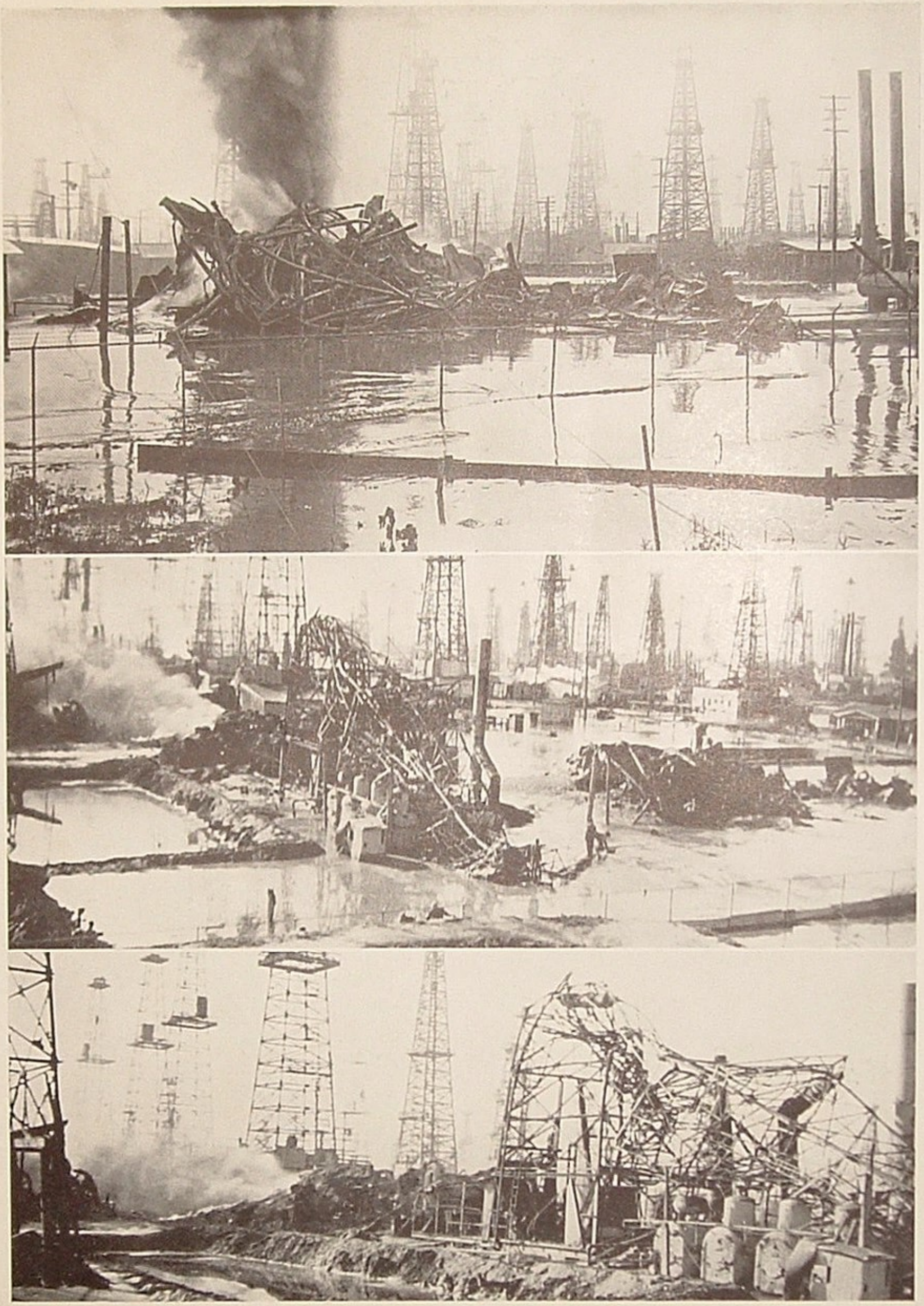
UNION OIL BULLETIN

FEBRUARY 1929



BLOWOUT FROM SHALLOW SAND DESTROYS THREE WELLS

A gas blowout at Santa Fe Springs from about 3500 feet early in January resulted in the destruction of the General Petroleum's 145-B and 145-C and George F. Getty's No. 20 and the flooding of a considerable portion of the field. Top—Derrick and drill pipe of 145-C scrambled like dish of noodles showing the flood of mud and water extending to Union's cottages. Center—Getty's No. 20, left, and the G. P.'s 145-C shortly after the latter sanded up. Bottom—Steel rig of Getty well wrapped around the the boilers. The center and bottom pictures were taken by V. N. Du Puy of the company's engineering department.

UNION OIL BULLETIN

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VOLUME IX FEBRUARY BULLETIN No. 2

Resume of Petroleum Development and Production in California During 1928

BY DESAIX B. MYERS

Chief Geologist, Union Oil Company

This paper was given before a meeting of the A.I.M.E., (Southern California Section) Jan. 10, 1929.

LOW prices for crude oil prevailed in California during 1928; over production of heavy oils resulted in general curtailment of San Joaquin Valley production; and the number of wildcat and exploratory wells drilled by major producing companies in California was not materially increased; but in spite of these facts the year 1928 brought out a number of very significant developments which include the discovery of new fields, the proving up of deeper sands and the finding of large scale production of high gravity oil in a formation which is statigraphically lower than those from which California derives most of its oil.

D. B. MYERS

The developments of particular significance during 1928 were as follows:

1. The discovery of the Nordstrom and Buckbee oil zones at Santa Fe Springs;

2. The discovery of high gravity oil in Vaqueros (Lower Miocene) sandstone, Elwood Terrace structure, Santa Barbara County;

3. The discovery of high gravity oil in Temblor (Middle Miocene) sandstone of Kettleman Hills, San Joaquin Valley;

4. The Lawndale-Hawthorne discovery in the Los Angeles Basin;

5. The proving up of the Potrero-Cypress area;

6. Long Beach deep sand production reaches its peak;

7. The development of highly productive sands in the upper part of the Maricopa formation of the Fellows district, Kern County;

8. The development of the Fruitvale field, Kern County;

9. The development of three small low gravity fields in the East Side of the San Joaquin Valley;

10. The Buttonwillow gas area.

It might be of interest to note that most of the development in 1928 resulted from persistent exploration of areas which have long been recognized as having oil possibilities. A number of exploratory wells in each of these areas had previously failed to uncover commercial production. Three of the new developments, Elwood Terrace, Fruitvale, and the finding of small fields of heavy oil along the East Side of San Joaquin Valley, opened up new individual productive areas which in themselves had not been given serious consideration in previous years.

Improved methods of drilling in technology, successful coring at extreme depths, systematic geological mapping, including the use of airplane maps, and the use of micropaleontology as an aid to correlation, were important factors in the principal developments during 1928. The realization by operators of the importance of drilling straight holes, and the effect of crooked holes in giving erroneous ideas of subsurface structure, brought about the increased use of several types of well surveying instruments. I am informed that between 250 and 300 wells in California were surveyed during the year, a number which makes a very material increase in this type of work.

Airplane maps as an adjunct to geological work were used by many California companies. Approximately 9700 square miles were mapped from the air in California during the past year for geological purposes. This figure may include some duplication of areas which were mapped by different companies.

AERIAL PHOTOGRAPHY AS AID TO GEOLOGICAL MAPPING

The dotted line of the above photograph shows formational contact and solid line the location of the synclinal axis. This is an illustration of the use of aeroplane photographs as an adjunct to geological mapping.

In so far as the writer knows, none

of the important developments in California during 1928 resulted from the use of geophysical methods, although a number of tests now in progress may throw additional light on geophysical work.

Discovery of New Production in California

On July 26, 1928, Santa Fe Springs was plunged, for a second time in its history, into an intense drilling campaign as the result of the completion, by the Wilshire Oil Company, of a well in a deep sand at about 5900 feet, flowing about 3500 barrels of 34.5 gravity oil.

The productive area of the Meyer zone is 1500 acres. It is not possible as yet to prepare an accurate contour map of either the Nordstrom or Buckbee zones on account of the erroneous results produced by using the logs of crooked holes, a large number of which undoubtedly exist as a result of this recent drilling campaign.

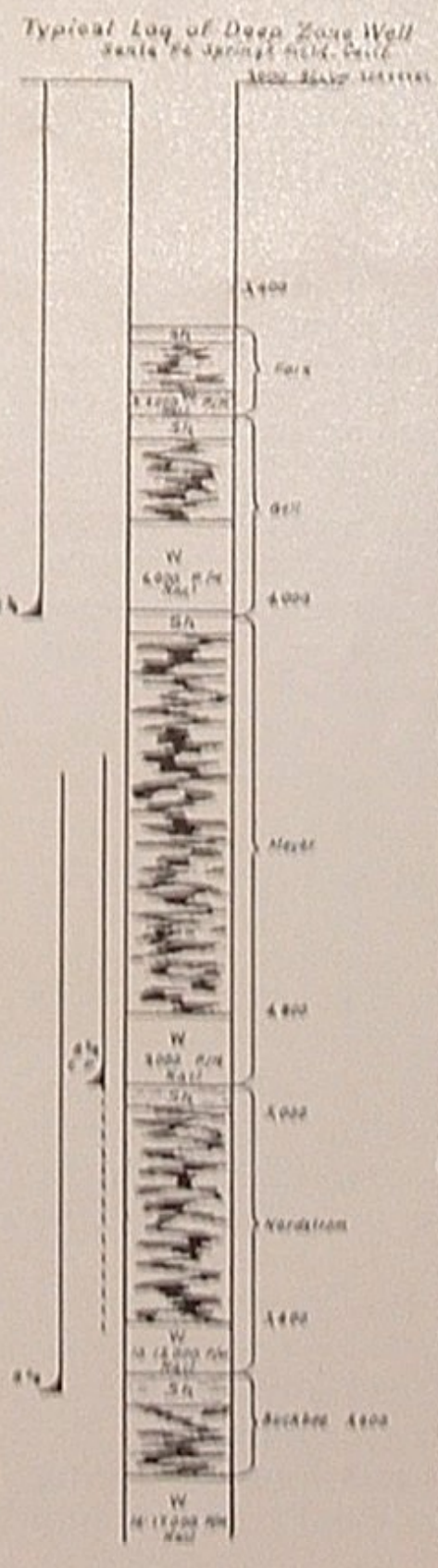
The history of this field dates back to October, 1907, when the first test was started by the Union Oil Company. It was not until October 1919, and after two test wells had been abandoned, that the Union Oil Company brought in its Meyer No. 3, the discovery well of this field.

Intensive development of the field did not, however, get fully under way until November, 1921, when Union Bell No. 1 came in flowing 2000 barrels daily, at a depth of 3788 feet. The drilling campaign which followed resulted in a peak of production in September, 1923, of 345,000 barrels daily. Declines from 1923 were rapid at first and then became more steady, and at the time of the new deep sand discovery by the Wilshire in July, 1928, the daily average production from 306 wells in this field had dropped to 39,236 barrels per day, an average of 128 barrels per well. Approximately 80 per cent of this production was being derived from the Meyer zone. Up to the time this new sand was found, the old field had produced a total of 175,824,711 barrels, or an average of 109,950 barrels per acre.

Thirty days after the completion of the Wilshire's deep well there were 78 wells drilling and 72 new rigs, and at the close of 1928 there were 229 drilling wells and 39 completions in the new deep sands below the Meyer zone, and reports of December 31, 1928, show that the field on that date had a daily production from the deep sands of 101,638 barrels, or an average production per deep well of 2606 barrels.

