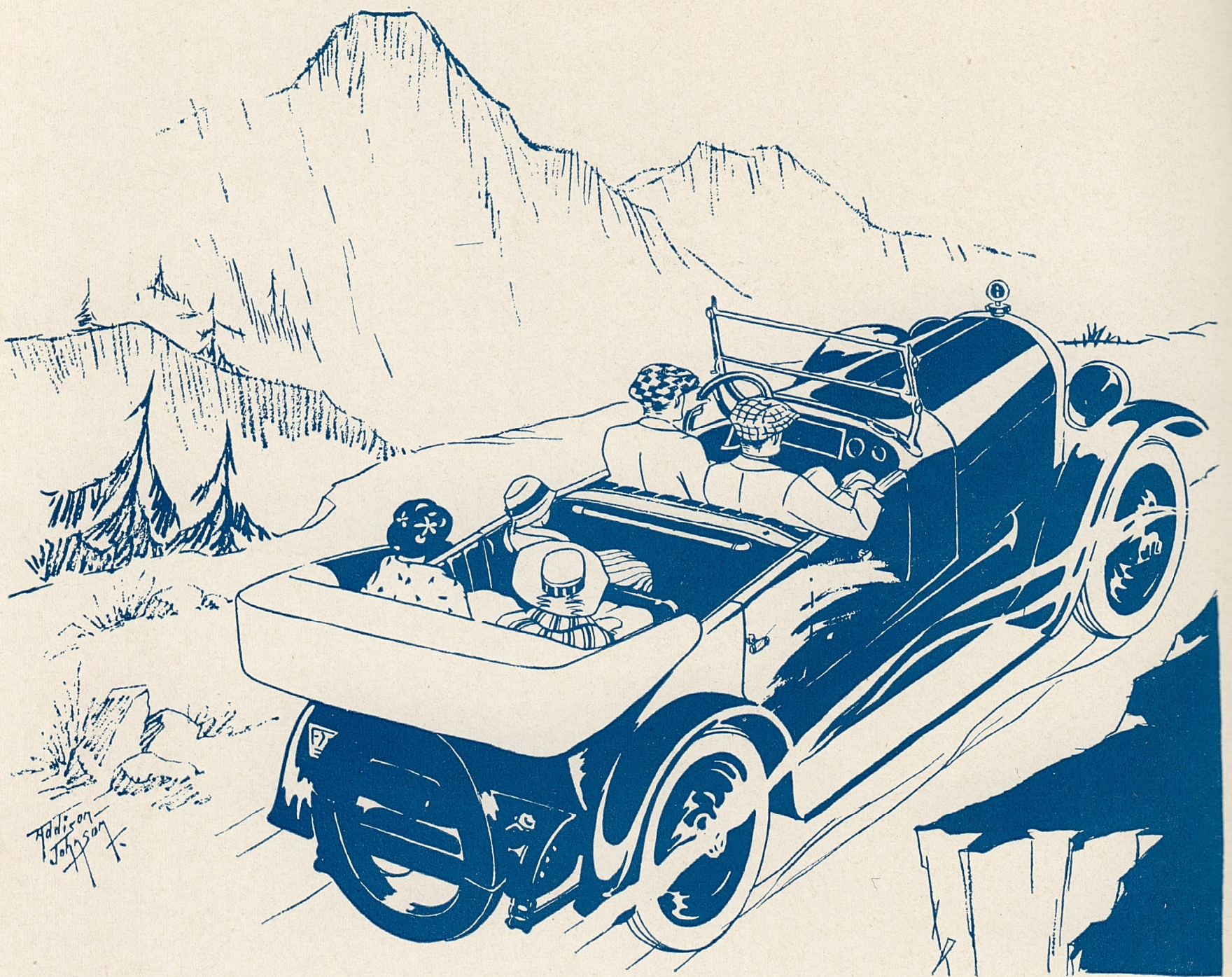


UNION
OIL
BULLETIN

OCTOBER 1927



This Week-End

Try Union-*ETHYL*
the *Super* Motor Fuel

There's a real thrill in store for those who fuel with Union-*Ethyl* on this week-end's pleasure jaunt.

More power on hills—The carbon in your motor causes increased compression. By utilizing this increased compression Union-*Ethyl* allows your engine to develop its maximum efficiency. On the hills you pass others that otherwise would be passing you.

Less vibration—Union-*Ethyl* eliminates detonation and motor shocks. Your trip is more enjoyable because your car runs smoother than ever before.

Less gear-shifting—A quicker pick-up at all speeds, less wear and tear on your motor are guaranteed with Union-*Ethyl*.

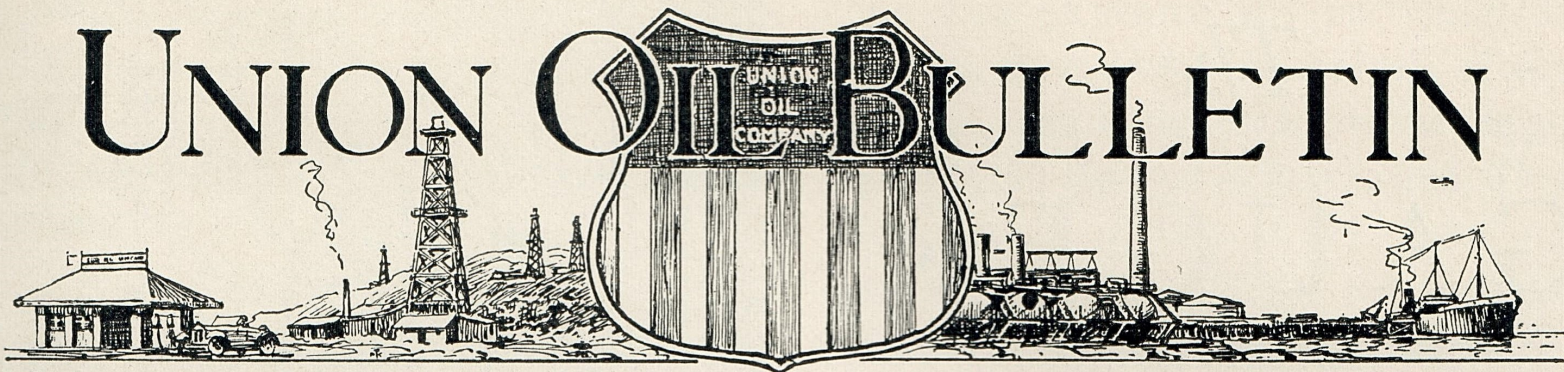
The next time you pass a Union station—fill up with Union-*Ethyl*, the *super* motor fuel. Then *enjoy* your week-end trip.

Union-*ETHYL*

The *Super* Motor Fuel

Union Oil Company

UNION OIL BULLETIN



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Address all communications to the "BULLETIN," 802 Union Oil Building, Los Angeles, Calif.

VOLUME VII

OCTOBER, 1927

BULLETIN No. 8

Loyal Service

IT IS fitting that during October, when the Union Oil Company of California will have reached the thirty-seventh year of its incorporation, those members of its organization who have served it so long and well will be awarded service emblems in the form of the Union Oil shield in recognition of long years of service with the company.

The enviable position this company holds today is largely due to the thousands of men and women who make up the great Union Oil Company personnel. They are the Union Oil Company to the public. Behind them are all the facilities of exploration, production, transportation, refining and marketing which years of steady progress have welded into one big unit of service. Without the corps of loyal workers who have made Union Oil Company, this development would have been impossible. Without their continued loyalty future progress cannot be made. The employee is the Union Oil Company—the Union Oil Company is the employee. Without loyalty to honest principle the Union Oil Company would not have reached its goal—without the loyalty of its personnel it could not have attained the success it enjoys today.

Thus October 17, 1927, will be a day for double rejoicing—on the part of the Union Oil Company of California for achievement of a great purpose—on the part of its employees for being an integral part of that achievement.

The GAUGER

by

R. S. SNEDDON

Chief Gauger



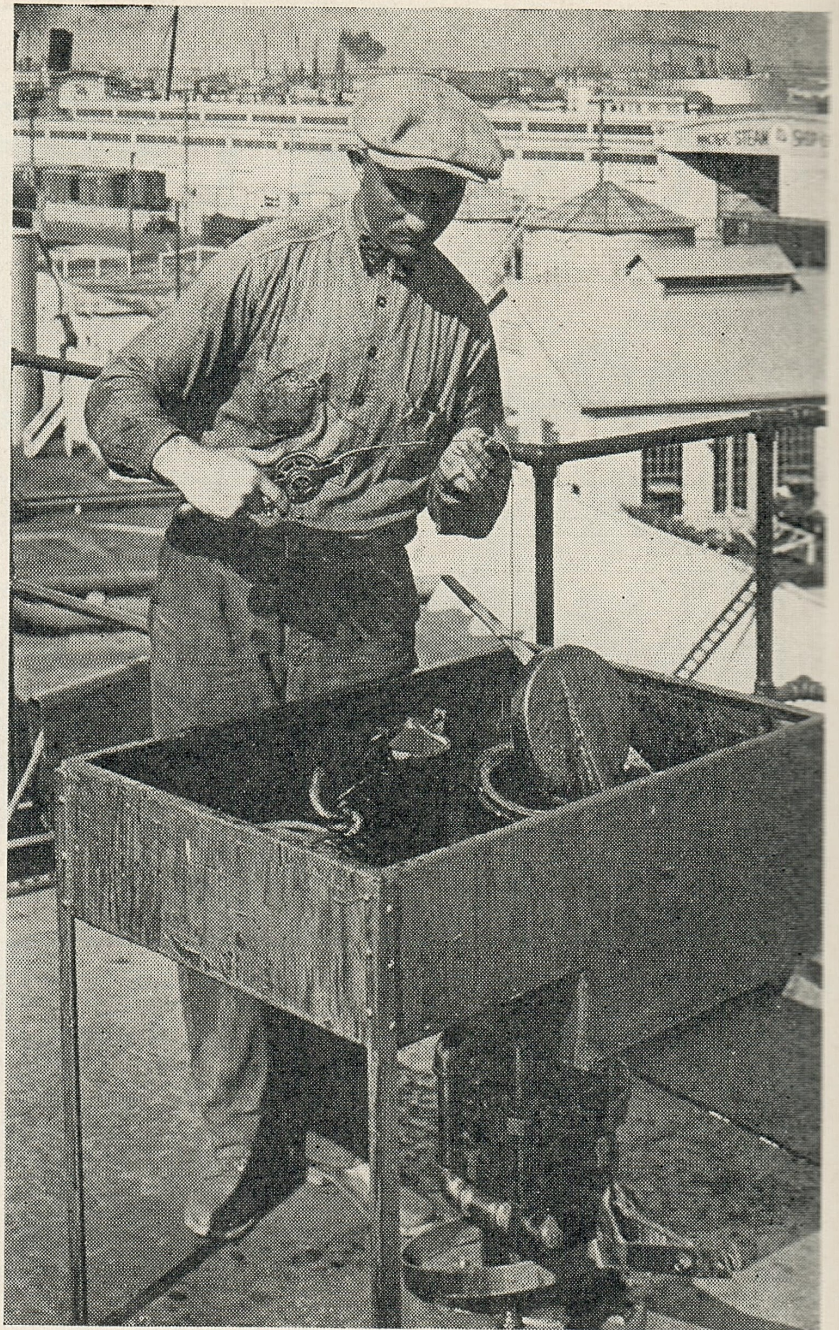
FROM the fact that the early literature is almost completely devoid of reference to the gauger or his work, one might be perfectly justified in the assumption that he is either a comparatively recent addition



