainly the New York office is doing its level best to break all previous records for June weddings. It's all right by us, B's and G's we're all for you and wish you all the luck you so rightfully deserve.

• • •

How about some vacation snapshots for the "News"? We'll print them if they're really good.

George S. Robinson, a native of Wilkes-Barre, Pa., who recently joined the staff of Ethyl's Dayton Division Clinic, is a product of Pennsylvania State College, engineering school. As far back as 1920



George was connected with the Olds Motor Works in Lansing and later with both Swan-Finch Oil Corporation and the Gulf Refining Co. In 1935 he was appointed plant superintendent for the Luce Manufacturing Co. of Lansing, which position he held until 1938 when he became service manager for W. H. Paul Co., Studebaker agents, also of Lansing.

George's hobbies are hunting, fishing and boating.

We welcome to the Ethyl ranks, Virginia McGuire, a native of Yonkers, N. Y. She is a graduate of the Halstead School in Yonkers and Wells College, Aurora, N. Y., Class 1931. For several years after graduation Virginia donated her services to the Family Welfare Society of Yonkers, a worthy charitable institution. For the past four and a half years she has been with the American Paper and Pulp Association from which company she resigned to join up with Ethyl.

Virginia is in charge of the Stenographic Department as successor to Irene Oldendorf who deserted the ranks for Time magazine. We wish you luck, Irene, and hope you'll stop in and see us some time. After all you're really the Godmother of the Stenographic Department and you certainly did a swell job.

Ethyl Motor Clinic Itinerary

<i>Clinic Number</i>	<i>Division</i>	<i>Present Location</i>	<i>Remains Approx.</i>	<i>Next Location</i>	<i>Opens Approx.</i>
1 E. L. Cline, <i>Manager</i>	Pacific Coast	Los Angeles 977 W. 6th Street	Permanently		
2 L. A. Dollahan, <i>Manager</i>	Chicago	Vacation		Green Bay, Wis. 149 N. Broadway	8/15
3 W. A. Newman, <i>Manager</i>	Dayton	Clarksburg, W. Va. 100 Wood Street	8/20	Undetermined	
4 M. P. Murdock, <i>Manager</i>	New York	Vacation		Syracuse, N. Y.	8/21
5 H. E. Cottrell, <i>Manager</i>	Tulsa	Beaumont, Texas Ney Auto Supply Co. Bldg. Calder & Willow Streets	8/5	Vacation	
6 E. L. Mason, <i>Manager</i>	Baltimore	Asheville, N. C. 167 Coxe Street	8/20	Vacation	
7 M. Littlefield, <i>Manager</i>	New York	Vacation		Atlantic City, N. J.	8/14
8 R. J. Coveney, <i>Manager</i>	Boston	Springfield, Mass. 1107 Columbus Avenue	8/21	Vacation	
9 C. Fred Naylor, <i>Manager</i>	Chicago	Vacation		Lansing, Mich. 2102 S. Washington	8/15
10 Carl M. Berry, <i>Manager</i>	Kansas City	Denver, Colorado 11th & Cherokee Streets	9/24	Undetermined	
11 S. T. Pruitt, Jr., <i>Manager</i>	Atlanta	Vacation & Experimental Work		Atlanta, Ga.	9/1

JULY-AUGUST 1939

[25]

ETC 22465



TOP SPEED

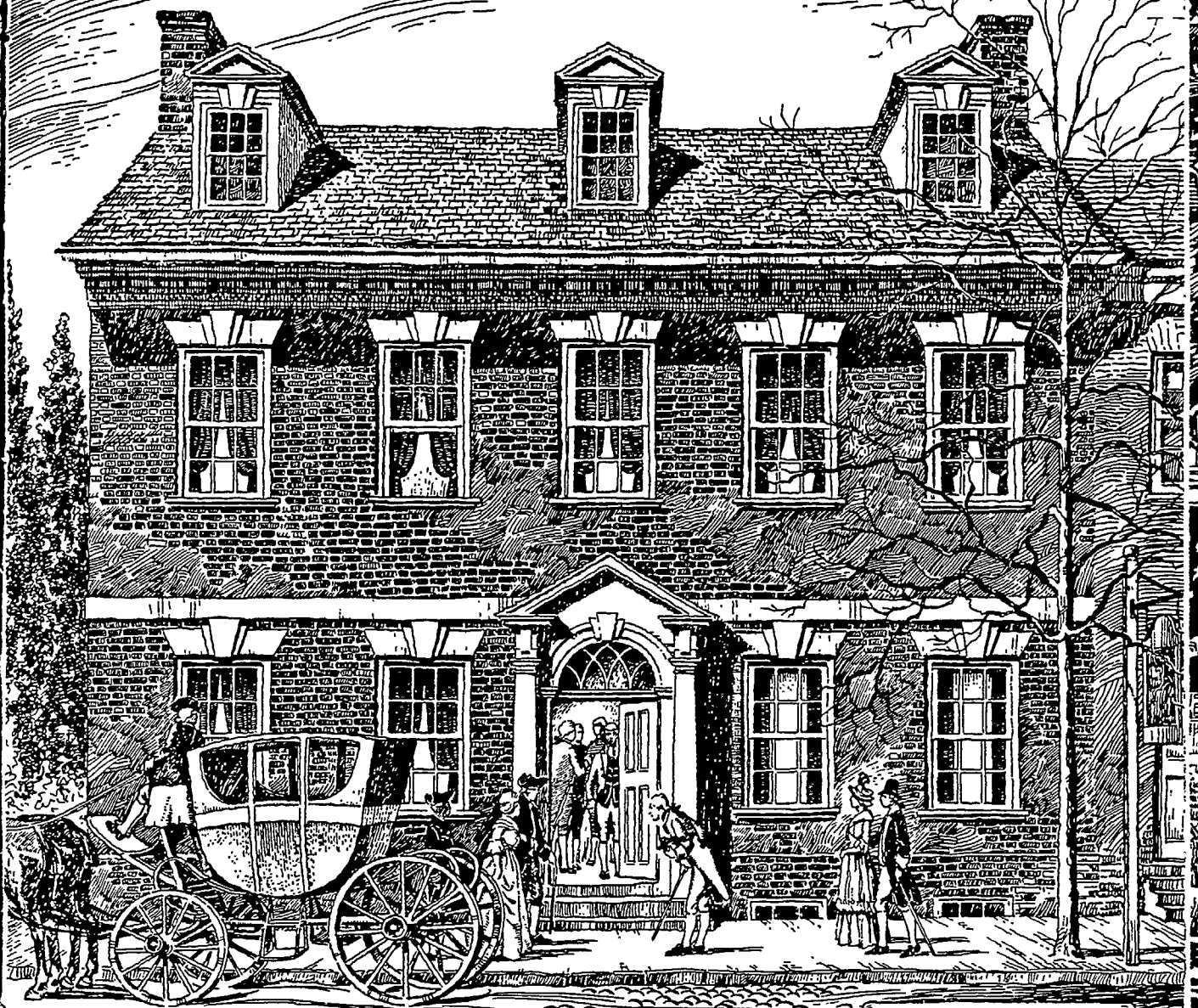


► The Swift is aptly named. For it is speed... speed enough to catch his insect food on the wing... that provides him with his very living. And it is speed, too, that has given life to aviation. Through its ability to carry passengers and freight faster than any other means of transportation, the airplane has become the commercial factor it is today.

And it is through even further increases in flying speed that aviation will continue to grow. Already planes have approached the 500-mile-an-hour mark... an indication

of what is in store as better fuels and engines are developed. For if we are to have more *speed*, we must have more *power*.

That's why Ethyl engineers are daily aiding aviation engineers in a planned program of research... a search for more efficient fuels and engines to keep pace with the ever present urge to fly faster. They have resolved that when the day of the six-, seven- or even eight-hundred-mile-an-hour commercial airplane arrives, there will be fuels and engines to power it.



Gadsby's Tavern
Alexandria, Va.



SEPTEMBER 1939

ETC 22467



ETC 22468

Navies Without Oceans



Ethyl Gasoline Corporation
CHRYSLER BUILDING
NEW YORK CITY

W. CARY HARRIS
Editor

RUSSELL B. WESTON
NORTHROP CLAREY, Jr.
Associate Editors

Correspondents

J. A. COSTELLO	Atlanta
F. S. CRONIN	Baltimore
B. R. JONES	Boston
A. B. WYRICK	Chicago
H. F. DEDO	Dayton
D. S. FLYNN	Kansas City
CARL ABELL	Los Angeles
R. L. GOLTZ	New York
J. N. FITZGERALD	Toronto
H. KUHE	Tulsa
R. K. SCALES	Engineering Dept.
L. BARNUM	Mfg. Baton Rouge
C. WASSERMAN	Mfg. Deepwater
J. C. POPE	Gasoline Testing Dept.
E. J. NIESER	Administration Dept.
HUBERT FOSSETT	London

THE MATERIAL IN THIS PUBLICATION
MAY BE REPRINTED PROVIDED DUE
CREDIT IS GIVEN THE "ETHYL NEWS"
OR ETHYL GASOLINE CORPORATION
UNLESS IT IS A COPYRIGHTED ARTICLE

Volume 6, Number 9

SINCE the dawn of fighting history, highways for the transport of men, munitions and supplies have been the first essential of defense. Modern motorized armies without adequate roads are like navies without oceans.

Recently a streamlined motorized division of the U. S. Army assembled for maneuvers at San Antonio, Texas, moved 300 miles in one day. Twelve miles was once considered a good day's march.

The record, which tripled those made in the World War, was made possible by a network of 12 paved roads which enabled army trucks to make extra trips. Even the assembly of this crack division, could not have been accomplished without radiating roads, since the units came from points 500 to 1,000 miles away. Yet another very important factor which makes such mobility possible is that the Army has "discovered" Ethyl Gasoline. They have recognized it to be the logical fuel to satisfy their requirements for power, speed and performance.

Single trunk highways across the length and breadth of the country are not liked by military defense experts. They point out that when such routes are used for military transport, a division on the march becomes a 50-mile column presenting an inviting target for enemy bombers. Also such conspicuously marked roads are targets which quickly can be bombed beyond all hope of immediate repair.

Efficient military practice requires the breaking up and moving of a column on two or more parallel roads whenever possible. When the campaign is being waged on a continuous front, with men and supplies moving constantly forward, intersect-roads are essential as tributary feeders of additional supplies and reserves.

Radiating roads are seen not only as a convenience but as a prime necessity for modern defense. The construction of such roads, is in a large measure already achieved and as a result of expenditure in the past, the country has a network of 3,000,000 miles of state and local highways.

Progressive highway planners believe these roads can be improved and realigned where necessary as traffic surveys indicate, into direct inter-regional highways which will accommodate growing peace-time traffic and at the same time meet the needs of national defense at less cost than transcontinental superhighways financed by tolls.

In This Issue

Navies Without Oceans	Old and New in Transportation Parade
Through the Khyber Pass with Ethyl	Philadelphia Post Office Pioneers New
Putting Performance on Paper	Air Mail Service
Ethyl Motor Clinic Itinerary	New Type Truck Shows Efficiency
How Cowboy Music wins Attention	Ethyl's Superiority on Texas Highway
for Ethyl Story	Job
Just Supposing!	Ethyl goes to South Pole on Strange
First Electric Transit Line Keeps Pace	Vehicle
with the Times	Has Served Ethyl 15 Years
Tankers of the Air	A Long Name
"Tune-Up Time"—1940 Model!	Newsbriefs
The Panda Lady and Su Lin	Service Awards

← Su Lin and her Chinese "amah"
(See Story on page 12)

ETC 22469



Through the Khyber Pass with Ethyl

THE most luxurious "land yacht" ever built is scheduled soon to carry the noted explorer, Lawrence C. Thaw, and his wife through the famous Khyber Pass into India. Their Pullman-of-the-road, a custom trailer mounted behind a GMC cab-over-engine truck, is 39½ feet long and filled with appointments rich as those of a Park Avenue home.

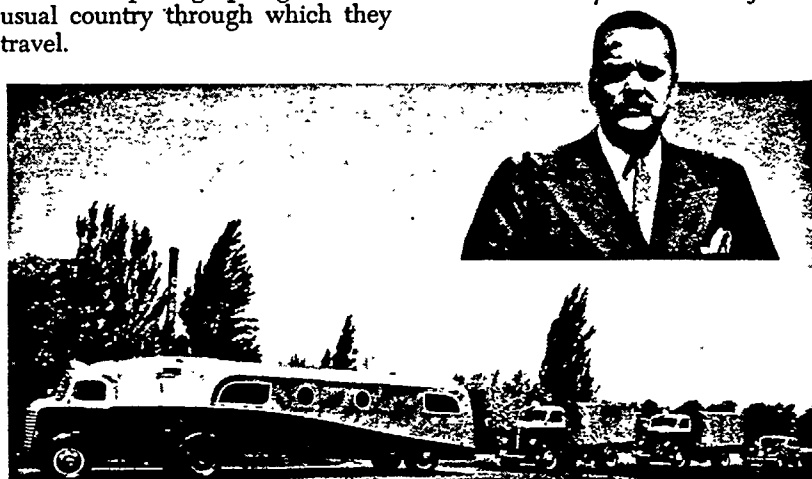
To keep their engine running smoothly while pulling this load over primitive roads, up all sorts of grades, in climates ranging from Siberian cold to the baking heat of India's plains, Ethyl will be used exclusively. Special supplies of Ethyl Gasoline will be made available during the trip.

The Thaw motor caravan includes, besides the luxurious trailer unit, two Chevrolet supply trucks and a Buick passenger car in which

the explorer and his wife will travel during the day. Accompanied by a moving picture cameraman, a driver-mechanic, and a retinue of six Indian servants, Mr. and Mrs. Thaw will traverse deserts, mountains and jungles, visiting Indian princes en route and photographing the unusual country through which they travel.

Thaw is a veteran trail-blazer in little-known parts of the earth. He has spent two years in preparation for this trip. The entire expedition

Lawrence C. Thaw, world traveler, has spent 2 years in painstaking preparation for a motor caravan trip through a world seldom open to ordinary men.



Ethyl-powered caravan of the Thaw expedition.

ETHYL NEWS

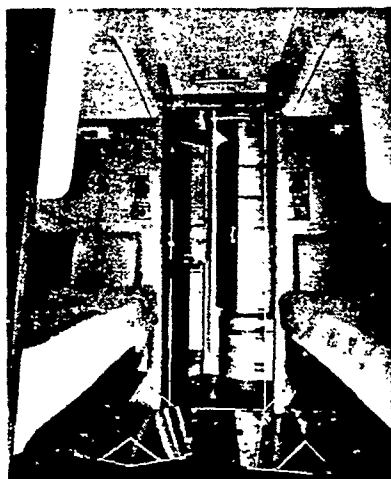
[2]

ETC 22470

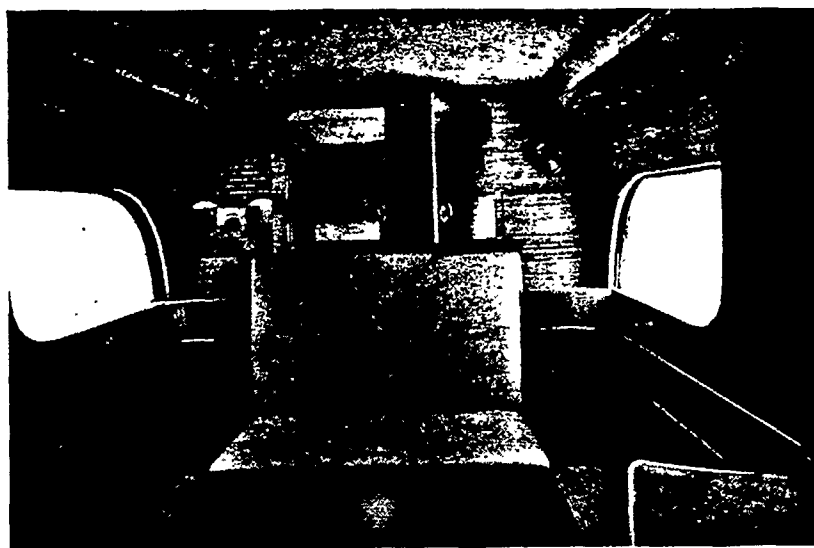
left New York on the S.S. *President Roosevelt* on June 21, stopping first at Cherbourg. From there they will travel to Paris to establish headquarters, then move on to Asia. Interesting points along the route include Budapest, Istanbul, Damascus, Baghdad, Mazar-I-Sherif, Delhi, Calcutta, Mysore and Bombay.

The main unit of the caravan, specially designed and fitted out by General Motors, is sumptuous in a way to delight any Indian prince who may be entertained along the way. There is the salon, for instance, finished in Prima Vera wood and upholstered in royal blue mohair with pigskin welt. An ornate dining table folds out from the front. This is equipped with a "glow bar," which imparts a beautiful neon tube glow to all glassware on the table.

A sofa in front of the salon makes up into two beds, for the driver of the vehicle and the cameraman, while concealed wardrobes provide for their apparel. There is a bedroom besides this — tastefully planned with an eye to producing the greatest comfort in a limited space. On each side is a bed, each fitted with special tables that tilt for reading at night. Both beds are equipped with electric fans, reading lamps, and automatic cigarette lighters. A library is within easy reach. Conditioned air reaches the sleepers through tiny holes in the cork ceiling.



Master bedroom for two, in which Mr. and Mrs. Thaw will rest in air-conditioned comfort on their 1939 *Odyssey*.



The bath is a masterpiece. The tub (with shower) is of stainless steel. A water-pressure toilet and lavatory are faced with a sliding chromium door, which serves as a full-length mirror.

Such accommodations as writing-desks, rugs for occasions of state, containers which emit lighted cigarettes, specially monogrammed towels, and other homey touches to soften the rigors of primitive jungle life, are included in the de luxe equipment. Two large screened windows run along either side, with large porthole-type windows in the two doors. These are of polaroid glass, so constructed that they may be turned gradually to shut out the glare.

In the salon is a telephone that connects with the driver's cab. There is a two-way radio set for sending and receiving messages — not by code, but in ordinary conversation. In the galley is a large-sized electric icebox topped with a stainless steel working table. There is running water, a stainless steel sink with drainboard, a hot water heater, and electrical outlets.

The aluminum exterior of the trailer is sweepingly finished in silver and light and dark blue, with gracefully flowing lines. In addition to the regular doors, screens are provided on all entrances as well as on all windows that open. As each door is opened, an electrically-lighted step automatically appears.

The salon trailer of the caravan, streamlined outside, is finished inside with Prima Vera wood, mohair and pigskin upholstery, gleaming chrome trim and all the other luxuries of a modern "land yacht."

On one side a canopy, 10 x 20 feet in size, may be easily and quickly erected to provide a fitting marquee for entertaining guests.

The vehicle carries its own lighting system powered by three completely automatic Delco light plants. It has the latest Frigidaire air conditioner, and there is aluminum air-cell insulation throughout the trailer. A four-cylinder gasoline engine runs the air compressor for the conditioning unit.

Atop the front of the cab is a powerful searchlight, and movable spotlights are provided on either side. Lug grip tires equip the tractor and trailer units for better traction on some of the bad roads which the expedition expects to encounter. A telescoping bar arrangement at the rear of the trailer makes possible the turning of the rear wheels from the outside in case the trailer must be moved in or out of tight places.

Numerous facilities, including a catwalk atop the trailer, electric outlets, special clamps for cameras, and a rear-seat sunshine roof in the passenger car, will aid in the taking of motion pictures. John W. Boyle, noted cinematographer from California, will do all the picture work.

(Reprint by permission "Orange Disc")

No-Nox Ethyl and the present types of automotive engines have developed together. The high compression ratios which are common to all late model American-made cars are direct results of the availability of high octane fuels. On the other hand, the continually rising antiknock, or octane rating of gasolines is due to the increasing compression ratios of motors which are now able to use extremely powerful

To help educate motorists to the pleasure and economy that are rightfully theirs through the use of No-Nox gasoline and to put their cars in shape to take advantage of the

As the tests progress, the Performance Data sheet is filled in by

FUEL METER

TRACTIVE EFFORT

BALANCE

BRAKE FORCE

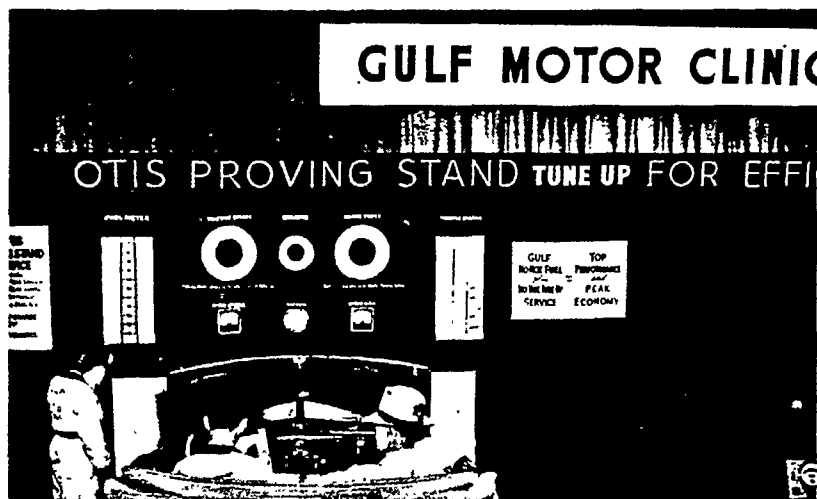
THROTTLE OPERING

SPEED BRAKE

SPEED KEEP

FORCE IN POUNDS THAT STOPS YOUR CAR

ETC 22472



the diagnosing engineer. This gives the car owner a clear and adequate picture—a sort of case study of his car. Such factors as compression, ignition, pulling power, acceleration, and braking are measured accurately and put in an understandable form.

Big illuminated dials on the giant panel board facing the car being tested enable the motorist to 'sit in' during the diagnosis, while the car operates under road conditions yet without moving!—at full throttle, cruising speed, down hill against compression, five to fifty miles an hour.

Every driving condition is duplicated and the information obtained is jotted down on the owner's report. He *sees* his motor's comparative gasoline consumption at various speeds. He *sees* whether or not his speedometer is accurate. And when the tests are over, the motor is tuned by experts, as dictated by the data recorded. Carburetor, timing, spark

The motorist is able to "sit in" during the careful diagnosis of this car.

plugs, distributor—all are adjusted to give *peak* performance.

It is at this point that many a motorist becomes amazed as he watches the big dials of the Proving Stand—sees the increased performance coming from his own car, performance he didn't believe was possible or which he thought would require major repairs to bring about!

Also at this time, an engineer takes readings which indicate the direction of any uneven pull on the wheels. This condition may result from faulty brakes, bearing defects, or other causes. Brake force in pounds on the front and rear wheels is shown on still another dial. Tires are checked for traction, skidding, and balance on the dynamometer drums, while supplementary equipment checks lights, air filters and ignition parts.

Today, Gulf Motor Clinics are

more active than ever before. Not only has their popularity spread with motorists who like to have their cars' pep restored from time to time, but many new car buyers have found that Gulf engineers, who know more than any car manufacturer about gasoline, can take a brand new car *right out of the show room* and, through the use of No-Nox gasoline, with proper motor adjustments, increase gasoline mileage, lower operating temperatures, and stave off carbon cleaning and motor repairs for a longer period of time.

More motorists each year are realizing the advantages of high octane fuel. That many of them prefer Gulf No-Nox gasoline is well indicated by the increasing millions of gallons sold and by the lengthening rolls of Motor Clinic customers who have their cars tuned expressly for best results with No-Nox. Although Gulf operates other types of Motor Clinics in addition to the one described here, all have the same objective and the entire group is now tuning a total of about five hundred cars each month.

Regular Clinic tune-ups at six month or five thousand mile intervals serve the same purpose to the motor that periodic check-ups by doctor or dentist do to the human body. These *tune-ups are preventive maintenance*. They increase motor life and economy, go a long way toward keeping down the per-mile cost of driving.

Because Gulf is not interested in tuning motors as a way to make a

Spacious interior of Gulf Motor Clinic located at 110th Street and Central Park West in New York City.



SEPTEMBER 1939

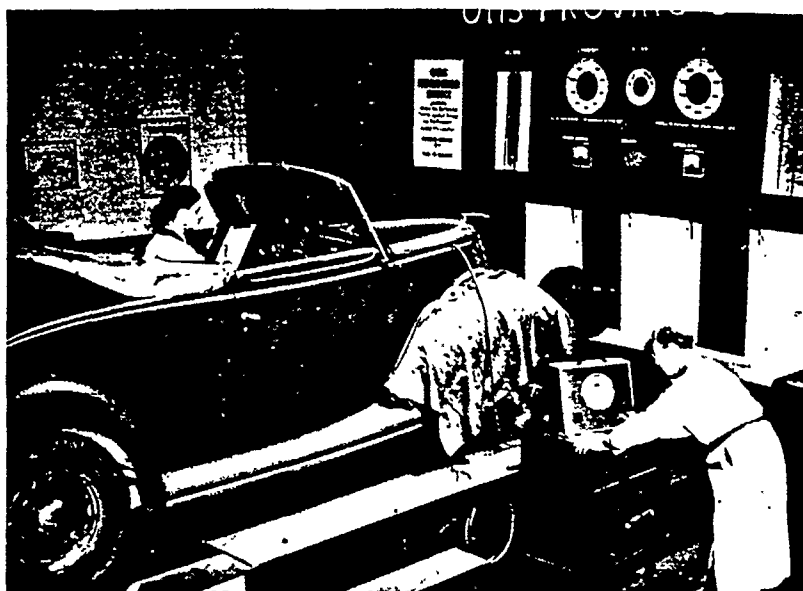
[5]

ETC 22473

With their complete knowledge of motor fuels Clinic engineers are able to increase the performance and improve gasoline mileage even on factory tuned cars.

profit, the sole purpose of Motor Clinic service is to aid motorists to take complete advantage of the extra value in No-Nox, to help them obtain and appreciate its exceptional characteristics.

Since high compression motors are very critical to tune-up adjustments, the natural wear caused by corrosion, pitting, vibration and the collection of foreign matter makes it impossible to maintain peak performance and economy for more than 5,000 miles. Performance is reduced at least 10% in this length of time. Unless the motor is properly tuned, serious mechanical difficulties may develop. That is why car manufacturers definitely recommend inspection and tune-up at 5,000 mile intervals.



No one is better qualified to do this work than the tune-up engineer in Gulf's own Motor Clinics. For each man has a thorough understanding of fuel qualities, together

with a thorough knowledge of ignition and carburetion, which qualifies him to do a precise and workmanlike job on every car brought in for Motor Clinic service.

Ethyl Motor Clinic Itinerary

<i>Clinic Number</i>	<i>Division</i>	<i>Present Location</i>	<i>Remains Approx.</i>	<i>Next Location</i>	<i>Opens Approx.</i>
1 E. L. Cline, <i>Manager</i>	Los Angeles	Los Angeles 977 W. 6th Street	Permanently		
2 L. A. Dollahan, <i>Manager</i>	Chicago	Green Bay, Wisconsin 149 N. Broadway	9/17	La Crosse, Wis.	
3 W. A. Newman, <i>Manager</i>	Dayton	Wheeling, W. Va.	10/6	Undetermined	
4 M. P. Murdock, <i>Manager</i>	New York	Syracuse, N. Y. 212 Burnet Avenue	10/15	Rochester, N. Y.	10/20
5 H. E. Cottrell, <i>Manager</i>	Tulsa	Austin, Texas 106 E. 1st Street	10/6	San Antonio, Texas	
6 E. L. Mason, <i>Manager</i>	Baltimore	Greenville, S. C. 414 S. Main Street	10/6	Undetermined	
7 M. Littlefield, <i>Manager</i>	New York	Atlantic City, N. J. Convention Hall Garage	9/10	Jamaica, L. I.	9/15
8 R. J. Coveney, <i>Manager</i>	Boston	East Hartford, Conn. 613 Connecticut Boulevard	10/6	Undetermined	
9 C. F. Naylor, <i>Manager</i>	Chicago	Lansing, Mich. 2102 S. Washington Avenue	9/18	Jackson, Mich.	
10 C. M. Berry, <i>Manager</i>	Kansas City	Denver, Colorado 11th & Cherokee Streets	9/24	Undetermined	
11 S. T. Pruitt, Jr., <i>Manager</i>	Atlanta	Atlanta, Ga. Lullwater Bldg. 441 W. Peachtree Blvd., N.W.	10/10	Undetermined	

ETHYL NEWS

[6]

ETC 22474



How Cowboy Music Wins Attention for Ethyl Story

WITH the assistance of colorful cowboys in sombreros and high heels, the strumming of guitars, bowing of fiddles and with a variety of singing and dancing, the Quaker Petroleum Company of Omaha, working closely with Ethyl's Kansas City Division, has developed an effective way of bringing the High Compression Tractor story to their farm and small town customers for the purpose of stepping up their sales volume.

A free show, open to all who care to attend, does the trick. Advertised over Quaker's daily radio program on Station WOW, Omaha, the performances are held in small town high school auditoriums or public halls. Other publicity to build attendance is in the form of handbills distributed by local Quaker dealers. Occasionally some newspaper space is used.

Prairie music and entertainment by genial Lyle DeMoss, WOW artist Lucille Lynam and the Rangers put the audience in a receptive mood for the gasoline story, presented by a representative from the Kansas City Division of the Ethyl Gasoline Corporation. At various intervals throughout the performance, door

prizes consisting of generous quantities of the two Quaker products, Paraland Motor Oil and Pennfield Motor Oil are raffied off to the audience.

Attendance at these shows has amounted to more than a thousand persons at a single performance. The

Just Supposing!

AT a time when mass production is under fire and the machine is being blamed for our woes, with some politicians actually proposing taxation for machinery to be applied to relief or those "displaced," it is interesting to look anew at the automobile industry, major exponent of mass production methods.

According to the Automobile Manufacturers association, ten times as many persons are provided a livelihood by the activities generated by the automobile as find employment in the motor plants themselves. The A. M. A. estimate is that 6,380,000 persons live by the manufacture, service, distribution and other activities which automobiles set into motion.

Remove the machine-produced automobile, put it back on a custom-built or hand-made basis, and the

troupe often plays to packed houses at both afternoon and evening shows.

In every instance local dealers for Quaker, who are introduced to the audience at the beginning of the performance, report an increase in volume and good will directly traceable to the program which frequently has its effect for several weeks.

Cooperation from dealers has been 100 per cent, according to Marshall McArthur, president of the Quaker Petroleum Company. The stunt has evoked high enthusiasm among them as well as the Quaker salesmen, and customers are given an opportunity to actually see and hear the facts of the Ethyl Story at the demonstration, which is a part of Ethyl Gasoline Corporation's presentation.

Lyle DeMoss, radio station WOW, Omaha, who conducts the performance as Master of Ceremonies, is shown here with the entire group of entertainers.

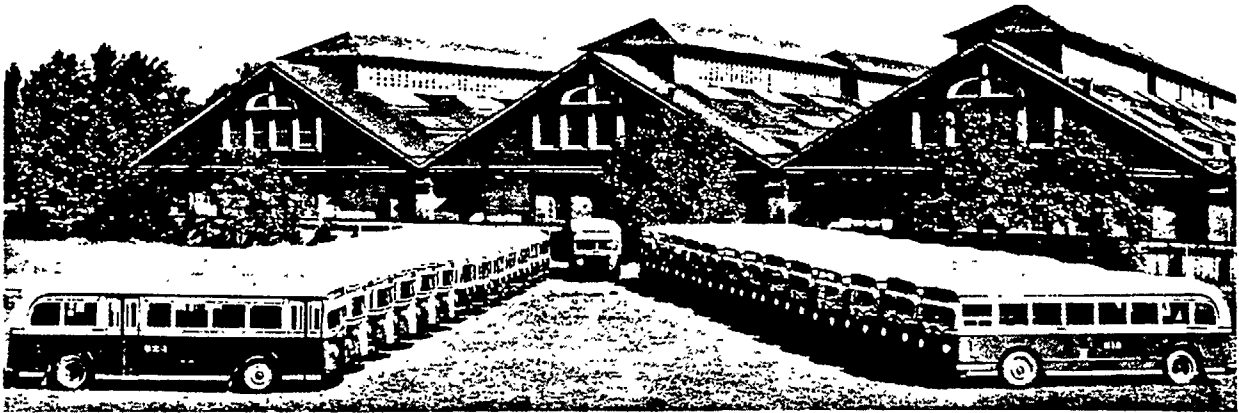
Quaker augments the information given by the Ethyl representative through a booklet giving pertinent information on the care and operation of tractor motors. The booklet is entitled, "17 Money Saving Tractor Tips."

reason for the great mass of service, road construction, petroleum output and other vast sources of jobs disappears. Nor is that all. The A.M.A. did not attempt to compute the effect on vacation employment, highway restaurants and the like, only a small fraction of which would be served by other transport if the automobile were returned to luxury class.

A silly hypothesis, to be sure. We have no intention of giving up automobiles by making them too costly to have democratic use. But for automobile substitute any other industry dependent to a large degree on mass methods of production. Examine the train of employment generated by any of these. Technology is the generating station for employment and new employment.

—Rockford (Ill.) Star

First Electric Transit Line Keeps Pace with the Times



THE evolution of city transportation in historic Baltimore has been similar to that of many other American cities—first the horse car, then cable operation and finally electrification. However, Baltimore claims the distinction of being the scene of the first commercial electrically operated line in the United States. There the Daft Motor Car, which ran by means of a third rail system was the pioneer transit car in that field. Eventually this was superseded by the overhead trolley.

At the close of the last century all of the small lines in the city were merged into one system which operated as The United Railways and Electric Company of Baltimore until 1933 when it went into receivership. The present organization known as The Baltimore Transit Co. came into being some two years later.

Up to 1935 the ratio of buses to street cars did not increase very rapidly but since then this ratio has been stepped up until today 15% of the vehicles are of this type. Slightly over 13% of the revenue passengers are carried on buses and approximately 19% of the revenue miles are produced by this mode of transportation. The company includes in its equipment all of the latest type coaches—gas-mechanical, gas-electric, diesel-electric and diesel-hydraulic and an articulated bus seating 56 passengers which is the only one of its kind in the country in regular operation.

During the year 1938 there were carried 109,704,660 revenue rail and

trackless-trolley passengers and 16,697,257 revenue bus passengers. The vehicles operated 25,848,174 revenue rail and trackless-trolley miles and 5,819,880 bus miles. This was done over 316 miles of single track, 83 miles of one-way bus routes and 12 of one-way trackless trolley routes, using 1,006 street cars, 47 trackless trolleys and 192 buses.

Although the company is decidedly bus minded and keenly interested in maintenance problems, up to March 1938 only a very small percentage of their gasoline requirements was lead treated. At that time, however, after extensive investigation as to the best type of fuel for their operations they changed to leaded regular gasoline. The company reports that the fuel chosen has produced excellent results through a material reduction in fuel costs. This is due principally to the fact that a higher priced non-leaded blended product was replaced with leaded regular. One very interesting result has been a materially increased spark plug life. For the operation of its automotive fleet, Baltimore Transit in 1938, used 1,620,000 gallons of gasoline and 165,000 gallons of fuel oil.

Ethyl's Baltimore Division has worked very closely with the Maintenance Department of the Transit Company and during the fall and winter of 1938-1939 conducted a Fleet Maintenance School for them under the supervision of the Division's Fleet Engineer, Mr. J. R. St. Germain. The School was held one

A part of the Baltimore Transit fleet which helps carry more than 16 million passengers annually.

night each week and ran for 28 consecutive weeks. The sessions were conducted in the Engineers Club of Baltimore and the average attendance was 45. Subjects covered were carburetion, ignition, exhaust gas analysis and automotive engineering fundamentals. Other special subjects were taken up also at meetings conducted by guest instructors—specialists in their particular lines.

At the conclusion of the School a dinner was given by The Baltimore Transit Company to honor Mr. St. Germain and as a token of appreciation for his work and the gratifying results obtained. It was attended by all of the mechanics who made up the school as well as a large number of guests. Mr. St. Germain was presented with a chronograph wristwatch—the presentation being made by Mr. Bancroft Hill, President of The Baltimore Transit Company, who spoke of the great amount of good resulting from the Fleet School. Remarks were also made by Mr. J. L. Swope, Vice President and Treasurer, Mr. R. S. Tompkins, Director of Service and Information, followed by short talks by Mr. R. R. Seward, Manager of Sterrett Operating Service, Mr. H. C. Dees and Mr. F. S. Cronin, Manager and Assistant Manager of Ethyl's Baltimore Division. Mr. A. Earl Courts, Assistant to the President of The Baltimore Transit Company, acted

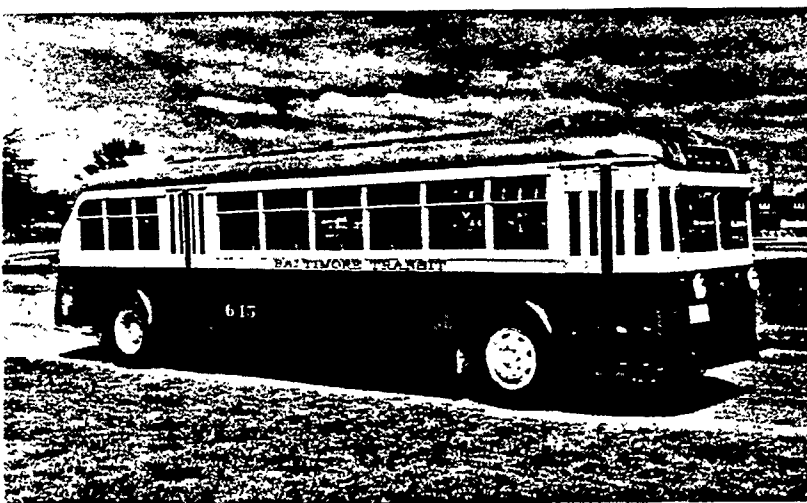
ETHYL NEWS

[8]

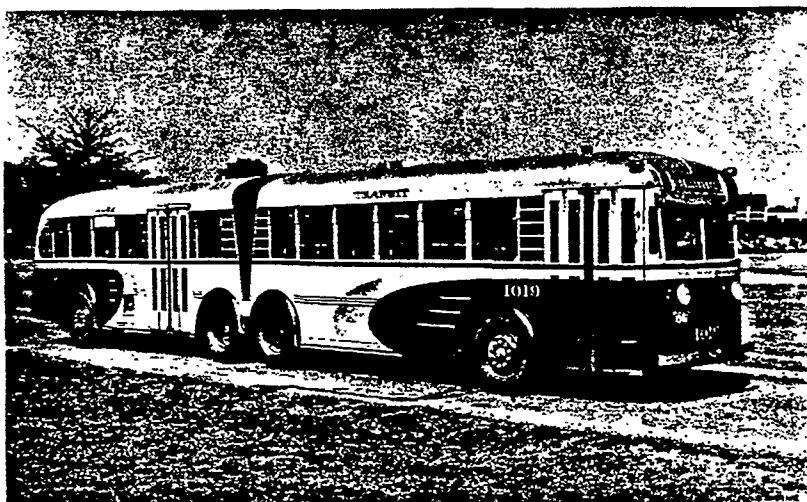
ETC 22476



36 passenger parlor coach.



Gas-Electric Bus which will accommodate 41 passengers.



This 56 passenger Articulated Bus is only one in regular operation in the U. S.

as Master of Ceremonies introducing the speakers and entertainers. Entertainment at the dinner was provided by the personnel of The Transit Company, most of whom attended the Fleet School. In addition to this, interesting motion pictures were shown, through the courtesy of the Standard Oil Company of New Jersey, depicting the manufacture of modern gasoline.

The guests present at the dinner were: Messrs. J. H. Hickman and Ed. Grable, General Motors Truck and Coach; O. K. LeBron, A. G. Raynor and R. R. Seward, Sterrett Operating Service; W. R. Tighe and Jas. L. Rianhard, Standard Oil Company; J. H. Lohrfink, General Electric Company; A. Frank Paul, National Pneumatic Company; A. O. Ridgely, Electric Storage Battery Co.; H. C. Dees and F. S. Cronin, Ethyl Gasoline Corporation.

Tankers of the Air

BIGGER payloads with greater safety are assured trans-Atlantic mail planes with the development of the flying tanker for refueling in mid-air at the rate of 1,000 gallons in 10 minutes.

Aerial refueling will add 7,000 pounds to the payload, it is estimated, by enabling planes to take off with a reasonable fuel load which can be increased in the air. A plane taking off at a weight of 46,000 lbs. can, by means of this system, have its weight increased to 53,000 lb. before it starts its ocean

Flying tankers, as scheduled for use, are converted bombers, twin-engined monoplanes. The tanker maneuvers into position above the mail plane and a rubber pipe line is connected to the tank which is to be filled in the mail plane. With this system, a flying tanker can, if necessary, supply trans-Atlantic aircraft with all the fuel needed for the crossing, except for an hour's supply which is aboard when the ocean-flying plane takes off. On weekly flights this summer, it is planned that planes will receive 960 gallons of gasoline in transit.

"Tune-Up Time"—1940 Model!

Enthusiastic Premiere Audience
Cheers Maestro Kostelanetz and Tony Martin,
Ethyl's New Singing M.C.

FOUR men, sitting around a table, lighted fresh cigarettes and waited. "The next voice you will hear," declared a loud speaker in the wall, "will be that of Tony Martin."

The four glanced at each other briefly as the music began. For two days they had been carefully "auditioning" candidates for the berth of singing master-of-ceremonies on Ethyl's new "Tune-Up Time"—hearing them first as voices out of a loud speaker, as a typical audience would, to study their "radio personalities." They had already listened to nearly three dozen.

Two of the men at the table were Mr. Webb and Mr. Taylor, president and vice-president of the Ethyl Gasoline Corporation—who were on a business trip to the Coast and had arranged their schedules to sit in on the auditions. The other two—Ethyl's advertising manager, Paul McElroy, and a representative of the advertising agency—had flown from New York to hear the tryouts.

Painstaking arrangements by the New York and Los Angeles representatives of the agency enabled the

auditions to move along smoothly. Between 35 and 40 popular stars had been scheduled at fifteen-minute intervals over a couple of days; even their biographies had been prepared as background information. That of Tony Martin, for instance, read:

Baritone. Age 27. Singing roles in 6 successful pictures. Personal appearance tour following "Winner Take All" made him nationally popular. Theatres crowded with fans. Had been successful leading his own band on West Coast before going with 20th Century-Fox.

When Tony Martin had finished singing, the four men around the table glanced at each other again—and nodded. They discussed Martin with interest; brought him in for a personal interview. There was more discussion later, with much enthusiasm—and "Tune-Up Time" had a new singing master-of-ceremonies. From the very first, the choice had been unanimous.

And it was "unanimous" with more than a thousand cheering listeners on August 21st, in the big Columbia studio, when Tony Martin,



Andre Kostelanetz and his famous 45-piece orchestra, and the Rhythm Singers of Kay Thompson finished the last melodic strains of "The Lamp Is Low," closing the first program of Ethyl's new series.

Back on the Coast, in the audition



Alice Faye and her husband, Tony Martin, join David Laughlin, Lily Pons and Andre Kostelanetz in a glass of champagne to wish the new program good luck.

Kay Thompson and her 12 Rhythm Singers, one of whom is Kay's younger sister, hail from 12 different states. They are shown here during a rehearsal.



ETHYL NEWS

[10]

ETC 22478



room, another voice had been unforgettable—the thrilling tenor of David Laughlin. So thrilling, in fact, that Laughlin, who is just getting started on a promising career, won himself an unexpected, surprise spot in the Ethyl show. His brilliant handling of a “Rigoletto” aria drew prolonged applause that threatened to hold up the show.

It was a large and colorful audi-

David Laughlin, in the moment every young singer dreams of—his first performance with a celebrated orchestra before a nation-wide audience. With a brilliant career ahead of him, Laughlin already has an interesting history to look back upon. He studied to be an engineer, but chose to follow music. He has served as Paris correspondent for American papers, has built his own racing car and driven it to win several prizes. He first sang as a baritone, but later took advantage of an extraordinary vocal range to become a dramatic tenor.

ence, well filling Columbia Broadcasting's largest studio, at Broadway and 53rd Street in New York City. One of the high spots of the evening was Andre Kostelanetz' rendition, with Tony Martin, of “Moon Love”—currently the nation's number one hit tune—which Kostelanetz himself adapted from Tschaikowsky's Fifth Symphony. Among the notables in the audience were Mrs. Kostelanetz,



Ethyl on the air—the 45-piece orchestra of Andre Kostelanetz, the 12 Rhythm Singers of Kay Thompson (lower left corner) and, across the stage, the headliners. David Laughlin (white coat), who has just finished his number, shakes hands with Tony Martin. Kay Thompson (gray dress) and maestro Kostelanetz (on stand) have their backs to the audience.

more widely known as Lily Pons, and Alice Faye, the lovely wife of Tony Martin, who flew from Chicago for the broadcast.

“Tune-Up Time” will be on the air every Monday night from 8 to 8:30 Eastern Daylight time, over WABC and a national hookup of CBS stations. There will be a rebroadcast at midnight, EDST, for listeners west of the Rocky Mountains. Tickets are available for both broadcasts each week, except during the five Mondays in October, when the show is to be broadcast from Hollywood.

