



The Lufkin Line

VOLUME XXIII • • • NUMBER 5

I've got a heap of troubles
And I've got to work them out.
But I look around and see
There's trouble all about.
And when I see my troubles,
I just look up and grin,
And count all the troubles
That I'm not in.

Author Unknown.

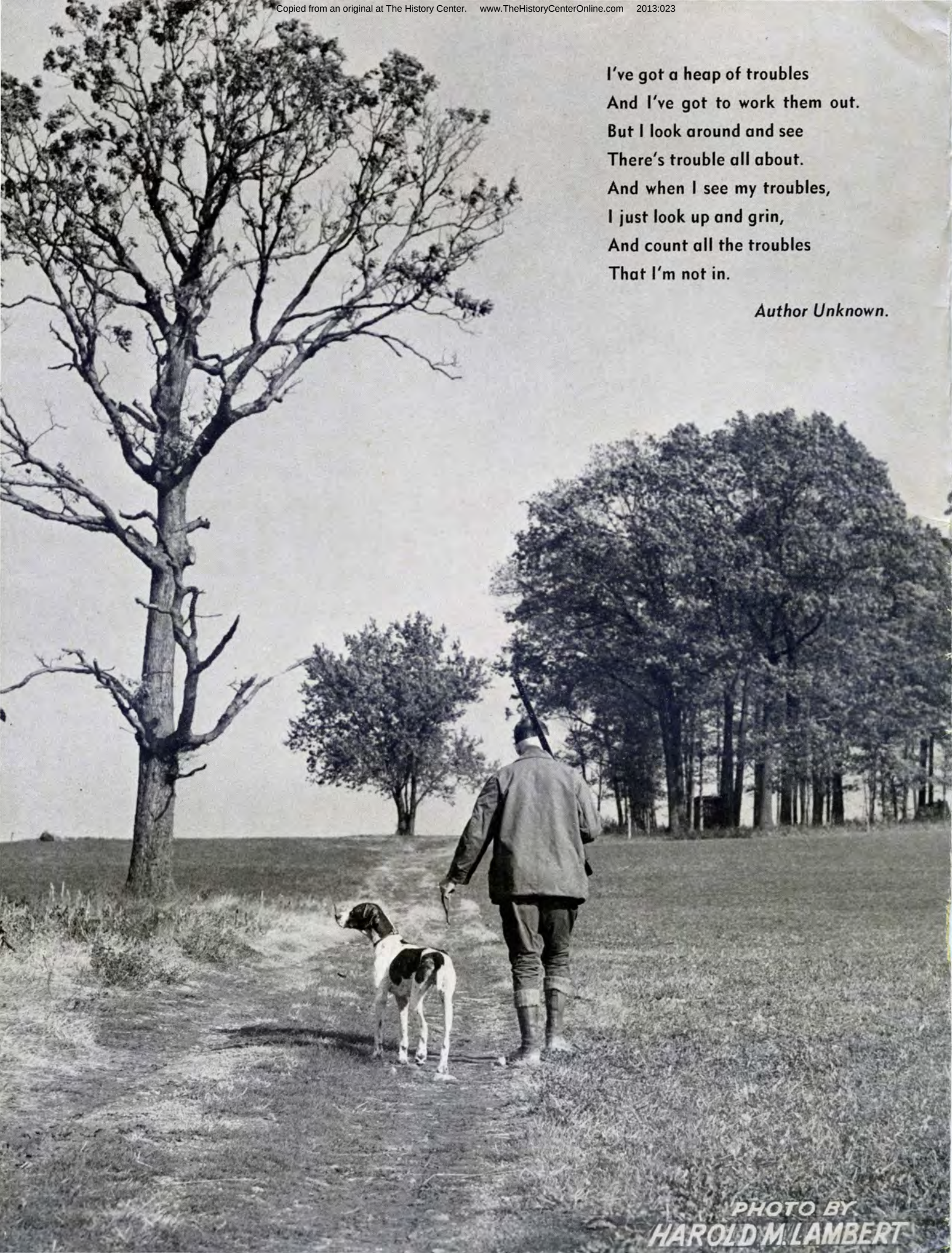


PHOTO BY
HAROLD M. LAMBERT

The Lufkin Line

Published to promote Friendship and Good Will with its customers and friends and to advance the interest of its products by the Lufkin Foundry & Machine Company, Lufkin, Texas.
Virginia R. Allen, Editor

Volume XXIII SEPTEMBER and OCTOBER, 1948 Number 5

DALLAS DIVISION NUMBER

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THE COVER

When the crisp, fresh Autumn winds blow across the nation, they bring the sounds of football stadiums—the cheers, the band music, pep yells, and the thud of toe against pigskin. With football games come the prancing, strutting, twirling drum majors, without which no classic would be half so thrilling.

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DALLAS DIVISION HAS EVERYTHING

NAME WHAT YOU WANT, BE IT OIL FIELDS, SOUTHERN FRIED CHICKEN, WESTERN STYLE BARBECUE, OR PROGRESSIVE CITIES; ALL CAN BE HAD IN THE DALLAS DIVISION.

THE deep South and fried chicken; the Mississippi Delta and Louisiana gumbo; Texas hats and ranch style beans; barbecued beef by the cow instead of by the pound; that's our Dallas Division.

Sunset finds millions of bats emerging from the black mouth of Carlsbad Caverns in New Mexico. That same sunset falls on other "bats" ready for night life in Louisiana, Texas, Arkansas, and Mississippi. The same sun sets on the barbecue pits of West Texas, from which emanates the savory smoke of fine beef as the Chuck Wagon gang makes ready to feed thousands of hungry folks in typical grandiose Texas fashion. Mexican style beans by the washpot full, potato chips by the barrel, and bread by the wagon load. Don't come if you ain't hungry, 'cause everybody's going to be too busy feeding their face to put out much conversation.

Down in Mississippi, the field hands, who arrived by sunrise to their work on the plantations, plod homeward as the sun sinks in the West, to sit barefoot on shady porches and enjoy the coolness of evening and the beauty of the twilight. Fried chicken, cream gravy, and hot biscuits; fried

fish and "hush puppy" corn pones makes any place a fine spot to be.

