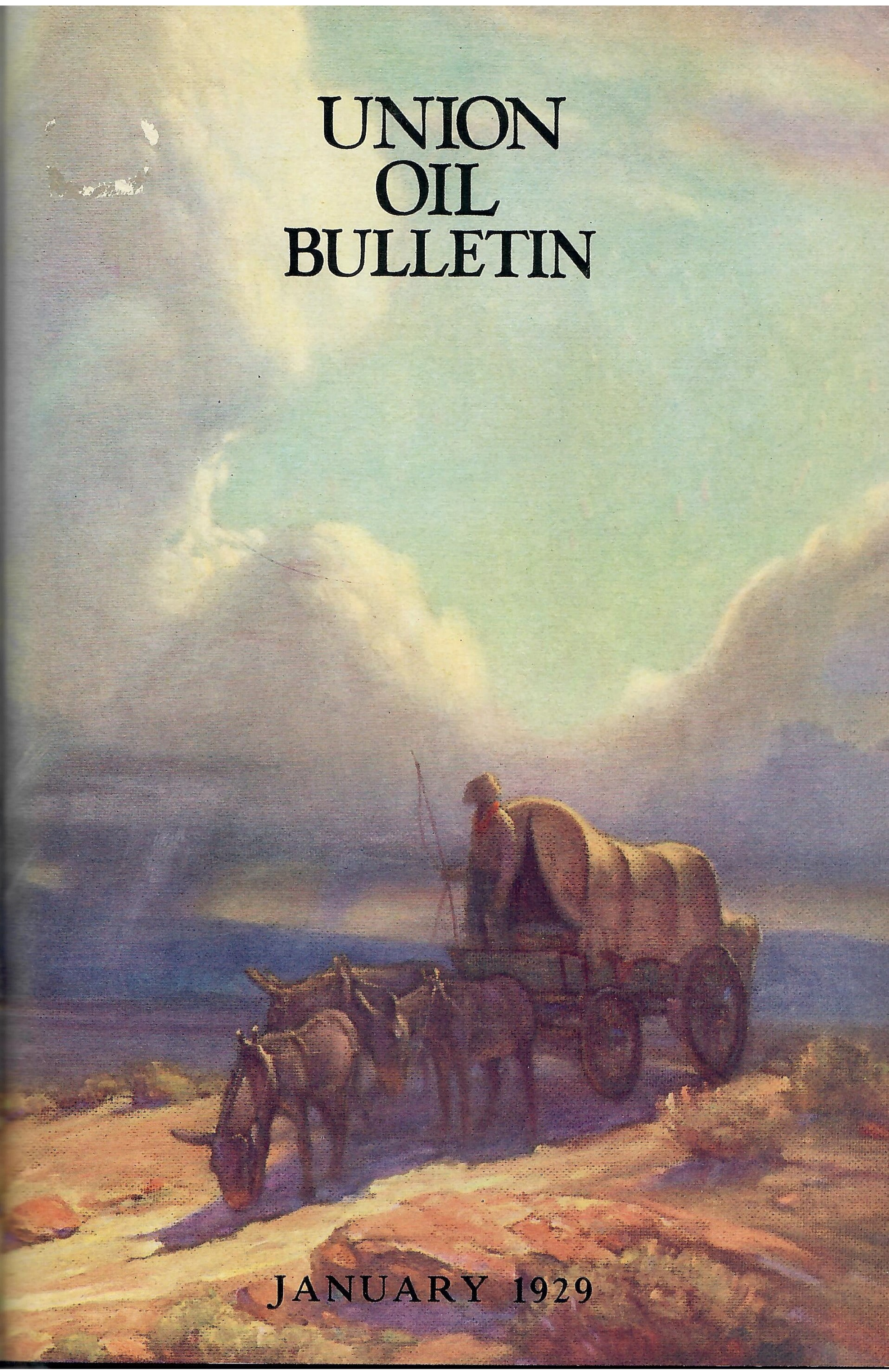
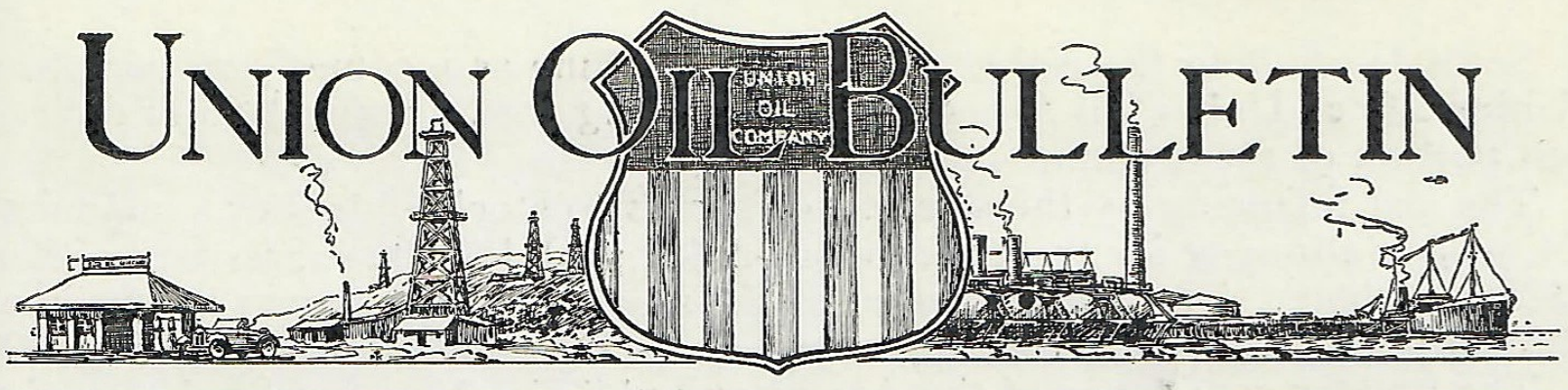
UNION OIL BULLETIN



JANUARY 1929

Looking northeast across Yosemite Valley from Glacier Point toward Half Dome, with the snow-covered ridges rising in the background.

UNION OIL BULLETIN



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UNION'S NEW STOCK OFFER

THE Board of Directors at a special meeting, held December 17, 1928, resolved to make an offering of shares to stockholders pro rata in the ratio of their respective holdings on the basis of one share for each ten shares owned, at a price of $35.00 per share, payable as follows:

Feb. 15, 1928 .....$ 5.00 per share
May 15, 1928 .....$10.00 per share
Aug. 15, 1928 .....$10.00 per share
Nov. 15, 1928 .....$10.00 per share

Employees who subscribed for capital stock under the offering of July 15, 1925, are entitled to subscribe for the new stock in the same proportion and on the same terms as stockholders.

The offering is made to stockholders of record as of Dec. 28, 1928, and share warrants will be issued on and after Jan. 12, 1929. The right of stockholders to exercise their privilege of purchasing shares expires Feb. 15, 1929.

The number of shares being offered for subscription amounts to 379,993 and the proceeds, amounting to approximately $13,300,000, will be utilized for capital expenditures or debt retirement. Working capital will undoubtedly increase during 1929, inasmuch as if it were not for this financing, the contemplated expenditures would normally be provided out of income.

The entire amount of stock covered by this offer has been underwritten at $35.00 per share free of any cost to the Company, insofar as the underwriting is concerned, by a syndicate composed of Dillon Read & Co., First Securities Company, William R. Staats Company, Blair & Co., Inc., and Bond & Goodwin & Tucker, Inc., who will have the right, and have obligated themselves, to purchase all shares of stock which are not subscribed for by stockholders or subscribers for stock of the Company or their assigns under this offer.

The offering of these shares gives to the stockholders a valuable right which may be exercised in two ways:

First:—By acquiring the new shares at a price materially below the current market value, which "ex rights" is about $51, or

Second:—Selling the rights and regarding same as income from investment in Union Oil or Union Oil Associates stock, being then a realization in cash of a small portion of the accumulated surplus.

The last financing by the offering of shares to stockholders was in January, 1924, when (allowing for the conversion of $25 par) 180,000 shares were offered at $25 per share. The market value of the stock at that time was approximately $28.50 per share. This was a five per cent offering and realized $4,500,000.

The greater confidence of the American public in the common shares of the country's major industries and the substantial units in these industries has been well evidenced by the increase in market value of high grade common stocks. The oil industry during the last two years entered a period of abnormal excess production over consumption, but also entered a period in which there has been more cooperation in the industry than ever existed in the past, and more particularly in the matter of control of crude oil production, which is the key to the welfare of the oil industry. Too much crude production has its bad effects; too little creates among oil executives a fear of lack of supply for the large transportation, manufacturing and distributing units built up with considerable outlay of money to take care of the ever increasing consumption.

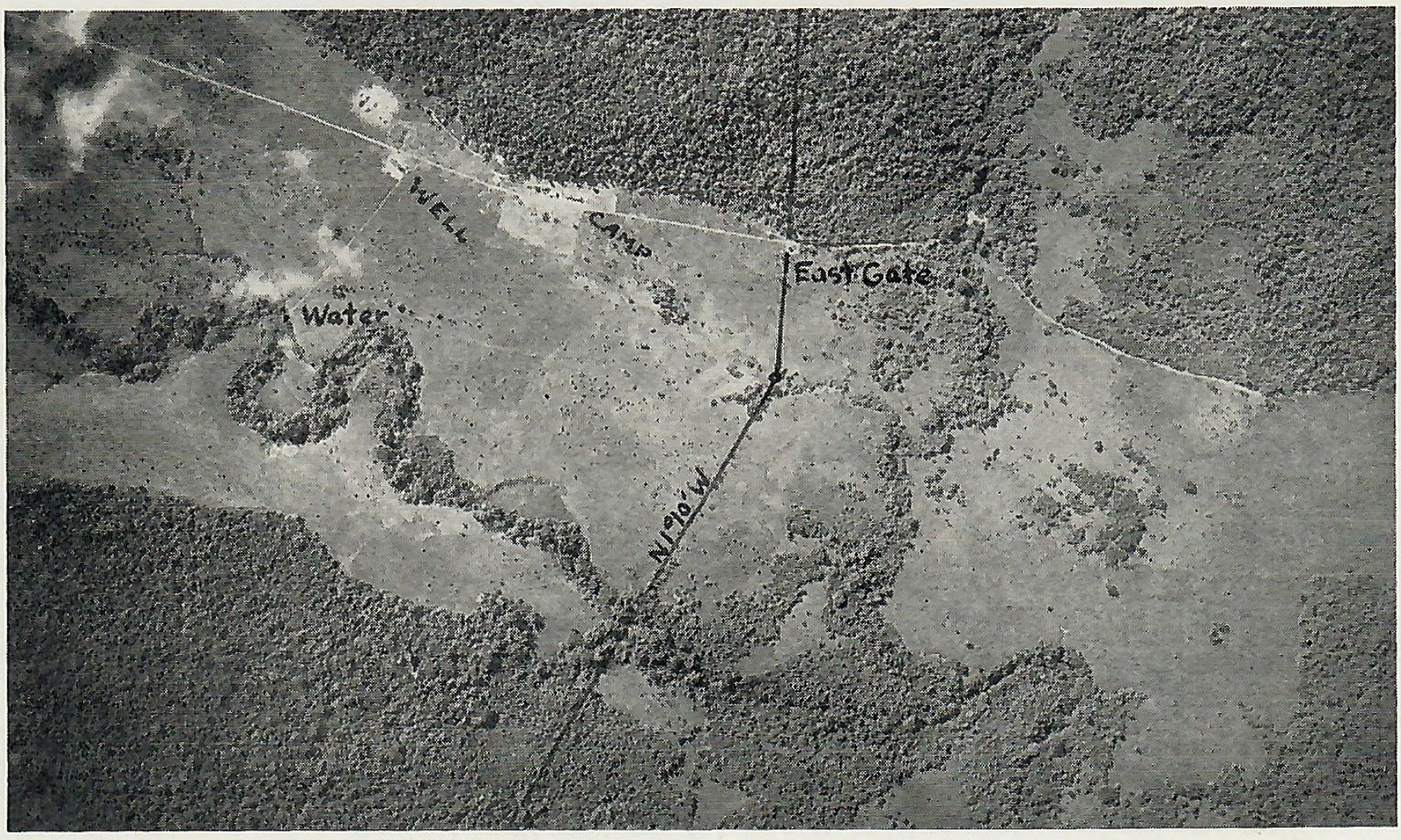
R. D. MATTHEWS

The New Mexican Subsidiary

By HUGH MATIER

A NEW Union Oil subsidiary company, to be known as the "Compania Mexicana de Petroleo 'Union' S. A.," was organized during November, with local headquarters at Avenida Hidalgo No. 1, Tampico.

The subsidiary has acquired from George G. Hunt, S. en C., all that firm's interest in the Miahuapam Concession amounting to 10,650 hectares or about 25,000 acres. The land is owned by the Tremari family of Papantla, Vera Cruz,



Airplane photograph of a portion of the Union Oil Company's lease on the Miahuapam Concession, state of Vera Cruz, Mexico. The picture was snapped from 12,000 feet. The cinder-like surface is in reality a densely wooded area where the trees grow to a height of 70 feet or more.