Status—Dec. 31, 1928

Zone	Wells	Prod.	Av.
Nordstrum	10	34,563	3,456
Buckbee	29	67,075	2,313
Both Zones	39	101,638	2,606
Shallow wells ...		28,000	
Total		129,638	



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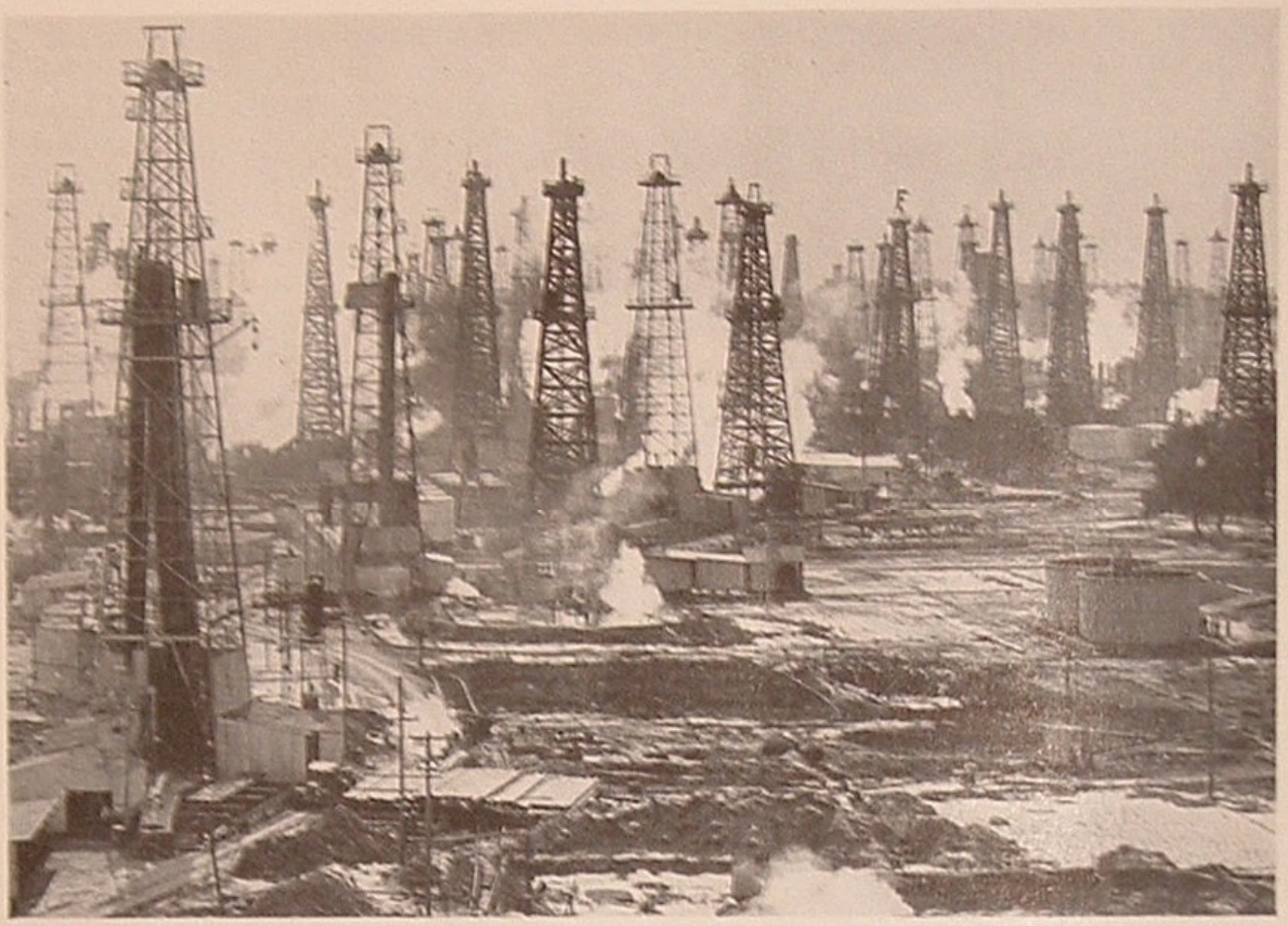
The ideal section attached shows the relative thickness of the Foix, Bell and Meyer zones, and the thicknesses and relation of the Nordstrom and Buckbee zones to the upper sands.

Zone	Thickness Feet
Foix	180
Bell	370
Meyer	800
Nordstrom ...	500+
Buckbee	125+



A BIT OF ACTION AT SAN FE SPRINGS

This photograph, though it shows only a small section of Santa Fe Springs, discloses the intensity of the drilling program being carried on in the race for production from the deep zones. The photograph was taken from the Union's Bell 42 looking south. Shown in the left foreground is Bell 38. Bell 31 is the steel rig just to right and back of 38. Alexander 12 (steel rig), the second best producer in the field, is shown between two wooden rigs to right of Bell 31.

Intermediate waters occur between each one of these zones. Analyses of these waters show a uniform increase in sodium chloride content with depth.

Elwood Terrace Field

The Elwood Terrace Oil Field is located in Santa Barbara County, twelve miles west of the City of Santa Barbara. The discovery well was brought in July 26, 1928, making 2500 barrels per day of 38 gravity oil from a depth of 3215 feet by the Barnsdall and Rio Grande Oil Companies.

The Major structural feature of this is a completely folded, and possibly faulted, east-west trending anticline with steep dips on both flanks. The wells start in Monterey shale and obtain production in the Vaqueros sandstone, a horizon which is stratigraphically below most of the important oil producing horizons of California.

There are at present four producing wells making a total daily production of 14,738 barrels of oil, or an average of 3684 barrels per well. The discovery well is still holding up to its initial production. There are now two rigs up and three wells drilling. These wells can be drilled in less than three weeks. It appears now that the production will not extend beyond the limits of leases controlled by the Rio Grande and Barnsdall Companies.

As a result of the discovery of the Elwood Terrace Oil Field, seven wildcat wells have been located along the coast between the towns of Santa Barbara and Guadalupe, in search of oil from the same horizon that proved so productive in the Elwood field.

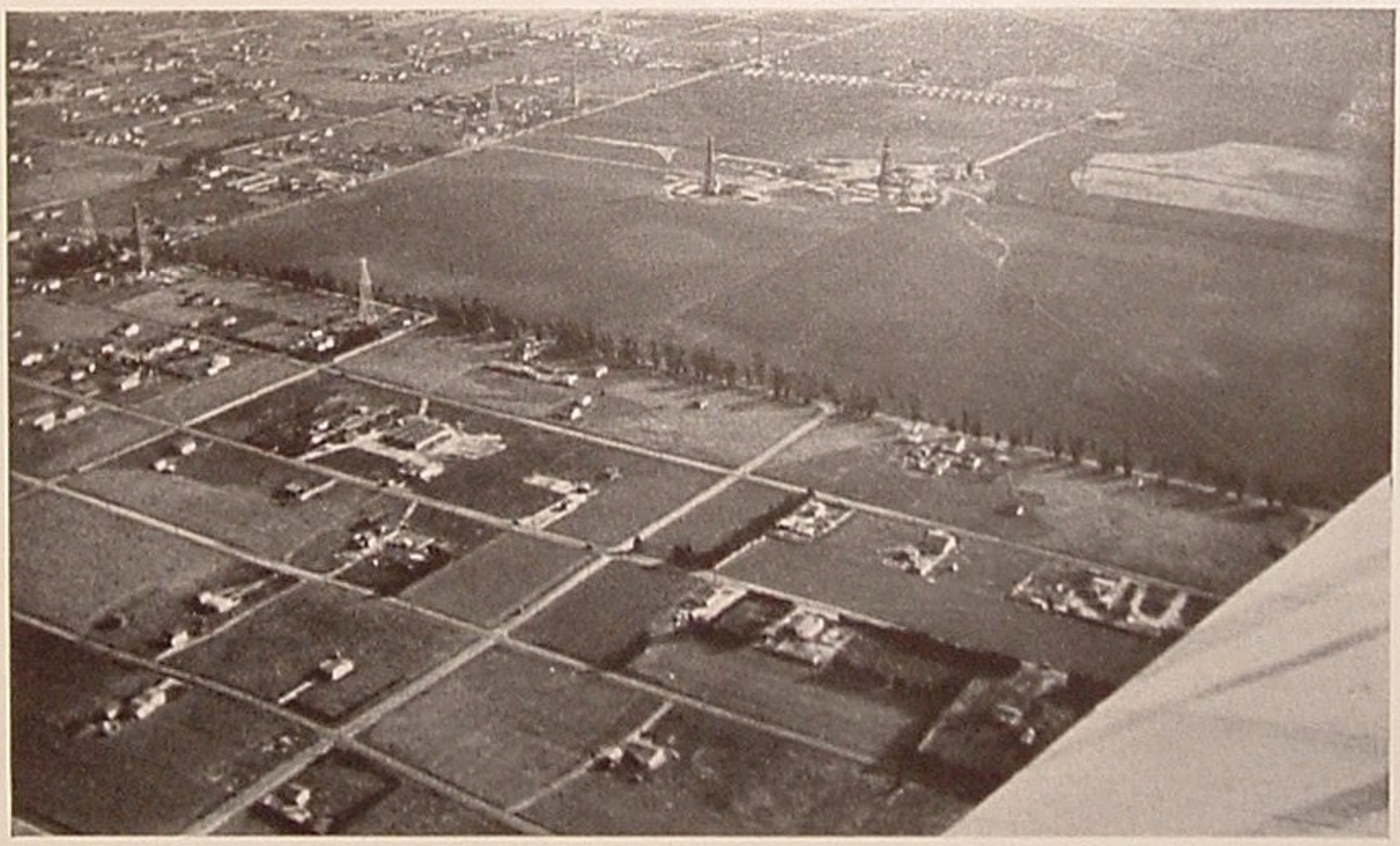
Kettleman Hills

The Kettleman Hills comprise an area which for years has been recognized as possible of producing oil if sufficient depth could be reached by drilling. Actual drilling in these hills started as early as 1906, and in the per-

iod from 1906 to 1910, seven wells were put down. All of these, however, were shallow and poorly located on the flank of the structure, and the deepest one was carried to only 1100 feet. At about the time these wells were drilled, the general consensus of opinion among oil men was that 4500 feet was about the maximum depth that could be drilled, and even if these wells had been carried down to that depth, they probably would not have found production.

After 1910 there was practically no activity in the Kettleman Hills until the Standard Oil Company started a deep test on the south dome of the Hills in May, 1919. This well was carried to a depth of 6602 feet and for a while held the record as the deepest rotary hole in the world. Several showings of oil and gas were logged, but after testing the various showings the well was abandoned February, 1922, without having developed commercial production.