With maestro Kostelanetz and his celebrated orchestra, Tony Martin, and Kay Thompson's Rhythm Singers, it promises rich entertainment for the coming season—a thirty-minute parade of all that's best and best-beloved in opera, light classical and popular music. If you can't personally attend “Tune-Up Time,” be sure to listen in—every Monday at 8!

Tony and the Maestro at rehearsal.





The Panda Lady and Su Lin

A. N. Gray of "News" Staff Gets Story from Mrs. Harkness

MRS. WILLIAM HARVEST HARKNESS, JR. accomplished the seemingly impossible when she brought back to this country the first Giant Panda ever captured alive. There are two kinds of Pandas—the Lesser Panda which resembles a raccoon and has often been in captivity, and the Giant Panda which explorers and scientists had been trying to capture alive for the past sixty years.

Mrs. Harkness says that it was destiny that guided the expedition and in her modest way, will take very little credit for its success.

Her husband sailed for China shortly after their marriage—his

heart set on capturing a live Giant Panda—but died in Shanghai a few days after he received permission from Chinese authorities that he might proceed with his plans. The charts, equipment, camping paraphernalia, etc. which he had taken with him were of course inherited by his widow and although she had done no exploring, was keenly interested in it and never had a moment's doubt as to what her next move would be. Incidentally she did not know a word of Chinese.

Her friends thought she was completely mad—did everything in their power to persuade her to give up the idea of continuing her husband's

Su Lin and her devoted foster mother.

unfinished task. Even after her arrival in Shanghai the various people she contacted, refused to believe she seriously meant to go through with her plans without even a woman companion. Her only encouragement came from friends at the offices of the Standard Oil Company. They proved to be invaluable in their courtesy and assistance.

With the untiring help of Quentin Young, a Chinese boy who spoke English and whose brother had been with Col. Roosevelt on his Panda expedition, Mrs. Harkness finally left for the Mountains of Chinese Tibet where these rare animals were known to make their home. On their arrival camp was set up and they made themselves as comfortable as possible. Her praise of the politeness and instinctive knowledge of her wants by the twenty-five Chinese boys who made up her expedition, was very fine and sincere.

On the morning of the ninth day in the Mountain Camp, Mrs. Harkness, Quentin and the hunters, started off on their quest. While they were plowing through the slippery bamboo thickets, without warning a shout went up from the jungle and the report of a gun was heard.

It developed, after the excitement died down, that the shot had been fired to frighten away a mother Giant Panda. When Quentin suddenly appeared through the thicket holding a tiny ball of black and white fur in the palms of his two hands, Mrs. Harkness's reaction was one of momentary paralysis. The reality that the seemingly impossible had been accomplished, is so beautifully expressed in her book "The Lady and The Panda," that an attempt to quote her at this point would be out of the question.

The whimpering baby, who didn't weigh more than 2 or 3 pounds, nuzzled into Mrs. Harkness's jacket with such persistence that she and Quentin suddenly realized it was hungry! And the nursing bottle and dried milk had been left at the Base Camp.

Back they started with their precious treasure—hardly able to realize

ETHYL NEWS

[12]

ETC 22480

that in such a short space of time their task was finished. A canvas carrying case served as a cradle with one of Mrs. Harkness's flannel shirts to line it. The astonishingly child-like way in which the baby took to the bottle with strange gurgling noises, was fascinating. The first night they were all awakened about 11 o'clock by its whimpering. There was no question as to what was the matter—the poor little thing was hungry! Preparing and heating a formula at that time of night in a small Camp filled with sleeping Chinese boys, was certainly an unusual procedure in the wilds of Tibet. However, the baby was fed and undoubtedly slept a great deal more soundly than its foster mother—until 5 a.m. when it demanded more nourishment. The youngster soon established her own feeding schedule and called for nourishment every six or seven hours.

After lengthy discussions, the name Su Lin was definitely decided

on. In the first place, translated from the Chinese it means "A Little Bit of Something Cute" which certainly seemed appropriate and moreover it was the name of Quentin's sister-in-law, a fascinating little Chinese lady who had taken such a personal interest in the expedition.

When camp was finally broken up and everything was in readiness to start back to civilization, Su Lin was tenderly placed in a hand-woven bamboo basket that Whang, the jovial fat cook had made especially for her. By the time the party reached Shanghai, they found that word of the success of the venture had spread with miraculous rapidity.

Life in a hotel room with such a popular young debutante kept Mrs. Harkness on the jump every minute. Photographers, reporters, friends, complete strangers and a deluge of phone calls and cables, made her long for the peace and quiet of the Panda country. And of course the

responsibility of Su Lin's care and feeding made an uninterrupted night's sleep an unheard of event.

Finally after untangling yards of red tape, so that they might leave the country with such a valuable possession, permission was granted, but only after Quentin had been dispatched to the Mountains again to capture a Giant Panda for the Chinese Museum. Standard Oil, The N. Y. Times and Herald Tribune received more than honorable mention in Mrs. Harkness's praise of their untiring efforts to remove the obstacles blocking her sailing with Su Lin.

Life on shipboard and also at the New York hotel where they occupied a suite of rooms, was a continuation of the Shanghai festivities. With the healthy growth of Su Lin, things were becoming a bit complicated

Taking honey from a spoon on board ship.



SEPTEMBER 1939

[13]

ETC 22481

and after considering offers from literally every corner of the universe, it was decided to accept that of the Chicago Zoological Society who wanted the rare and valuable prize for their Brookfield Zoo. Mrs. Harkness and Su Lin left for Chicago on the Commodore Vanderbilt and on arrival at the Zoo the baby was immediately ushered into her own private room, complete with trained baby nurse. In no time at all this adorable, mischievous little creature won the affection of everyone she came in contact with. Her sense of humor was a delight and she kept the photographers busy with her amusing antics and poses. So sincere was the public's interest and admiration in Su Lin, that the Board of Directors of the Zoological Society decided to send Mrs. Harkness on another expedition to secure a mate.

This venture was likewise successful insofar as capturing another live baby Panda, but it turned out to be the same sex as Su Lin! The new little cousin was immediately named "Mei Mei" which means "Little Sister."

Then came the tragedy of Su Lin's death from bronchial pneumonia in April 1938. The Zoo received over 10,000 letters, telegrams and cables of condolence—poems were written in expression of sympathy—it was even suggested that a monument be erected to her memory. She had won her way into the hearts of everyone.

Su Lin's body was given to science for research and only then was it discovered, to the astonishment of all, that Su Lin was a male, which meant Mei Mei was, also.

A third expedition was organized and Mrs. Harkness was successful once more in capturing still another specimen. Unlike the others, however, it was miserable with human beings and showed no affection. Mrs. Harkness still has the scars on her arms, neck and shoulders from its claws, which, by the way, do not retract. Being an animal lover at heart she could not bear to see this unhappy creature yearning to get back to its natural home, therefore, after six weeks she returned it to its Tibetan Mountain habitat.



Mrs. Harkness crossed many of these swaying suspension bridges. Made entirely of bamboo, there is not a nail or rivet in them yet their bamboo cables are similar to cables of steel.



Su Lin being introduced to her new little cousin "Mei Mei" at the Brookfield Zoo in Chicago.

ETHYL NEWS

[14]

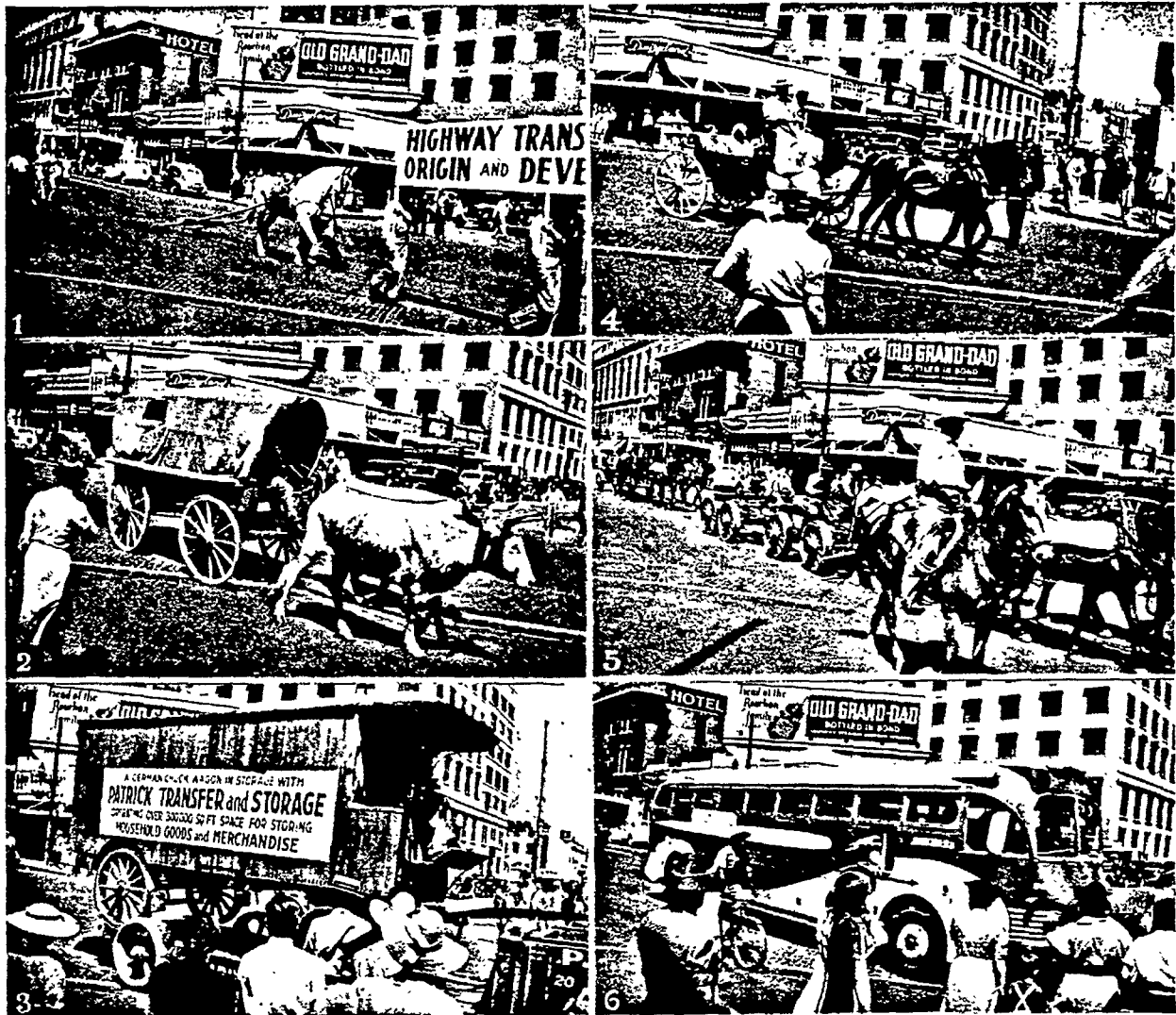
ETC 22482

Old and New in Transportation Parade

FOR several years past, some Ethyl representative from the Tulsa Division has made it a practice to attend the annual convention of the Texas Motor Transportation Association. The convention is held at various cities throughout the state and this year Houston was selected for the celebration. By coincidence it came at a time when Ethyl Motor Clinic No. 5 of the Tulsa Division

was located there so it was possible for the clinic staff to take advantage of the situation. A special meeting was accordingly arranged for members of the Association who were in Houston as delegates. Almost one hundred, representing the principal truck and bus lines of the state, availed themselves of the opportunity to witness a demonstration showing the advantage of proper tune-up.

One of the highlights of the Convention was a "parade of progress" featuring the History of Transportation from the ancient method employed by the American Indians before the days of the early settlers to the most modern transcontinental bus. The accompanying illustrations show some of the all but forgotten conveyances of the past. A strange sight in the modern American city.



- 1 This primitive method was employed by the red men long before our forefathers came to this country.
- 2 The ox wagon was earliest mode of transportation of the pioneers who came to Texas.
- 3 Old type of chuck wagon used in Texas during the cattle days just before the Civil War.

- 4 A 19th century conveyance par excellence.
- 5 Oil field wagons in use up to a decade ago. They hauled many miles of pipe line and loads of well casing.
- 6 The modern vehicle travels so fast the passengers can keep cool.

SEPTEMBER 1939

[15]

ETC 22483

Philadelphia Post Office Pioneers New Air Mail Service

AIR mail history was made at the Philadelphia postoffice and Camden Airport in July when Eastern Air Lines inaugurated the world's first autogiro scheduled air mail service.

Marking a dramatic though experimental change in the technique of expediting mail from postoffice to airport, and vice versa, the autogiro air mail service established by Eastern Air Lines was another aviation pioneering move sponsored by the postoffice department. Capt. John Miller, Eastern Air Lines veteran autogiro pilot, was at the controls of the 'giro which took off from and landed on the "airport roof" of Philadelphia's ultra-modern postoffice, with the ease and lightness of a bird.

Nearly 50,000 pieces of cachet mail were flown the first day over the six mile air course, the shortest air mail route in the world. The flights are only five minutes in duration and save much time over that required to transport the mail by motor truck.

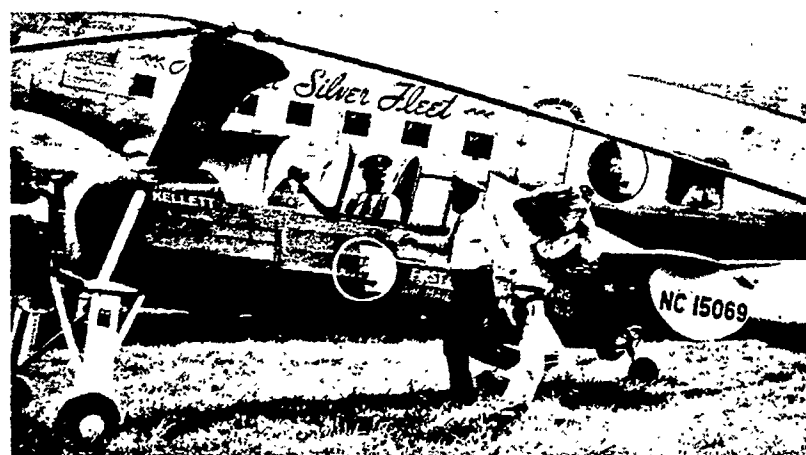
Far-seeing architects, in 1931, designed the 100,000-square foot post-office roof with autogiro mail service in mind. Recently the roof was developed into a modern, practical airport with complete two-way radio phone station, weather bureau, maintenance and refueling facilities permanently installed. The roof is paved with asphalt and is underlined with steam pipes to melt snow and ice in the winter. The Gulf Oil Corporation constructed an exact replica of the company's large aviation service gasoline tenders, in miniature, for servicing the autogiro with aviation gasoline and oil on the roof airport. Thus Ethyl again plays a part in pioneering a new enterprise.

Nearly 500 persons, prominent Philadelphia citizens who championed their city as the scene for the experimental autogiro mail service, and government officials participated in and witnessed the inaugural ceremonies.

In commenting on the significance of the new autogiro route, Captain (Continued on page 20)



A specially constructed miniature gasoline tender fuels the Autogiro on the roof of Philadelphia's Post Office.



Eastern Air Lines Autogiro mail plane a few seconds after completing its inaugural flight from the roof of Philadelphia's Post Office.



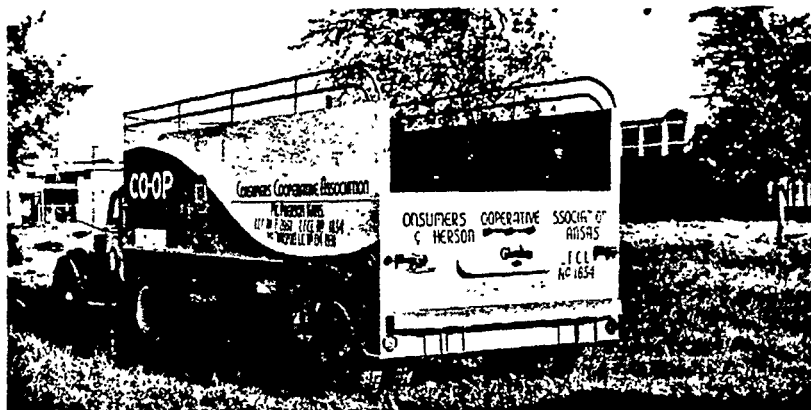
L. to R. Jos. F. Gallagher, Phila. postmaster; W. W. Howes, 1st Asst. postmaster general; Capt. Eddie Rickenbacker and pilot, Capt. John Miller.

ETHYL NEWS

[16]

ETC 22484

New Type Truck Shows Efficiency



EFFICIENCY and lower operating cost are now made possible by a new type dual-purpose transport truck especially designed for the Consumers Cooperative Association of North Kansas City, Missouri. It has recently been put on the run between North Kansas City and McPherson, Kansas.

The unusual piece of equipment is constructed with an upper carrying deck and a lower closed compartment. On the trip to C.C.A.'s warehouse in McPherson, the deck is loaded with grease, oil, tires and various other commodities which are to be distributed to the several local cooperative associations there. For the return trip the closed compartment beneath the deck is loaded at the McPherson plant of the Globe

Oil and Refining Company with refined fuels consigned to United Cooperatives, Inc. in North Kansas City.

This dual purpose job is the only one of its kind being used by the wholesaler who owns and operates a fleet of some 16 trucks and transports. The hauling capacity of this unit is 2800 gallons of refined fuel and 20,000 pounds of freight. The over-all length is just under 35 feet which is the maximum allowable and the body alone is 24 feet 9 inches. Weight of the tractor is about 6400 pounds and the tanks weigh 10,000 pounds or a total weight unloaded of about eight and a quarter tons. The truck is an International and the transport and deck were built by the Columbia Steel Tank Co. of Kansas City.

on concrete haul, at the time the test was run, the majority of them being 1938 and 1939 Ford V-8's of 85 H.P., though a few were 95 H.P. There were also four or five Chevrolets of 1937, 1938 and 1939 model.

Mr. Jobes spent two Sundays in tuning these trucks up for the premium fuel, being assisted by Mr. F. E. Devore, engineer with the Tulsa Division Clinic and Mr. L. S. Emanuel, head of Humble's Baytown knock-testing laboratory. The work was done in February, 1939, after all trucks had run for two weeks on 9600-pound concrete haul using leaded regular gasoline.

Some weeks afterwards another call was made and upon contacting the foreman, it was found that he was well pleased with the results attained. He said that while he did not have available detailed individual cost records on all of the trucks, he did have a general summary which showed that before tuning for Esso, gasoline consumption varied from 6.5 to 8 miles per gallon of leaded regular, whereas after the change, the mileage showed from 7.5 to 10 per gallon on Esso and engines ran noticeably cooler. The variation in mileages reported is caused primarily by mechanical condition of the trucks and variations in road surfaces due to weather conditions.

It was estimated that the trucks on Esso averaged about one 9600-pound load per day more than they would have had otherwise. This 9600 pounds of concrete, constituting a double batch for the paver, laid 6.16 lineal feet of highway, 20 feet wide and six inches thick, plus inverted curb. Calculating roughly, using an even nine miles as the length, the ton-miles of haulage on this piece of road amounted to approximately 166,600. Furthermore after the weather cleared later in the spring and the majority of the trucks were on Esso, they paved at an average rate of two miles per week, which is something of a local record. Mr. Propst, the truck foreman on the job, is thoroughly sold on the value of Esso and stated that he would continue to use it in his trucks on all future jobs.

Ethyl's Superiority on Texas Highway Job

IN December 1938, the Tulsa Division of the Ethyl Gasoline Corporation was requested by the Humble Oil and Refining Company, to give their agent at Bryan, Texas, Mr. W. F. Davis, some assistance in converting a fleet to Esso.

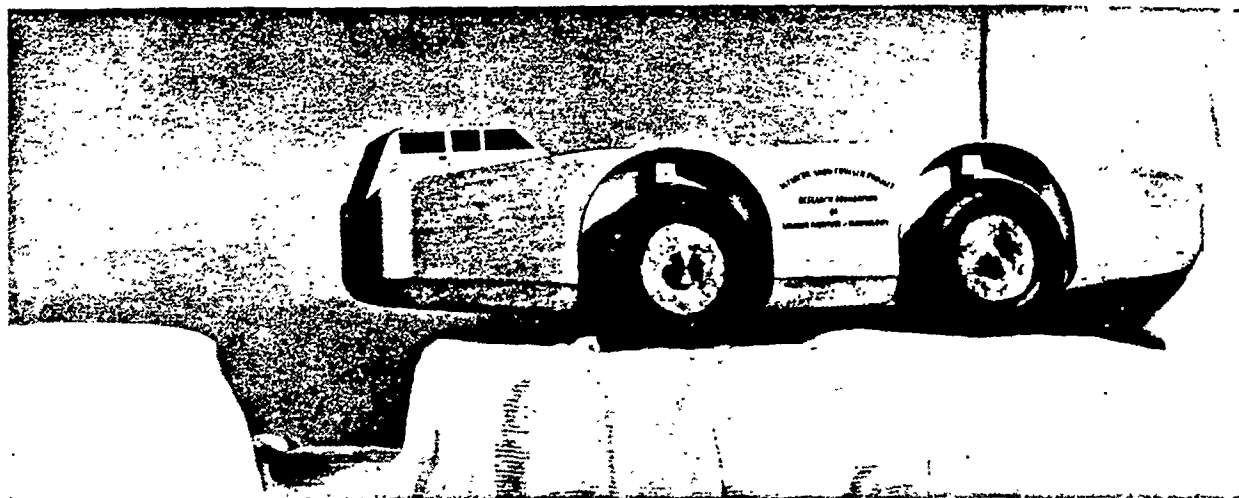
This account proved to be Cage Brothers and L. A. Turner, who were constructing a part of State Highway No. 36 near Caldwell, Texas, about 34 miles west of Bryan. This concern is one of the largest highway builders in the State.

After one or two preliminary visits and demonstrations by Ethyl's

Houston field representative, J. M. Rollins, and the fleet engineer of the Tulsa Division, F. M. Jobes, definite plans were made to convert some of the vehicles from the leaded regular gasoline they had been using to Esso.

It might be well to say here that this operation, like many others in Texas highway construction, was peculiar, in that the contractor owns no trucks but hires the equipment needed, paying the operators an hourly wage and the owners, who in some cases are also the operators, on a load basis. There were 32 trucks

Ethyl Goes to South Pole on Strange Vehicle



THE Snow Cruiser, which will be used as a moving base for the Byrd South Polar expedition, is a specially constructed mobile laboratory designed by Dr. Thomas C. Poulter, who is Scientific Director of the Research Foundation of the Armour Institute of Technology and was second in command and Senior Scientist of the last Byrd expedition. His knowledge of South Polar exploration methods and conditions made it possible for him to incorporate, in this remarkable vehicle, features hitherto unheard of which it is believed will overcome many of the normal obstacles to be encountered.

The airplane, although having the advantage of speed and making it possible to see long distances, has many disadvantages such as the necessity of an elaborate base; the digging out after the long winter night and need of protection in case of storms. Then again, for long distance plane flights, a period of only about five or six weeks is all that is available. While tractors have been used, they cannot span large crevasses, and their cruising range is but a few hundred miles. What is more, trips made with the type of tractor used heretofore, have proved that its speed and accommodations for the crew were entirely inadequate for continued operation on the trail and its cruising radius was not great

enough to get the unit into desired territory from any base that could be laid down by ships.

The engineering details of the Snow Cruiser were undertaken by the staff of the Research Foundation some months ago, as was the selection of the necessary materials and equipment from which it is being built. Upon completion, it will be turned over to the U. S. Government, which will finance the exploration and will assume responsibility for its maintenance during this period—turning it back to the Research Foundation at the close of the expedition.

The Cruiser will carry four scientists into the heart of the Polar region for a stay of many months, and it is expected that the trip will be made with much of the ease and comfort that one experiences in driving a modern automobile down a boulevard in any of our cities. It is designed to combine all of the comforts of home, is equipped with a scientific laboratory and transports a five-passenger plane on its back. The crew will be able to carry on for a period of one year without contact with the outside world. It will have a cruising range of 5,000 miles and a speed of 10 to 30 miles per hour, depending on grade, surface conditions and weather. In appearance it resembles a huge transcontinental bus, 55 feet in length and

The Snow Cruiser approaching a 15 foot crevasse preparatory to retracting front wheels so that the body may slide across.

stands fifteen feet high on ten foot rubber tires. It will be able to span crevasses fifteen feet in width. Each of the wheels is mounted on the body by means of a hydraulic hoist which enables the body to be raised a distance of four feet at will—the wheels are individually steered, which makes it possible to turn corners practically in its own length and to move sideways at an angle.

In negotiating a crevasse, the Cruiser will approach the edge, as shown in illustrations presented here. When the front wheels are near the brink they will be retracted so that the front end of the vehicle will rest on the opposite edge. Power will then be applied to the rear wheels to push the Cruiser across. As soon as the forward wheels have reached the far side, the rear ones will be retracted and the cabin raised on the front ones, power applied to them and the tail will be pulled across. The rear wheels may then be lowered and the vehicle will assume its normal cruising position. All this is accomplished due to the unusual power plant arrangement with an electric motor in each wheel, making it possible to apply power to one, two, three or four wheels as desired. It is expected to be able to

ETHYL NEWS

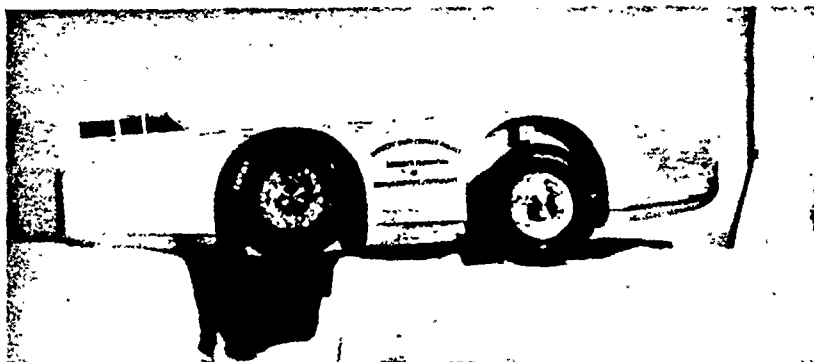
[18]

ETC 22486

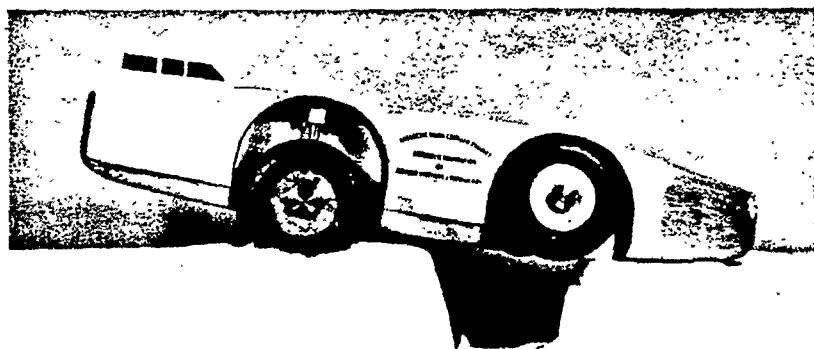
climb polar mountains with ease, and due to its construction and insulation, should be able to ride out storms without special precautions. The airplane carried on its back can be unloaded and prepared for flight in ten minutes and loaded again in the same short span of time.

One ingenious feature of the design of this "behemoth of the waste lands" is the means provided for handling of the unusually large tires with which it will be fitted. These ten foot tires, a yard wide, are the largest tires in the world. Each one is designed to carry a load of 10,000 pounds and will spread this load over a road contact area of twelve square feet in order to give sufficient traction. The tire changing problem will not be as difficult as may seem at first glance although each will weigh between twelve and fifteen hundred pounds. There will be a derrick arrangement on the top deck of the Cruiser which will be used to lift the cover off the tire compartment. The tire will then be lifted out and swung into position for replacement. The hydraulic arrangement on each of the wheels which makes it possible to raise the cabin of the Cruiser four feet above the ground in effect allows the Snow Cruiser to hold up its own foot for a new shoe. What is more, the crew will not have to worry about flat tires, change of pressure with change in temperature or altitude, due to a novel air pumping arrangement. In each wheel will be incorporated a special device which, as the wheels turn, will pump air into the tires or let air out in order to assure proper pressure. This arrangement will also take care of any leaks which may develop while travelling, although it will not obviate the necessity of changing and repairing tires.

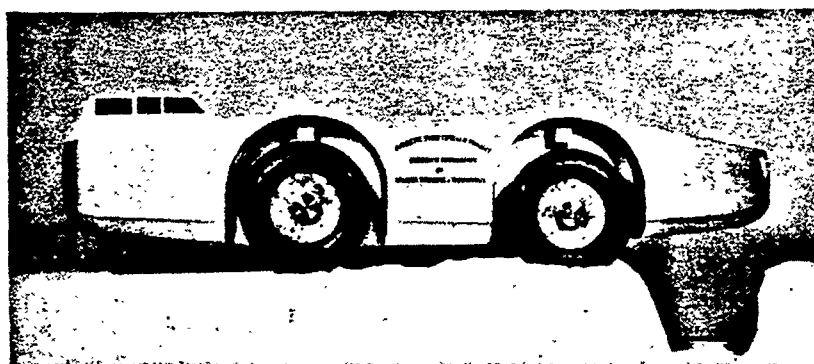
The cruiser is expected to be ready to leave Chicago sometime between the 1st and 15th of October. It will probably be driven over land to Boston, where it will be loaded aboard a government vessel for transportation to New Zealand. There it will be placed on a whaling vessel and taken into the Ross Sea area. After it has been unloaded at



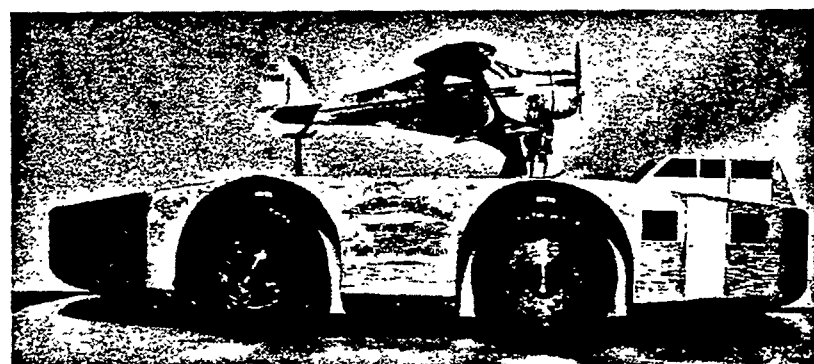
The front wheels are up and its nose is propelled forward by power from rear wheels.



The forward wheels now on opposite side take up the burden of pulling the cruiser across after rear wheels in their turn have been raised.



The Snow Cruiser safely across with all wheels down and ready to continue.



The five-passenger plane is easily carried on the 55-foot Cruiser's back.

SEPTEMBER 1939

[19]

ETC 22487

Antarctica, the crew of four men, including Dr. Poulter and Dr. A. F. Wade, who has been appointed Chief Scientist of the expedition by the National Research Council, will proceed southward to the lowest point on earth—the South Pole. They will camp there, taking such scientific observations as possible, for a period of three months, after which the Cruiser will proceed northward again to take on more supplies.

Dr. Poulter will then fly back to Chicago and another man will take his place on the Cruiser, but he will not lose contact with the expedition, for he will be in constant communication with them by means of a short wave radio set up in the Research Foundation at Armour Institute. The investigations will be carried on jointly by the crew of the Snow Cruiser and the crews at the bases.

The Cruiser will be powered by a twin-motored diesel electric plant of 300 horsepower with a separate electric motor on each wheel—the plane will, of course, be operated on Aviation grade Ethyl Gasoline.

Philadelphia Post Office

(Continued from page 16)

Rickenbacker said: "Eastern Air Lines is proud to be in the forefront of this progressive, pioneering movement sponsored by the postoffice department to expedite the air mail to and from metropolitan postoffices. We firmly believe that the success of this experimental service will mean the inauguration on a large scale of similar services throughout the United States. We stand on the threshold of new and greater services to be performed."

This Month's Cover

Gadsby's Tavern, at one time called the City Hotel, was George Washington's favorite stopping place when he came up to the little city of Alexandria from Mount Vernon. Here in the ballroom, now owned by the Metropolitan Museum, were held his Birthday Balls, and from these steps in November, 1799, he reviewed the Alexandria Militia and gave his last military command.



Has Served Ethyl 15 Years

ARTHUR SORTMAN was born November 13th, 1880 in Dayton, Ohio. He received his early education in the public schools in that city. Art was married on March 3rd, 1901 and he and Mrs. Sortman are the proud parents of nine children.

He came to us from the Dayton Pneumatic Tool Co., August 5, 1924, in the capacity of superintendent of fluid blending, Manufacturing Department. When this department was moved to the east, Art went out on the road with one of the first Ethyl Gasoline Corporation demonstrators. He also took part in the blending of Ethyl Gasoline for the various divisions of General Motors. In March 1928 he was appointed to the position of Maintenance Engineer of the Ethyl laboratory at Detroit where he remained until December 1937 when he was transferred to San Bernardino to assist in the construction of the Engineering Laboratory. On completion of this work, Art took charge of the Maintenance Department, which position he now holds.

The Sortmans are living in San Bernardino and have two of their nine children at home with them. Art's favorite pastime is deep-sea fishing.

A Long Name

THE name of MacAdam, the thrifty Scotsman who gave London lessons in economical road-building years ago, is one of the longest in highway history. It covers thousands of miles of highway on every continent.

Macadam roads had broken stone surfaces which were bound together by the compacting force of iron rimmed horse drawn vehicles. With the arrival of the automobile, swiftly moving rubber tires suctioned out the compacting dirt between the stones and the roads began to disintegrate.

Engineers found that asphaltic binders made macadam roads suitable for motor traffic. As a result there are now many hundreds of thousands of miles of asphaltic macadam roads in active service.

Experiments are being carried further today. It has been found that more roads are ruined by water seeping in from below than from the wear and tear on the surface. An injection of hot asphalt beneath the surface of a dirt road, working its way to the top was found to give it a water-repellent surface.

Recent applications in Missouri and other western states have convinced highway engineers that the new process may revolutionize modern road building. The speedy transformation of clay quagmires into smooth, firm, stable highways is speeding the day of universal low-cost road construction. Through the simple expedient of asphalt waterproofing, quick construction of tens of thousands of miles of mudless farm roads are said to be now within the realm of possibility.

Highways of the future will be built lighter as traffic becomes heavier, it is believed. They will be built in parallel or radiating lines to spread traffic and further safety. Fifty years from now, perhaps in twenty-five years or even less, present processes will be so perfected that the top of a smooth dirt road will be painted with a new skin and an hour later it can handle traffic.

ETHYL NEWS

[20]

ETC 22488

NEWS BRIEFS



Mary A. Stewart, a graduate of Adelphi College, Garden City, N. Y., with a B.A. Degree, is a new member of Walt Resler's Statistical Department in the Graybar Building. Being an ambitious young lady,

Mary is studying at Columbia University these summer evenings. Before joining the Ethyl family she was a Research Statistician for Standard Statistics which should give her a fairly good background for her work with Walt.

Mary says her hobbies are piano playing and copying other people's sketches.

Cigars and candy greeted the staff of the Yonkers Laboratory on the morning of July 14th in celebration of the arrival of little Miss Nancy Lorraine Foster, second daughter in the Robert Foster household. She weighed seven pounds, two and a half ounces. Our very hearty congratulations to Mr. and Mrs. Foster.

Checked first unloading operation Locher Refined Producing Company. Seven and three-quarter pound product up to standard male specifications. All tests satisfactory. **ELLIS K. LOCHER**



Frank A. McCoy, who joined the Ethyl Gasoline Corporation in June, received his bachelor of science degree in chemical engineering from Montana State College, Bozeman, Montana, in 1937, and his master's degree from the University of Michigan this year.

Frank was employed as a production apprentice for the General Chemical Company for a short time before attending the University of Michigan. He is interested in all sports but prefers football, likes to fish and hunt, though his special hobby is doing inlay work with different colored woods.

Congratulations, Mr. and Mrs. Peter Burba on the arrival of your daughter, Deanna Joan. Deanna, whose mother is known as Charlotte Ashton of our Accounting Department, arrived on August 4th, weighing 7 lbs. 8 ozs. Her birthplace was the Caledonian Hospital, Brooklyn.

We are delighted to report that father, mother and Deanna are doing splendidly.

SEPTEMBER 1939

[21]

Rose Brady, Bob Jordan's new secretary, comes to us from the General Tire Company where she did secretarial work for four and a half years. Rose attended the Theodore Roosevelt High School and received her secretarial training at Our Lady's Institute in the Bronx, New York. Her favorite form of diversion is dancing.

William C. Shortt, who has been with the company since February in the Detroit Research Laboratory, is a graduate of the Cass Technical High School where he majored in chemistry. Bill plans to keep on studying chemical engineering at night school.

His favorite forms of amusement are swimming and diving.

LADIES AND GENTLEMEN! It gives us great pleasure to present a most charming young lady who was photographed at the tender age of approximately two weeks. Her birth certificate indicates that she is none other than Claire Walsh Mercer; that she was born on July 21st, 1939, and that she is the daughter of Mr. and Mrs. Fritz Y. Mercer of Charlotte, N. C. But to you, her adoring public, she is "Suzy Junior." If she were just a little bit older you might think that the song "You're Bored When You're Adored" might have been written to her especially. We extend our admiration and congratulations to the Fritz Mercer's even though their daughter can't leave the bottle alone long enough to smile for the birdie!



Paul Toth, a newcomer to the Chemical Research Laboratory in Detroit, was born in Crowland, Ontario, but has lived in Detroit for the past seventeen years. He studied chemistry and metallurgy at the Cass Technical High School, graduating in January 1939, at which time he joined the Ethyl family as a temporary employee. On July 1st he was placed on the permanent payroll and hopes to continue his studies in chemistry by attending night school.

Paul's hobbies are photography, dancing and swimming.

We're wondering whether it was modesty or the burden of domestic responsibilities that kept Casey Jones from sending us the following very important notice. After all he's the Boston Correspondent and it's a long time since we've had word of an addition to the Boston Infantry.

On June 29th (almost 3 months ago) the arrival of Sylvia Blythe Jones brought the total up to three in the Jones nursery. In spite of the delay, we offer our very sincere congratulations to Casey and Mrs. Jones.

Gordon Wilcox joined the staff of the Chemical Research Laboratory in April of this year. He graduated from the Wayne University in 1932 receiving a B.S. Degree in Chemical Engineering. Gordon came to us from the McAleer Manufacturing Company in Detroit where he was employed as a chemist.



Mrs. Mabel S. Thompson, our new Receptionist on the 36th Floor of the Chrysler Building, was born in Norwalk, Ohio. She is a graduate of the Cochran School, Yonkers, N. Y., and studied at Barnard College for a year, specializing in music, which is her favorite form of relaxation. Mrs. Thompson is another addition to our list of Yonker-ites where she has been living for the past twenty years.

I am seven and three-quarter pounds of shouting man and yell hello to you both and all my friends in New York. Mother and I are both well but you should see the old man. There is still some hope for his recovery. **ELLIS KREMER LOCHER, JR.**

The Following Service Awards

have been made as of
September 1st, 1939

10 YEARS

KENNETH L. ARMSTRONG

Manufacturing, Baton Rouge

HERBERT L. NIXON

Kansas City Sales

HARRY PRINCE Detroit Engineering

5 YEARS

HELEN J. MEAGHER

Boston Sales

ETC 22489

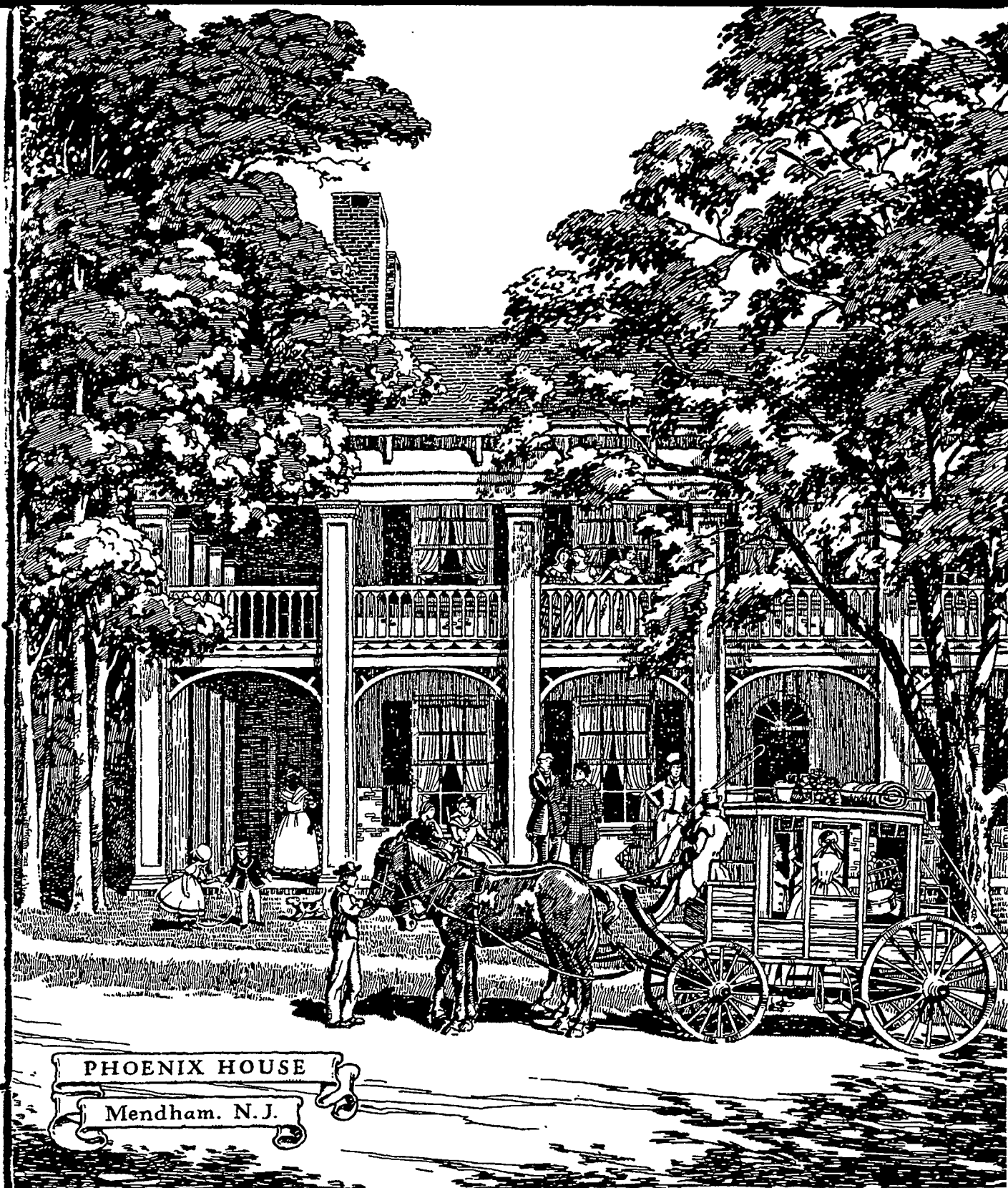


PAYLOAD

Many and fanciful are the tales of what the larger birds of prey—such as the Osprey pictured above—can carry in flight. But when these legends are reduced to cold facts and figures, they seem insignificant. Ten or twelve pounds is about the limit for even an eagle, and then only for a distance of four or five miles.

We suppose ten pounds is "good payload" for a bird... it's been perfectly satisfactory bird performance for thousands of years. But what is a satisfactory payload for an airplane? 15,000 lbs.? 25,000 lbs.? 35,000 lbs.?

To the engineer there is no such thing as satisfaction. Today's performance is only something to be surpassed tomorrow... through refinement in design, engines and fuels. It is with this aim that Ethyl engineers are helping to develop tomorrow's engines and fuels. They, too, are never satisfied.



PHOENIX HOUSE
Mendham. N. J.



OCTOBER 1939

ETC 22491

A Driver's TEN COMMANDMENTS

By Bishop George Craig Stewart



I. **Thou Shalt** keep safety, first, ever before thee.

II. **Thou Shalt** not make thyself a dangerous nuisance nor the likeness of anyone that grabbeth the road beside, and the road ahead and cutteth in and out of line.

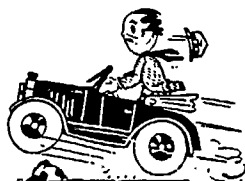
III. **Thou Shalt** not take the laws of the state in vain for the cops and the judge will not hold guiltless him that taketh the laws in vain.



IV. **Remember** thy brakes and tires and take curves slowly.

V. **Honor** the red lights and the green lights that thy days may be long in the land which the Lord thy God has given thee.