Miahuapam No. 1 which it is hoped may prove up new production area

and is regarded as a possible extension of the famous "Gold Lane." The progress of Miahuapam No. 1, being drilled on this property, as a result, is being followed with considerable interest.

The officials of the new company are L. P. St. Clair, president; Chester W. Brown, vice-president; Ralph M. Putman, vice-president and general manager, with headquarters in Los Angeles. John A. Hendricks has been appointed manager in Mexico, and will have charge of the company's local business in that country. Frederick Steinkruger is secretary of the corporation and has charge of the office at Tampico.

H. R. Sheffler, formerly one of Charles Woods' tool pushers in the Valley Division, is in charge of the active drilling of the well. He has been in Mexico for several months.

The holdings in the Miahuapam Concession taken over by the new subsidiary are located to the south of the Tuxpam River, a journey of about two and a half days by launch and horseback from Tampico. The same trip can be made by airplane in an hour and a half, and as a result of this tremendous saving in time, airplanes have been used frequently to carry passengers, supplies and tools to the site of the well, particularly in emergencies.

The surrounding country is densely wooded, but just where the well is being drilled is a potrero, or open pasture land, which has been cleared to provide a landing field for planes. Another private landing field has been constructed by the Aguila Company at their Mectapec property, nine kilometers south of the Union's well.

The airplane view of the well, camp and surrounding country was taken from a height of 12,000 feet. The bare looking space in the center is the potrero on which grass grows higher than a man's head during the spring of the year. This makes excellent pasturage for the animals of the hacienda. In the fall the dry grass is burned over and in the spring the heavy rains bring up a luxuriant crop and in places it becomes necessary to be on horseback to see over the top of it. The dark sinuous streak through the center of the picture is the Miahuapam River, which during the rainy season becomes a raging torrent. Its course is outlined by the trees which line its banks. The area that appears to be covered by cinders is really covered by a dense growth of trees which are in most cases seventy feet or more in height.

Ralph M. Putman, general manager of the new subsidiary, right, and Frederick Steinkruger, secretary. The photo was taken on a recent visit Mr. Putman made to Mexico.

THE SPARK OF LIFE

By C. C. MOORE, JR.. *and* M. S. REYNOLDS

Editor's Note—Mr. Moore and Mr. Reynolds are research engineers in the Los Angeles laboratory of the Union Oil Company. In the following article they have entertainingly explained to "Mr. Buyer," who is the average motorist, why he gets more power out of Union Ethyl gasoline. If you want to really know something about the functioning of your motor read "The Spark of Life."

MR. BUYER was taking advantage of the privileges offered to members of the Automobile Club of Southern California of obtaining full information covering the condition of the roads, etc., for a proposed week-end trip. After having secured the necessary maps, together with the information that the mountain roads were free from snow, he stepped over to the license plate counter to see what they had in store for him in the way of a license number that he probably would be unable to remember. As he was leaving, a voice at his side remarked, "Hello, Mr. Buyer," and upon turning around he recognized his friend, Motor Mike.

"Mike," said Mr. Buyer, "you're just the man I'm looking for. I recently bought myself a new high compression car with a lot of 'trick gadgets' on it. It runs fairly well, but somehow it has never had the pep that the advertisements tell about, and it doesn't seem to act as well as the salesman's demonstrator that I tried. Have these modern high compression automobiles all the pep that is claimed for them, or is fifty per cent of it just advertising?"

"By pep do you mean good hill climbing ability, good acceleration, or maximum top speed?" asked Motor Mike. "Most of the modern high compression cars have plenty of engine power to live up to the factory claims if the motor is properly adjusted."

"Of course I want reasonably good performance on hill climbing and top speed, but what I am really interested in is quick and smooth acceleration. Most of my driving is through town traffic, and I notice a good many cars leave me behind when the traffic signal says 'go'."

Motor Mike grinned. "The chances are I know what is wrong with your car. What kind of gasoline are you using?"

"Oh, just ordinary white gasoline," said Mr. Buyer.

"And does your motor knock on a long, hard pull?"

"No."

"Well," said Motor Mike, "that's the answer."

Mr. Buyer looked a bit foggy. "You mean that the reason I don't get good acceleration is because my motor doesn't knock on white gasoline? As I remember it, you told me that knocking was audible detonation, and that detonation caused a decrease in power."

"You are correct in that," said Motor Mike, "but what I meant was that if your high compression engine didn't knock on a long, hard pull when you were using ordinary white gasoline, your spark must be considerably retarded, as otherwise you would get severe detonation. If the carburetor is set too lean, the motor will spit and back-fire, and the average motorist will do something about it. However, he regards spark setting as 'just one of those things,' and doesn't give it much attention, whereas, as a matter of fact, on any kind of an engine, and a high compression engine in particular, the correct spark setting is of utmost importance. Anywhere from 5 to 50 per cent of an engine's power can be lost by improper spark setting."

"How is that possible?" asked Mr. Buyer. "Of course, I know there has to be a spark to ignite the explosive mixture

in the cylinders, but it was my impression that when you ignited an explosive mixture there was an explosion, and each explosion represented just so much available energy."

"A good many people have about the same idea. If you have two firecrackers of the same size, one with a long fuse and the other with a short fuse, they will each explode with the same degree of force. However," went on Motor Mike, "the firecracker has its explosive mixture, or gunpowder, wrapped up in a tightly rolled paper or cardboard shell, while the automobile engine has its explosive mixture confined by a stationary cylinder head and cylinder walls, and a constantly moving piston. The electric spark from your ignition apparatus acts as the fuse in this case, and the time at which the spark occurs, in relation to the position of the piston, determines to what degree the explosive mixture is compressed before firing. You remember I told you before that the more a gas was compressed before firing, the more potential power it possessed."

Mr. Buyer was beginning to realize that there are a good many fine points to the design of a modern automobile.

"You know," said Motor Mike, "many people think of the explosion of a gasoline-air mixture as taking place instantaneously, but actually it takes an appreciable length of time. When a mixture of gasoline vapor and air is ignited, the mixture starts to burn just as a piece of paper burns when lighted with a match, although, of course, it burns much more rapidly than the paper. On account of the appreciable time required for burning, the gasoline-air mixture is usually ignited somewhat before the piston reaches top dead center and starts on its downward or power stroke. Of course, the piston has to do a certain additional amount of work, before it reaches top dead center, to overcome the higher pressure generated by the burning gases, but this amount of work is insignificant as compared to the full amount of energy obtained on the down stroke from the explosion. As you know, the crankshaft of an automobile is really just a series of levers that are connected to the pistons by the connecting rods, and the greatest power is obtained from an engine when the burning process starts at such a point that the combined effect of crankshaft leverage and explosive pressure produces the maximum torque, or turning effort. If the ignition takes place too early, the peak explosion pressure may be developed too near the top of the piston stroke, so that the piston has to do almost as much work in compressing the burning gases as it gains from the expansive force of the gases after upper dead center is passed. This, of course, means lost power. If the ignition is too late, so that the piston is past top center and is on its downward stroke, the explosive mixture is not sufficiently compressed to deliver its full power at the time of ignition, and a very considerable proportion of the explosive force is lost through the exhaust system, as the gases will not have had time to burn completely before the exhaust valves open."

Mr. Buyer's appreciation of the modern automobile engine was increasing by leaps and bounds.

"I haven't mentioned anything about detonation," said Motor Mike, "although, on the modern high compression engine, ignition timing and detonation are very closely related. If the ignition is too late, no detonation will be observed, as the maximum explosive pressures generated will be comparatively low. If the ignition is too early, however, detonation is likely to be quite pronounced, because very high explosive pressures may be generated when the piston is at top dead center. If the gasoline used is an anti-knock fuel, such as Ethyl gasoline, higher compression and explosion pressures may be used without detonation developing, although even a first-class Ethyl gasoline can be made to knock by too great a spark advance."

During their conversation, Motor Mike and Mr. Buyer had strolled down the steps from the Auto Club and were now standing beside Mr. Buyer's new car.

"I have about an hour to kill before an appointment that I have," said Motor Mike. "Let's try out this new car of yours, and see just what can be done about it."

Mr. Buyer thought that an extremely good idea, and after a few minutes' driv-

ing they came to a stretch of several blocks of little traveled highway.

"You drive, and I'll catch the time," said Motor Mike. "Hold it at a steady five miles per hour, and then open the throttle wide until after we've passed the 35-mile per hour point, and I'll take the time with my stop watch."

Mr. Buyer did as directed for two trials in opposite directions over the same stretch of road, and then repeated the performance as a check.

Motor Mike had been listening to the engine as well as taking the acceleration time.

"I don't blame you for thinking your car was sluggish," he said, "and from the sound of the engine as well as the time required for accelerating from 5 to 35 miles per hour, your spark is quite late. Just a minute and I'll set it up a bit and we'll see what happens."

After Motor Mike had made a few adjustments in the distributor head, they repeated the test, and this time very different results were obtained. A considerable decrease in time of acceleration could be noted, but at the same time a very alarming sound came from under the hood of Mr. Buyer's new automobile. It sounded as though all of the wrist pins were loose and with a "Wow, what's that!" Mr. Buyer eased up on the accelerator.

"That," said Motor Mike, "is a first class example of my old friend detonation, and it means that I advanced the spark too much for the gasoline that you are using, although it ought to be about right for Ethyl gasoline. Rather than waste any more time on adjusting your engine for something that it was not designed for, let's drain out what little white gasoline you have in the tank and fill up with Ethyl. Ethyl gasoline was made for high compression automobiles, and high compression automobiles were made for Ethyl gasoline. The two were designed for each other, and must be used together to obtain the best results."

"Sure," said Mr. Buyer, "we'll fill her up with anything you say. I want to get this business straightened out."

After stopping at a Union Oil station, they resumed their test. In the next test run, no detonation was apparent, and Motor Mike decided that a slightly greater improvement could be obtained by just a little more spark advance. The results obtained, after the adjustment had been made, indicated that he was right, and Mr. Buyer was wearing a broad and satisfied smile.

"Well," said Mike, "we've improved your acceleration almost twenty per cent, and, according to the stop watch, you're doing just about what the factory claims you ought to. When we first tried the car, the spark was very late, and a good percentage of your available power was going out your muffler. Our second trial was with too much spark advance for white gasoline, although not quite enough for ideal operation with Ethyl. You can, of course, have too much spark advance even for Ethyl gasoline, and you will then lose power and get bad detonation, too, due to high explosion pressures being generated before the piston reaches dead center on its upward stroke. Finding the correct position for the spark requires a certain amount of careful work, although it usually happens that when the spark is advanced to such an extent that any further advance will cause detonation under full load conditions, the best results as to hill climbing and acceleration are obtained. For really high speed work, a slightly greater spark advance than this should be used, for as the car speed increases the piston speed increases, while the speed of explosion or ignition remains constant, and this means that a greater lead in ignition must be taken in order to secure the proper timing of the combustion."

"Well," said Mr. Buyer, as he was bringing Motor Mike back to keep his appointment, "I know one thing. With the ignition properly set, and when using Ethyl gasoline, this car is a real automobile. You have made me a firm believer in both high compression engines and Ethyl."

There's just one thing to remember," said Motor Mike as he was bidding Mr. Buyer good-bye, "modern high compression engines and Ethyl gasoline were made for each other, and when the carburetor and ignition are properly adjusted, it's mighty hard to beat the combination."