As the twilight fades into darkness, Louisiana sets out the crab and shrimp gumbo, delicious broiled pompano and golden brown flounder, as well as other wonderful french cooking. Not to be forgotten by any means is that "hairy-chested" black chicory coffee.

NOW that the night is with us up in Arkansas, we eat anything that ain't smart enough to stay out of sight. A few fox squirrels make a mighty fine mulligan stew. There are fat fish in the rivers and lakes which are broiled to perfection and basted with an expertly seasoned sauce that whets the palate of any gourmet. The corn grows tall and the apple crop is heavy. That famous apple cider makes the populace happy and momentarily rich. The land of the "Bazooka" and the home of apple cider has long been the home state of many fine and successful oil producing men.

Between sunrise and sunset over this deep South and wide West section, a great many men look to the oilfields to keep the flour barrel full and a side of bacon hanging in the smoke house. This section is the heart of the greatest oil production of the world.

West Texas, with its hundreds of fields, thousands of wells, and millions of barrels of reserves, has been and will be the most actively developed section. The oil is there—maybe a thousand feet below the mesquite roots or maybe fifteen thousand feet—and they get it regardless of the depth.

BIG DALLAS—City with the charm of yesterday and the spirit of tomorrow—is the hub of the fabulous oil industry in the South, Southwest, and Mid-Continent areas.



JUST ACROSS THE RED RIVER lies the progressive city of Shreveport, Louisiana. A friendly, energetic town, this metropolis initiated the ever-increasing interest in old oil fields in northern and central Louisiana.



New Mexico, the Texas Panhandle, North Texas, and Central West Texas have made their place in oil history. Hobbs, Borger, Ranger, Burkburnett, Electra, and many other famous towns in these areas will be remembered as the site of tall tales, still spun by the old timers and still listened to by the rookies who love a good story.

THERE is one legend which presumably comes from the Hobbs boom where early wells were drilled "tight"; that is, no information was being given out on depth, formation, cuttings, or drilling speed by many operators. One day a traveler who by trade was a cable tool man, stopped to watch a certain steam rig with its boilers and rotary table, which was quite a spectacle to him. He had been told that all information was closely guarded in the area, but nevertheless, he asked a roustabout if this particular well was "tight."

The roustabout raised his head slightly, cocked an eyebrow, and replied, "Tight! Hell, mister, this well is so tight the fireman won't even let the driller know how much steam he's carrying!"

Oil activity throughout the East Texas area is centered in Tyler, Longview, and Kilgore. Even the most seasoned roughneck is amazed at the forest of 27,000 derricks in Kilgore alone.

Shreveport, a progressive, energetic city, is the hub of operations in North Louisiana and much of Mississippi and Arkansas. Other than her oil fame, this municipality is noted for its exclusive bars serving your choice of mixed drinks expertly

prepared to give a minimum of intoxication and a maximum of purchases. New interest in old fields is bringing drilling of new wells in North and Central Louisiana, including the Caddo Field north of Shreveport.

In Arkansas, the city of El Dorado is being challenged by Magnolia for honors in the search for new production as well as modernized production of old wells. Mississippi moves upward as an oil producing state. Many producers from 10,500 feet in the Brookhaven and Mallalieu fields team with Baxterville, Cranfield, La Grange, and Tinsley fields to increase the producing volume of this historic old state.

DALLAS, known as the "City with the charm of yesterday and the spirit of tomorrow," is the nucleus of the giant oil development in the South, Southwest, and Mid-Continent. The location of this southern metropolis makes it the logical focal point for southern industry and exploration. Although a great building program marks the progress and phenomenal growth of the city, Dallas is still hardpressed for office space and homes.

Fort Worth, aptly dubbed as "where the West begins," is located just west of Dallas. Known all over the world for its cattle industry as well as oil activity, Fort Worth vies with Dallas most vigorously for all local honors, but the two cities band together as one in all efforts to further expand the great Southwest.

CADDO PARISH COURT HOUSE stands in the forefront of this street scene in Shreveport, while in the center stands the Slattery Building, and the Commercial National Bank can be seen in the background.



MIDLAND, TEXAS, as seen from the air. This thriving city lies west of San Angelo.





— KANSAS DIVISION



VERNON GLENN



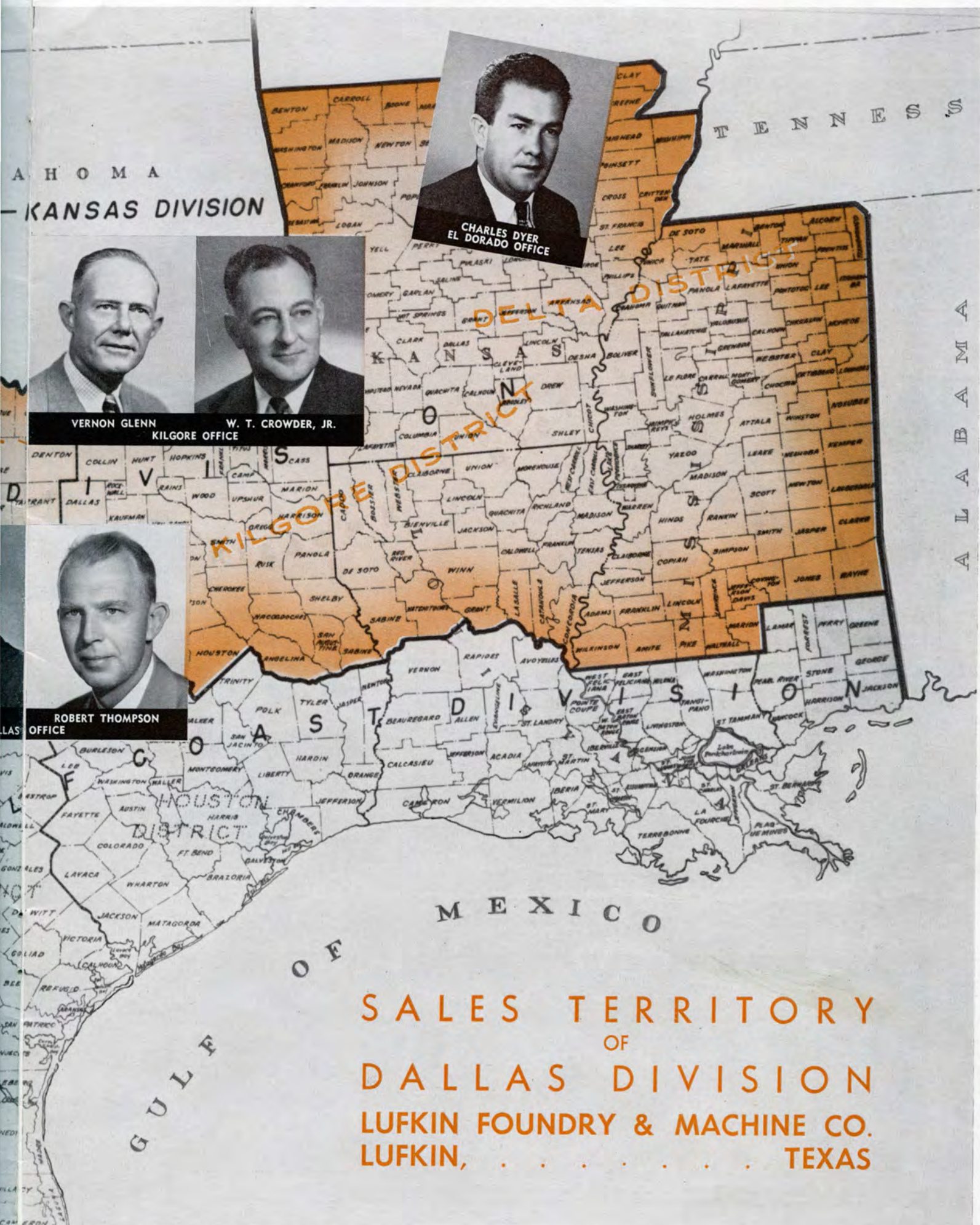
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OF
DALLAS DIVISION
LUFKIN FOUNDRY & MACHINE CO.
LUFKIN, ... TEXAS