Another lull in prospecting along the Kettleman Hills again occurred, and lasted until 1924. The General Petroleum and Marland Companies acquired considerable land along the axis of this structure. The General Petroleum in its Ochsner No. 1 encountered some good showings, but the well was abandoned without having obtained commercial production. This test, however, was responsible for additional drilling in this area. Results of this new drilling were the discovery in the southern portion of the Hills of a shallow zone by the Bolsa Chica Oil Company, and later discovery by the Milham Exploration Company of the new 7000-foot zone. The discovery well was the Elliott No. 1, which was spudded in in March, 1927, and originally was drilled to a depth of 7236 feet where it encountered a few feet of oil sand at the bottom of the hole. At this point mechanical trouble developed and the well was redrilled to a depth of 7108 feet, at which point it came in making an estimated flow of 30 million cu. ft. of wet



AIRPLANE VIEW OF LAWNDALE FIELD

This photograph gives a general idea of the "lay of the land" in the new Lawndale field. Only a few of the thirty rigs now up had been completed when this picture was taken. In the center of the large area to the right are the San Clemente Peck No. 1 and the Smith Brothers' Peck No. 1, the latter of which started the activity when it came in as a 1,000-barrel, 35 gravity well, a few weeks ago. The tree-lined road in the foreground is Rosecrans avenue and the road along the open field at the left of the picture is Inglewood avenue.

gas per day which is now being passed through gas traps with a yield of approximately 4000 barrels of oil per day of 60.6 gravity.

Lawndale-Hawthorne Area

While the presence of natural gas has been known to exist in the Lawndale-Hawthorne area since 1920, and oil sands had been encountered in 1926 by the Smith Bros.-Johnson No. 1, at a depth of 5600 feet, drilled one mile south of the gas area, it was not until July of this year that serious consideration was given to this area as a potential oil field.

During the month of July of this year the San Clemente Peck No. 1 well came in flowing 175 barrels daily from 5814 feet, and on December 12, 1928, Smith Petroleum Company's Peck No. 1 came in under a natural flow of approximately 1000 barrels of 35 gravity oil, at 5897 feet.

Because these wells are adjacent to an area of small ownerships, and with town lots adjoining it on the east and north, all of the evils of town-lot development may be expected in the drilling campaign which is certain to materialize during the first two months of 1929. It seems probable that at least 25 wells will be under way in this area within 30 days.

Potrero-Cypress Area

Only one producer has been added to this field since the discovery well was brought in in September, 1927, by the Associated Oil Company. The oil sand in this well was found much higher than in the discovery well, which indicates a probable extension of production to the northwest into an undrilled area.

Long Beach

Persistent drilling to the deep sands below, a depth of 6000 feet, has continued uninterruptedly during 1928 in the Long Beach Field. On January 1, 1928, the field showed a daily production of 118,000 barrels from 627 wells. The peak of this production was reached on June 15, 1928, when the field was producing 202,000 barrels daily from 693 wells. The close of 1928 shows the field still producing 185,000 barrels daily from 816 wells. Many of the water shut-offs for this deep zone were made in these wells below 6000 feet, and in 1928 most of the wells were finished between 6000 and 7000 feet. The deepest well in the field was drilled during the year to a depth of 8065 feet. The total production of Long Beach Field up to November 30, 1928, was 316,888,374 barrels.

Productive Sands in the Miocene "Brown Shale," San Joaquin Valley

An important development in the San Joaquin Valley has been the developing of high gravity oil in sands below the top of the brown shale in the Fellows district. Although oil has been produced from some of these horizons for several years, it remained for the Republic Petroleum to establish the fact that these highly lenticular but rather wide spread sands are capable of excellent production. The Republic and C.C.M.O. Companies now have five producing wells in Sections 7 and 8, 32-23, at depths between 2000 and 3000 feet with initial productions from 800 to 1500 barrels, from a zone 2000 feet below the top of the Santa Margarita shales.

Fruitvale Field

The Fruitvale Field west of Bakersfield has been extended slightly to the east and south. A big surprise was furnished here when the Pacific Eastern's No. 5 came in for 2600 barrels of 23 gravity oil, while the previous wells, with only slightly different structural elevations had averaged only 200 barrels daily.

East Side New Fields

On the East Side of the San Joaquin Valley three new fields of low gravity oil have been discovered during the year. R. F. Lytel drilled two wells in Section 26, 27-28, along the southwest side of a fault that is similar to the Mt. Poso and Round Mountain faults and found 200 to 400 barrels of 16 gravity oil at a depth of about 1500 feet. These wells are now shut in. The Lindsey wells in Section 6, 28-29, obtained a 300-barrel well of 15.7 gravity oil at a depth of 1600 feet. The Bruce Frame well in Section 28, 26-28,

found production of 400 barrels daily at 14.4 gravity oil at 1600 feet.

In addition to the above extensions, already existing East Side Fields were as follows:

The northern limits of the Mt. Poso field have apparently been established. As a result of drilling wildcat wells south of Round Mountain it is indicated that the Mt. Poso field will ultimately form a solid line of producing wells from Section 5, 27-28, southward to the Tribe lease of the Union Oil Company in Section 8, 27-28.

The Round Mountain Field was extended one-half mile to the northwest, but the limits of this field were established on the south.

Buttonwillow

During 1928 the Milham Exploration Company completed five more gas wells in the Buttonwillow area with a combined potential production of 65 million cu. ft., which is all shut in.

THE SECOND PART OF MR. MYERS' PAPER DEALT WITH PRODUCTION DURING 1928, *BUT OWING TO THE LACK OF SPACE WE ARE UNABLE TO GIVE THE FIGURES HERE.*

Production Outlook for 1929

An estimate of the production of the State for the year 1929 is an unusually difficult and hazardous undertaking, due to the number of probably productive areas now undergoing development. For this reason no definite estimate will be attempted, the trend only of the production of the State being indicated.

Most of the fields of the State, with the exception of Santa Fe Springs, Kettleman Hills, Elwood, Potrero, Fruitvale and Lawndale and the Brown Shale areas of the West Side of the San Joaquin Valley, have now reached either a settled state of decline or are subject to conservative development. It is the development of these seven fields which will be responsible for the increase or decrease of the State's production during the coming year. Santa Fe Springs, which was producing in excess of 100,000 barrels a day on the first of the year should reach its peak of production before the middle of the year if the present rate of development is pursued and no additional zones are opened to production. The peak of this field has been variously estimated from 200,000 barrels to as high as 350,000 barrels per day, with the consensus of opinion placing it in the neighborhood of 300,000 barrels a day.

Should the activity now under way at Lawndale result in the development of substantial production, as is indicated by the wells producing at the present time, the inevitable town-lot development of this area would inaugurate a period of flush production, maturing in the late summer or early fall, of unusual significance to the production of the State. It is fortunate that the peak of production at Lawndale and at Santa Fe Springs will probably not be concurrent.

Potrero is another area which may feel the results of town-lot development, should the well now drilling in the outskirts of Inglewood obtain commercial production. This development, however, will be of much more limited extent than that promised at Lawndale, the bulk of the development at Potrero being in the hands of the one company.

The development of Elwood, Kettleman Hills and Fruitvale, since it rests with a few operating companies, will be comparatively slow and free from sharp peaks of flush production. This fact, in conjunction with the possibility of a new shut-in program similar to that placed in effect the first part of the past year, should limit the large peaks of flush production to the Santa Fe Springs deep zones and the development at Lawndale. The preservation of a uniform rate of State production is dependent upon the magnitude of these two developments and the effectiveness with which the shut-in program is applied, with the probability that the total production during the coming year will be about the same, or somewhat greater, than the total production of the State during 1928.

The Navy Spreads Its Wings

THE greatest air force ever carried to sea by any nation, in peace or wartimes, will be concentrated in Central American waters when the Pacific battle fleet and the Atlantic scouting fleet, now speeding southward from opposite sides of the continent, meet in the attack and defense of the Panama Canal.

More than 250 airplanes will swarm into the air from the decks of the carriers and the ships of the opposing fleets during the maneuvers, which will mark the most advanced development in naval tactics since the advent of aircraft. Virtually all of these planes are less than nine months old and many of them have been in the service less than three months.

The battle fleet, which steamed out of Los Angeles and San Diego harbors, January 15, accompanied by the airplane carriers Saratoga and Langley, will attack the canal, while the scouting fleet, with its squadrons of aircraft, aided by the Army's land and air forces stationed at the canal, and five squadrons of airplanes being rushed south on the airplane carrier Lexington, will defend it. The Lexington, which is based on the Pacific Coast, put out from Los Angeles harbor to join the scouting fleet eight hours before the battle fleet was permitted to depart.

From the moment the fleet put to sea actual conditions of warfare were simulated and all radios silenced.

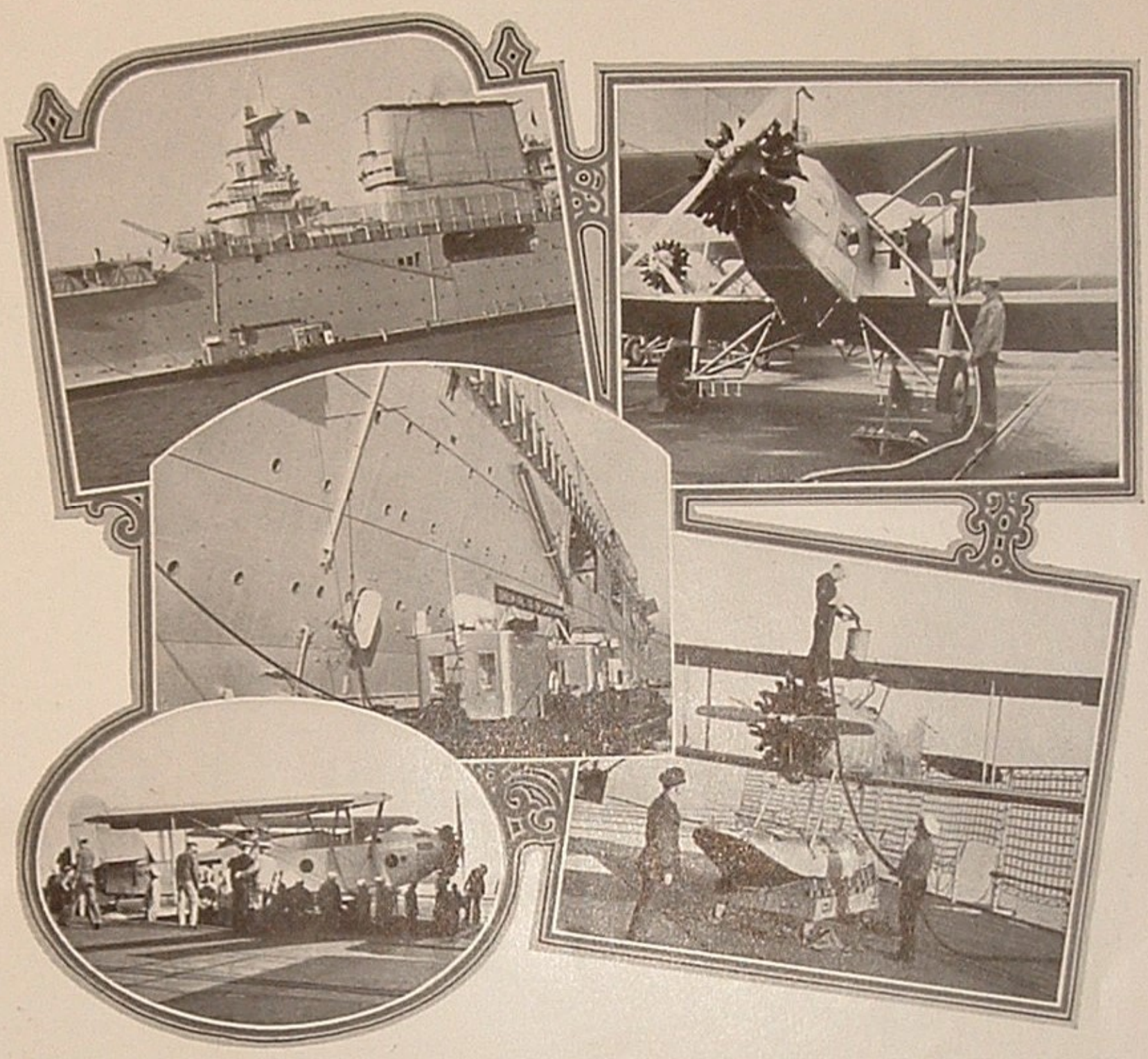
Riding on the broad flight decks of the Saratoga and the Langley and in their spacious hangars, and cocked on the catapults of the ships of the battle fleet as it speeds toward the canal, ready for instant action, are ten or more squadrons of pursuit, observation, torpedo-bombing and amphibian utility planes. Stored in the gasoline tanks of the carriers, including the Lexington, and in the tanks of the battleships, to keep this brood of war birds in the air 3,000 miles from their home base, are approximately 400,000 gallons of Union aviation gasoline loaded from the company's barges in Los Angeles harbor.