SINKING OF BARGE "1922"

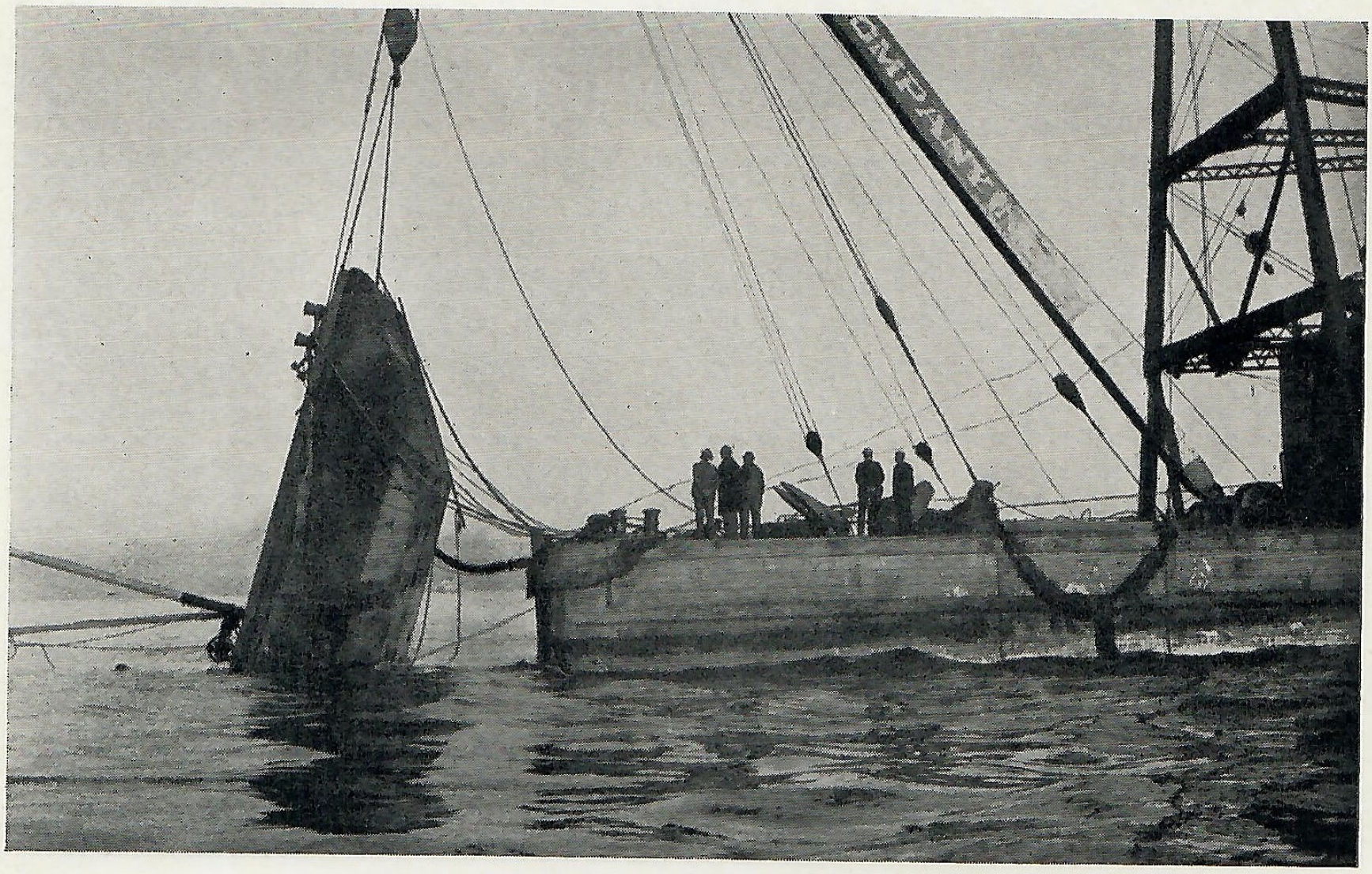
By ALBERT O. PEGG
Superintending Engineer of Marine Dept.

ON NOVEMBER 15, at 8:50 p.m., while the Union Oil Company's barge "1922" was being towed off the northern part of Goat Island, San Francisco Bay, by the Harbor Tug and Barge Company's tug "No. 2", en route from Oleum to Baden, the automobile ferry "San Mateo" suddenly hove in sight. In the passing of the vessels the barge was struck in the after port quarter in the way of the buoyancy space and started immediately to fill and sink.

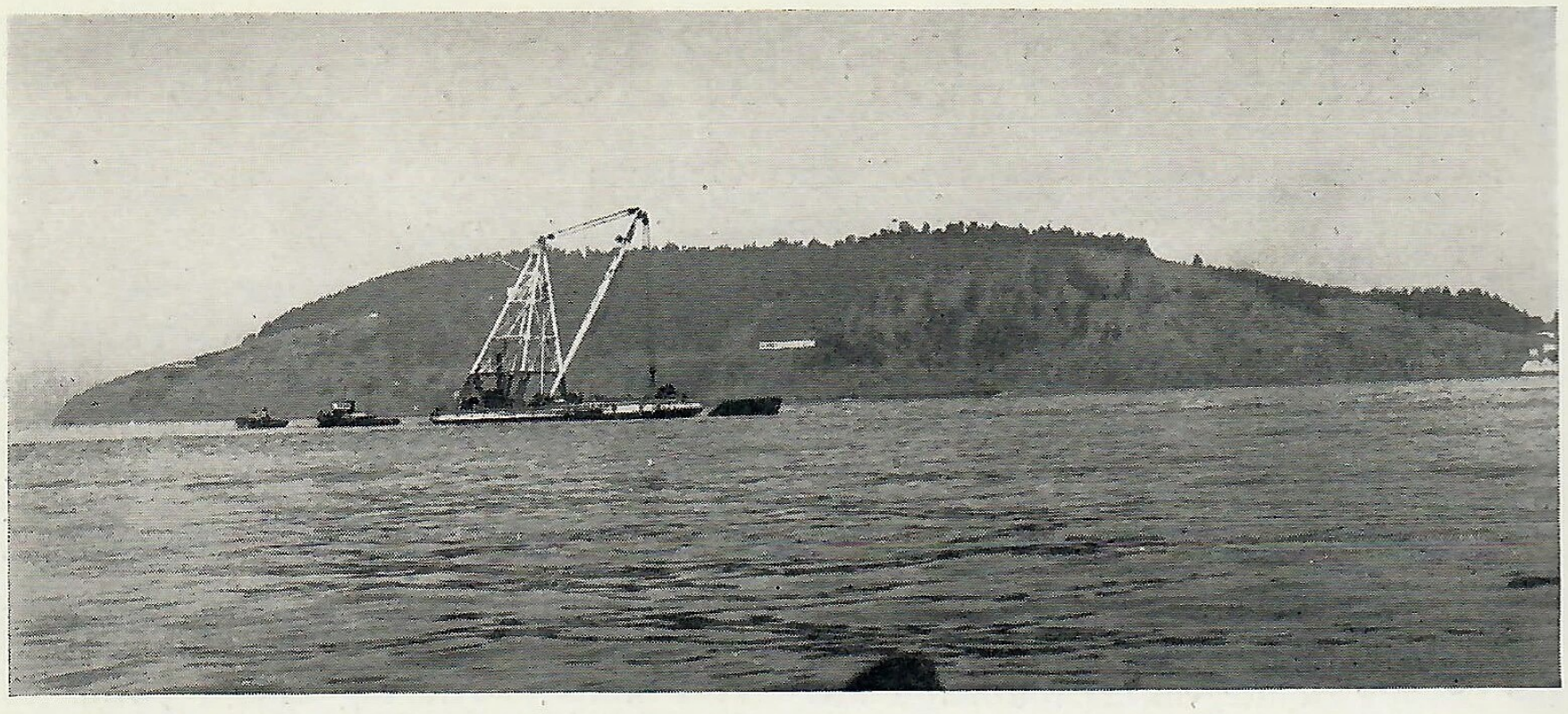
The two members of the crew, realizing that the barge was about to submerge, started the engine and cargo pump in an attempt to jettison the cargo, but the water had gained so much headway they were unsuccessful and the barge began to settle stern first. Fifteen minutes after she had been struck she was completely submerged except for approximately six feet of the forward end. The buoyancy space in the forward end did not fill with water at first, because the oil, being lighter than water, rose to the top. This kept the barge in an almost vertical position with its nose out of the water.

The small tugboat which had been towing the barge attempted to move her toward the beach on Goat Island in order to prevent her from submerging completely as the oil was gradually being displaced with water. The tug lacked power to move her and she began drifting toward the southerly part of the island directly in the path of the ferryboats. The "San Mateo" was found not to have been seriously damaged and she stood by to render any assistance she could.

When it became apparent that the tugboat would be unable to cope with the situation her crew went ashore and reported the accident to the writer and also to the Harbor Tug & Barge Company. The tugboat officials immediately dispatched additional tow boats and attempted to move the derelict out of the path of the ferryboats. The "San Mateo"



Raising Barge "1922" off bottom of bay.



Derrick barge alongside sunken oil barge off Goat Island. The forward end of the "1922" can be seen just protruding above the surface of the bay.

stood by and kept the sunken barge lighted with its searchlight in order to prevent any further collisions.

In addition to the tugboats, a derrick barge, which had a lifting capacity of 125 tons, was immediately engaged and towed alongside the "1922". Heavy cables were passed around the sunken barge and the lifting strain applied to prevent her from submerging out of sight. She was allowed to remain in this manner until daylight the following morning, when a survey was made which disclosed that she was standing vertically in 52 feet of water with approximately 27 feet of the hull submerged in mud. This left approximately nine feet of the barge exposed above the surface of the water. It was also discovered that the barge was resting on the bottom about 50 feet from the Great Western Power Company's power cable. This created a serious situation as the breaking of the cable would entail an expense of about $50,000.

To avoid damaging the cable it was decided to lighten and lift the barge clear of the bottom. Specifications covering the method of this procedure were drawn up and the contract awarded to the Crowley Launch and Tugboat Company, which sent its derrick barge to the scene of the wreck. It was made fast alongside the

Close-up of submerged barge as it appeared anchored to derrick barge.

"1922" and preparations made to pump out its forward tanks. As soon as this had been accomplished the sunken barge lifted approximately 32 feet. With her in this position the diver made a descent to examine the lower section and make certain she was not afoul any cables or other submerged objects. The barge remained in this position until late the following afternoon when advantage was taken of a four-foot rise in the tide to tow her to the north and east until she was in deep water and entirely clear of the cables. She was then towed to the southern part of San Francisco Bay into shallow water, where she was further lightened and finally completely raised.

When she was brought to the surface it was found that the living quarters and pump room were virtually filled with mud. When this was washed out a number of sharks and sting-rays of large proportions were found within the house. All windows and doors with the exception of one door on the port side were closed and while the barge was resting in the mud on the bottom these marine denizens found their way into the house through the one open door.

Great assistance was rendered those in charge of raising the barge by William K. Cullen of the Great Western Power Company. By means of radio equipment which his company had installed on one of its tugboats it was possible to keep us advised at all times as to the location of the barge relative to the company's cables.

During the five days the barge was submerged we were graced with exceptionally fine weather, smooth seas and an utter absence of fog.

Sixty Thousand Miles by Air

SINCE last April when the first plane of the Union Oil Company's air sales fleet was purchased, ships piloted by members of the Technical Relations Department, in their campaign to sell Union aviation products the length and breadth of the Pacific Coast, have been flown more than 60,000 miles and have been in the air more than 650 hours.

This record reveals to what extent the planes have been used in the short time they have been at the department's disposal. Rolled up in the total mileage covered are trips from Los Angeles to New York and Los Angeles to Illinois, in the interest of the National Air Races; a dozen or more flights between San Francisco and Los Angeles; a 5100-mile flight to Washington and Oregon, which included stops at thirty-four different cities; a half dozen or so flights between Los Angeles and Phoenix and other Arizona cities. All of these have been made in addition to numerous flights

Company's fleet of four planes. The two on the left are Travelairs and the two on the right Eaglerocks.

Members of the Technical Relations Department who are pushing the sale of Union aviation products on the Coast. Left to right—H. R. Greatwood, assistant to manager; W. E. Carey, Southern Division aviation representative; C. F. Lienesch, head of the department; Roy Harding, Northern Division aviation representative, and D. A. Cain, aviation lubricating engineer.

made to the various airports of the state from both San Francisco and Los Angeles, and virtually all have been made to contact with prospective buyers of Union Oil products.

Time and again in the past few months members of the department have been sent off at a moment's notice to close valuable contracts that might have been lost had it not been for the speedy contact made possible by the planes. The four planes owned by the company are small and it is possible to "set them down" about any place that a plane can land. This feature has enabled the Union's representatives to stop at some airports that larger planes would have been compelled to have passed up.

The first plane of the present fleet, a Travelair OX-5, was purchased last April. The second, a Travelair, powered by a Wright whirlwind motor, was added in August and the two present Eaglerocks, powered by Hallett radial air cooled motors, were delivered in November.

The Union Oil Company is believed to be the first on the coast to employ pilot-salesmen in pushing its sales campaign. It is one of the developments of aviation that is being watched with interest by aeronautical enthusiasts on all sides. The men who pilot the Union planes for most part are the men who sell the aviation products to the airports and transport companies. In diving out of the clouds they hurdle many of the sales barriers they might otherwise encounter. They speak the language of the aviator and they know his needs. Their own performance lends weight to their sales arguments.

The Technical Relations Department, under the direction of C. F. Lienesch, manager, in the short time it has been in operation has had a hand in two of the outstanding aviation events of the year. The flight of the Southern Cross and the endurance flight of Brock and Schlee, during which they established a new American record.