SNAPSHOTS...



Jesse George, The Texas Co., Wichita Falls; Pat Patterson, The Texas Co., Gladewater, Texas; Shorty Hicks, The Texas Co., Electra, Texas; and Buck Morgan, The Texas Co., Shreveport, Louisiana.



Vernon B. Glenn, Lufkin Foundry, Kilgore, Texas; J. D. Smith, Oil Operator, Houston; T. L. Smith, Jr., Oil Operator, Houston; Ed Caraway, Lufkin Foundry, Dallas; and Jack Gissler, Lufkin Foundry, Wichita Falls, Texas.



Dal Legan, Tide Water Associated Oil Co., Houston; and M. L. Brown, Sun Oil Co., Dallas.



E. B. Hudson, Sun Oil Company, Dallas; and Ben Brooks, Sun Oil Co., Corpus Christi, Texas.



M. A. Sparks, Sun Oil Co., Dallas; Pete Little, Lufkin Foundry; and R. R. Burris, Sun Oil Co., Tulsa, Okla.



Ed Caraway, Lufkin Foundry, Dallas, and Tex Pearce of the Magnolia Petroleum Company, Dallas.



Pat Fletcher, Atlantic Refining Co., Odessa; Pete Little, Lufkin Foundry; Tom C. Frick, Atlantic Refining Co., Odessa; and W. W. Trout, President, Lufkin Foundry.



W. F. Batson, The Texas Company, El Campo, Texas; Bill Miner, Lufkin Foundry, Houston; Cul-lom Jones, and Carl Jennings of The Texas Company, Houston.



Gene Steele, Lion Oil Co., El Dorado, Arkansas; Frank Richardson, Lion Oil Co., El Dorado; and Vernon Hayes, Lion Oil Co., Pratt, Kansas.



M. L. Brown, Dallas; Ben Givens, McAllen, Texas; and J. H. Hightower, Dallas—all of Sun Oil Co.



Rube Sole, Arkansas Fuel Oil Co., Longview; Oscar McIlheny, Atlantic Refining Co., Dallas; and J. E. Embry, Arkansas Fuel Oil Co., Greggton, Texas.



E. C. Cason, Deep Rock Oil Co., Graham, Texas.



Ab Kinchen, Phillips Petroleum Co., Odessa, Texas.

WITH THE *Lufkin* CAMERAMAN



Sun oil men who visited the Lufkin Exhibit at the Tulsa Oil Show were, left to right, A. S. Rhea, H. C. England, J. A. Prather, F. A. Lawrence, J. W. Strickland, D. B. Kiniry, Jim Foster, O. D. Albright, and J. B. Hamilton.



Jimmy Low, Amerada Petroleum Co., Fort Worth, Texas; Pete Little, Lufkin Foundry; H. W. Deax, Amerada Petroleum Co., Fort Worth; and Ralph Phillips, Amerada Petroleum Co., Longview, Texas.



Jack Spears of the P. J. Spears Oil Company, Smackover, Arkansas.



Charlie Hughes, Arkansas Fuel Oil Co., Shreveport, Louisiana, and Joe Lugar, Deep Rock Oil Co., Tulsa.



R. L. Moody, Tide Water Associated Oil Co., Kamay, Texas, and I. E. Curtiss, Hull & Silk Pool Operating Committee, Wichita Falls.



John Guynes, Magnolia Petroleum Co. and Curt Oppel, Atlantic Refining Co., Dallas.



B. J. Lancaster and Ernie Holloway of the Atlantic Refining Company, Dallas.



Joe Woodward, Corpus Christi; Dewey Jordan, Kenedy, Texas; and Sam DeWitt, Dallas—all of Seaboard Oil Company.



Joe Collins, Denver, Colorado; Dan Gribbon, Pampa, Texas; and E. E. Merkt, Wichita Falls—all of The Texas Company.



John Sweeney of the Sun Oil Company, Brookhaven, Mississippi.

