

UNION OIL BULLETIN



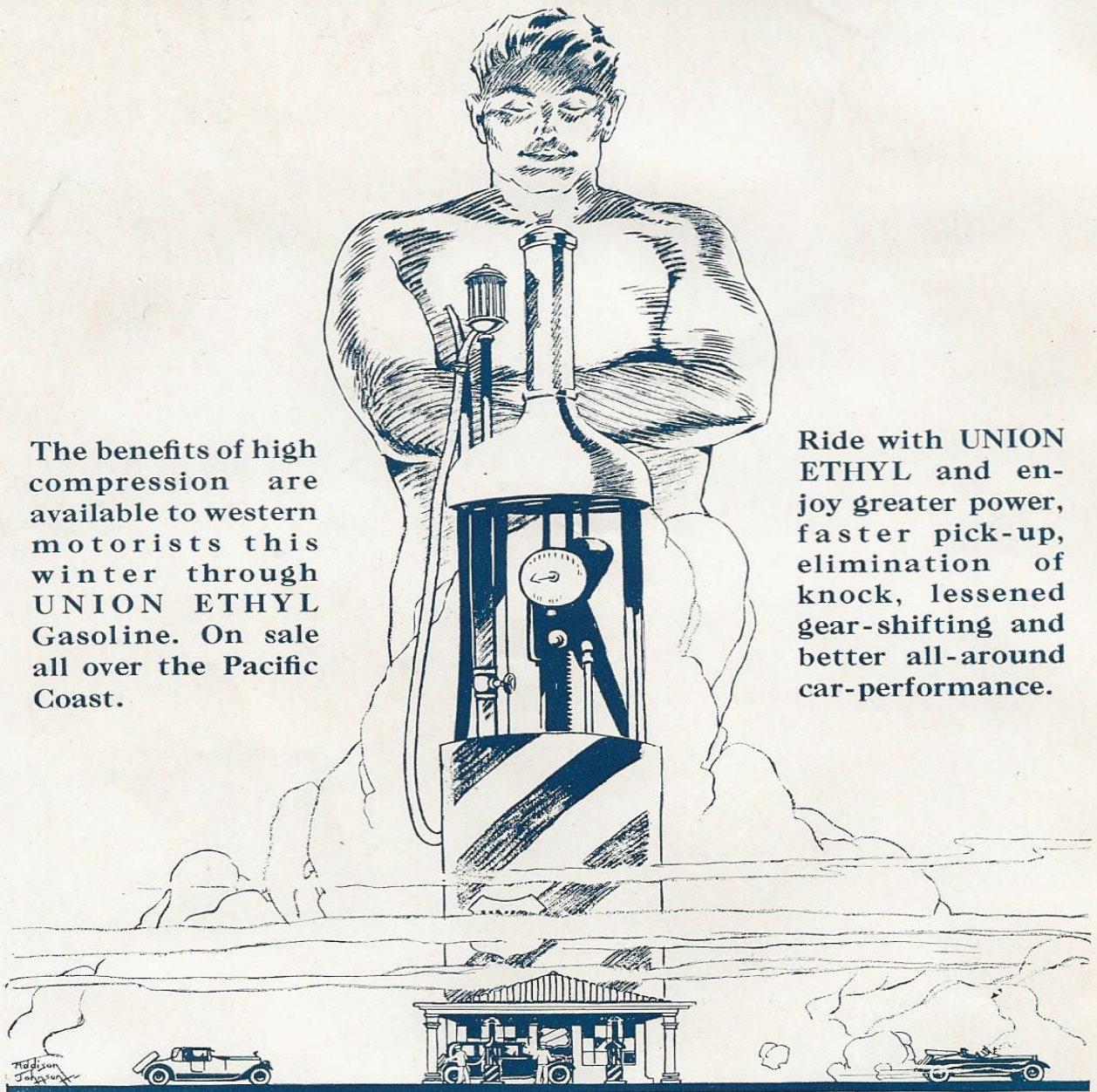
JANUARY 1928

CLEVELAND FOWLER

HIGH COMPRESSION

The benefits of high compression are available to western motorists this winter through UNION ETHYL Gasoline. On sale all over the Pacific Coast.

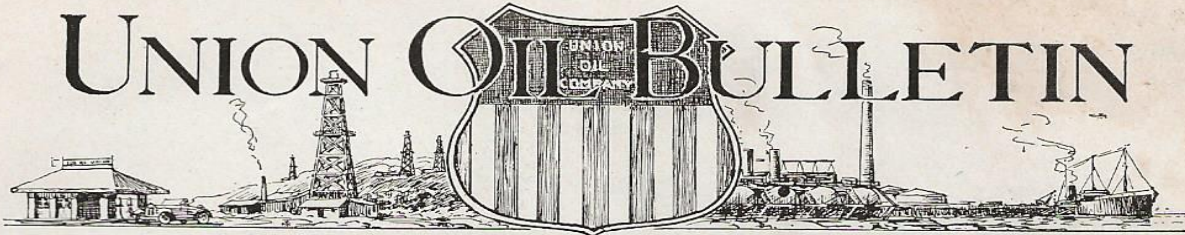
Ride with UNION ETHYL and enjoy greater power, faster pick-up, elimination of knock, lessened gear-shifting and better all-around car-performance.



UNION-ETHYL

The *SUPER* Motor Fuel

UNION OIL BULLETIN



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VOLUME VII

JANUARY, 1928

BULLETIN No. 11

Raw Material

FUNDAMENTALLY, the oil business has never before in its history been in as sound condition as it is today: this due to the fact that we have never been able to look as far down the road and see daylight ahead as regards our supply of raw material. Raw material is the basis of all manufacturing industry. The oil industry is rapidly becoming essentially one of manufacturing, as indicated by the vast number of different products made from the crude. With an assured supply in front of us, we may expand the use of products obtained therefrom in directions heretofore considered unwise. We may expect our great industry to be primarily manufacturing in the very near future. The securities of industry usually increase in market value if the supply of basic raw material is ample and stabilized. Our recent and present overproduction has tended to reverse this usual trend of values, but we may expect that it is only a temporary condition. There has been so much emphasis upon this temporary condition that perhaps we have lost sight of the fundamental.

—E. W. CLARK.

Speed in Pacific Coast Waters

By AL. D. MACLEOD

Secretary

Pacific Coast Hydroplane Association

LORENA A, driven by her owner, Billy Myers, won the first Pacific Coast 151 hydroplane meet at San Pedro in June, 1925, and inaugurated on this Coast a sport which has developed far indeed beyond the



AL. D. MACLEOD

expectations of the few enthusiasts who founded class boat racing on the Pacific Coast. From that time until the present day the world-record has been raised, largely through the boys on the Pacific Coast and their efforts, from less than 35 miles to 47.05 miles an hour in the limited class, and to over 52 in the unrestricted class.

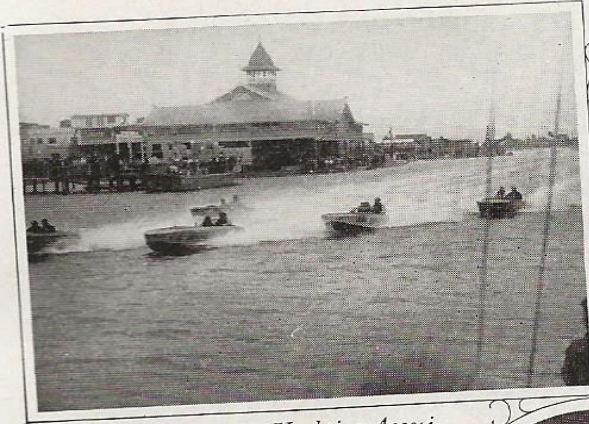
In the early days of motor boat racing on the Pacific Coast, racing was a matter of who would spend the most money and could get the most engine installed in a hull. There were no restrictions of any description as to the type of boat or motor; it was not unusual, therefore, to have boats racing against each other of as many different types as there were boats entered in the race, and just as much variation in the horse power of the motors. While this provided plenty of fun and thrills for the drivers, there was a lack of real competition which prevented the development of any public interest.

Early in 1925 Vernon L. Walker of Glendale, California, and Al D. Macleod, who was then chairman of the Power Boat Committee of the California Yacht Club, got

together and conceived the idea of the introduction of class boat racing on the Pacific Coast. Walker at that time was the owner of a one step Margaret type hydroplane known as Miss Hollywood, which was powered with a three-cylinder, two-cycle Pierce Budd motor. Dick Loynes of Long Beach, California, the present holder of the world's record in competition in the unlimited 151 cubic inch class, then owned a boat known as Smiling Dan II, also powered with a Pierce Budd motor. These two boats were the original class boats of the 151 class on the Pacific Coast. Shortly thereafter they were joined by Al Christie and Vera Stedman with a converted hydroplane runabout known as Baby Mine; Wm. F. Myers of Long Beach, California, with a one step Margaret hydroplane the Lorena A; Wm. O. Harris of San Bernardino, California, with Quick Silver; Cecil B. deMille with Humming Bird; and Al D. Macleod with Star of California. All these boats, except the last, which had a converted 132 cubic inch Star motor, were powered with 151 class Pierce Budd motors.

The Pacific Coast 151 Hydroplane Association was formed, and staged its first meet at San Pedro in June, 1925, which was won by Billy Myers in Lorena A, at an average time of 11 minutes and 22 seconds for six-mile course. During the next two years a race was held monthly.

Early in 1926 Dick Loynes sprang Smiling Dan III on his unsuspecting competitors. This was a boat designed and built with a Margaret bottom, but a radical change in the superstructure. She was built very much lighter than the other boats and



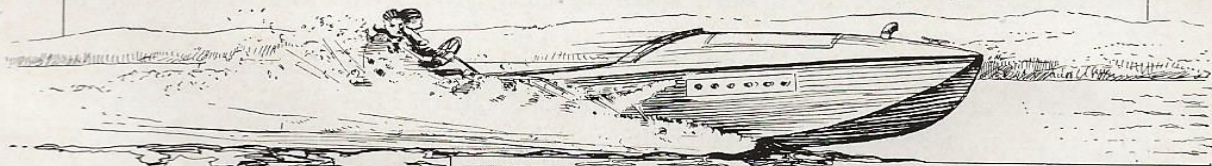
151-class So. California Yachting Association Regatta, Newport Harbor, 1926.



Vera Stedman, movie actress, driving Baby Mine. Holbrook Todd, mechanic.