Five Round Trips To Moon

THE Union Oil Company's 1197 trucks and 1080 automobiles, operating over an area of approximately one million square miles, in the past year have covered, in round numbers, 24,000,000 miles, which is just about 400,000 more miles than was covered by a slightly smaller automotive fleet in 1927. If you

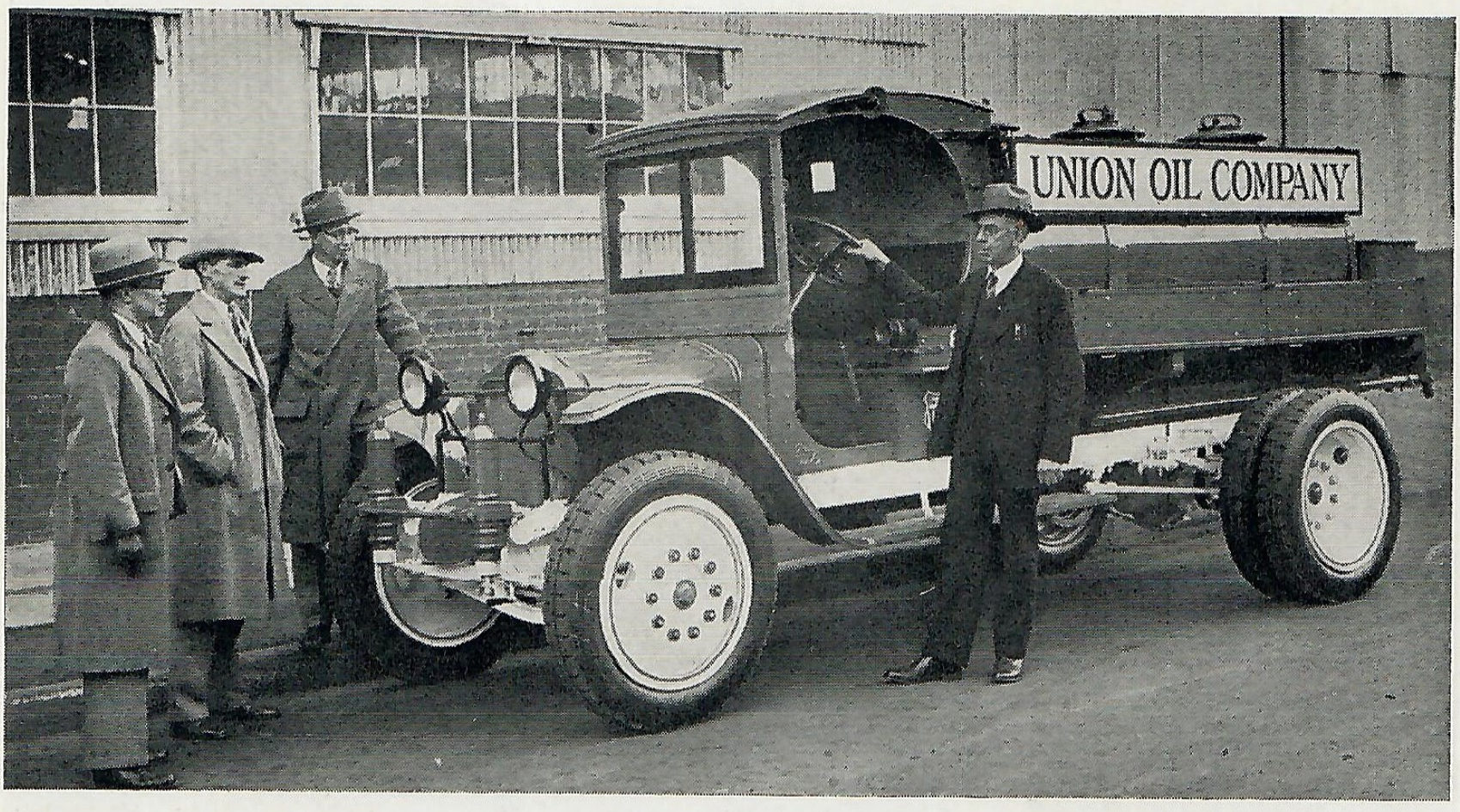
read these figures quickly they may not mean so much, but if you will take a peek at the moon on some clear night and picture this string of trucks and automobiles on a specially built speedway making five round trips to that luminous luminary in the course of a year, with five trips around the world thrown in for good measure, you may get a sketchy idea of the ground that has been covered in the year just closed.

Of the entire fleet, about 1027 trucks and 749 automobiles, or approximately 80 per cent of the total, are used by the Sales Department in selling and marketing the company's products. Direct responsibility for the mechanical operation and maintenance of the Sales Department fleet rest with the Automotive Division of that department. To meet this large assignment the Automotive Division operates nine completely equipped garages in addition to keeping a corps of traveling mechanics, provided with specially equipped automobiles, on the highways to service the company's cars and trucks found to be in the need of attention. The personnel of the division totals approximately 130.

In getting the maximum efficiency out of the machines, consistent with economy of operation, the division is compelled to do an immense amount of research work and keep an accurate record of each vehicle. When it is found that a vehicle can no longer be economically operated it is replaced. Great care is exercised in the selection of equipment and once a truck or car is placed into service its intelligent use is stressed as much as the efficient care and timely repair of the vehicle.

The automotive superintendents for each division are called together once or twice a year by J. W. Sinclair, Supervisor of Automotive Equipment, to discuss the maintenance and operation of trucks and passenger cars, and exchange views on the subject. A conference of the superintendents was held in Los Angeles last month. Those present were Mr. Sinclair, C. G. Bussey, superintendent of the Southern Division; J. E. Knabb, superintendent of the Central Division, and A. C. Dockrell, superintendent of the Northern Division.

The first automobile of the Union Oil Company was placed into service in 1908. That year three automobiles were purchased. The first truck was bought in 1910. Eight years later the company had 254 automobiles and 356 trucks. By 1923 the number of trucks had increased to 915 and the automobiles to 715.



Mr. Sinclair, Mr. Bussey, Mr. Knabb and Mr. Dockrell of the Automotive Division of the Sales Department inspecting a rejuvenated White truck made to look ten years younger by the installation of new parts, pneumatic tires and a coat of paint.

New World Speedboat Record

THE fastest five miles ever clipped off by a hydroplane of the 151 class, limited, was turned in by Miss California at the third international speedboat regatta at San Diego, December 15, ending a four-year quest on the part of Dick Loynes, owner and pilot of the speed craft, for the famous Elgin Trophy.

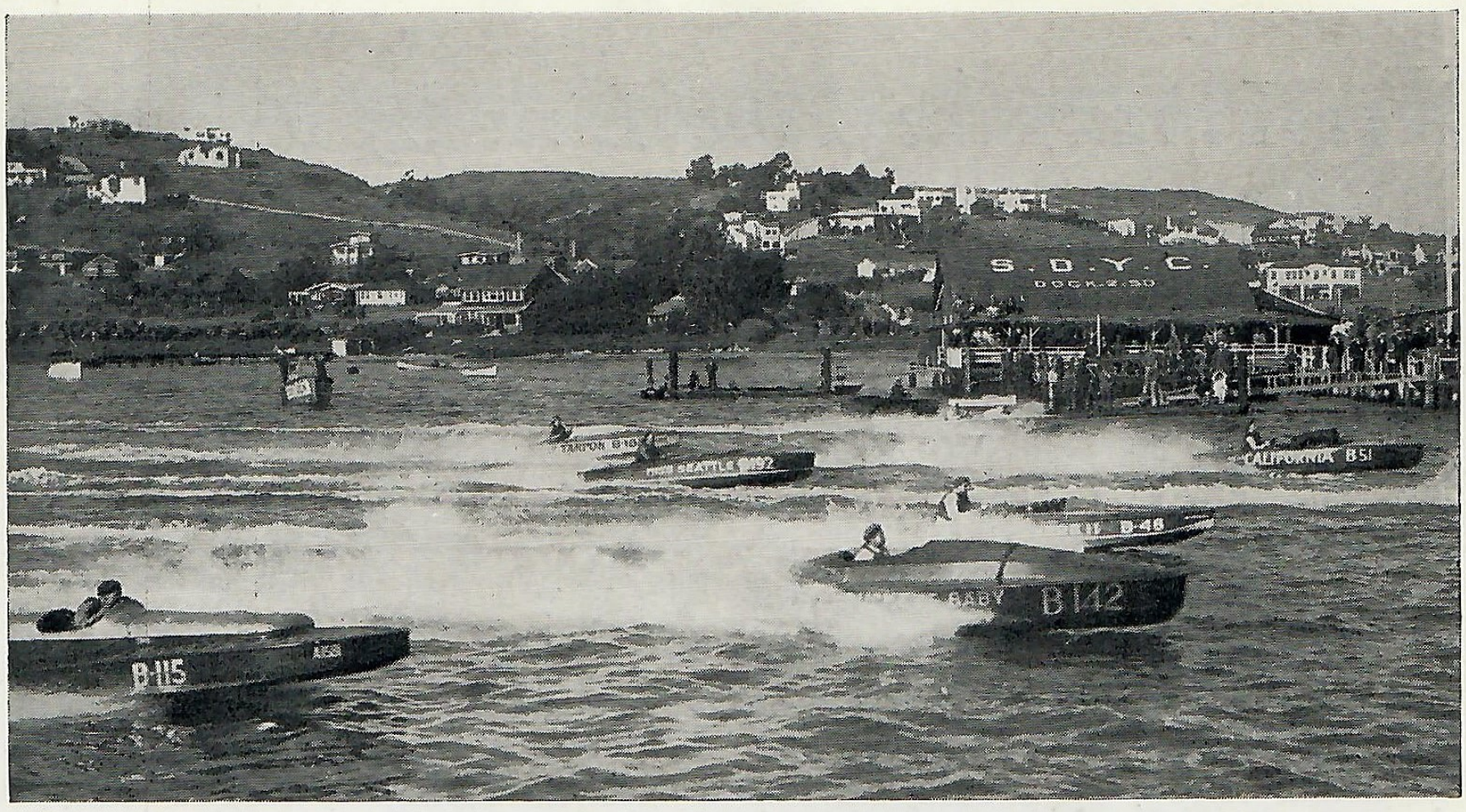
Time and again in the past the ever-smiling Long Beach sportsman has tried for the big cup, only to fail by a narrow margin. This year he decided to make the supreme bid for a new world's record "riding with Ethyl," and he certainly had some ride. The ten speedy hydroplanes in the races flashed across the starting line pretty well bunched with Miss California slightly out in front. As Loynes opened up the throttle his boat fairly leaped through the air and from then on he was never headed during the two laps around the bay course. His motor ran perfectly, and by skillful and daring piloting on the curves Loynes was able to ward off every challenge to his leadership.

Loynes' time of 49.08 miles per hour for the five-mile course is virtually two miles per hour faster than the previous record of 47.12 established last year by the Angeles I, now owned by James Talbot, Jr.

Miss Westchester II, owned and piloted by E. W. Hammond, New York manufacturer, and Smiling Dan IV, owned by Loynes, both fueled with Union Ethyl gasoline, placed second and third, respectively, in the race in which Loynes set the world's record.

First and second places in the supercharger 151 class were won by Miss Westchester II, piloted by C. F. Carter of Danville, Ill., and Miss Westchester III, piloted by Mr. Hammond. Both boats used Union Ethyl gasoline for the event. Miss Westchester II's performance was especially remarkable in that she was the only boat in the event racing without a supercharger. In the first heat, which she won, Miss Westchester II made an average speed of 44.73 miles per hour. The second heat was won by Miss Westchester III, with Miss Westchester II

Dick Loynes, right, who set new world's speed record with Miss California for the 151 *class, limited, congratulates E. W. Hammond, on his victory in the* 151 *supercharger race.*

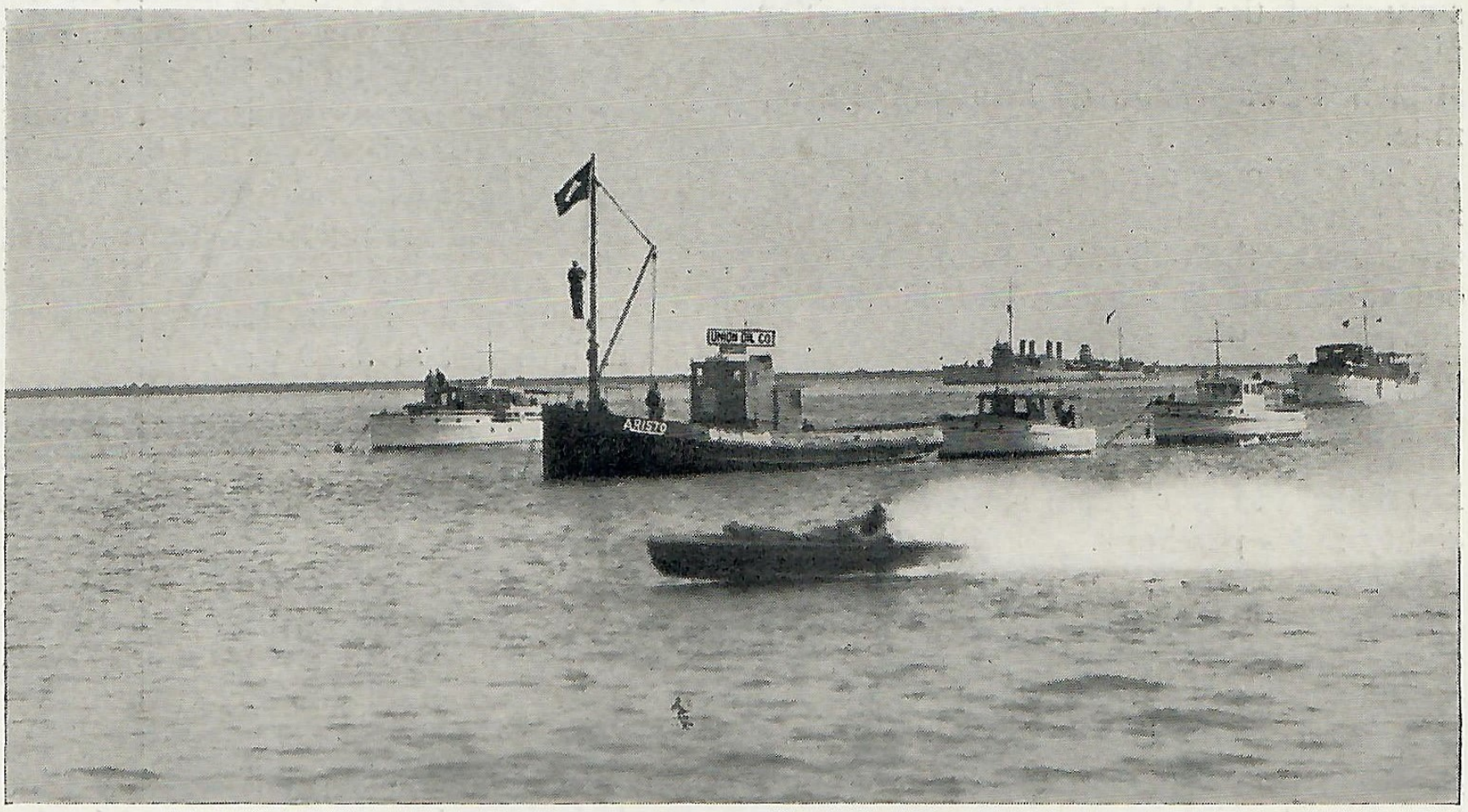


Start of 151 race in which Dick Loynes established an average speed of 49.08 miles per hour for the five-mile course, a new world's record. Loynes' Miss California is shown at the extreme right.