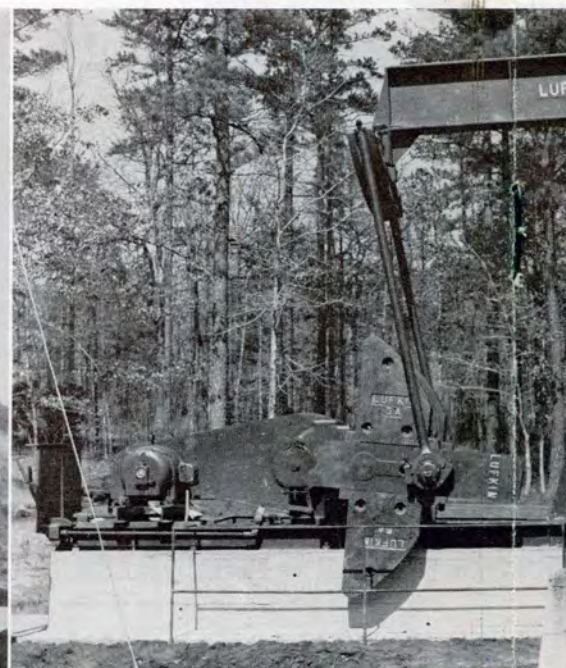
W. N. Shiflett of Sun Oil Company, Brookhaven, Mississippi.

Smitty Smith of Union Producing Co., Pineville, Louisiana.

Bill Holbert of Stanolind Oil & Gas Co., Shreveport, Louisiana.

Gene Fisher of Stanolind Oil & Gas Co., Monroe, Louisiana.

Midget Race Driver A. E. "Big D" Caraway, Dallas.



Above: Left—LUFKIN TC-33A-18B UNIT near Bowie, Texas, pumping deep in the piney woods for P. J. Strange, Fred Spears, and G. C. Gates. Right—LUFKIN TC-44A-15 UNIT pumping deep in the piney woods for P. J. Strange, Fred Spears, and G. C. Gates. Right—LUFKIN TC-33A-22E UNIT installed at Smackover, Arkansas, for Phillips Petroleum Company. At right, are Mike Miles of Phillips and Ed Caraway of Lufkin Foundry.

Left—LUFKIN TC-33A-22E UNIT installed at Smackover, Arkansas, for Phillips Petroleum Company. At right, are Mike Miles of Phillips and Ed Caraway of Lufkin Foundry.

INSTALL

Below: Left—LUFKIN TC-2A-35 UNIT at La Grange Field near Bunkie, Louisiana, for Sun Company. Center—LUFKIN TC-1A-41B UNIT pumping for Sun Company, Mississippi. RIGHT—TC-2A-36 UNIT driven by a Lufkin Cooper engine, Bunkie, Louisiana.



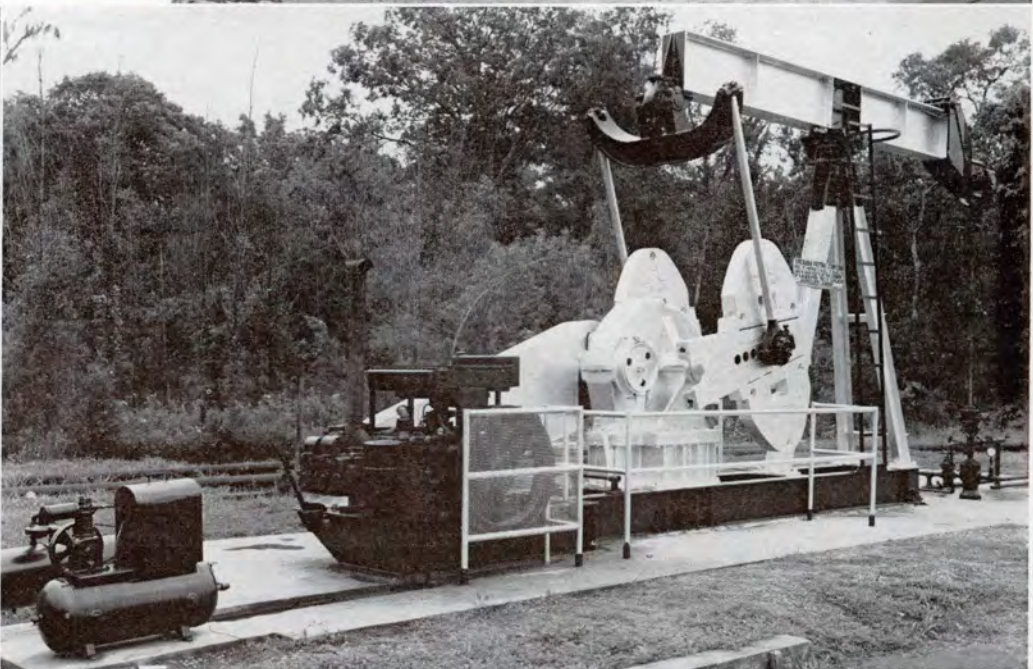


exas, pumping for the Continental Oil Company. Center—LUFKIN
for P. J. Spears, El Dorado, Arkansas. Standing beside the unit
right—LUFKIN T5-7B UNIT at Farmersville, Louisiana, for the
Oil Company.

RELATIONS

Right — LUFKIN TC-1A-
54B UNIT installed at
Baxterville Field near
Baxterville, Mississippi,
for the J. P. Evans Oil
Company.

eld near Natches, Mississippi, for the Texas Pacific Oil and Gas
g for Sun Oil Company at Brookhaven Field near Brookhaven,
a Cooper-Bessemer Engine for the Amerada Petroleum Company
kie, Louisiana.





**PUMP SET at 10,441 feet; 1", 7/8", and 3/4" rod string;
Brookhaven, Mississippi**

PUMPING WELLS 10,000 FEET DEEP...

DEEP well pumping is approached with considerable trepidation by many operators. It will never be a kindergarten exercise but the experience of recent years indicates that it is practical and economical to lift oil with rod strings 10,000 feet and longer. Improved drilling equipment and drilling methods allow deeper search for new pools and the urgent need for additional reserves makes this deep drilling necessary. Confidence in production aids for these deep wells is strengthened not so much by new methods or new designs but rather by the proving up of the adaptability of methods already familiar to the operators.

Two factors simplify the pumping of deep wells. Basically, it must be remembered that either a large volume of fluid or great depth can be handled with a minimum of trouble but a combination of the two presents a tough production problem. However, if large volumes of fluid are indicated, it is a safe bet that the well has high fluid level and pump can be set up the hole. If fluid must be pumped from bottom of the well there usually will be a relatively small volume which can be handled by small bore pumps without loading rods to excess.