R. S. SNEDDON

to the large family of oil workers, or else is an exceptionally modest individual. This lack of historic data makes it rather difficult to determine when, under his present title, he first began to play a distinctive part in the general scheme of things; but the nature of his duties

being known, it will at once be evident that even in the very beginning of the industry, someone must have acted in a similar capacity to that in which the gauger is now employed. No doubt, in those ancient days when the Burmese laboriously carried their crocks of oil down to the river bank, a tally-man with his abacus kept track of the number of loads that were dumped in the hold of each barge, and made out some sort of receipt for the cargo. Later, when the



The Gauger at work

early American settlers soaked their blankets in the oil seepages, and wrung them out into tubs, it may be taken for granted that some individual was delegated to weigh the blankets before and after delivery, and in general to act the part of gauger. It is most likely, however, that the position of gauger, as we know it today, had its inception about the time that the present pipe line system was inaugurated—that is to say, about the year 1860.

Of course, in the beginning the methods employed must have been very primitive, as we know that even in our own time they have been substantially altered in order to keep step with the general development of the industry. Many Union Oil Company employees can still recall the good old days, not so far distant, when the gauger made his rounds in a buggy, and threw rocks at the tanks to find out whether or not they were ready to ship. Night gauging

was then done by the aid of a stable lantern, which was deposited at a safe distance from the tank, and when the gauge pole was withdrawn from the oil, it had to be carried to the lantern to be read. Not the least part of the job in those days was the post of valet to the "old gray mare," and most of the boys carried out this portion of their work to such good effect that some of the venerable steeds were reputed to be able to do everything but make out a Form 190. However, as already stated, increased production and speedier and more efficient transportation methods have necessitated the improvement of gauging procedure, until today it has become a very precise and a very essential part of field operation. Union Oil Company has always been fully cognizant of the importance of this phase of the work, and has been continuously engaged in an effort to develop an accurate and reliable system of determining the quantity and quality of oil that is handled by the pipe line departments.

The dictionary definition of the word "gauger" is, "one who measures," and perhaps there was a day when that meaning may have been accepted as a complete explanation. At the present time, however, the title as conferred by our company has a vastly greater significance. True, measurements of various kinds do constitute a considerable part of the gauger's work, but the detail that is necessary to their accurate accomplishment, and the myriad of incidental tasks that fall to the lot of the gauger, eventually resolve the system into a very complicated matter.

Before actually attempting to outline the duties of the gauger, it would perhaps promote a better understanding if a brief description were first given of the equipment, and the operations involved in the acquisition of crude oil in the fields.

It must be understood at the outset that crude oils from different locations may vary considerably in their character. As a matter of fact, three distinct types are recognized

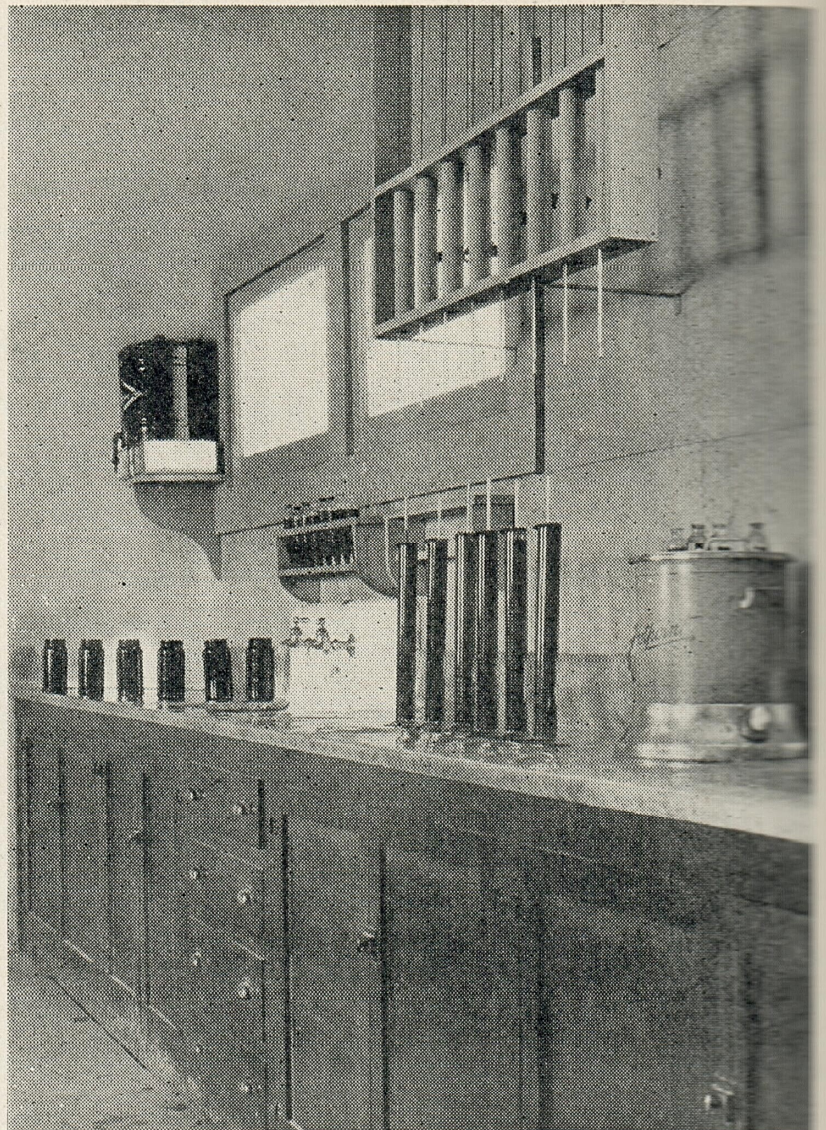
—refining crude, asphalt crude and fuel oil. The class to which any particular oil belongs is determined by analysis of advance samples, and indicates for what purpose in the refinery that oil is best suited. Thus, refining crude is rich in the more volatile products, and is used for the manufacture of gasoline, kerosene, etc. Asphalt crude contains the peculiar stock from which the lubricating oils are distilled, leaving an asphaltic base, and fuel oil, as the name implies, is low-gravity crude of a grade that is commonly used as fuel. It is, of course, necessary for obvious reasons that these three grades be segregated, and it is the duty of the gauger to acquaint himself with the nature of all oils produced in his territory, in order that he can satisfactorily accomplish this segregation. The three classes of oil are further divided into two general groups known as "Purchase Oil," and "Production Oil." The former is oil that is purchased from another company or from a lease owner, while the latter is produced by Union Oil Company on its own property.

In the gauging of purchase oil it is necessary at all times that a representative of the company or lease owner be present to witness and certify the measurements, and in the case of production oil, a representative of the field department must accompany the gauger. Otherwise, the gauging of all oils is carried out in exactly the same manner.

Union Oil Company maintains a department whose function it is to calibrate all of the tanks in which the various departments are interested. The actual measurement is known as "strapping," and from the figures obtained tables are prepared which show the capacity for every eighth or quarter inch of depth, depending on the size of the tank. Each gauger is furnished with copies of tables covering all tanks in his particular territory, and is thus supplied with a means of determining the capacity of any section of the tanks with which he has to deal. As most readers of the Bulletin are

aware, every lease in the oil fields has its own receiving tanks. In some cases small ones are erected at each individual well, and in others larger tanks are available to receive the production of a group of wells. In either case, the tanks are always arranged in pairs, so that when one is filled, the oil stream may be diverted to the other. The well tanks are connected to the company's gathering lines, through which the contents may be pumped or gravitated, either directly into the main trunk lines, or to the larger station receiving tanks. These latter are located at the main pumping stations, and if the oil is sufficiently clean and dry, i.e., contains less than three per cent of water and sediment, it may then be pumped direct to the refinery, docks or other destination through the main trunk lines. If, however, the oil contains more than three per cent of water and sediment, it cannot be handled satisfactorily in the stills at the refinery, and must therefore be dehydrated before going further. For this purpose, the pump stations are equipped with electric dehydrating plants, in which the oil is treated, until it is sufficiently dry to be acceptable to the refineries. This in brief is the course of the crude from the time it is brought to the surface at the well until it finally gets out of the jurisdiction of the pipe line department. In reality the storage and transportation is attended with a tremendous amount of detail, and is, to the layman, an exceedingly intricate and involved business. A glance at one of the pipe line sectional maps, with its maze of lines, confusion of tanks, gates and valves, will quickly substantiate this impression.

The gauger has been described as the company's representative in the field. It is his duty to determine the quantity and quality of oil delivered by the producer to the pipe line department, and when one considers the enormous quantities of oil that are handled by the various pipe line departments in the course of a year, the need for careful, precise workmen in this



Corner of a gauger's laboratory

capacity will be readily understood. The position demands a man not only of pleasing personality, but also possessing good business qualities. Fortunately, his work is such as to promote the development of these faculties. It is extremely interesting, and his life being spent in the great outdoors is essentially a very healthy and happy one.