third. By virtue of scoring the highest number of points for the two heats Miss Westchester II captured the Richfield trophy.

The west basin of San Diego harbor, protected as it is from disturbing winds, proved an ideal place for the regatta. The weather was perfect and there was hardly a ripple on the surface while the races were under way. The long gray torpedo boat destroyers, lined up in mid-channel, along with the scores of motor boats and express cruisers, provided an effective background for the speed events. The two-day racing program brought out some of the speediest boats in the country.

In the few years that he has been racing, Loynes has become one of the most popular speedboat owners and pilots in the country.

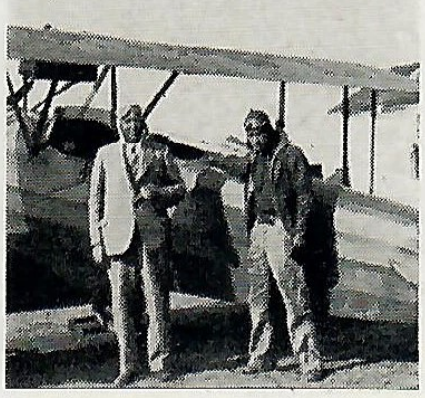


E. W. Hammond, setting a hot pace with Miss Westchester III in second lap of supercharger event, snapped as he passed the Union Oil Company's tug. Note the destroyer in the background.

Piping the Pipe Line by Air

By LAFE TODD
Supt. Producers Pipe Line

IT WAS not so many years ago that an inspection trip over the Producers Pipe Line called for a tedious journey by team and wagon covering a period of several days. With the advent of the automobile and improved roads the time for the trip was cut in half. Recently, through the courtesy of Robert Donze of the Chadbourne-Donze Air Service, an inspection trip was made by the writer in a Waco plane over the Producers Pipe Line in eight hours.



Lafe Todd and Robt. Donze

We took off from Clark Field at San Luis Obispo at 9:30 o'clock on the morning of the trip. After circling the field to gain sufficient altitude to cross over the Cuesta Grade we headed out over the summit of the Santa Lucia range. The pipe line proved an excellent guide as it stretched away below us clearly mile after mile.

As previous arrangements had been made with each station to report our progress to the office, we found the boys out at stations looking up and not toward the gate, as they usually do when we go over the line by automobile.

When we approached Shandon we found the air "bumpy", but this did not last long and our plane settled down to eighty miles per hour.

After passing Antelope Station we cut across to Dudley Station, then north to Coalinga. Here we were able to obtain a good view of the Milham's new well in the Kettleman Hills, with its steady stream of trucks and trailers hauling the oil to Coalinga.

We arrived at Coalinga Field at 10:40 a.m., just an hour and fifteen minutes after leaving San Luis Obispo. Mr. A. E. Brown met us at the field, and after a visit and inspection of fifty minutes at the station we took off for Taft.

As we drew near to Middlewater Station, Mr. Donze kept gaining altitude. It grew quite cold and I was indeed glad that he had provided me with his old fur-lined war helmet which he used in France as a member of the Lafayette Quadrille, as it was fur lined and gave me protection from the cold.

Mr. Donze cut off his motor at my request and I asked him why the altitude. He said it was in order to go over the mountains straight ahead, meaning the Templor Range. When I explained the proper direction we returned to our former level.

On flying over the route from Middlewater to McKittrick, I realized what the builders of the pipe line had to contend with.

We hit some "bumpy" air near Shale, but it did not last long. We landed at the Taft Field at 1:09 p.m. Mr. Straley, pipe line foreman, met us in his car. After calling on the sales department, where the plane was serviced, we had lunch and then drove on to Midway Station. After spending an hour and fifty-five minutes with the crew at this point we left for Bakersfield at 3:04 p.m., landing at Kern County Airport at 3:20 p.m.

Due to our timidity as to night flying, we spent only twenty-nine minutes at Kern Station, being met by Gauger St. Marie.

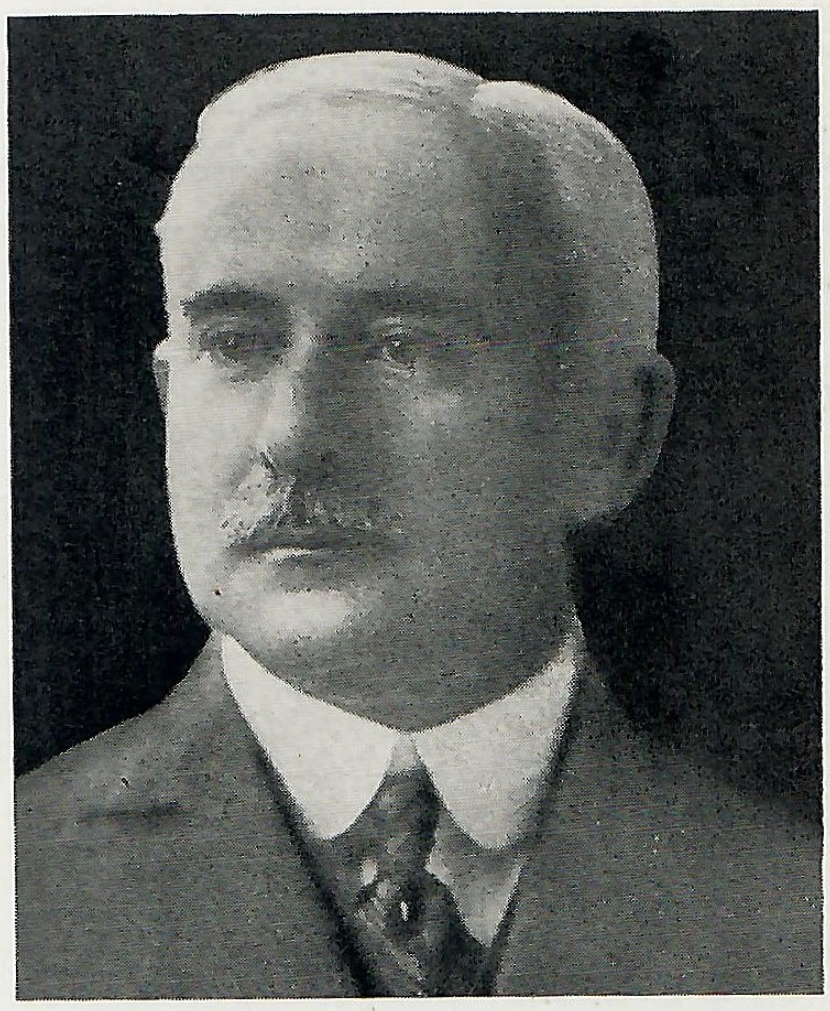
We left Bakersfield Airport at 3:49 p.m. and proceeded west over the Pipe Line to Clark Field, arriving at 4:57 p.m., one hour and eight minutes from Bakersfield.

No one thought when the Pipe Line was built that it some day would be inspected from the air and the journey made in a few hours.

WILLIAM R. STAATS

WILLIAM R. STAATS, one of California's leading investment bankers and for more than twenty-six years a director of the Union Oil Company, passed away at his home in Pasadena, December 21, following a long illness.

His death leaves a vacancy on the directorate that all concede will be difficult to fill. He has long been considered one of the old standbys of the company.



He was a man of many interests. He was one of the founders of the Southern California Edison Company that has grown into one of the leading public service corporations of the west, and established the investment banking houses, bearing his name, in Los Angeles, San Francisco and Pasadena. He was among those who gave impetus to the building of the Mt. Wilson Toll Road and Hotel; the development of Oak Knoll in Pasadena, and played a large part in inducing the Carnegie Institution of Washington to establish an observatory on Mt. Wilson, which has since become one of the outstanding observatories of the world.

Mr. Staats came to California in 1886 with his parents for his health, giving up his intention to complete his college course at Wilbraham, Mass. The trip to California restored his physical vigor and he soon become one of the promising young business men of the Southland. He became identified with the Union Oil Company through the purchase, with three others, of the late U. S. Senator Thomas Bard's stock. Shortly afterward, May 8, 1902, to be exact, he was elected a director of the company, in which capacity he served up to the time of his death. He also served as second vice-president of the company from January, 1913, to April, 1914.

Included in Mr. Staats' wide circle of friends are the men who have played a prominent part in the upbuilding of the Southland. Because of his diversified activities his friends represented many professions and many lines of business endeavor. With them he shared the vision of the future greatness of Southern California, and at no time was his confidence in its prospective growth shaken.

Mr. Staats was 61 years of age at the time of his death. He leaves a widow and one daughter, Mrs. Clarke Millikan of Pasadena, and two stepdaughters, Mrs. Stuart O'Melveny and Mrs. R. G. Thomas of Pasadena.

CALIFORNIA OIL STATISTICS, NOVEMBER, 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 Nov., 1928	Oct., 1928	Nov., 1927
Kern River	543,964	18,132	11,144	22,453
Mount Poso	2,500	84	162	119
Fruitvale	32,448	1,082	968	...
Round Mountain	1,366	46	102	50
McKittrick	146,009	4,867	4,865	5,017
Midway-Sunset	2,247,248	74,908	73,449	81,367
Elk Hills	586,454	19,549	20,366	24,806
Lost Hills-Belridge	129,711	4,324	4,070	3,843
Coalinga	305,253	10,175	10,510	19,182
Kettleman Hills	78,266	2,609	161	...
Wheeler Ridge	25,183	840	860	960
Watsonville	1,875	63	62	58
Santa Maria	157,264	5,242	5,140	6,582
Summerland	3,648	122	121	131
Elwood-Goleta	251,827	8,394	2,463	280
Rincon	135,408	4,514	4,764	35
Ventura Avenue	1,560,494	52,017	54,246	52,384
Ventura-Newhall	172,794	5,760	5,036	6,108
Los Angeles-Salt Lake	46,360	1,546	1,545	1,696
Whittier	49,259	1,642	1,695	1,738
Fullerton (Brea Olinda)	471,586	15,720	15,707	16,036
Coyote	392,330	13,078	13,092	13,671
Santa Fe Springs	1,640,784	54,693	35,967	38,781
Montebello	325,181	10,840	11,114	13,542
Richfield	513,464	17,116	17,025	22,418
Huntington Beach	1,538,486	51,283	51,334	60,950
Long Beach	5,869,645	195,655	193,129	100,401
Torrance	471,029	15,701	16,182	20,493
Dominguez	309,672	10,323	10,320	14,071
Rosecrans	179,786	5,993	5,913	8,120
Inglewood	832,979	27,766	28,003	31,910
Newport	2,540	85	42	26
Seal Beach	874,609	29,154	26,972	49,988
Potrero	8,104	270	280	...
TOTAL	19,907,526	663,584	626,806	617,216
October	19,430,992	626,806		
Increase	476,534	36,778		