VI. **Thou Shalt** not kill.

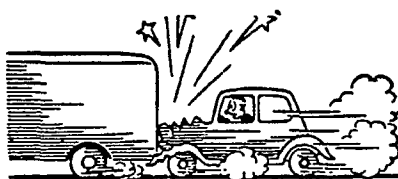


VII. **Thou Shalt** not stop abruptly.

VIII. **Thou Shalt** not steal—past a street car or bus loading or unloading.

IX. **Thou Shalt** not flash bright lights against thy neighbor.

X. **Thou Shalt** not shove-it, thy neighbor's car, nor his fenders, nor his bumpers, nor his locks, nor his glass, nor anything that is thy neighbor's.



COURTESY THE ROYAL NEIGHBOR



Ethyl Gasoline Corporation
CHRYSLER BUILDING
NEW YORK CITY

W. CARY HARRIS
Editor

RUSSELL B. WESTON
NORTHROP CLAREY, Jr.
Associate Editors

Correspondents

J. A. COSTELLO	Atlanta
F. S. CRONIN	Baltimore
B. R. JONES	Boston
A. B. WYRICK	Chicago
H. F. DEDO	Dayton
D. S. FLYNN	Kansas City
CARL ABELL	Los Angeles
R. L. GOLTZ	New York
H. KUHE	Tulsa
R. K. SCALES	Engineering Dept.
L. BARNUM	Mfg. Baton Rouge
C. WASSERMAN	Mfg. Deepwater
J. C. POPE	Gasoline Testing Dept.
E. J. NIESER	Administration Dept.
HUBERT FOSSETT	London

THE MATERIAL IN THIS PUBLICATION
MAY BE REPRINTED PROVIDED DUE
CREDIT IS GIVEN THE "ETHYL NEWS"
OR ETHYL GASOLINE CORPORATION
UNLESS IT IS A COPYRIGHTED ARTICLE

Volume 6, Number 10

Power and Heat—and Food?

EVERY person who lives in a civilized part of the world enjoys a richer life because of petroleum. From the sluggish, smelly "crude" which pulses from oil wells all over the earth, more than 300 products are made which have become essential to modern living in some form or other. These petroleum products are woven so intimately into the fabric of our daily lives that we no longer even think of them as "petroleum products." We think of cooking gas, oil for the furnace, gasoline or oils and greases for the car, tar-surfaced roads, Vaseline and cosmetics and insect sprays and family medicines—objects familiar in their own right.

Industry, of course, consumes most of the things which scientists have learned to cook from crude oil. The greatest part of the 1,250,000,000 barrels of oil used in this country last year went either to lubricate or to furnish power for the machinery of transportation. Roads, many of them surfaced with tar and all of them built with gasoline-powered equipment, connect Sunny River and Cedar Valley with Los Angeles and New York. Private automobiles roll half a trillion miles over these roads every year. At the same time trucks are hauling 60,000,000,000 ton-miles, while the bus lines of America are carrying passengers which number twice the population of the earth.

Because of the variety of products which industry has come to demand from the oil business, a gigantic chemical industry has evolved. Research men predict that oil will soon be giving us paper, textiles, even food.

Yes, "oil" is a big business. Every year it contributes more than \$4,000,000,000 to our national economy. \$1,500,000,000 go to payrolls. \$2,000,000,000 go for royalties, bonuses and rentals—mainly to American farmers. \$875,000,000 go to other industries for supplies and services; \$260,000,000 go to the railroads alone for freight. \$1,300,000,000 go for hundreds of different varieties of federal, state and local taxes. This vast flow of money indirectly benefits every person in the land.

Oil is, moreover, one of the staunchest bulwarks of our national defense. Nearly every U. S. Navy vessel built in the last four years is oil powered. Even in peace time the Navy uses 8,000,000 barrels of fuel oil a year, the Army uses another million, the Coast Guard another 600,000. The Navy and the Coast Guard consume 350,000 barrels of Diesel fuel a year. Government aircraft in 1937 used over 36,000,000 gallons of gasoline and a million gallons of lubricating oil.

If war should come to us all these figures would have to be multiplied many times. In the 1914-18 War, the oil industry mobilized with amazing speed. As an example, the number of refineries rose 170 per cent after 1914. Storage plants, tankers and other equipment were built so rapidly—and this is high tribute to the organization of one of our largest, most complex, most competitive industries—that the enormous war demands were met with very little confusion while domestic needs were being supplied at the same time.

In This Issue

A Driver's Ten Commandments	Building an Oil Tanker
Power and Heat—and Food?	Ethylman Speaker at Annual Faraday Lecture
New Safety Glass for 1940's Cars	This Month's Cover
Roscoe Turner and Ethyl Win Their 3rd Thompson Cup	Ethyl Opens Graduate Training School
Let Your Truck or Bus Earn More Dollars	Has Served Ethyl 15 Years
Maintenance Problems of the Large Bus Company	Service Awards
Jalopy Jamboree	99 Years from Now Won't Make Any Difference
They Must Be Tough—Uncle Sam's Birdmen	Newsbriefs
	Ethyl Motor Clinic Itinerary

New Safety Glass for 1940's Cars



A DISTINGUISHED group of scientists and industrialists met at Toledo, Ohio, during August to view developments which will be offered to the public in the 1940 car models. There they watched experiments designed to show that safety *sheet* glass in automobile windows is a major cause of eye-strain. On the other hand, safety *plate* glass windows permit accurate vision, thereby eliminating strain of the optic nerves.

Tests which have been conducted by Dr. A. H. Ryan, Chicago physiologist and former professor at Maryland University, Alabama State and Tufts College, indicate that safety plate glass affords a protection against eye-strain comparable to the effect of properly fitted glasses in correcting injurious results of defective sight. Furthermore, of equal advantage is the greater strength of the new high test laminated safety plate glass. Both factors should have a decided influence in reducing highway accidents and the injuries therefrom.

The evolution of the "sandwich filler" placed between two panes of glass, which is the principle of all safety glass, has passed through three main stages. The first substance in use was nitro-cellulose which was the development of a chance discovery about 1910, by Dr. Edouard Benedictus, a noted French chemist. It was not, however, until

Little does this smiling young lady realize the distorted view a rear seat passenger gets of her through the safety sheet glass.

the advent of the closed car in the earlier 1920's that the product was used commercially to any extent. This nitro-cellulose filler was little different from the celluloid used in many articles in common use; such as toothbrushes, combs, etc. Although the demand grew rapidly it was far from being a satisfactory product as it turned brown and cloudy when exposed to sunshine and the filler loosened with time and weathering. Next came a cellulose acetate filler, made from cotton and acetic acid. This has, on the whole, been considered quite satisfactory and has been in general use for the past eight years. In fact, its presence in the laminated glass of car windows is unknown to most laymen. And now the new glass, which is expected to be standard for many 1940 cars, will contain a filler of polyvinyl acetal resin.

Six years of research and six million dollars are represented by this high test laminated safety plate glass which has been made available to automobile manufacturers. Moreover, the development has been carried on in such a way that the motorist receives the benefit of this safer, clearer product at no additional cost to himself.

Tests have been conducted by the Franklin Institute of Philadelphia and in laboratories and in the field, sponsored by five large companies. They are: E. I. duPont de Nemours Company, Carbide and Carbon Chemicals Corporation, Monsanto Chemical Company, Libbey-Owens-Ford Glass Company and the Pittsburgh Plate Glass Company. The results show that polyvinyl is four times as strong as its predecessors at 70° Fahrenheit, and ten times as strong at zero.

The new plastic clings to the glass



Stretchability of new plastic filler, "Polyvinyl Acetal Resin," said to be 1939's outstanding contribution to safety, is attractively demonstrated by this comely model.

ETHYL NEWS

[2]

ETC 22494

so well that no adhesive is required in assembling the safety sandwich. Polyvinyl is elastic even at low temperatures and has the unusual quality of maintaining considerable tensile strength after its elastic limit is reached. When a piece of the high test is broken by hammer blows the glass and plastic hold together so that the whole may be rolled up as one would roll a rug.

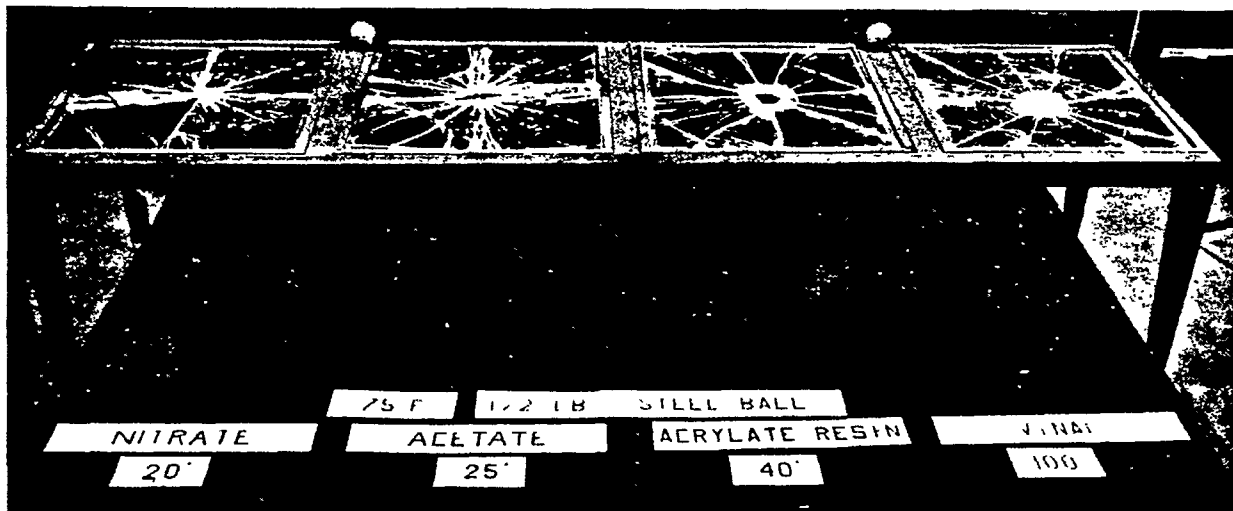
When an object strikes the new safety glass hard enough to break it, the plastic stretches, thereby absorbing the energy of the blow and preventing the missile from entering the car. Should a passenger's head strike the glass due to a collision, polyvinyl provides an elastic effect which reduces the likelihood of a concussion or fracture.

The requirements of ideal automobile safety glass calls for a product free from the waviness of ordinary sheet glass with its consequent warping of the vision of the driver or passengers, yet thin enough so that one caught in an overturned car can force his way out. This thin plate glass now in production fulfills these conditions.

High test laminated safety plate glass has been evolved through the research efforts of hundreds of chemists and mechanical engineers and its development is still another proof that coordinated effort in research is the best means to bring about industrial progress.



A large pane of the new safety glass may be rolled up like a rug after being broken with hammer blows as shown here.



A half pound steel ball failed to pierce the high test pane at right when dropped from height of 100 feet. Other types show effect when it was dropped from 20, 25 and 40 feet respectively.

OCTOBER 1939

[3]

ETC 22495

Roscoe Turner and Ethyl Win Their 3rd Thompson Cup



COLONEL ROSCOE TURNER, one of America's most noted aviators and twice winner of the famous three-hundred-mile Thompson Trophy race, wrote a new page in aviation history on September 5th at the National Air Races in Cleveland, by walking away with the Thompson cup for the third time. He finished more than 10 miles ahead of Tony Levier, who came in second.

To win the race and the \$16,000 prize, Turner flew his big aluminum Turner-Laird racer 282.536 miles an hour. The ship was powered by a Pratt and Whitney twin Wasp and fueled with Ethyl. The day after the race, Turner expressed his apprecia-

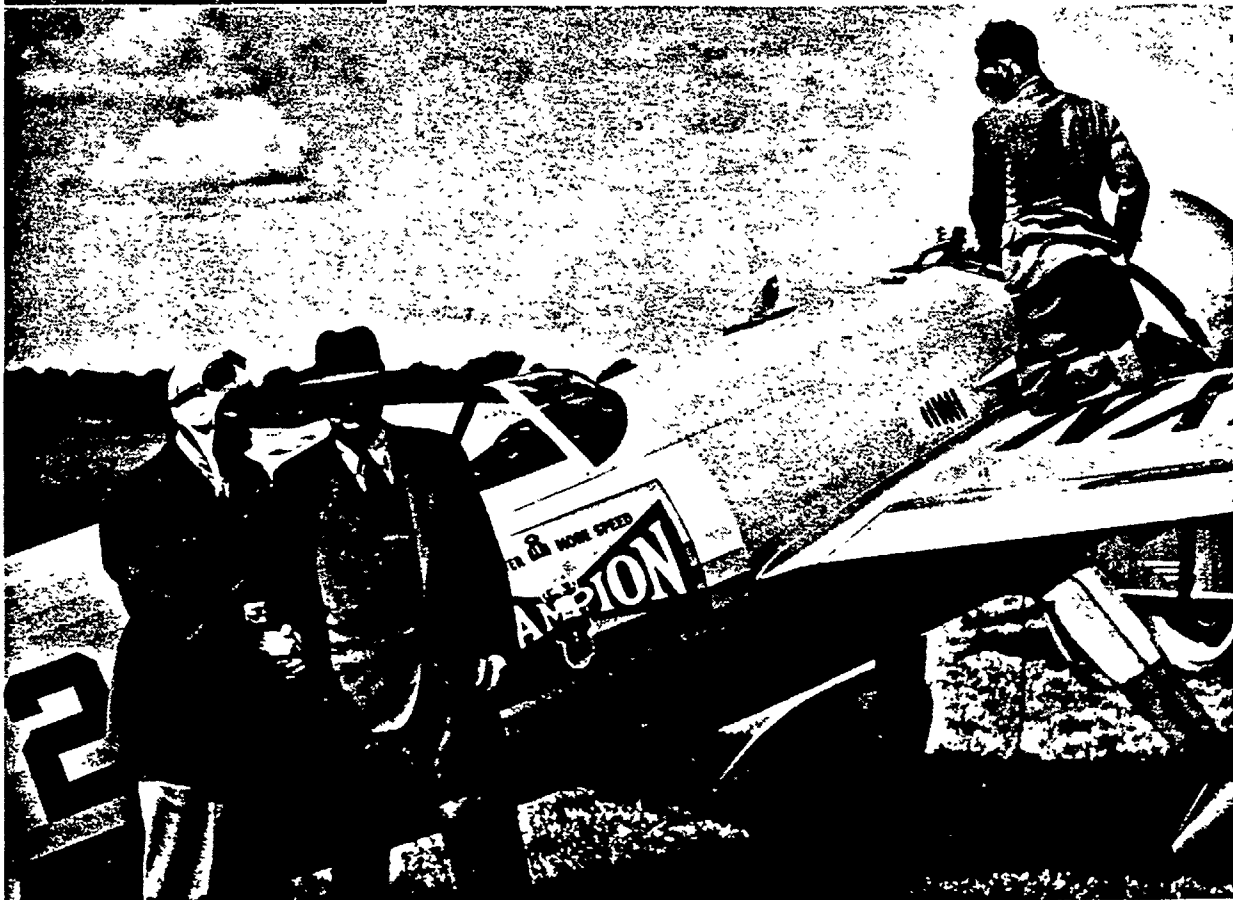
tion of Ethyl's help in a telegram to Vice President J. Coard Taylor:

"Ethyl gave perfect performance again in my twin row Wasp, enabling me to win the famous Thompson Trophy Race for the third time. Your oldest aeronautical user,

Roscoe Turner"

When the Colonel stepped from his plane after beating the six other entrants, he declared that this race was the last of his twelve-year competitive career.

"I've won the Thompson three times, and I can't keep stretching my luck," Turner said. "This is my last race. I'll be 44 this month. This is a young man's game. I'm going to start a flying school in Indianapolis."



Colonel Roscoe Turner and Al Bingham of Ethyl Gasoline Corporation exchange greetings at starting line as Colonel Turner's engineer, Don Young, fuels plane with gasoline of better than 100 octane number.

ETHYL NEWS

[4]

ETC 22496

Let Your Truck or Bus Earn More Dollars

AS a result of research extending over a period of more than two years, operators of trucks and busses may secure not only faster schedules but more miles per gallon through high compression.

In a recently completed 95,000-mile series of road tests, conducted by the Ethyl Gasoline Corporation at their San Bernardino proving grounds, a heavy commercial vehicle hauled the same loads from 7% to 8% faster, while using from 9% to 17% less fuel after the engine compression ratio was increased to 5.65 to 1 from its original ratio of 4.45 to 1.

The compression ratio was raised by installing new pistons and cylinder heads which increased the fuel octane requirement by about eight octane numbers. Some tests were conducted over highways of steep and moderate grades and others over routes composed entirely of light grades and level roads.

Before comparative tests were started, the vehicle was operated for several thousand miles on a break-in schedule with each of the two sets of pistons and cylinder heads, in order to minimize differences in engine friction. The ignition timing for maximum power and the carburetor adjustment for best economy were determined for each compression ratio, and the best settings thus determined were used in the comparative tests. (The carburetor adjustments which gave maximum fuel mileage were found to be identical for both compression ratios.)

Decreases in running time as great as the 7% to 8% values observed in these tests may be extremely helpful to operators in meeting or beating competition when carrying passengers or freight on fast schedules. Also of still greater value is the effect of high compression in improving vehicle performance under severe operating conditions where speeds are low. For example, one of

the test routes included a 21-mile climb between the elevations of 1400 and 4300 feet. On this part of the route, running time was reduced by 15% to 17% due to the increase in compression ratio.



Such increases in accelerating and hill-climbing ability may be all-important for vehicles limited in top speeds over parts of the route by legal or other restrictions or for heavily loaded vehicles which must increase their speed on hard pulls to comply with new legal minimum speeds.

Such cases provide the most obvious examples of benefits resulting from the ability of vehicles to maintain better speeds, but the less spectacular advantages should not be overlooked. Every decrease in running time required per trip also rep-

resents an opportunity for more trips per day, month or year. Each additional trip decreases the cost of insurance, taxes, drivers' salaries and interest on the investment which must be applied against each passenger-mile or ton-mile.

All of these are benefits which result from faster schedules accomplished by any means, *but when running time is improved by increases in compression ratio, there are accompanying gains in miles per gallon*, as shown by the 9% to 17% increases in miles per gallon obtained in the San Bernardino tests.

Since the anti-knock value of gasolines has been increasing for a number of years, and is still increasing, the engine compression ratios of most vehicles in service and even of many now in production are substantially below the optimum values for today's fuels. Manufacturers therefore have two opportunities for improving the performance of their vehicles in the field. *First*, by surveying the fuel requirements of present production engines in the light of available fuels, and *Second*, by supplying high compression replacement pistons or cylinder heads, together with the necessary information on ignition timing adjustments and fuel octane requirements, for equipment now in operation.

It should also be noted that the power gains resulting from increases in compression ratio can be used to increase payloads substantially if there is a need for doing so, or to combine somewhat smaller increases in both load and speed. In other tests of this series at San Bernardino, it was found possible to increase payloads by 62% to 94% for operation at a given speed, as a result of raising the engine compression ratio from 4.45 to 1 to 5.65 to 1. At the same time, there also were gains of 4% to 7% in miles per gallon of fuel. These tests represent another example of the continuous studies made by the Ethyl Gasoline Corporation, in cooperation with the oil and automotive industries, to improve the performance of engines and fuels.

Maintenance Problems of the Large Bus Company

THE bus operator, like every other company that sells transportation to the public, whether it be boat, railroad or air line, has found that maintenance is an essential part of its problem. An outstanding example is The Greyhound Management system with over 1,000 buses and key maintenance garages at St. Louis, Chicago, Cleveland, Detroit, Pittsburgh, Syracuse, Buffalo, Washington, D. C., Philadelphia, New York and Boston. Storage and routine maintenance units are also maintained at Scranton, Rochester, Indianapolis, Cincinnati and other points.

Haphazard maintenance methods passed out of the picture at Greyhound a number of years ago and today a record of each bus is kept with a case history card much like that used for a patient in a hospital. After the bus has been returned to

the garage, this card is checked and any comments on bus conditions by the driver are investigated.

The old idea of waiting until something breaks before repairs are made is now antiquated. Greyhound has found that it is less expensive to follow a definite repair program since road failures and road repairs are costly, not only in hours of labor but in loss of reputation with the revenue producing passenger.

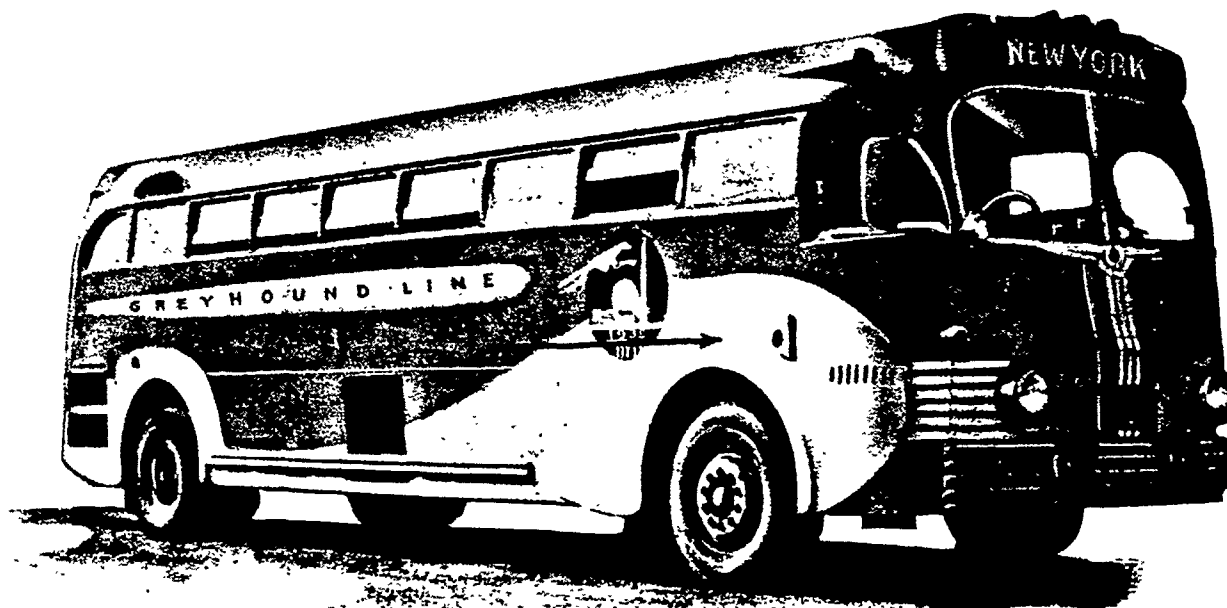
The maintaining of the coaches coming under the jurisdiction of the Maintenance Department of the Greyhound Management Company, requires the services of from 650 to 700 men. This includes mechanics, bodymen, electricians, welders, sheet metal workers, battery men, painters, washers, cleaners, clerks, store-keepers, foremen, etc.

Through the courtesy of Mr. William A. Duvall, Director of Main-



1 After discharging passengers at the end of every run the coaches are driven to the shops. There they enter one of two inspection lines and are washed with streams of water from high pressure pumps.

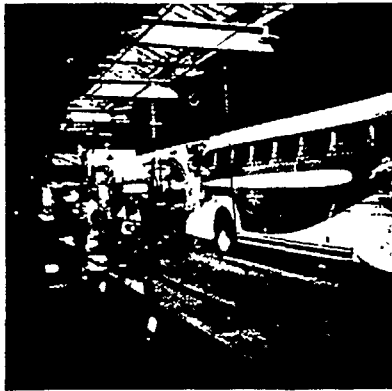
tenance of the Greyhound Lines and with the cooperation of Mr. B. Parks who is Manager of the Line's Long Island Maintenance Garage which has a capacity of 200 buses, Ethyl's engineers were permitted to make an inspection of these operations. The accompanying illustrations offer a vivid picture of the work necessary to properly maintain a Greyhound bus and thus assure the safety and comfort of their passengers.



ETHYL NEWS

[6]

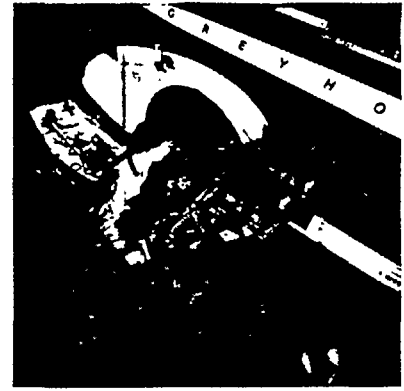
ETC 22498



2 Leaving the wash rack the bus moves along the line for body inspection. At this point it is closely scrutinized for any scratches, dents or other defects which might detract from its surface appearance.



3 While on the inspection pits, coaches are greased completely. In this particular shop over nine thousand pounds of chassis, transmission and differential lubricants are used each month throughout the year.



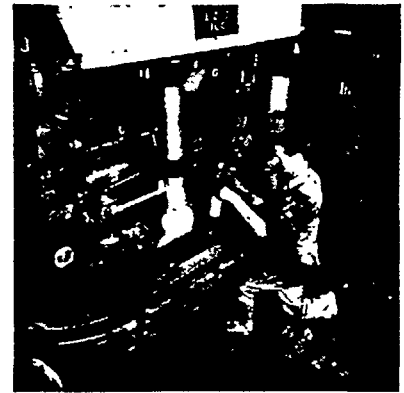
4 Batteries are checked for loose terminals and condition of charge and then filled with water and replaced in the coach. Modern coaches make extra demands on electrical systems because of the air conditioning system.



5 All chassis and body bolts are inspected and tightened. At the same time inspection is made of the condition of springs and spring mountings. Notations are made of any weak or broken spring leaves.



6 In keeping with the modern trend in transportation, Greyhound have installed equipment to cool and filter the air in many of its coaches. These units, powered by small gasoline engines, receive a thorough inspection.



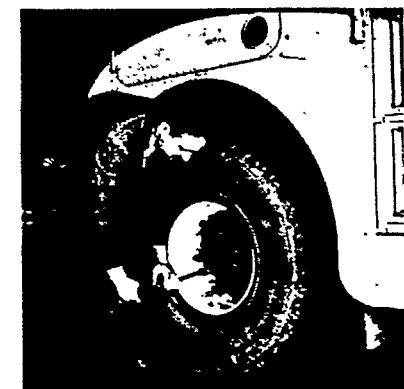
7 Engine condition is carefully checked to make sure that all units are functioning properly. Thus many costly road delays are prevented by removal of weak or unsatisfactory parts which would cause mechanical failure.



8 Near the end of inspection line fuel tanks are filled and oil level is checked. Oil filters are cleaned and oil is changed when records show that the required mileage for this operation has been reached.



9 During each operation on inspection line, records are kept and notations made of condition of all parts to be changed or repaired. These slips are placed in a holder for the information of the Repair Department.

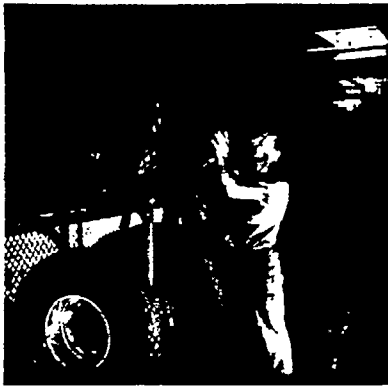


10 Since it is difficult to jack up a bus while over an inspection pit, wheels, wheel bearings and brakes are inspected and reconditioned on repair floor. At this time a complete check is also made of the steering mechanism.

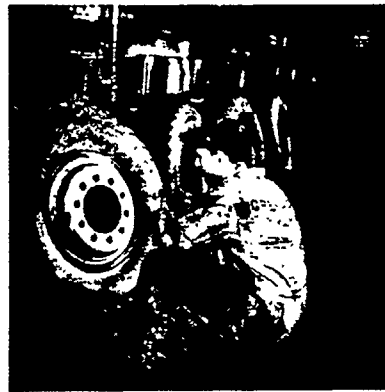
OCTOBER 1939

[7]

ETC 22499



11 Tires are inspected and faulty ones removed. Spares are kept in racks together with service and mileage record. If inspection shows carcass good but tire worn smooth, it is re-grooved before being placed in stock.



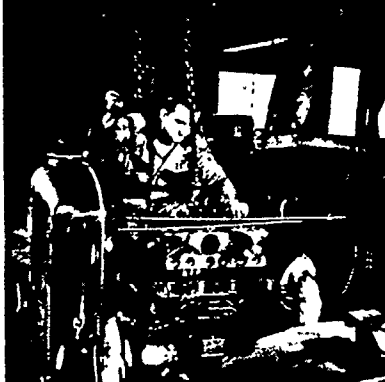
12 In changing tires, small bits of paint are often knocked loose. In such cases the entire wheel is scraped and then repainted to improve appearance and prevent rust from forming which would tend to weaken the wheel.



13 On the repair floor faulty units noted on inspection slips are removed and replacements made. Men thoroughly familiar with each unit will repair and recondition them before they are placed in stock for future service.



14 A complete engine overhaul is performed at definite intervals depending on model of engine and type of service encountered. However, these periods are arranged so that other major repairs may be made at the same time.



15 Valve grinding and inspection of engine bearings, timing gears, oil pumps, etc., is, in general, based on mileage. However, actually intervals of inspection are determined by records showing expected life of the parts.



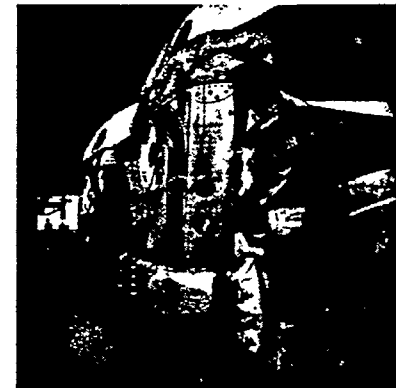
16 All transmissions and differentials are reconditioned on a mileage basis. As in the case of other units they are removed at any time a defect shows during operation and replaced by a new or reconditioned part.



17 A department recently established, repairs and reconditions engines, compressors, cooling coils and fans of air conditioning units, which have been installed in buses to insure maximum passenger comfort.



18 Bodies are covered with a light alloy material of high tensile strength. This reduces weight, thus allowing increased economy and performance. Necessary repairs are usually made by replacing an entire panel.



19 All scars and scratches are repainted in a modern and complete paint shop. As each bus leaves the garage for its next run, it is in good mechanical repair and presents a neat and finished appearance.

ETHYL NEWS

[8]

ETC 22500



JallopY Jamboree

THE old saying that there is "nothing new under the sun" was pushed out the back door when the Sacramento Motor Car Dealers Association staged a JallopY Jamboree recently and thus initiated a unique idea that bids fair to take hold in the automotive trade circles all over the country.

Some time back, when members of the Association were casting about for some new activity to renew the interest in Association doings and trying also to find a means to cooperate with the Sacramento Safety Council in the annual Safety Week, Ellsworth Harold, local Ford Dealer, conceived an idea that immediately took hold.

The dealers issued invitations to 150 guests for a party at the Del Paso Country Club, but to be admitted each guest must drive a jallopY, to be purchased at not more than \$10 and as much cheaper as possible—the seven miles from town to the Club. Furthermore, they must present a pink slip of ownership to be cancelled on the spot by representatives of the State Motor Vehicle Department, to guarantee that the car never again would be run on the highway.

Arrangements were made for crews to be on hand with sledgehammers to break up the jallopies into junk and for junk dealers to be present to bid in the remains. Prior

to the day set, the committee had ascertained that the junk men would make a flat allowance of at least \$5 for the jallopies, so an afternoon and evening of entertainment was planned to cost \$5 per person, and to consist of refreshments, luncheon golf, dinner and entertainment.

The invitations were issued principally among persons engaged in the allied automotive trades such as tires, accessories, finance companies, banks, etc., and officials and prominent men about town. Factory men heard about the affair and several were said to have come from Seattle, Portland, Oakland, San Francisco and Los Angeles for the event.

When the appointed hour arrived, not very many of the 150 invited had failed to procure jallopies and report for the parade scheduled through town en route to the club.

Most of those who did stay away did so because the supply of \$10 jallopies ran out. Everyone entered into the spirit of the occasion so that there was no desire for evasion. It was great fun for the oldsters to don old clothes and nurse the old wheezers and rattlers in the parade. Some of the cars were 20 years old and represented trade names that have passed out of existence.

The start of the ancient cars was from a pioneer spot—Sutter's Fort, established in 1839 by Captain John

At the Del Paso Country Club in Sacramento, the Committee demonstrates the jallopY-wrecking activities.

A. Sutter when he founded Sacramento. Headed by a motorcycle escort and E. Raymond Cato, chief of the California Highway Patrol, the old cars noisily and uncertainly moved off to the heart of the business section, and then out an arterial street to the club. All along the way crowds formed and cameras clicked. There was much laughter and joking. On the sides of the cars were written such appropriate things as "I've got a rumble full of dreams," "Financed too much," "To the boneyard," "My last mile," "I'm headed for the last roundup" and "Born twenty years too soon."

There were no mishaps, but more than a dozen of the cars gave up the ghost en route. However, the dealers had foreseen this and had spaced tow cars along at suitable intervals, so when a car dropped out a tow car picked it up immediately and kept it in the parade. The seven mile run was made in the remarkable time of twenty minutes, although the party schedule called for an hour.

In the jallopY auction the bidding of the junk men exceeded the expectations of the committee and an average of better than \$6 per car was realized.

Before the day was over the JallopY Club of America was formed, and each person present signed a scroll as charter member, agreeing to meet under similar circumstances once each year and to eliminate at least one jallopY from the roads each time. Factory men and finance men present seized the opportunity to carry the idea and chapter charters from the meeting for the organization of JallopY Clubs throughout America to hold similar events.

The stunt was so unusual that the newspapers recognized prime news interest and carried considerable advance publicity, spot coverage and follow up pictures and stories. It was the case of an idea with the proper work behind it and an enthusiastic spirit in its execution that had brought something new into the field of safety and automotive trade activities.

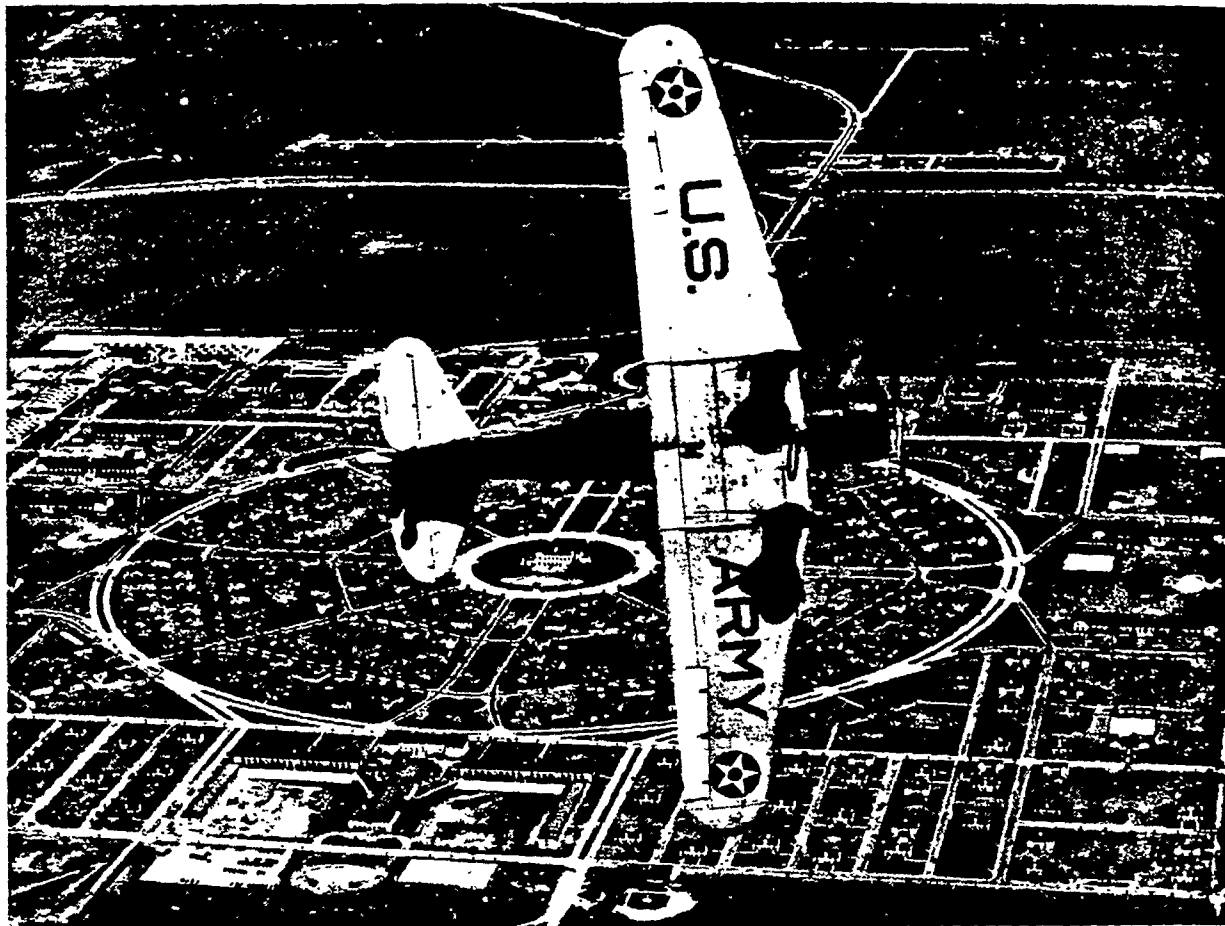
Courtesy News & Views

OCTOBER 1939

[9]

ETC 22501

They Must Be Tough—Uncle Sam's Birdmen



COLLEGE students have taken to the air. And with a purpose—for it's from the colleges that are coming most of the young men who are being trained by Uncle Sam to build his air force to an effective weapon of defense. College men make good flyers and good officers and for their part, are finding a future in aviation.

Practically every college and university is represented in the groups of flying cadets who are being dispatched to Air Corps flying schools. Three months primary training under Air Corps supervision, at selected civilian flying fields, three months at Randolph Field and a final three months of advanced flying at Kelly Field prepares the student pilot to receive his wings and a commission in the Air Reserves.

It's a busy nine months, with a program to incite the envy of the toughest curriculum-builder. Mornings devoted to flying—primary, basic, advanced, acrobatics, formation, cross country, night—with ships ranging from the tiny P-12 to the mighty bombing craft. Academically, the program is even more imposing—courses in aerodynamics, engines, instruments, airplane rigging, machine guns, bombs and bomb racks, radio, maps, military intelligence, logistics. Then follows up to seven years active duty, if so desired, with a tactical unit where the young officer serves with a squadron at one of the many fields scattered over the country.

It's a big order, this expansion program of the Air Corps, but it has brought opportunity for the college

A slow roll is one of the many acrobatic maneuvers the flying cadet must master. 5,000 feet below lies Randolph Field.

man who wants adventure along with success. The flying cadet's life is rich in memories; friendships built on the flying line and in barracks and that never-to-be-forgotten moment when an instructor slaps a cadet on the back and says "Take it around yourself this time."

Under the present program, approximately 300 cadets are receiving orders at specified intervals. Primary training is being conducted at such schools as The Chicago School of Aeronautics, Glenview, Illinois; Parks Air College, East St. Louis, Ill.; Spartan School of Aeronautics, Tulsa, Okla.; Dallas Aviation School,

ETHYL NEWS

[10]

ETC 22502

"A
S,
ter
—
D
A
ti
co
V
h
c
a
I
i
c

"All right, let's take off and climb to 5,000." With the two-way electrical interphone system the instructor directs the student flyer.

Dallas, Tex.; Alabama Institute of Aeronautics, Tuscaloosa, Ala., and the Lincoln Flying School at Lincoln, Neb.

Reporting at Randolph Field, the West Point of the air, at the close of his first three months, the flying cadet enters his basic training period at one of the most modern and complete flying fields in the world. It is 17 miles from San Antonio, Texas, and has a population of over 3,000 officers and enlisted men. With Kelly and Duncan fields, just across the city, the plant comprises the Air Corps Training Center.

Completing three months of flying, ground instruction and military instruction at Randolph, the cadet is transferred to Kelly Field for advanced flying training, including cross country, instrument and navigation flights.

Requirements for selection as a flying cadet calls for only two years of college, although many applicants have college degrees. Candidates

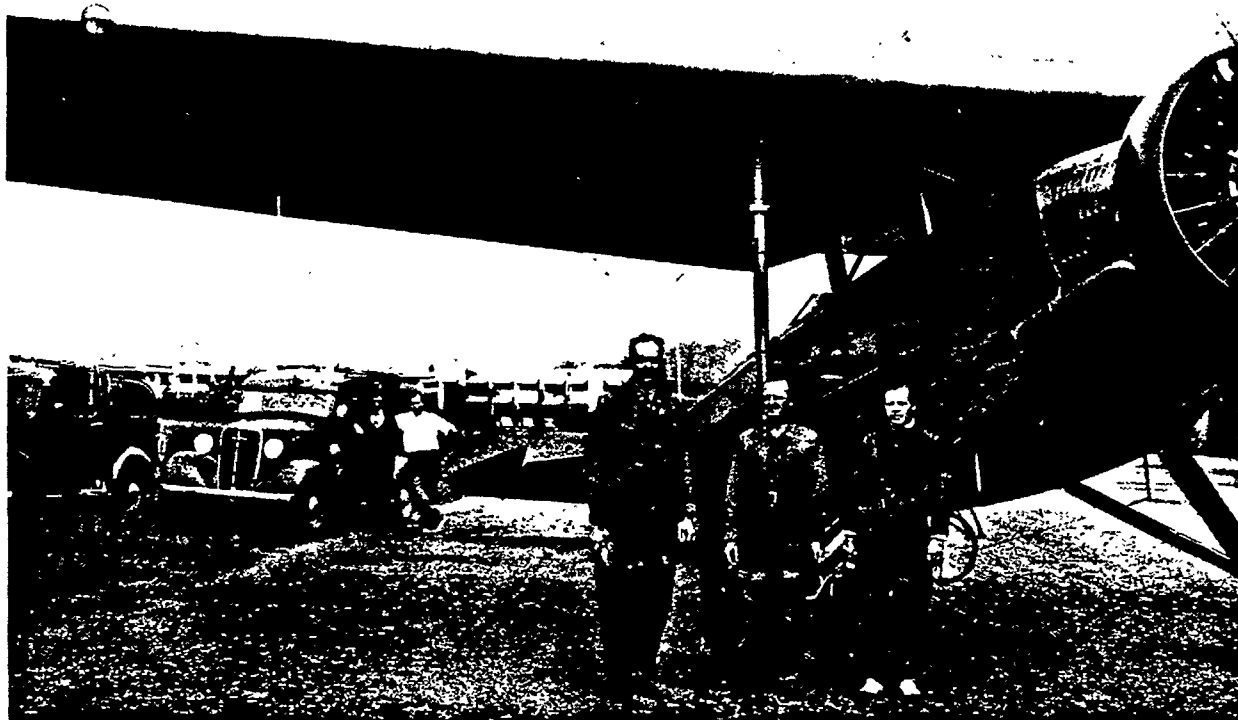


must be unmarried male citizens, more than twenty years of age but not over twenty-six. The physical examination is necessarily very rigid, particularly as regards vision and the nervous system.