The planes carried by the battle fleet, plus those aboard the Lexington, total more than 200. The Atlantic scouting fleet is taking into action about fifty planes. Of the total that will take part in the maneuvers, 90 are pursuit planes, or fighters, 106 are observation planes and 54 are torpedo-bombing planes. In addition to these there will be a squadron of Loening amphibians and several service flying boats. The Saratoga, with ninety aboard, has the distinction of carrying the largest number of planes on this cruise.

While the fleet is steaming southward the various airplane squadrons will be launched from the carriers and battleships to work out problems that would be involved if the fleet was cruising in hostile territory.

A record that has never before been equalled was established Saturday, Jan. 12, three days before the fleet's departure, when 65 planes were launched from the deck of the Saratoga in considerably less than 30 minutes. In a test conducted Monday, Jan. 14, ninety planes were launched from the Saratoga in one of the most amazing performances ever staged on board a plane carrier. The time in which the 90 planes were sent into the air is not being revealed by the local naval officials, but it is declared to have even astonished officers who have been in almost daily contact with naval aircraft operations. It was a demonstration that will forcefully convince the layman that the U. S. Navy has not lagged in its development of aircraft or the training of its personnel.

Just prior to the fleet's departure, Rear Admiral J. M. Reeves, commander of the aircraft squadrons of the battle fleet declared that "Nineteen-Twenty-Nine will go down in the history of naval aviation as the interval during which the final rounding out of the naval air force into a con-

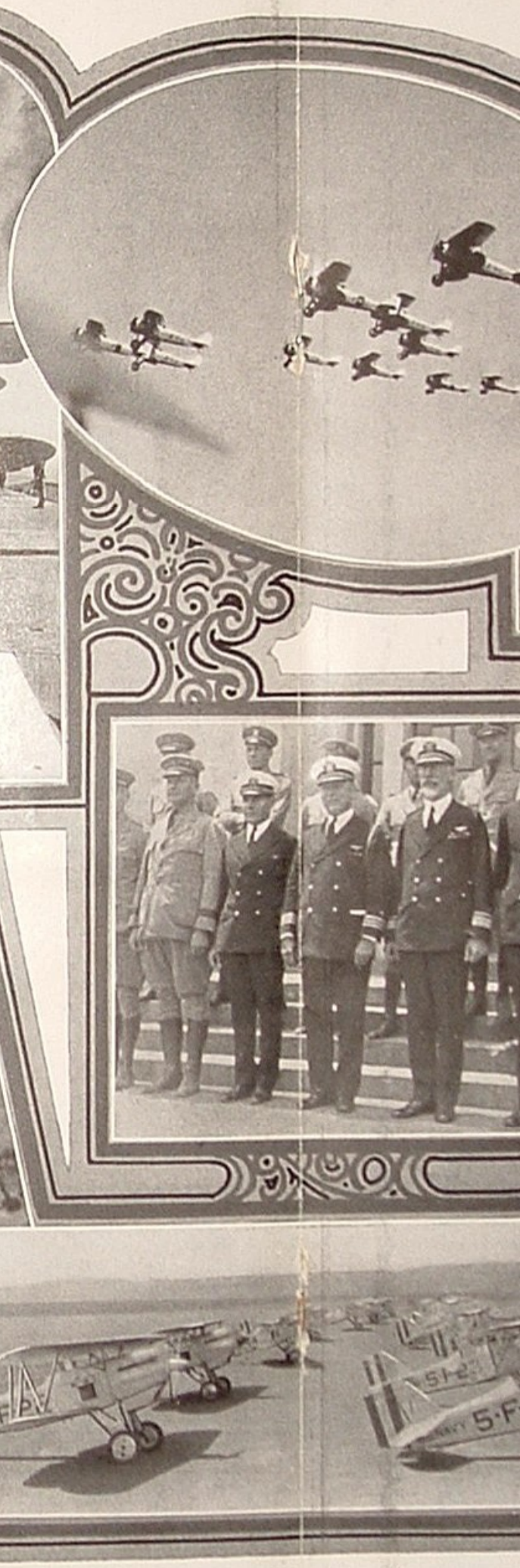


TANKING UP WITH UNION AVIATION GASOLINE

Top, left—Interesting port-side view of the U. S S. Saratoga taken while she was loading gasoline from a Union Oil barge at Los Angeles harbor. Lower—Close-up of barge showing hose attached to side of the carrier. The gasoline is being pumped from the barge into the distributing tank of the carrier from which it flows by gravity into the various storage tanks. Bottom, left—Bringing one of the big Martin torpedo-bombers up on the flight deck on one of the ship's two elevators. Note how the wings are folded back. Top, right—"Gassing" a bomber on the flight deck. Lower, right—Lieut.-Commander H. M. Mullinnix supervising the "gassing" of a Vought Corsair seaplane.

aboard the carriers is in itself highly interesting. Transferring gasoline from barges to the carriers is a comparatively simple matter. A hose leading from the tanks of the barge is fastened to a pipe on the side of the carrier connected with the distributing tank and the barge pumps started. As the distributing tank is filled the gasoline is permitted to flow by gravity to any one of the fourteen storage tanks. The capacity of these tanks ranges from 15,000 to 30,000 gallons. Gasoline can be transferred from barge to carrier at the rate of 25,000 gallons an hour.

As a safety measure the storage tanks of the carriers are always kept full, either of gasoline or salt water or both. This prevents sloshing or the building up of dangerous fumes that might wreck the ships. Gasoline displaces water when the tanks are being filled and water displaces gasoline when the tanks are being emptied. Gasoline, being of lighter specific gravity than water, always rides on top. This makes it possible to draw the



THE NAVY'S BROOD OF WAR BIRDS GOES I

Top, left—Martin torpedo-bombers lined up on deck of U. S. S. Lexington preparatory to taking off. Top, center—The fam formation over the battle fleet. Right—Precision drill by a squadron of navy fighters, one of the most remarkable formation ing him. Center—Rear Admiral J. M. Reeves, commanding the aerial squadrons of the battle fleet, second from the right, and mid-air for the picture; the pilot apparently is keeping his eye on the camera man. Bottom, center—Two squadrons of Navy fi for the maneuvers. Right—Observation plane coming under boom of on

VY'S BROOD OF WAR BIRDS GOES INTO ACTION

preparatory to taking off. Top, center—The famous VB2B squadron that thrilled the crowds during the National Air Races flying in vy fighters, one of the most remarkable formation flight picture ever taken. Note how the pilots to the right and left of the leader are watch- rons of the battle fleet, second from the right, and his staff of officers. Bottom, left—A Navy pursuit plane appears to have halted in man. Bottom, center—Two squadrons of Navy fighters lined up at North Island, San Diego, just before being flown aboard the carriers ht—Observation plane coming under boom of one of the battleships to be lifted aboard.

water off from the bottom, or at any of the two higher levels, without draining the gasoline.

All planes are fueled on the flight deck. When planes are to be flown they are taken from the big hangar, 480 feet long and 76 feet wide, below decks, and put on the two elevators and shot up to the flight deck. Long hoses are then brought over the side of the carrier from the storage tanks and the planes "gassed." After each flight gasoline is drained from the tanks of the planes before they are sent back to the hangar. This is done to lessen danger from fire.

Mexicali Aero Club Stages Meet

AN AVIATION meet held at the Mexicali airport January 20, during which a sport model Waco OX-5 biplane of the Aero Club of Mexicali was christened by Senorita Alicia Luga, secretary to Governor Rodriguez, attracted a crowd of two hundred or more persons from both sides of the border as well as several commercial and army airplanes. The "Ramona", as the new plane was christened, was recently purchased by the Aero Club as a training plane for the members of the club who are desirous of qualifying as pilots.

Among the prominent Lower Californians who were present for the ceremony and the aerial exhibitions were Governor Rodriguez, A. Murua Martinez, secretary of state of Lower California; Maj. Ramon Rodriguez, F., chief of staff; J. Salcido, collector of customs; Capt. Cruz Rivera, flight instructor at the Mexicali airport and one of the crack Mexican army flyers; Dan Herrarra, secretary of the Aero Club and special agent of the Union Oil Company at Mexicali, and the widely known Brittingham brothers, Nelson, Luis, Edward, Juan and Albert, who are expanding their cotton seed plant and holdings south of the border.

The Union Oil Company was represented at the affair by Rod Burnham, manager of lands; C. F. Lienesch, head of the technical relations department, and H. R. Greatwood, Mr. Lienesch's assistant. The trio flew to Mexicali Saturday, January 19, in the

CHRISTENING MEXICALI AERO CLUB'S PLANE

Senorita Alicia Luga, secretary to Governor Rodriguez of Lower California, is here shown a moment before she broke a bottle of champagne over the nose of the Mexicali Aero Club's new sport-model Waco biplane at Mexicali recently. Senorita Luga had just reached for her flying helmet when the picture was taken.

company's Travelair J-5. A storm which came up shortly before their departure compelled Lienesch, who piloted the plane, to fly high to keep above the clouds. At Warner Hot Springs the ship reached a height of more than 13,000 feet. It was not until the aerial travelers reached the Imperial Valley that they were able to leave the storm behind and drop down to a normal flying level. Despite the high altitude at which the plane was flown the trip from Los Angeles to Mexicali was made in an hour and fifty minutes. The return flight, by way of Banning, took two hours and ten minutes.

The Union Oil men spoke highly of the Mexicali airport on their return to Los Angeles, pointing out that it comprised about 160 acres, was level and well marked, and guarded by a crew of soldiers who also assisted with the maintenance work. The field, they said, also has a hangar and repair shop.

The fueling pump at the field was installed a short time ago by the Union Oil Company and its products are used exclusively by the planes at the airport.

Robt. L. Welch Dies in Arizona

THE oil industry lost one of its valued and far-seeing workers in the passing of Robert L. Welch, general secretary and counsel for the American Petroleum Institute from the time of its organization. News of his death on January 21st at the home of his brother in Phoenix, Ariz., came as a distinct shock to oil men from coast to coast.

R. L. WELCH

Though Mr. Welch's contact with the industry covered only fifteen years, there were few men who understood its fundamental problems better than he did, or strove harder for the advancement of the industry as a whole. He was a man of a remarkably keen intellect and during the ten years he served as the chief executive officer of the Institute he gained the profound respect of the oil men, as well as the government officials and a host of others in the business and industrial world with whom he came in contact. He was a tireless worker and in the observation of detail had few equals. His work in furnishing a vast array of statistics to the industry proved especially valuable.