Dick Loynes, owner of Smiling Dan III, with the \$6,000 Elgin National Trophy. Loynes won the 1927 Royal Poinciana Trophy in Florida with Miss California, a 16-foot hydroplane with a super-charged Miller motor. He is acknowledged to be the world's premier hydroplane driver.



Billy Meyers of Long Beach driving Lorena A



Dick Loynes at the wheel of the former world's champion, Smiling Dan III, Harvey M. Strong, mechanic.



Esmaral III winning first heat for limited 151-cubic-inch-class hydroplanes, Massachusetts Gold Cup Regatta, Boston, 1927.

developed a surprising amount of speed. Loynes went with her to Florida, taking along Al Christie's boat, Baby Mine, and they cleaned up all the eastern competition, bringing home the famous Elgin National Trophy, the Royal Poinciana Trophy and other cups too numerous to mention.

Later in the spring of the year V. L. Walker and Ralph Oberg built a new boat which was called the Gold Rush, after Charlie Chaplin's famous picture. This boat was sold to Harold and Lionel Barneson and renamed the General. It was the first boat of the 151 class to break the world's record and set it at over 40 miles per hour. Shortly thereafter the Barneson boys took General to Houston, Texas, along with Smiling Dan III and some other boats and made a splendid showing.

The Barneson boys and Macleod each having built a new boat that was not a great success, toward the end of 1926 came out with two new boats, duplicates of each other, and both built by Ralph Oberg and powered with Pierce Budd motors. These boats were named respectively the Janet II and Esmaral III, and were ready for the Elgin Trophy race at San Diego on Decem-

ber 10 and 11, 1926. They competed in this race and, in spite of having had no preliminary tuning up, made a good showing against fifteen of the fastest 151 hydroplanes in the United States. Other California boats entered in this race were General, Smiling Dan III, Midge II, Quicksilver II and Angelus.

In 1927 Macleod's Esmaral III ran second to Del Lord's Midge II, which was considered the fastest boat on the Pacific Coast at that time. Esmaral III again ran second to Del Lord in Newport Harbor, and in March, 1927, Macleod beat both Midge II and Smiling Dan III in a hot battle at Alamitos Bay. In the meantime the old General had been converted and put in the supercharged class with a supercharged Miller motor and thereby was out of the limited class.

Meanwhile, as a result of the good showing made by the California boats at San Diego, Macleod had already conceived the idea that even though many new motors were being introduced and great speeds were claimed for them, the old reliable Pierce Budd could show her heels to most of them. He, therefore, shipped his boat

through the Canal aboard one of the Luckenbach freighters to Boston for the Massachusetts Gold Cup Regatta, winning the limited 151 class by a large margin over a classy field of eleven boats. It is worthy of note that, having used Ethyl gasoline in all his races on the Coast, Macleod thought it worth while to arrange for a supply of that gas at Boston, having it shipped especially for his use from the Indianapolis Speedway.

On his return he took the boat to the Pacific Coast Regatta and won both the Pacific Coast and the Southern California Championships in his class.

During the summer of this year the Janet II was prepared and was shipped by the Barneson boys up to Seattle in order to encourage class racing up north on the Coast. Incidentally, in the summer of 1927 she caught fire and was a total loss without having taken part in any competition. The Barneson boys, like the good sports that they are, took it with a grin and immediately started to prepare a new boat to race in the limited class.

To the layman it must be explained that these boats are rated solely on the cubic inch capacity of the motor, and are divided into two classes: the unlimited, in which any boat with a supercharged motor may race, and the limited, in which only those boats that have not a supercharged motor may compete.

One hundred fifty-one cubic inch class racing is held under the rules of the Mississippi Valley Power Boat Association and the American Power Boat Association, these bodies working very closely with each other.

There are no restrictions on the type of hull, but experience has shown that the one step hydroplane type is the fastest. The boats are now built with a very low super-

structure, some of them being not over eight or ten inches over the water.

Just as racing automobiles are now driven by one man, so also the mechanic has been eliminated in 151 hydroplane racing, the boats having been developed into racing machines.

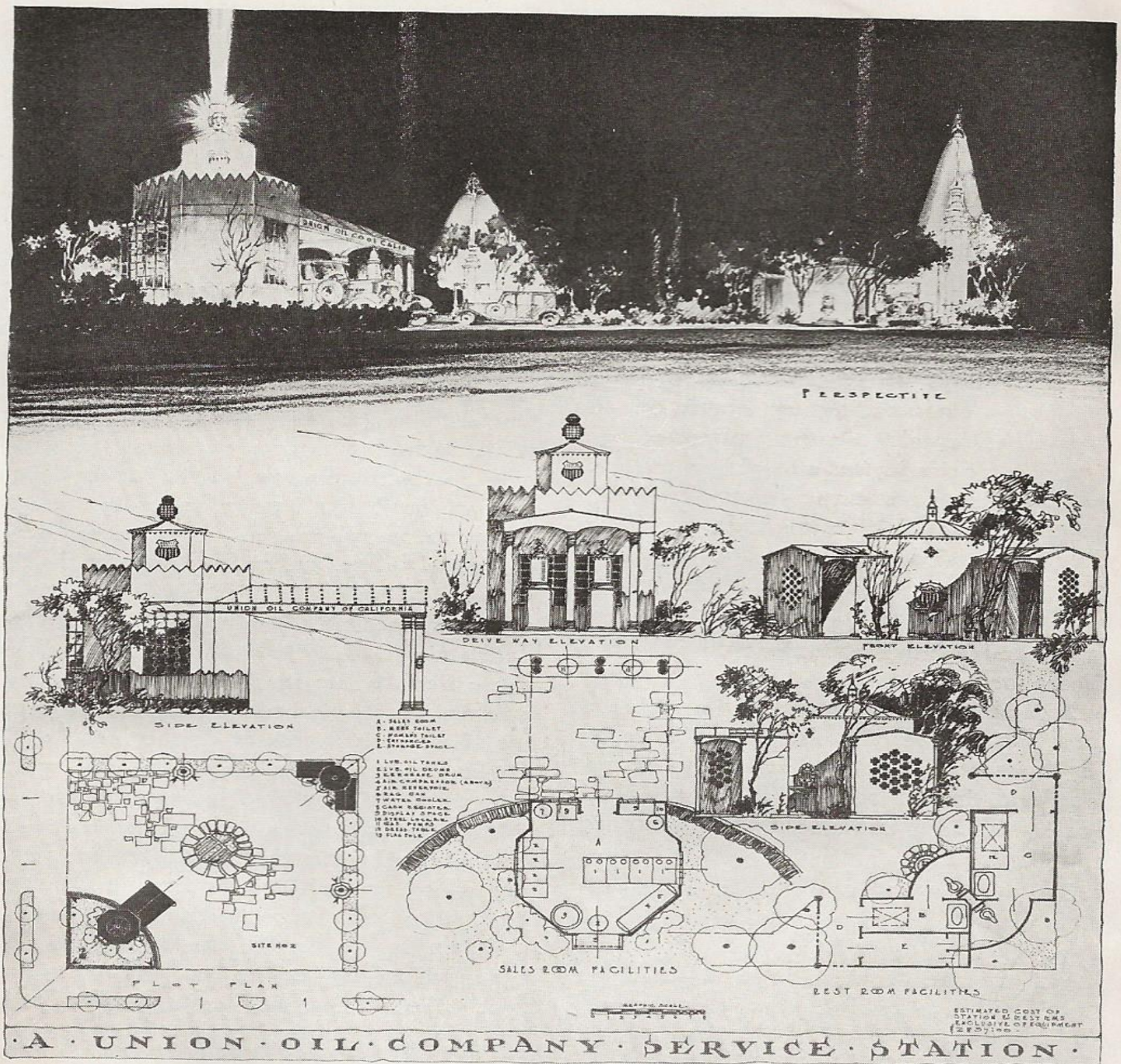
The efforts of engineers to develop more power within the limits of the 151 cubic inch engine and without exceeding a cost of \$750.00 as provided in the by-laws, cannot but lead to a general improvement in all marine motors.

The development of the step hydroplanes of this so-called small class has led to the development of what is now probably the most popular type of racing that the world has ever known, that of the outboard classes. The general public are now familiar with outboard motors which are fastened to the stern of any type of skiff or row boat and are used at all popular resorts. These little motors when used in connection with a properly designed racing boat will give a speed of over 30 miles per hour over a regularly measured course, and it is a wonderful sight to see as many as 40 or 50 of these little boats in one race. There were approximately 25 boats racing in the free-for-all outboard classes at the last Pacific Coast Championship Regatta, and when you consider that this is the first year in which the outboard motors have raced on the Pacific Coast under organized classifications, it is surprising what a hold they have taken on the people.

During the course of the two years that 151 hydroplane racing has been followed on the Coast, not only has the time record been raised as mentioned before, but the Elgin Cup has twice been won by Dick Loynes in a Pacific Coast boat, and the championship in both classes is held by Pacific Coast boat owners.