Second, it has been proven by operators and by rod manufacturers that rods stressed in excess of 30,000 P.S.I. will operate satisfactorily if corrosive conditions or shock loads are not extreme. Rod strings stressed above 40,000 P.S.I. are operating satisfactorily. New materials and new processing methods are used by rod manufacturers who recommend their improved alloy rods for 40,000 P.S.I. or higher load. One and one-eighth-

inch rods with special small diameter box are available from the best grade steels. Improved alloys and new processing will continue to increase the strength.

HELP FROM MOTHER NATURE

Old Mother Nature has been the only one to offer a trouble free method of lifting oil to the surface and even she feels the ravages of old age. Considerable development and improvement is offered by manufacturers of hydraulic, gas, and beam pumping equipment, but all have limitations. Each may show some theoretical and some actual advantages when operating under a particular condition and wonderful pictures are painted based on unusual well or pumping conditions. The operator is interested in producing oil by the cheapest method and in installing equipment which will require the least supervision and the smallest maintenance expense. This discussion will not consider the freakish side of production but will stay in the fairway with average conditions and average production expectations, and will cover only the limitations and advantages of conventional sucker rod pumping.

It should be impressed that sucker rod pumping cannot be considered a complicated procedure. A string of rods moving a plunger through a cylinder is a simple operation which temperatures, foreign matter or pressure will not affect to any great extent. Surface pumping equipment is simple and its operation does not require special training or the attention of an engineer. Wells have been pumping satisfactorily from below 10,000 feet with sucker rods for several years and this experience has developed better pumps, stronger rods and more powerful surface equipment. Experiences of the manufacturer and co-operation of the operator has perfected equipment for an installation that is easily understood, economical to operate and which offers no complications before or after installation.

In the consideration and selection of any product it is agreed that the reputation of the manufacturer in his line of equipment is important. These reputations are made by furnishing quality equipment over a period of years. The quality of equipment is kept high by experience in the plant and in the operating fields, by an alert engineering department and by an experienced and well equipped plant personnel. Satisfactory operation of equipment is assured by capable engineers who fit the proper equipment to your job and by experienced

service men who assist with operation and servicing of the machinery. The attitude of the manufacturer and his alertness in handling troubles and failures should be considered. The primary thought in selection of equipment is to install the machinery which will best do the job. The spending or saving of a few dollars is secondary, for the equipment will be in service many years and any difference in initial cost would be negligible when divided over the period of years the machinery is operated. One failure in machinery, with slow furnishing of replacement parts, inexperienced service or other results of unpreparedness and indifference greatly offset any initial cost difference. Select a proven product from a reliable, experienced, and specialized manufacturer who is equipped to give expert engineering assistance and prompt service.

LONG STROKE PUMPING

There are differences of opinion on advantages of long stroke pumping compared to short stroke. We refer to long stroke pumping as 9 feet and 10 feet or greater, and to short stroke as 7 feet or less. Some operators found that 6 feet stroke equipment operated many months without a rod failure. Rods and subsurface equipment present the problems since proven surface equipment is available in ample capacity. Long stroke geared units are practical and are designed to handle the new 1 1/8" sucker rods to the ultimate allowable working stress. The longer stroke will allow slower pumping to give fewer reversals and lower stresses to the rod string. Before discussing definite examples of deep well pumping, note the application limitations of long and short stroke assemblies. A long stroke unit is not required to handle 400 barrels from 6000 feet, nor is the long stroke needed to lift 1000 barrels from 2000 feet. The standard 74" stroke unit will do this and has a lower initial equipment cost. For wells pumping below 7000 feet or for shallow wells producing very large volumes of fluid there may be need for units to operate at longer slower stroke which will reduce rod loading and minimize rod fatigue.

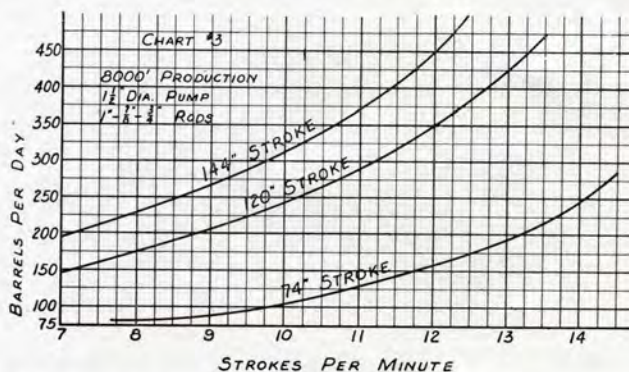
WE INCLUDE the following calculated examples to indicate what may be expected of conventional geared pumping units. The experience of operators and rod manufacturers indicates that it is desirable to pump not faster than 8 or 9 SPM with the 10,000-foot rod strings in order to get satisfactory rod service. Calculations are based

on formulas which are accepted by operators and furnished by one of the larger rod manufacturers as relatively accurate estimates which check very closely with actual operating results. Rod and tubing stretch and plunger overtravel at the indicated speed are considered in the calculations

Acceleration formula of $1 + \frac{\text{SPM}^2 \times \text{Stroke}}{70,500}$ is

used for the impulse factors and 80% volumetric efficiency is reflected by the indicated volumes. No. 1. Producing from 8000 feet with 120-inch stroke pumping unit, operating at 10 SPM with 1 1/2" bore pump, the following rod string is suggested to handle 250 barrels of fluid:

21% — 1" Rods = 1675' = 5000#
 25% — 7/8" Rods = 2000' = 4480#
 54% — 3/4" Rods = 4325' = 7050#
 Wt. Column of Fluid—Approx. 4150#
 Acceleration Factor—120" Stroke 10 SPM 1.17
 Peak Polished Rod Load 24,200#
 Maximum Rod Stress 31,000# PSI
 Net Plunger Travel 123"
 100% Volumetric Efficiency—320 Bbl. per day
 Production—80% Vol. Eff.—250 Bbl. per day



THIS CHART SHOWS the expected volume from an 8000-foot well at respective pumping speeds and stroke lengths using 1 1/2" working barrel and combination string of 1", 7/8", and 3/4" rods. Rod and tubing stretch and pump overtravel are included, however, volumetric efficiency of 100% is indicated and for actual results we suggest that 75% to 85% be anticipated.