Mr. Welch would have been fifty years old on the Fifth of February, 1929. He was born in Pella, Iowa. Early in his career he was compelled to make his own way. His first job was as a messenger boy for the Western Union. Later he became a telegraph operator, but it was only temporary for his vision led him on. He determined to get a college education and a thorough one. With this in mind he worked his way through Des Moines College, the University of Chicago, the law school at Northwestern University, finishing at the Harvard School of Law.

About fifteen years ago he became counsel for the Iowa Oil Jobbers Association. Shortly afterwards he was taken in as counsel in Chicago for the old Western Oil Jobbers Association. Later he became secretary and counsel for the Western Petroleum Refiners Association at Kansas City. He was with this association at the time war broke out and was called upon to serve with the Petroleum War Service Committee, composed of fifty members who later became the original directors of the American Petroleum Institute. When the Institute was formed he was selected to become its general secretary and counsel.

Death Claims Oil Leader

FREDERICK B. HENDERSON, Vice President of the Associated Oil Company, and an outstanding figure in the oil industry of California, died at midnight, January 12th, in the Merritt Hospital, Oakland, after a brief illness. His death was caused by a sudden heart attack and came as a surprise to relatives and associates.

FREDERICK B. HENDERSON

Mr. Henderson was born Aug. 8, 1863, at Peoria, Illinois, and was educated in the grammar schools of that city. His early business training was acquired in the railway service, and it was in 1894, while with the Santa Fe Railroad, that he first became interested in the oil business. His first efforts were directed to the use of California crude oil for locomotive fuel, an experiment which was then being carried on by the Santa Fe.

With the formation of the Associated Oil Company in 1902, Mr. Henderson was appointed general superintendent of that organization, with headquarters in Bakersfield. Three years later, he was appointed Manager of the Amalgamated Oil Company, a subsidiary of the Associated, operating in the Los Angeles District. Mr. Henderson's excellent work with the Amalgamated led to his appointment in 1911 as assistant general manager of the Associated Oil Company, with headquarters in San Francisco. At the time of his death, he was still active in the affairs of the Associated, serving as member of its board of directors, and as vice president in charge of sales, as well as holding office in several subsidiary companies.

Mr. Henderson was widely known throughout the oil industry in the United States and had as many intimate friends among rival companies as he had within his own organizations. He was a director of the American Petroleum Institute and during the World War, served on the Pacific Coast Petroleum War Service Committee. He was a member of the Pacific Union Club, Claremont Country Club, California Club and Los Angeles Country Club.

Mr. Henderson leaves a widow, Mrs. Mabel Henderson; a daughter, Julia; a son, Frederick, Jr., a student at Harvard University, and brother and sister, Charles and Jennie Henderson of Los Angeles.

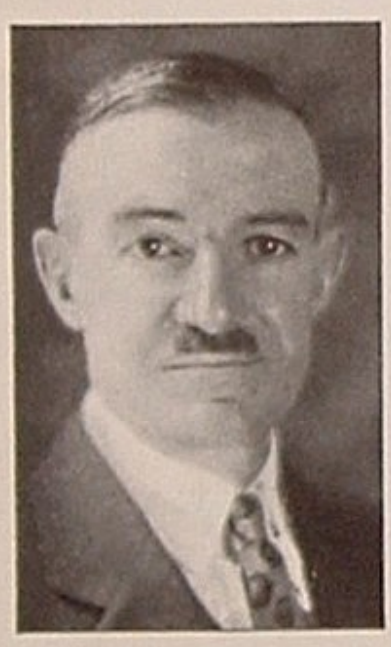
Roll of Honor Wins "Recruits"

THREE hundred and five employees who had completed ten years of service with the company were awarded service emblems during the past year, bringing the total number in the company with service of ten years or more up to approximately 1200.

Nineteen-Twenty-Eight also saw sixty-three employees complete fifteen years service; thirty, twenty years; five, twenty-five years and one, W. W. Orcutt, vice president of the company, thirty years. For each five-year period over ten years a ruby is added to the service pin. Mr. Orcutt, who is second to our president, W. L. Stewart, Sr., in active service in the company, now wears four rubies in his service emblem. Next Year Mr. Stewart will complete his thirty-fifth year with the company and will have a diamond added to his pin. It was under the direction of Mr. Orcutt, one of the best known geologists in the country, that the company built up a geological department recognized as one of the finest in the west.

Following are the employees who were awarded their third ruby for twenty-five years' service with the company:

ALBERT O. PEGG



A. O. PEGG

Mr. Pegg, superintending engineer of the marine department, has seen the company's fleet of ships grow from one sailing vessel and a couple of barges to twelve large modern tankers and fifteen barges. He entered the employ of the company in April, 1903, as first assistant engineer of the S. S. Whittier, the company's first steamship. When the company purchased the S. S. Lansing he was sent east to serve as first engineer of the vessel. Later he was transferred to the Santa Rita as chief engineer, in which capacity he served for eight years when he was taken ashore to fill the post of assistant superintending engineer. In 1917 he was appointed superintending engineer. He has supervised the construction of every modern tanker built by the company during the period of his service.

C. M. PIATT

C. M. PIATT

Mr. Piatt, who is at present gas engine foreman and gas engine expert in the Orange County fields with headquarters at Brea, joined the company in October, 1904. He was first employed as a roustabout on the Sterns' lease in Orange County. Since that time he has worked in various capacities in the Lompoc, Santa Maria and Orange County fields.

C. H. POLLOCK

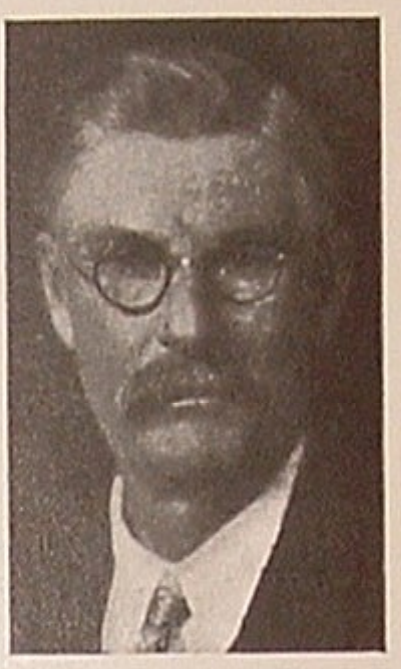
Mr. Pollock entered the employ of the company at the Oleum refinery in January, 1904 and has remained at the refinery since that date. In 1916 he was made foreman of the can house and in October, 1919, was made warehouseman. A month later he was appointed assistant foreman. At the present time he holds the position of shipping foreman.

W. A. FERGUSON

W. A. FERGUSON

Oct. 17, 1903, W. A. Ferguson, now oil tester at Orcutt, applied at a stubble field, the present site of the Union Oil Company's pumping station at Orcutt, for a job with the pipe line gang and has been with the company since that date. At the time he joined the company the pipe line activities in the Santa Maria field were just starting. After a couple of years' work as a roustabout, with a little gauging mixed in, he was appointed field gauger, in the days when the gauger was line-walker, telephone expert, etc., and supposed to be on duty twenty-four hours a day. In 1913 he asked for the position of oil tester in the laboratory and has served in that capacity since then. His entire service has been in the Santa Maria field.

J. B. THOMPSON



J. B. THOMPSON

Mr. Thompson, who is now engineer at Orcutt, began his service with the Company as a pumper in Brea Canyon, Oct. 3, 1903, under H. G. Burrows. Early in 1904 he was transferred to Norwalk Station as a pumper and in 1907 was transferred to Orcutt Station on the Lompoc Pipe Line where he served as station gauger. After occupying this position for two years he was appointed engineer at Orcutt, in which capacity he is starting his twenty-sixth year with the Company.

TWENTY YEARS' SERVICE

AINSLIE, C. M.
Seattle Sales
AMBROSIER, C. S.
Oleum Refinery
BARNES, B.
Seattle Sales
BOWIE, A. B.
Orange Field
BROWN, R. G.
Santa Fe Springs Field
CORRELL, W. J., Sr.
Producers Pipe Line
DONAHUE, R.
Oleum Refinery
EHLERS, H.
San Francisco Marine
ELDER, G. W.
Santa Fe Springs Field
GIBBS, I. J.
Orcutt Field
GRANT, F.
Orcutt Field
GRANT, T. A.
Head Office Transportation
GUNTHER, J. H.
Marine
HERKNER S. D.
Head Office Sales
HIGUERA, F. M.
Oleum Refinery
KREBS, J. R.
San Jose Sales
LAWSON, D. L.
Orcutt Field
LIFE, C. S.
Los Angeles Sales
LINDSEY, H. W.
Oleum Refinery
MOORE, L. B.
Head Office Comptrollers
NICKSON, H. W.
Orcutt Field
NULSEN, W. A.
Head Office Secretarial
POWELL, N. S.
Head Office Comptrollers
REED, R. J.
Chief Engineer
ST. CLAIR, L. P.
Vice President
STEELE, J. W.
Santa Fe Springs Field
TUBBS, E. E.
Head Office Comptrollers
WAYNE, I. L.
Producers Pipe Line
WIERZBICKY, T.
Oleum Refinery
WOODARD, F. M.
Santa Fe Springs Field

FIFTEEN YEARS' SERVICE

ADAMS, E. J.
Seattle Sales
ANDERSON, G. H.
Head Office Comptrollers
ANDREASON, M.
Marine
BARTON A.
Oleum Refinery
BERRY, E. D.
Producers Pipe Line
BERRY, E. H.
San Francisco Marine
BERRY, W. E.
Santa Fe Springs Field
BLACK, H. F.
Oleum Refinery
BOWLEN, H. L.
Portland Sales
BOYD, F. C.
Santa Fe Springs Field
BRAND, R. A.
Seattle Sales
BRIDGMAN, L. M.
Head Office Sales
BYERS, J. N.
Ventura Field
CATTERMOLE, H. E.
Head Office Transportation
CLARK, W. A.
Maricopa Field
CONLEY, O. C.
Head Office Manufacturing
DASTEEL, J. H.
San Francisco Sales
DE FRANCE, C. A.
Orcutt Field
DICKERSON, B. F.
Orcutt Absorption Plant
DUDDERAR, G. O.
Los Angeles Sales
DUNBAR, A. J.
Orange Field
FARNUM, L. L.
Santa Fe Springs Gas
FEDERSPIEL, J.
Seattle Sales
FISKE S. I.
Los Angeles Pipe Line
FORSTER, G. H.
Ass't. Comptroller
FRIZE, P.
Santa Fe Springs Field
GRANT, A.
Orcutt Field
GRANT, W. S.
Insurance and Personnel
HATFIELD, M. B.
Orange Field
HAYS, T. A.
Ass't. to Exec. Vice Pres.
San Francisco