For national defense, the Air Corps has set an objective of 6,000 airplanes, 3,200 pilots and 45,000 en-

listed men. In training both officers and enlisted men, the Corps depends on a number of other schools in ad-

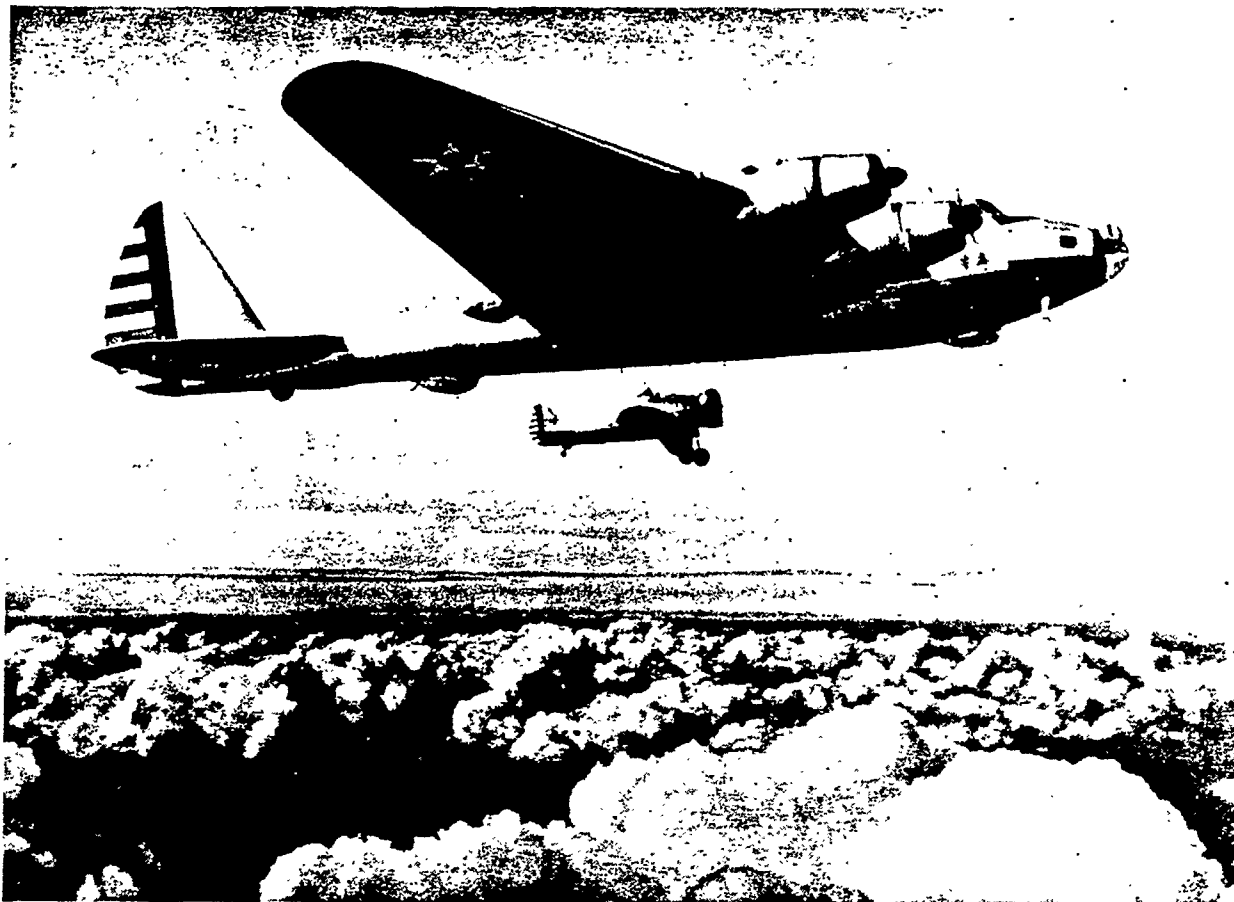
This three man crew have just successfully completed the first automatic aircraft landing climaxing several years experiment at Wright Field. Several hundred have since been made.



OCTOBER 1939

[11]

ETC 22503



This giant bomber develops 4,000 H.P. and flies over 60,000 pounds for a still unknown thousands of miles. Its 110-volt A.C. system involves seven miles of wiring.

dition to the Air Corps Training Center. Both officers and enlisted men are trained in the two Air Corps Technical Schools at Chanute Field, Rantoul, Illinois and Lowry Field, Denver, Colorado. Here are located

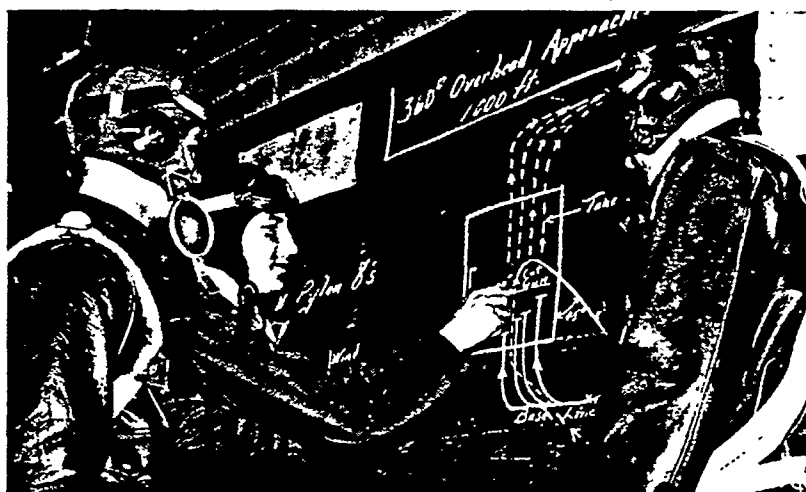
schools in photography, mechanics, communications, armament and administrative duties. Lowry Field was opened new in 1938 and Chanute Field is being completely rebuilt.

The Air Corps Tactical School is

located at Maxwell Field, Alabama, on a site which in 1910 was selected by Wilbur Wright for the location of a training school. The Tactical School is more or less of a graduate school for the training center.

Perhaps the best route for the aspiring student engineer exists through the flying cadets—to a reserve commission, active duty with the Air Corps, regular army commission, study at the Air Corps Engineering School and then assignment to the Materiel Division located at Wright Field, near Dayton, Ohio.

The history of the Materiel Division dates back to the establishment, in 1917, under the Signal Corps, of a laboratory for aeronautical experi-



Much precious flying time is saved by these blackboard lectures before taking the air for a practical demonstration.

ETHYL NEWS

[12]

ETC 22504

ment, testing and research in order to provide adequate aviation equipment for war purposes. During the 20 odd years of its existence, the Materiel Division has figured directly or indirectly in virtually all aircraft developments, commercial as well as military.

Some of these studies with which the layman is less acquainted, have resulted in:

Development of 100 octane fuel, in cooperation with the fuel industry, which has resulted in increased power output.

Perfection of an oil dilution system and priming systems to facilitate the starting of engines in cold weather.

Development of navigation and flight instruments which have made possible the first solo blind landing and the first automatic landing of airplanes by Air Corps officers.

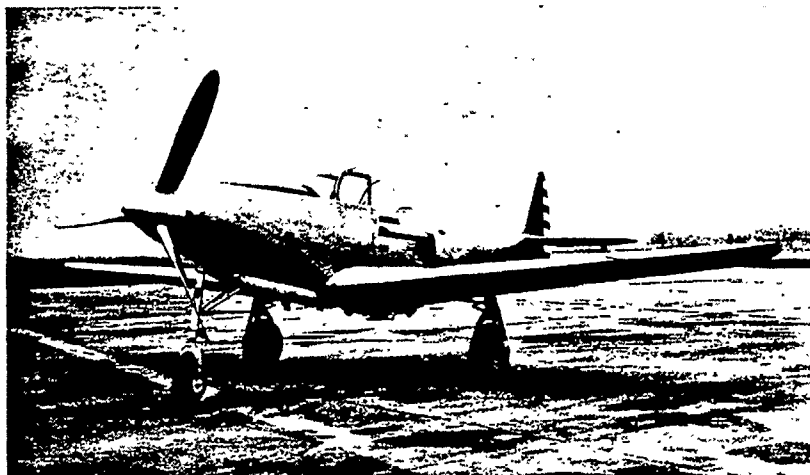
Improved photographic technique, new films, shutters and lens speeds, which have made possible photographing of points as far distant from the airplane as 331 miles and the ability to make photographs through fog by the use of highly sensitized haze penetration film.

Flying cadets are paid \$75 per month plus a dollar a day ration allowance. Quarters are furnished, as are uniforms and flying equipment.

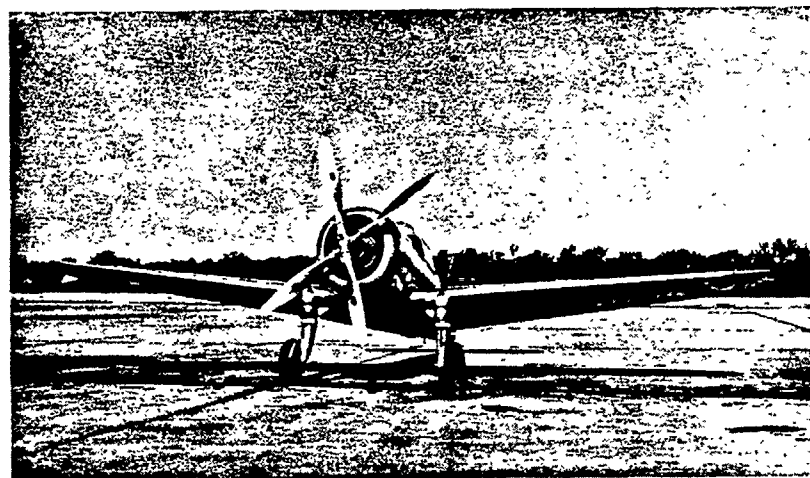
After receiving a commission and while on active duty, the reserve officer receives the pay and allowance of his rank as second lieutenant.

As a second lieutenant on active duty, the pilot's pay is \$205.50 a month, plus an allowance of \$40 per month for quarters, if the government is unable to furnish housing. Advancement to first lieutenant comes at the close of the three year duty, with pay in this rank of \$298.50 per month, plus a possible rental allowance of \$60. Reserve officers on active duty are permitted to take examinations for filling vacancies in the Regular Army Air Corps. During this fiscal year, 417 reserve officers will be tendered commissions in the Regular Army. If the officer returns to civilian life at the close of his three year tour, he is paid a bonus of \$500.

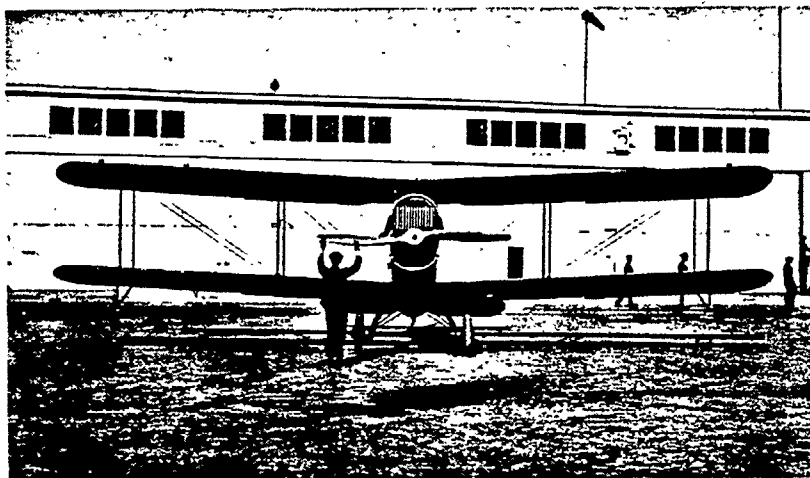
Courtesy U. S. Army Air Corps



The Air Corps' new P-39 pursuit plane powered with a single Allison 12 cylinder engine rated at 1,000 H.P.

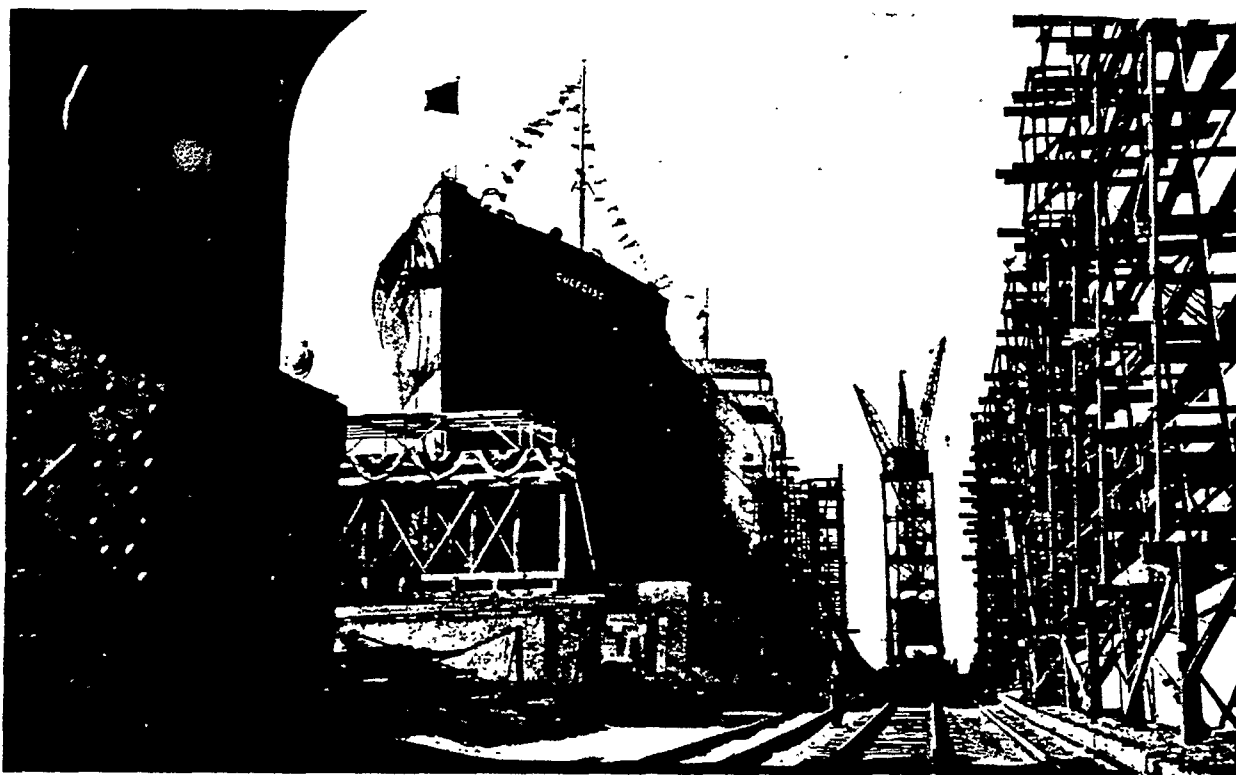


Curtis Pursuit Plane with oppositely rotating dual propellers used in high speed experimental work by the Army Air Corps.



A far cry from the present day bomber and fighter is this 1917 De Havillands with the famous American Liberty engine of war time memory.

Building an Oil Tanker



HIGH on a bunting-draped platform, a woman fingers a bottle of champagne decorated with ribbons. Towering above her looms the huge bow of an oil tanker, ready to take the water.

A light blinks; the champagne is brandished in the air. There is a pop, a muffled crash of glass and a rich drool of amber suds runs foaming down the fresh black paint of the bow. Then a hush, an expectant pause, and—with a triumphant burst of band music—the great bow slowly begins to move. Gathering speed, the ship slides down the smoking ways and into the water.

So another tanker is launched—and months, perhaps years of planning have come to fruition. For the building of a ship really begins far from the clang and clamor of a shipyard. A company decides it needs a new vessel. It has a good idea of what it wants—where the ship is to be used, what kind of water it is to operate in, what type of cargo is to be carried and how much of it, how

fast the ship will have to travel and so on. Often the buyer's naval architects will have already drawn rough plans and specifications.

Step by step, it goes something like this. The company's marine engineers and naval architects draw up specifications for hull and machinery, on which are based the builder's plans and estimates. From preliminary drawings a miniature floating model is made. There are blueprints, about a thousand of them; a Navy vessel will often have six or seven thousand. From these plans a half-model is built, for only a model can show the true hull shape. On this half-model is drawn the location of every hull plate to be made—and when the huge sheets are all cut, formed and punched for rivet holes, they are numbered to correspond with those indicated on the miniature.

Before construction is begun, however, plans are sent to the U. S. Bureau of Navigation and Inspection and either to Lloyd's Register of

Finished, painted and "dressed" with flags. A few speeches, a bottle of champagne and she will take to the water.

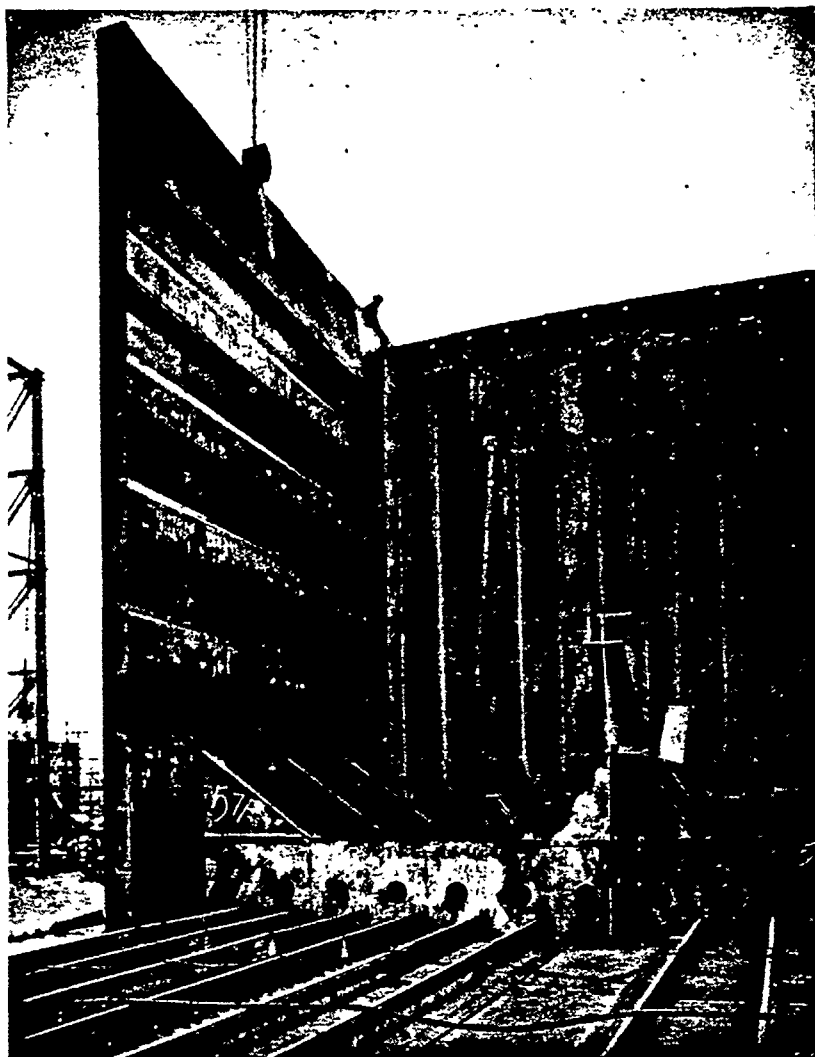
Shipping or the American Bureau of Shipping, or to both. Okayed by government and insurance experts, the plans are sent up to the "mould loft"—where the designs are reproduced in full-size patterns, templates of each individual plate are prepared in full size from sheets of thin wood or heavy paper. These patterns go to the shipyard's fabrication shop, where steel plates are cut to match them, rivet holes punched, frames bent to shape, and all structural pieces prepared for assembly. When the plates finally reach the men who put the ship together, even the rivet-holes in adjoining plates line up with each other.

The first step of actual assembly is the laying of the keel. This is built up with plates of steel, to which the base hull plates are fastened. Before rivets are driven home, plates

ETHYL NEWS

[14]

ETC 22506



At the Bethlehem yards the Frear system of corrugated bulkheads is used to gain strength and save the deadweight of extra bracing.

These tankers range in length from 442 feet up to 550 feet and over; from 64 to 75 feet beam with a draft up to 31 feet when loaded. Cargo capacity has run from 3½ million gallons to over 6 million; dead weight tonnage from about 11,000 tons to more than 18,000. In layout, all follow the traditional tanker arrangement of cargo space amidships, with engine and boiler rooms aft, quarters for the crew and engine room officers aft and a 'midships deckhouse for deck department officers, bridge, navigation space, etc.

Engines are usually double expansion steam turbines, driving a four-blade propeller through double reduction gears. Depending on the size of the vessel, engines are designed to deliver from 2800 to 4500 shaft horsepower, operating on 375 pounds of steam. Two oil-fired water-tube boilers are generally used. They are equipped with the latest economizers, superheaters and desuperheaters.

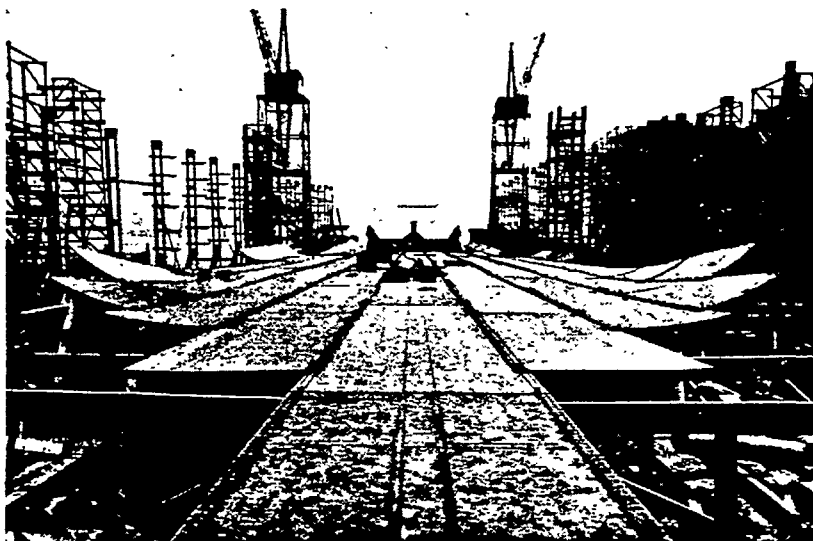
Modern tankers built at this yard are equipped with "contra guide" rudders and propellers, for increasing the "bite" of water each blade of the propeller can take. Most tankers are designed to make about 13 knots although several, with more than

are bolted together to insure perfect fit.

With the bottom of the hull completed, a decking is laid and then bulkheads are set in place. The bulkheads—metal walls which divide the ship into compartments—are erected. More plates are attached with their ribs, or stiffeners. More decking is laid. Gradually the great hull begins to take form, rising within the scaffolding that grows with it.

Now let us look into one yard—that of the Bethlehem Steel Company at Sparrow's Point, Md. Since early winter of 1936 eleven tankers have been launched from this yard and four more are now under construction.

First the keel and bottom plates are laid; then sides and bulkheads rise.



OCTOBER 1939

[15]

ETC 22507



13,000 shaft horsepower, will do upwards of 18 knots.

The 'midships section of a tanker, where cargo is carried, is simply one huge container with a deck over it, divided into 24 to 30 separate tanks by bulkheads running from top to bottom. There are generally ten "transverse" bulkheads athwartships and two "longitudinal" bulkheads running fore and aft, making enough separate compartments so that several types of cargo can be carried at one time if necessary. Above each tank, a large, box-like "tank-top" rises from the deck, providing expansion space and access to the tank for cleaning or repairs. Tanks are vented by "riser" tubes running from these hatches, or tank tops, up to the mast. At the top of each riser are pressure vacuum valves and flame arresters. Pressure and vacuum gauges in each tank are connected to indicators on the bridge.

Most of the tankers built at the Sparrows Point yards in the last three years were constructed with Bethlehem-Frear fluted bulkheads. These bulkheads are made from plates pressed into a trough-shaped section. Formed plates are welded together at intervals of about 5½ feet. This fluting of the bulkheads themselves does away with separate bulkhead stiffeners; only the customary

plate webs are required for bracing. This system of bulkhead construction possesses many advantages over the conventional type. It is lighter, and so permits heavier cargo loads.

As the fluted sides are not crossed by a number of bracing beams, they are practically self-draining. Corrosion failure—a serious problem in the maintenance of tankers—is cut to a minimum as the lighter construction also permits heavier scantlings in the parts most vulnerable to attack.

Practically all bulkheads are welded, as are deck houses and enclosures. Riveting is confined almost exclusively to the shell plating and upper deck plating amidships.

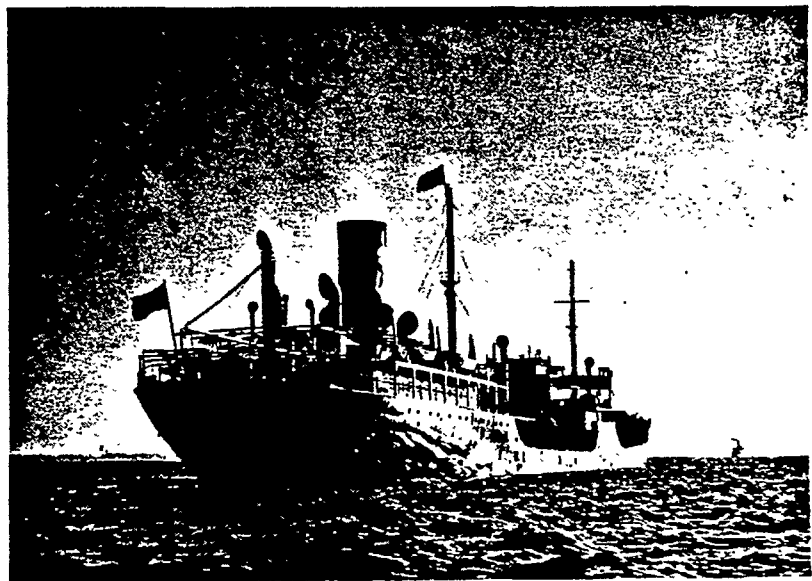
Heavy Weather. As the ship shakes her nose free the foredeck is a fury of beautiful water.

Photo courtesy Esso "Ship's Bulletin"

On an oil tanker, particular attention is of course given to the matter of fire-proofing. Steel-faced panels with incombustible cores are used for bulkhead panels and wall sheathing. Studding and furring is of metal, with all panel joints sealed and covered with metal strip. Even furniture and fittings are largely of metal.

All recent Bethlehem tankers have complete radio communication equipment, with a number of independent receivers and transmitters, automatic SOS receivers and radio direction finder. Automatic alarms indicate burned out running lights, failure of oil supply, or other breakdowns.

In these ships great efforts have been made to insure the comfort of the crew. In general they are quartered two men to a room. Crews have their own mess and smoking rooms as well as the officers. Mechanical ventilation insures fresh air in all mess rooms and living quarters, even in heavy weather when no portholes can be opened. Drinking water? You'll find it at the "scuttlebutt," as in the days of wooden ships under sail—but today you'll find the "scuttlebutt" is an enameled electric water cooler.



Loaded to her tank-tops and headed for home, across quiet water and a clear sunset.

Photo courtesy "Texaco Star"

ETHYL NEWS

[16]

ETC 22508

Ethylman Speaker at Annual Faraday Lecture

THE twelfth annual Faraday Lecture at Pasadena Junior College was presented by Robert R. Mead, of the Pacific Coast Division of the Ethyl Gasoline Corporation. He spoke on the subject, "A Chemical Formula and 100,000,000 Horsepower."

The Faraday lecture is an annual event sponsored by the Science and Mathematics Association of the Pasadena City Schools. It was inaugurated in 1928 by William D. Leech of that city, as a means of interesting high school and junior high school students in qualifying for work in research. Previous speakers have included leaders in that field from colleges and commercial laboratories and have covered current subjects on either chemistry or physics.

Attendance is open to all junior high school students in the city and a contest is held to determine which student in each school has been able to compile the best set of notes on the lecture. Of these five winners, the one adjudged to be the best also receives a capital prize.

Mr. Mead's lecture was attended by more than 1200 students. He was also guest of honor at a dinner held prior to the lecture and attended largely by the faculty of the science departments of the various city schools.

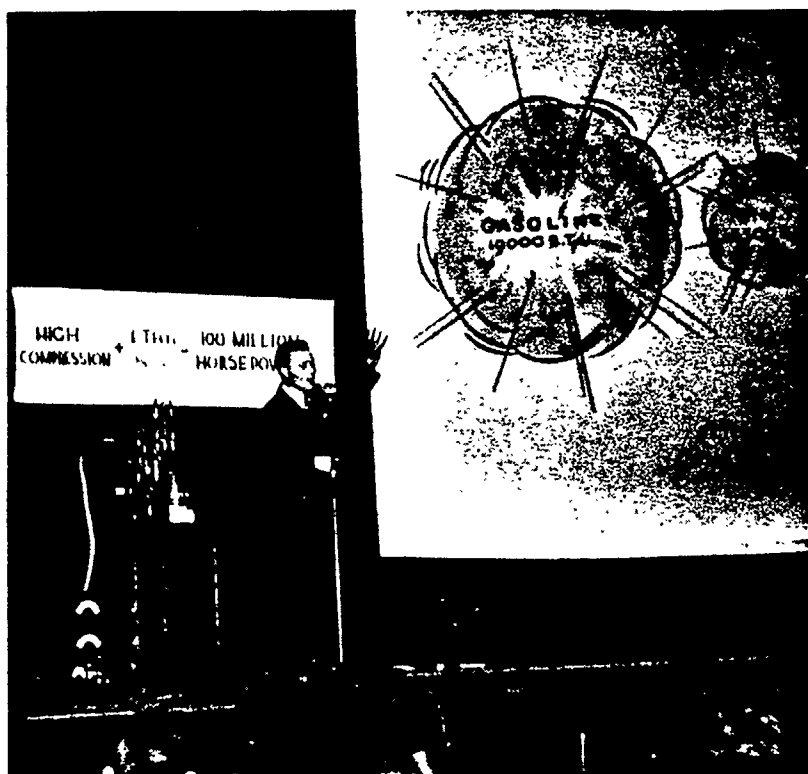
The Faraday Day Lecture received prominent mention in the Pasadena Star-News, including a picture and biographical sketch of Mr. Mead himself who formerly attended Pasadena High School and the California Institute of Technology.

This Month's Cover

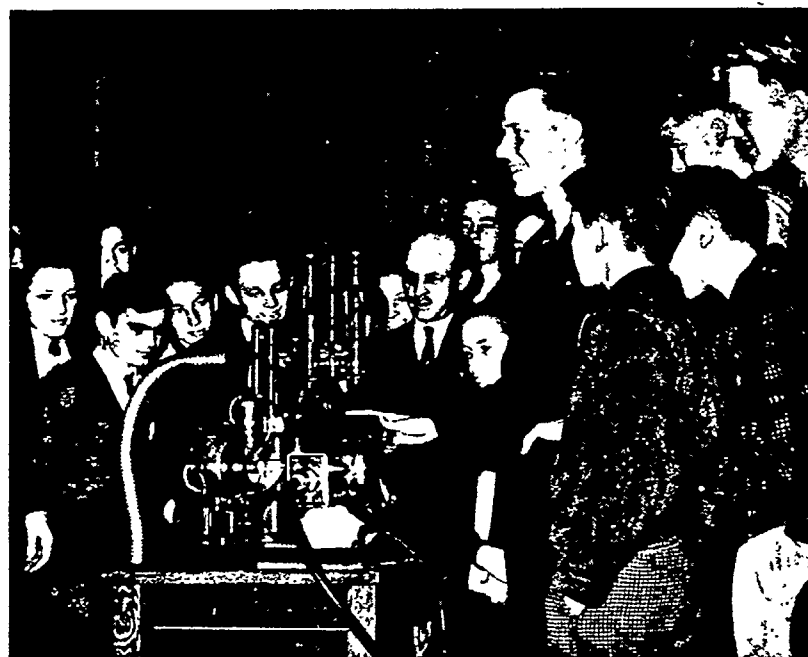
THE PHOENIX HOUSE — Built about 1800, originally as a young ladies seminary, this fine old building was run as an Inn by the Phoenix family—father and three daughters—for the rest of the nineteenth century and into the twentieth. In its heyday it was a very fashionable summer resort as well as a favorite gathering place for the carriage folk of the surrounding towns.

OCTOBER 1939

[17]



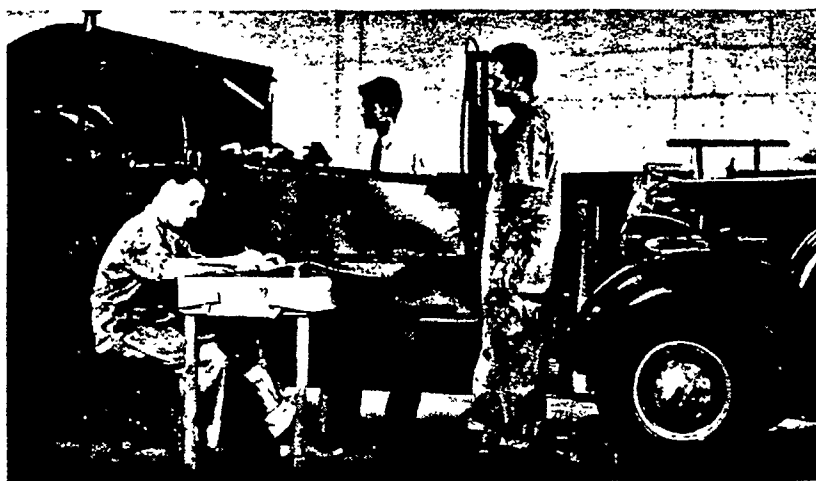
Mr. Mead describes the power of gasoline to Pasadena students attending Faraday Lecture.



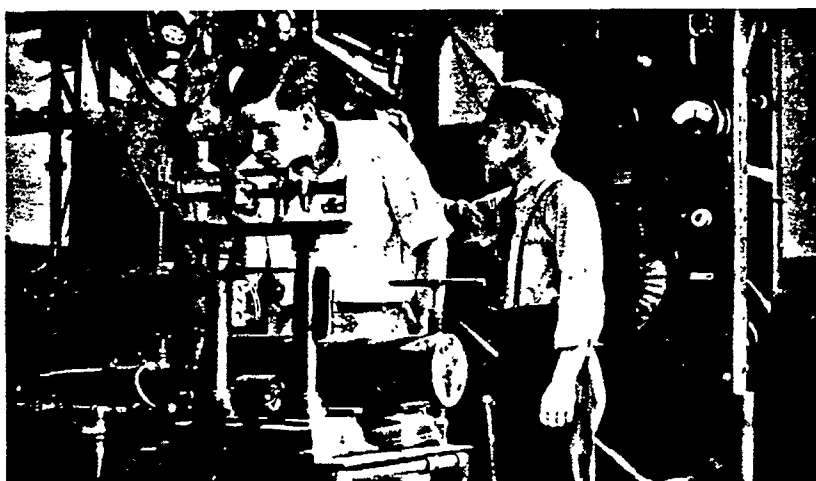
The knock-testing engine arouses keen interest among students attending Faraday Lecture. Ethyl's Robert R. Mead, at right with hand on machine, explains its purpose.

ETC 22509

Ethyl Opens Training



In making chassis dynamometer tests, this huge fan is used for cooling.



Conducting power and economy runs on super-charged engine.



A knowledge of fuels is essential. Here gasoline samples are being tested.

THE new training course for engineering college graduates inaugurated by the Ethyl Gasoline Corporation started at Detroit in July with fourteen men, selected from seven universities, in attendance. The course will extend over a period of one year, during which time the engineers in training will work in the Engineering Laboratories both at Detroit and San Bernardino. It is the feeling of the heads of the Engineering, Manufacturing and Sales departments that this fundamental training will later suit the candidates for a permanent position in these various departments, selection being based on the individual characteristics of each man.

Plans call for the students to spend nine months in Detroit and three in San Bernardino working approximately a month at a time on the many projects and tests now being undertaken. This procedure will insure adequate training in laboratory and road work with special emphasis on dynamometer tests, single-cylinder engine studies and other related investigations which frequently arise. In addition to this, every man will pass through the Detroit Gasoline Testing Laboratory, where by actual work the characteristics of and tests for a good gasoline will be learned. Beside such work prominent engineers will be invited to discuss with the group modern and pertinent trends in the automotive and petroleum industries which will be supplemented with outside plant visits. Adequate thought and time will also be devoted to the sales end of business to insure a well trained and well prepared class ready to meet all situations regardless of final individual departmental assignments. Such work is further augmented with frequent and regular practice in report writing and public speaking.

The training program is under the immediate supervision of Mr. R. R.

ETHYL NEWS

[18]

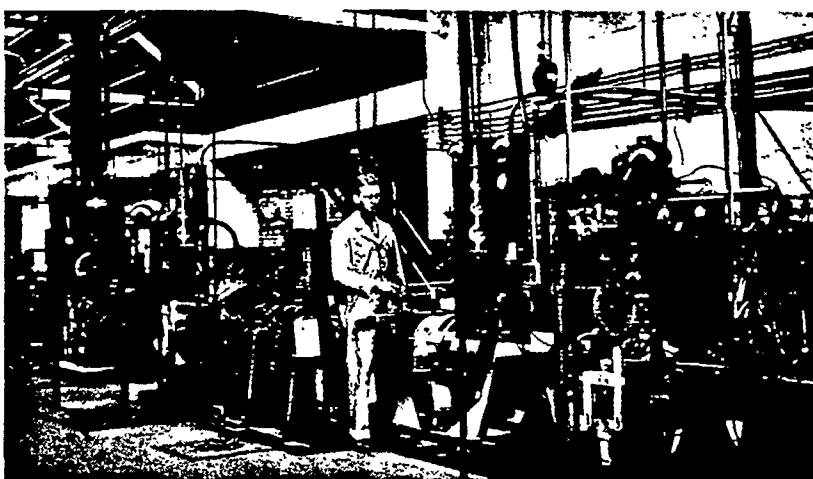
ETC 22510

Engineering Graduate School

Faller, who brings to this new position a wealth of knowledge and practical experience. Before joining the Ethyl Gasoline Corporation several years ago Mr. Faller was an instructor in mechanical engineering at New York University, later engaging in fuels research as a fuels engineer with the United States Bureau of Mines. Since being with the Corporation he has also served as Division Automotive Engineer and for the last three years has been an Assistant Division Manager.

The men forming the first Ethyl class are listed below, together with their home cities and universities:

- Merrill J. Anderson, Moline, Ill.
Augustana College & University of Illinois
- John D. Bailie, Upper Darby, Pa.
Penn State
- Donald W. Bell, Tabor, Iowa
Iowa State College & Purdue
- Douglas B. Blackburn, Park Ridge, N. J.
Cornell
- Fritz J. Bridges, Dearborn, Mich.
University of Michigan
- Arthur S. Brown, Alton, Illinois
University of Illinois
- Edwin A. Desmond, Dorchester, Mass.
Penn State
- William R. Gall, Rogersville, Tenn.
Univ. of Tennessee & Yale
- Frederick J. Hill, Connellsville, Pa.
Penn State
- Arthur E. Huffman, Oklahoma City, Okla.
University of Oklahoma
- Robert B. Ingram, State College, Pa.
Penn State
- James M. Mason, Toledo, Ohio
University of Michigan
- Walter A. Snow, State College, Pa.
Penn State
- Elmer L. Tandrup, Chicago, Ill.
University of Illinois



Much time is spent in study, in the completely equipped dynamometer laboratory.



Every facility for fuel research is available in the Gasoline Testing Laboratory.

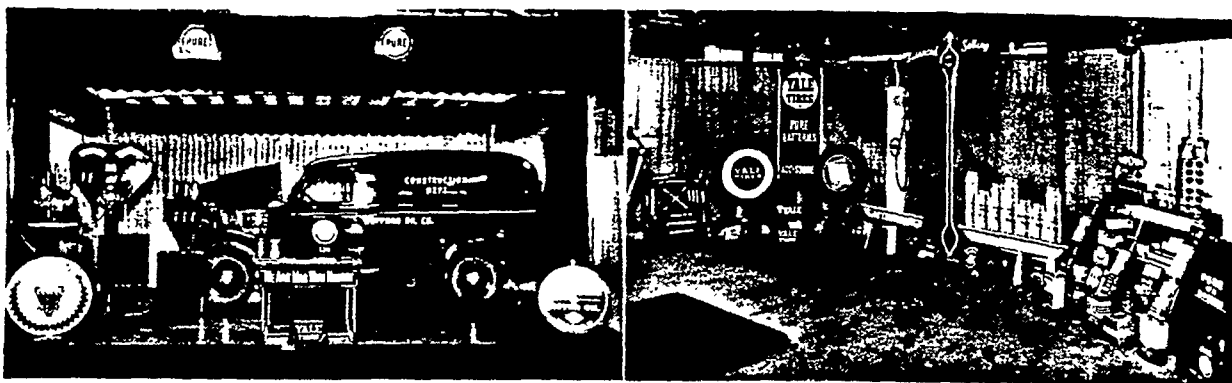


Road tests are part of the course. Student is studying detonation from specially designed seat.

OCTOBER 1939

[19]

ETC 22511



At an Ethyl Clinic Meeting held in Columbus, Ga., for the Wofford Oil Co. a short time ago, somewhat of an innovation was introduced in that the clinic walls were used for displays of Pure Oil products. The sign placed on the clinic table at the front of the hall which reads "We ain't mad with nobody" has caught the fancy of audiences and has been generally adopted by Wofford throughout their territory.

Has Served Ethyl 15 Years

JOHN MEHRING, who has been associated with the Ethyl Gasoline Corporation since its inception, was born in New York City on March 24th, 1896. After graduating from high school he was employed by E. D. Arnold, Agent and affiliate of Standard Oil Company of New Jersey. At the outbreak of the World War he enlisted in the U. S. Navy and served with the Transport Force until December 1918. He then accepted a position with the Midwest Refining Company in Wyoming but eventually returned to New York, where he entered the shipping business. In September 1924 he joined up with Ethyl as an Accountant, being promoted to Chief Accountant in 1926, Assistant Treasurer in 1927 and Treasurer in 1936, which position he still holds.

Mr. Mehring is considered an authority on taxes, having made a special study of the subject. He is also largely responsible for the establishment of the accounting system used in this company.

Mr. and Mrs. Mehring live in Wantagh, Long Island with their son.

The Following Service Awards

have been made as of

October 1st, 1939

15 YEARS

JOHN C. MEHRING Treasurer

10 YEARS

LEW BARNUM Manufacturing

WALTER H. EILERMANN
Administration

HARRY KUHE Tulsa Sales

MARGUERITE V. McDONALD
Administration

DR. LESLIE SCHRADIN
Medical Adviser

ALICE H. WYGAND Manufacturing

5 YEARS

HAROLD SOROOS Chemical Research

99 Years From Now Won't Make Any Difference

I WONDER why folks worry. There are only two reasons for worry. Either you are successful, or you are not successful. If you are successful there is nothing to worry about; if you are not, there are only two things to worry about. Your health is either good or you are sick; if your health is good, there is nothing to worry about; if you are sick, there are only two things to worry about. You are going to get well or you are going to die; if you are going to get well, there is nothing to worry about; if you are going to die, there's only two things to worry about. You are either going to heaven or you are not going to heaven; if you are going to heaven, there is nothing to worry about; and if you are going to the other place you will be so damned busy shaking hands with your old friends you won't have time to worry. **SO WHY WORRY?**

The codfish lays a million eggs,
While the faithful hen lays one.
But the codfish does not cackle,
To inform us what she's done.
So we disregard the codfish,
While the faithful hen we prize
Which only goes to prove,
That it pays to advertise.

Safety Topics

ETHYL NEWS

[20]

ETC 22512

NEWS BRIEFS



Mr. and Mrs. Emanuel G. Staebler of Ann Arbor, Michigan, announce the marriage of their daughter, Doris Julia to Elmer Frederick Mahlke also of Ann Arbor, on July 1st, 1939. The wedding took

place at the Evangelical Lutheran Church and was followed by a reception in the church parlors.

After a honeymoon at Vineyard Lake the young marrieds motored to San Bernardino, California where they are making their home. The groom is a member of the Gasoline Testing Laboratory in San Bernardino, having been transferred there from Detroit in May of this year.

We extend our best wishes for their happiness.

• • •

We welcome William Joseph Doyle to the ranks of the Administration Department. Bill was born in Rutherford, N. J., not so very long ago and lives in Englewood, N. J. He attended the Dwight Morrow School for three years and is studying science at night school.

The following item comes to us from Deepwater, N. J.:

"In narrative fashion, we give you the Who, Where and When of our story and go so far as to draw our own conclusions regarding the Why. On August 28th, Margaret E. Bailey became the bride of Paul Rostaing at the Pennsville M. E. Church, Pennsville, N. J. After the reception at the home of the bride's parents, the newlyweds left on a motor trip through New York state. Margaret has been employed at the Manufacturing Department since August 1, 1936, acting in the capacity of secretary to Edward J. Gresslin, our Traffic Manager. For the time being, Mrs. Rostaing is continuing in our employ. Naturally our congratulations and best wishes are extended to the couple.

Unlike the narrative, the Why goes at the end of our story, and we guess it's because they were in love."

• • •

George William Geiger, a native of Brooklyn, N. Y., joined the Administration Department the latter part of August. He attended Erasmus Hall in Brooklyn and this is his first office position. For six weeks this summer he was with an archaeological expedition in Arizona. George is keenly interested in aviation and wants to study aeronautics.

Wallace F. Armstrong joined the staff of the Chemical Research Laboratory on July 1st, 1939. He is a native of Canada but has spent most of his life in Miami, Florida. He graduated from the University of Florida in 1938 with a Degree of Bachelor of Science in Chemical Engineering. During the following year he was employed at the University of Florida as a graduate assistant in Chemical Engineering, at the same time working for his Master's Degree.

Wallace enjoys sports of all kinds, especially baseball and tennis.



Nora Breshnan, who joined the Purchasing Department in the Greybar Building about a year ago, is leaving the Ethyl family to go to Hollywood. She plans to continue her studies in dramatic technique with Madame Maria Ouspenskaya, stage and screen actress. Nora has been studying in her school in New York for the past year and also was connected with her summer theatre at Peterboro, N. H. She hopes to come East again in a year or so for work in the theatre. Good luck to you, Nora!