STOCKS

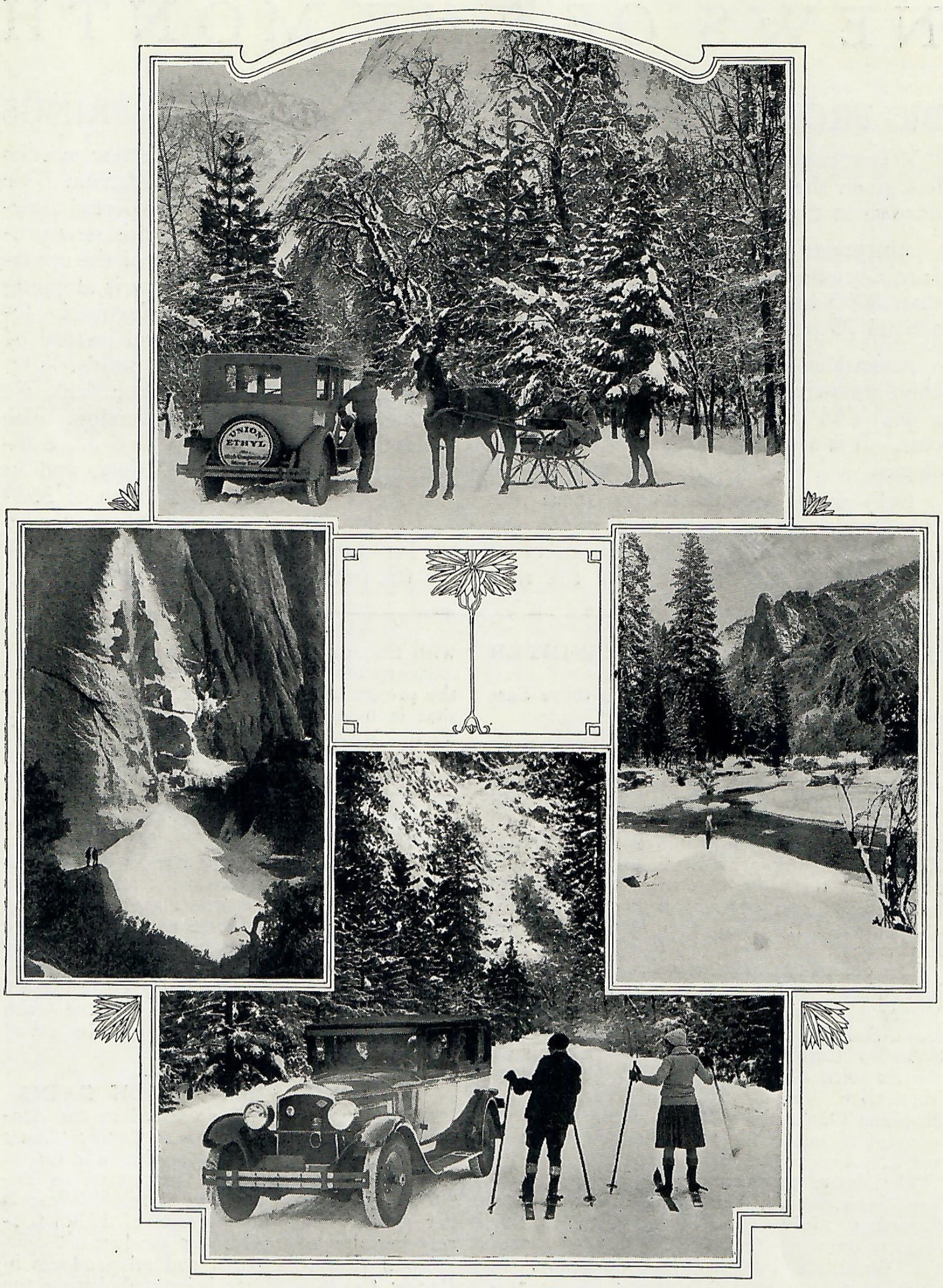
	Nov. 30, 1928	Oct. 31, 1928	Nov. Stock Increases	Nov. 30, 1927
Heavy Crude, heavier than 20° A. P. I., including all grades of fuel	99,772,153	98,449,077	1,323,076	95,212,430
Refinable Crude, 20° A. P. I., and lighter	17,243,243	17,323,160	*79,917	21,371,274
Gasoline	10,802,366	10,626,268	176,098	13,527,472
Naphtha Distillates	1,480,812	1,285,014	195,798	2,039,755
All Other Stocks	9,418,103	9,763,667	*345,564	9,745,428
TOTAL ALL STOCKS	138,716,677	137,447,186	1,269,491	141,896,359

* Decrease.

DEVELOPMENT

DISTRICT	New Rigs Up	Active Drilling	Completed	Daily Initial Output	Active Producing	Abandoned Wells Drillers	Abandoned Wells Producers
Kern River	5	6	3	745	1,223	1	...
Fruitvale	3	9	1	120	2	...	...
Mount Poso	6	7	...	...	1	...	...
Round Mountain	1	3	2	725	2	...	...
McKittrick	...	1	...	...	288	...	...
Midway-Sunset	8	13	6	1,089	2,519	...	3
Elk Hills	...	1	...	...	212	...	...
Lost Hills-Belridge	5	2	5	103	310	...	...
Coalinga	...	...	...	...	788	...	...
Kettleman Hills	1	1	...	...	1	...	...
Wheeler Ridge	1	...	...	...	34	...	...
Watsonville	...	...	...	...	7	...	...
Santa Maria	...	5	...	...	215	...	...
Summerland	...	1	...	...	89	...	...
Elwood-Goleta	4	8	2	7,971	6	...	...
Rincon	1	8	1	175	24	...	...
Ventura Avenue	5	43	4	3,505	137	...	...
Ventura-Newhall	2	23	...	...	523	1	...
Los Angeles-Salt Lake	...	...	...	...	320	...	...
Whittier	...	...	...	...	168	...	...
Fullerton	...	4	...	...	378	...	...
Coyote	...	1	...	...	209	...	...
Santa Fe Springs	30	217	6	25,651	295	...	...
Montebello	...	3	...	...	170	...	...
Richfield	...	5	1	550	271	...	...
Huntington Beach	1	6	1	60	552	...	...
Long Beach	47	142	28	22,356	838	3	...
Torrance	...	...	...	...	608	...	...
Dominguez	...	1	...	...	69	...	...
Rosecrans	...	2	...	...	102	...	...
Inglewood	1	1	...	...	220	...	...
Newport	...	2	...	...	1	...	...
Seal Beach	...	4	3	2,724	138	...	...
Potrero	...	3	...	...	1	...	...
Miscellaneous Drilling	8	117	...	...	...	6	...
November	129	639	63	65,774	10,721	11	3
October	84	638	44	47,449	10,704	4	7
Increase	45	1	19	18,325	17	7	*4
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.



FIRST FALL OF SNOW IN YOSEMITE VALLEY

If there is anything more beautiful than Yosemite in spring—it is Yosemite in winter. These snow-time photographs of the famous valley, taken the week before Christmas, give one an idea of the lure of Yosemite at this season of the year. Top—Near Ahwahnee Hotel on Valley highway. Bottom—Scene on Valley highway near the Isle of Pines. Left—Ice cone forming at foot of Yosemite Falls. Right—Scene along Merced river near Half Dome.

NEWS *OF THE* MONTH

BIG PRODUCERS BROUGHT IN AT SANTA FE SPRINGS

Recent completions at Santa Fe Springs has given the Company's deep zone production in that field a decided boost.

Alexander 14, brought in the day before Christmas, is making slightly more than 8000 barrels a day, with a cut of around 25 per cent.

Alexander 12, brought in New Year's Day, is flowing at the rate of 6500 barrels a day, and is cutting less than one per cent. It is also producing 25,000,000 feet of gas.

Both wells are producing from the Nordstrum Zone, Alexander 14 having been completed at 5540 and Alexander 12 at 5438. When the race for the new Buckbee Zone was started a few months ago the existence of the Nordstrum Zone was not suspected. The unexpected blowout of Getty No. 17 called this new productive area to the attention of the operators and the Union at present is stopping some of its wells, where favorably located, at the Nordstrum level instead of going deeper to the Buckbee sands.

As we go to press two other Santa Fe wells are on the verge of production. The cement is being drilled in Bell 32, completed at a depth of 5415 feet, and in Alexander 11, drilled to a depth of 5530 feet. Bell 33 and 35 and Alexander 10 are standing cemented and will be next to try for production.

UNION STARTS ALL-COAST WINTER RADIO PROGRAM

Ethyl is ruling the ether waves these Saturday nights!

From the Canadian border to the Mexican boundary and beyond the lofty ridges of the Rocky Mountains the radio audience is tuning in each Saturday night on the Union Oil Company's "All-Coast Dance Party." With three of the outstanding dance orchestras on the coast vying with each other for the plaudits of the radio fans the listeners-in are being given one of the finest programs of dance music that has ever been presented in the west.

The company's winter radio program was inaugurated with a three-hour broadcast by Victor Meyers' Victor Recording Orchestra from Seattle, December 22. The following Saturday Earl Burtnett's Orchestra went on the air with a program that was equally as impressive. January 5, Anson Week's Mark Hopkins Orchestra will go on the air in an attempt to outdo the two previous performances.

The dance programs, with novelty numbers interspersed, are being broadcast on Saturday night from nine until twelve o'clock over the Pacific Coast network of the American Broadcasting Company. In addition to the regular stations in the network, KGA, Spokane; KEX, Portland; KJR, Seattle; KYA, San Francisco; KFRC, San Francisco and KMTR, Los Angeles, the chain will include KHJ of Los Angeles.

The "All-Coast Dance Party," which will run for a period of ten weeks, is being presented by the Union Oil Company to acquaint the vast audience of the radio world with the real merits of "Union Ethyl."

Exceptional interest is being created in the programs because of the sectional rivalry that is being injected pleasantly into them. Victor Meyers' Orchestra is looked upon as the best in the Northwest and residents in that area are anxious to compare their own musicians with those in California to convince themselves that they have the best orchestra on the coast. The Mark Hopkins Orchestra is equally popular in San Francisco and Northern California and residents in that region will welcome the opportunity to compare it with Earl Burtnett's Biltmore Orchestra in Los Angeles and Victor Meyer's Orchestra in Seattle.

The orchestras are playing on alternate Saturday nights until the close of the tenth week when the three will go on the air at the same time.

NOVEMBER PRODUCTION GAINS

According to figures collected by the American Petroleum Institute, Pacific Coast Office, the total production of Crude Oil in California for November amounted to 19,907,526 barrels, an average of 663,584 barrels per day. This is an increase of 36,778 barrels per day over October production.

Total stocks of crude and all products in Pacific Coast territory increased during the month 12,269,491 barrels. The total stocks at the end of the month were 138,716,677 barrels.

63 wells were completed during the month with an initial daily production of 65,774 barrels, compared with 44 wells completed during October with an initial production of 47,449 barrels.

CANADIAN COMPANY BUYS TANKER

The S. S. "Hopsborg," a 12,000-barrel tanker built by Otto Anderson & Co., at London, England, has been purchased by the Union Oil Company of Canada, Ltd., for service in British Columbia and Alaskan waters. Delivery of the tanker was made in Rotterdam and she sailed, December 7, en-route to Vancouver, B. C. She will be used primarily to carry refined oil products.

The "Hopsborg" is the latest type of twin-screw direct diesel-driven tanker. She has a length of 207 feet, a beam of 33.5 feet, a depth of 15 feet 9 inches. Her cruising speed is nine knots and her deadweight tonnage is 1383; gross, 943 and net, 484. She is given a Class 100 A-1 rating by Lloyds.

The "Hopsborg" is the second tanker to be put into service by the Union Oil Company of Canada. The "Olinda" was the first.

DIESEL TANKER LOADS HERE

The M. V. "Brunswick," of 13,000 tons deadweight, equipped with the most up-to-date diesel-electric system of propulsion and recognized as the largest tanker of its type afloat, loaded a cargo at the Union Oil Company's dock at the foot of Pier "A" street, Wilmington, December 18, for delivery to the Antipodes.

The big tanker is the latest addition to the Atlantic Refining Company's fleet and is being put into service between Los Angeles, New Zealand and Australia by the Atlantic Union Oil Company, Ltd., which is jointly controlled by the Atlantic Refining Company of Philadelphia and the Union Oil Company of California.

The new tanker has a capacity of 120,000 barrels, 6,000 barrels diesel bunkers, and storage space and equipment for handling package goods, case gasoline, kerosene and lubricants.

The "Brunswick" was built on the Clyde, Scotland, and completed this year. It can be entirely controlled from the bridge by one man by simply manipulating a single master control lever. The electric propelling motors can be started, stopped or reversed at will. Steering is also automatic.

HOCKEY SEASON UNDERWAY

With a 3-2 victory over the Clan Scots and a 3-3 tie with the La Natividad Cigar Co. team the Union Oil Company's hockey squad has started the season with an impressive record. "Wasp" Simington, one of the forwards, has turned out to be the star of the team and one of the most popular players in the league.

SERVICE STATION WINS PRAISE

The accompanying photograph of the company remodelled service station at the corner of Arlington avenue and State street in Santa Barbara shows what engineering and architectural skill can accomplish. The lot on which the station is erected is only 30 feet wide by 112 feet long, and is considerably smaller than the space usually regarded as necessary for a first class service station.