The Lufkin Line

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No. 2. For small volumes from 10,000' depth using 1-1/16" pump, a pumping unit with 144" stroke operating at 7 SPM will lift 100 barrels per day with following rod strings:

18% — 1" Rods

20% — 7/8" Rods

62% — 3/4" Rods

Acceleration Factor 1.1

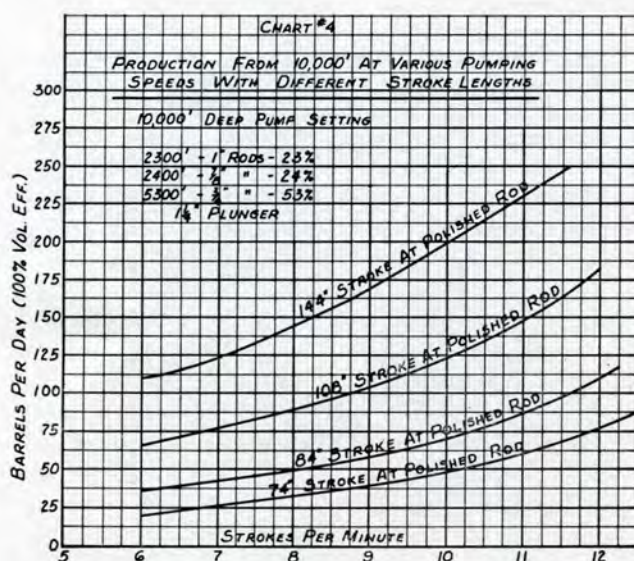
Peak Polished Rod Load 23,500#

Maximum Rod Stress 30,000 PSI

Net Plunger Travel 134"

100% Volumetric Efficiency 125 Bbbls. per day

Production 100 Bbbls. per day



THIS CHART IS BASED on 10,000-foot well using tapered string of rods to 1 1/4" plunger. The volume shown may not be absolutely correct relatively since a 74" or 84" stroke pumping assembly would possibly be pumped at a faster S.P.M. than would the longer stroke units. However, since it seems desirable to keep this S.P.M. as slow as possible to get the required production, the longer stroke would be certainly more desirable and would be necessary if larger volumes were required.

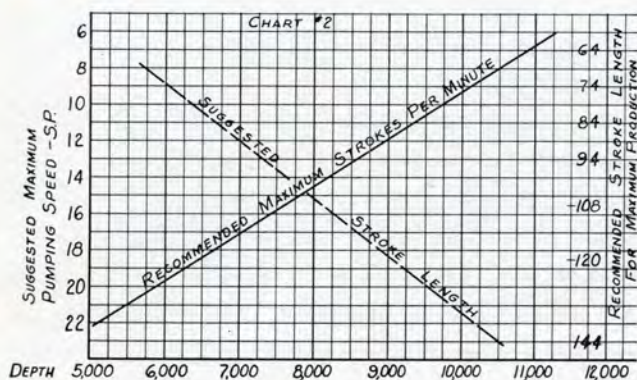
Above chart based on polished rod travel for stroke length, takes into consideration rod stretch, tubing stretch, and plunger overtravel to arrive at net plunger travel. The production in barrels per day at the respective pumping speeds is based on 100% volumetric efficiency; however, experience indicates 60% to 70% efficiency may be expected from these depths.

These loads are at the recommended lower level 30,000 PSI stress on rods. It is desirable from a rod standpoint to pump slower longer strokes in order to keep acceleration factor low and to keep reversals at a minimum. Actually, it may be found from operating records that equipment in the intermediate stroke lengths could give lowest

initial cost and satisfactory operating costs. The bottom hole pump must be replaced or reworked after a few months' operation so, although a 15- or 20-foot stroke pumping assembly would help to minimize rod load, it possibly would not cut operating cost appreciably since it would also be necessary to pull rods periodically for pump replacement and rod failures would usually allow for pump reworking. From a consideration of production volume and operating costs added to original equipment costs of the proven conventional 10-foot or 12-foot stroke pumping unit as compared to the 15- to 25-foot-stroke assemblies, the equipment cost, experimental expense, operation and supervision expense of the 15- to 20-foot stroke assembly may seem prohibitive when production can be secured by conventional units with intermediate long stroke capacity.

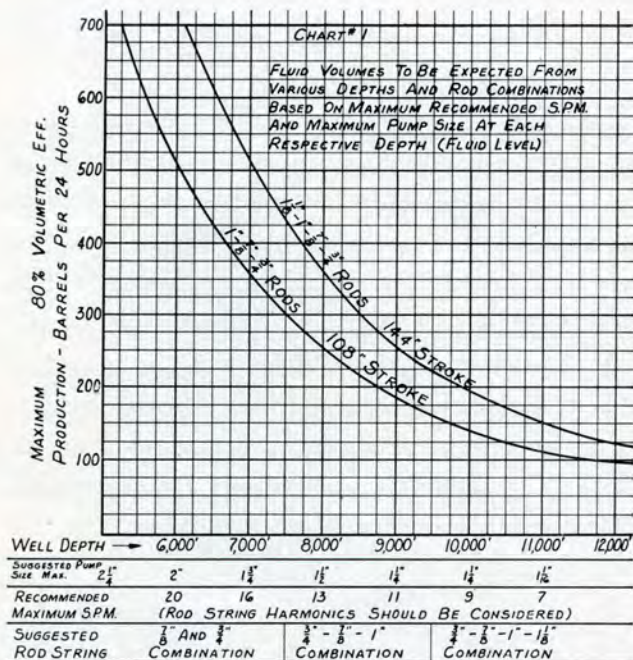
IN THE first illustration, the maximum rod stress may be lowered to 30,000 PSI by use of 144-inch stroke pumping unit operating at 7 SPM which would lower acceleration factor to 1.1 instead of the 1.17 factor of operating 10 SPM 120-inch stroke. However, the fluid produced drops from 250 barrels per day to less than 200 barrels per day so the lower rod stress is gained at a sacrifice in fluid production.