But let us just take an imaginary trip with one of the gaugers on his daily rounds, and perhaps in that way we can get a more comprehensive idea of what his duties really are.

The leases in his district are invariably widely scattered, and he is therefore obliged, in the course of his day's work, to cover a considerable amount of territory. Luckily, the horse and buggy passed out of the picture some years ago, and now when he is ready to go in the morning, he simply steps on the starter, shifts the gears, and under the smooth, impelling influence of Union Ethyl, his snappy roadster is off over the

trails. The little auto is equipped with a specially built cabinet in which the gauger carries all of the paraphernalia required during his trip. This consists essentially of his sample jars, gauging tape, seals, and his field record book. By experience he knows offhand the production of each well in his territory, and knowing further the capacity of the well tanks, is able to determine within a very short time when any particular tank will be ready to run. Thus, when he starts out, he knows exactly where to go, and has previously made all arrangements to meet lease representatives at the points where purchase oil is to be shipped.

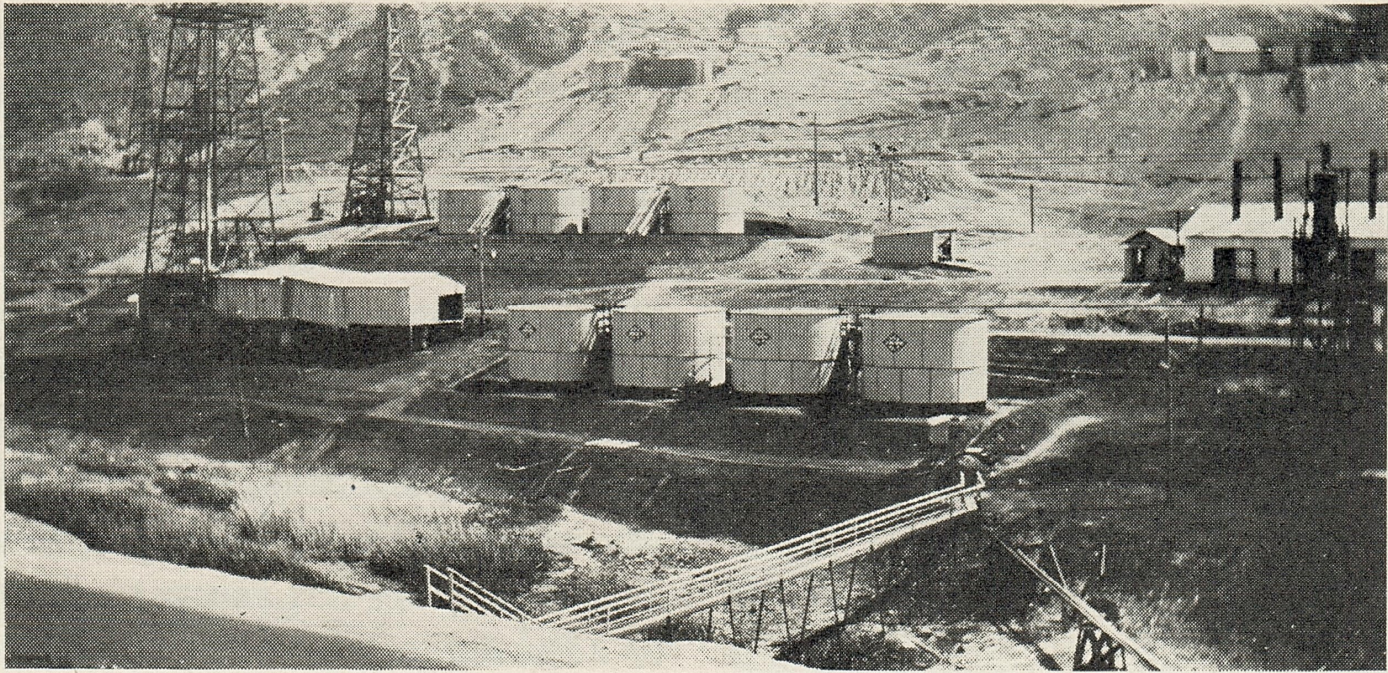
He therefore proceeds directly to the first tank on his list, and having satisfied himself that all the free water has been bled from the oil, immediately takes his high gauge reading. This he does by carefully dropping a steel inch tape through the liquid, until a plumb bob, attached to the end, just touches the bottom of the tank. The depth of oil is then read off, and the temperature determined by means of a thermometer, previously suspended at the approximate centre of the liquid. When the initial temperature has been taken, he lowers the instrument to a point that will indicate the temperature of the oil remaining, when the low gauge is taken later. The data so far acquired—the high gauge read-

ing, temperature, lease, tank number, etc.—he records in his field record book, and his next care is to secure a representative sample of the oil to be shipped.

Most tanks are equipped with a series of sample cocks, spaced at intervals on the side, and in this case, he simply draws off an equal volume from each into his sample jar. If sample cocks are not available he takes a sample with a steel bottle known as a "thief." This has an opening which may be adjusted to oils of different viscosity, by the insertion of suitable bushings, and is simply lowered through the oil to the depth of the suction line, and back, at such a rate that it is not quite full when withdrawn. The gauger, provided he knows the character of his oil, is now ready to deliver the shipment, and if the tank is on a common manifold with several others, he examines the suction gates of these latter to see that they are properly sealed. The bleeder valves, sample cocks and any other connections, from which the oil may be withdrawn, are also sealed, the gate on his shipping tank is opened, and the oil pumped or gravitated to the station tank to which it has been assigned. Of course, in all cases where the gauger is not familiar with the character of oil he is shipping, he must make his tests before turning it into the line, but as already stated, he is usually



"The good old days when the gauger made his rounds in a buggy"



A "nesting" of lease tanks

thoroughly conversant with the production of his district and can tell almost invariably whether any sample will be wet or dry.

Each gauger has his headquarters, consisting of an office where he does his clerical work, and a well equipped laboratory, both situated in the most convenient spot in his district. When he has completed his rounds and run his daily quota of tanks, he once more mounts his iron horse and returns as quickly as possible. He then thoroughly mixes each sample and makes his "cuts" and gravity tests. The cut is the field term for the water and sediment test, in which a carefully measured quantity of oil is diluted with a suitable solvent. The mixture is whirled rapidly in a centrifuge machine till periodical readings of the separated water and sediment, show that it has reached a constant volume. This determination is really comparatively simple, but on account of the great quantities of oil involved, the utmost degree of accuracy is imperative. The amount of water and sediment found in the sample is the basis on which the quantity of dry oil in the shipment is calculated, and great care must therefore be exercised in all measurements. A very small error in the result obtained might mean a considerable monetary loss to the company, and for this reason, a refinement of procedure has been developed that eliminates as far as possible any chance of error.

The gravity test needs no description here. It is carried out on all samples in the usual manner, by means of a hydrometer, and the fact that the price paid for the crude is dependent on the gravity is sufficient to emphasize the importance of accuracy.

All of the apparatus used in the laboratory tests and a considerable part of the gauger's field equipment are carefully calibrated before being accepted, and the methods of testing have been thoroughly investigated by the Research Department before being adopted.

When the laboratory tests have been concluded, the gauger has all the information he requires regarding the oil, excepting the quantity shipped. Therefore, when sufficient time has elapsed for his tanks to be completely run out, he returns and measures the depth of the remaining oil (the low gauge) and takes the temperature.

He now has all the information that is necessary to the completion of his run ticket, which is the company's official receipt for the oil. It is actually a statement of the quality and the amount of net oil received, and decides the sum that the producer shall receive for delivery. By the aid of the gauge tables, the laboratory data, and certain temperature correction factors, the amount of net oil run is calculated. This, along with all other pertinent data, is inscribed on the run ticket, and when the

document has been signed by the gauger, and the lease representative, it constitutes a certified statement, that is almost indisputable and unalterable. Needless to say, it is treated by the gauger with the deference which it merits.

The final step in the daily procedure of the gauger is the preparation of a field report giving a complete record of all crude oil movements in his territory during the preceding twenty-four hours.

In order to stimulate conscientious effort on the part of the gaugers, an efficiency system was instituted by the pipe line departments some time ago, which shows each gauger very clearly how well he is taking care of his assignment. All run tickets are checked by the Comptrollers' Department, and the errors, if any, are noted. The percentage of correct tickets is then calculated, and every gauger is given a monthly report showing his percentage efficiency compared with those of all other gaugers in the same pipe line district. Despite the fact that the boys have to write a great number of these tickets, and invariably have to write them very quickly, there are remarkably few mistakes made. Several gaugers, in fact, have registered one hundred per cent efficient, from the beginning of the year to the present time.

A few months ago, in keeping with the general policy of standardization, the company issued a book of instructions to gaugers, known as the Gauger's Manual. This manual was the result of the combined efforts of the Research Laboratory, the Pipe Line Departments, the Comptrollers' Department, and the gaugers themselves. Joint meetings of these bodies were held, and all seemed to be agreed that, as far as possible, a uniform system of gauging and testing should be adopted in the field; and after long months of patient research, numerous round-table discussions, and much hard work, the manual was finally completed in its present form. This little book now constitutes the gauger's "bible." It states spe-

cifically how the tanks must be gauged; how the oil must be sampled and tested, and how the records are to be prepared. In addition, it contains in tabulated form, the latest revised gravity, and volume correction factors. Every gauger is supplied with a copy of the manual, and is required to familiarize himself thoroughly with the contents. The book is made up in loose leaf form, in order that it may be kept up to date, and the gaugers are from time to time supplied with new leaves incorporating any changes in existing methods, or any special instruction that is to be regarded as standard procedure.

The foregoing account of the art of gauging is very far from being complete. Many important phases of the work have not been discussed, and those which have been taken up have only been mentioned in the most superficial manner. The accumulation of production data is a task that falls to the lot of the gauger and requires a considerable portion of his time. He is entirely responsible for the proper disposition of the various types of crude in the station receiving tanks, and is obliged to see that the lease pumps and other equipment are kept in order. He is subject to call twenty-four hours a day, and must be ready to hop out of bed cheerfully at two A.M., in response to the call of the dispatcher.