HOLLAND, J. S.
Producers Pipe Line
HORVAT, J. L.
Oleum Refinery
IVERSON, H. G.
Oleum Refinery
JENNINGS, C. F.
Brea Refinery
KELLY, V. H.
Chairman Sales Committee
KENNEDY, W. H.
Orcutt Field
KING, E. C.
Spokane Sales
KOOP, J. F. O.
Marine
KUHNS, W. D.
Orange Field
LEMMON, L. L.
Santa Fe Springs Gas
LEWIS, F. E.
Oleum Refinery
LOUGH, C. W.
Maricopa Field
LOWE O. B.
Los Angeles Sales
McKENNA, S. S.
Head Office Purchasing
MAHONEY, F. O.
Los Angeles Sales
MORLAND, A.
Marine
MURPHY, J. A.
Portland Sales
NELSON, R. O.
Stockton Sales
NORMAN, A. E.
Los Angeles Pipe Line
PAGE, A. G.
Manager of Refineries
PYLE, G. E.
Dominguez Engineering
ROBINSON, M. B.
Portland Sales
ROOT, C. W.
Orange Field
ROSEMAN, A. G.
Los Angeles Sales
SELLERS, W. D.
Head Office Sales
SHORES, F. T.
Santa Fe Springs Field
STEELE, W. H.
Head Office Comptrollers
STEGMAN, W., Sr.
Oleum Refinery
STEPHENS, C. H.
Los Angeles Pipe Line
SUPLER, R. W.
Santa Fe Springs Field
TAYLOR, C.
Orcutt Field
WATKINS W. H.
Orcutt Field
WESTMORELAND, T. R.
Orcutt Field

TEN YEARS' SERVICE

ADAMS, P. R.
Santa Fe Springs Field
AINSWORTH, F.
Head Office Provident Fund
ALBERTSON, N. B.
Orange Field
ALDRIDGE, C. A.
Stockton Sales
ALLEN, C. A.
Los Angeles Refinery
ANDERSON, J. S.
Santa Fe Springs Gas
ANDERSON, N.
Oleum Refinery
ANDERSON, T.
Producers Pipe Line
ANTHIENY, J., Jr.
Stockton Sales
AUS, NINA
Head Office Comptrollers
BABBITT, G.
Orange Field
BAILEY, G. N.
Oleum Refinery
BALDWIN, G. H.
Oleum Refinery
BALL, J. C.
Orcutt Absorption Plant
BALLARD, F. W.
Santa Fe Springs Field
BANKS, A. G.
San Francisco Sales
BARBER, R. H.
Colorado Field
BARNERT L.
Oleum Refinery
BEARDSLEY, A. S.
Oleum Refinery
BELLINA, E. F.
Oleum Refinery
BEWLEY, H. W.
L. A. Lubricating Division
BILLINGTON, H.
Orcutt Absorption Plant
BLACK, G. W.
Head Office Petroleum Engineering
BLANCHARD, J. E.
Santa Fe Springs Field
BLANKENSHIP, J. E.
Santa Fe Springs Field
BOARDMAN, G. D.
Los Angeles Sales
BOUSLOG, J. G.
Santa Fe Springs Field
BRAVO, R. E., Jr.
Head Office Sales
BRENNAN, N.
San Jose Sales
BRODERICK, P.
Oleum Refinery
BROWN, A. E.
Producers Pipe Line
BROWN, C. A.
Santa Fe Springs Field
BROWN, G. W.
Orcutt Field
BURCHFIELD, M. E.
Union Oil Building
BURLESON, J. M.
Santa Paula Refinery
CALDWELL, E. L.
Head Office Purchasing
CALDWELL, W. R.
Los Angeles Refinery
CALHOUN J. C.
Avila Refinery
CALLS, P.
Producers Pipe Line
CAMPBELL, H. P.
San Francisco Sales
CARLISLE, F. H.
Producers Pipe Line
CHALMERS, M.
Sacramento Sales
CHENOWETH, A. D.
Oleum Engineering
CLARK, LYMAN
Colorado Office
CLINE, J. E.
Portland Sales
CLUSTER, A.
Los Angeles Engineering
CONLEY, W. M.
Los Angeles Pipe Line
CORNELIUS, W. G.
San Francisco Sales
CORY, W. C.
Los Angeles Refinery
COSBIE, R. M.
San Francisco Purchasing
COSTA, J.
Oleum Refinery
COVERT, L. V. H.
Oakland Sales
COWIE, A. S.
Head Office Advertising
CRAIG, S. M.
Orange Field
CREE, A. C.
Orange Field
CYRAN, W.
L. A. Lubricating Division
CUNHA, C.
Orcutt Field
CUNNINGHAM, W. J.
Spokane Sales
DALLIDET, P.
Producers Pipe Line
DANIEL, L.
Brea Engineering
DAVIDSON, H. C.
Sacramento Sales
DAVIS, B. H.
Orange Field
DAVIS, C. A.
Orcutt Absorption Plant
DAVIS, L. A.
Producers Pipe Line
DE JARNETTE, R. H.
Head Office Comptrollers
DESROSIE, M.
Maricopa Field
DEVINE, W. F.
Sacramento Sales
DEZARN, F.
Santa Fe Springs Field
DICKSON, A. G.
Honolulu Sales
DILLE, J. C.
Orcutt Field
DIXON, S. E.
Head Office Comptrollers
DOUGHERTY, M. D.
Orcutt Field
DOWELL, B.
Seattle Sales
DOYLE, M. J.
Producers Pipe Line
DWELLEY, L. L.
Santa Fe Springs Field
DYE, S. H.
Stockton Sales
EGERER R. A.
Los Angeles Garage
ELAM, E.
Sacramento Sales
ELDRED, A. H.
Fresno Sales
ELLET, T.
Orcutt Absorption Plant
ELLIOTT, C. H.
Head Office Comptrollers
ELLIS, N.
Seattle Sales
ELY, C. D.
Los Angeles Pipe Line
ESPLIN, C. B., Sr.
Producers Pipe Line
ESTES, L.
Orange Field
EVANS, E. T.
Brea Engineering
FARREN, H. B.
Orange Field
FERNBERG, A. W.
Colorado Field
FERRY, H. C.
Head Office Franchises and Rights of Way
FISHER, H. H.
Head Office Comptrollers
FITZGERALD, H.
Oleum Refinery
FITZPATRICK, T. F.
San Francisco Sales
FLAGG, R.
Orcutt Absorption Plant
FLANDERS, A. L.
Portland Sales
FLEIG, R. H.
Producers Pipe Line
FLOWER F. F.
Los Angeles Garage
FORBES, A.
Orange Field
FOSTER, R. W.
San Francisco
FOWLER, J. W.
Maltha Refinery

FOX, A. E.
Orcutt Field
FRY, A. M.
Seattle Sales
FRY, J. B.
Purchasing Warehouse
FUNK, F. C.
Los Angeles Sales
GALBRAITH, A. C.
Head Office Sales
GARMAN, R. W.
Mgr. Natural Gasoline & Gas Operations
GASSNER, A. D.
Portland Sales
GIBBS, R. D.
Santa Fe Springs Gas
GORDINIER, J. D.
Los Angeles Pipe Line
GOSS, L. L.
Santa Fe Springs Field
GOURLEY, M. M.
Seattle Sales
GRAHAM, W.
Head Office Purchasing
GRAVES, H. D., Jr.
Oleum Refinery
GREEN, D. W.
Colorado Field
GREENE, L. L.
Maricopa Field
GREFFOZ E. P.
Orcutt Field
GRINNELL, S. H.
Santa Fe Springs Field
GROEHLER, F. P.
Santa Fe Springs Field
GUIDE, E.
Sacramento Sales
GULART, M.
Oleum Refinery
GUNDERSON, O. P.
L. A. Refinery Engineering
HAINES, J. B.
Oleum Refinery
HAYNES, H. C.
Producers Pipe Line
HENDRY, A.
Orange Field
HERNANDEZ, D.
L. A. Refinery Engineering
HERRIOTT, J. B.
Portland Sales
HIGGINS, F. E.
Oleum Refinery
HISERMAN, J. H.
San Jose
HOLT, E. J.
San Diego
HOWARD, H. L.
Fresno
HUTCHINS, C. O.
Orange Field
HUTCHINS, E. L.
Santa Fe Springs Field
IHRIG, D. L.
San Diego Sales
INFIELD, J. F.
Los Angeles Refinery
INGRAM, V. J.
Head Office Comptrollers
INGRUM F. E.
Santa Paula Refinery
JACKSON, F.
Orange Field
JAMISON, J. L.
Fresno
JARDINE, J.
Head Office Comptrollers
JOHNSTON, A. S.
Head Office Traffic
JONES, G. E.
Los Angeles Sales
JONES, R. L.
Fresno Sales
JONES, S. H.
Orange Field
KANE, R. L.
Phoenix Sales
KELLEY, L. C.
Head Office Treasurers
KELLEY, T. P.
Orcutt Field
KEMPTON, C. B.
Producers Pipe Line
KENT, C.
Fresno Sales
KING, M. W.
San Francisco Sales
KNABB, J. E.
Central Division Garage
KNICKERBOCKER, J. H.
Producers Pipe Line
KNOX, F. A.
Fresno Sales
KOON, N. F.
Oleum Refinery
KRATZ, C. H.
Head Office Engineering
LACEY, F. J.
Los Angeles Garage
LANGE E. S.
Head Office Sales
LA RUE, H. C.
Seattle Sales
LAZARUS, J.
Oleum Refinery
LEISY, H. E.
San Jose Sales
LEONARD, J. E.
Fresno Sales
LESNICK, J. W.
Santa Fe Springs Gas
LESTER, H. O.
Los Angeles Refinery
LINSDELL, E. A.
Brea Refinery
LITTLE, G. R.
Head Office Manufacturing
LONGORIA, A.
Los Angeles Sales
LOPEZ, J. F.
Producers Pipe Line
LORENZEN, J. T.
San Francisco Sales
LORENZEN, P.
San Francisco Sales
LOWRY, D. L.
Santa Fe Springs Field
LUDLOW, R. G.
Los Angeles Sales
LUTTRELL, A. S.
Orcutt Field
LUTZ, J. H.
L. A. Refinery Engineering
McCLOY, M. M.
Maltha Refinery
McCONNELL, R.
Santa Fe Springs Field
McCORMICK, V.
Head Office Gas
McDONALD D. D.
Producers Pipe Line
McDONALD, W. J.
Oleum Refinery
McGARIGLE, M. J.
Sacramento Sales
McGURN, P. A.
Los Angeles Refinery
McLAGAN, W. A.
Vancouver Sales
McREYNOLDS, J. W.
Oleum Refinery
MANKINS, E. H.
Orcutt Field
MANLEY, F. S.
Head Office Sales
MANOV, M. M.
Oleum Engineering
MARCKS, R. A.
Portland Sales
MARTIN, H. W.
Maricopa Field
MARTIN, JOHN
Producers Pipe Line
MARTIN, W. J.
Santa Fe Springs Field
MATHISON, A.
Los Angeles Refinery
MATIER, H. A.
Head Office Field
MAYFIELD, I.
Orange Field
MICHEL, M. J.
San Jose Sales
MILBURN, W. P.
Head Office Engineering
MILFORD, A. W.
Head Office Tax
MORRISON, W. R.
Oleum Refinery
MOYER D. L.
Santa Fe Springs Gas
MUNGER, P.
Orcutt Absorption Plant
MURDOCK, J. W.
Portland Sales
MURPHY, R. L.
Seattle Sales
MUZZALL, J. B.
Orange Field
NELSON, J. C.
Los Angeles Pipe Line
NENDELL, R.
Orcutt Field
NEVES, F.
Oleum Refinery
NORTH, J. J.
Orange Field
O'BRIEN, A. G.
Exec. Vice Pres. Office, San Francisco
OSBORNE, P. H.
Orange Field
OTIS, A. T.
L. A. Lubricating Division
PAGE, E. C.
Head Office Engineering
PARRY, E. B.
L. A. Refinery Engineering
PAULSON, Y.
Santa Fe Springs Gas
PEDERSEN, C. S.
Research and Development
PEDRO, F.
Oleum Refinery
PEMBERTON, F. W.
Sacramento Sales
PETERS, G. A.
Oakland Sales
PFEIFFER J. H.
Orange Field
PHELPS, R. W.
Brea Field
PIMENTEL, M. V.
Orcutt Absorption Plant
POLLOCK, E.
Head Office Secretarial
POPE, W. E.
Orange Field
POPE, W. J.
Phoenix Sales
POWNING, J. G.
Head Office Provident Fund
PRICE, V. B.
Portland Sales
PRIOR, H. S.
Oleum Refinery
PRUITT, J.
Orcutt Field
PYLE, F.
Santa Fe Springs Gas
QUICK, C. G.
Orcutt Field
RAINES, M. H.
Los Angeles Refinery
REED, E. F.
Los Angeles Sales
REED, G. E.
Producers Pipe Line
REES, B.
Brea Refinery
RICHARDS, F. H.
Orcutt Field
RICHARDSON, F. A.
Ventura Field
RICKENBACHER, C.
Head Office Field
RIDENOUR, B.
Oleum Refinery
RINEHARDT E. A.
San Jose Sales
ROBERTS, G. H.
Head Office Traffic