Although it is accepted that the slow stroke is advantageous and speeds of 6 to 10 SPM should add to length of rod life, slightly faster pumping may offset that feature to some extent by the increased overtravel of plunger. Several studies have been made on plunger overtravel and it is agreed that this overtravel may be large when rod strings are 5,000 to 10,000 feet long and where pumping speeds are as fast as 10 to 15 SPM or faster if depth and operating conditions will permit. We have been able to verify by measuring the polished or worn area in barrel of replaced pumps that there will be overtravel where operating conditions and speeds are favorable. Overtravel and undertravel are studies which might well require a separate paper for discussion, so we will not attempt to cover those points here. Rod stretch and tubing stretch would offset part of this plunger overtravel but it seems definite that intermediate speeds have some advantages, from a production volume standpoint, which tend to offset those advantages of the very slow pumping speeds.



No. 3 For well 10,000' deep, producing 300 Bbls. with 1½" bore pump, 13 SPM, 144" stroke:

15% 1½" Rods
 17% 1" Rods
 18% ¾" Rods
 50% ¾" Rods
 Static Load 27,000#
 Acceleration Factor 1.35
 Polished Rod Load 37,000#
 Maximum Rod Stress 37,400 PSI
 Net Plunger Travel 139"
 Production—100% Vol. Eff. 375 Bbl. per day
 Production—80% Vol. Eff. 300 Bbl. per day



ABOVE FIGURES ARE MAXIMUM TO BE EXPECTED BUT KEEP ROD STRESSES IN ACCEPTABLE RANGE OF 30,000 TO 35,000 P.S.I. ROD STRETCH, TUBING STRETCH AND OVERTRAVEL INCLUDED IN CALCULATIONS.

THIS CHART INDICATES fluid to be expected from different depths based on rod strings, stroke lengths, pump sizes, and pumping speeds as shown.

While there is a polished rod travel of 144" due to acceleration and overtravel, the plunger travel is 130" assuming tubing is anchored.

For a quick estimate of the amount of fluid which may be raised from different depths we suggest the chart below. These curves are based on calculated displacement and checked with actual operations to verify the relative accuracy. Pumping speeds and approximate pump sizes at the different depths are suggested. A size larger pump might be used to produce more fluid without going beyond rod stresses which have proven satisfactory in actual operation.

Many will be interested in experience and records of those who earlier faced the problem. These operations over a period of several years on California production offer interesting figures:

AT SANTA FE SPRINGS: 8000' deep, 1¼" plunger, 15 SPM, 74" stroke, 31%—¾" rods and 69%—¾" rods producing 165 barrels per day. Record: Two year run with two rod breaks.

AT LONG BEACH: 7300' deep, 1¾" plunger, ⅞" and ¾" rods, 28,500 pounds rod load, 37,000 P.S.I. rod stress, 18 SPM, 108" strokes. Record: 700 barrels per day, seven years without a rod break.

NOTE: Three wells pumped by same company as the preceding example, 7000' to 7500' deep, 1", ⅞" and ¾" rods, rod stresses 35,000 P.S.I.; one break in seven years.

AT PEUNA PARK: Pump set at 10,000', 1¼" pump, 1830' — 1" rods, 2100' — ⅞" rods, 6030' — ¾" rods, 11½ SPM, 108" strokes producing 135 barrels per day.

Records were checked on several wells pumping as deep as 10,000 feet or below but either high fluid level or small quantities of fluid were indicated and equipment was not loaded to capacity.

ISTALLATIONS in Anse LaButte in South Louisiana are watched with interest. 108-inch stroke pumping units and 10,400' of rods were delivered, however, pumping fluid levels were found high and wells are pumping from 4500' to 5000 at present. In the Brookhaven, Mississippi field, fluid levels vary from near top of hole to bottom in the 10,500 feet production. One installation in this field ran 10,440 feet tapered string of



USING DYNAGRAPH to weigh 10,441-foot string of rods on pumping installation in Brookhaven, Mississippi, Field.

1"—7/8" and 3/4" rods. Formation appears to be tight in this well and limited fluid is available to the pump which does not load either rods or surface equipment to capacity. Several installations in the 8,900-foot Baxterville Field and the 10,500-foot Mallalieu Field in Mississippi are closely followed and records will be available although it seems each well offers the same simplification of the problem: high fluid level or small fluid volume.

While conventional geared pumping units are offered with stroke length up to 10 feet and 12 feet, much discussion and consideration is being given the development of longer stroke units which

will not be covered in this paper. Several companies, feeling that there is a demand for equipment with greater stroke than the 144-inch offered on conventional beam pumping units, are experimenting with hydraulic surface equipment which would allow 15- to 25-foot stroke length. These methods use the conventional sucker rod string and, while several units have been offered, all seem to be in the experimental stage and few figures are available on either operating cost or production averages.

It will occur to you that considerable attention has been given to design of sucker rod string and working barrel sizes, however, it is impossible to discuss pumping without bringing rods and their limitations into the picture. As rod manufacturers progress toward higher tensile rods and higher allowable stresses, a wider range of flexibility and performance can be expected with existing conventional long stroke units. With rod manufacturers making 40,000' P.S.I. rods and offering this improved rod, the conventional pumping unit is providing the oil industry with greater latitude of performance in pumping wells of 9,000 feet and 10,000 feet.

Pumping unit and rod manufacturers are pushing all possibilities of improving equipment for these deep wells and all methods are closely studied. All will be happy to offer the information accumulated and experience gathered to help produce these deeper wells. All sincerely appreciate the experience and help that the operators supply. Combining their abilities, we may depend on the operator and the manufacturer to come up with still greater improvements and a more complete answer to all problems which confront the oil industry.

Acknowledgment and thanks are extended Al McConville of the California Division of the Lufkin Foundry & Machine Co. for assistance in accumulating and checking this information.

CALIFORNIANS TELL FISH TALES, TOO . . .

BIGGEST catch of the year—or any other year for that matter—according to an exclusive release to the LUFKIN LINE from the glorious, sunny State of California, was this 662-pound marlin measuring 12 feet-6 inches hooked June 4, 1948, off the shores of Mazatlan in Old Mexico by Robert Gentry of the Long Beach Oil and Development Company of Long Beach, California. The fight put up by this mammoth beast of the sea was so desperately ferocious that our fisherman supreme required exactly one hour and ten minutes to land him, at the end of which time one Bob Gentry was in need of a stretcher and a quart of glucose.