There is no need to point out the fact that he must absolutely know the purpose and location of all lines, gates, valves and tank connections in his district. He is the man who has always been the main source of communication between the field and the head office. In the course of his perambulations, he traverses every corner of the territory, and reports all irregularities to the dispatcher, who in turn passes the information to the particular department interested. In fact, in addition to his regular duties, he is the general handy-man of the field, and is without doubt one of the most important personages in the employ of the Union Oil Company.



Sculptured Sandstone Cliffs of the Mogollon Rim near Oak Creek, Arizona

The Mogollon Rim

By WILLARD WOOD

DRAWN by the world-known miracle that is the Grand Canyon, thousands of motorists yearly visit Northern Arizona. But the very fact that the Canyon is such a spectacle of overshadowing immensity works a certain injustice upon the rest of the interesting and beautiful things to be found in the great Mogollon Plateau, whose six and seven thousand-foot levels give Northeastern Arizona a character as different from the rest of the state as a pine tree is different from a sahuaro cactus. Few people associate such things as ice caves, trout streams, pine forests and wild turkeys with Arizona, yet those things all belong indubitably to the Mogollon Rim country. Not enough people see them, but the motor-

ist who will go into Northern Arizona with the knowledge that the Grand Canyon is merely one of many things most well worth seeing in that country is apt to come away with a lot of memories that are well worth store room in the back of his mind.

The National Old Trails road climbs to the level of the Mogollon Plateau from the west by such gigantic, easy steps that you reach its summit hardly knowing that you have climbed at all. But if you go south from Flagstaff, for example, there is a very different story awaiting you. Nobody outside of Arizona ever heard of Snebley Grade, but you come suddenly out of a noble pine forest to the abrupt edge of the Mogollon Rim, where the sculptured sandstone breaks

sheerly away to valleys two thousand feet below. It is a sight that ranks well with anything the Southwest holds, in both color and in the curious carvings of cliff and butte, but Arizona is strangely modest about it. And it is but one of many things that are not nearly well enough known about this corner of Arizona.

The California tourist who drives over the 10,000-foot summit of Tioga Pass considers himself pretty well up toward the top of the world. But the new Weatherford Highway to the summit of San Francisco peaks just outside of Flagstaff already takes you to practically 12,000 feet in the air, and when finished will give you a view from the 13,000-foot summit that will let you see into seven states, and permit your eye to range over 70,000 square miles of country surrounding the peaks. There is no clearer air in the world than that Northern Arizona atmosphere, and the San Francisco peaks are not a part of a range, but rise in solitude from the plain. In summer the upper reaches of San Francisco peaks are a vast flower garden, and in autumn the flaming beauty of the aspen trees in color is as beautiful a sight as the outdoors holds anywhere.

Out of a country still more wild and strange than that which surrounds the San Francisco peaks, Navajo Mountain on the dim northern horizon lifts its symmetrical summit ten thousand feet in air. Near it are to be found such wonders as the Rainbow Natural Bridge with its 312-foot arch of sandstone, the Elephant's Feet, Comb Ridge, Mitten Buttes and the 1,200-foot pinnacle called Agathla.

Near Flagstaff the ice caves are a natural phenomenon that have never been satisfactorily explained. Apparently the ice within the caverns in the mountain sides is a survival of the glacial period, for no new ice forms to replace that which is removed, and the winter temperatures in the cavern are not low enough to account for its formation.

Meteorite Mountain, near Winslow, is another natural wonder that no visitor to Northern Arizona should miss. Here a gigantic meteorite struck the earth with a force that buried it hundreds of feet deep. The main body of the meteor has not yet been discovered, but the crater which it left is a mile in width and 600 feet deep. The impact ground the soil to a powder like the finest flour, and raised a rim 200 feet high surrounding the crater itself.

The many cliff dwellings in Canyon Du Chelly, in Canyon del Muerto and elsewhere, furnish another objective of interest for the motorist who really takes the time to get acquainted with Northern Arizona. Oak Creek canyon, a vast chasm that runs deep into the Mogollon Rim, is another wonder spot that is all too little known.

When you plan a motor trip to Northern Arizona, don't make the Grand Canyon your only stopping place. Take the time to really see the rest of the wonders of the Mogollon Plateau, and you will be richly rewarded.



On the Weatherford Highway to Summit of the San Francisco Peaks

The Airplane in Industry

By C. F. LIENESCH

The following paper was delivered by Mr. Liensch before the technical session of the Society of Automotive Engineers held in conjunction with the National Aeronautics Convention recently at Spokane, Washington. Mr. Liensch made the trip from Los Angeles to Spokane by air. —THE EDITOR

PERHAPS all of us have tried to visualize the airplane of the future. We take some recent example of rapid mechanical development, probably the automobile, and by considering the appearance and utility of the cars in operation in the very early years of this century, and comparing their characteristics with those of present day motor vehicles, we endeavor to draw a parallel in the case of the airplane, and prophesy what it will be doing and what it will look like in 1940 or 1950. Such visions are a very important part of aviation because progress in any line is usually preceded by a dream; a dream after all being another name for an original thought.

The average layman believes, with us, that great things will be done in the future and he forms an intangible, indefinite plan in the back of his mind to go to Europe in an airplane in about fifteen or twenty years. He doesn't know whether he will be taken over the short route by way of the North Pole or whether he will travel the same great circle route that Colonel Lindbergh took. He doesn't know whether he will make it in one hop or whether he will land at a series of floating artificial islands stationed in the ocean for the purpose. The important fact is that the average man knows and considers these various points because he is versed on aviation. He is especially so since that first New York-to-Paris flight.

The picture of the future is limited only by our imagination, and long before it is realized, other inventions and discoveries yet to come will change the trend of development and change the picture materially.

In contradistinction to the foregoing it is pointed out that a situation exists today that is not a vision but an actual reality. In its present state, aviation offers a very useful form of transportation, and commerce and industry have manifold need for just such a service. It is unnecessary to wait for islands floating in the Atlantic. There are many advantageous uses for the airplane which are ready to be developed even though the North Pole route to Europe is not yet a beaten path. There are many things that will come before we acquire our permanent silver wings, but it is important that we do not wait for them; rather that we endeavor to discover wherein the airplane as at present developed can be made more useful to our business life as at present conducted.

The layman, before mentioned, is possibly a member of the management of some industry, and it is most probable that the idea of his utilizing aviation to bring dollars to his business has never been brought to his mind. He seldom goes to flying fields because there is no reason for his doing so, and therefore, he has not come in contact with airplane engineers and salesmen. His knowledge of aviation is gained mainly through the newspapers. It seems that most aircraft salesmen think the total market for their wares is at the airport, but it is in the metropolitan district where the offices of industry are located, and industry is at present the greatest potential market. In order to obtain the market that aviation requires for its best growth, it is necessary that those laymen in aviation who are men of influence in industry, be acquainted with present day aviation and its potential value to them as a working tool. They should be



A regular commercial aerial photograph of the business district of Los Angeles. Note how this type of picture gives a clearer impression of what the city is actually like than does either a map, or a photograph taken from the ground. Union Oil Building indicated by arrow.

acquainted with this new transportation from three points of view, namely, utility, dependability and cost. Dependability, which is resolved into reliability of operation and safety, and cost are matters of statistical record. These data are available to the aviation salesman and if he presents them impartially he can produce a feeling of confidence in the mind of his man-of-industry-prospect and also cause him to realize that the cost of operating aircraft is entirely commensurate with the type of service received.

However, there has been little information made readily available that points out specifically how the airplane can be made a real utility to the different industries of which our business consists. In order to produce a trend of thought that will lead to a more definite realization of the many tasks now awaiting the airplane, we will consider a few which are now very satisfactorily performed. From these we will note which particular qualities of the plane's

abilities are valuable. This will serve both as a background and gauge which will be helpful in determining if there are not many other places where airplanes are not, but might be, used advantageously. A short list of uses follows:

The air mail is the most important enterprise in the realm of commercial aviation in the United States today. It especially fits into the category of commercial aviation since the Post Office Department has ceased actual operation and turned it into the hands of private companies. It has shown a continued growth in usefulness since its inception, constantly extending its lines, flying at night, and reducing elapsed travel time in various ways. The latest development in this service is the contact with steamers ten or twelve hours out at sea, whereby mail is taken from or given to the boats, depending upon whether they are arriving or leaving. This addition to the regular mail service promises to be important.

The value of aviation as a passenger carrying service is well known. Passenger service is a matter of time saving and cost. The elements of thrill and romance do not and should not enter into consideration.

Forest patrol for fires is a branch of aviation which has been justified by the view which the airplane affords. Planes are also often used in this work to transport men to fires and to observe progress of the fire fighting. Timber cruising is a type of forestry work closely allied to fire patrol. Planes are extensively used for cruising by lumber and paper companies. These companies also use the airplane for photography to show not only the density or stand of timber but also to indicate the best manner in which to get it out.

Photography and mapping have a tremendous variety of uses in commercial work. The magnitude and nature of this work is so well known that it requires no more than passing mention to cause us all to realize its importance and worth.

The airplane is used to spray disinfecting dust on many agricultural crops, probably the most notable application being the dusting of cotton in the southern states. It is also used to control mosquitoes by dusting their breeding places with paris green, and in doing so utilizes the same valuable characteristics as in crop dusting—that is, the ability to spray a dust over a large area in a short time.

Indications are at present that in the United States the regular carrying of transcontinental express will soon be a reality. The success of this enterprise of the American Railway Express Company is being watched with interest.

Newspaper publishers find use for airplanes in transporting reporters and news copy as well as for delivering the finished product, the newspapers. A San Diego publisher has adopted a method for distributing the afternoon edition by airplane to outlying cities up to about fifty miles away. Bundles of papers are dropped to each city

by means of parachutes and one non-stop flight of the plane serves many localities. A means of distribution comparable to this is one used in the East wherein typewriters are dropped in parachutes at delivery points.

Payrolls in the oil and mining districts in Mexico are carried by airplane, both because of the hazard of robbery on the ground and the rough terrain which exists between the cities and the mines or oil fields.

A California tractor company which formerly maintained complete stocks of repair parts for its tractors in many towns, was able to reduce these stocks to the extent of several hundred thousand dollars by operating an airplane from San Francisco to provide a flexible means for the prompt delivery of the parts where needed, from a central supply.