A close examination of the photograph reveals that it provides every facility that could be asked for in a service station. None of the utility features have been sacrificed, and none of the artistic touches have been overlooked. The station has attracted considerable attention in Santa Barbara and has been highly praised by all who have seen it.

Union Oil engineers put model service station on 30-foot lot in Santa Barbara.

Oleum puts snappy team in Bay District League.

FORM BAY DISTRICT CAGE LEAGUE

The San Francisco Bay District Union Oil Basketball League has been organized and the play for the championship is now under way. The games played so far have brought out some mighty keen competition. The league is getting splendid backing from the employees of the company in the Bay District. San Francisco, Oakland, Pittsburg and Oleum are represented in the tournament.

CUBS WIN FIRST GAME

The Union Oil Cubs started off the season in the Commercial Basketball League with a 17 to 6 victory. Although there are only two members of last year's team back (Tatman and Jamison) the team is showing considerable strength. The line-up for the opening game was as follows: Jamison, Capt. and center; Tatman, forward; Poulton, forward; Bathurst, guard, and Woolpert, guard.

THE JANUARY COVER

Clyde Forsythe has caught the spirit of the old and the new in the cover for this month's Bulletin. There is a hint of bewilderment about the aged prospector as he pauses in his weary trek across the desert to watch the approach of the sky-rider, typical of the new age in which he lives and yet of which he is not a part. With fatality born of years spent on the desert and on mountain trails the old prospector clings to his burros and his covered wagon, a picturesque figure rapidly passing from a picturesque period in our American life.

DEPARTMENT HEADS IN SONG

The girls on the Fifth Floor at the head office in Los Angeles, where sojourn the directing geniuses of the geological and field operations departments, staged a Christmas entertainment that is still being talked about. And here is one of the songs they sang:

Mr. Brown goes out of town, to see the
Cards and Bears renowned,
But Oh my, the town went dry,
That's his weakness now.

In Santa Fe when things get hot, you'll find
F. F. right on the spot,
Oh my, asbestos suits,
That's his weakness now.

Our little Rod, from Hollywood, is very bad
but thinks he's good,
Oh my soul, the 19th hole,
That's his weakness now.

Whether oil is here or oil is there, D. B.
finds it everywhere,
But try and find, something else,
That's his weakness now.

But after all, its hard to find, a bunch of
bosses
So sweet and kind,
Oh my,—and how—they're our weakness
now.

The composers of the song are Mrs. C. Rickenbacher and Miss Mildred Conklin. The latter also played the role of Al Jolson in a burlesque on "Sonny Boy." Miss Betty Kenworthy played the part of "Sony Boy," while Miss Frances Schultz presided at a movie organ imported for the occasion.

SAFETY *IN THE* UNION

100 PER CENT FOR 1928

Ed Gluyas calls himself "Safety Instructor." Perhaps that name is the clew to his success in reducing accidents in the Valley Division of the Field Department and on the Producers and Lompoc Pipe Lines. Ed came to the oil industry from the mines where he had served as master mechanic. He brought with him from the mines a good mechanical training and a thorough respect for safety. But his greatest asset for the work he has been doing the past year or so is his disposition and that he must have developed from a clean, wholesome slant on life.

"I have found," said Ed to me one day when we were speaking of his work, "I have found that to make things safe and to help do away with accidents one must have first of all, the good will of all the men and the keenest interest in their work at all times. Mingle with the men and convince them that you want their ideas and suggestions. I have found, in a great many instances, that these were well worth carrying out.

"I believe that this is one of the best ways of keeping their interest. So with the men working with me and our superintendents, Charles Woods of the Field Department and Lafe Todd of the Producers and Lompoc Pipe Line backing us and always seeing that we have the proper safety equipment, there is no reason why we should not be 100 per cent.

"The new men are always instructed and are watched until they prove they are safe. Literature and posters which keep them interested are placed at all drilling rigs and boarding houses and wherever men gather.

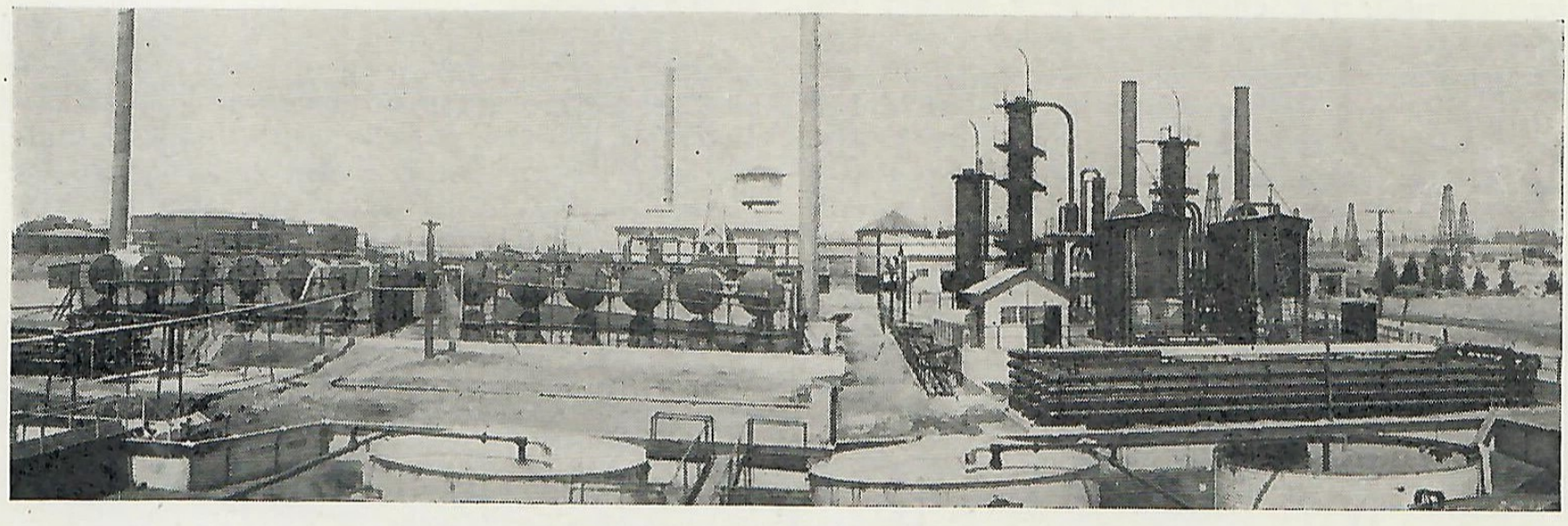
"We have a get-to-gether meeting as often as possible with the superintendent, foremen and as many men as can be present. We discuss all the new devices we have seen and anything that would be beneficial for the men as well as the Company. We also impress upon them that safety is not up to the superintendent or safety instructor entirely but is up to each and every man on the job.

"Each man is interested in our 100 per cent flag and is determined to keep it flying.

"I believe that it is not what you do, but how you do things that really counts."

SMALL REFINERS RECOGNIZED

White Safety Flags will be flown at four Union Oil Company refineries on January first in recognition of their safety records. The force at each of these plants is small but on the other hand the records are perfect. There has been no lost time accident at Avila Refinery since January, 1925; at Santa Paula Refinery since January, 1926; at Brea Refinery since April, 1926; at Bakersfield Refinery since May, 1927. No wonder the refineries as a whole have reduced their accident rate to nine per million man hours.

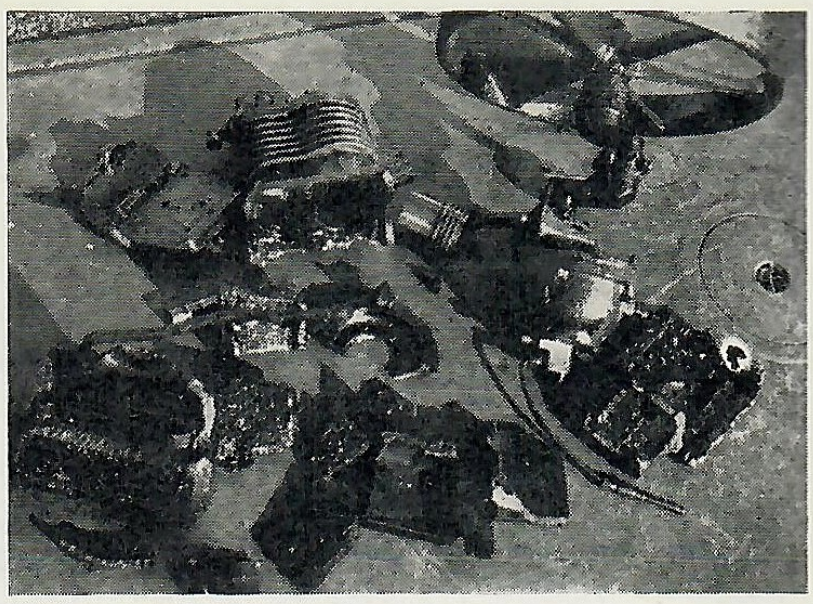


BAKERSFIELD REFINERY

The new stills, interchangers and fractionating equipment at the right were installed last summer under the supervision of A. L. Reynolds, Resident Engineer. The trend of modern refinery construction toward the vertical is well exemplified by comparison of the structures at the right with those at the left.

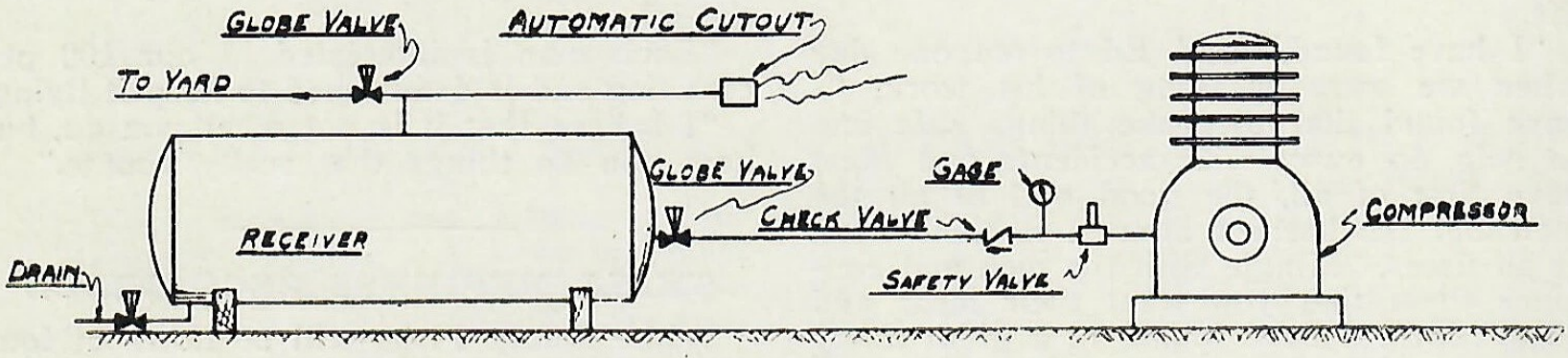
AIR COMPRESSOR EXPLODES

Various fragments shown on the accompanying photograph were collected recently from the premises of a gasoline service station. Several pieces had been arrested in their travel toward parts unknown by coming into intimate contact with two service station salesmen and a maintenance mechanic. Fortunately no vital spots were hit by the cast iron barrage, the mechanic being struck on leg and arm and the service station operators on leg and head.



Why did this prosaic piece of equipment suddenly develop homicidal tendencies? Every order of the Industrial Accident Commission had been compiled with—yet due to a mistaken attempt at helpfulness on the part of one of the operators, the compressor suddenly blew up with a roar heard for many blocks.

An inspection by one of the state boiler inspectors showed that originally this compressor and receiver had been piped so that no such accident could occur. The hook-up was originally as shown diagramatically in sketch No. 1.



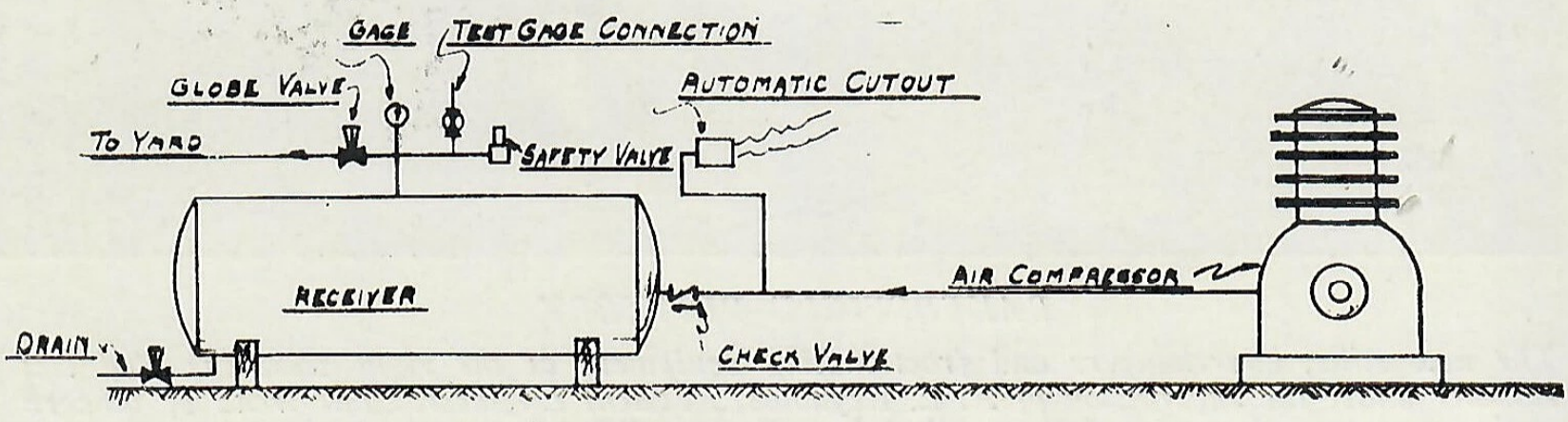
Sketch 1

A few months ago, the company operating this station instructed its service station operators to test the safety valves on its service station compressors daily. Since the safety valve could not be tested in the position shown in sketch 1, except when the compressor was running, it was moved to a new location on the tank. This move left the compressor unprotected should anything happen to plug the check valve or should the globe valve in the line to the receiver be plugged or closed.