Accompanying the hero were Fremont R. Schmieder of Shell Oil Company, Ventura, California, and Edward A. Pellegrin of the Macco Corporation, Clearwater, who settled for a 440-pound Marlin and several sailfish weighing from 110 to 140 pounds.

According to very reliable sources, Bob's marlin breaks all previous records. The stuffed blue marlin exhibited in the Celeriam Room of the Jonathan Club in Los Angeles weighs only a meager 556 pounds.

The Liars' Club of Washington, D. C., summoned Bob and his two witnesses to appear and relate all incidents and details leading to the capture of this fabulous fish. Undoubtedly this tale, sincerely expounded by Mr. Gentry and confirmed by Eddie and Dutch, will be awarded first prize as the story of the year.

Were it not for the accompanying photographic evidence, the men would have little upon which to base the veracity of their statements, since they unfortunately experienced a most exasperating native custom. When the photographer dismissed the weary trio, they plodded to their quarters to clean up a bit before the interview with the press. Upon returning to the patio they discovered that

the natives had completely disintegrated the marlin and had distributed it among all the inhabitants of the village. Before their dazed eyes hung a most unappetizing skeleton.

Dutch Schmieder requested ownership of the sword. When he returned to his Ventura home, he deposited the souvenir on the back steps to "air a bit" only to learn later that his dog disposed of the prize and no amount of coaxing has persuaded the canine to reveal the hiding place as yet.

But at least they have the photograph!

Our own Al Cudlipp, hearing of the success of these gentlemen, immediately dispatched himself and fishing rig to the paradise state of California and set out upon blue waters to match his skill and fortitude with the Californians. His trophies? One 21-pound mackerel and several sensational albacores averaging 21 pounds. However, his spirit was undaunted and his enthusiasm for the wonders of California remained 100 Proof. Next to Texas, California rates first with him.



EVEN CALIFORNIANS TIRE of talking about their oranges and sunshine. Now these men have a new tale to tell. Gracefully dangling in the center of this photograph is one 662-pound marlin snagged off the coast of Mazatlan by Robert Gentry (right) last June. Witnesses and fellow tale spinners were Dutch Schmieder, (left) and Eddie Pellegrin.



Above: OFFICERS OF THE WEST TEXAS A. P. I. are, left to right, Alden S. Donnelly, Honolulu Oil Corporation; F. R. Lovering, Shell Oil Company; R. B. Saxe, Gulf Oil Company; Jay Boxell, Phillips Petroleum Company; and D. A. Miller, Phillips

Below: ENTERTAINMENT FOR THE FALL MEETING of the West Texas A.P.I. could not have been classed as "dull"; in fact, many superlatives were used to describe it.



Let's Laugh

FARMER Brown had been on a bender in the big city and was suffering from a terrible hangover when he stumbled out at five o'clock in the morning to milk the cow.

"You look terrible," said the cow, bluntly. "Those circles under your eyes reach down to your knees."

"I know," said the farmer. "And milking you is only the beginning of my troubles. I'll be slaving on this durn farm 'til seven tonight."

"Well," volunteered the cow, "I'll help you all I can. You just hold tight and I'll jump up and down."

"If my memory doesn't fail me, it's a boy," said great, great, great grandma as she admired a neighbor's new-born.

A northern girl says, "You may," and a southern girl says, "You all may."

The reason my gal reminds me of a switchboard is because when she walks all her lines are busy.

We just heard about the fellow who received a broken arm fighting for a woman's honor . . . it seems that she wanted to keep it.



Her drinks aren't much—but I love to watch her mix them!

When Tony's wife passed away, he was almost inconsolable. At the cemetery he collapsed with grief, in the carriage riding back home, his whole frame shook with wild sobs. "Now, now, Tony," soothed his friend, "it really is not so bad. I know it is tough now, but in six months maybe you find another beautiful bambino, and firsts thing you know, you getta married again."

Tony turned to him in a rage. "Six months," he shouted. "What I gonna do tonight!"



WAIT! Your wife didn't POSE for this picture—I painted it from memory!

A newly-wed filling out his income tax return listed a deduction for his wife. In the section marked "Exemption claimed for children," he penciled the notation: "Watch this space!"

The census taker was somewhat surprised when the woman of the house informed him that she was the mother of three sets of triplets.

"Do you mean to tell me you get three every time?" he asked.

"Oh, no," she quickly exclaimed, "sometimes we don't get any at all!"

"I wonder if I could make you melt in my arms?"

"I don't think so. I'm not that soft, and you're not that hot!"



My new boy friends has me puzzled.
I don't know whether he should be
cultivated—or plowed under!

The old Indian was suing for divorce on grounds that his wife was untrue to him. The judge told him that if he could prove his charges he would grant the divorce; otherwise he would not.

"Me prove him, all right," said the chief. "When me plant corn, me get corn. When me plant wheat, me get wheat. When me plant potatoes, me get potatoes. This time me plant papoose, me get China-boy!"

A woman called up for jury duty refused to serve because she didn't believe in capital punishment.

Trying to persuade her, the judge explained: "This is merely a case where a wife is suing her husband because she gave him a thousand dollars to pay down on a fur coat and he lost the money in a poker game."

"I'll serve," she said, "I could be wrong about capital punishment."

A castaway on a desert island, following another shipwreck, pulled ashore a girl clinging to a barrel. "How long have you been here?" asked the girl.

"Thirteen years," said the cast-away.

"All alone . . . Then you're going to have something you haven't had for 13 years," the girl said.

"You don't mean to tell me there's BEER in that barrel," exclaimed the castaway.

A man is getting along in years when he pays more attention to the food than he does to the waitresses.

Middle age is that period in a man's life when he'd rather not have a good time than have to get over it.

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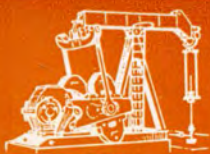
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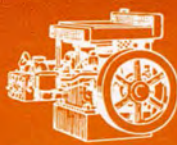
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