Airplanes have been used for advertising purposes in three ways: carrying signs on the fuselage and wings, dropping hand bills, and skywriting. All three methods are open to some criticism, and advertising by means of aircraft has not developed as much as might have been expected. A great amount of valuable publicity has been given to the first companies to develop new uses for airplanes. For instance, the news copy and editorial comment that has been published regarding the Stanolind, the large plane operated by the Standard Oil Company of Indiana, has been most valuable.

This brief list of current aviation activities permits a summing up of the principal characteristics of airplane operation which make it valuable. It is also seen, however, that these desirable traits are accompanied by features which limit the usefulness of the plane. These characteristics, good and bad, will be mentioned to form a guide for developing further uses which the present day airplane can accomplish. Among the useful features are the following:

The airplane can maintain a high average rate of speed and can travel the shortest air line distances over terrain difficult of surface transportation.

It provides a point of vantage from which tremendous areas can be closely observed or photographed.

It can carry a reasonable amount of express and land it by means of parachutes even in places where the plane itself cannot land, and it can do this without interruption in flight, proceeding to another point without hesitation.

It is difficult to rob an airplane in transit; the only vehicle that can catch it is another and faster plane.

Several of the limiting features will now be brought to mind. The airplane requires a landing field which is large and costly when compared with the requirements of an automobile, but inexpensive when compared with a railroad yard. Such a field is required at each way-stop and terminal. The type of transportation afforded by airplanes is especially suitable for uniting cities, and landing fields in the hearts of cities are either impossible or expensive. Outlying fields detract from the ultimate usefulness because of the attending delay in reloading and conveying express to its actual destination, which, it might be assumed, is the heart of the city.

At present flying at night is done with considerable hazard. The air mail has shown that night flying is practicable when suitable beacons and fields are provided, but over the vast majority of this country night flying airways are not yet available for

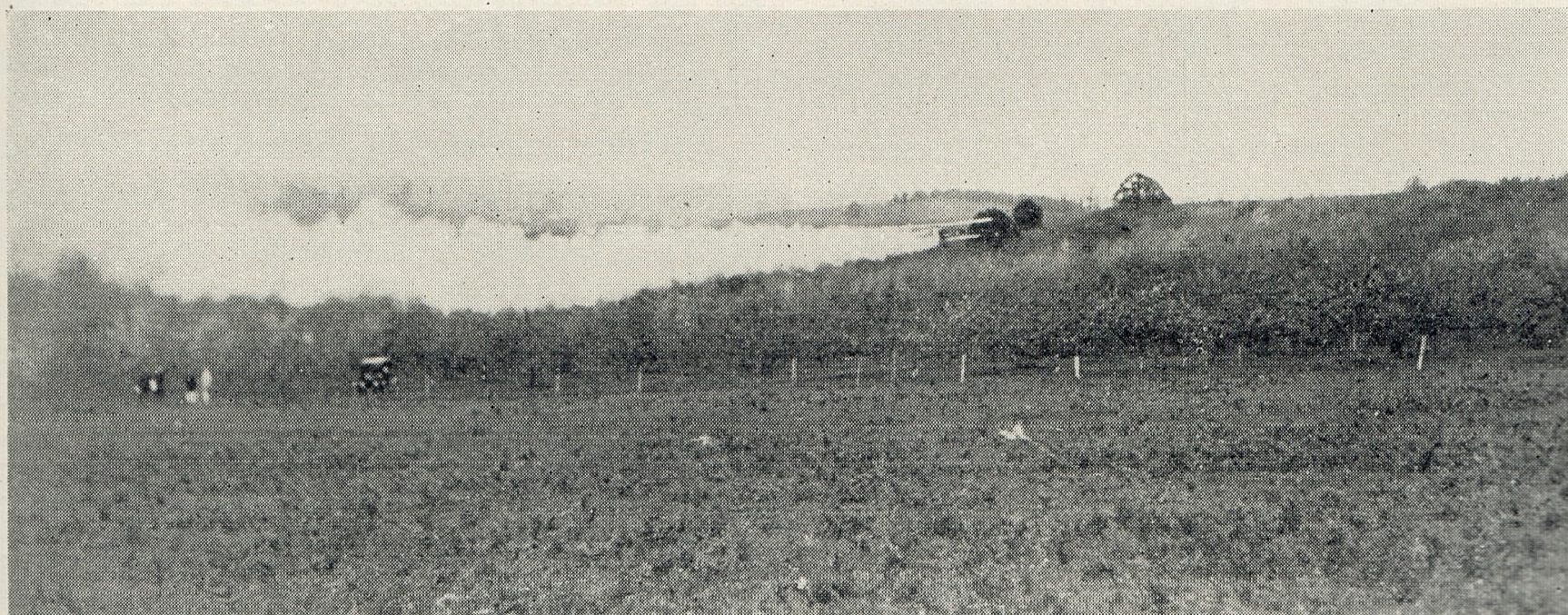
other descriptions of commercial service.

It is not yet feasible to maintain a commercial airline across the Atlantic or Pacific oceans.

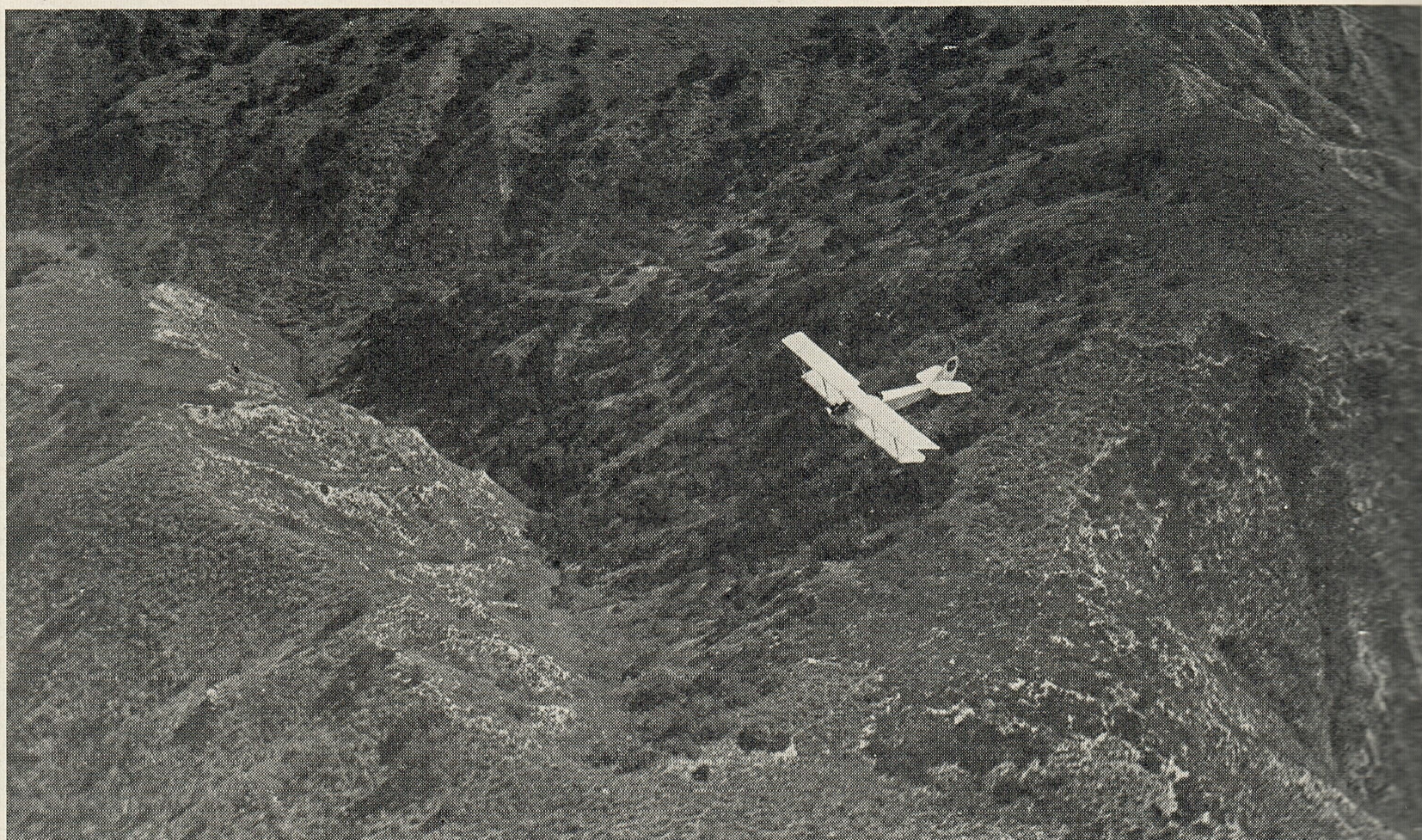
It is seen that the airplane has some very useful qualities which can be obtained at present if a landing field is available and if most of the flying is done in the day time, and not across the ocean. Knowing the jobs that the airplane is performing and understanding how it is doing them, makes us realize that it can be made useful in a large number of industries, producing benefits that are not now enjoyed.

It is evident that every company having country-wide distribution of its products has several uses for the airplane. Particularly is this true of those companies having factory branches and agencies throughout the country. Officials contacting the outlying agencies can, if they travel by air, save in time and increase the territory covered. Many of them also can use planes for the regular or emergency transportation of their products. At present, while the commercial airplane is new, the adoption of its use by large companies carries an advertising value and also constitutes a center of interest for the employees of the company which tends toward the creation of a finer morale.

These uses are general and apply equally to a wide variety of companies or industries. In addition there are uses peculiar to each



Airplane spraying, or "dusting" a grove of apple trees



Timber cruising and fire patrol are types of forestry work employing the airplane to practical advantage

type of company. For instance, oil companies might be considered. In maintaining the quality of fuels and lubricants at the highest possible point of perfection, oil companies do a tremendous amount of research work. This work requires tests in laboratory apparatus to develop the necessary academic information, and tests in regular service equipment in order to properly translate the precise laboratory data into the practical terms of ultimate use. For the coming market of aviation products the maintaining of an airplane is justifiable for its value in this work.