Ethyl Motor Clinic Itinerary

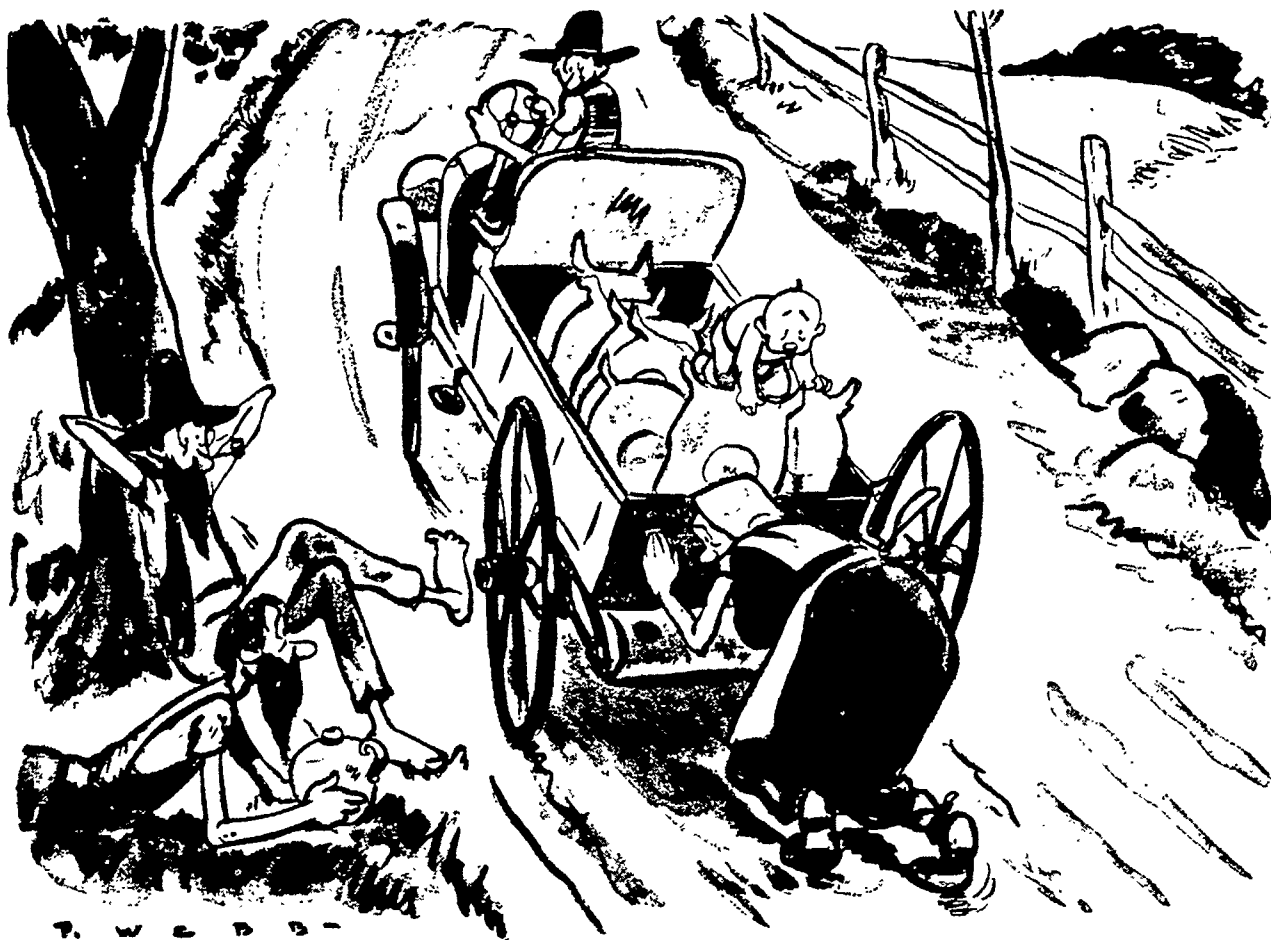
<i>Clinic Number</i>	<i>Division</i>	<i>Present Location</i>	<i>Remains Approx.</i>	<i>Next Location</i>
1 A. D. Martin, <i>Manager</i>	Los Angeles	Los Angeles 977 W. 6th Street	Permanently	
2 L. A. Dollahan, <i>Manager</i>	Chicago	La Crosse, Wis. Fair Grounds	10/22	Madison, Wis.
3 W. A. Newman, <i>Manager</i>	Dayton	Wheeling, W. Va. 2109 National Road	10/13	Parkersburg, W. Va.
4 M. P. Murdock, <i>Manager</i>	New York	Syracuse, N. Y. 212 Burnet Avenue	10/15	Rochester, N. Y.
5 H. E. Cottrell, <i>Manager</i>	Tulsa	Austin, Texas 106 East First Street	10/6	San Antonio, Texas
6 E. L. Mason, <i>Manager</i>	Baltimore	Greenville, S. C. 414 S. Main Street	10/4	Columbia, S. C.
7 M. Littlefield, <i>Manager</i>	New York	Jamaica, L. I. 94-15 Merrick Blvd.	11/15	Paterson, N. J.
8 R. J. Coveney, <i>Manager</i>	Boston	East Hartford, Conn. 613 Connecticut Blvd.	10/6	Waterbury, Conn.
9 C. F. Naylor, <i>Manager</i>	Chicago	Jackson, Michigan 237 N. Jackson Street	10/20	Battle Creek, Mich.
10 C. M. Berry, <i>Manager</i>	Kansas City	Pueblo, Colo. 814 N. Santa Fe Street	11/1	Butte, Montana
11 S. T. Pruitt, Jr., <i>Manager</i>	Atlanta	Atlanta, Ga. 441 W. Peachtree Blvd.	10/27	Jacksonville, Fla.

OCTOBER 1939

[21]

Printed in U. S. A.

ETC 22513



"Wonder ef'n she needs high compression?"

NOTHING SHORT of a miracle could put real power and performance into the mountain boys' venerable jalopy. And high compression is no miracle. It is an accepted principle of increasing engine power and improving fuel economy, used today by all truck and bus manufacturers in current engine models.

The results of high compression in the engine are: Increased power from the same amount of fuel, lower cooling water and exhaust gas temperatures and decreased average bearing pressures at high speeds, under which condition bearing

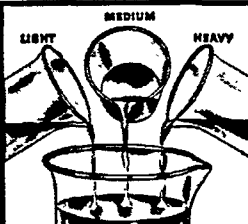
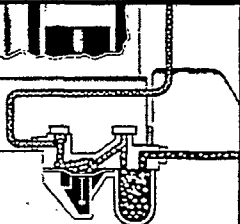
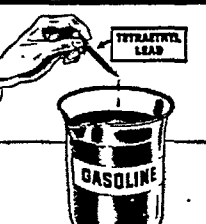
punishment is greatest. The results of high compression on the road are: The ability to haul heavier payloads, the maintenance of faster, more uniform schedules and decreased fuel consumption, or any combination of these.

Both "high" and "low" compression are relative terms and depend on the anti-knock value of the gasoline generally available at the time the terms are used. Twelve years ago a typical engine had a compression ratio of 3.6 to 1. Today the average truck engine has 5.5 to 1. The difference is explained by the steadily

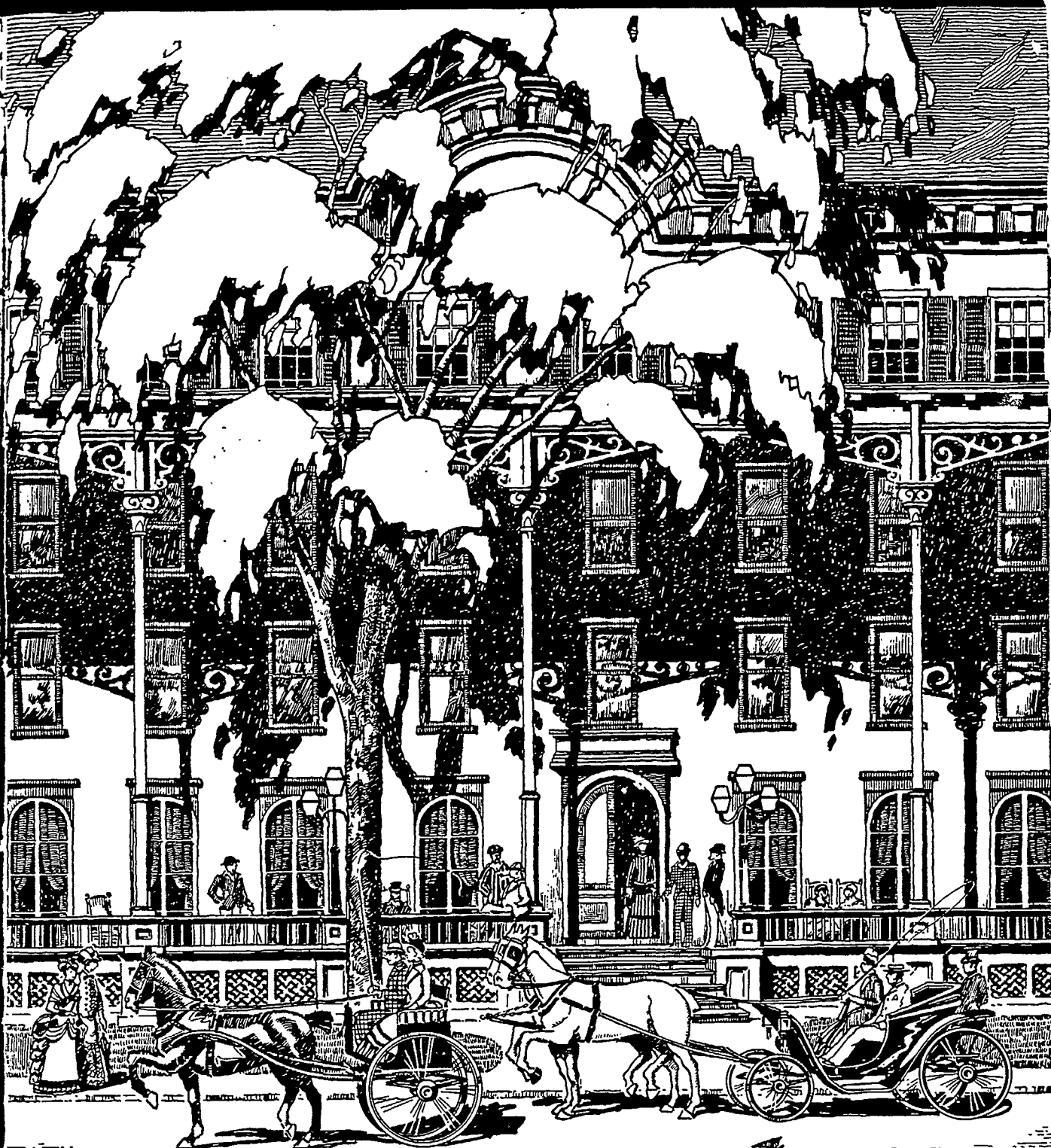
increasing anti-knock value of gasoline, which has permitted corresponding increases in compression ratio.

When you buy better grades of gasoline from a reputable oil refiner or marketer, you'll find other advantages besides high anti-knock value—low gum content, balanced volatility and the correct vapor pressure to prevent vapor lock.

Ethyl Gasoline Corporation, Chrysler Building, New York, N. Y., manufacturers of anti-knock fluids (containing tetraethyl lead) used by oil companies to improve gasoline.

4 RULES FOR GOOD GASOLINE	 VOLATILITY should be balanced, for full power and best economy.	 VAPOR PRESSURE should be adjusted to meet operating conditions.	 GUM CONTENT should not exceed $\frac{1}{4}$ of a gram (4 small drops) per gallon.	 ANTI-KNOCK VALUE should be high, at least 68 octane number.
---	---	---	--	---

THE BETTER THE GASOLINE THE BETTER THE PERFORMANCE

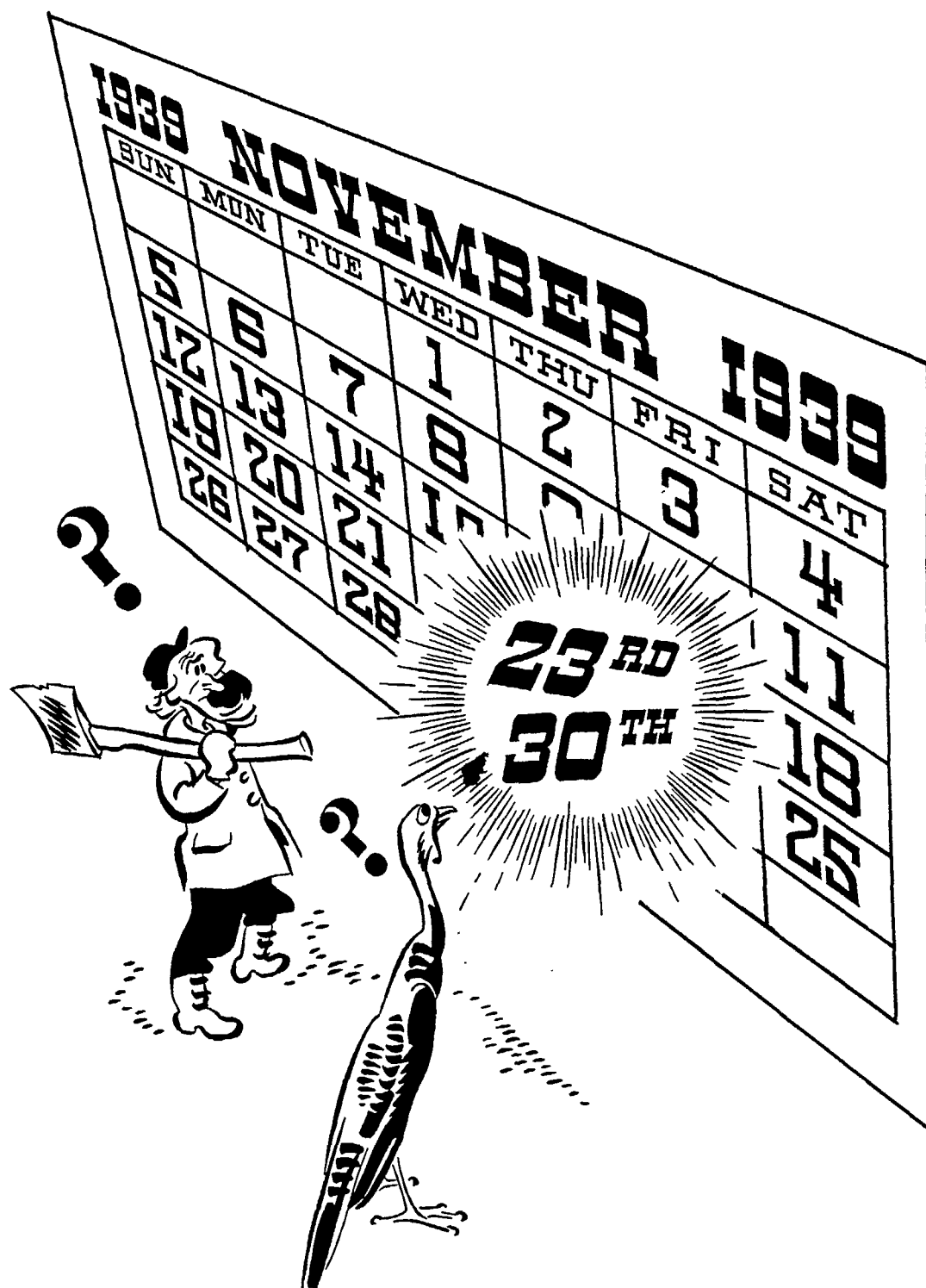


THE AMERICAN ADELPHI
SARATOGA SPRINGS



NOVEMBER 1939

ETC 22515





Ethyl Gasoline Corporation
CHRYSLER BUILDING
NEW YORK CITY

W. CARY HARRIS
Editor

RUSSELL B. WESTON
NORTHROP CLAREY, Jr.
Associate Editors

Correspondents

J. A. COSTELLO	Atlanta
F. S. CRONIN	Baltimore
B. R. JONES	Boston
A. B. WYRICK	Chicago
H. F. DEDO	Dayton
D. S. FLYNN	Kansas City
CARL ABELL	Los Angeles
R. L. GOLTZ	New York
H. KUHE	Tulsa
R. K. SCALES	Engineering Dept.
L. BARNUM	Mfg. Baton Rouge
C. WASSERMAN	Mfg. Deepwater
J. C. POPE	Gasoline Testing Dept.
E. J. NIESER	Administration Dept.
HUBERT FOSSETT	London

THE MATERIAL IN THIS PUBLICATION
MAY BE REPRINTED PROVIDED DUE
CREDIT IS GIVEN THE "ETHYL NEWS"
OR ETHYL GASOLINE CORPORATION
UNLESS IT IS A COPYRIGHTED ARTICLE

Volume 6, Number 11

New Reactions



DR. GEO. CALINGAERT

PURE science is no longer the sole property and activity of universities and academicians. Industry, accustomed to research as a vital activity, is more and more finding substantial value in pursuing investigations of the type formerly considered appropriate only to university laboratories. The results of these excursions into pure science have not infrequently produced decided reorientations of scientific thought.

Of such a character are the redistribution reactions discovered in the laboratory of the Ethyl Gasoline Corporation and reported to the ninety-eighth meeting of the American Chemical Society at Boston by George Calingaert. In its essence, this discovery consists in producing between certain classes of organic compounds the familiar metathetical reactions of inorganic chemistry. The classes of compounds so far found to enter reactions of this kind are esters, metallo-organic compounds, and organic halides. These compounds undergo rearrangement in accordance with the laws of probability without absorbing or releasing heat when simply mixed in the presence of a suitable catalyst. Radicals, as well as atoms, interchange freely between different molecules in a manner similar to behavior of ions in solution, and the laws of mass action apply as strictly in one case as in the other. Since heat effects are not involved, the choice of a temperature depends upon the desired speed of the reaction and need be little, if any, different from that of the room.

Organic chemists are provided with a new tool for the solution of many of their problems by these reactions, which avoid thermal decomposition and the intricacies of free radicals. Already preliminary results point the way to new syntheses of mixed compounds of both scientific significance and industrial value stemming from this research. What secrets of Nature it may ultimately unlock cannot be foreseen, but the importance of this key to the behavior of organic radicals is undoubted. One easily recalls the baffling complexities of the aging of wine, whisky and brandy among the many problems laid on the shelf for want of an effective key to their solution and now calling for re-examination.

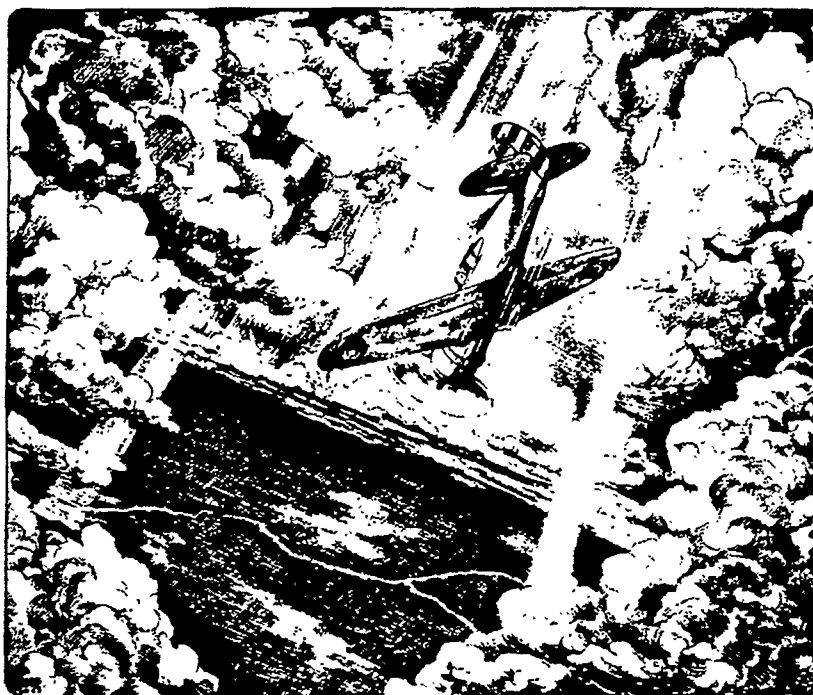
Industrially, new efficiencies in the preparation of certain types of organic compounds are within vision but of possibly greater immediate significance is the indication that organic halides can be used as brominating agents. Transporting bromine, practically requiring glass containers, is expensive and the use of this element under most circumstances involves losses through low yields and oxidation of both raw material and finished product. Ethylene dibromide, containing some 85 per cent bromine, can be used as a brominating agent through distribution with an organic chloride of the desired type and thus becomes in effect the equivalent of bromine itself. Ethylene dibromide is normally inert and can be handled and transported

Continued on page 15

In This Issue

New Reactions	Battle of Tractor Giants Looms for 1940
American Built Planes Sensation on Allied Front	Sealed Beam for Night Driving
Noted Scientist Says America Could Supply World's Petroleum Needs	Business Man Views a Thresher For Safety's Sake on New York Highways
The Mariners' Museum	Syracuse Auto Races
Ethyl Motor Clinic Itinerary	This Month's Cover
Stethoscoping the Bus	Introducing Class of 1939-1940
Combined Efforts of Oil and Automotive Industries Promote Better Motor Performance	Has Served Ethyl 15 Years
	Newsbriefs
	Service Awards

ETC 22517



The Curtiss Dive

Nineteen Thirty Nine

American Built Planes Sensation on Allied Front

A RECENT news item from an Associated Press correspondent with the allied armies on the Western Front, reports that French officers say one of the sensations of the War has been the performance of the Curtiss pursuit planes bought in the United States. One estimated that these planes with French pilots had brought down a large number of German ships with a loss of only a few of their own.

However, planes now being built for the U. S. Army, it is said, surpass the Curtiss Pursuit ships described by the French officers. This authority, who prefers to remain anonymous, states that a later Curtiss Pursuit development now in production is believed capable of a speed "at least 50 miles an hour in excess" of those being used by the French army.

Nearly \$14,000,000 worth of the new type known as the P-40 are being manufactured for the U. S. Army

but the exact number has been kept secret. The French planes, of which 200 were built here, are said to be capable of attaining speeds in excess of 300 m.p.h. It was in a plane of this type known as the Hawk 75-A that Curtiss's chief test pilot, Lloyd Child, traveled faster than any other human being.

In making a test for the French Government, Child climbed his plane to 22,000 feet over Buffalo airport. He was not out to make an altitude record but rather to prove to the satisfaction of these officials that the airplane could and would stand a full terminal velocity dive. As the required altitude was reached, Pilot Child rolled the Hawk 75 on its back, pulled the stick and pointed the nose directly toward the ground. The speed began to rise. After a fall of 5,000 feet, the needle on the Air Speed Dial had reached over 500 m.p.h. — thereafter he discontinued looking at it because he had other

more important observations to make—but in the rear of the plane was a set of French Recording instruments, carefully calibrated and adjusted, which were to give a true and complete record of the dive. As the distance of the fall reached 6,000 feet, Child eased the airplane out of the vertical dive, continued descending and landed at the airport.

French Engineers, aided by personnel of the Curtiss Aerodynamics Department, removed the instruments from the rear of the plane, took the photographic sheet from the Airspeed Recording instrument and developed it. To their surprise, though no less to the surprise of Pilot Child, they found that the instrument had given an actual record of 575 m.p.h. vertical speed, after which time the beam of light which was recording the acceleration had proceeded off the top of the photographic record. The plane had gone faster than ever the engineers had reckoned for.

This was not a flight intended to make aviation history nor was it a flight in the stunt status, but was simply intended to prove to the satisfaction of the purchaser what stresses a modern pursuit airplane could stand at high speed.

To the press of the nation it became news; to the French government a matter of extreme satisfaction. It had been proven that Curtiss Pursuit planes could at least equal and more probably out-dive other airplanes which the world has known and that they were capable of maintaining this speed with no perceptible change in flight characteristics and with no noticeable effect on the pilot.

Yes, to the nation it became news. For days headlines carried stories and articles, opinions and engineering data relating to the flight. H. Lloyd Child was hailed as "the world's fastest human being." This was all without question of extreme interest to the public—but to the men who were flying airplanes of this type, it meant simply that an extra factor of safety had been proven.

ETHYL NEWS

[2]

ETC 22518

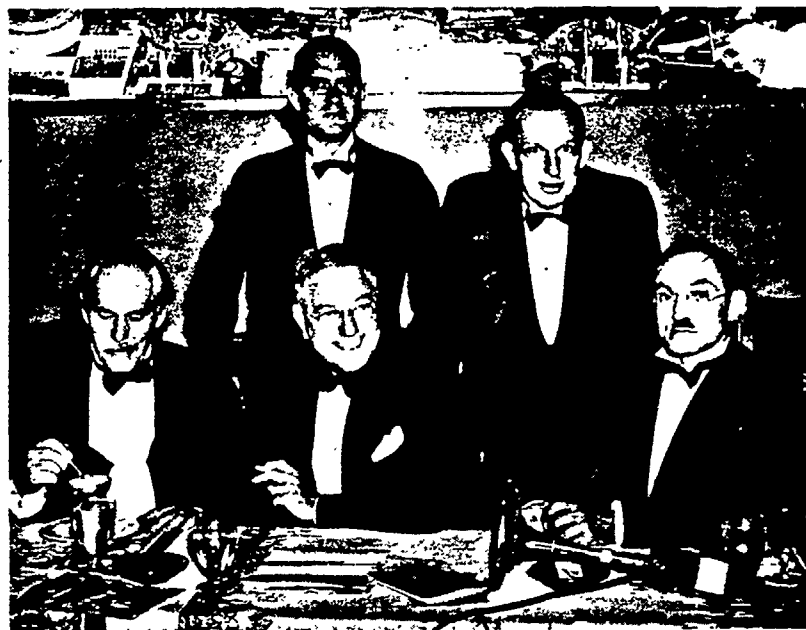
Noted Scientist Says America Could Supply World's Petroleum Needs

AT a dinner which was recently held at the Petroleum Industry Exhibition at the New York World's Fair, Dr. Gustav Egloff, prominent petroleum scientist, assured those present that the United States has enough oil resources to produce sufficient gasoline for all the high speed planes in the world during peace or war times. Of particular significance was his statement that the crude oil production of Russia, Poland, Germany and Rumania amounts to only 260,000,000 barrels a year which is less than one-quarter of the annual production of this country. Moreover he asserted that without great difficulty, America's present output could be increased so that it would equal the entire world's production.

Dr. Egloff spoke before a group of scientists and technologists who, because of their outstanding work in petroleum were being honored by the industry. The occasion marked the celebration of the 80th anniversary since the first oil well was drilled at Titusville, Pa. Other speakers were Dr. Ales Hrdlicka, curator of the United States National Museum and Mr. Thomas H. Taylor, chairman of the executive committee of the Petroleum Industry Exhibition.

"As the result of energetic research and scientific endeavor," Dr. Egloff said, "the American oil industry today is able to supply the entire world with petroleum and its products for years to come. The development of high-octane gasoline used for high speed planes is definitely the work of the scientist and technologist of the United States.

"An enormous amount of research work has developed lubricating oils of the highest quality which makes it possible to operate our high compression aviation engines of 1,500 H.P. and higher. Without these lubricating oils able to withstand terrific heats and pressure, America's aviation leadership could never have been evolved.



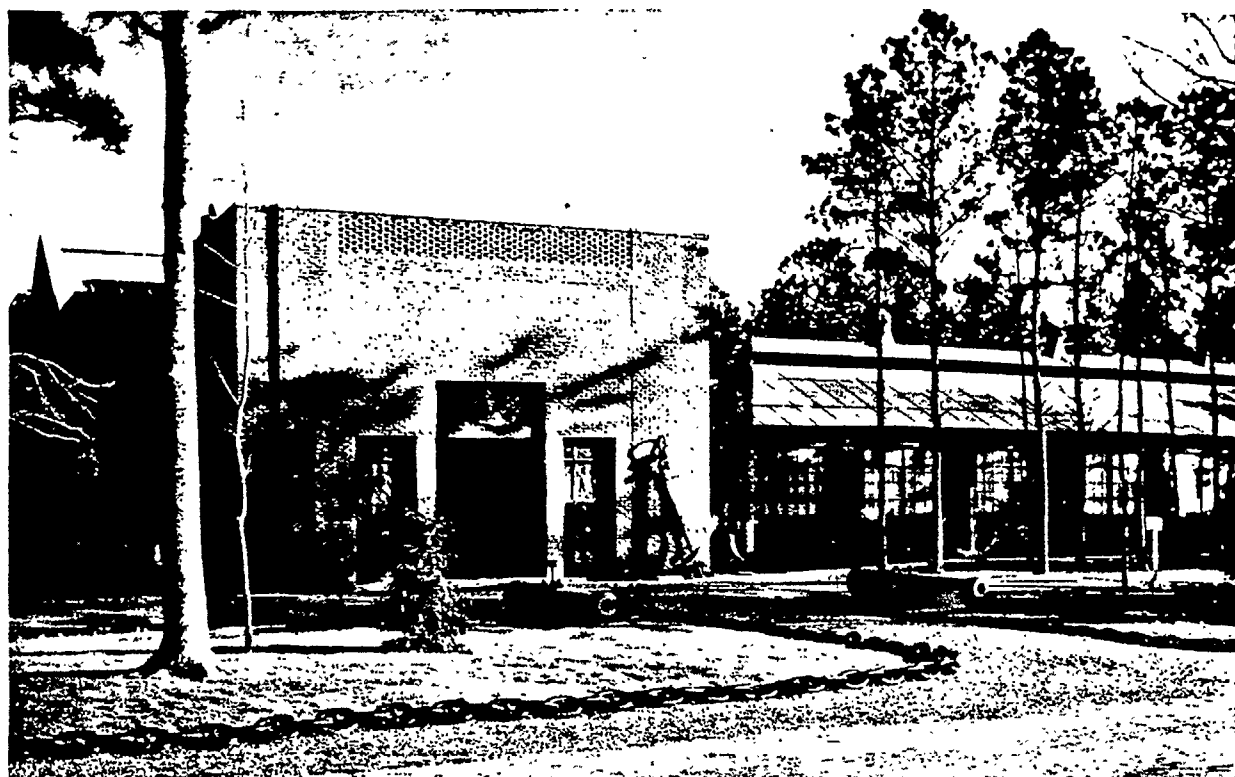
Left to Right seated: Dr. Ales Hrdlicka, curator, United States National Museum; Thomas H. Taylor, chairman of the executive committee of the Petroleum Industry Exhibition, Inc.; Dr. Gustav Egloff, prominent petroleum scientist. Standing, left to right: Dr. Graham Edgar, of the Ethyl Gasoline Corp. and S. W. Ferris, chief chemist of the Atlantic Refining Co.

"The fifty-two passenger airplanes of today driven by four 1,500 H.P. engines with cruising speeds of better than 230 miles per hour will not alone be lubricated by synthesized products but also fueled by 100 and even higher octane gasolines. Intensive research at great expense is going on to develop fuels and lubricants for aviation engines of 2,000 H.P. and higher, which will hurtle ships through the air at even greater speeds than those obtained today.

"The greatest single contribution to the development of the American oil industry has been its scientific research which leads the world," Dr. Egloff said. "Science had developed products from petroleum which touch every phase of man's existence. It has constantly improved the quality of petroleum products while reducing their cost, as illustrated by the fact that the average price of

gasoline has dropped sixty-six percent during the past twenty years."

Among those who attended were: F. Trubee Davison, Board of Directors, New York World's Fair; Earle W. Webb, President, Ethyl Gasoline Corporation; Dr. Graham Edgar, Vice President in Charge of Research, Ethyl Gasoline Corporation and originator of the Octane Number Scale for measuring the anti-knock value of fuels; H. D. Frueauff, Vice President, Cities Service Oil Company and a Director of the Petroleum Industry Exhibition, Inc.; S. W. Ferris, Chief Chemist of the Atlantic Refining Company; D. T. Pierce, Assistant to the President, Sinclair Refining Company; E. E. Puryear, Assistant to the President, The Texas Company; and Dr. J. B. Rather, in charge of general laboratories at Socony-Vacuum Oil Company.



The Mariners' Museum

DURING the annual migration to Florida, which will soon be getting under way, many who travel by car make a point of going by way of Williamsburg, Va. By this route at the junction of U. S. 60 and 17 above the James River Bridge, one will find the Mariners' Museum located at Newport News. It is a delightful spot and for those interested in the sea, 60 minutes may be well spent viewing one of the finest collections of its kind to be seen.

On the massive bronze doors of the Museum the following inscription greets the eye:

"This museum is devoted to the culture of the sea and its tributaries, its conquest by man and its influence upon civilization."

The visitor, impressed by the scope and ambition of this aim, might wonder how any collection of miscellany could begin to cover such an extensive field of interest — but when he sees the museum itself, he begins to wonder instead how such a collection could ever have been

assembled. The graveled walks leading to the main building are "fenced" with massive anchor chain; brass cannon 200 years old, bearing the arms of Philip V and Ferdinand VI of Spain, flank the entrance. At each side of the doorway is a huge anchor and a dozen others gathered from many shores stand along the front. Two of them had been buried nearly a century at Halifax, on the coast of Nova Scotia. Another is a great 18th century mooring anchor from Port Royal, Jamaica, the stronghold of Morgan, Kidd and other freebooters; the chain of this is hand forged with links each three feet in length and a ring large enough for a man to pass through.

The main room of the Mariners' Museum is dominated by a large carved eagle, the figurehead from the old U.S.S. *Lancaster*. With a wingspread of 18 feet, this is the finest bird figurehead in existence, carved by the hand of the incomparable Bellamy. Along the brick walls of the room are 24 other figure-

heads from the bow of many a fine ship: the *Bear of Oakland*, the *Columbia*, *Lady Edmonton*, *Coriolanus* and others. All have dipped in the brine of heavy weather and dried under the sun of seven seas.

The museum has many beautiful scale models, several built to quarter-inch scale in the museum's own model shop. There are models of sailing ships from many lands, early steam and modern steam, the *Monitor* and *Merrimac* and other naval vessels, luxury liners and a war-camouflaged merchantman. There are working models of reciprocating steam engines and modern turbines.

Instruments of navigation are on display, from astrolabes and early Davis quadrants right through nocturnals and ornate brass quadrants of the 18th century to the "Iron Mike" of today. Another section reveals a fine display of scrimshaw, the sailor's art in the days of whaling. With a piece of whale's tooth or vertebra in their hands the Yankees would pass idle hours carving

ETHYL NEWS

[4]

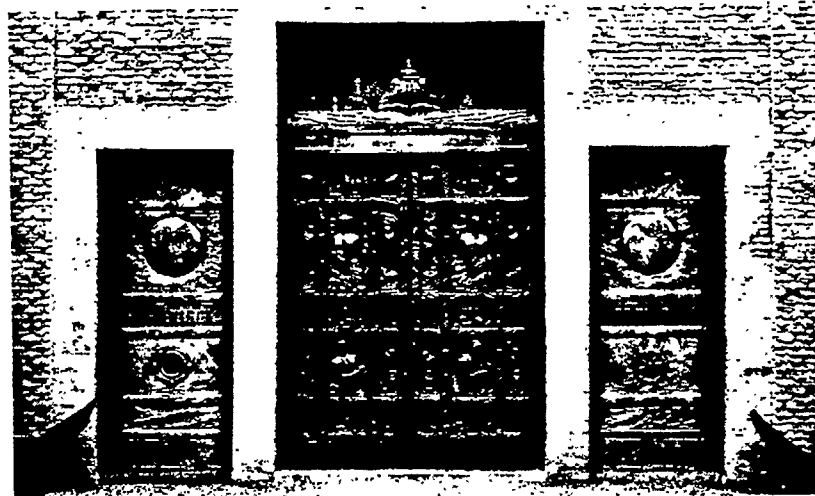
ETC 22520

ivory cane heads for days ashore, bone ship models or jaggling wheels for crimping the rims of their wives' apple pies. There is also a full-size whale boat, completely equipped with the hundred items they carried. Nearly a hundred years of development went into making these boats about perfect for their task—they were light to handle, quick as racing shells, yet springy and strong for sloppy-weather launchings when the mother boat was under full sail, or for the rigors of a "Nantucket sleigh ride" — that thrilling dash through the spray with a taut line humming at the bow of the boat and at the other end of the line an escaping whale with a harpoon deep in his back.

There is much material salvaged from ships sunk in 1781 at the siege of Yorktown; cannon and shot, huge one-piece wooden blocks with sheaves and heavy pins of lignum vitae. There are glass bottles which have taken on beautiful iridescent hues from their bath of a century and a half. The brilliantly blended tints of this glass often vary with changes of weather.

Visitors interested in marine art will find a collection of over 2,000 prints and engravings. Approximately half this number are prints of harbors and great ports in humble beginnings. Many are shown in successive stages to modern development, a preservation of the history and progress of the harbors of commerce throughout the world. In American prints practically every seaboard city is portrayed. There are prints of naval scenes and battles, early ship building and launchings in the days of sail. Oils by the brush of artists inspired with the love of the sea contribute fine paintings to delight the eye of the marine enthusiast. The library of the museum has a collection approaching 20,000 volumes efficiently classified and readily accessible. Books which date from 1518 are available for students or writers of marine subjects and for technical research and books with endless tales of the sea are on hand for leisurely visitors.

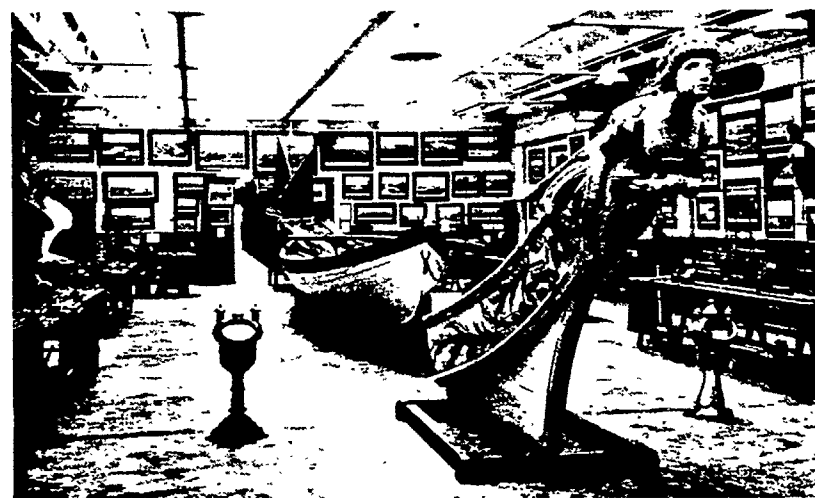
In the court yard of the museum are over 40 full-size craft from vari-



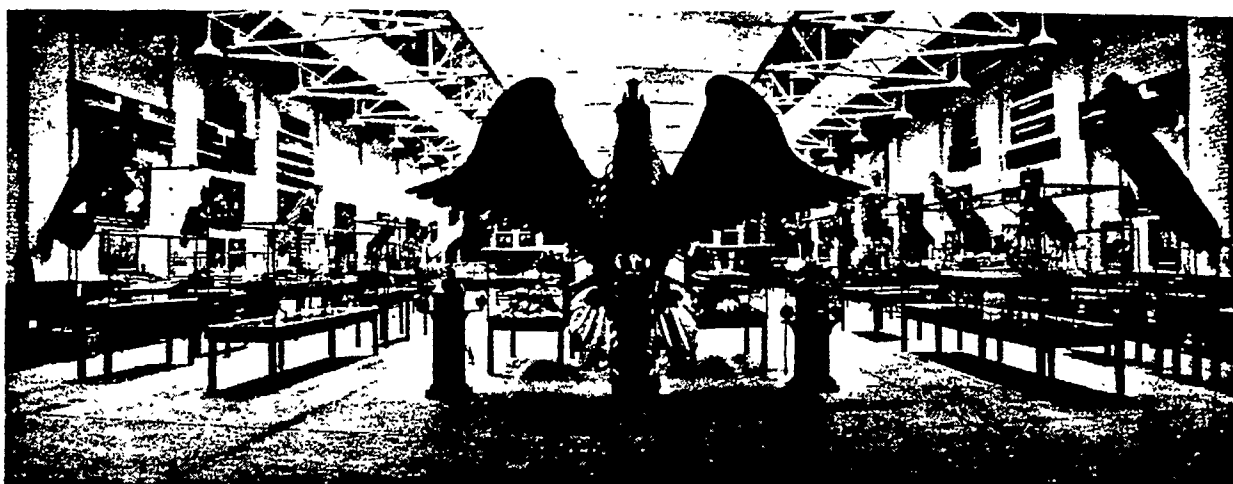
Doors of heavy bronze, magnificently wrought and of appropriate design.



A profusion of old boats displayed along one of the colonnades.



This genteel lady, once guardian spirit of the souls on board, has breasted many a high wave while leading her ship through squalls and darkness.



ous countries. Kayaks from the frozen north, bark canoes of Indians, Chesapeake Bay log canoes and a sleek cypress dugout of the Seminoles in Florida; outriggers from Tahiti and dugouts from the West Indies, a sampan from China and a long Portuguese river-boat, a fine Dutch *Tjotter* and other craft form an interesting collection which show how man takes to the water in dif-

ferent parts of the world.

The museum stands on a tract of 1,000 acres, of which 600 are woodland suitably developed as a game and bird sanctuary. A fresh water lake covering 200 acres has been created by damming an estuary of the James River. The museum was established in 1930 by the well-known philanthropist, Mr. Archer A. Huntington. It is open to all and

Main room of the museum. The large hand-carved eagle, figurehead of the old U.S.S. Lancaster, has a wingspread of 18 feet. Displayed in glass cabinets are scale models of yachts, oil tankers, steam frigates, tugboats, pilot boats and a modern luxury steamer of the Dollar Line.

is conveniently accessible by train, boat or automobile.

Ethyl Motor Clinic Itinerary

<i>Clinic Number</i>	<i>Division</i>	<i>Present Location</i>	<i>Remains Approx.</i>	<i>Next Location</i>	<i>Opens Approx.</i>
1 A. D. Martin, Manager	Los Angeles	Los Angeles, Cal. 977 West 6th Street	Permanently		
2 L. A. Dollahan, Manager	Chicago	Madison, Wis. 332 W. Johnson Street	11/17	Oshkosh-Fondulac, Wis.	11/23
3 W. A. Newman, Manager	Dayton	Marion, Ohio 219 E. Center Street	12/1	Undetermined	
4 M. P. Murdock, Manager	New York	Rochester, N. Y. 1044 University Avenue	11/24	Buffalo, N. Y.	12/4
5 H. E. Cottrell, Manager	Tulsa	San Antonio, Texas 1100 Broadway	11/17	Special Army Showing	
6 E. L. Mason, Manager	Baltimore	Columbia, S. C. 1300 Sumpter Street	11/10	Charleston, S. C.	11/16
7 M. Littlefield, Manager	New York	Jamaica, L. I. 94-15 Merrick Boulevard	11/10	Paterson, N. J.	12/4
8 R. J. Coveney, Manager	Boston	Utica, N. Y. 336 N. Genesee Street	11/10	Albany, N. Y.	11/17
9 C. F. Naylor, Manager	Chicago	Kalamazoo, Michigan 458 W. Michigan Avenue	11/17	Muskegon, Mich.	11/23
10 C. M. Berry, Manager	Kansas City	Cheyenne, Wyoming 415 West 16th Street	12/4	Undetermined	
11 S. T. Pruitt, Jr., Manager	Atlanta	Jacksonville, Fla. 917 W. Adams Street	12/15	Orlando, Fla.	12/20

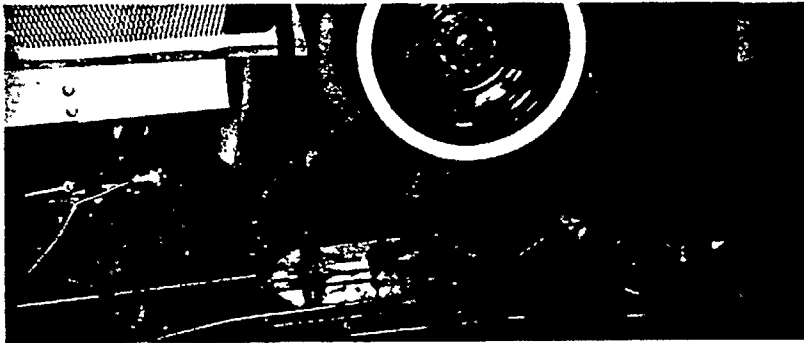
ETHYL NEWS

[6]

ETC 22522

Stethoscoping the Bus

Mr. Errol Gay of Ethyl's Technical Sales Division, tells how the American Transit Association checked up on the heart, lungs and liver of a motor bus at a Clinic session in Los Angeles



1 The rear wheels of the bus were placed on an absorption dynamometer.



2 Adjustable main jet installed on carburetor so adjustments can be made more easily during demonstration.



3 The "power" and "miles-per-hour" scales were projected on a screen above the bus.

EXECUTIVES of the transit industry had an opportunity to study first hand the assorted ills and ailments a bus is heir to at a Clinic session of the American Transit Association which was held in Los Angeles during August.

The chief purpose of the demonstration was to show that there is a place for a chassis dynamometer (Photo 1) in the inspection line of a large maintenance garage. A Twin Coach unit was supplied for this test by the Los Angeles Motor Coach Co. This unit had been deliberately put out of adjustment so that a more interesting demonstration might be made.

Four old spark plugs were installed—not unusual examples, but similar to plugs which may frequently be taken from engines. One had a cracked porcelain, another one had the electrodes rather badly burned, the third showed a rather heavy oxide coating on the tip of the insulator and the fourth plug was heavily coated with carbon.