The Prize-winning Design



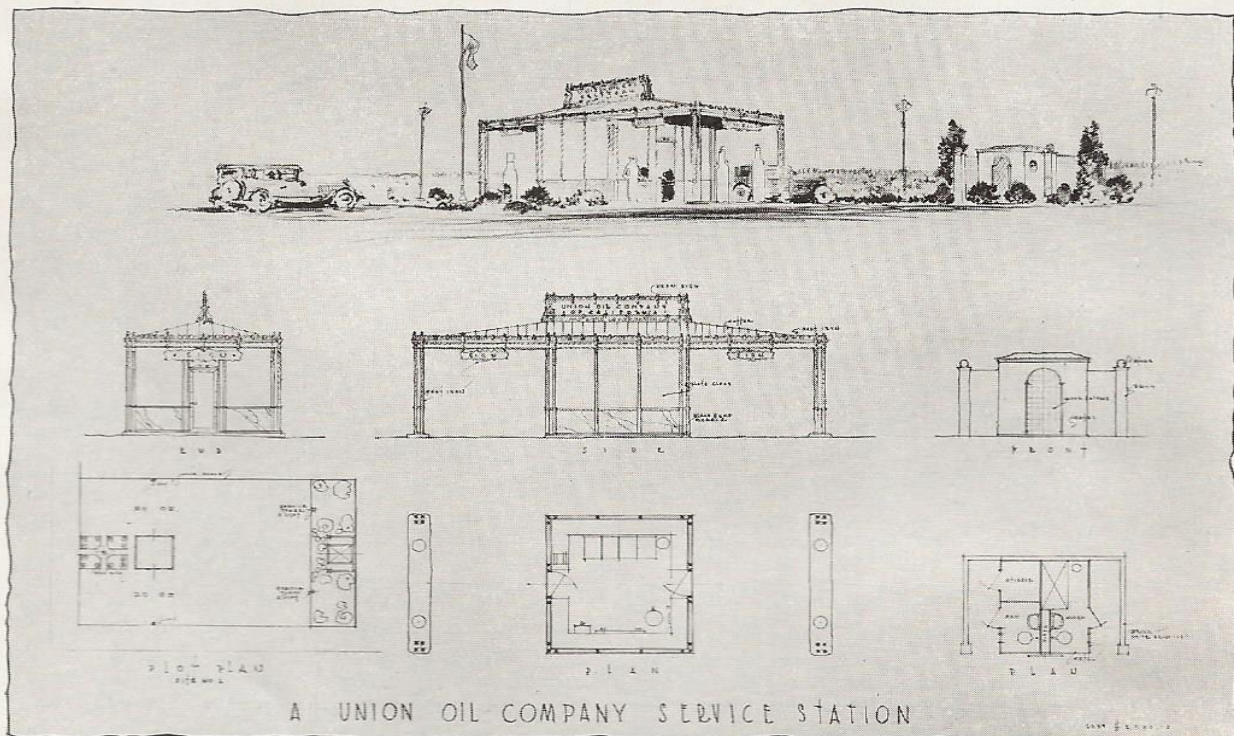
The winning design in the contest which the company recently sponsored for the purpose of securing designs of service stations which would be adaptable to the particular locations in which it operates is shown above. This design, submitted by Lyle Reynolds Wheeler of Los Angeles, is of purely modernistic architecture, and is of a type readily adaptable to all Pacific Coast localities. Cash prizes were offered for the best three designs and honorable mention with a monetary consideration were also given to a number of other designs.

Service Stations that BELONG!

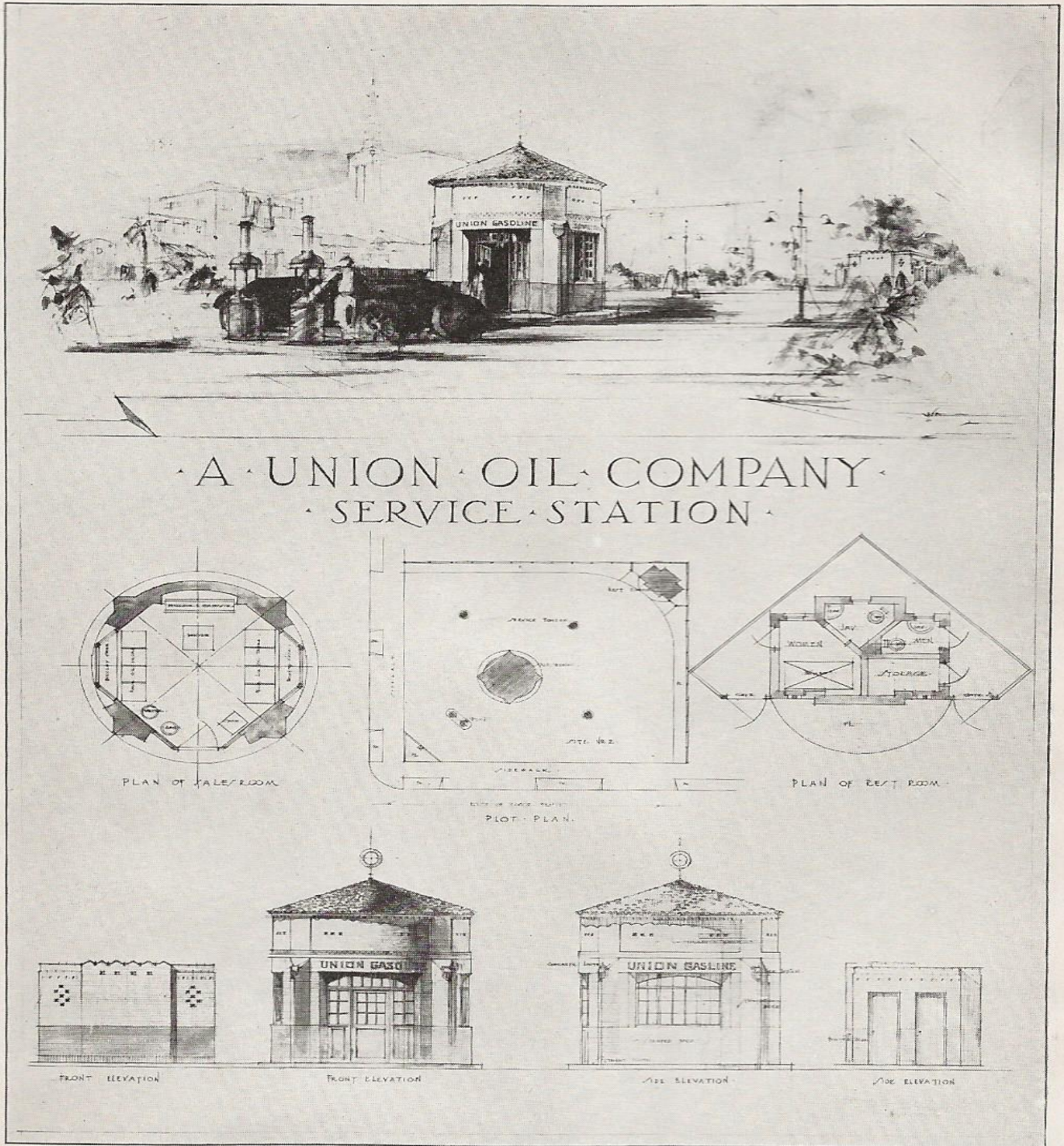
GASOLINE filling stations have become so numerous in the larger cities that their type of construction and general appearance are having a marked effect upon the architecture of their immediate surroundings. Standardization in design has been the keynote of service station construction with the result that stations which might be in harmony in one district struck an inharmonious note in another. In the immense chain of service stations which have become so numerous throughout the length and breadth of the country that they are now a definite factor in the everyday life of the people, seldom is it found that the stations fit in or blend with the development of the neighborhood; quite frequently they offer a marked contrast to and detract from the architectural beauty of the adjoining buildings.

Recognizing this fact, the Union Oil Company is attempting to develop various types of stations so as to remedy this condition and mark the way for more harmonious settings. To this end it has recently carried on a contest for the purpose of securing designs of service stations which would be adaptable to the particular locations in which it operates and be of civic value to the various communities.

That the movement to combine beauty and utility in service station construction found favor not only among the architectural profession but also among civic bodies is indicated by the number of entries in the competition and also by commendatory editorial comment and expressions from various public officials. Over 100 entries from all sections of the Pacific Coast were received and passed upon by the jury of award.



Harbin F. Hunter, also of Los Angeles, won second prize with this design. It is also of a modernistic type of architecture and is distinctive in that only three materials are used in its construction, these being metal, marble and glass.



Modified Spanish was the motive used by Harry Sims Bent in this third prize conception.

The awards were made by a jury of three: Reginald D. Johnson and Stiles O. Clements of the American Institute of Architecture, and L. P. St. Clair, Vice-President, Union Oil Company.

It is not the intention of the company to standardize on the designs submitted, neither will these be reproduced intact. They will merely be used as types from which the best features for operating stations will be adapted, keeping in mind the desire to create nothing that will conflict with neighborhood or city development.



160
30
48.80

30⁰⁰ 48 cat.
16, clothes
16, ch
32, exp.
16 save.

10
12
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128
16016 auto exp
18
1280 80
160
2818 2144

BUDGETS

By EDITH KEELER

THIS is the time of year to be planning or revising one's budget. People react differently to the suggestion of budgeting their incomes—many are frankly skeptical about the usefulness of a budget, and it is true that many systems are too intricate and go into too great detail to be helpful. Also, of course, it is recognized that conditions vary so that a budget suitable to one family is out of the question for another. Nevertheless, a simple scheme for the distribution of a set income over known expenditures, and a provision for unknown or unexpected expenses, is a very great help, especially to the man or woman of limited means, and it is our idea to set forth a scheme with sufficient elasticity to be used as the groundwork for individual budgets.

The majority of budget systems place Savings as the first item to be considered, and as we are not claiming originality, and in view of our Provident Fund and Insurance deduction plan, we may as well follow this rule. In very few cases does the Provident Fund and Insurance deduction consume the entire amount allowed herein for savings; the excess over and above such deductions then provides the means of taking outside insurance, paying off notes, buying

furniture, etc., or supplying the means of meeting the unexpected.

Taking as an example a monthly income of \$200.00, this being both an easy figure to work with, and a fair average income for an average family, considering as average a family of three or four members, the foundation of the budget would be as follows:

Savings and		
Insurance	10% of \$200.00	\$20.00
Shelter	25% of \$200.00	50.00
Utilities	7% of \$200.00	14.00
Table	20% of \$200.00	40.00
Clothing	18% of \$200.00	36.00
Expenses	20% of \$200.00	40.00
<hr/>		
Total	100%	\$200.00

The item "Shelter," of course, covers rent, or in the case of one owning his home, supplies an accumulation to cover taxes, repairs and interest, and in such cases could probably be reduced and the excess distributed over other items, or applied on the family flivver.

"Utilities" or operation covers gas, light, telephone and water, and if preferred can be grouped with "Shelter."

The item for table expense is figured rather closely, even for a family of three, and may have to be increased at the expense

of another item depending upon the number in the family and the amount of entertaining done. The usual cost of setting a moderate table is \$15.00 per person per month. If this seems to you unreasonable, just sit down with a pencil and paper and figure your meat, grocery and milk bills, bread and ice, in fact the things required to set a good substantial table, but not an extravagant one, and divide the total by the number in your family, and you will find that this figure is not far wrong. This holds good for families of three and up.

The item "Expenses" is intended to cover cash needed during the month for car fare, down-town lunch for one member of the family, church contributions, etc.