ROJAS, J. R.
Orcutt Field
ROWLAND, W. A.
Orcutt Absorption Plant
STE. MARIE, J. A.
Producers Pipe Line
SARTORI, J. R.
Oleum Refinery
SCHREIBER, L.
Fresno Sales
SCURI, G. J.
Producers Pipe Line
SHUEY, J. A.
Los Angeles Refinery
SHULTZ, J. P.
Producers Pipe Line
SIEBENTHAL, J. F.
Santa Fe Springs Gas
SIMMERMAN, E. T.
Fresno Sales
SINCLAIR, A. D.
Producers Pipe Line
SMITH, B. F.
Producers Pipe Line
SMITH, C. L.
Orange Field
SMITH, E. J.
Producers Pipe Line
SMITH, F. G.
San Diego Sales
SORENSON, M. H.
Oakland Sales
SOTO, R. E.
Producers Pipe Line
SPIROU, N.
Oleum Refinery
STAMM C. H.
Oleum Refinery
STEMMLE, J. W.
Oleum Refinery
STIEBEL, A. C.
Oleum Refinery
STILLMAN, W. H.
Seattle Sales
STINE, G. V.
Los Angeles Pipe Line
STOCKSTILL, J. R.
Oleum Refinery
STOWELL, H. B.
Oleum Refinery
STOWELL, W. L.
Oleum Refinery
STRICKLAND, H. H.
Producers Pipe Line
STULL, L. R.
Santa Fe Springs Field
SULLIVAN, R. J.
Santa Fe Springs Field
TALBERT, R. L.
Santa Fe Springs Field
TARR, H.
Santa Fe Springs Field
TAYLOR, V.
Los Angeles Refinery
TESTERMAN, C. G., Jr.
Producers Pipe Line
THORNTON, E. C.
Maricopa Field
TIERNEY, L. A.
San Francisco Sales
TILL, J. F.
Santa Fe Springs Field
TIRRELL, C. E.
San Diego Sales
TOTTEN J. W.
Oleum Refinery
TOWLE, F. C.
Stockton Sales
TRYER, F. C.
Los Angeles Refinery
TURNER, W. D.
Santa Fe Springs Field
TYCHSEN, P. E.
Oakland Sales
VAN OLINDA, A. I.
Head Office Comptrollers
WAGNON, C. R.
Orcutt Field
WARDELL, E. M.
Orange Field
WASSON, O.
Orcutt Field
WEAVER, E. H.
Purchasing, Seattle
WEBER, C.
Orcutt Fie'd
WESTERVELT, W. A.
Los Angeles Sales
WHITE, A. M.
San Jose Sales
WHITHAM, H.
Head Office Sales
WILEY, L. O., Jr.
Santa Fe Springs Field
WILKIE, J. B.
Santa Fe Springs Gas
WILLIAMS, J. L.
Stockton Sales
WILSON, C. E.
Santa Fe Springs Field
WINTERBURN G. W.
Portland Sales
WOLFE, A. E.
Dominguez Engineering
WOODFORD, B. A.
Head Office Sales
WRITER, L. T.
Los Angeles Sales
YRIARTE, F.
Orange Field
ZAM, W. F.
Oleum Refinery

NEWS OF THE MONTH

COMPANY'S PRODUCTION MOUNTS

The Union Oil Company's flush production from the deep zones at Santa Fe Springs passed the 25,000-barrel mark last month with the completion of Bell 32 and 33. Both wells were stopped in the Nordstrom zone, Bell 32 being completed at 5415 feet and Bell 33 at 5400 feet. The former started off with a flow of about 5500 barrels and the latter at the rate of slightly more than 6000 barrels. Over a period of a week or so, however, it gradually built up until at its peak it was gauged at 8300 barrels. The well, as we go to press, is making about 6800 barrels a day. The cut is 1.6 per cent and the gravity 33.8. The flow of Bell 32 as present is just a trifle below 5000 barrels.

Alexander 12, which we reported among the new producers last month, is the second best producer in the field, being topped only by the General Petroleum 225, which is flowing better than 8000 barrels a day. Alexander 12, completed at 5438 feet, started off at the rate of 6500 barrels and increased its flow to about 7500 barrels. The cut on this well is one-tenth of one per cent and the gravity 34.7.

At the time this is being written preparations are being made to bring in Alexander 10, drilled to a depth of 5750 feet. Bell 35, drilled to a depth of 5739 feet, is also nearing completion. Eight other wells have passed the 5500-foot level, and unless some unexpected difficulty is encountered should be on production at the close of this month.

RIGGING UP WASHINGTON WELL

The company's test well on the McGowan lease in Pacific County, Washington, near th mouth of the Columbia River and on the opposite side of the river from Astoria, will be spudded in February 4, according to word received from Glenn W. Black, who is in charge of the drilling operations.

A 122-foot steel derrick has been erected and the most modern drilling equipment available is being installed with a view of giving this new area a deep test.

The McGowan well is of great importance as it is the first time one of the major oil company has drilled a well in this area to test for oil and gas.

WM. GROUNDWATER HONORED

William Groundwater, manager of transportation of the Union Oil Company, was re-elected director of the Pacific American Steamship Association at its annual meeting held in San Francisco, Jan. 18, 1929. This is the fourth year that Mr. Groundwater has been asked to serve on the association's directorate. Incidentally it is about his seventeenth year with the company.

SALES LEADERS MAKE CHANGE

V. H. Kelly, recently appointed chairman of the Sales Committee, arrived at the head office in Los Angeles from Seattle early last month to take over his new duties. At the same time, M. W. McAfee, for several months manager of the Central Division, with headquarters at San Francisco, was transferred to Seattle to become manager of the Northern Division, the post left vacant by Mr. Kelly's appointment to the Sales Committee.

V. H. KELLY

Mr. Kelley has been with the Union Oil Company for nearly sixteen years, all of which time has been spent in the Northwest. He started as a salesman in Tacoma in 1913. Three years later he was advanced to special agent in Seattle, which post he held until 1917, when he was made district sales manager at Portland. He remained in the Rose City until 1922 when he was appointed manager of the Northern Division.

M. W. McAFEE

Mr. McAfee joined the company as a salesman at Fresno in July, 1914. Four years later he was appointed assistant district sales manager for Fresno. In January, 1925, he was appointed district sales manager at Fresno and two years later he was transferred to Los Angeles as district sales manager. His appointment as manager of the Central Division, with headquarters at San Francisco, followed a year and a half later.

EMPLOYEES' BENEFIT FUND

During the past month death claims have been paid under the Company Group Insurance plan to the beneficiaries of the following deceased employees:

Au Koon Leong, Honolulu Sales—$2500.

Capt. Thomas H. Crang, Marine Dept.—$4000.

John R. Dobson, Seattle Sales—$1750.

V. J. Powelson, Head Office Mfg. Dept.—$2000.

John W. Felker, Oleum Refinery—$2000.

Leon H. Buck, Los Angeles Sales—$2500.

BELL No. 40 CREW SAVES WELL

The fast work of the crew on Bell No. 40 at Santa Fe Springs, January 12, is credited with having prevented a blow-out similar to the one that a few days before had set fire to and completely wrecked two General Petroleum wells and one Getty well in that section of the field.

The bottom of the hole on the morning of the near catastrophe was 3602 feet. The crew was running a 17¼ Hughes bit into the hole at the time and had the drill pipe down 2680 feet when the well started to blow. They succeeded in getting the packing in the Midway Head, although mud was spouting sixty feet high in the derrick. However, before they could get the drill pipe tied down the excessive gas pressure raised both the packer rubber and pipe. For some reason the latch on the packer fouled, leaving a one-inch opening in the rubber.

In spite of this handicap and a continual shower of mud the crew "stuck by their guns" and succeeded in tying down the drill pipe and putting on the Kelly. They then pumped heavy mud into the hole as rapidly as the pumps would operate and finally got the well under control. One thousand sacks of Hematite were used in holding the pressure down.

In reporting the incident, E. A. Whitten, district superintendent, said: "I firmly believe that had it not been for the fast and courageous work on the part of the crew, the situation would have resulted far more seriously than was the case."

The men who tamed the threatened outlaw were Willis Ritter, driller; Ed Johnson, derrickman, and Glenn Darling, L. B. Danforth and E. W. Armantrout, helpers.

UNION IN LAWNDALE FIELD

Be it ever so humble, there is nothing like a home with an oil well in the back yard, front or side yards, whichever your taste dictates. Such at least is the contention of the owners of the little homes, rabbit and chicken farms along Inglewood avenue in Lawndale, where some twenty-five companies are now engaging in a free-for-all race for production.

Within the past thirty days nearly thirty rigs have made their appearance in the state's newest oil field. The Union Oil Company is drilling three of the thirty wells now being put down. The wells are Higbie No. 1 at the corner of Delaware and Inglewood avenue; Root No. 1 on Rosecrans avenue, offsetting the Richfield's well located at the northwest corner of Rosecrans avenue and Inglewood avenue, and Root No. 2, two blocks south of Root No. 1 and a block east of Inglewood avenue.

SAFETY *IN THE* UNION

SANTA FE SPRINGS

Fires are not the only unfortunate accompaniment of the hectic drilling campaign precipitated by the discovery of the deep sands at Santa Fe Springs. The employment of hundreds of new and untrained oil field workers has had a definite effect in raising the accident rate for all operators. Perhaps that is only natural but like all emergencies, it has been met by increasing the vigilance of those entrusted with the supervision over men and materials. New men have been trained in first aid; some three hundred having now been graduated from 'Professor' Martinson's school. The impression that such a course of instruction leaves in a man's mind inevitably makes him a safer man, in addition to teaching him how to handle himself in emergencies. New men have been so placed in their work that they have been always under the supervision of older heads, who in turn have seen to it that the lore of the oil fields has been duly imparted.

The accidents that have been recorded at the Springs during the past several weeks show that lack of skill is the principal cause. For example:

Tongs swung round and struck rotary helper, four days lost time.

Elevators failed to latch. Fractured toe of rotary helper. One month lost time.

Rotary helper lifting on 200-lb. wrench. Strained groin and lost 20 days.