An adjustable main jet (Photo 2) was installed in the carburetor so that air fuel ratio settings might be changed easily and quickly and thus not delay the demonstration. This adjustable jet was purely an expedient and in no way was a substitute for a fixed main jet. The timing had also been retarded past maximum power, a condition often seen in buses being brought in for routine three to five thousand mile inspections.

As a start for the demonstration the bus was warmed up and a power reading taken at 25 miles per hour. This was recorded on the blackboard and the spark plugs then changed. At the start of the test the reading was approximately 33 power units but after the spark plugs were changed a gain of five power units was noted (Photo 3). The carburetor air fuel ratio (Photo 4) was then adjusted to give maximum power.

The setting as found for the demonstration was too lean for best power; in fact, it was slightly too lean for satisfactory operating conditions so that the power gain shown was 15 power units. During the demonstration it was pointed out that in

city bus operation maximum power might not always be maximum economy and there had to be a compromise between the two. It was also pointed out that the chassis dynamometer was probably not the place to calibrate a carburetor. However, once a satisfactory carburetor setting has been established it then can be easily and readily checked on a chassis dynamometer.

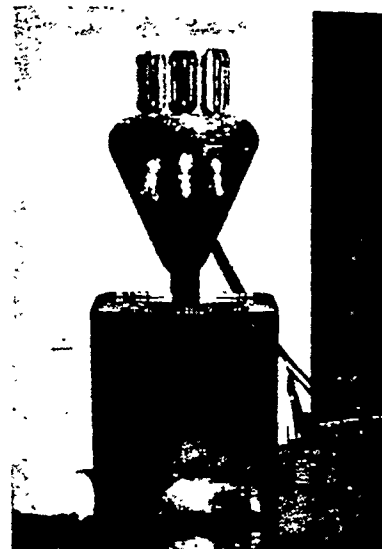
After the spark plugs and carburetor setting had been established, the spark was reset for maximum power and gained another five power units so that the final reading was 58 power units at 25 miles per hour, wide open throttle, rather than 31 power units. It was interesting to note that in setting the spark on this particular bus, maximum power gave only a very light knock. If the spark was advanced sufficiently to give audible knock, power dropped off slightly. Special mention of this was made to the audience because many operators think that the spark has to be set so that knock is heard in order to obtain full power.

After this first series of tests was completed, it was announced that a demonstration would be made of some of the practical causes of tail pipe odor. The first move in this demonstration was to disconnect the fuel system of the bus. Incidentally all previous tests had been made on the fuel in the tank of the bus. The purpose in going to the dispenser system (Photo 5) was twofold. First there was no desire to cause any doubt concerning the satisfactory operation of the fuel being used by Los Angeles Motor Coach and second, special fuel was needed in order to demonstrate the work clearly.

A flexible tubing was fastened to the tail pipe and the end of the tubing brought in under the bus right on under the noses of the front rows of the audience. The first fuel to be used was a commercially available gasoline in the Los Angeles area having an end point of approximately 365 deg. F. The bus was speeded up to 40 miles per hour and allowed to decelerate, thus simulating to some degree actual deceleration on the street. With the light fuel there was no smoke and very little odor.



4 Forced draft exhaust system. The large exhaust gas analyzer on the table at right is the master instrument. The small (flat) analyzer is wired to a projector which throws an image of the air-fuel ratio scale on the screen.



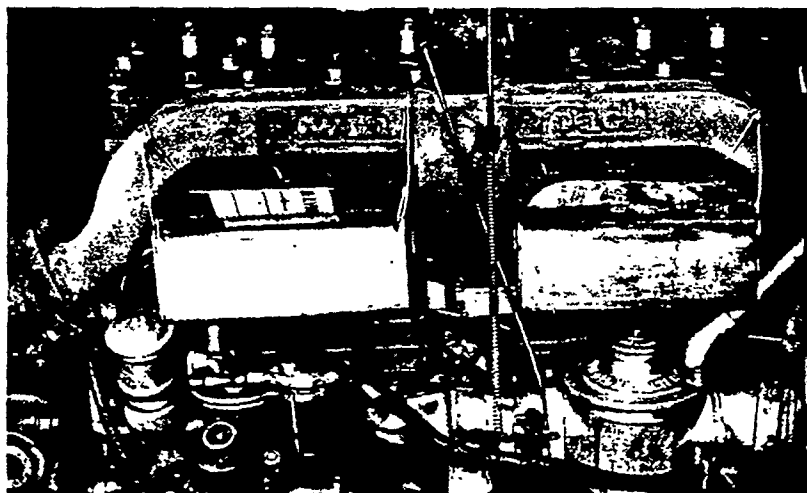
5 This fuel dispenser supplies three different types of fuel to the engine during the exhaust odor test.

The fuel supply was then changed to another commercially available fuel in the Los Angeles area having an end point of 420 deg. F. When deceleration runs were made with this fuel, there was a puff of smoke after each deceleration and noticeable odor.

To demonstrate the effect of cool manifolds a tin box containing dry ice (Photo 6) was placed around the

manifold. The dry ice served the purpose very nicely and chilled the manifold sufficiently to make an excellent demonstration. The demonstration was made first on the heavy fuel which gave off a large volume of smoke after each deceleration, with plenty of smell. The idle was then enriched and it was pointed out how essential attention to the idle adjustment was as there developed a further increase in smoke, particularly in density, with increased smell.

Continued on page 15



6 Tin cans, containing dry ice were attached to the intake manifold so that the manifold could be chilled to demonstrate the effect of cold on tail pipe odors.

ETHYL NEWS

[8]

ETC 22524

Combined Efforts of Oil and Automotive Industries

Promote Better Motor Performance

IN a number of cities throughout Ethyl's Boston Division, tune-up campaigns are in progress and are furnishing an excellent example of what can be accomplished by such a program. Although the detailed arrangements of these cooperative activities have varied with the different cities, the basic operation of the program has been substantially the same in each case—an oil company and a tune-up shop in a respective city agreed to combine their efforts in the promotion of top motor performance.

In order to illustrate the details involved in the operation of such a program, here is a brief outline of one conducted recently in Utica, N. Y., under the joint sponsorship of the Tide Water Associated Oil Company and the Lee Electrical Company, a progressive tune-up shop of that city.

The campaign ran for a period of 30 days, during which time the Lee Electrical Company gave a motor tune-up at the special price of \$1.00 to any motorist who had filled the tank of his car with Tydol Ethyl (Minimum ten gallons). Coupons for this special tune-up was given to the motorist, when he had his tank filled at any one of the various Tide Water stations. At the time that the coupon was presented the station attendant called the Lee Electrical Company and made a definite appointment for the work to be done. Such a plan made it possible for the tune-up shop to operate at peak efficiency, and with a minimum amount of delay for the customer.

To assist in getting the motoring public tune-up-minded, the Lee Electrical Company and the Tide Water stations displayed banners reminding the motorist "It's Tune-up Time." Spot announcements on radio station WIBX in Utica were used for

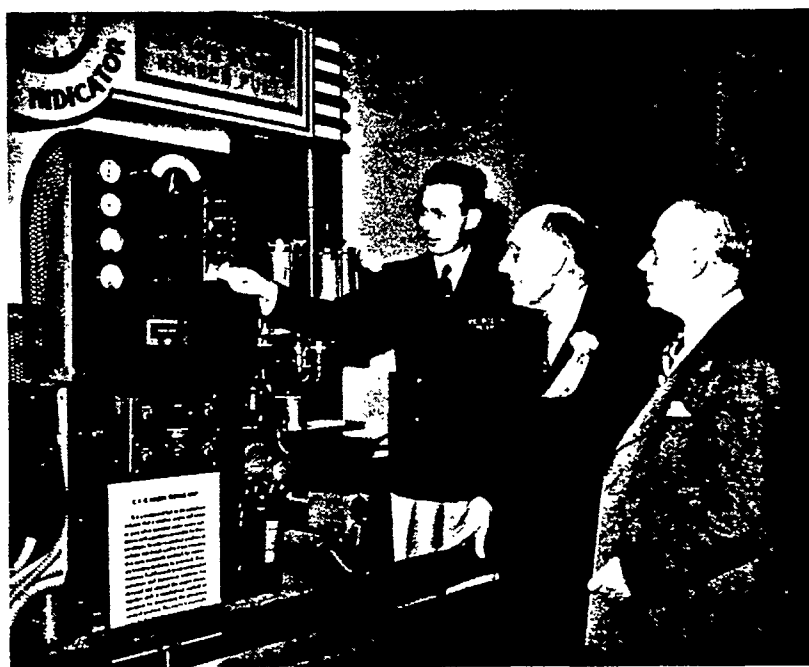
the same purpose, and, in addition, the two cooperating companies sent out several hundred letters to their customers outlining the program.

Approximately 100 cars were tuned as a direct result of this campaign. The motorist profited from the better performance of his car. The tune-up shop profited from the needed parts which it sold and by the new customers it obtained. The oil company profited by increasing the sale of its premium gasoline and by greater customer satisfaction. It may be readily assumed that the Utica motoring public in general will be

more performance-conscious as a result of the campaign and it should naturally result in future benefits for all concerned—the motorist, the tune-up shop and the gasoline dealer.

The satisfaction of those sponsoring this undertaking is graphically portrayed by the fact that the Lee Electrical Company is now enthusiastically promoting a similar program with another oil company in Utica; The Tide Water Associated Oil Company is making arrangements to cooperate with tune-up shops in other cities in the sponsorship of similar campaigns.

C. F. Kettering Views Knock Testing Unit



Charles F. Kettering, Vice President of General Motors Research Department was an interested visitor to the Petroleum Exhibit at the Golden Gate International Exposition. As Shown here he was particularly impressed with the C.F.R. Knock Testing Unit which measures the octane rating of gasoline. To the scientist as well as the layman it offered a convincing demonstration.

Battle of Tractor Giants Looms for 1940

By HOWARD E. EVERETT, Editor
Implement & Tractor

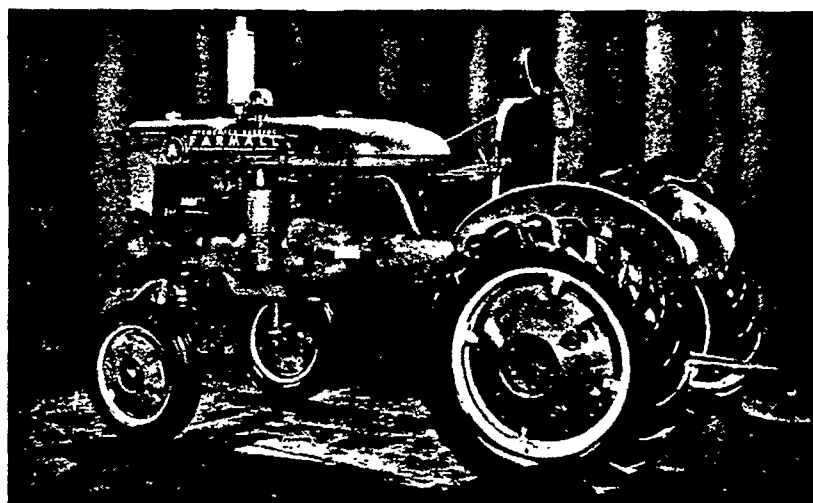
THE most spectacular—the most imposing—stage setting of all time will furnish the selling background for the farm equipment industry in 1940.

Ford enters the picture with the powerful little Ford tractor; Harvester follows with the Farmall-A; Allis Chalmers has been selling its B

for a year; Deere came in with the H last spring and Cletrac last March announced its General and its Model H crawler. All of these except the crawler model are advertised at less than \$600. Thus the keenest competition in years gets under way for a market on 3 million small farms—a market that did not exist in 1937. The



Allis-Chalmers "B"



McCormick-Deering Farmall "A"

accompanying illustrations show some of these "baby" tractor models.

At the same time the old 3-million farm market still continues for the larger tractors and in it the competition will be no less keen. For this market the battle lines are now being drawn.

In the higher price range, from \$700 to \$1,000, Harvester has announced the Farmall-H and the Farmall-M; Deere is all set with its B and A; Allis-Chalmers has improved its RC and WC; Case has announced a new D and the DC; also an improved R and RC; Oliver challenges the world with its 70, the tractor that paid off the \$16,000,000 debt; Minneapolis-Moline has added the new R to its Z, U and G models; Massey-Harris recently announced the 101 Junior to go with its larger 101, its Pacemaker and its Challenger.

Ford and Harvester have announced their new tractors through impressive previews to which were invited representatives of the trade, farm and national press. As a result, the publicity attending the introduction of the new models has been tremendous—publicity which could not have been bought at any price. From these the word has reached the farmers that *tractors are cheaper than horses!*

The new small tractors open two markets: (1) make mechanization possible on 3 million more farms, and (2) they supplement larger tractors to eliminate the final team from the 3 million larger farms. The new 2 and 3-plow sizes have more power, are more economical to operate, are more appealing through their trim streamlining and are hastening the obsolescence of older tractors.

The re-entrance of Henry Ford projects a new element into the industry to intensify a competition already keen. His new tractor is a worthy competitor for any tractor of its size. Ford built 100,000 Fordsons in a single year and a total of 500,000 during his previous tractor manufacturing experience. To offset this threatened competition other manufacturers are increasing their advertising in the trade and farm press. The wide significance of all these de-

ETHYL NEWS

[10]

ETC 22526

velopments to the entire industry justifies further elaboration:

With twice the number of farms now possible for mechanization, both production and sales of tractors should be on their way to a 100 per cent increase over the annual averages we have known and likewise spells considerable increases for manufacturers of materials and parts.

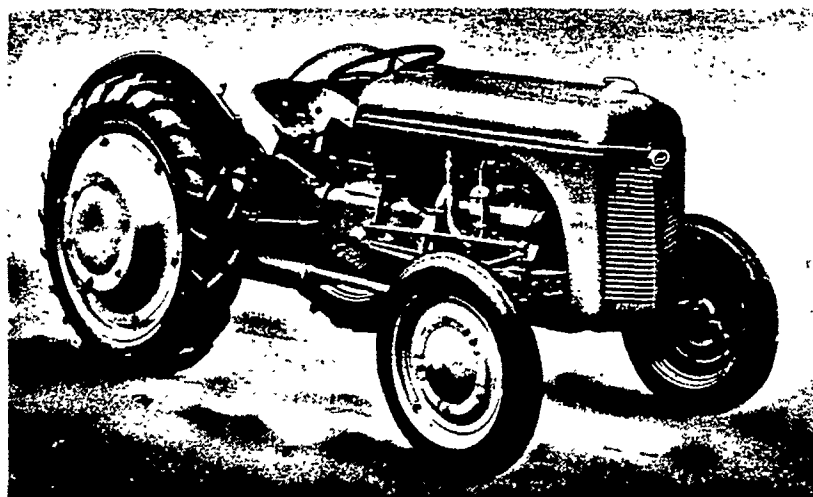
Any step-up in the sale of tractors will call for commensurate sales of implement equipment. All of which affords further increases in business for those supplying the industry.

Tractors are rapidly attaining higher standards of engineering and refinement. Self-starters, enclosed cabs and other appointments are taking their place with rubber tires as equipment desired by farmers on old as well as new tractors.

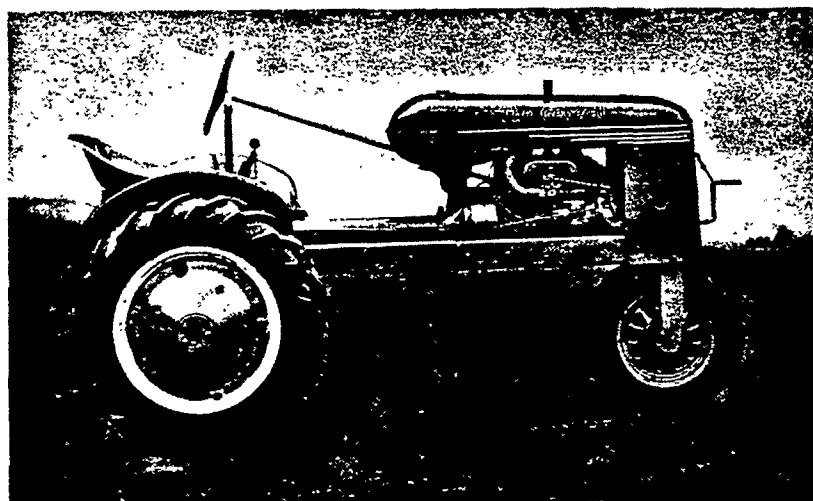
Implements of all kinds, and especially those once available only in sizes for custom use, are now being built for individual farm use for even the smallest tractors. Today's small acreage farm can be completely power-equipped for less than \$1500 including the tractor. Consequently the industry's implement sales potential is far in excess of considerations which governed as recent years as 1937 and 1938.

Barring economic fluctuations, the industry starts upward from a half-billion-dollar domestic business to one of 700 to 800 million dollars, and one heading to a possible billion-dollar annual average.

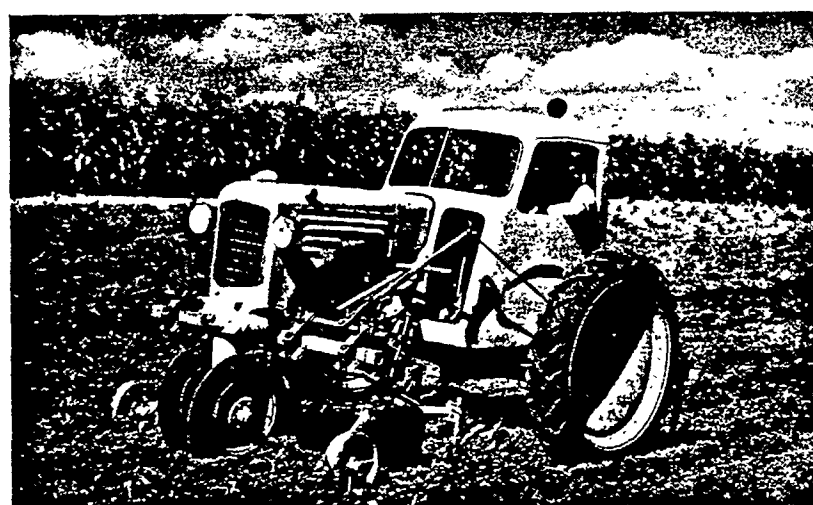
During the last two months, the writer has had opportunity to visit the general offices of all the long-line houses. Everywhere there has been enthusiasm and optimism regarding the possibilities of 1940. Several executives have expressed the opinion that the industry is now getting set for a considerable boom in sales next year which only a farm commodity debacle can defeat. There will be greater activity this fall than is customary at this time of the year—the annual period of contracting with dealers for the coming year. Such seems to be the temper of the tractor and implement manufacturers as preparations for 1940 materialize.



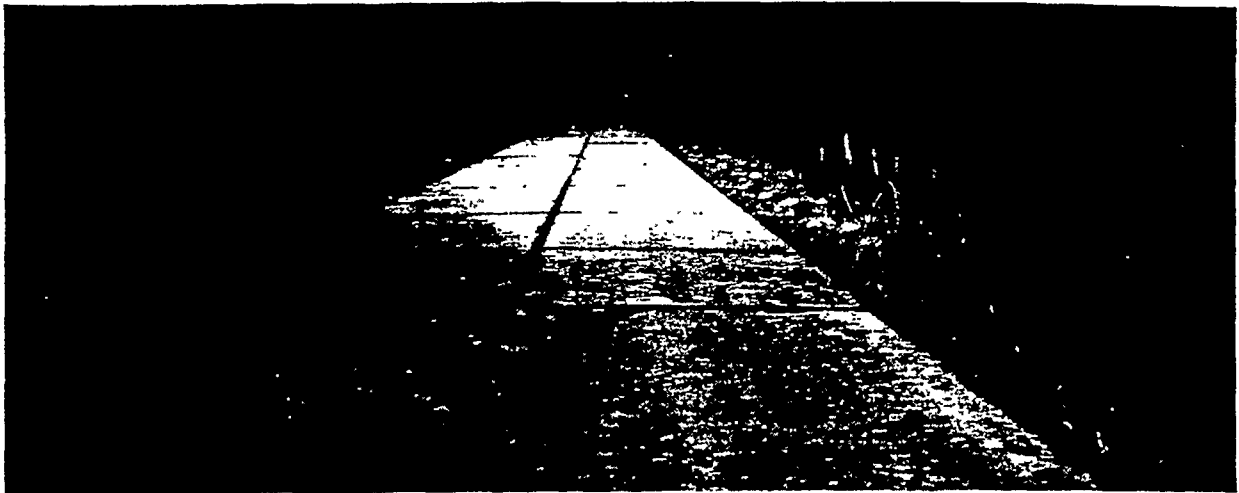
Ford Tractor—Ferguson System



Cleveland Tractor Co. "The General"



Minneapolis-Moline Universal "R"



Sealed Beam for Night Driving

*One Year Old—one-third Loss—
(Without Proper Maintenance)*

A NEW automotive headlight system designed for night driving, and embodying the product of three years' co-operative research by the automobile and headlighting industries, with the collaboration of public authorities, has been announced officially through the Automotive Safety Foundation. It is reported that the new system will be employed on the 1940 models of the great majority of makes.

Leaders of the industry view the development as a landmark in safety engineering, potentially equal to four-wheel brakes, safety-glass and steel bodies, although they emphasize that it should not be regarded as the ultimate in headlight efficiency. Improvements will be incorporated in the new system as they are developed.

The new equipment is known as the "Sealed Beam Headlight System." Although it involves some change in the car's lighting plant, the distinguishing feature of the system is the lamp unit itself.

For the first time the reflector, light source and lens are made in a single, permanently sealed unit. It

cannot be opened, and each element is adjusted at the factory in correct unchangeable relationship to the others. The sealed beam lamp is described by engineers as the most precise optical device turned out in mass production at the present time.

Outstanding advantages to the car driver are:

1. More light, properly distributed, is thrown on the road surface.
2. No dirt, dust or moisture can penetrate the sealed unit to film, corrode or fog reflecting surfaces and lens.
3. Longer-lived filaments make for infrequent replacement, but when a light does burn out the entire unit is replaced easily and economically (at automotive repair or service establishments).
4. Being sealed, the lamps should not lose more than a small fraction of their efficiency throughout life,

and with replacement the car owner may anticipate new-car lighting efficiency as long as the vehicle is on the road.

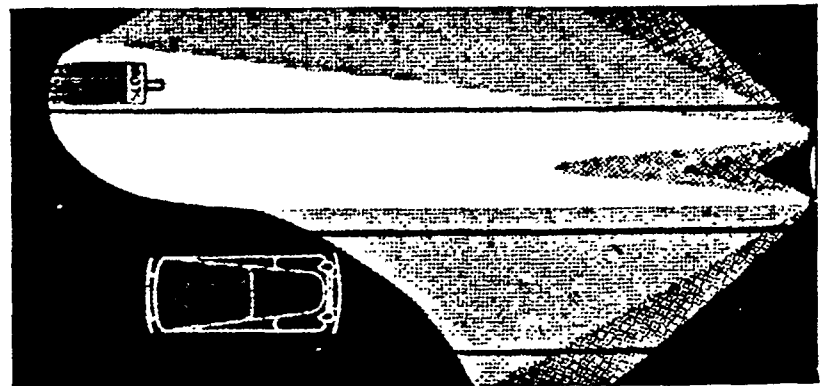
5. Both for installation and use, the new device is as simple and fool-proof as engineering ingenuity has been able to make it. A screw driver is all that is needed to install and adjust the direction of a beam.

6. All makes of sealed beam lamps are wholly interchangeable and will fit equally the highest and lowest priced models equipped with the system.

Back of the development occurred a long period of intensive study in which every automobile manufacturer and the lighting equipment makers freely contributed the knowledge gained through many years of research.

The new lamps throw two types of light beams. The first, for univer-

Diagrammatic view from above indicating approximate distribution of light from traffic beam of the new Sealed Beam System. Note how light in on-coming driver's eyes is minimized, and width and intensity of beam on right side and shoulder of road.



ETHYL NEWS

[12]

ETC 22528



sal use on lighted city and town streets and on the highway, wherever there is movement of other vehicles, is known as the "Traffic Beam."

This is virtually a no-glare beam. Its characteristics include a wide distribution of light to the sides of the road, with sharp, clear illumination up the right shoulder, without causing uncomfortable glare to oncoming drivers.

The second, or upper beam, is named the "Country Beam" and is for use only on the open highway when there is no traffic whatever. It throws its light a considerably greater distance down the road than former types. It illuminates road shoulders, warning signs, fences and curves, and also permits the driver to see overhanging obstacles such as branches, overpasses and the like.

While the difference in road illumination between these two beams is quite pronounced, there is in addition, on the instrument panel a sig-

nal which will glow red as long as the "Country Beam" is in use. The hand need not be moved from the steering wheel to change from traffic to country beam or back again. The familiar foot switch at the extreme left of the floor board will be the sole control for changing the beam. The usual light switch on the instrument panel will have only two positions: the first to turn on parking and signal lights; the second to turn on the headlights.

In announcing the new system, the automobile industry is co-operating with public authorities and civic safety groups in urging the driving public, not only to use the correct beam on both new and old cars under all conditions but also in the case of drivers with prior-type lamps to improve the degree of maintenance given the entire headlight unit.

Because none of the former type lamps was permanently sealed, dirt and moisture are bound to pene-

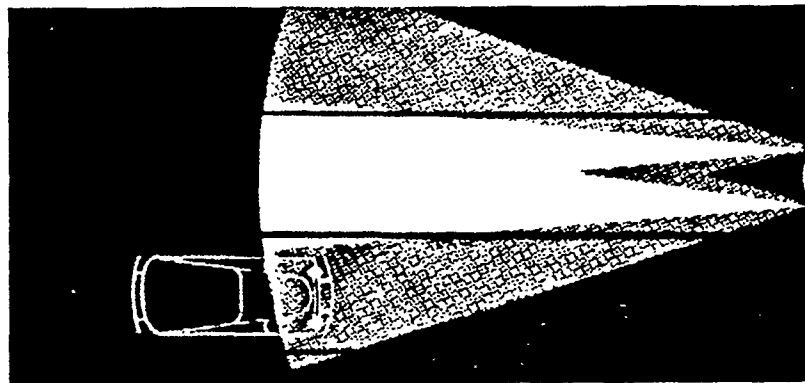
The country beam of the Sealed Beam System throws much more light on the road ahead while at the same time clearly illuminating both road shoulders and ditches. These unretouched photos were taken at the same spot. Note how the new Sealed Beam country beam discloses the curve ahead, the persons on the edge of the road and even the long line of fence posts along the right ditch. Telegraph poles on the left are also clearly visible.

trate. Unless periodically serviced, their efficiency may be impaired, so that by the end of a year's driving it is calculated that they may have lost a third of their illumination. By the end of three years it is possible that only one third of the reflecting power remains. Under such circumstances the driver's seeing is definitely impaired.

The increased light projected by the new lamps required certain changes in wiring and generator output which are factors making for higher manufacturing costs. This, however, is regarded as a small item in relation to the benefits obtained.

The Sealed Beam headlamps will be manufactured by all the headlight producers as original equipment and for the replacement market. Differing in some details of construction mechanically, electrically and optically, the products of all will nevertheless produce the same lighting result and are wholly interchangeable.

Looking down on traffic beam typical of majority of cars (three-years-old and older) now on road.



Business Man Views a Thresher

Letter from a business man to an associate while on a brief visit to the country.



Dear Mac:

THIS will surprise you—a letter from me telling you why farm boys don't want to leave home for the city. In case you're bewildered, what I'm going to do is turn a piece of farm machinery inside out for you.

Now that I've really got you going I'll make myself clear. This farmer was good enough to spend an hour with me today telling me what honestly goes on inside a threshing machine while grain is being threshed. Don't think I wasn't fascinated. Even you, who only know that a farm is something with a fence around it, would have been just as interested.

It inspired me to fill in the evening putting this thing on paper for you. What should really impress you are the hand sketches I've included to make the whole thing clear, even to your urban mind.

The whole thing starts with the feeder. That's just a moving belt that carries the grain into the machine. The bundles go into it head first. Before they actually get into the jaws of the machine, cutting knives slice the twine around them, and their days as bundles are over.

"What happens if you get to pitching bundles into the feeder too fast?" I say, wondering how much straw the old monster can chew up at one time. Somebody had thought of that.

A feeder has automatic devices, the farmer tells me. If you try to fool it into taking more than so many bundles at a time, it automatically slows up. Something sees that the grain goes in evenly, too, it seems.

At any rate, it gets to the cylinder next, and this toothy piece of apparatus works faster than a firing squad. Here's the business end of a threshing machine. Jutting out of this revolving steel cylinder are teeth which do the actual separating of the grain from the straw and chaff. They connect with teeth in the concaves underneath the cylinder, and after the two sets finish their job, the kernels of grain have landed in a grain pan beneath.

It is interesting the way the clearance between the teeth in the cylinder and the teeth in the concaves can be adjusted to suit the size of the kernels of grain. That's why peanuts can be threshed as easily as grass seed.

After the grain kernels have fallen through the concave grates into the grain pan, the separated straw takes a flier out of the cylinder on to the slotted straw racks, with the aid of a beater. (Easy to see why this process is called threshing.) The beater shoves the straw on to the straw racks—also slows down the speed of this moving mass.

There are plenty of different kinds of motion in this whole operation. The slotted racks go backward and forward like a corn popper on a stove. I raise an eyebrow at the

farmer, meaning: What are they good for? Any remaining grain is shaken out of the straw and falls through the racks to the grain pan, he tells me.

"Greedy old giant, isn't it?" I say. "Not going to miss a kernel."

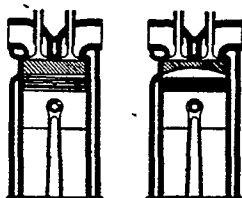
From the racks the straw takes a final leave of the machine and is blown out by way of a wind stacker—the wind supplied by a large fan. There, at a considerable distance from the machine, it forms a stack, a peaceful looking spot against the landscape.

I begin to wonder what's going to happen to the grain in the grain pan. Believe me, you want to see this stuff through once you start inside with it.

The grain is in the grain pan, all right, but so is a lot of chaff and dirt in there with it and on it. I looked at the cleaning process and thought of the way kids blow dirt off a handful of marbles. A blast of air is directed over the grain and blows away the dirt and chaff. The clean grain is now elevated to a hopper where it is automatically weighed, measured and dropped into a wagon.

In case you're figuring that the time consumed in this process is about equal to one quarter of a football game, I'd better tell you that from the snipping of the binder twine to the dumping in the hopper is a little matter of 30 seconds. The farmer remarked that old gentlemen with long whiskers should keep a respectable distance from this grain-eater or they are likely to find their whiskers out in the straw pile.

He had a more practical suggestion, though. Any farmer who wants smooth going in threshing, should high compression his tractor, he says. Last year this farmer's 42 HP tractor had all it could do to operate



*High Compression:
"Some one
ought to tell
Alexander
Botts"*

ETHYL NEWS

[14]

ETC 22530

his 32" machine (threshers are rated by length of cylinder in inches). When he got into tough straw the tractor engine slowed down to the point where much of the grain wasn't properly separated and went over into the straw pile.

This year he put in altitude pistons, or high compression pistons, and is using regular leaded gasoline — which increased his power so much that his tractor now just plays

Warning:
"Old men
with long
whiskers"

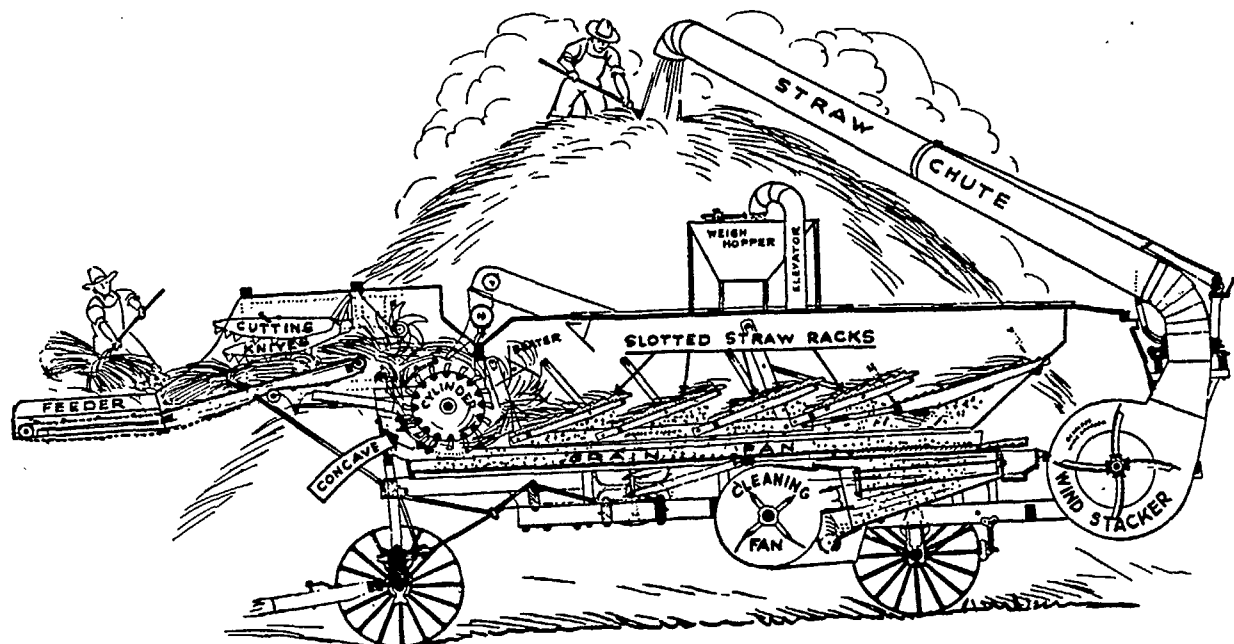


with the threshing machine, even though the straw this year was heavier and tougher.

"Someone ought to tell Alexander Botts about this thing called high compression," I say. "Bet he'd sell a lot more tractors and have a lot less trouble."

Come on, Mac, admit I haven't bored you, and that I've offered you a reason why farm boys like the farm. At least you know that I've done more out here than collect hay seed in my pockets.

Regards,
Bill.



New Reactions

(Continued from page 1)

in steel or other convenient containers. Just as anhydrous ammonia is the accepted medium for the transportation of hydrogen, ethylene dibromide may well become the form for the shipment of bromine, since this element in compounds of this type is now made available.

In an address before the American Chemical Society at its last Detroit meeting, C. F. Kettering said that pure science described the efforts made to find scientific facts when there was no particular industrial need for them while applied science

referred to cases where facts were needed and in a hurry.

These new reactions that have been discovered belong in the field of pure science, and while there may have been no urgency for their discovery, industry may be expected to apply them without delay.

Courtesy
Industrial & Engineering Chemistry

* * *

When asked to write an essay on Benjamin Franklin, little Johnny wrote: "He was born in Boston, traveled to Philadelphia, met a lady on the street, she laughed at him, he married her and discovered electricity.

Stethoscoping the Bus

(Continued from page 8)

Leaving the dry ice on the manifold, a switch back to the light fuel was made with resultant decrease of intensity and volume of the smoke and also the amount of odor. Adjusting the idle back to normal lean idle, it was again possible to reduce the volume and intensity of smoke and odor.

These demonstrations showed clearly the three important fundamentals of tail pipe odor elimination: i.e., the effect of gasoline volatility, intake manifold temperature and carburetor maintenance.

NOVEMBER 1939

[15]

ETC 22531

For Safety's Sake on New York Highways

A NEW system of pavement marking was devised and put into operation last summer by the Divi-

sion of Highways, Department of Public Works of New York State. It was finally adopted after many

months of careful study and with this uniform marking throughout the state, it should prove a decided factor in reducing the hazards of the road. *Follow the double line to safety* might well become the slogan of the motorist.

The system is built up from three basic types of markings.

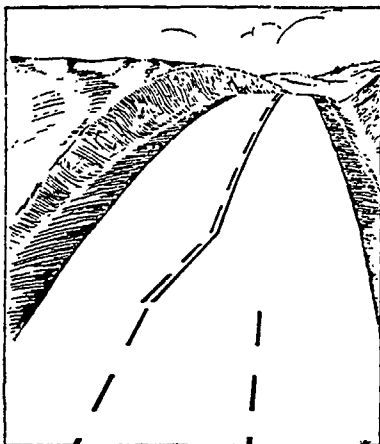
The *First* of these is the **SINGLE BROKEN LINE** to show motorists the lanes in which they should travel. The chances of accident will not only be lessened but traffic will move more smoothly if the driver will keep to the lane marked by the Single Broken Line except when passing another car.

The *Second* type is the **SINGLE SOLID LINE** which should never be crossed except under unusual circumstances and then only when there is clear vision ahead and no approaching car in sight. The purpose of the Solid Line is to separate traffic and thereby prevent head-on collisions.

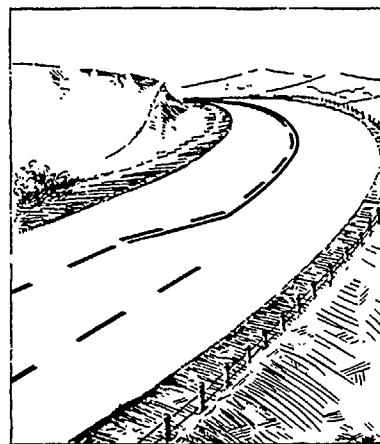
The *Third* is the **SOLID AND BROKEN LINE** in combination. In this instance the Solid Line on the driver's side absolutely prohibits crossing. Should, however, the Broken Line be on the driver's side, he may cross with caution when absolutely necessary.

The *Fourth* type of marking is the **DOUBLE SOLID LINE**. When this is encountered, neither car may cross under any circumstances. Because of the importance of the Double Line it will be limited in length and used only where absolutely necessary. A motorist encountering the Double Line may be sure that he is at a spot where, in the judgment of highway engineers, his only assurance of safety lies in keeping to the right of the line.

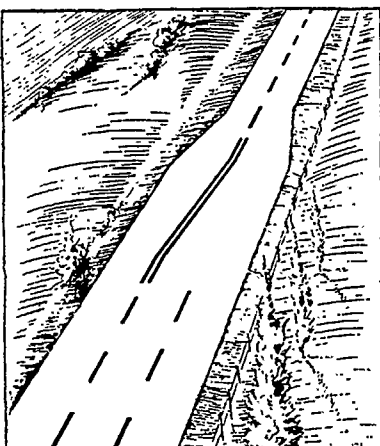
Shown on this page are the four types of highway markings with which the tourist in the Empire State is fast becoming familiar.



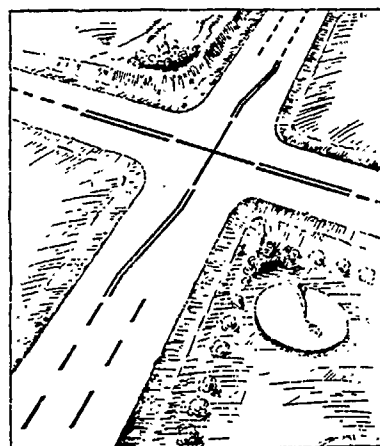
THE DOUBLE LINE ON HILLS
A motorist on the right, who is climbing the hill, and who cannot see beyond the crest, is forbidden to start to pass by the Solid Line on his side. A motorist coming down the hill can see a reasonable distance and is free to use his judgment. As the Broken Line is on his side, he may cross it if the road is clear ahead.



THE DOUBLE LINE ON CURVES
A driver approaching this curve has the Solid Line on his side and he must keep to the right. The Broken Line on the side of a driver coming from the opposite direction, tells him that he may cross the line, if the road is clear ahead. In the middle of the curve, both lines are solid and neither car may cross.



NARROWING OF PAVEMENT
The point at which a pavement narrows in width is dangerous. To avoid confusion at such a location, traffic in this lane is shunted to the right, and passing in either direction is forbidden by the Double Line, solid on both sides.
Illustrations courtesy Telephone Review.



MARKINGS AT INTERSECTIONS
Busy and dangerous intersections will be marked as illustrated. The details may be altered to the different widths of roads entering, but the general principle will be that passing in either direction is prohibited in the vicinity of the intersection.

ETHYL NEWS

[16]

ETC 22532

Syracuse Auto Races

ONE of the outstanding automobile races of the country is the 100 mile National Championship, held at the New York State Fair Grounds, Syracuse, N. Y.

In a remarkable exhibition of driving skill combined with the blessing of racing luck, the veteran, Mauri Rose, drove his Burd Piston Ring Special to the Championship title on September 2nd, 1939. He was clocked in 1 hour, 20 minutes, and 6.48 seconds by the electric eye. George Connor of Indianapolis was second and Ted Horn of Hollywood, California, took the third position.

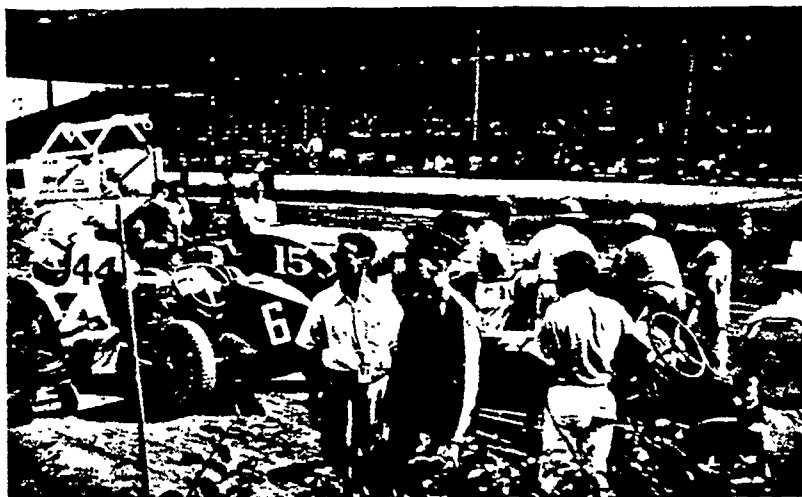
A crack-up on the 29th lap robbed Rex Mays of Van Nuys, California, outstanding favorite of the race, of the Championship and a possible track record. Fortunately, Mays' injuries were slight, but track officials flagged all drivers to hold their positions for 12 laps following the accident. Thus the winning time was increased far beyond that which these stars of the racing world could have ordinarily made.

The fastest time turned in, during the qualifying laps, however, was made by Mays at 40.04, only 1.04 seconds more than his track record established in 1937.

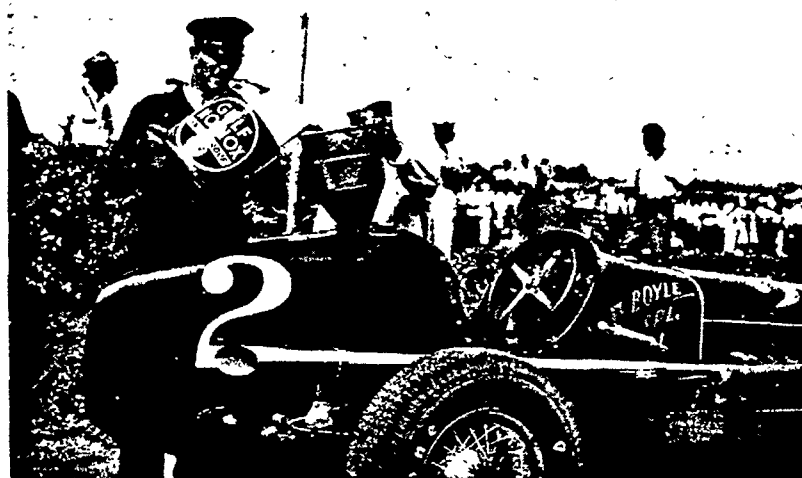
To develop the power required for these racing cars, extremely high compression engines are used. Every car in the race was fueled with gasoline containing Ethyl Fluid in order that these engines might develop their maximum power without damaging, power-robbing, knock.

This Month's Cover

AMERICAN ADELPHI HOTEL—In 1870-1880 this hotel, like others at this fashionable Spa, saw lovely women and prominent men riding and driving the highly bred horses for which Saratoga has always been famed. The automobile had yet to make its appearance in front of its portals.



Lining up for the start.



Fueling-up contestant's car.



Mauri Rose after winning National Championship.

NOVEMBER 1939

[17]

ETC 22533

INTRODUCING CLASS OF 1939-1940

ETHYL GRADUATE

TRAINING SCHOOL



JOHN D. BAILIE
Upper Darby, Pa.
Penn State BSME 1939



DOUGLAS B. BLACKBURN
Park Ridge, N. J.
Cornell BS in AEME 1939

THESE fourteen men from nine of the country's leading technical schools, began work in Ethyl's training course shortly after graduation last June. During the past months and in those to come, they will engage in an intensive study of the various projects and tests being conducted in Ethyl's laboratories in Detroit and at San Bernardino. Each man will pass through the Detroit Gasoline Testing Laboratory and adequate time will also be devoted to the sales end of the business. The school is being conducted under the able direction of Mr. Raymond R. Faller who, through his extensive engineering experience, is well qualified to undertake this assignment.