It will be noted that no definite provision has been made for an automobile, except where it can be taken from the amount

allowed for shelter. A good deal of ingenuity or sacrifice of other things is surely needed to keep a family of three or four and support an automobile on the salary contemplated herein. However, from the looks of our highways of a week-end this problem has been solved by a good many. More power to them! And with a little practice one becomes quite expert at juggling a bit here and there. One budget devotee at least has found it a good plan to keep a section at the foot of the monthly budget sheet as a "budget control," subdividing the expenses under the general headings, indicating also the previous three months' expenses. At a glance then it can be seen if one division of expense is overstepping its bounds, and a general average for a three-month period can be had at any time.

Alfred C. Stewart

ALFRED C. STEWART, inventor and California pioneer, died at his home, 1215 Garfield, South Pasadena, December 19. Death was due to pneumonia which attacked him suddenly five days before the end came.

Mr. Stewart, who was 53 years of age, was the younger son of Lyman Stewart, late "Father of Western Petroleum," and came to California in 1883, the year his father began operations which led to the founding of Union Oil Company.

Besides his brother, W. L. Stewart, our President, and his widow, Mrs. Edna Stewart, Alfred Stewart leaves a sister, Mrs. D. H. Martin of Pasadena, and two sons, Clement Harding and Richard Irwin Stewart.

Mr. Stewart was one of the best known inventors in Southern California. His genius

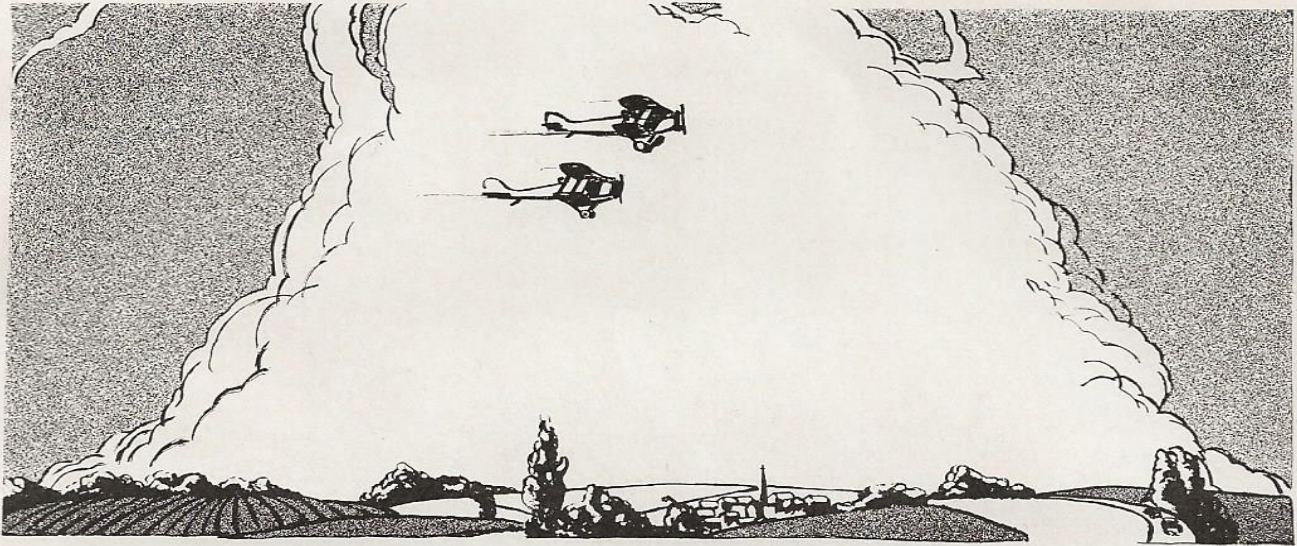
was responsible for many contributions to automotive science, the best known being the Stewart carburetor. He also built one of the first racing cars used here, the machine being made for Frank Garbutt. While Mr. Stewart did not continue to take an active part in the building of automobiles, he was a keen student of them and contributed to their development through the invention of many and varied devices. He maintained a factory in Los Angeles until approximately fifteen years ago, when his interests were sold to eastern capital. Since



ALFRED C. STEWART

that time he has maintained a laboratory and shop here.

Mr. Stewart was active in his inventive work until the day prior to his fatal illness.



The Gasoline Engine Grows Wings

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

(Concluded from Last Issue)

“WHAT are the latest developments in aviation engines, and who is responsible for them?” inquired Mr. Buyer.

Motor Mike thought a minute. “I’ll answer your last question first. The Army and Navy are responsible for most of the advance in engine design, and hence for most of the advance in aviation. The design and development of a new airplane engine is not a philanthropic affair, and most of the present manufacturers cannot afford extensive experimental work. The Army and Navy, when they wish to develop a new engine, work in cooperation with the best of the engine manufacturers, supplying the necessary funds as well as the aid of their technical staff. For example, the Navy is largely responsible for the development of the Wright “Whirlwind” series of engines that have come into such prominence lately. It was this type of engine that carried Lindbergh across the Atlantic and Maitland across the Pacific to Hawaii.

“You may not know it,” went on Motor Mike, “but the motors we were just look-

ing at in the large plane are Wright Whirlwinds. They are what we call the radial type, that is, the cylinders are equally spaced around the circumference of a circular crankcase. Unlike the rotary type of motor, the cylinders remain stationary and the propeller is driven by a single-throw crankshaft. The upper, or master cylinder, carries a large master connecting-rod, and all of the eight remaining cylinders have their connecting rods connected to this master connecting rod.”

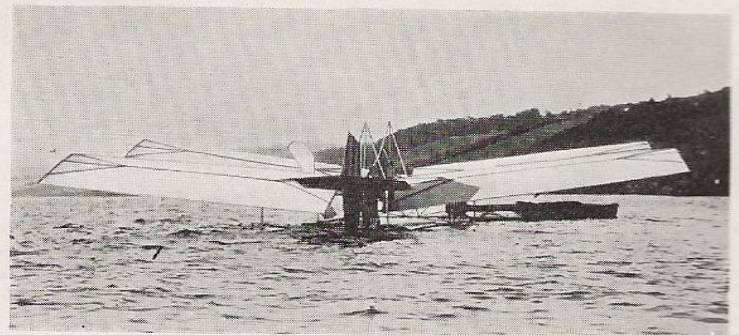
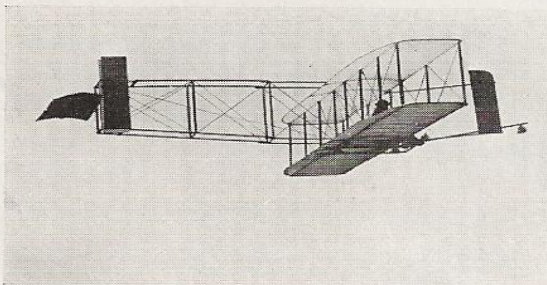
“Why nine cylinders?” asked Mr. Buyer.

“These engines operate on the four-cycle principle,” replied Motor Mike, “and that means one explosion stroke per cylinder for every two revolutions of the crankshaft. If they had an even number of cylinders, such as eight for example, all eight of the cylinders would have to fire on one revolution, and then all eight remain silent for the second revolution. This obviously is an absurd condition, and the second possibility is to fire the cylinders alternately, which would then result in a break in the firing

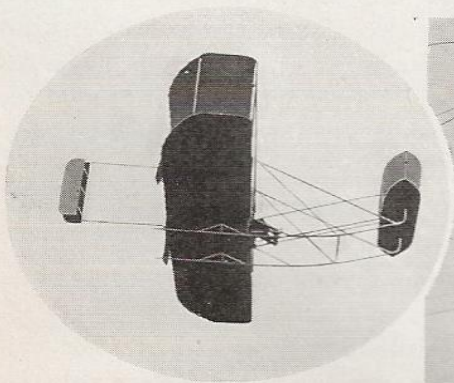


Bert Acosta in the 1910 Model Curtiss pusher which Glenn Curtiss used when he flew from Albany to New York 17 years ago.

Below—The original Wright Brothers Airplane in flight at Kitty Hawk, N.C.



The original Langley plane at Hammondsport, N.Y.



Early type Wright Brothers airplane, the first commercially practical type built.



Anthony H. G. Fokker seated in his first plane

order. The only way out of it is to have an odd number of cylinders, such as seven, nine, eleven, etc. With a nine-cylinder engine, for example, we would then have a firing order of 1-3-5-7-9-2-4-6-8, in which all the intervals are the same, 80°."

Mr. Buyer decided to agree with him,

although he didn't know just why. "What," he asked, "is the advantage of this type of an engine?"

"Light weight, reliability, and accessibility," replied Motor Mike. "You will notice that these engines have no radiators or circulating water systems, but depend on

the air for cooling in practically the same way that the motorcycle engines do. The fins on the outside walls of the cylinders serve to dissipate the heat to the air, although it is not quite as simple as it might seem at first glance. If the fin area is too small, the engine will overheat and destroy itself, and if the fin area is too large the engine will not run at the correct operating temperature and consequently will not develop its full power and efficiency. You may get some idea of the difficulties of design when I tell you that this present Whirlwind type of motor, known as the J-5, has been in the process of development for the past eleven years."

Mr. Buyer was beginning to realize why a small aviation motor costs as much as a fine big touring car.

"There are many advantages to the radial type of motor," went on Motor Mike, "although they, like everything else, have their disadvantages also. Their frontal or resistant area is large, and although this can be partially compensated for by effective stream-lining of the cowl, it has been impracticable to build them in horse-powers above 400."

"Then 400 horse-power is the upper limit for an aviation engine?" asked Mr. Buyer.