Derrickman caught hand between elevators and drill pipe. Off two weeks.

Rig builder pinched finger. Seven weeks lost time.

Rotary helper caught finger in door of elevator, tearing off end. Five weeks lost.

Rotary helper putting on tongs, struck by tong line. 9 days.

Rotary helper putting line on automatic cathead while draw works were running, stuck nail bar through window in cathead, throwing it in gear. Four weeks lost time.

Rotary helper, rolling casing from truck to rack, pipe rolled over finger. 15 days lost.

Derrickman, changing mud, closed bleeder line. Mud sprayed out of stopcock in eye. 7 days off.

Rotary helper, throwing off bull rope with piece of pipe instead of bull rope trip. Concussion of brain. 6 days.

ENGINEERS

For more than one year Engineering construction forces at Los Angeles Refinery kept their record clear of lost time accidents and at this date of writing the record is well on its second lap around the annual race track. It was quite fitting, therefore, that "Doc" Reynolds, Resident Engineer, should celebrate by inviting his entire force to a 'safety dinner' made doubly safe by the announcement that there would be no speeches. On the night of January 5th the party was held at the new Masonic Temple in Long Beach, entertainment consisting of songs, instrumental music and movies. The latter were on the general subject of construction, both heavy and light, Merritt, Chapman and Scott supplied some of the pictures and rumor has it that 'Doc' took the others on his last vacation.

Safety Supervisors

The men doing safety work in the several operating departments have now been classified as Safety Supervisors by the Department Managers' Safety Committee. The new title applies to Francis Bartella, Los Angeles Refinery; Homer Delaney, Field Operations in the Southern Divisions; Ed Gluyas, Field Operations, Valley Division and Producers Pipe Line; Kyle Lutz, Oleum Refinery; T. T. Rissinger, Gas Operations, Southern Division and H. M. Salentine, Engineering Construction, Brea, Dominguez and Santa Fe Springs. These men have had their training in a variety of educational institutions; some carry engineering degrees, while others are graduates of that famous college of hard knocks to which even the engineers must go for their post graduate work. Looking at the score sheet it is interesting to note that Field Operations were 9% safer in 1928 than in 1927, Engineering Construction 18%, Gas Operation 54%, Pipe Line Operations 54%, and Refineries 62%. Even more interesting is the fact that those operations which show appreciable increase in accident rates do no organized safety work.

Wilfred P. Kruyer, foreman, Natural Gas and Gasoline Operations, died on January first, from injuries received two days previously at Santa Fe Springs. Failure of a weld in a high pressure water trap which was being placed in service caused the well to flow uncontrolled for several minutes. Mr. Kruyer was hurled under the derrick floor by the blast from the ruptured piping.

A thorough investigation of the accident was made by a Board of Inquiry composed of Wm. Groundwater, Manager of Transportation, (Chairman), R. E. Haylett, Assistant to the Vice President, F. F. Hill, Manager of Field Operations and Ralph J. Reed, Chief Engineer.

CALIFORNIA OIL STATISTICS, DECEMBER, 1928

Prepared by American Petroleum Institute, Pacific Coast Office.

PRODUCTION

(Figures of production and stocks are in barrels of 42 Gals.)

DISTRICT	BARRELS PER MONTH	DAILY AVERAGE Dec., 1928	Nov., 1928	Dec., 1927
Kern River	556,683	17,957	*18,132	23,268
Mount Poso	4,673	151	84	111
Fruitvale	40,769	1,315	1,082	...
Round Mountain	2,507	81	46	...
McKittrick	154,432	4,982	4,867	4,932
Midway-Sunset	2,267,014	73,129	74,908	80,883
Elk Hills	596,557	19,244	19,549	23,955
Lost Hills-Belridge	135,536	4,372	4,324	4,153
Coalinga	310,665	10,021	10,175	18,768
Kettleman Hills	116,433	3,756	2,669	...
Wheeler Ridge	25,377	819	840	989
Watsonville	1,938	63	63	58
Santa Maria	153,074	4,938	5,242	5,872
Summerland	3,767	121	122	125
Elwood-Goleta	371,838	11,995	8,394	231
Rincon	126,434	4,078	4,514	157
Ventura Avenue	1,571,890	50,706	52,017	51,121
Ventura-Newhall	175,249	5,653	5,760	5,950
Los Angeles-Salt Lake	44,481	1,435	1,546	1,613
Whittier	50,978	1,644	1,642	1,730
Fullerton (Brea Olinda)	455,055	14,679	15,720	14,969
Coyote	389,590	12,567	13,078	13,870
Santa Fe Springs	3,020,905	97,449	54,693	38,807
Montebello	340,948	10,998	10,840	12,947
Richfield	540,090	17,422	17,116	21,629
Huntington Beach	1,534,593	49,503	51,283	59,807
Long Beach	5,794,281	186,912	195,655	108,397
Torrance	481,837	15,543	15,701	20,361
Dominguez	322,194	10,393	10,323	13,612
Rosecrans	215,937	6,966	5,993	8,521
Inglewood	849,588	27,406	27,766	31,566
Newport	930	30	85	15
Seal Beach	881,957	28,450	29,154	42,514
Potrero	20,817	674	270	...
Lawndale	15,686	506	...	...
TOTAL	21,574,703	695,958	663,584	610,930
November	19,907,526	663,584		
Increase	1,667,177	32,374		

* Corrected total for Kern River for November is 543,964 barrels.

STOCKS

	Dec. 31, 1928	Nov. 30, 1928	Dec. Stock Increases	Dec. 31, 1927
Heavy Crude, heavier than 20° A. P. I., including all grades of fuel	101,366,168	99,772,153	1,533,955	94,907,147
Refinable Crude, 20° A. P. I., and lighter	17,954,434	17,243,243	711,191	20,268,569
Gasoline	10,766,410	10,802,366	*35,956	13,712,030
Naphtha Distillates	1,541,414	1,480,812	60,602	1,901,279
All Other Stocks	9,488,643	9,418,103	70,540	9,529,592
TOTAL ALL STOCKS	141,057,069	138,716,677	2,340,392	140,318,617

* Decrease.

DEVELOPMENT

DISTRICT	New Rigs Up	Active Drilling	Completed	Daily Initial Output	Active Producing	Abandoned Wells Drillers	Abandoned Wells Producers
Kern River	4	3	4	913	1,227	1	2
Fruitvale	1	8	1	600	3	...	...
Mount Poso	7	8	1	175	4	...	...
Round Mountain	...	2	2	552	2	...	...
McKittrick	1	1	3	290	287	1	...
Midway-Sunset	10	15	4	682	2,462	...	6
Elk Hills	...	1	...	...	210	...	2
Lost Hills-Belridge	3	3	4	100	313	...	...
Coalinga	...	...	...	...	790	1	2
Kettleman Hills	5	2	...	...	1	...	...
Wheeler Ridge	...	...	...	...	34	...	...
Watsonville	...	...	...	...	1	...	...
Santa Maria	1	5	1	160	221	...	...
Summerland	...	1	...	...	89	...	...
Elwood-Goleta	4	8	1	5,000	7	...	...
Rincon	1	6	1	100	25	...	...
Ventura Avenue	7	39	4	5,785	141	1	...
Ventura-Newhall	1	24	...	...	521	1	...
Los Angeles-Salt Lake	...	...	...	...	319	...	...
Whittier	...	...	...	...	168	...	...
Fullerton	1	5	...	...	377	...	...
Coyote	...	1	...	...	207	...	...
Santa Fe Springs	20	212	28	112,078	318	...	3
Montebello	...	3	...	...	167	...	1
Richfield	...	4	2	1,055	269	...	...
Huntington Beach	3	4	4	460	554	3	4
Long Beach	11	146	15	11,405	844	...	4
Torrance	...	...	...	...	604	...	1
Dominguez	...	...	1	395	68	...	...
Rosecrans	3	2	...	...	103	...	1
Inglewood	...	...	1	794	221	...	...
Newport	...	2	...	...	4	...	...
Seal Beach	5	6	2	1,525	140	1	...
Potrero	...	3	1	1,155	2	...	...
Lawndale	1	...	1	1,100	2	...	...
Miscellaneous Drilling	8	126	...	...	...	3	...
December	97	640	81	144,324	10,711	12	26
November	129	639	63	65,774	10,721	11	3
Increase	*32	1	18	78,550	*10	1	23
Average for year 1927	97	404	75	39,992	11,276	23	21
Average for year 1926	95	422	76	32,635	11,288	24	17
Average for year 1925	105	417	79	42,247	11,393	28	12
Average for year 1924	103	510	103	42,412	10,903	28	21
Average for year 1923	111	759	82	114,690	8,928	24	

* Decrease.

REFINED AND CRUDE

Criticism is one of the penalties of prominence.

* * *

Small organizations may carry on outrageously without a whisper of comment, but let one of the big fellows stumble ever so slightly, and it immediately becomes a topic of universal discussion.

* * *

It has been thus with the problem of gas conservation. The call for more economic production methods was first sounded by the oil industry itself, but it has since been reissued and reiterated with parrot-like precision by a million self styled efficiency experts, till it is now swelled to the proportions of a national community song.

* * *

It seems almost as if the call for conservation had been interpreted by the general public as a call for conversation.

* * *

The matter is not one that can be adjusted over night, but real conscientious efforts are being directed towards a satisfactory solution. Considerable progress has already been made, and in the meantime for those who are inclined to be a trifle impatient, we would like to quote the slogan of the medical profession, "Patients are a virtue".

* * *

The birth of invention is the death of chivalry. If the Queen of England today found a muddy gutter facing her, there would be no need for a Raleigh to spread his cloak. The Queen would be wearing galoshes. —Scientific American.

* * *

According to the Carnegie Puppet, there are only two kinds of college boys. Those who try to make their work lighter, and those who try to make their lighter work.

* * *

Then there was the fellow who called his roadster 'Fritz' because it was a Chrysler.

* * *

Many girls use make-up, not because they really approve, but because they just haven't got the face to go without it.

Young Wife: Aren't you the same man I gave some biscuits to last week?

Tramp: No mum, and the doctor says I never will be again.—Old Maid.

* * *

"No girl ever made a fool out of me".
"Who was it then?"—Wampus.

* * *

The freshman across the hall says he likes his new topcoat very much, only he can't get used to the wood across the shoulders, and the hook keeps pushing his hat off.—Lehigh Burr.

* * *

Which reminds us of the college boy who couldn't get his slicker on, because he had a book in his hand, and it wouldn't go through the sleeve.

* * *

Tramp: Have you a good square meal for a hungry man, missus?

Lady: Yes, and he'll be home presently, so you'd better go.—Wampus.

* * *

There's nothing more pathetic than a horsefly on a radiator, unless perhaps a Scotchman wandering around a Woolworth store looking for the furniture department.

* * *

This is the time of year, when everybody should begin to think about Texas—income Texas.

* * *

It has been computed that Rockefeller has seven dollars for every person in the United States. Wish he would send ours along now.

* * *

Ford Driver: "Is this Main Street?"
Cadillac Driver: "Yes."
Ford Driver: "Well, would you mind letting me have a little more of it."

* * *

A local furrier sold a fine fur coat to a colored gentleman, and next morning he happened to run into Sam on the street. "It's pretty cold to day Sam," he remarked. Sam haughtily lifted his chin from the depths of his fur collar and replied, "Ah caint tell you nuthin' bout the weather, Boss. Ah ain't looked at de paper today."

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