FRITZ J. BRIDGES
Dearborn, Mich.
U. of Michigan BSME 1939



ARTHUR S. BROWN
Alton, Illinois
U. of Illinois BSME 1939

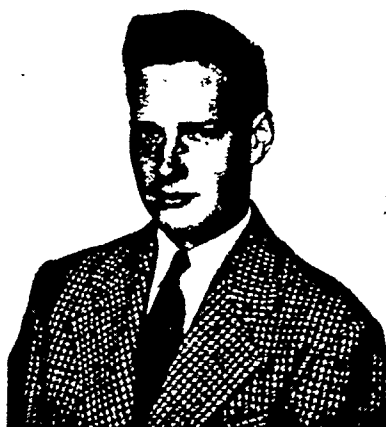


EDWIN A. DESMOND
Dorchester, Mass.
Penn State BSME 1939

ETHYL NEWS

[18]

ETC 22534



MERRILL J. ANDERSON
Moline, Illinois
Augustana College AB 1937
U. of Illinois BSME 1939



DONALD W. BELL
Tabor, Iowa
Iowa State College BSME 1934
Purdue 1939



WILLIAM R. GALL
Rogersville, Tenn.
U. of Tennessee BSME 1936
Yale 1939



FRED J. HILL
Connellsville, Pa.
Penn State BSME 1939



ARTHUR E. HUFFMAN
Oklahoma City, Okla.
U. of Oklahoma BSME 1939



ROBERT B. INGRAM
State College, Pa.
Penn State BSME 1939



JAMES M. MASON
Toledo, Ohio
U. of Michigan BSME 1939



WALTER A. SNOW
State College, Pa.
Penn State BSME 1939



ELMER L. TANDRUP
Chicago, Ill.
U. of Illinois BSME 1939

NOVEMBER 1939

[19]

ETC 22535



Has Served Ethyl 15 Years

CORINNE P. HILL has the distinction of being our first "Fifteen Year Pin Girl," having joined the Ethyl family on October 20th, 1924. She is the able secretary to our President, Earle W. Webb.

Corinne was born in New York City thirty-three years ago; attended the Evander Childs High School in the Bronx and later, when her family moved to Connecticut, she went to the Greenwich High School.

Her first contact with the business world was a three months' clerical job at Womrath's Library, from there she went to the Equitable Life Assurance Society. In the meantime she was taking a business course in the evenings, but had to give this up as the family moved. However, she continued her studies at home which shows perseverance and took a job with the U. S. Rubber Company as typist. After joining up with Ethyl as a typist she completed a course at the Packard Commercial School in the evenings which lead to a stenographic position.

In 1926 Corinne was made Secretary to Mr. Webb, a just reward for her determined efforts to succeed in the business world.

She has recently moved to Ocean-side, Long Island, where she lives with her sister and brother-in-law.

NEWS BRIEFS

VIA WIRE SEPT. 27, 1939

TAKING YOUR ADVICE TO USE MY HEAD TO SAVE MY FEET, PACED HOSPITAL FLOOR ONCE AND GOT TWO TWIN GIRLS BROWN EYED CURLY HAIR. WIFE COMING ALONG FINE. (Signed)

M. L. OLSON, Chicago Division
Can't help but wonder what would have happened if Poppa Olson had walked the floor more than that once! Our congratulations to the entire Olson family. This is the third set of twins we've had the privilege of reporting in the "News"—Murphy's (one of each), Merritt Martin's (two of a kind), and now, Olson's.

Little Miss Alexandra was born to Mr. and Mrs. Bruce Crane on Thursday evening, September 28th, 1939. Although the young lady weighed 8 pounds and 12 ounces when born, Bruce appeared quite disappointed, feeling that she should be large enough to leave the hospital under her own power at the end of two weeks. In justice to Pappy, we should point out that it was his first experience in this field of endeavor and when he has been through it as much as some of his associates in the Boston office, he will, no doubt, have a better idea as to what to expect. The Cranes are all doing beautifully, we are glad to report and we herewith send our hearty congratulations.



Paul F. Straub, a newcomer to the San Bernardino Engineering Laboratory, comes to us from the Chrysler Engineering Department at Detroit, Michigan. He received his B.S. degree in mechanical engineering at the University of Southern California in 1935 after which he took one year of graduate work at the University of Michigan.

Paul is an enthusiastic sportsman with hunting at the top of the list.

The following Service Awards

have been made as of
November 1st, 1939

15 YEARS

CORINNE P. HILL Administration

10 YEARS

BENJAMIN C. LODER Administration

MILES MCGRAW Detroit Laboratory

HAROLD A. MEHLER

Yonkers Laboratory



Walter K. Wikingstad was born in Norway and migrated to the Canal Zone where he has been living up until the time he came to the United States to enter Duke University. Walter comes to us from

Price, Waterhouse & Company and is to leave shortly for the Baton Rouge Plant where he will be our resident auditor.

His favorite hobbies are tennis and swimming. He is a bachelor.

Didn't someone once say "Perseverance hath its own reward"? Could it have been that illustrious adopted son of Boston—that twentieth century steak-eating Yankee, Matt Taylor? In any event, Matthew Ambrose Taylor, Jr., has arrived. He entered this war stricken world on Tuesday, October 17th, 1939, and running true to form, tipped the scales at just under eleven pounds. Junior, we greet you and ask you to convey our sincere congratulations to your fond parents and three sisters.

A new member of the Accounting Department in the Graybar Building, is Edythe F. Meany who was formerly associated with Standard Oil Company of New Jersey. Edythe is a native of New Jersey and the very proud mother of a seven-year-old daughter, Patricia Edythe.

A Challenge . . .

The Graybar Wildcats, a team of Ethyl bowling fans from the Graybar Building, challenge the bowlers of the Chrysler Building to a match.

"Any size team up to ten men," says Walter Eilermann, acting manager of the Wildcats. "We alley-cats would like a match with Deepwater, too. Best two out of three; losers pay. Who's going to take us up?"

Judson T. Biehle

has been transferred from Baton Rouge, where he has served as a Technical Shift Supervisor in the ELA and "Frei" Ethyl Chloride plants, to the New York office. In his new position he will become a special Technical Assistant to John Schaefer, General Manager of the Manufacturing and Traffic Department.

Welcome to the New York office, Judson, and the best of luck in your new assignment.



ETHYL NEWS

[20]

ETC 22536

October 2, 1939



Atlanta Admen to See How Ethyl Completes the Job

The Atlanta Advertising Club, through the good offices of Jess Roberts, will see "the wheels go round" Wednesday in one of the most interesting advertising jobs being done in America today . . . the promotion of Ethyl gas.

Ethyl promotion posed a difficult problem to the advertising agency commissioned to do it. The manufacturer does not sell direct to the consumer but must create a consumer demand strong enough to influence the retail outlets in such volume that the pressure will reach back to the gasoline manufacturers.

That requires a lot of pressure.

Every adman has seen and admired the printed advertising of Ethyl. The Ad Club luncheon Wednesday will devote about 30 minutes to witnessing the Ethyl demonstration which backs up and puts teeth in the advertising.

The luncheon will be held in the Lullwater building, 441 West Peachtree street, where the Ethyl Motor Clinic has been installed. In it is shown actually how Ethyl works.

You will see the "knock bomb," which makes clear that gasoline has three times as much explosive power as its same weight in TNT. You will see a standard car, probably Jess Roberts' own, on a treadmill-type of track on the stage where it can race and climb hills in a way to show the effect of different gasolines. There are many more exciting features.

Jess, who has seen the demonstration, says it fascinates him even more as an adman than as a motorist. It is a mentally stimulating approach to a difficult advertising problem he says.

Buffet luncheon will be served after the clinic.

TIME: 12:30 p. m. Wednesday, October 4.

PLACE: 441 West Peachtree Street.



"But, Jake, the gas station feller said we'd orter have lead"

THE "gas station feller" was right as far as he went. But he certainly left the boys in the dark on what *kind* of lead he meant.

The "lead" that helps a bus or truck engine develop more power is *tetraethyl lead*, a volatile liquid which mixes completely with gasoline.

Oil companies add tetraethyl lead to gasoline to raise the anti-knock value so that the ignition timing of modern

engines can be advanced to give better or best performance. The measure of anti-knock value in gasoline is its "octane number." The larger this number, the greater is the anti-knock value of the gasoline.

When you buy leaded gasoline of high octane number you can set the ignition timing of your engines closer to the maximum power position without knock. These better gasolines give you other ad-

vantages in addition to high anti-knock quality—balanced volatility, vapor pressure low enough to prevent vapor lock and low gum content.

If you have questions about truck and bus fuels and any special conditions under which your fleet must use them, write the Ethyl Gasoline Corporation, Chrysler Building, New York, N. Y., manufacturer of anti-knock fluids used by oil companies to improve gasoline.

4 RULES FOR GOOD GASOLINE	VOLATILITY should be balanced, for full power and best economy.	VAPOR PRESSURE should be adjusted to meet operating conditions.	GUM CONTENT should not exceed $\frac{1}{4}$ of a gram (4 small drops) per gallon.	ANTI-KNOCK VALUE should be high, at least 68 octane number.
---	--	--	---	--

THE BETTER THE GASOLINE THE BETTER THE PERFORMANCE

ETC 22538

Printed in U. S. A.



114



d''

anti-
apor
apor

c and
s un-
write
ysler
ufacy
y oil



JE
187

CE

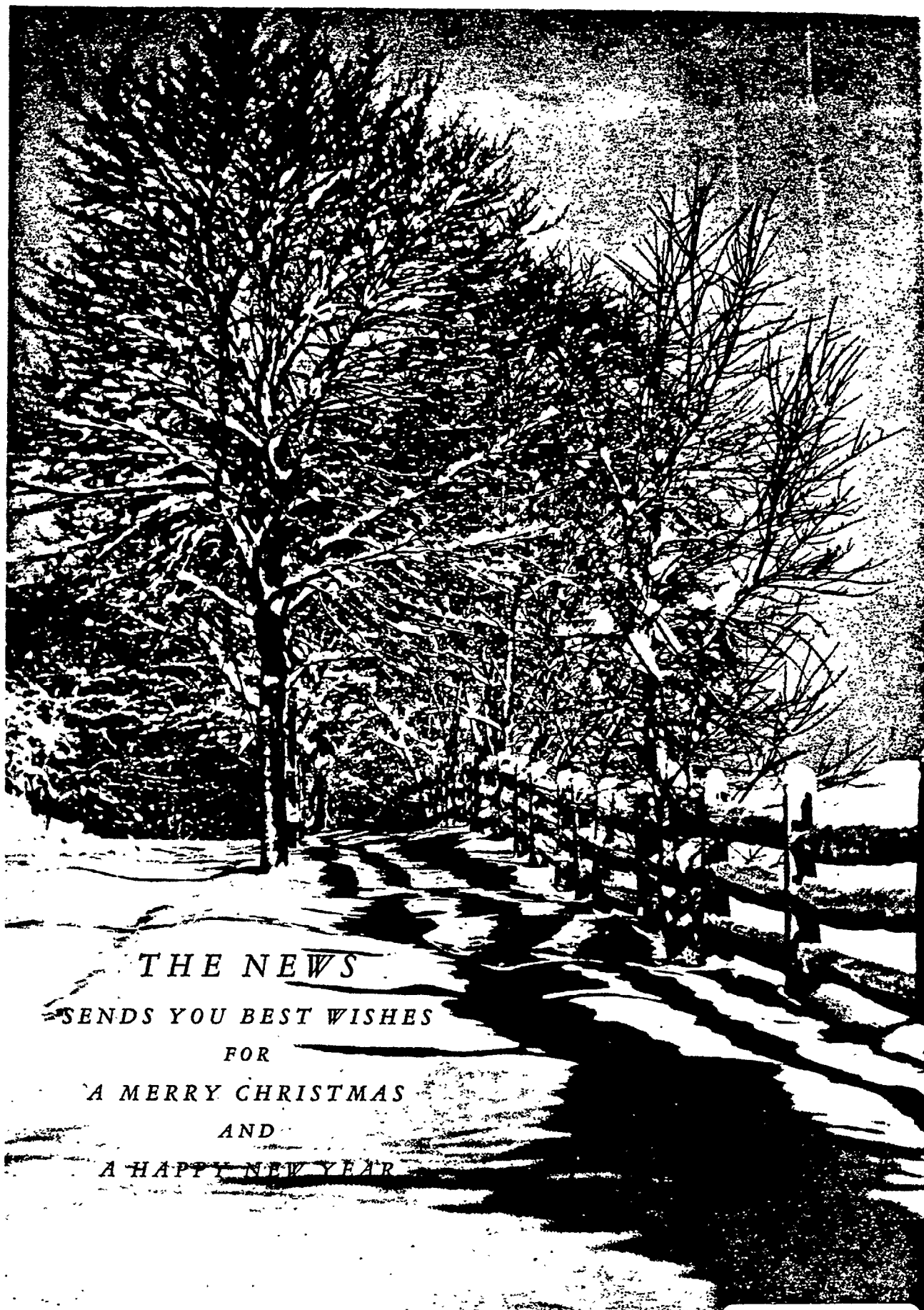
S. A



ETC 22539



CHRISTMAS 1939



THE NEWS
SENDS YOU BEST WISHES
FOR
A MERRY CHRISTMAS
AND
A HAPPY NEW YEAR

ETC 22540



Ethyl Gasoline Corporation

CHRYSLER BUILDING
NEW YORK CITY

W. CARY HARRIS
Editor

RUSSELL B. WESTON
NORTHROP CLAREY, Jr.
Associate Editors

Correspondents

J. A. COSTELLO	Atlanta
F. S. CRONIN	Baltimore
B. R. JONES	Boston
A. B. WYRICK	Chicago
H. F. DEDO	Dayton
D. S. FLYNN	Kansas City
CARL ABELL	Los Angeles
R. L. GOLTZ	New York
H. KUHE	Tulsa
R. K. SCALES	Engineering Dept.
L. BARNUM	Mfg. Baton Rouge
C. WASSERMAN	Mfg. Deepwater
J. C. POPE	Gasoline Testing Dept.
E. J. NIESER	Administration Dept.
HUBERT FOSSETT	London

THE MATERIAL IN THIS PUBLICATION
MAY BE REPRINTED PROVIDED DUE
CREDIT IS GIVEN THE "ETHYL NEWS"
OR ETHYL GASOLINE CORPORATION
UNLESS IT IS A COPYRIGHTED ARTICLE

Volume 6, Number 12

Mr. Average American's Wealth

THERE are all kinds of ways of measuring wealth. The maharajahs of India and the other Oriental potentates are reputed to be the wealthiest men in the world. Their fabulous riches, though, consist largely of precious stones, and side by side with these piles of glittering jewels the American would be surprised to discover a lack of many of the things he considers elementary necessities of life.

For we in America have a different—and, we think, a more sensible—way of measuring wealth. To us, wealth is represented principally by the actual material things that make life easier, more comfortable, or more enjoyable.

According to this measure, the average American is the owner and user of so much that the whole rest of the world can only envy him. And yet his possessions have become so commonplace to him that he seldom gives them a thought. As a result of never having made a check-up on these materials for better living, many of us fall easy victims to those who hold that this country's wealth is concentrated in a few hands, and who intimate that the greater percentage of our population "doesn't even have a look-in" on the benefits that accrue from the American way of life.

Recently, a group at the University of Notre Dame became interested in finding out just how much "real wealth" was being used by the average American. They spent two years cataloguing it all, going to the best available records and digging up their own facts and figures, till an answer for those who like to talk about "closely held wealth" was spread on the record.

Before making the survey, however, the first step was to decide exactly what was meant by "wealth" in this case. Explaining that money and securities, including deeds and property, are only evidences of ownership of goods and things, and not the goods or things themselves, the report listed physical assets only. And physical assets were defined as "all useful physical things, capable of control and ownership by human beings."

When the check-up on the nation's physical assets was completed, it was found that in 1933, the last year covered, the average American's share came, in money terms, to about \$2,740.

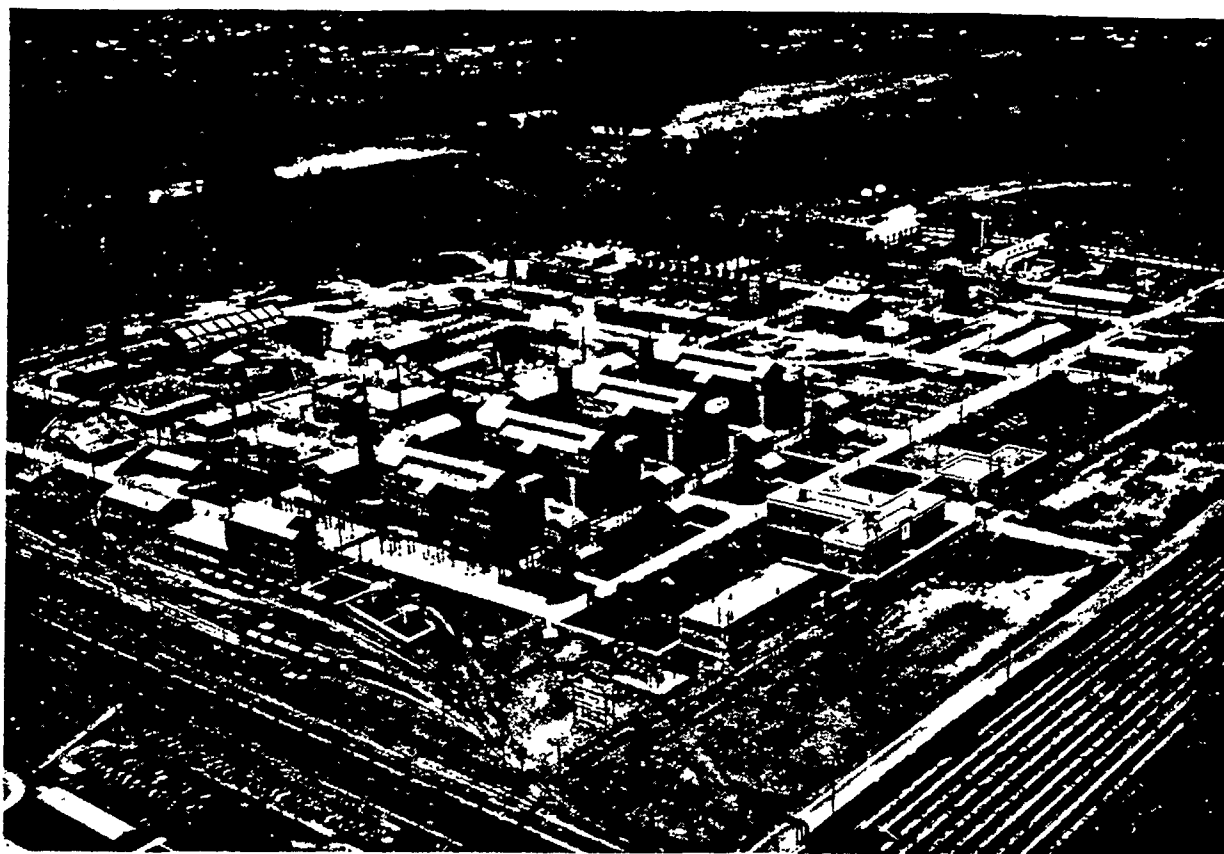
Pointing out that this country has about 70 per cent of all the automobiles in the world, 80 per cent of telephones and household appliances and that this is the only country where a majority of homes have radios, running water, bathtubs and central heating, the director of the survey holds it as almost self-evident that there is no close concentration of physical assets.

This study brings to light something that is worth remembering. It is this: that after all, the only factor that makes a thing valuable to us is the fact that we can find some use for it, satisfying some necessity or gaining some added comfort thereby. According to this measure, America's wealth is very widely distributed indeed. Wealth like washing machines, radios, automobiles and electric refrigerators can't very well be concentrated in the hands of a few people; they wouldn't have any use for them. And so, in this land of ours there is material wealth daily at our service to a degree that would arouse the envy of many an Indian prince.

In This Issue

Mr. Average American's Wealth
Vice President Graham Edgar Predicts
More Miles per Gallon
Ethyl Plans \$4,000,000 Expansion at
Baton Rouge
Atlantic Clinic Well Attended at Final
Showing
This Month's Cover
Ethyl Holds Fleet Conference
National Guard Aviation
Kansas Town of 3500 Boasts Latest
Tune-Up Equipment

Admiral Byrd's Snow Cruiser Starts
Long Voyage
Heavy Jobs Easy for "Big Bertha"
"Pennywise"
New Chemical Research Laboratory at
Detroit
The Farmers' World Series
Ethyl Clinic on the Air in Utica
W. H. Hubner Heads New Refinery
Technology Division
New Sales Division on West Coast
Ethyl Motor Clinic Itinerary
Newsbriefs Service Awards



Plant for manufacture of Tetraethyl Lead and Intermediates, Baton Rouge, La.

Vice President Graham Edgar Predicts More Miles per Gallon

SPECTACULAR advances in automotive power were predicted by Dr. Graham Edgar, Vice President and Director of Research of the Ethyl Gasoline Corporation. Following are some of his conclusions as presented to the distinguished audience which he addressed at the annual dinner of the Institute of Petroleum in Chicago on November 15th:

Developments which will give the automobile driver 50 per cent more mileage to a gallon of gasoline are, according to Dr. Edgar, foreshadowed by experiments already carried out to determine the possibilities of increasing compression ratio under conditions in which the anti-knock value of the fuel is no longer the limiting factor.

Supercharging, generally applied

so far only to aircraft, opens another field of opportunity for utilization of fuels of high anti-knock value by the automobile engine.

It is Dr. Edgar's contention that the automotive engine is fully capable of utilizing the best fuel that the oil refiner can make available but he explained that no one can yet tell what this fuel will be. The development in the refining art will be gradual, because of the magnitude of the petroleum industry. No matter how valuable a new refining process may be, considerable time must elapse before it can play a substantial part in the industry.

A corresponding gradual increase in the quality of the marketed products, with no apparent limit on this quality, and in the efficiency of the

automotive engine may likewise be expected.

There appears to be a feeling in certain quarters that the automotive engine cannot utilize efficiently fuels that are appreciably higher in anti-knock value than those available today. In fact, testimony was recently presented to the Temporary National Economic Committee in Washington to the effect that the motor of today has reached the top in high compression ratio so that there is no need for improving gasoline quality further.

Such arguments may be easily confuted by examining the facts in the case. In considering the fuel of the future, the automobile of the future must be considered and although no one would be rash enough

ETHYL NEWS

[2]

ETC 22542

to predict the exact trends which may develop in the automotive field, enough data already exist to show that there are a number of ways in which fuel of very high anti-knock value may be efficiently utilized.

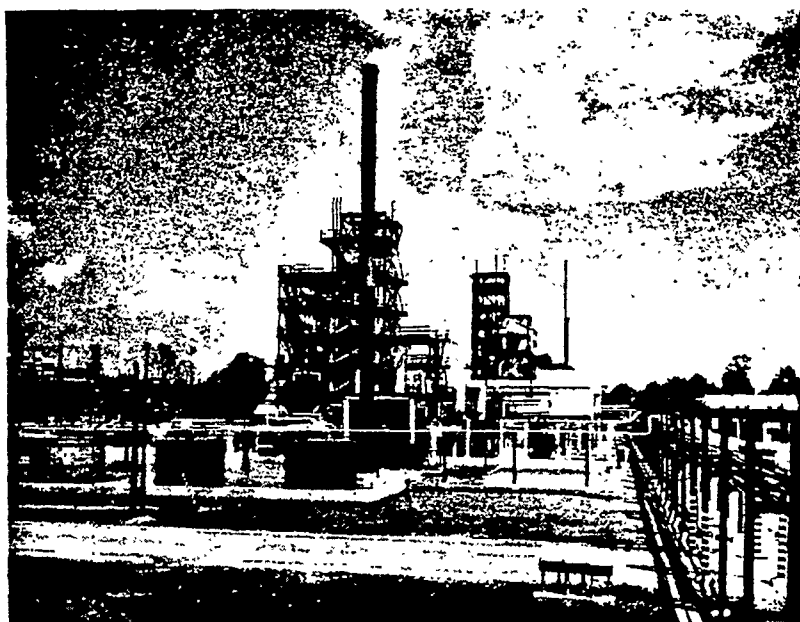
It is possible that in days to come, as in the past, the main trend will be to take advantage of increasing fuel quality by raising the engine compression ratio. It is true that this trend cannot be followed indefinitely, but it can be pursued very much further than it has been.

For example, several years ago the General Motors Corporation carried out an elaborate research project in which an automobile equipped with a valve-in-head engine was operated at a number of compression ratios and a number of gear ratios, using fuels which in each case were just capable of avoiding knock. Approximately 69 octane fuel was required for the standard 5.25 compression ratio, about 95 octane number for 8.0 compression ratio, and something better than 100 octane number for 10.3 compression ratio.

The results were most striking. For example, at 40 miles per hour the miles per gallon improved from 12.5 at 5.25 compression ratio to 18 at 8.0 and 21 at 10.3. The average increase in economy, between ten and sixty miles per hour, is about 45 per cent in going from 5.25 to 8.0 compression ratio under these conditions of constant performance.

It is interesting to note that if the average retail price of gasoline is taken as 19 cents per gallon, the driver of the 8.0 compression car could have paid 27.5 cents per gallon, at no increase in cents per mile, which would give the refiner a margin of 8.5 cents per gallon above his regular costs of 5 cents per gallon with which to attempt to produce the 95 octane gasoline required by the high compression car. Certainly, such an achievement would appear to be well within the eventual possibilities of the refinery technologist.

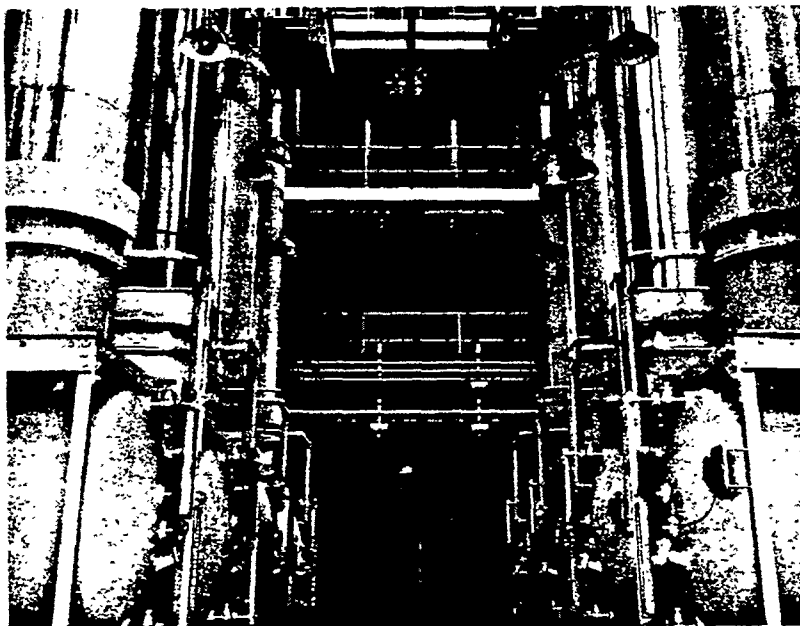
However, Dr. Edgar pointed out that increase in compression ratio is only *one* of the methods by which the automotive engine may utilize fuels of high anti-knock value. In the development of the aircraft engine,



Ethyl Chloride Plant using the Ethylene Process.

where power per cubic inch of displacement is usually more important than thermal efficiency, it has been well demonstrated that a supercharged engine can utilize fuel of as high an anti-knock value as may be available. Already 100 octane number fuel is in wide use and fuels above 100 octane number are under investigation.

Little has been done in supercharging the automobile engine except for special purposes but there is a good chance that the future may see this development extensively followed. Tests with an eight cylinder supercharged engine showed that it delivers a maximum horsepower nearly twice that of the unsupercharged engine. Thus, with ten or



Ethyl Chloride Plant using the Alcohol Process (interior view).

be

g in
tive
uels
nti-
to-
ntly
ion-
sh-
tor
igh
no
lity

sily
s in
l of
fu-
al-
igh

WS

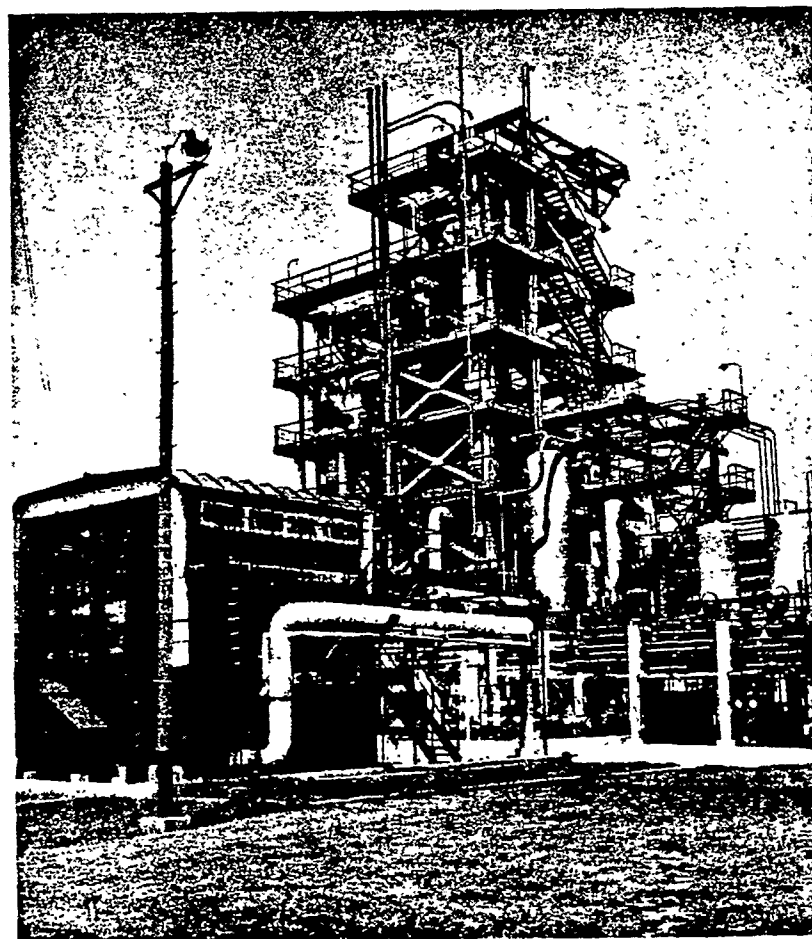
DECEMBER 1930

[3]

ETC 22543



Battery of Compressors in the Ethylene Plant.



Ethylene Cracking Plant.

twelve octane numbers improvement in fuel, it is possible to almost double the horsepower by supercharging. Comparing the fuel consumption characteristics at part load of a large unsupercharged engine and one of one-half the displacement of the large engine, with a supercharger on the small engine cutting in whenever full throttle operation is required, it has been found that the part load economy of the small engine is vastly superior to that of the large one.

Whether or not improvements in quality of fuel necessarily involve increased costs is itself problematical but in any case it can hardly be said that variations in the cost of manufacture of gasoline over the last few years have been the primary factor in the profit or loss of the petroleum industry. The thin dividends of that industry cannot be laid at the door of the refinery technologist.

Amazing progress has been made and is being made in the industry in modifying the structure of petroleum hydrocarbons to produce gasoline of high anti-knock value. Cracking and reforming, both thermal and catalytic, coupled with isomerization, alkylation, polymerization, aromatization, etc., are developing rapidly and are increasing both yields and quality of gasoline.

Anti-knock compounds will continue to play much the same parts in the future that they have in the past. First, wherever it is more economic to obtain any given octane level by the use of anti-knocks they will continue to be so used; second, they will always be added to the best available refinery product to produce continually the fuel of the future for which the automobile of the future will be developed.

Dr. Edgar described the progress of the tetraethyl lead industry from test tube to tank car since Ethyl Gasoline, the result of General Motors research, was first marketed at a single service station in Dayton, Ohio, in 1923.

Today about 75 per cent of all gasoline sold in the United States contains tetraethyl lead. In the aviation field, almost all gasoline of 80 octane or better contains tetraethyl

ETHYL NEWS

[4]

ETC 22544

lead; in fact, the performance of the modern military and transport plane is due in large part to the development of high octane gasoline, a development in which tetraethyl lead played an important role.

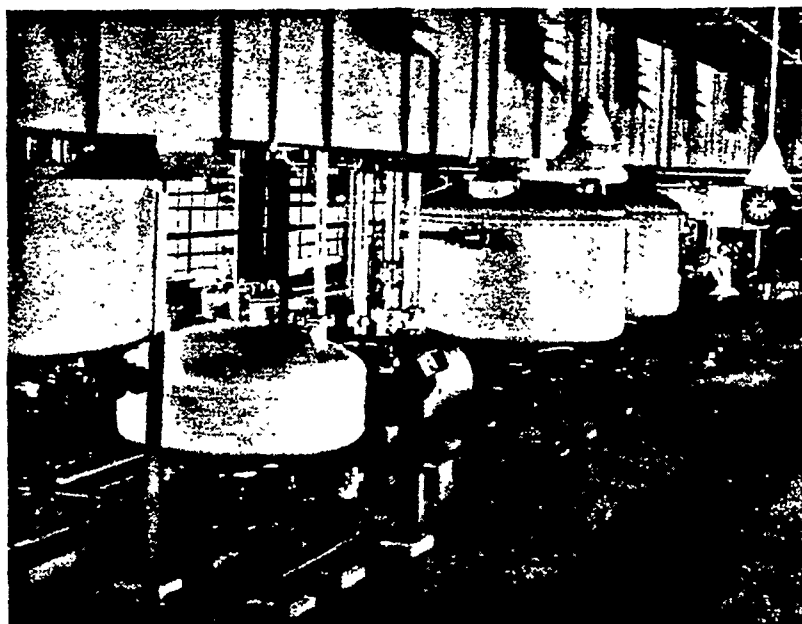
Outside of the United States, tetraethyl lead is used in motor gasoline extensively in Canada, where the percentage of leaded gasoline is equal to that for the United States, England, France, Australia, New Zealand and Germany, and to a smaller extent in many other countries.

Dr. Edgar pictured the Baton Rouge, La., plants of the Ethyl Gasoline Corporation, where a \$4,000,000 expansion program is about to be started, as a self-contained manufacturing development utilizing only the basic raw materials, and representing the most efficient and economic processes known to the art today. The total capacity, he said, is better than 60,000,000 pounds of tetraethyl lead per year.

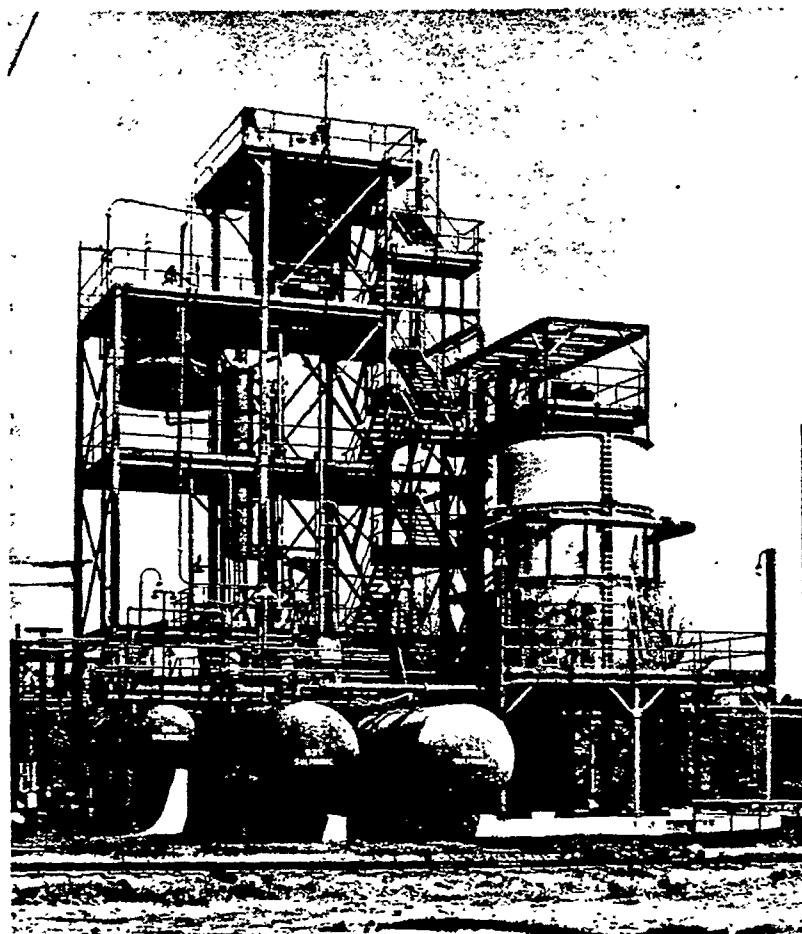
The North Baton Rouge works of the Ethyl Gasoline Corporation, the only fully-integrated tetraethyl lead manufacturing plant in the world, is now operating on a 24-hour schedule, 5 days a week.

When the Ethyl Gasoline Corporation selected Baton Rouge as a site for its manufacturing expansion program in 1936, and purchased the land adjacent to Standard of Louisiana's refinery and Solvay's Baton Rouge plant, it was not expected that the works would operate at full capacity until late in 1940. However, a larger demand for Ethyl fluid due to increase in gasoline consumption, general improvement of gasoline quality by oil companies and a gain of 40% over last year in the consumption of premium-grade Ethyl Gasoline, has enabled the Corporation to move the expected date for full operation forward by a year.

The Solvay Company supplies salt brine and chlorine. Large amounts of steam and electricity come from the Louisiana Steam Generating Corporation. Refinery stabilizer gases, used in the production of ethyl chloride, are piped across the road from Standard of Louisiana's refinery. Additional quantities of ethyl chloride needed in the manu-



Interior view Tetraethyl Lead Unit.



Acid Reconcinator.

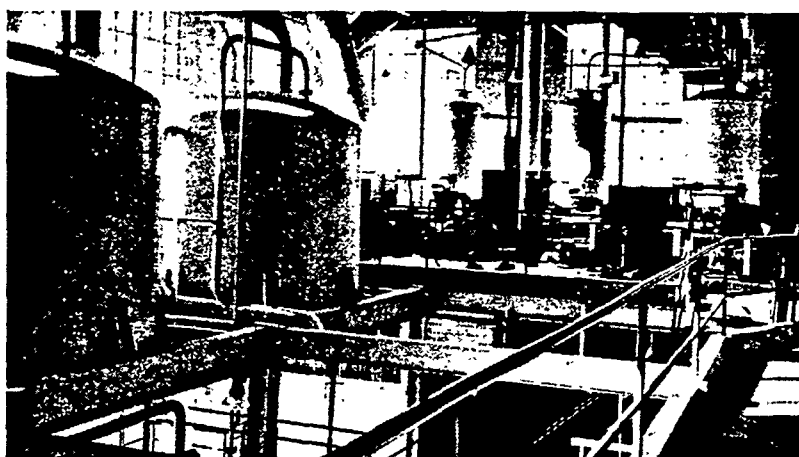
facture of tetraethyl lead, are produced by another process using alcohol, made from molasses, as a raw material.

The Ethyl Gasoline Corporation is directly neither of the petroleum industry nor the automotive industry, but a child of both industries. Its research laboratories at Detroit, Mich., and San Bernardino, Calif., have not only studied problems specific to tetraethyl lead but have contributed substantially to the important progress which has led to the fuel of today and the engine of today. Thus, tetraethyl lead has been of service to the petroleum and automotive industries not only by providing a simple means of obtaining increased anti-knock value, but also by aiding in the solution of the many technical problems that have confronted both industries.

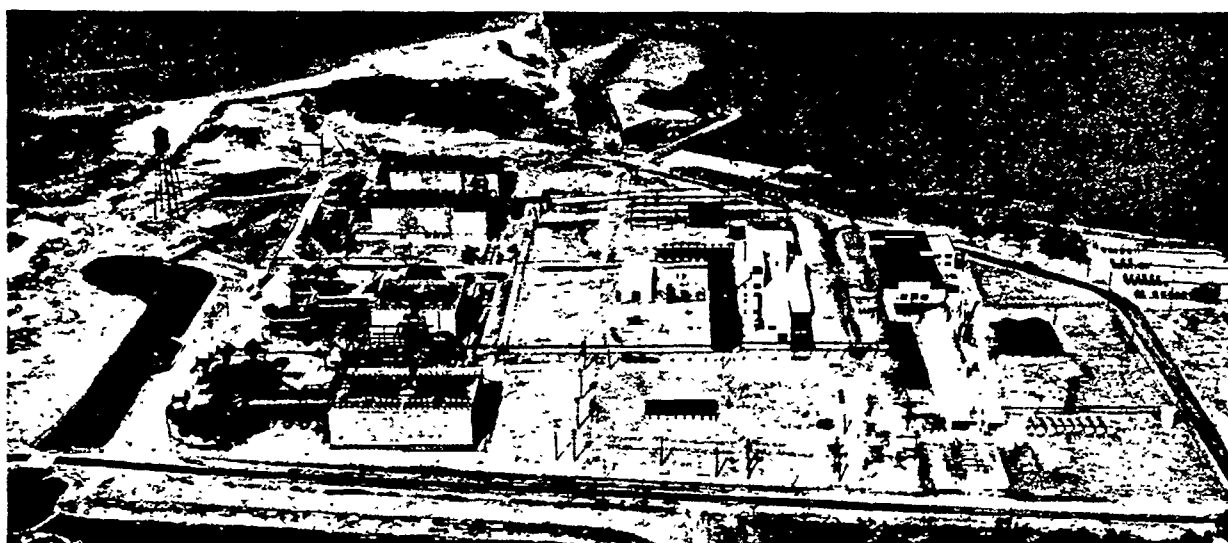
It cannot be said that any of these developments have been due to a feeling of pure altruism on the part of any member of either industry. They are the natural result of the American competitive system, and their net result is that the public today has vastly better fuels and vastly better automobiles, trucks, buses, tractors, and airplanes than it had ten years ago. This is technical and economic progress at its best.



Sodium Plant (interior view).



Blending Plant (interior view).



Ethyl-Dow Plant at Kure Beach, N. C., Cape Fear River in background, in foreground settling basin. Only plant in the world where Bromine is removed from seawater. It is used in manufacture of Ethylene Dibromide, a component of Ethyl Fluid.

ETHYL NEWS

[6]

ETC 22546



While Ethyl Clinic No. 4 of the New York Division was operating in Rochester, Herman Singer, property man, was able to take these interesting photographs of the set-up which offer a new perspective. The first picture is a "back-stage" shot showing automobile on the dynamometer, the portable gasoline station, the dynamometer instrument panel and cartridge bomb on the table. The second photograph was taken from the roof structure of the building. Anyone not familiar with the Clinic can the better appreciate, from these unusual views, the size of this undertaking and preparation behind it.



The Auto Railer stops at Ronk's DX Station in Peoria, Illinois, to make a purchase of Ethyl. This combination truck and railroad engine is owned by the Burlington Railroad, Quincy, Illinois, and was purchased at a cost of \$12,000. It was manufactured by the Evans Products Company of Detroit, is capable of running at 50 miles per hour on the highway and considerably faster on rails. It is able to pull 25 railroad cars and the Burlington Railroad uses it for switching at their yards in Galesburg.

Due to its ability to travel on the highway, as well as on rails, it is possible to use this piece of equipment in many places otherwise inaccessible to the heavier type of railroad engine.



Mr. O. E. Parker of the Allentown Brake and Wheel Company, Allentown, Pennsylvania, was host to local Bendix dealers and Gulf Oil Corporation representatives at a meeting to introduce their new Bendix Dynamometer tune-up service. This is another one of the co-operative plans. Ethyl representatives, Guy Donohue, Automotive Engineer, attached to Clinic No. 7 and Roy Musick, Eastern Pennsylvania, participated in the program.

world
fluid.

EWS

DECEMBER 1939

[7]

ETC 22547

Ethyl Plans \$4,000,000 Expansion at Baton Rouge

ETHYL is spending four million dollars to increase the facilities of its Baton Rouge, La., manufacturing plant. The expansion program, which will employ up to a thousand men, will enlarge the plant capacity about 25%.

One of the new units to be constructed is a tetraethyl lead manufacturing unit equal in capacity to each of the four now operating. Another sodium unit will increase present capacity by about 50%. A new ethyl chloride unit is planned, along with many changes and improvements in other parts of the plant as a whole to increase the total output

25%. This enlargement has been made necessary by the increased demands for tetraethyl lead anti-knock fluid on the part of gasoline refiners, many of whom have recently transferred a substantial part of their operations from the eastern states to the southwest. The Baton Rouge plant supplies fluid only in tank car lots for domestic blending.

Construction is to begin immediately and will take about one year. Building will be partly under the supervision of E. I. duPont de Nemours & Co., who are under contract with Ethyl to operate a portion of the plants at Baton Rouge.



THE above photograph shows Ethyl Gasoline Corporation's demonstration engine set-up used at the Coastal Fair at Wilmington, N. C. Mr. C. M. Shigley, Manager for Ethyl-Dow Chemical Company, Kure Beach, N. C., made all arrangements for the showing and the actual demonstrations were handled by Ethyl's representative Fritz Mercer. The Fair was well attended and this exhibit attracted quite a lot of attention — particularly because the dibromide for Ethyl fluid is manufactured near Wilmington, N. C.