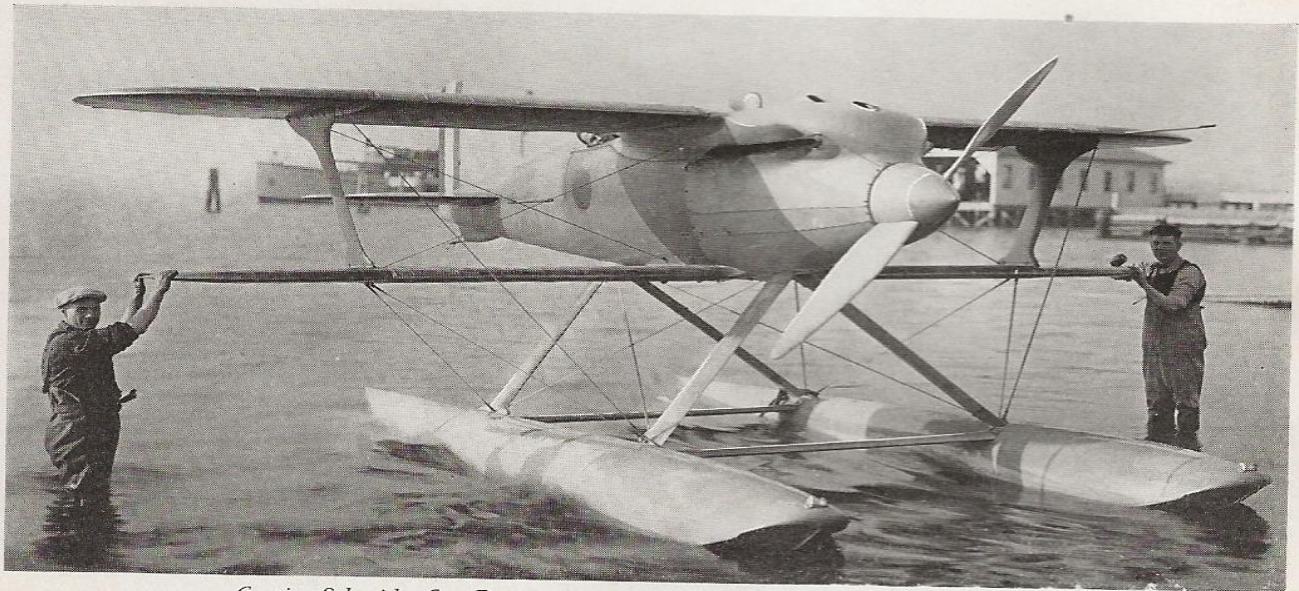
"Not by any means," replied Motor Mike. "Do you remember that I told you how they had inverted the Liberty engine? Well, several of the manufacturers have gone a step further and have done what amounts to placing an upright on top of an inverted engine, such that the result looks like a large X when seen from the front. These X-type engines are generally of 24 cylinders and will develop up to 1200 horse-power. They are used principally in the long distance bombing planes. They have also been used in the small racing planes, such as would be used for pursuit work in war, and it was one of these that I told you of having developed a speed of nearly 300 miles an hour. Unfortunately, it is necessary to cool these engines by water, as an "in-line"

engine would overheat in the rear cylinders if air-cooled. Even so, the latest X-type engine has a weight of only 11.8 lb. per horse-power developed. This, remember, is in comparison with the weight of 13 pounds per horse-power for the aviation engines of 1903."

"Mike," interrupted Mr. Buyer, "you keep talking about reduction in weight as though it were of extreme importance. What difference does it make if an engine weighs five pounds per horse-power or one pound per horse-power?"

"The commercial value of an airplane," said Motor Mike, "is largely dependent on how much pay load the plane can carry. The surprising thing, however, is that weight reduction means just three times as much as you think it does. For every pound of engine weight that you save the weight of the engine bracing and support can be reduced approximately a pound, and for every pound of engine and engine bracing there is required approximately one pound of wing to sustain it in the air. Thus the elimination of one pound of engine weight eliminates also one pound of engine bracing and one pound of wing materials, or a total of three for one. In a 400 horse-power engine, a reduction in weight of one pound per horse-power would increase the possible pay load about half a ton. This reduction in engine weight has largely been accomplished by the development of extremely light, though strong, alloys that can be used for the different engine parts, as well as the recent improvement in design of the combustion chamber, carburetion system, etc.

"Weight reduction is a ticklish business, though, for an airplane engine is subject to rather unusual service. An ordinary automobile engine is usually operated at about one-fourth power, with very occasional bursts of full-power driving. An airplane engine, on the other hand, is operated either at idling speed or at practically full throttle, and it is nothing unusual nowadays for



Curtiss Schneider Cup Racer, powered with a 700-H.P. Curtiss V-1550 motor

such an engine to have 300 hours of flying time between overhaul periods. When you consider that this is equivalent to approximately 30,000 miles of travel, and then consider what could happen to the average automobile engine if it were run at full speed for 30,000 miles, you get some idea of the wonderful development and extreme reliability of the present day aviation engine."

"I will agree with you on reliability," said Mr. Buyer. "I noticed in the paper just the other day where the Western Air Express had flown over 700,000 miles with only four forced landings, in none of which was there any injury to the personnel."

Mr. Buyer's attention was attracted by a tiny speck in the sky, which proved to be an airplane. "How high up is that fellow, Mike?"

"Oh, I'd guess about 10,000 feet, and that's about as high as he's going to go."

"Why do you say that's as high as he can get?" Mr. Buyer wanted to know.

"Well, I happen to know that that particular plane is not equipped with a supercharger. When you have a certain weight of gasoline and a certain weight of air and mix them together, you can get a powerful explosion. If you use the same amount of gasoline, and decrease the weight of air,

the force of the explosion will very decidedly decrease, dependent upon the proportions of the fuel-air mixture. At a height of about 15,000 feet, the atmospheric pressure, and the weight per cubic foot, of the air is approximately half of what it is at sea level, and this means that an engine at this height draws in only half the weight of air that it should have to mix with the gasoline delivered by the carburetor, with the consequent result that the power of the engine is cut practically in half. At these higher altitudes the air is thinner, and it really requires more power to keep the plane afloat than it would at sea level, and that's why I knew that that plane was very near what we call its 'ceiling.' For military use, and also for air routes that pass over high mountains, the supercharger is used. It is really just an air pump, and serves to force enough air into the cylinders to provide the correct weight of air for the gasoline charge."

The roar of the returning test-plane interrupted them, and Mr. Buyer realized that his ten minutes inspection had developed into a quickly passed hour. Hastily thanking Motor Mike, he went on down town to impress his partner Jim with his newly acquired knowledge and to boost for the purchase of an airplane by the firm.

Yesterday and Today

By L. P. BAYHA

In this story Mr. Bayha has shown a comparison of railroad transportation as it was with the old coal-burning locomotives and as it is with the modern high-powered, oil-burning engine.—EDITOR'S NOTE.

IT WAS a clear, hot July morning in the early eighties, not unlike the usual days of the season in a western prairie country except for the absence of the common trade wind.

At the little town of Benton a group of people had gathered at the railroad station to meet the train. That was the principal event of the day, not because of the commerce, important as that was, but because of an element of excitement and wonder in the awe-inspiring sight of a huge locomotive rushing with its heavy train into the otherwise quiet community.

Walking along the broad cross-lot path toward the station were two men. The one was Mr. W. L. Hardison of the Hardison & Stewart Oil Company, a genial man in his forties, the other Oscar C. Parker, an athletic young man, the official's assistant. Climbing to the platform, they put down their baggage and stood waiting with the other passengers. Turning their attention to the direction in which the others were looking, a small black cloud of smoke was seen rising above the low rolling hills east of the town and increasing in volume momentarily. "That looks like a crude-oil fire," said Mr. Hardison, addressing his assistant. "It looks black enough to be one," replied Oscar, "but since we are not in an oil country it may be our train coming," he added with a look of expectancy in his eyes.

Presently a great black object came into full view, the front of a locomotive being all that was visible because of the dense black coal smoke that rolled out of a diamond-shaped stack, enveloping the train and floating out over the country side. On it came, like a huge black lion, its great

mane waving in the air. As the train stopped at the station the cloud of smoke settled down upon the scene of activity. Mr. Hardison and Oscar followed the porter into the tourist car where they were quickly located in a center section. Oscar left the car and was looking at the engine when Mr. Hardison joined him on the station platform.

The engineer, with blackened face and clothes, climbed down from the cab to oil around. The fireman, tired and more begrimed than his companion, from shoveling several tons of coal, crawled under the engine to clean out the ash pan at the fire box. From there he climbed to the top of the boiler-head with a coal pick, where he beat the clogged spark-arrester in the top of the stack. The accumulation of fine cinders was then cleaned out from below. He climbed back to the cab, where he shoveled more coal into the fire box to keep the pressure of steam up to the requirements. By this time the engineer was in his place again and, opening the throttle slowly, he brought the engine tender in line with the water tank and coal chute. The fireman, releasing his hold on the bell rope, climbed to the top of the tender to fill the water tank; and having received five tons of coal from the coal heavers they were ready to go.

Mr. Hardison and Oscar stood on the rear platform of their car to take a last look at the little town, where they had transacted some business with a California landowner. As the train pulled away from the station Mr. Hardison called Oscar's attention to the piles of hot cinders and ashes left on the track, where they had set fire to the exposed parts of several ties. He then

pointed in the direction of a grass fire, east of the town, which he believed had been set by the sparks from the engine and, turning to Oscar, he said: "The railroad company will have another claim to examine and pay. There should be some way—" "Tickets, please!" called the conductor from the door. They entered the car, where they put their hats in the rack and made themselves as comfortable as conditions would permit for the long trip to the Pacific coast.

In the meantime they had heard a whistle and noted the application of brakes. Upon looking out they saw a great herd of cattle, many of which were on the track. The conductor explained that cattle roamed at will over large areas of that country and that besides using the engine whistle to scare them from the track, there were steam jets installed on the cow catchers of certain engines. The train proceeded carefully until it had passed the herd and then resumed its speed.

After the conductor had collected the tickets Mr. Hardison and Oscar sat quiet for some time, each occupied with his own thoughts while the train rushed westward through the open plains; the car wheels clicking with marked precision as they passed over the rail joints. Suddenly Mr. Hardison turned to his companion and said: "Oscar, you are to have a new job when we get to Santa Paula." "I, sir? Why?" "Well, I'll tell you. The demand for our oil has been small in comparison with the supply, and during the past few months I have been making a search for additional markets. An idea was taking shape in my mind when the conductor interrupted me out on the rear platform. There should be some way to burn oil in the fire boxes of these engines instead of coal. It would be less expensive and would save all this hard, dirty work. Think of the property and crops that are being destroyed by fire started from the sparks of locomotives, in spite of the fireguards plowed along the right-of-way at a cost of three dollars per mile. The passen-

gers would no longer rub the cinders out of their eyes and be glad when they had reached their destination because of the smoke and dust. Coal at Santa Paula costs us from twenty-two to thirty dollars per ton, while fuel oil first sold at \$2.50 per barrel but is becoming cheaper as quantity production is being developed. I would like for you to tackle the job of making a suitable oil burner for a locomotive boiler. How would it do to use one of our field boilers until you have perfected the burner and we will see about the locomotive later? Will you do that, Oscar?" he asked. "Yes sir," Oscar said, "I will." He had been trained along the line of mechanical engineering and this was to be a test of his adaptability. He turned to look out of the window, but all was black except for the shower of sparks from the engine.