In the constant search for oil, accessibility is not considered when a wildcat well is located. The building of roads over which men and equipment are transported, is sometimes a stupendous task. Although such is not the case, the reason for calling these wells wildcats might plausibly be because that is the only animal that could reach some of them. Airplanes can be of enormous value not only in transporting men from points of civilization to the wells but can be used to carry in the drilling equipment. Such drilling equipment has already been designed, and one outfit has been

manufactured which is of standard size and power, but which can be taken down into pieces suitable in size and weight for airplane transportation.

The mining industry has all the uses for aviation that the oil companies have. In addition, in parts of Mexico it is contemplated to bring the mineral concentrates out from the mountains by air in a large tri-motor plane, because that method will be much cheaper than constructing the necessary road and operating surface transportation.

Cities in general are centers of influence for the surrounding country and the radius of the country influenced is dependent largely upon the available means of transportation, and the barriers, physical and political, to that transportation. Although political barriers will continue to exist, the physical ones can often be removed by the use of aviation and the radius of influence can be increased thereby. This will probably not affect the population or size of cities so much as it will cause different cities to be the centers for different activities. Rochester, Minnesota, is now somewhat of a center for certain types of surgi-

cal work, and the airplane can be used to create centers of medical and surgical specialists whose patients will be rapidly transported by plane. Groups of specialists and hospital facilities, as could be formed and made available if airplanes were used, would be of immense value to mankind. Centers, not only of medical science, but many other sciences and industries could be formed as well.

There is a field for the use of small seaplanes or perhaps flying boats in rescue work at bathing beaches. A plane stationed at the beach could reach with dispatch a swimmer in distress. Being in the air, the exact location of a person beneath the surface of the water could be ascertained. Inasmuch as first aid could be administered at the spot, a pulmotor or other first aid equipment, would be available many minutes before the rescued person could be taken ashore and the apparatus obtained from the fire department.

The railroads surely constitute an industry of widespread activities. They have need for airplanes for a multitude of purposes. Aerial surveys, rapid transportation of officials, passenger feeder planes, advertising, center of interest for company employees, and sight-seeing trips for passengers, are a number of things planes could do for railroads. The Southern Pacific railroad doubtless considers that the bus trip over the Apache Trail in Arizona is a good passenger business stimulant. Trips such as this could be duplicated by plane. The Santa Fe railroad maintains a gloriously spectacular park at the Grand Canyon and spends a fortune asking you and me to ride over their lines going to see it. Every bridge our train passes over bears the legend "The Grand Canyon Route," and we lose twenty-four hours on our transcontinental trip when we stop at the canyon. An airplane, taking passengers from the eastbound train at Kingman or Nelson, could spend several hours at the canyon and catch the same

train farther on, at Winslow for instance. It is noticeable that the one-day visitors at the canyon wander into the hotel or Indian curio shops after an hour or two at most of peering over the brink, and the airplane stop would be sufficiently long.

If railroad tickets were obtainable in New York, which would permit an avoidance of the last tedious twelve hours of the transcontinental train ride, they would doubtless find a ready sale. A large cabin plane meeting the cross-country trains at Tucson, Needles, Reno, or Spokane, would shorten the trip by several hours, relieve the tedium of the long ride and provide a wonderful scenic final lap.

Touching these few uses in a casual way is done merely to illustrate the point that aircraft salesmen must stress utility when endeavoring to get a man of industry interested in a plane for business. Aviation must justify itself and depend for its major development principally upon the assistance it can give to commerce and industry. Its breadth and usefulness will depend upon the number of applications in our everyday life for its particular kind of transportation. Countless new applications for its usefulness can be developed from the things it is now doing. For instance, the idea of taking passengers from a transcontinental train before it reaches its terminal is a logical conclusion derived from a consideration of mail planes contacting steamers at sea.

It seems that circumstances conspire to divert the public mind from the true sphere of aerial transportation. A certain glamour which was given the air services during the war helped create the impression that flying was dangerous, and the present transoceanic stunt flights have done little to change the general impression regarding hazard. Endless records show that the hard-working commercial airplane is not unduly hazardous or expensive to operate, and it performs services which many times justify its existence. Let us put the plane to work.



Mount Rainier reflected in Paradise Lake, one of the many small lakes that enhance the Alpine beauty of Paradise Valley, Rainier National Park.

Are You Studying?

By GERALD G. BLUE

Manager Insurance & Personnel

THE need for more trained men has been recognized by industrial leaders for years. The old adage that there is always room at the top for the man who is qualified holds true, and there is no question still of the fact that there is a growing realization on the part of those breaking into business life that in order to progress they must specialize along particular lines. This conviction is being instilled into them by employment managers to whom they apply for work and is also forced upon them by the ever increasing competition met within the labor market.

In these enlightened days when most concerns of any size are giving serious thought to matters of Personnel and Industrial Relations, training programs are playing an important part. Every large concern has many employees who are excellent workmen in the jobs they are on, but who, unfortunately, have not had the necessary education or specialized training to advance to higher positions in the organization. Many firms with a view to increasing the usefulness of these employees in their own plants and of assisting them to develop hitherto-unused talents have arranged classes for them at a minimum cost which otherwise would not be available. In many cases accounting classes and salesmanship courses are made available which not only qualify the employees for advancement in the organization, but which broaden their business knowledge and outlook generally.

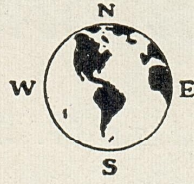
It is a number of years since the Union Oil Company first conducted organized classes, at which time, and for a few years following, courses in the company system

of accounting were held in Head Office with gratifying results. These were conducted by C. L. Craig, now Auditor of Disbursements, H. H. Hannah, now Auditor of General Accounts, and A. H. Hand, now Chief of General Accounts Division. Lately, since the organization of the Insurance & Personnel Department the scope of these classes has been extended to take in various departments outside of Head Office, and this important phase of the work is being given the attention that it merits.

At the present time forty employees, chiefly of the Gas Department of the Brea and Santa Fe Springs District and Head Office, are nearing completion of a fifteen-lecture course in Gas Operations, this course being given by Dr. S. Fischer, Jr., Professor of Petroleum Technology in the University of California. A correspondence course in Petroleum is now being organized specially for the benefit of Service Station Operators and Salesmen, and it is gratifying to know that approximately one hundred have applied for this instruction by Dr. Fischer, applications being received all the way from Vancouver, B. C. to San Diego.

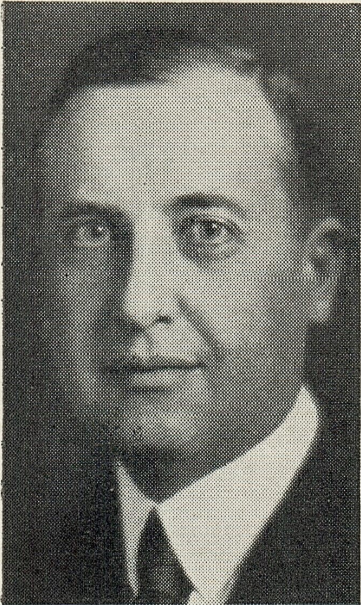
In the Harbor District at Wilmington four courses are under preparation by A. J. Copeland, Insurance & Personnel Department, which will shortly be launched, the first a course in Petroleum Technology under Dr. Fischer. About forty employees of the Refinery and others interested have submitted their names for this. The other courses consist of Accounting, Chemistry, and Conversational Spanish, all to be conducted by professors in the University of Southern California.

NEWS OF THE MONTH



GURNEY E. NEWLIN HONORED

Gurney E. Newlin, prominent Los Angeles attorney and a director of Union Oil Company, was appointed chairman of the Minerals Section of the American Bar Association at the fiftieth session of that organization held recently in Buffalo. In addition to his post on the directorate of our company, Mr. Newlin is attorney for a number of oil companies operating on the Pacific Coast and is particularly well fitted by reason of his legal training and experience to direct the work which will be handled by the minerals section. The work of the section will be largely devoted to investigating legal problems involved in the production and marketing of oil and gas and their products—problems which are receiving nation-wide attention at the present time.



GURNEY E. NEWLIN

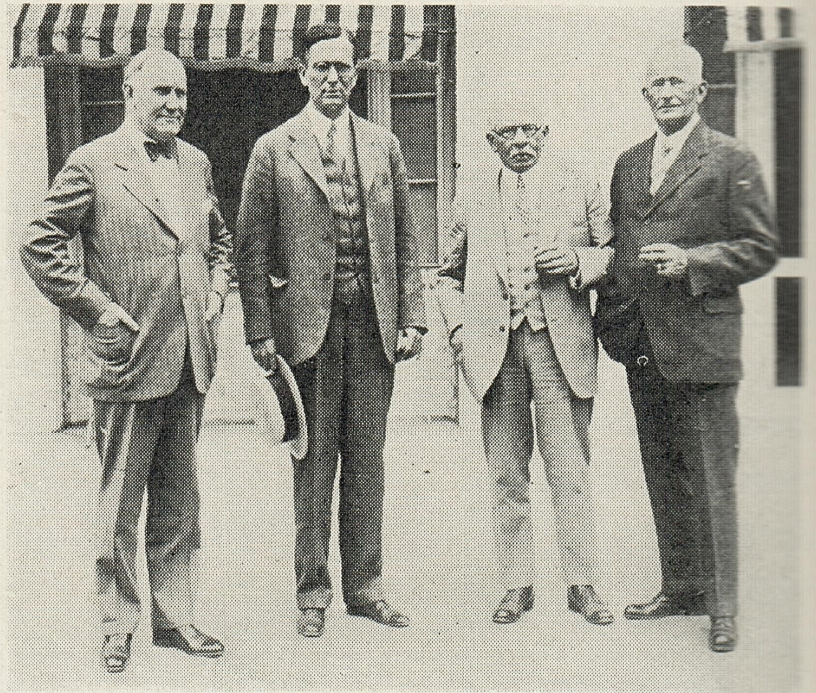
SACRAMENTO OUTING

One evening recently about two hundred employees of Sacramento Main Station, their families and friends, attended a real honest-to-goodness old-fashioned wiener roast on the American River Beach at the Lodge of the Camp Fire Girls, near Sacramento.

This outing was one of the largest and most successful ever held in the Sacramento District. The evening was indeed typical of Sacramento, cool and refreshing, and the most fastidious could not have wished for a spot more suitable for the roast.