Atlanta Clinic Well Attended at Final Showing

THE Tune-Up School which was held on October 24th in Atlanta, Ga., completed the showing of the Ethyl Motor Clinic in that city. It was one of the largest meetings held in Atlanta. There were in attendance 278 people which took in representatives from 57 organizations including: 21 independent garages and tune-up shops, 10 automobile agencies, 8 parts and equipment suppliers, 9 large fleets, 3 oil companies, 3 service stations, 5 miscellaneous groups.

This meeting was somewhat unusual in that about 95% of the attendance was composed of automotive service people who are primarily interested in the story of good tune-up. Out of a total attendance there were only 13 oil company people present. Practically every large automobile

agency service department in the city was represented and all of the best independent garages and tune-up shops had men there.

The meeting lasted for two hours during which time 8 demonstrations were given in addition to the regular Clinic demonstration on the three grades of performance with three grades of fuel. The demonstrations were selected to give vivid examples of good and bad tune-up in the three major systems that are involved in a good tune-up job—that is, compression, ignition and carburetion. Along with this there was a discussion on general points on tune-up and maintenance.

Mr. George Rosser, Atlanta Assistant Division Manager, held the meeting, assisted by Messrs. Forbes, Cody and Williams.

This Month's Cover

The Stadt Huys in New Amsterdam (now New York City) as it might have appeared in the gathering dusk of a snow-bound afternoon of Saint Nicholas' Day thirty or forty years after its erection by the Dutch as a public tavern in 1642. It stood on the northwest corner of what are now Coenties Alley and Pearl Street, which at that time was the road along the waterfront of the East River. Stadt Huys was succeeded by the second City Hall which the English erected in 1700 on Wall Street at the head of Broad. This building remained until 1788 when it was altered and enlarged to become the new Federal Hall which in turn was superseded by the present City Hall, begun in 1803 and completed in 1812.

The weathercock of the Stadt Huys found its way into the possession of Washington Irving and is at present on exhibition in the Museum of the City of New York. This view looking up Coenties Alley to Stone Street, was sketched especially for the "News" by the artist Edward P. Chrystie.

ETHYL NEWS

[8]

ETC 22548

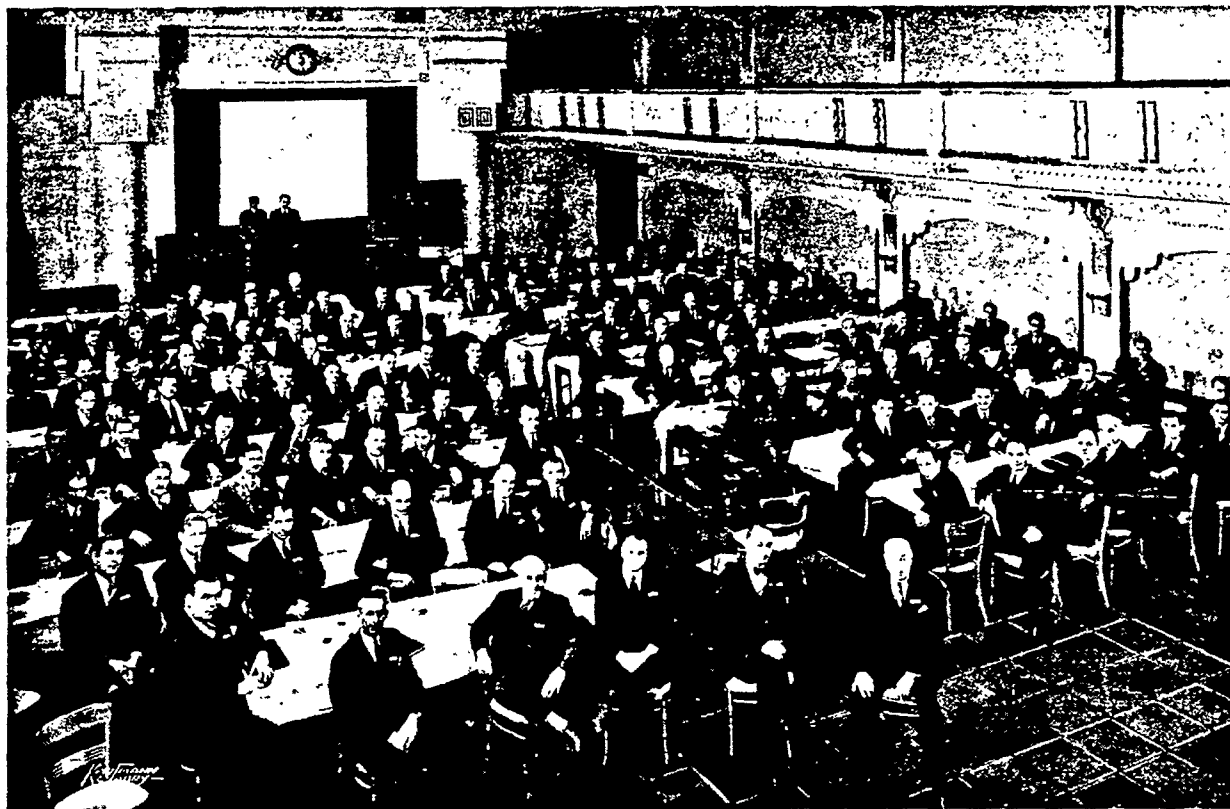
Ethyl Holds Fleet Conference

MORE than 225 fleet men from all parts of the middle west came to Chicago on November 6th for a five-day conference on fleet maintenance and operating problems. The meetings, held in the Hotel Knickerbocker under the direction of Mr. Errol Gay of the Ethyl Corporation, were attended by fleet

were discussed by representatives of various manufacturers and by Ethyl men who, in many cases, had participated in research on those same problems.

Climax of the session was an actual truck test on a dynamometer, during which Mr. Gay demonstrated the importance of proper maintenance.

Gay. Spark plugs and fuel pumps—Sumner Howard (AC Spark Plugs). Gasoline characteristics; exhaust gas analysis—Errol Gay. Ignition systems—J. T. Fitzimmons (Delco-Remy). Valve designs and materials—A. T. Colwell (Thompson Products) and Julian Frey of the Ethyl Gasoline Corporation. Demonstration of Valve Grinding—N. F. Clayborne (Kwikway Service). Driver training to improve fuel economy and maintenance; use of two-speed governor control—Errol Gay. Tire life and service—C. R. Mason (Goodrich). Farm tractor developments—George Krieger (Ethyl Gasoline Corporation). Oil problems—C. E. Smith. Engine varnish—Julian Frey. Piston rings—Theron Bradshaw (Perfect Circle). Choice of compression ratio for best use of a given fuel—Julian Frey. Elimination of noxious odors from city buses; bus and truck tune-up—Errol Gay.



One of the representative gatherings which attended a session of the fleet conference in Chicago during November.

operators, oil men and manufacturers, as well as representatives of the United States Navy, the Illinois National Guard, the City of Chicago and the U. S. Post Office Garage. One operator, Chicago Surface Lines, sent 19 men to the conference.

The series of meetings was designed to serve as an advanced "post-graduate course" for men already well grounded in truck and bus operation, to help them keep abreast of modern engineering developments that apply to their business. All common sources of mechanical trouble, from tires to spark plugs,

nance, correct air-fuel ratios and most advantageous spark settings, as well as the avoidance of noxious exhaust odors through changes in manifold temperatures and selection of fuels of proper volatility. On Thursday evening Ethyl was host at a banquet for all attending the conference.

Most important topics discussed during the week were: *Brief history of engine development; work of Ethyl's Engineering Laboratory—Errol Gay. Carburetors—E. F. Wenzel (Bendix-Stromberg). Float level test stand and jet flow stand—Errol*

tion of Valve Grinding—N. F. Clayborne (Kwikway Service). Driver training to improve fuel economy and maintenance; use of two-speed governor control—Errol Gay. Tire life and service—C. R. Mason (Goodrich). Farm tractor developments—George Krieger (Ethyl Gasoline Corporation). Oil problems—C. E. Smith. Engine varnish—Julian Frey. Piston rings—Theron Bradshaw (Perfect Circle). Choice of compression ratio for best use of a given fuel—Julian Frey. Elimination of noxious odors from city buses; bus and truck tune-up—Errol Gay.

shows
tion's
ed at
gton,
ager
many,
nge-
tual
by
rcer.
this
ten-
di-
fac-

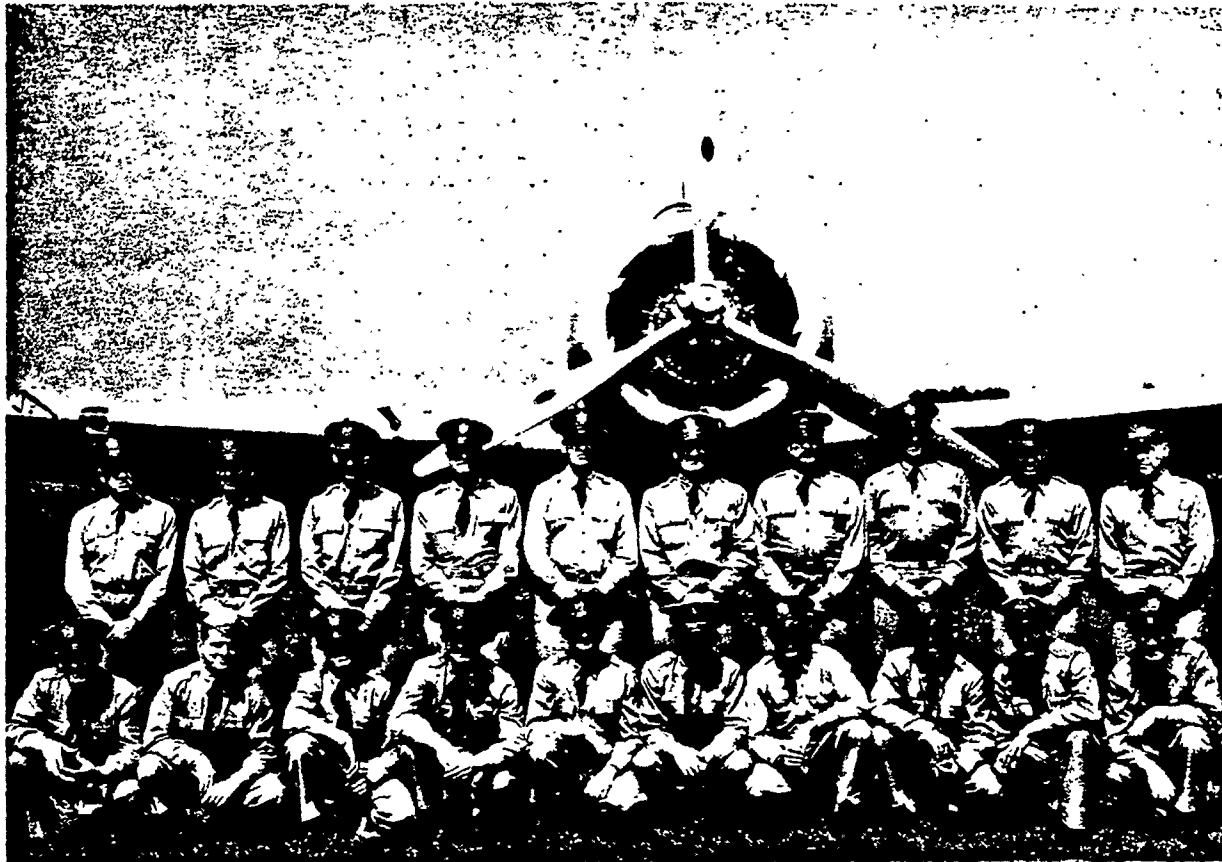
R
am
ave
f a
ho-
its
av-
est
ley
me
of
uc-
ich
all
ld-
vas
the
vas
all,
12.
uys
of
on
ity
up
vas
by

WS

DECEMBER 1939

[9]

ETC 22549



Officers of the 27th Division Aviation Squadron with headquarters at Miller Field.
Major Brower second row fifth from right.

National Guard Aviation

Major LAWRENCE G. BROWER

Commanding Officer, 27th Division Aviation, N.Y.N.G.

THE 27th Division Aviation N.Y.N.G., better known as the 102nd Observation Squadron, is one of nineteen such organizations scattered throughout the United States. Its airdrome is situated at Miller Field, Staten Island, N. Y.

The Squadron is a unit of the National Guard of New York State, and is composed of 33 officers and 110 enlisted men, all drawn from the citizenry of New York City and environs. As citizens, the members of the squadron are regularly engaged in business or the professions.

The Federal Government supplies the airplanes, 9 in all and allied technical equipment. It also provides pay for personnel and cost of maintenance on the airplanes and auxiliary equipment. The state pro-

vides the field and hangar facilities.

An Observation Squadron is divided into sections, not broken up as in other units, into company, pla-



toon and squad. These sections are Photographic; Armament; Communications; Transportation; Supply; Engineering; Parachute; Medical; and Headquarters, all necessary for the proper accomplishment of an air unit's objectives.

As the function of an Air Corps Observation unit is to serve as the eyes of the infantry, artillery, cavalry and other ground troops a unit must be thoroughly trained to do reconnaissance missions; command missions; infantry missions; conduct artillery fire and take aerial pictures, including aerial mapping. In peace time, so that they may have proper firing training, it cooperates with the Coast Artillery, particularly the Anti Aircraft units, in supplying aerial targets—large cigar shaped canvas

ETHYL NEWS

[10]

ETC 22550

targets towed behind the planes by wire cable.

Instruction is given the entire personnel on its weekly meeting night and at such time as the commanding officer may direct. It is during these meetings, or drills as they are called, that the enlisted men manning the various sections, learn all there is to know about the work in their department.

When a recruit enlists he is placed in the beginners group. There he is given the rudiments of infantry drill. He is then questioned about his trade or profession and usually fitted into a section where his civil occupation and experience may best be utilized. An electrician is placed in the radio or communications department.



Constant training in aerial gunnery is a necessary part of the birdmen's instruction.

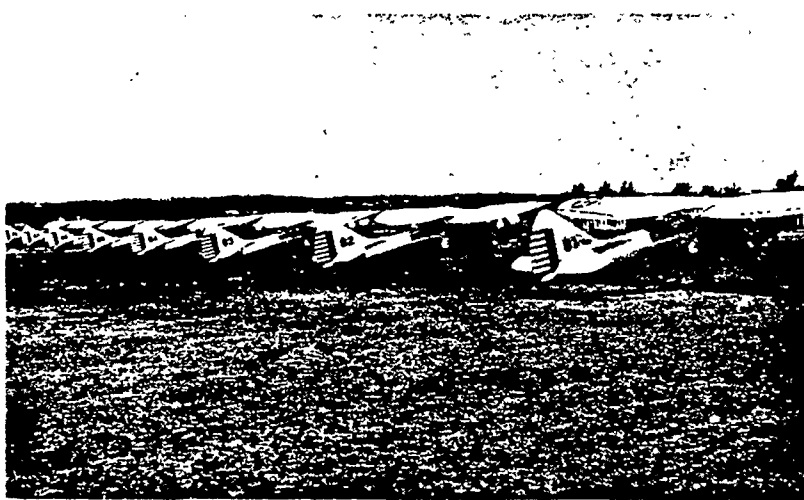
ment, a mechanic in the engineering division, a clerk in headquarters or operations or a tailor in the parachute section, etc.

In all observation squadrons the officers do the flying—that is, the tactical flying. This does not mean that the enlisted man does not get his share of flying, however, for each month he is taken up on an average of at least one flight. The officers are teamed as pilot and observer and fly together on all occasions. In this way there is splendid coordination and understanding.

It can be seen that by meeting several hours only once a week it would be difficult to reach any degree of training efficiency. This is partly



Hangar—27th Division Aviation N.Y.N.G.



Planes of the 102nd Observation Squadron at Miller Field.



Parachute section at work. These men may be tailors in civil life.

taken care of by the fact that the airplanes are available at all times, day or night, and any time an officer is

free, he may take a plane on a cross country flight and in this way receive additional experience. To supple-

are
mu-
ply;
ical;
for
air

orps
the
cav-
unit
do
and
duct
ures,
pace
oper
the
Anti
erial
was

WS

DECEMBER 1939

[11]

ETC 22551

ment this, each summer the squadron goes into two weeks of active duty for intensive tactical and field training, usually at camps away from home and at times when other branches of the service are also in the field. It is during this period that the so-called class room instruction becomes an actuality. Here it is where opportunities are given to work with ground troops—to regulate artillery fire, to communicate with them by means of the radio or drop and pick up messages or by panels or pyrotechnics; to take pictures; to drop flares at night. Not to mention the opportunities of getting that all-important training which every air man must have—aerial gunnery.

As is the case with other guard units, an air squadron constitutes a part of the Nation's first line of defense, and is subject to, and ready for, active duty within twenty-four hours of mobilization. The service of men in the National Guard repre-



Miller Field on Staten Island in New York's lower Bay is the home of 27th Division Aviation N.Y.N.G.

sents a purely voluntary and extra contribution to the State and Nation which they, as both citizens and soldiers, choose to render.

Photos by courtesy 27th Div. Aviation, N.Y.N.G.



High over New York's skyscrapers the guardsmen becomes the "eyes" of his city. In right center (arrow) is Chrysler Bldg. where home offices of the Ethyl Gasoline Corp. are located.

ETHYL NEWS

[12]

ETC 22552



Kansas Town of 3500 Boasts Latest Tune-Up Equipment

MR. Herman Vogt of The Vogt Motor Service at Larned, Kansas, attended an Ethyl Motor Clinic in Wichita and became convinced that similar equipment would mean money to him by enabling him to give customers a real tune-up job on their cars. Although there was some doubt in his mind that Larned, with

a population of 3,500, could support a shop of this kind, he however went ahead and purchased the equipment.

His first move was to secure the services of an Ethyl representative who arranged a meeting for the opening day with the new equipment in place. All the oil companies

in the town offered door prizes and paid for a full-page advertisement in the local paper announcing the meeting. Hand bills were distributed by all the service station men and banners were placed on several of the better locations telling about the meeting.

A short talk on fuels and an Ethyl Motor demonstration was given by Mr. Hamilton of the Ethyl Gasoline Corporation, after which a car was placed on the dynamometer and the three grades of fuel were used proving to the five hundred owners who attended, the advantages of Ethyl Gasoline.

Since that time, Mr. Vogt has been averaging about two cars a day and most of them have been tuned for Ethyl Gasoline. The sign shown over the dynamometer in the accompanying picture is Vogt's own idea and certainly proves to the people of Larned he is a firm believer in the merits of Ethyl Gasoline.

Admiral Byrd's Snow Cruiser Starts Long Voyage

THE Standard Oil refinery at Whiting, Indiana, has completed a shipment of 4,000 gallons of gasoline and 150 gallons of aviation oil for the Beechcraft four-passenger airplane which will soar over the Antarctic this winter. The shipment was part of eight carloads of various fuels and oils which will be used by the government expedition in operating the Antarctic Snow Cruiser designed by the Research Foundation of Armour Institute to explore the Antarctic more extensively and more comfortably than has ever before been possible.

Built at a cost of \$150,000 the Cruiser is something of a combination of ship, sled and transcontinental bus (see Sept. 1939 "News"). This unusual vehicle can turn around within its own length, travel sideways, span crevices fifteen feet wide, climb 37 per cent grades and is expected to weather any kind of storm.

The four scientists, headed by Dr. T. C. Poulter who was second in command of the last Byrd expedition, will live in the cruiser in relative comfort, thanks to the warmth from the diesel engines. They will have a control room, engine room,

living quarters, galley, machine shop, and store room in which to circulate. They expect to carry enough provisions for a year and are planning to spend three months actually sitting on the South Pole.

When they want to survey wide stretches of country quickly they will take the Wichita Beechcraft off the roof of the Cruiser, where it is to ride most of the time, warm it up with exhaust from the diesel engines

and take to the air. On the basis of experience with aircraft on the last expedition no serious difficulty is anticipated even though the conditions to be encountered are about as severe as any known to man.

The accompanying photo shows part of the huge supply of fuel which has been shipped for use of the Expedition including many drums of aviation gasoline containing Ethyl fluid which the snow cruiser will carry to the very bottom of the earth.



27th

d sol-

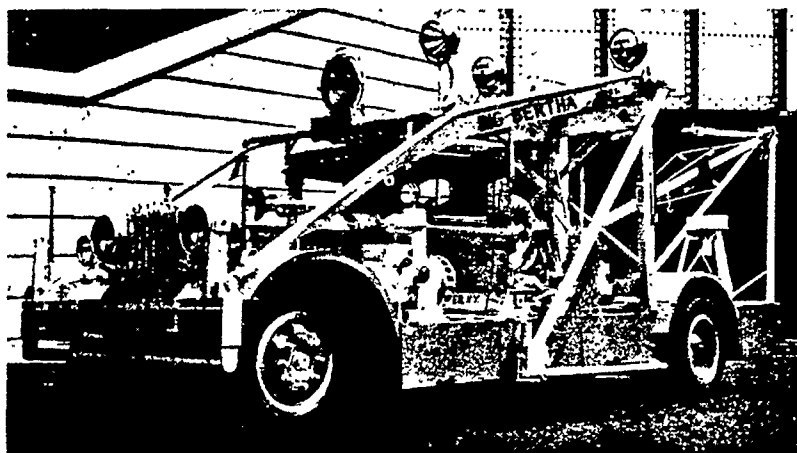
NEWS

DECEMBER 1939

[13]

ETC 22553

Heavy Jobs Easy for "Big Bertha"



AFTER eleven years' experience in road service, Mr. Louis Prinzing, owner and manager of the Browncroft Garage of Rochester, N. Y., became convinced that there was no equipment available to adequately take care of many of the heavy jobs his organization were called upon to handle.

To meet this situation Mr. Prinzing, with the help of the foreman of his machine shop, designed and built "Big Bertha" which is a combination tow truck and portable derrick. It was also equipped with a powerful

lighting system making it available for twenty-four-hour service. This huge piece of equipment is capable of raising a dead load straight up from a depth of 1,000 feet. It is of welded construction throughout and mounted on a five-ton GMC truck chassis. Weight of the special equipment alone is twelve tons and the overall length of the unit is thirty-one feet.

The derrick has a double drum winch with the larger drum holding 1,000 feet of five-eighth-inch plow steel cable. The smaller drum for

raising and lowering the boom carries 200 feet of half-inch cable. Both drums are powered from the truck motor through a two-speed forward and reverse power take-off. The winch also carries a large capstan specially designed for rope rigging work.

All controls are operated from outside the cab so that the man working them can see how the job is progressing. Big Bertha is rigged with three swinging booms, fourteen, twenty and thirty-two feet respectively and has seven-foot outriggers with built-in screw jacks on both sides.

The lighting system has a complete gasoline-power plant augmented by six batteries to assure continual lighting for the three flood lights and four spot lights, making it equally practical for night or day work. The job took sixteen months in the building.

Browncroft Garage had their entire organization, comprising 20 men on day and night shifts, attend one of the Ethyl Gasoline Corporation's Clinic meetings at Rochester. Appreciating the maximum power possibilities with Ethyl, they changed over their regular gasoline pump and now use premium fuel exclusively.



One of the opening meetings at Mueller's Automotive Service, Jersey City, N. J. Mr. Howard Berrian, Manager and his associates, installed an Otis Proving Stand Dynamometer to better serve their customers and to be used in conjunction with a co-operative program for the Gulf Oil Corporation dealers in that area. Guy Donohue, Automotive Engineer of Clinic No. 7, shown addressing the group. In the background is Ethyl's New Jersey Representative, Fred Nixon.

ETHYL NEWS

[14]

ETC 22554

"PENNYWISE"

A Smash Hit!



The new Ethyl motion picture is a sparkling, romantic comedy, played up to the hilt by a fine cast of capable players. Briefly, this is the story of a young couple, Steve and Judy Barrett, whose plans for a second honeymoon trip are interrupted by the unexpected arrival of wealthy Uncle Hannibal from Australia. To get Uncle Hannibal to back the Barrett business, Steve and Judy take him along on the trip and plan to impress Uncle with their ability to "squeeze" every penny. How their plans go astray forms the framework for a series of fast-moving, amusing episodes that, nevertheless, establish the old saying, "You only get what you pay for."

The part of Steven Barrett is played by Donald Cook, well remembered for his many fine performances on Broadway in "Paris Bound," "Half Gods," "Rebound," "Wine of Choice," "American Landscape," as well as nearly thirty Hollywood productions. Mr. Cook is currently engaged as Gertrude Lawrence's leading man in "Skylark."

Judith Ford, who plays Mrs. Barrett, has graced the front covers of leading magazines. Hollywood beckoned and combined her dramatic ability and good looks in such stellar attractions as "Nothing Sacred," "Dramatic School," "Rosalie," "Man About Town," "Bringing Up Baby," "Trade Winds" and "Artists and Models Abroad."

Forrest Orr's "Uncle Hannibal" is played as only this veteran comedian could handle the role. Mr. Orr counts thirty-five years in the American theatre, playing with such notables as Ethel Barrymore, John and Lionel Barrymore, J. C. Nugent and George M. Cohan. A few of his successes include "The Pursuit of Happiness," "Red, Hot and Blue," "Excuse Me," "Lost Horizons," and "Big Hearted Herbert." At present Mr. Orr is to be seen in the Theatre Guild's "The Philadelphia Story" with Katherine Hepburn.

Alexander Campbell, who plays Farmer Jim Lynn, has played over six hundred plays during his years in stock and production. Among them were "Precedent," "Coast Wise Annie," "Child of Manhattan," "Pursuit of Happiness," "Her Majesty the Widow," "Easy Street," "Porgy and Bess" and "Always a Breeze." The part of his son, Joe, is ably handled by Roy Roberts, well known for his fine work in "Kiss the Boys Goodbye," "Sailor Beware," "Hurray for What," "Twentieth Century," "Boy Meets Girl," "Room Service," "Everybody's Welcome," and "Old Man Murphy." Currently engaged with Helen Hayes in "Ladies and Gentlemen."



ETHYL GASOLINE CORR,

presents

"PENNYWISE"

WHAT . . . HAPPENS WHEN A
BACHELOR UNCLE

HORNS IN ON A
SECOND

HONEYMOON?

? ? ? ?
**GET WISE SEE
"PENNYWISE"**

WITH
DONALD COOK JUDITH FORD
FORREST ORR ALEXANDER CAMPBELL
ROY ROBERTS

COMING SOON

DECEMBER 1939

[15]

ETC 22555



New Chemical Research Laboratory at Detroit

"KEEP MOVING" would seem to be the right motto for the Chemical Research Laboratory of the Ethyl Gasoline Corporation which has recently transferred to its new building located on the Eight Mile Road at the city limits of Detroit. There the Corporation owns eight acres of well-wooded land with a frontage of 500 feet on the north side of the highway. On the rear of this property, the Chemical Laboratory in 1936 built a small "semi-works" unit for use in the production of sodium-lead alloy and alkyl lead compounds, distillation of gasoline, and similar activities which it was deemed undesirable to carry out at a crowded location within the city.

The new laboratory is a single story brick and concrete building, 250 feet long and 50 feet wide, with central and cross corridors giving exits on all four sides, and with an interior stairway to the roof. Set at right angles to the highway, the south end contains sound-proof and air-conditioned offices, library, lunch room, etc. At the north end, near the semi-works unit, are grouped the laboratories and service rooms. The driveway, parking lot, and main entrance are on the west side, while on the east and north end a large fenced-in yard, which includes the

semi-works unit, provides safe facilities for outdoor storage and handling of fuels and hazardous materials. In the event that the Engineering and Aeronautical Research Laboratories are later moved to this location, the new Chemical Laboratory will form the east wing of an "E" shaped building.

Efficiency and convenience of operation has been emphasized in the layout and equipment of the building. Among the desirable features are: an enclosed balance room; a 28-foot length of stone hood for the analytical room; other hoods with a double level of working surface from 15 to 36 inches from the floor; a fully automatic distilled water boiler; refrigerator and boxes for ice and dry ice; a manifold of low pressure nitrogen lines, to avoid continual moving of cylinders from room to room; and a complete inter- and outercommunicating telephone system as well as inter-laboratory paging loudspeaker.

This change in location has been made imperative by the overcrowded condition in the Milwaukee Avenue laboratories, and the space vacated has been a welcome boon to the laboratories and departments there. In 1932 when the Chemical Laboratory was moved from Yonkers to Detroit in order to be in proximity

to the Engineering Laboratory, the staff comprised Dr. Calingaert, six trained chemists, a stenographer and a handyman. In contrast, the present staff numbers about 35 members as the result of additional demands for service from the Laboratory and the increased scope of its activities.

These include close cooperation with Engineering and Aeronautical Laboratories and Manufacturing and Medical Departments in the design and prosecution of experimental programs and in assisting them to handle their various problems which call for consideration from the chemical viewpoint and for chemical experimental investigation and research. The Sales, Advertising, Legal and other departments are also provided with information, analyses, etc., as the occasion may require. On its own initiative, the Chemical Laboratory undertakes research along lines of importance to the Corporation: these include a detailed study of the manufacture and properties of alkyl lead compounds; investigation of other anti-knock compounds, both genuine and purported; synthesis of pure hydrocarbons, determination of their physical properties, study of the chemistry of their combustion and numerous other activities in related fields.



A Laboratory Room in New Chemical Laboratory Building.



A Typical Office in the New Building.



Light and Comfortable Quarters for Stenographic Dept.

it

the
t, six
r and
esent
ers as
ds for
d the

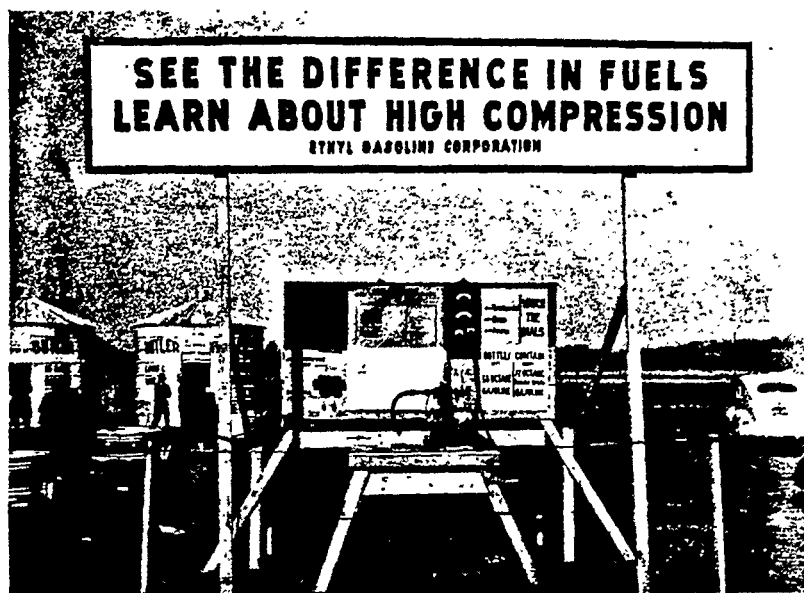
ation
tical
g and
esign
l pro-
undle
ll for
nical
peri-
arch.
and
ided
e., as
own
atory
es of
these
the
alkyl
n of
both
sis of
ation
dy of
stion
n re-

WS

DECEMBER 1939

[17]

ETC 22557



The Farmers' World Series

ON November 3rd, 1939, the National Corn Husking Contest was celebrated at Douglas County, Kansas, near Lawrence. This is the greatest farmer sporting event of the year with contestants from eleven states in the National Corn Husking Contest Association. The winner and runner-up of each state form the contestants for the National meeting.

The final event draws a huge crowd and for three or four days prior to it a holiday spirit exists among the farmers. This serves as an excellent opportunity for the implement manufacturers and others to exhibit their wares and full advantage is taken of it. The fields adjoining the actual contest field are replete with exhibitions of all kinds

having any connection whatever with farming. The exhibition fields might be referred to as a convention of circuses, several large tents being erected at various points in which demonstrations and exhibitions are continually being made. On this occasion a number of oil companies had exhibits of various kinds.

The photograph shows Ethyl's booth at the 1939 event. Something over 4,000 farmers visited this booth during the four-day session and asked questions and sought information regarding tractor fuels and tractor motors.

This year's contest was won by Mr. Lawrence Pitzer, the Indiana contestant. Mr. Pitzer's record was 28.39 bushels net in 80 minutes. The next contestants in order were from Minnesota, Illinois, Missouri, Nebraska, Iowa, and Kansas. It is worthy of note that the winner's wagon was drawn by a high compression Model WC Allis-Chalmers tractor.

Each of the tractor companies had two or three tractors in the field and Allis-Chalmers high compression models were in the money twice, drawing huskers in first, fifth and seventh positions. The estimated crowd for the event was 120,000.

Ethyl Clinic on the Air in Utica

MOBILE transmitting unit of Radio Station WIBX, Utica, New York, shown in front of Ethyl Motor Clinic during a special fifteen minute broadcast on the afternoon of October 19th.

The broadcast was in the nature of a discussion between Mr. N. W. Cook, Business Manager of Station WIBX, and Mr. R. J. Coveney, Clinic Manager, during which the purpose of the Clinic and its program were outlined in brief. A chassis dynamometer demonstration was presented as a part of the broadcast. Reports from listeners in the Utica area indicate that the reception was highly satisfactory. A recording which was made of the discussion and demonstration was used for rebroadcast over Station WIBX that evening.



ETHYL NEWS

[18]

ETC 22558

W.H. Hubner Heads New Refinery Technology Division



WILLIAM H. HUBNER

DR. Graham Edgar, Vice President and Director of Research of the Ethyl Gasoline Corporation, has announced the establishment of a refinery technology division which will cooperate with the technical department of customer oil companies in solving their individual problems arising from advances in chemical and automotive engineering and aid them in gaining the most efficient utilization of tetraethyl lead with various types of gasolines. To head this new division Ethyl has engaged Mr. William H. Hubner, well known in automotive and technical circles through his association during the last ten years with the Universal Oil Products Company. He is to be assisted in this new activity by Mr. J. B. Taylor, Jr., of the Corporation's Detroit Engineering Laboratory.

The new division will be located in Detroit in order that it may work in close cooperation with the research and engineering staffs there. It is expected to begin operation about January 1st, 1940.

For some time the company has given consideration to creating this new technical activity, in order to fill a need which has become increasingly apparent with the development of many hitherto unrecognized

facts relating to the behavior of tetraethyl lead in gasolines of different types. An increasing understanding of the causes of the discrepancies between standard laboratory tests and road performance anti-knock tests also has indicated such a need.

The close relations maintained by the Ethyl Gasoline Corporation with the automotive, petroleum, aviation, tractor and truck and bus industries, plus the extensive research data accumulated by its engineering laboratories, permits of an opportunity to render valuable service to the refining technology of customer oil companies in helping them to determine the most practicable procedure for producing the best gasoline, and producing it most economically.

Dr. Edgar believes that conventional laboratory tests do not always provide the answer to the problems of the refinery and that trends and future requirements in both fuels and automobiles require careful evaluation. Through the newly created Refinery Technology Division, the Ethyl Corporation expects to place its scientific and technological experience at the service of petroleum refining in this country in the development of further progress in fuels and engines.

Mr. Hubner brings to his new assignment a long experience and wide acquaintance in technical circles, which started in 1923 when he began his business career as test engineer for the Chevrolet Motor Car Company. The following year he was appointed to a petroleum fellowship at the Mellon Institute of Industrial Research. During 1925 he engaged in a business venture in Florida but the following year became associated with the Universal Oil Products Co. where he was occupied developing a motor fuel knock-testing laboratory. In 1927 he again returned to Florida but 1929 found him once more with Universal Oil Products. In a short time he was given the title of Automotive Engineer in charge of all engine-test and engine-research



J. B. TAYLOR, JR.

work on motor fuels at the Riverside laboratories. He retained this position, traveling quite extensively to contact the various licensees of that company, until he joined the Ethyl Gasolin Corporation in October.

Mr. Hubner is the author of numerous papers on motor, aircraft and Diesel fuels, which deal particularly with source, methods of evaluation and specification. He is secretary of the Chicago Section of the Society of Automotive Engineers, as Associate Fellow of the Institute of Aeronautical Science, a member of the American Petroleum Institute and of the Cooperative Fuel Research Committee.

Mr. Taylor has been with Ethyl since 1931. After successful work in the Baltimore Sales Division, he was transferred to Detroit Sales Engineering where, for several years, he has been active in cooperative programs with automotive, truck and tractor companies. He has also done considerable work on aircraft engines and fuels under the direction of Mr. S. D. Heron. For the past ten months he has been studying various branches of engineering and research work preparatory to filling his new assignment in the Refinery Technology Division.

New Sales Division on West Coast



HARRY KUHE



C. F. NAYLOR



L. L. HUXTABLE



M. P. MURDOCK

MR. J. Coard Taylor, Vice President in charge of sales, has announced a number of changes in the field organization which will become effective on January 1st, 1940.

A new division has been established with headquarters at Seattle, Washington, which will cover the states of Oregon, Washington, Utah

and Idaho (formerly in the Los Angeles Division) and Montana and Wyoming (formerly in the Chicago Division). Mr. Harry Kuhe, former Assistant Division Manager of the Tulsa Division, has been appointed Division Manager at Seattle. His assistant will be Mr. C. F. Naylor, who has been in charge of Clinic No. 9

in the Chicago Division.

Mr. L. L. Huxtable has been appointed Assistant Division Manager at Tulsa, replacing Mr. Kuhe, while Mr. M. P. Murdock, formerly in charge of our Clinic No. 4 in the New York Division, has been appointed Assistant Division Manager of the Los Angeles Division.

Ethyl Motor Clinic Itinerary

<i>Clinic Number</i>	<i>Division</i>	<i>Present Location</i>	<i>Remains Approx.</i>	<i>Next Location</i>	<i>Opens Approx.</i>
1 A. D. Martin, <i>Manager</i>	Los Angeles	Los Angeles, Cal. 977 West 6th Street	Permanently		
2 L. A. Dollahan, <i>Manager</i>	Chicago	Oshkosh, Wis. 39 Ceape Street	12/21	Sheboygan, Wis.	
3 W. A. Newman, <i>Manager</i>	Dayton	Mansfield, Ohio	1/2	Undetermined	
4 M. P. Murdock, <i>Manager</i>	New York	Special Work Until January	—	Buffalo, N. Y.	
5 H. E. Cottrell, <i>Manager</i>	Tulsa	Special Show for Army Camp Normoyle, Texas	12/21	Corpus Christi, Tex.	1/2
6 E. L. Mason, <i>Manager</i>	Baltimore	Charleston, S. C. 1069 King Street	1/2	Undetermined	
7 M. Littlefield, <i>Manager</i>	New York	Jamaica, L. I. 94-15 Merrick Boulevard	12/20	Paterson, N. J.	1/2
8 B. J. Coveney, <i>Manager</i>	Boston	Albany, N. Y. 81 Lexington Avenue	1/2	Undetermined	
9 C. F. Naylor, <i>Manager</i>	Chicago	Saint Joseph, Mich. 301 Main Street	12/20	Undetermined	
10 C. M. Berry, <i>Manager</i>	Kansas City	Topeka, Kansas 1011 West Sixth Street	12/22	Undetermined	
11 S. T. Pruitt, Jr., <i>Manager</i>	Atlanta	Jacksonville, Fla. 917 West Adams Street	12/15	Orlando, Fla.	12/20

ETHYL NEWS

[20]

ETC 22560

NEWS BRIEFS



Janet R. Barkmeyer became a member of Harry Mack's Dayton Division staff on October 1st. She is an honor graduate of Stivers Business School in Dayton. Being dramatically inclined, she has enacted many different types of characters in amateur productions.

Janet, before joining the Ethyl family, was connected with the Underwood-Elliott Fisher Company, being in charge of the Training Department on Elliott Fisher business machines and also Secretary to the Branch Manager of that company. This business experience gives her a good background for her work with Mr. Mack.

A very important event took place at 2 a.m. Tuesday, November 14th, at the New Rochelle Hospital. Master Everett Arnold Webb, Junior, made his entry into this world and immediately there was cause for great celebrating as he has the distinction of being our President's first grandson. His paternal parent is a member of our Administration Department in the Graybar Building and lost no time in distributing cigars and candy in celebration of the big event. Master Webb weighed 7 lbs. 14 ozs. and we are delighted to report that Arnold Senior, Mrs. Webb and Arnold Junior are doing nicely. This very recent addition to the Ethyl Infantry has a young sister about six years old. Congratulations to all the Webbs and many, many thanks for the excellent smokes and sweets.

Paul R. B. Dixon of the Baton Rouge Manufacturing plant, became eligible for his Ethyl five-year service pin and took unto himself a wife on the same day, July 1st, 1939. He was married to Louisa M. Ogden of Natchez, Mississippi, in one of that city's famous Pilgrimage show houses. Members of the Baton Rouge Manufacturing Plant staff were ushers at the wedding. Our congratulations, late as they may be, are extended to the Dixons. *The 'News' regrets that lack of information prevented our reporting this before.*

From Bloomfield, N. J., comes our latest addition to the Stenographic Department. Marjory Paterson Smith, a young Scotch lassie, is filling the vacancy left by Lillian Weis who has been transferred to the Manufacturing Department (New York office). Marjory is a graduate of the Bloomfield High School as well as the Packard Business School in New York City. She resigned her position with Langguth-Olson Co. to join the Ethyl family and we welcome her to our midst.

Following our practice of out-Winchelling Winchell and giving news before it makes the headlines, please refer to page 17 of the April issue of the "News" wherein was reported that Jack Pruitt (Atlanta Div.) would step off the precipice into the state of matrimonial bliss in the month of "May-be". Although we missed the date slightly we are happy to announce that Jack did step off and marry Miss Jean Fleming of Nashville, Tennessee, on October 14th, 1939. The wedding was solemnized at twelve o'clock noon at the Vine Street Christian Church in Nashville. Acting in the capacity of best man was Joe Costello.

The entire Atlanta Division are very happy and highly pleased with Jack's actions. It is their thought that after ten years of roaming the Division in the guise of a bachelor, his actions were entirely Ethyl(cal). Both the Bride and Groom are tuned for peak performance and we hope that there will be no knocks in their matrimonial vehicle.

We take this opportunity to publicly welcome John F. Wallis to our Ethyl family. Jack, who has recently assumed the duties of a chemist in our Manufacturing Department at Deepwater, hails from Northeast, Maryland, and is a graduate of the University of Delaware, Class of 1939. Considering the facilities offered in the locale of his home town, it is not surprising that Jack's hobbies are gunning and boating.

Incidentally the boys at the plant have nicknamed him Dewey and the Ethylgals call him No-Nox. We refer to the photograph as ample reason.



We welcome to the Ethyl family Dorothy Rogan who has recently joined the Accounting Department in the Graybar Building. Dorothy is a native New Yorker and is now living at Rockaway Beach, Long Island. She graduated from the Straubenmueller High School in New York City in 1935 and had also been a student at St. Joseph's Academy.

Dorothy's previous business experience includes employment with the Stores' Mutual Protective Association and the Post Office at Atlantic Beach.

Her favorite forms of diversion are swimming and horseback riding.



From Los Angeles comes word of the arrival of Susan Woods Chenault on November 5th, 1939. The young lady who, by the way, is the daughter of Mr. and Mrs. Anderson Hume Chenault, tipped the scales on her birthday at 7 lbs. 5 ozs. We are delighted to report that Hume stood up under the strain remarkably well and incidentally Mrs. Chenault and Susan are doing beautifully. Our congratulations to the whole family.

"I thought perhaps you'd like to know That I arrived today,
So here's a card to tell the news,
My name and what I weigh.
Frances Dorothea
October 24, 1939
8 lbs. 4 ozs.

The John Clifford Popes." Dorothea's proud pappy is Manager of the Yonkers Laboratory. Our hearty congratulations to the Pope family.

The Following Service Awards

have been made as of
December 1st, 1939

5 YEARS

HELEN A. LEONARD

Sales, Pacific Coast

ROSE E. LIPSITZ

Aero. Research, Detroit

E. LOWELL MASON, JR.

Sales, Baltimore

MICHAEL A. REMONDINO

Engineering, San Bernardino

J. ROSS ST. GERMAIN

Sales, Baltimore

An event occurring "down east" recently which should be of interest to many of our personnel, has just come to our attention. At a dancing contest staged in the Terrace Dining Room of the Hotel Statler in Boston on November 13th, all prizes were won, including the grand sweepstakes (a quart of champagne) by one "Vernon Dionne" Taylor. The occasion was to celebrate the birth of a son in the Taylor family (November "News"). Believe it or not, the dance which took the grand prize and brought down the house was the "Boomp-A-Daisy." However, the winner continued to climb to even greater heights as the evening wore on.

We might say that one of the prizes won by Mr. Taylor was a series of dancing lessons at Arthur Murray's School. It is understood he intends to avail himself of this during a lull in his golf and other sporting activities.

en ap-
anager
while
rly in
in the
en ap-
anager

ens
prox.

1/2

1/2

2/20

ews



ETC 22562

Printed in U. S. A.