During the night the train made its way steadily up the slope to the great midriff of the continent. With two engines the train was taken over the mountain grades and, passing through a long tunnel where coal smoke filled the cars, they began the descent. After leaving the mountains the pine trees began to grow fewer and smaller. The sage brush and bunch grass were no longer in evidence. The cactus plants were seen for a time and then disappeared. The cattle, burros, sheep, jackrabbits, coyotes and owls were successively left behind, while the last horned-toad, with nothing left but a telegraph wire for merciful shade, blinked its eyes in utter lonesomeness as the long train plunged into the desert. Two days later Mr. Hardison and Oscar reached home, feeling tired from the long trip but happy because of the prospects of a new venture.

Following a meeting of the Hardison-Stewart directors, Oscar began the work of designing and making different types of oil burners. After many experiments one was designed which worked well, and the oil producers were freed from the expense and trouble of burning coal in the field boilers.

Oscar next directed his attention toward

the use of fuel oil in locomotives. Success did not immediately attend his efforts in this direction. Officials and engineers of the railroad companies ridiculed the proposition as utterly impracticable. They contended that while it might be possible to burn oil in a stationary boiler, a solid coal fire was essential in a locomotive.

Mr. K. H. Wade, manager of the Santa Fe, furnished the incentive to continued effort on the part of the oil people by loaning them an old locomotive. At the suggestion of Mr. Ed Doble an oil tank was built in the tender and their best burner was installed in the front of the fire box. The flame soon put a blister on the boiler, which difficulty was finally overcome by building up baffle walls of fireproof material. After several experiments the engine, with Jesse Martin as engineer, was steaming up and down the track at Santa Paula in a satisfactory manner. A few days later the railroad manager sent for the engine, put a string of cars behind it and started it up the Tejon grade on its trial trip. The old engine, with more power than it had ever handled before, astonished all those who were present by pulling its load up the hill without difficulty. To Oscar this was not altogether a test of an oil burning locomotive, but he watched it with the realization that his ability as a mechanical engineer had met with success. Back of this and other even greater accomplishments of these oil people, however, were the admirable qualities of those sturdy pioneers belonging to the Hardison Stewart organization without which there would have been no Union Oil Company of California.

During the years that followed, rapid advancement was made in railroad transportation, the oil burning engine easily taking first place with its increased efficiency and longer runs.

One evening Oscar C. Parker sat in the observation end of a private car with a local official of the Santa Fe, where he was relating to him some of his experiences. The

train was on the Tejon grade and they could hear the full-throated roar of the huge four-hundred-ton, modern oil-burning locomotive as it pulled the fourteen well-equipped steel baggage, mail, pullman, club, dining and observation cars over the mountain without faltering. He told the story of railroading in the eighties; the experiment with his oil burner on this very grade; and they talked together of the many improvements which have made railroad traveling a delight and the work of operation easier. The official pictured the scene in the engine cab. The fireman dressed in his clean coveralls, gloves and cap, by merely turning a valve to the oil burner in the engine cab, feeds the fire through the small holes of an atomizer; he keeps the needle of the steam gauge at the two hundred pound mark; the water glass shows him when to supply the boiler with more water; he makes sure that the automatic lubricator is sending oil regularly to the fast-sliding pistons; when the weather is cold he turns steam into the train line to make the cars comfortable; he turns on the automatic bell for the crossings ahead and he watches the signals and repeats them aloud to the engineer. The engineer has complete control of his train, not only in the grip of the air brakes, firm and sure, but the handling of the train has been determined in advance for every inch of the clean, rock ballast-roadbed. Within his easy reach is the throttle, the reverse, and the air valves that work the brakes of the train and the auxiliary braking system on the engine itself; the sand lever; the whistle rope hangs overhead and near it are the switches for the headlight and cab light. The official then called attention to some statistics.

"It is not difficult to trace the policy back of this increased business," said Oscar finally. "Because of the absence of coal smoke, cinders and dust the passengers are enjoying the comfort of a highly efficient service—and an unobstructed view of the scenic beauty," he added with satisfaction.

NEWS OF THE MONTH



INSTITUTE RE-ELECTS E. W. CLARK

E. W. Clark, our Executive Vice-President, has for the second time received the highest honor within the power of the petroleum industry to confer, with his re-election to the presidency of the American Petroleum Institute at the eighth annual meeting of that organization held in Chicago last month. The action of the institute in renaming Mr. Clark is not only a splendid tribute to him personally, but it indicates particularly that the majority of the leaders in the industry are in accord on the conservation program that has been followed during Mr. Clark's administration.



E. W. CLARK

Mr. Clark has been active in oil conservation efforts since the organization of the National Petroleum War Service Committee from which, at the close of hostilities, was evolved the American Petroleum Institute. His re-election will enable him to carry on the work to which he has so unselfishly devoted the past sixteen years of his life.

LIENESCH HAS NEW APPOINTMENT

To represent the Sales Department in its technical or engineering relations with both the public and other departments of the company, C. F. Lienesch, formerly Assistant Engineer of Standards, has been appointed Manager of Technical Relations, reporting to J. M. Geary, Manager of Sales.

Included in Mr. Lienesch's duties will be the development of a market for Union Oil Company products in the aviation field. T. S. Lundgren has been appointed Aviation Representative to assist in developing the aviation market.

LOS ANGELES-PHOENIX RECORDS SMASHED

Bettering the record from Los Angeles to Phoenix via Yuma by an hour and 48 minutes, bettering the record from Phoenix to Los Angeles via Blythe by two hours, and establishing a round-trip record of 18 hours and 46 minutes for 925 miles with a stock Reo Flying Cloud roadster, fueled with Union Gasoline, was the accomplishment last month of two non-professional drivers of Los Angeles.

BLUM RECEIVES NORTHERN APPOINTMENT

Effective January 1, 1928, Carl A. Blum is appointed representative of the Tax Division, Secretarial Department, with headquarters at Seattle, and will handle all tax matters, including all special assessments for the improvement of streets, etc., in the Northern Division.

LOS ANGELES-PHOENIX-TUCSON AIRLINE

A regular tri-weekly passenger and express schedule has been inaugurated by the Aero Corporation of California, connecting Los Angeles, Phoenix and Tucson by air. This company will operate a fleet of Fokker Universal monoplanes, each capable of carrying six passengers in addition to several hundred pounds of express. Union Aviation products are supplied the big planes at the three points served by the line.

LEASE-HOLDINGS INCREASED

All of the producing wells of the Olinda Land Company in Orange County have been taken over by Union Oil Company as a result of an operating agreement which became effective January 1st. Payment for the oil will be made on a straight royalty basis.

The company now has under lease all of the holdings of the Olinda Land Company, amounting to 2,800 acres, which is being developed for oil.

CHANGES IN SALES ORGANIZATION

L. M. Bridgman has been appointed Manager Sales Promotion, effective January 1st. The appointment was made to secure a more intelligent control of the sales activities through the company's sales promotion system, and for the purpose of more intensive analyzation and education of all sales representatives involved within the scope of that system.

Mr. Bridgman will be assisted by a staff of Divisional Sales Promotion Supervisors composed of the following: J. H. S. Seelye, Northern Division; F. W. Pemberton, Central Division; R. H. Linden, Southern Division.

C. R. McCOLLOM RESIGNS

Effective January 1, C. R. McCollom, Chief Geologist, resigned his connections with the company to take up duties with the Prairie Oil and Gas Company of Independence, Kansas.



DESAIX B. MEYERS

Desaix B. Meyers, who has been Assistant Chief Geologist for the last four years, has been appointed Chief Geologist to succeed Mr. McCollom.

Mr. McCollom has been with the Union Oil Company for seven years, starting in 1920 as a geologist and serving as Assistant Manager of the Geological Department under Vice-President W. W. Orcutt from 1921 until the latter part of 1922, when he was made Chief Geologist.

Desaix B. Meyers has been a mining and petroleum engineer since graduating from the Massachusetts Institute of Technology in 1908. From 1910 until the outbreak of the World War, he was in private practice in Los Angeles and continued as a consultant after returning from France, until joining the staff of the Union Oil Company in 1922. He was appointed Assistant Chief Geologist of the company in 1923.

STOCKTON MOVES OFFICES

Forced to secure larger quarters for its office staff in order to properly cope with the increased business enjoyed by the Stockton sales district, the company has leased and is now occupying the entire tenth floor of the new annex of the Commercial Savings Bank building at Sutter and Main streets, Stockton.



D. R. ENSMINGER
D. S. M., Stockton

For twenty-two years the company has maintained its Stockton headquarters at its plant on Weber Avenue at Harrison street, making periodical changes and additions to meet changed conditions until all available space finally became utilized.

The Stockton District was the fourth to be established by the company, being opened in 1905. At that time Union Oil Company was represented there by a force of three men and physical equipment consisting of one fuel oil truck, a

pair of rented horses, three small storage tanks, a warehouse and office combined, and a pump house. In the intervening years the force has grown until there are now employed in the city of Stockton sixty-nine men and women, and as the result of sufficiently increased patronage to justify the installation of additional equipment, the station has been enlarged and improved upon until today the plant embraces the present office building, concrete warehouse equipped with elevator, concrete garage and truck shed for the fleet of trucks, and a storage capacity for all oils of approximately 450,000 barrels.

THIS MONTH'S COVER

Clyde Forsythe, artist and cartoonist, has painted one of his famous desert canvases for reproduction on this month's cover of the Bulletin. Forsythe, like many other notable painters of the West, has succumbed to the lure of these sun-drenched sand-wastes, and his color interpretation of the venerable old desert prospector and his ever-faithful burros will appeal to all lovers of western art.

Mr. Forsythe, as "Vic," has made thousands chuckle through his comic strip "Joe's Car," which is syndicated in many of the big metropolitan dailies.

Employees may get reprints of this cover without printing and suitable for framing for the sum of 50 cents by applying to G. G. Blue, Manager of Insurance and Personnel. The proceeds of the sale will go to the company's athletic fund.

Readers, other than employees, who desire reprints are asked to communicate directly with Mr. Forsythe at 520 North Almansor, Alhambra, California.

LATEST IN SERVICE STATIONS

Designed to conform to the general architectural scheme of the district in which it is located, the company's new service station, pictured herewith, at Wilshire Boulevard and Beverly Drive, Beverly Hills, is in arrangement a marked departure from the usual layout of service stations.