On the day in question repairs were being made to the automatic cut-out. When completed, the compressor was started and pressure was built up to 100 pounds. At that pressure a leak developed in the packing gland on the line to the cut-out and the compressor motor was stopped while the gland was repacked. During this operation, the service station operator closed the globe valve between the compressor on the assumption that this would help matters. Unfortunately, the mechanic did not notice the closed valve when he again started the compressor motor. As a result the compressor base blew up with consequences that might easily have been fatal.

Needless to say, the globe valve in the line between the compressor and receiver should have been removed when the position of the safety valve was changed. The Code does not prohibit valves in this position but the fact that it is legal does not make it safe.

In sketch No. 2 is given a recommended piping hook-up for service station air compressors. Here the compressor is protected both by the safety valve and the automatic cut-out. There is no globe valve in the line between the compressor and receiver and



Sketch 2.

even if the check valve should stick or become clogged (a very rare occurrence), the automatic cut-out will stop the compressor motor before the pressure in the compressor base reaches the danger point.

THE REFORMED CAT-HEAD

Several years back, during the height of the last wave of flush production in the Southern California oil fields, accidents on rotary drilling rigs mutilated or killed some two score men. The largest single accident cause was the cat-head. Men were caught by protruding keys or were fouled in the slack of the cat line when the rope piled up on the cat-head. Seven men were killed in this way in one year alone. Then came the so-called safety cat-head and the accidents fell off. Protruding keys were covered by thimbles and again the accident rate was reduced. Then some companies forbade the use of the endless cat-line and another serious hazard was removed.

Of the several patented cat-heads now on the market there is still a good deal of choice both from the standpoint of efficiency and safety. After long and painstaking trial, one has been found to be less subject to tricks than the others and this has been adopted for Company use.

The cat-head on the driller's side of the draw-works still remains a potential source of accidents unless guarded by some type of anti-fouling device. Fortunately the inventors have not been idle and now this last named safeguard has been perfected and has been generally adopted for Company use.

Mechanical guards will never eliminate all accidents but they have stopped most of the horrible mutilations that we once thought were a necessary part of rotary drilling.

S. RUBEL'S BOARD.

NATURAL GAS

At one of the meetings of the Safety and Fire Prevention Committee of the Chamber of Commerce of a large California city, there was discussed the hazard of using natural gas in homes. The representative of the Gas Company told why natural gas, so long as it lasts, will have to be used in preference to artificial gas, made from oil or coal. It is so much cheaper and gives so much more heat for each cubic foot burned, it would be folly not to use it as widely as possible. In California, literally hundreds of millions of cubic feet of natural gas are burned every day. There is but one serious drawback, from the standpoint of the user and that is a very odd one. Natural gas is almost odorless and instead of being a blessing, this fact has proved to be a potent source of accidents. *The householder cannot smell natural gas when for any reason it escapes unburned.*

Another member of the committee, the chief engineer of the fire department, told of the increasing number of fires and asphyxiations that have followed the widespread use of natural gas in the Southland. In almost every instance the presence of the gas had been unnoticed until a match was struck or a vagrant current of air carried the explosive mixture to the pilot light of a hot water heater. Explosions resulting in death and destruction have followed. In some instances entire dwellings have been wrecked.

Two prolific agencies by which gas has escaped stand out in the list of careful investigations made by the fire department. The flexible tube by which the small heaters are connected comes loose or leak; the flame in unvented heaters goes out in a sudden gust of wind when turned low. The escaping gas is unnoticed and a call for the rescue squad or the entire fire department is too often the sequel.

Only in individual corporations has the prohibition against the flexible tube and the unvented heater proved successful. Cities have tried to legislate them out of existence but 'bootlegging' of illegal heating appliances has practically defeated the effort at life saving. Apparently only constant harping on the danger will remedy the evil, though the research departments of the large gas companies are striving to find a stench that can be put into natural gas to warn of its presence. Education is slow and many a family is going to have to learn by bitter experience that the cheapest heating device may be the dearest.

The columns of Safety in the Union are devoted to information which it is hoped will be of interest to those who are trying to make Union Oil Company of California a safe company to work for. Contributions, criticisms and comment are solicited by the Department Managers' Safety Committee, Geo. F. Prussing, Secretary, Union Oil Building, Los Angeles.

REFINED AND CRUDE

The last traces of the Christmas turkey have been consumed; the ashes of the old yule log have been swept from the grate, and the novelty of wearing a brand new set of arm bands and garters is already beginning to pall. Another jolly old Christmas has passed, and the world is back to work.

* * *

The business men have returned to their golf, and the college boys have resumed their steadies.

* * *

We are now on the threshold of a new year, imbued with a keen optimism, and a great determination, and impelled to higher achievement by the splendid resolutions we have specially made to be broken during 1929.

* * *

While we strive for the goal we have set, let us never get so careless as to ignore the little things. It's the little things that tell—at least that's the claim of the girl who found her little brother under the sofa on which she was entertaining her sweetie.

* * *

Now that Union Oil Company employees have taken up skating, we understand that the seating capacity of the ice at the Palais de Glace has been taxed to the limit.

* * *

By the way if you haven't yet seen our hockey teams perform, don't miss the next game. Ice hockey is the fastest and most fascinating game we know. It can be very rough at times, but of course, these Canadian boys are used to sleighing each other.

* * *

Don't forget though that many a man gets a skate on, with no thought of playing hockey.

* * *

We know of no better recommendation for Union Ethyl Gasoline, than the fact that many of our Scotch friends are perfectly happy to pay the premium.

* * *

They have no doubt discovered that in addition to flattening the hills, Ethyl in the long run also flattens the bills.

* * *

And while we are on the subject of the Scotch have you heard of the American waiter who worked over in Scotland for a spell, and reported that he found no change in the country?

* * *

Then there was the poor fellow who found the gizzard on his plate at the Christmas dinner, and returned it to the host under the impression that it was the handle off a suit case.

When the opportunity recently presented to form a glee club at Head Office many aspiring Carusos jumped at the chants.

* * *

We have just learned that Winternitz is a famous teacher of the violin, and all the time we thought it was a kind of underwear.

* * *

Last month we spent a few days at a hotel in the North Country, and when we later presented our bill at the office for approval the boss very coldly remarked "Don't buy any more hotels at that price; you are being cheated."

* * *

The mathematical genius of our dentists has never been properly recognized, but boy, how these fellows can extract the square root!

* * *

California uses very little coal, but any soda jerker will inform you that the consumption of coke is something tremendous.

* * *

"Isn't it funny" says the Literary Digest "that nature always puts vitamines in the things we don't like?"

* * *

And Robert Miller the famous writer adds "Vegetables are rich in vitamines, and cows eat lots of vegetables, but who ever heard of a cow holding a big job?"

* * *

Cheer up! There are lots of girls who would be glad to live on your income, if you would only get another one for yourself.

* * *

It is a striking tribute to the bravery of the present generation of Californians, that the home state delegation to the A. P. I. Convention in Chicago, went absolutely unarmed.

* * *

They tell us the old town is shooting right ahead.

* * *

We confess to a slight scarcity of hirsute on the highest peak of our aristocratic dome, but that is no reason why we should be continuously humiliated by the wise crackers' facetious allusions to a "falling out in our family.'

* * *

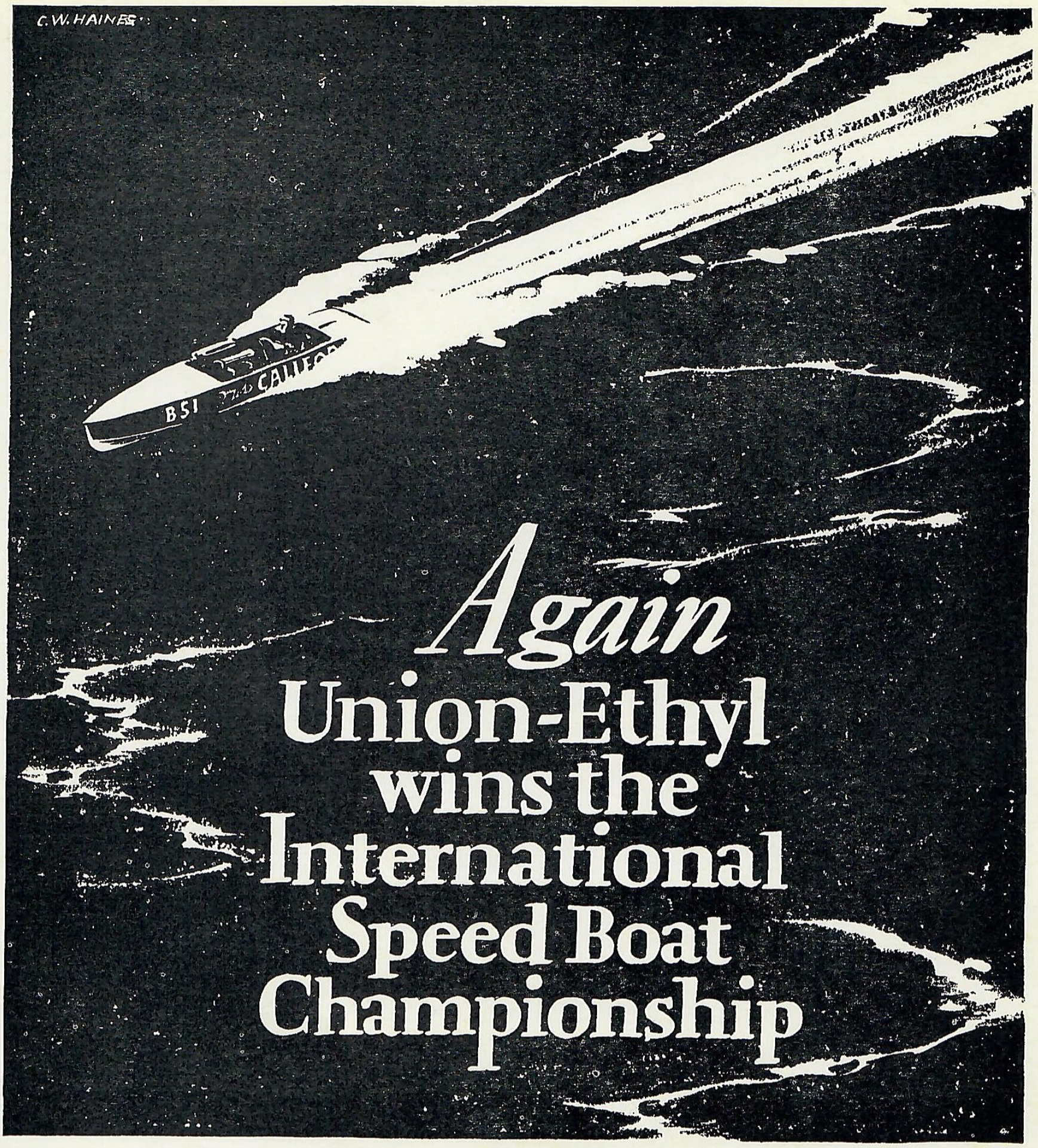
The score sheets of the Union Oil Company bowling leagues would indicate that the participants are anything but weak on their pins.

* * *

And incidentally why not term the pin setters 'osteopaths.' We have heard them called other names just as bad.

* * *

In conclusion, despite the fact that water will corrode iron mains, there are people careless enough to put it in their stomachs.



Dick Loynes of Long Beach has once more proved himself America's premier hydroplane driver by winning the 151 limited speed classic at the International Speed Boat Championship Races held in San Diego Dec. 15-16.

Loynes' Miss California was never headed as she roared around the two-lap, five-mile course at an average speed of 49.08 miles per hour—a new world's record.

His victory brought back to Southern California the much coveted $5000 Elgin Trophy.

Loynes uses Union-Ethyl Gasoline. Previous victories had proved its power—its exclusive anti-knock, high compression advantages—its unfailing dependability.

Union Ethyl

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