There was a program of interesting races for the ladies, men and kiddies, suitable prizes being awarded to the winners. Many enjoyed the thrills of a ride in a speed boat, using Union-Ethyl and Aristo. The outstanding feature of the evening was a three-inning baseball game between the ladies and the men, who were required to play left-handed. The final score was a tie, three to three.

At seven o'clock the fires were lighted and all gave evidence of keen appetites, enjoying the wieners and buns, watermelons, and hot coffee. The remainder of the evening was given over to games and music.



OIL MEN MEET

Photo shows four members of the committee of seven named by the American Petroleum Institute to devise ways and means for the economical production and conservation of American oil, at the meeting held last month at Colorado Springs, Colorado. Left to right: L. P. St. Clair, vice-president of Union Oil Company; R. L. Welch, secretary of the institute; E. W. Clark, president of the institute and executive vice-president Union Oil Company; J. Edgar Pew, former president of the institute and president of the Sun Oil Company.

TO TULSA

C. R. McCollom, Chief Geologist, and F. W. Lake, Superintendent of Production, Orange District, attended its Fourth International Petroleum Exposition at Tulsa, Oklahoma, September 24th, to October 1st. Mr. McCollom will visit the Oklahoma, Texas and Colorado fields before returning home.



Left to right, back row: Messrs. Davidson, Myer, Ash, Fish, Eckmann, Webber. Front row: Miss Hargrave, L. W. Rackerby, Miss Chalmers, Miss Purcell, Miss Power and Frank Kelly

SERVICE EMBLEMS

In the August issue of the Bulletin an announcement was made by G. G. Blue of the proposal to present Service Emblems to all employees of the company with ten years' service or over.

Further particulars in this regard now obtained reveal that the emblems, which are of gold and of very handsome design, are being turned out as quickly as the jeweler's art will permit, and although there will be between eight and nine hundred required we are assured they will be ready for the date of presentation, and that they will be something of which the recipients may feel justly proud.

It has been decided to make the presentations in the various districts as nearly as possible to the anniversary date of the incorporation of the company, which is Oct. 17th, and several departmental officials and executive officers have been chosen to do the honors on this memorable occasion.

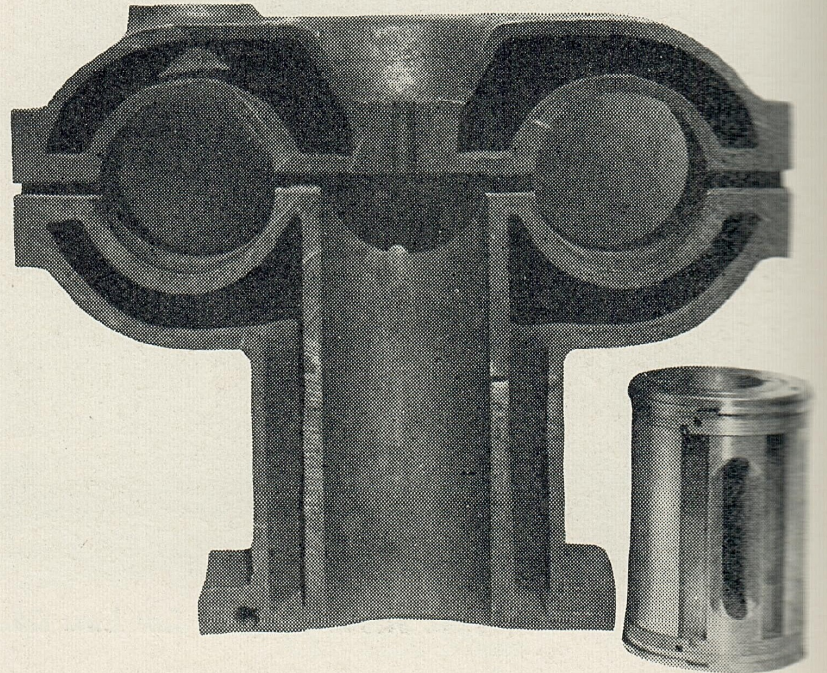
The task of checking and verifying the service records of every employee of the company is a tedious one, but the work is proceeding rapidly and will be completed shortly. The years of service will be counted as from Oct. 17th each year to simplify the keeping of the records. Succeeding presentations will be held annually as near the anniversary date as possible.

BULLETIN COVERS AVAILABLE

In response to the widespread demand for Bulletin covers, it has been arranged that employees can secure prints of these canvasses by outstanding artists of the West at a nominal cost of 50 cents each, effective with the November cover. The profits derived from the sale of these cover prints will be applied to a fund to foster athletics among company employees. Requests for prints should be addressed to G. G. Blue, Manager of Insurance and Personnel. Bulletin readers, other than employees, who desire to secure prints, should address their requests direct to the artist whose canvas is reproduced, and whose name and address will be carried in the Bulletin of that issue.

ETHYL DEMONSTRATED

The super efficiency of Union Ethyl Gasoline as an automobile motor fuel was demonstrated in a rather unique way in Fresno last month. A new type of motor, built by T. M. McKelvy of Fresno, was placed on a test stand and operated for several hours to demonstrate the practicability of a rotary valve feature of Mr. McKelvy's invention. Fuelled with domestic gasoline, the motor turned 2,400 r.p.m. without load and with very little vibration. Then without touching the throttle or the spark the temporary gasoline line was lifted from the tank of domestic gasoline and inserted



Rotary valves are the coming thing in automobile motor construction, according to T. M. McKelvy, of Fresno. Photo shows cross section of cylinder employing valve of Mr. McKelvy's invention. The valve itself, with slot through which gas mixture enters, is at the lower corner.

in a gallon can of Union Ethyl Gasoline. In a moment or two the operation of the motor perceptibly changed. It increased its speed considerably and the vibration was practically eliminated. The speed indicator crawled from 2,400 r.p.m. to 2,900 r.p.m., an increase of more than twenty per cent.

Sails of Brittany

EDGAR ALWIN PAYNE is an American landscape painter whose outstanding qualities both as a technician and an artist have been proclaimed by well known critics in Paris and New York, a high estimate that is verified in his own exhibitions.

He has received medals and honors at home and abroad. Wherever there is warmth and variety in color, a contrast of plastic and static form—wherever nature has unfolded one of its divine masterpieces, Payne has made a pilgrimage, faithful as to a shrine.

His wanderings carried him to the coast of Brittany in France. He lingered there long and often round the harbor of Concarneau—and little wonder! To the right and left, before him and behind him, lay the ingredients of innumerable pictures in smiling repose. The blue bay, gleaming like a mirror—the fluttering sails of light reds, yellows and greens—the brightly painted hulls of the boats—the protecting sky—all of which have been arranged into the charming picture "Sails of Brittany"—our cover this issue.

S P O R T S



BOWLING SEASON STARTS

The success of the initial championship tournament held last year, which was won by the Phoenix Sales District, has aroused a great deal of interest in inter-departmental bowling competition. Indications point to a much larger entry list this year, as many districts and departments are organizing leagues in preparation for the play-off at the close of the season.

Word has just been received that a ten-team bowling league is being organized in the Dominguez District, and a similar organization is being formed in Orange County. Both leagues have an abundance of good material on tap, and should prove strong contenders for the laurels. The Dominguez league will play at Compton, and the Orange County League will hurl the destructive pellets at Fullerton.

GIRLS' GYMNASIUM CLASS

The new term of the Girls' Gymnasium Class opened September 19th at Belmont High School with Miss McGowen again as instructress. A large number of girls have adopted this means of healthy recreation, and are thoroughly enjoying the games and sports included in the curriculum.

WINS LEAGUE HONORS

The Los Angeles Refinery Baseball team defeated the Wilmington Cubs by a 3-0 score September 19th and thereby annexed the season's honors in the Harbor Baseball League. Air-tight twirling on the part of Dill was largely responsible for the shut-out.

FOUR-BALL FOURSOME

The closing date for entries in the Round Robin Four-ball Foursome Tournament, which is scheduled to begin October 1st, witnessed a final rush of golf enthusiasts, and teams are now being arranged for the initial play. All entrants are urged to familiarize themselves with the rules and methods of scoring, and to turn in the results of their matches as soon as possible after play.

TENNIS TOURNAMENT UNDER WAY

The first games of the Ninth Annual Union Oil Company Tennis Tournament were played on the courts of the Fullerton High School at Fullerton, California, September 24th. Events staged were Men's Singles for President's Cup, Men's Doubles and Ladies' Singles for cup presented by the Geological and Land Department. The finals will be played at the Los Angeles Tennis Club on Saturday, October 1st.

In addition to the silver cups presented by the President and Geological and Land Department, prizes will be awarded to the runners-up in the various events.

LOS ANGELES CAGEMEN ACTIVE

The premier practice of the 1927-28 Los Angeles District basketball team at Belmont High School September 23rd displayed an array of hoop talent second to none in the career of the company as a contender for Petroleum Athletic League honors. All of last year's regulars returned, augmented by an exceedingly promising platoon of recruits—forty men in all. And one fact that is causing Coach Bill Bates to chortle with glee is the predominance of six-footers among the new comers. If the aggregation proves as speedy as it is beefy, they'll win lots of basketball games, according to Coach Bates.

Practice workouts are scheduled for every Tuesday and Friday night at Belmont High Gymnasium in preparation for the first tilt of the season November 1st.

L. A. BOWLING LEAGUE LAUNCHED

Under the leadership of A. W. Koerber, Engineering Department, the Los Angeles District bowling league is anticipating another successful season. Applications for entry have been received from fifteen teams, according to the league's secretary, M. R. Ruedy, but the list has been pruned to fourteen in order to avoid a complicated schedule. The league has expressed a determination to lift the Major Burnham Trophy, now held by Phoenix, when the play-off takes place next spring.

The company will again enter a team in the Los Angeles Petroleum Athletic League, which commences October 5th, at the Angeles Bowling Alleys. A longer schedule has been arranged this year, the teams bowling three times around instead of twice around, as in former year.