Dignity and simplicity are the dominant features of the new station. The Spanish architectural motif with its warm walls and red tile roofs, so much in favor in Southern California, was selected for the new unit.

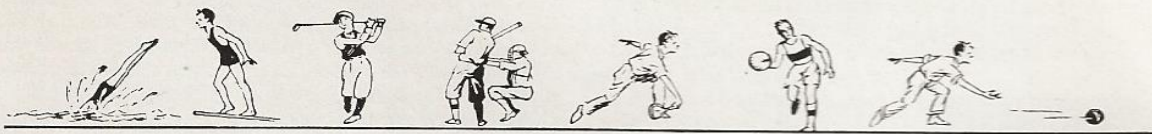
The main sales room with its tower, reminiscent of the California missions, abuts on the street line, with the canopied driveways and pumps to the rear. The canopy extends to a depth sufficient to accommodate two cars, while four pumps serve the trade.

The opening of the new service station gives the company four distinctive stations in Beverly Hills and forty-four in the city of Los Angeles.



Our Newest Service Station, Wilshire Boulevard at Beverly Drive, Beverly Hills

S P O R T S



FIFTEEN OUT OF SIXTEEN

With fifteen consecutive wins to their credit, the Los Angeles Basketball team wound up their pre-holiday schedule on December 23rd by bowing before the strong Whittier College five—the first defeat of the season. The final score was 35 to 17.

However, the boys are not downhearted. After their holiday rest they are anxious to resume play for the coveted Petroleum Athletic league flag. Four games remain to be played in this league before the final series.

FOUR-BALL FOURSOME

The Southern District Four-ball Foursome golf tournament is almost completed and the winners in each bracket will play off for prizes sometime during January. To date, those leading in their respective brackets are: Bracket No. 1, A. W. Anderson and I. J. Hancock with three points; Bracket No. 2, A. W. Koerber and W. Calvert tie with L. I. Messinger and J. McDowd, with five points each; Bracket No. 3, M. F. Robertson and Jess McClocklin, seven and a half points.

OLEUM BOWLERS

Bowling, the principal sport of the Oleum Refinery bowlers during the winter months, started off with a "bang" this season.

In October the Contra Costa County League started its fourth season with eight teams comprising the best talent in the county. The refinery has two teams en-

HEAD OFFICE BOWLING LEAGUE

With two weeks play remaining to complete the first half of the Head Office bowling league schedule, the Engineering Tigers are leading the fourteen teams with a percentage of 636, having won twenty-eight of forty-four games played. Second place is held by the Los Angeles Branch squad, while the Los Angeles Garage and the Gas Division teams are tied for the "show" position.

E. Mullineaux still holds individual honors with an average of 178 for twenty-seven games rolled.

All contests are played at the Davenport Recreation House, 1320 South Main Street, Los Angeles.

BASKETBALL AT OLEUM

Basketball is receiving a great deal of attention by the younger employees at Oleum Refinery these days. John L. Hoeh has been appointed manager by the group of twenty aspirants. A gymnasium has been rented at Crockett and practice has begun in earnest.

tered, "Union Ethyl Gas" and "Aristo Motor Oils." This is the first year for the "Aristo Motor Oils" but they are giving the older and more experienced team plenty of competition. After seven weeks of play, "U.E.G." and the "A.M.O." are second and fifth, respectively, in the league standing.



"ARISTO MOTOR OILS"

Standing, left to right: J. Bradshaw, E. Whittaker, W. Gresham, H. R. Williams. Kneeling: M. Bird, W. Kenney, H. Downey, F. Tracy.



"UNION ETHYLS"

Back row, left to right: A. Smith, N. Ronchetto, E. Ferguson
Front row: B. J. Black, L. Olivotti.

SAFETY IN THE UNION



OLEUM LIFE-SAVERS

On a recent trip to Oleum, the following story was turned up. Men who are brave are usually modest, which accounts for the fact that many a hero goes unsung.

The opening of the new Carquinez Bridge near Oleum Refinery has had far-reaching effects on the activities of many people in the Bay Region, but it was left to some of the Oleum boys to find out that the old Rodeo-Vallejo ferry slip would make a fine after-work swimming place. On Wednesday, May 25th, a group of the boys decided after dinner to take a plunge in "the briny deep." Swim? Well, all those boys were channel swimmers, but they did not know that the Carquinez Straits has some of the worst tides and currents known on the Pacific Coast.

They swam out with the tide to a pile about 300 yards from the ferry slip, and one of the men, J. T. Zerlang, noticed that he was nearly exhausted. Some of the other boys who were with Zerlang on the pile tried to return to the ferry slip but could not make it, so they went with the tide and landed on the beach several hundred yards away. Finally all had left the pile except Zerlang and W. B. McLain and when these two started back, Zerlang, due to his weakened condition, soon went under with the tide. McLain dived and brought him up and got him on his back, but due to the strong current he was carried off his course toward the center of the stream. His calls for help brought B. B. Nisson and V. F. Valerro, who had previously landed on the beach. Upon their arrival McLain was just able to reach shore. Nisson and Valerro were unable to bring Zerlang in, due to the fast current, and they were fast becoming exhausted, when LeBeuf, another swimmer, after failing in the attempt to join them, returned to the beach and got a log and with the aid of this Zerlang was floated ashore. He was nearly drowned but soon responded after the water had been removed from his lungs and artificial respiration performed for a few minutes.

Too much credit cannot be given to all the boys for their heroic fight for Zerlang's life, but the real hero was McLain, who stayed with him when he realized his weakened condition and stuck, in what seemed a losing fight. In bringing Zerlang to safety, the current pulled him and his helpless burden many times from sight. The bravery and courage of McLain and knowledge of first aid on the part of the others saved a life.

MECHANICAL SAFEGARDS

The safest criterion for judging how well to guard machinery is good horse sense. Remember that machinery accidents, if few in number, are nearly always serious. The guard that prevents contact with moving parts is always worth aiming for when laying out guards. It is true that most engine and other machinery designers seem to think that the man who oils has wings and flits from oil cup to oil cup, but even grease and oil cups can be piped out to convenient, safe points.

LUCKY "DOC" REYNOLDS

As a token of their esteem and in recognition of his efforts to make construction work at Los Angeles Refinery safe, a beautiful 32° Masonic watch charm and gold chain were presented on December 23rd to A. L. Reynolds, Resident Engineer. Milton Shell, Foreman Pipefitter, made the presentation, on behalf of the engineering construction forces, with a graceful address that made "Doc" forget for a while his famous "hard-boiled" pose. Some said he actually blushed, but that may have been the effect of the sea breeze.

INVESTIGATION OF ACCIDENTS

Safety in any branch of the oil business starts with the study of experience, goes next through a phase of engineering revision and ends in the education of personnel in safe practices. Perhaps "ends" is the wrong word, for the education of personnel never ends, if it is to be successful. We cannot, however, undertake either engineering revision or education until we know what



OLEUM ENGINEERS

H. L. Smith, Resident Engineer (at the extreme right) shows off his hundred percenters, and the no-accident flag that has flown for one year.

is causing our accidents, how serious these are and how much they are costing us and our men. The first step is therefore the very prosaic one of getting prompt, accurate account of every accident that requires first aid or medical care or that causes a man to lose time from his regular duties. The simplest means to that end is to insist that the provisions of the Industrial Accident Commission or similar governing body are strictly complied with, for in most states such accidents as I have defined must be reported. Have these reports made somebody's business, so that they are properly made out, promptly sent to headquarters and there analyzed and called to the attention of the man in charge of operations.

Every accident that so disables a man that he must leave his work, either for medical care or because he is incapacitated, should be investigated by someone competent to get at first causes. Of all the silly fiction with which this age is cursed, the worst is by all means the usual accident report. "Burned face while lighting boiler," says the report. "Few days" for estimated disability. An honest investigation reveals the following facts: The gas burner had no pilot light. The plant operator had hired a fireman on the latter's statement that he knew all about firing boilers, having rough-necked on a drilling rig. Having pinched the fire down to nearly nothing a gust of wind had struck the unprotected setting and had blown out the flame. With hand on gas valve, the fireman had peered in to see if the fire had really gone out or was merely hiding out somewhere in the firebox. The explosion which burned his face also wrecked the boiler setting. Even the "few days" estimate of disability proved to be an optimist's dream, lengthening into twelve weeks, costing the man the use of one eye and his company a medical and compensation bill of nearly four thousand dollars! There we have a picture of a plant needing engineering revision along definite lines, an organization in need of overhauling, especially in the hiring and training of men and discipline in the enforcement of the most elementary items of safe operation.

DEBIT AND CREDIT

Interest is the moving force of success and to create interest we appeal to each man in the language he best understands. Selfishness is an unkind term and so we call it enlightened self-interest, when we tell the management that certain items in the budget are for the purpose of preventing accidents. For accidents are pure waste, costly in man-power, in material, in good hard cash paid out for doctors' bills and in unnecessary suffering. Having therefore set up the machinery for getting to the man in charge of operations each day the real story of how accidents occur, it is no more difficult to get the funds to cure them than it is to overcome any other error in operating technique. If the management of any company is frequently enough hit in the eye with the cold fact that practically all accidents are preventable, the word will soon go down the line that accidents must stop. What can we truthfully say as to the cost of accidents? Just this, that there is no single item of waste in modern industry in which the cost is so high. Whether we pay the toll to an insurance company or absorb it as part of the operating expense, even the direct money cost of caring for the injured is a tremendous burden. Consider this other fact, no less true though seldom mentioned. For every dollar spent for compensation and medical care of the industrially injured, not less than four dollars are spent in incidental costs. The wrecked boiler setting, the training of a new man, the lost time of fellow workmen, the added supervision of foremen,

the upset of morale, these are items which can all be translated into dollars drawn from the profit side of our operations and to what end? When pounding sand down the proverbial rat-hole is classed among gainful occupations, then, and not till then, can management afford to become complacent about the money cost of industrial accidents.

In this connection it may not be amiss to mention that management has already seen this point. Not in every company, it is true; but in the larger, more far-sighted organizations, and also in certain departments, accidents have been outlawed as evidence of bad business. We see that fact constantly in the statistics reported to the National Safety Council and to the United States Bureau of Mines. Miller shows a constant decline in the fatal accidents among the drilling and producing personnel of the California companies. In 1922 there were 24 fatalities for every hundred million barrels produced; in 1926 the figure was but 11. Had the 1922 rate prevailed during 1923-'24-'25 and '26, 131 men would have lost their lives, who are now living. Translate that number of lives into dollars by whatever formula we will, it represents the profit due to safety. I have seen many of the results of fatal accidents in this business of ours but no poor devil laid out in death nor heart-broken widow and fatherless children have ever proved so eloquently as does the picture of these 131 men that management knows and cares, that safety pays.

HOW SAFE ARE SALESMEN?

The work of service station tank truck salesmen and other marketing employees is not classed as hazardous. They have their troubles, however, just as do the rest of us. If you would know what these are, cast your eye over the following list of typical sales accident reports:

Service Station Salesman; oiling pumps, stepped down to island, struck edge and twisted foot. Three days lost time.

Service Station Salesman; customer drove into station, knocked employee down and ran over his foot. Four days lost time.

Service Station Salesman; stage backed into him while he was filling radiator of another stage. Estimated seven days lost time.

Service Station Salesman; servicing customer's car when driver started to back. Ran over employee's ankle and knocked him down. Estimated forty-four days lost time.

Truck Salesman; cranking truck, dislocated thumb. Six days lost time.

Truck Salesman; driving nails, piece hammer broke off. Piece steel imbedded in calf of leg. Eight days lost time.

Truck Salesman; standing on end of stake truck pulling barrel over on side; customer trying to help, pulled his leg, causing employee to fall over backwards. Contusion, back, shoulders and chest. One day lost time.

Truck Driver; pushing truck backwards into garage, driver turned front wheels and ran onto man's heel. Badly sprained instep and ankle. One day lost time.

Truck Driver; cranking truck, strained back. Twelve days lost time.

Mechanic; cutting off rivets out of frame, punch flew out of tongs. Bruised great toe. One day lost time.

Warehouseman; moving empty 55-gallon containers and one fell. Fractured small toe. Fourteen days lost time.

Helper; loading truck, struck shin on bolt in board. Puncture wound. Two days lost time.

California Oil Statistics, November, 1927

PRODUCTION

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

DISTRICT	BARRELS PER MONTH		DAILY AVERAGE	
	Nov., 1927	Nov., 1927	Oct., 1927	Nov., 1926
Kern River	673,602	22,453	19,678	12,318
Mount Poso	3,565	119	85	—
Round Mountain	1,500	50	23	—
McKittrick	150,513	5,017	4,922	5,161
Midway-Sunset	2,441,006	81,367	82,602	91,144
Elk Hills	744,170	24,806	25,573	34,569
Lost Hills-Belridge	115,307	3,843	3,959	4,835
Coalinga	575,466	19,182	19,124	19,767
Wheeler Ridge	28,808	960	914	1,103
Watsonville	1,725	58	57	58
Santa Maria	197,451	6,582	5,869	4,952
Summerland	3,920	131	131	128
Goleta	8,390	280	334	—
Seacliff	1,060	35	—	—
Ventura Avenue	1,571,515	52,384	55,233	56,671
Ventura-Newhall	183,241	6,108	6,235	6,184
Los Angeles-Salt Lake	50,873	1,696	1,617	1,826
Whittier	52,147	1,738	1,748	1,834
Fullerton (Brea Olinda)	481,073	16,036	16,943	24,848
Coyote	410,140	13,671	14,051	15,513
Santa Fe Springs	1,163,440	38,781	39,143	45,176
Montebello	406,265	13,542	14,182	17,492
Richfield	672,556	22,418	21,433	17,917
Huntington Beach	1,828,500	60,950	62,608	75,333
Long Beach	3,012,029	100,401	93,759	95,509
Torrance	614,780	20,493	20,699	26,577
Dominguez	422,119	14,071	14,959	20,261
Rosecrans	243,592	8,120	7,778	14,800
Inglewood	957,307	31,910	32,646	39,947
Newport	772	26	41	61
Seal Beach	1,499,635	49,988	61,019	5,119
Potrero	—	—	18	—
TOTAL	18,516,467	617,216	627,384	639,104
October	19,448,893	627,384	—	—
Decrease	*67,574	10,168	—	—

*Increase

STOCKS

	Nov. 30, 1927	Oct. 31, 1927	Nov. Stock Decreases	Nov. 30, 1926
Heavy Crude, heavier than 20° A. P. I., including all grades of fuel	93,807,893	93,593,275	*214,618	88,606,574
Refinable Crude, 20° A. P. I., and lighter	21,371,274	21,841,747	470,473	30,224,135
Gasoline	12,812,580	12,684,662	*127,918	11,209,704
Naphtha Distillates	2,039,755	2,351,849	312,094	3,841,426
All Other Stocks	9,659,921	9,574,715	*85,206	11,022,035
TOTAL ALL STOCKS	139,691,423	140,046,248	354,825	144,903,874

*Increase

DEVELOPMENT

	New Rigs Up	Active Drilling		Completed	Daily Initial Output	Active Producing	Abandoned Wells Drillers	Producers
Kern River	18	18	16	3,010	1,341	..	..	..
Mount Poso	..	1	..	..	3	1	..	..
Round Mountain	2	6	..	..	1	..	..	..
McKittrick	3	4	2	112	317	..	..	..
Midway-Sunset	5	10	..	..	2,860	1	..	1
Elk Hills	..	..	1	25	224	..	..	..
Lost Hills-Belridge	..	1	..	..	276	..	..	..
Coalinga	..	3	..	..	983	..	..	1
Wheeler Ridge	1	1	1	40	30	..	..	..
Watsonville	..	..	..	..	6	..	..	..
Santa Maria	1	3	..	..	215	..	..	3
Summerland	1	1	..	..	91	..	..	..
Goleta	1	1	..	..	6	1	..	..
Seacliff	13	14	1	1,000	1	..	..	..
Ventura Avenue	3	27	1	3,095	104	..	..	..
Ventura-Newhall	3	18	1	50	505	3	..	1
Los Angeles-Salt Lake	..	..	..	..	331	..	..	3
Whittier	..	..	..	..	182	..	..	..
Fullerton	..	5	1	40	386	..	..	..
Coyote	..	2	1	50	208	1	..	..
Santa Fe Springs	..	3	..	..	322	..	..	..
Montebello	..	4	..	..	178	..	..	1
Richfield	..	11	5	2,102	259	1	..	2
Huntington Beach	9	24	12	2,391	596	..	..	..
Long Beach	56	57	5	15,172	645	2	..	5
Torrance	1	1	1	55	654	..	..	4
Dominguez	..	3	..	..	73	..	..	..
Rosecrans	1	1	2	163	117	1	..	1
Inglewood	3	2	2	222	225	..	..	..
Newport	1	2	..	..	5	..	..	..
Seal Beach	..	7	3	453	134	16	..	3
Potrero	..	..	..	..	..	..	..	..
Miscellaneous Drilling	16	128	..	..	..	7	..	..
November	137	358	55	27,980	11,278	34	..	25
October	87	332	61	26,101	11,242	19	..	9
Increase	50	26	6*	1,879	36	15	..	16
Average for year 1926	95	422	76	32,635	11,288	24	..	17
Average for year 1925	105	417	79	42,247	11,893	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	..	..	..
Average for year 1922	115	605	67	43,700	9,410	..	..	..

*Decrease

24
17

REFINED AND CRUDE



"We've had the best time playing post-man," exclaimed the small hopeful of the family. "We gave a letter to every lady in the block."

"But where did you get the letters, dear?"

"Oh, we found 'em in your trunk in the attic, all tied up with a blue ribbon."

* * *

A negro passenger in the steerage, who was very seasick, was bantered by his friend as being a landlubber. "Dat's correct," said the mal-de-mer victim weakly. "Dey ain't no ahgyment dere. Ah's a landlubber an' Ah's jes' findin' out how much Ah lubs it."

* * *

Shem: "We have a pair of everything on board, haven't we?"

Noah: "Yes, we have."

Shem: "Well, I hope you're right. I can't find my swimming-pants anywhere."

* * *

Cholly (to shopman): "I say-aw-could you take that yellow tie with the pink spots out of the show window for me?"

Shopman: "Certainly, sir. Pleased to take anything out of the window any time, sir."

Cholly: "Thanks awfully. The beastly thing bothaws me every time I pass. Good mawning."

* * *

Sergeant (at police station): "What! You back again?"

Prisoner: "Yes, sir. Any letters?"

We once knew a Scotchman who would never smoke cigarettes when he had gloves on. He said he hated the smell of burning leather.

* * *

Thinking to put the young couple at their ease the conductor remarked pleasantly:

"Did you know that the tunnel we just came through cost twelve million dollars?"

"Did it?" inquired the girl. Then she added, after a pause, "Well, it was worth it."

* * *

"What size bank is the one you work in?"

"Well, it takes a good story two weeks to get from the president back to the president."

* * *

An old driller became very much bored by several English stockholders that were out making a tour of the oil fields by their continual "Bah Jove," "Lord so and so," etc., and their ability to use big words, especially around the drilling well where the old driller was running tour. Reaching a point of exasperation, he yelled over to the tooldresser: "Mr. Tooldresser, please adjust the large cord to the ox wheel and we will endeavor to elevate the implements of excavation to the glorious light of this beautiful world and inspect the possibilities of reaching the oil bearing strata within the limited time allowed our venerable contractor."

* * *

A complicated traffic tangle was caused recently by a lady motorist who signaled that she was about to turn to the right and did so.

A NEW YEAR

by GRACE NOLL CROWELL

A NEW YEAR'S GIFT, *a calendar—it hangs,
A sheaf of leaves, each day a white, clean square,
And I, a pilgrim, moving down the way
To live them there.*

*The winter days are maps of glistening fields:
Unbroken stretches for my pilgrim feet.
(God, may I come to where Love's fire burns,
Steadfast and sweet.)*

*The spring days are closed gardens hedged in green
Where I shall walk new paths of keen delight.
(God, as the old brown earth keeps faith, help me
Keep my faith bright.)*

*The summer days are there to lead me on
Down little beckoning paths that twist and wind.
(God, may Hope wait at every blossoming turn
My feet shall find.)*

*The autumn days are tipped with light and flame:
The pressed wine of the gold and scarlet years.
(Should some gray day among them sadden me,
God, dry my tears.)*

A New Year's gift, *a calendar—it hangs,
A sheaf of leaves, each day a white, clean square,
And I, a pilgrim, moving down the way
To meet them there.*