SOUTHERN DISTRICT GOLF LADDER

Below is a list of the first thirty-two players and their positions on the ladder as of October 1st, 1927:

No. 1 Team	No. 1-A Team
1. S. D. Herkner	9. M. F. Robertson
2. Ronald Gibbs	10. C. S. Morgan
3. L. I. Messinger	11. E. V. Manico
4. John T. Howell	12. H. C. Ferry
5. A. W. Koerber	13. W. L. Standard
6. A. Stanley Clarke	14. C. R. Erb
7. R. H. Hornidge	15. R. E. Haylett
8. T. J. Collins	16. C. J. McKeever
No. 2 Team	No. 2-A Team
17. J. B. Arthur	25. C. F. Lienesch
18. R. W. Martin	26. J. B. Parks
19. A. W. Anderson	27. C. R. McCollom
20. Gerald G. Blue	28. T. E. Purkiss
21. Earl Fields	29. E. T. Ragatz
22. John Potts	30. Lawrence Wolff
23. E. S. Fuller	31. C. W. Fritz
24. L. G. Metcalf	32. H. C. Yarbrough

SAFETY IN THE UNION



National Safety Congress

Nearly five thousand safety advocates assembled in Chicago during the last week of September in the Sixteenth Congress of the National Safety Union. Hundreds of speakers at scores of sectional meetings told of their success and their hopes for the future of accident prevention. Only a great successful movement could bring together year after year so vast a gathering.

Our own company sent W. S. Grant, Assistant Manager of Personnel; Chas. Johnson, Supervisor of Safety, Personnel and Insurance for Colorado, Wyoming and New Mexico; Hugh A. Matier, Supervisor of Safety, Department of Exploration and Production, and Geo. F. Prussing, Secretary Safety Board. The latter was elected to the position of Chairman of the Petroleum Section of the National Safety Council for the ensuing year.

Pacific Coast Conference and First Aid Meet

Los Angeles will again be host to several hundred delegates to the Pacific Coast Safety Conference to be held at the Biltmore Hotel October 24th, 25th, and 26th. This conference has become an annual affair alternating between San Francisco and Los Angeles since 1924.

Cooperative sponsors of the convention include the Society of Safety Engineers, San Francisco, California Industrial Accident Commission, United States Bureau of Mines, National Safety Council and a large number of the important industrial institutions of California. As a most important part of the program will be held the fifth annual first aid meet for industrial and municipal teams. The meet will witness

competition between more than thirty highly trained teams. In addition to the State trophies for first and second teams placing in the contest, there will be numerous valuable prizes. First place in the four preceding meets has gone three times to Standard Oil Company of California and once to Union Oil Company of California (Los Angeles Refinery—1924).

Safety Flags

A tattered green flag, a veteran of months of exposure to the elements, came back to the office of the Safety Board. For more than 270 days the construction crew of the engineers at Oleum, under H. L. Smith, had looked up at this emblem of safety and been reminded that here was another day to be added to the score.

The record still goes on accumulating, a new flag has joined the rooster at the top of the pole, but the spirit of the company's first safety flag still carries on.

Dominguez engineers took unto themselves by a most narrow margin, the flag which has long decorated the lawn at Brea. Other than that there was no excitement. Both Pipe Lines went through the month of August without a single lost time accident. Oleum still keeps a margin ahead of Los Angeles Refinery while the three engineering offices in the Sales Divisions tied with one injury each.

Le Roy Adams, who was burned on November 15th, 1926, at a sump near Callender Well No. 3, died on September 16, 1927, as a result of his injuries. Mr. Adams slipped into an oil separating sump from an operating walkway.

California Oil Statistics, August, 1927

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		
		Aug., 1927	July, 1927	Aug., 1926
Kern River	526,823	16,994	16,176	11,503
Mount Poso	1,173	38	34	—
Round Mountain	—	—	16	—
McKittrick	156,930	5,062	5,001	5,231
Midway-Sunset	2,634,896	84,997	86,272	93,354
Elk Hills	772,349	24,914	25,809	34,814
Lost Hills-Belridge	121,771	3,928	3,696	4,612
Coalinga	596,101	19,229	19,646	19,446
Wheeler Ridge	31,821	1,026	1,009	1,077
Watsonville	1,783	58	57	58
Santa Maria	181,448	5,853	5,742	5,002
Summerland	4,203	136	136	129
Goleta	10,438	337	323	—
Ventura Avenue	1,421,202	45,845	38,146	46,803
Ventura-Newhall	184,423	5,949	6,110	6,084
Los Angeles-Salt Lake	54,336	1,753	1,711	1,848
Whittier	51,028	1,646	1,724	2,003
Fullerton (Brea-Olinda)	568,913	18,352	17,854	18,762
Coyote	409,930	13,224	13,528	16,464
Santa Fe Springs	1,233,123	39,778	41,313	48,387
Montebello	437,664	14,118	14,454	18,058
Richfield	687,211	22,168	22,766	17,531
Huntington Beach	2,124,985	68,548	69,561	44,375
Long Beach	2,820,743	90,992	92,500	100,355
Torrance	683,401	22,045	22,789	28,072
Dominguez	470,583	15,180	15,951	21,953
Rosecrans	263,590	8,503	8,776	13,599
Inglewood	1,041,797	33,606	34,303	44,727
Newport	635	20	26	47
Seal Beach	1,785,831	57,607	57,763	1,032
TOTAL	19,279,131	621,907	623,194	605,325
July	19,319,021	623,194		
Decrease	39,890	1,287		

STOCKS

	Aug. 31, 1927	July 31, 1927	July Stock Decreases	Aug. 31, 1926
Heavy Crude, heavier than 20° A. P. I., including all grades of fuel	93,201,679	93,073,707	* 127,972	88,452,937
Refineable Crude, 20° A. P. I., and lighter	23,931,170	25,639,883	1,708,713	32,152,958
Gasoline	12,386,669	12,846,249	459,580	10,421,903
Naphtha Distillates	3,104,755	3,413,614	308,859	4,755,297
All Other Stocks	9,226,965	9,786,052	559,087	10,471,989
TOTAL ALL STOCKS	141,851,238	144,759,505	2,908,267	146,255,084

*Increase

DEVELOPMENT

	New Rigs Up	Active Drilling	Completed	Daily Initial Output	Active Producing	Abandoned Wells	
						Drillers	Producers
Kern River	16	18	10	2,110	1,300	..	..
Mount Poso	..	1	..	..	..	..	..
Round Mountain	2	3	..	..	..	..	..
McKittrick	2	1	..	..	311	..	..
Midway-Sunset	1	3	4	171	2,877	2	2
Elk Hills	..	..	..	..	231	..	..
Lost Hills-Belridge	..	2	..	..	242	..	..
Coalinga	..	4	2	206	980	..	..
Wheeler Ridge	1	1	..	..	29	..	..
Watsonville	..	..	..	..	6	..	..
Santa Maria	..	4	..	..	228	..	..
Summerland	..	2	..	..	92	..	..
Goleta	1	5	..	..	4	..	..
Ventura Avenue	1	19	6	11,650	88	..	..
Ventura-Newhall	1	24	..	..	506	..	..
Los Angeles-Salt Lake	..	..	..	..	339	..	..
Whittier	..	..	..	..	183	..	..
Fullerton	2	6	2	1,208	382	..	..
Coyote	1	4	2	325	212	..	..
Santa Fe Springs	1	2	..	..	326	..	1
Montebello	..	2	..	..	185	..	..
Richfield	3	17	8	1,821	246	1	..
Huntington Beach	6	34	19	6,387	581	..	2
Long Beach	7	20	5	2,214	661	..	10
Torrance	..	1	1	68	658	..	..
Dominguez	..	1	..	..	76	..	..
Rosecrans	..	1	..	..	115	..	5
Inglewood	4	1	1	295	222	..	..
Newport	..	2	..	..	4	..	..
Seal Beach	5	37	15	15,821	118	..	1
Miscellaneous Drilling	13	130	..	..	..	7	..
August	67	345	75	42,286	11,202	11	21
July	78	345	70	31,480	11,279	17	14
Increase	11†	..	5	10,806	77†	8†	7
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	..	..
Average for Year 1922	115	605	67	43,700	9,410	..	..

†Decrease

REFINED AND CRUDE



Mr. Spendix: "Any instalments due to-day?"

Mrs. Spendix: "No, dear, I think not."

Mr. Spendix: "Any payments due on the house, the radio, the furniture, the rug or the books?"

Mrs. Spendix: "No."

Mr. Spendix: "Then I have ten dollars we don't need. What do you say if we buy a new car?"

* * *

Helene: "Better give him the money in nickels."

Harry: "Why?"

Helene: "He looks so bad. I think the change would do him good."

* * *

Lad: "Father, what makes the world go 'round?"

Dad: "Son, I've told you many times to keep out of the basement."

* * *

One night an old negro heard a flutter among his poultry.

"So I takes down my gun," he says, "an' creeps 'long in de dark. De doah of my chicken house is wide open an' I stick de revolvah inside an' says, Ef yo' don't come outen dat yo' low thiev'n niggah who's in dere, I jest blow yo' black head to pieces.

"He don't let on, an' I shout out agen, 'Who dah?'

"Den I heah that crim'ny niggah say, 'It's only us chickens'."

* * *

Boy (accompanied by smaller boy): "I want a tooth out, an' I don't want gas 'cos I'm in a 'urry."

Dentist: "That's a brave young man! Which tooth is it?"

Boy: "Show 'im yer tooth, Albert!"

First Barber: "Nasty cut you've given the old gent, Bill."

Second Barber: "Yes, I'm courtin' his 'ousemaid—that's to let 'er know I can see 'er Tuesday night!"

* * *

Motherly Old Lady to Small Boy: "My dear, does your mother know you smoke?"

Small Boy (coldly): "Madam, does your husband know you speak to strange men?"

* * *

City Girl: "What's worrying you, Dave, dear?"

Dave: "I was just wonderin' if dad would be sport enough to do th' milkin' w'en we're on our honeymoon s'posin' yeh said 'Yes' if I asked yer."

* * *

A little boy in a car kept sniffing and rubbing his nose. A lady sitting beside him asked:

"Have you got a handkerchief, sonny?"

"Yes," was the reply, "but I don't lend it to strangers."

* * *

Smithers (in a rage): "That man is the biggest fool in the world."

His Wife (comfortingly): "Henry, Henry, you are forgetting yourself."

* * *

Nurse: "Professor, a boy has arrived."

Absent-minded Professor: "Ask him what he wants."

* * *

Judge: "Guilty or not guilty?"

Fair Motorist: "What else have you?"

* * *

She: "Do you know I have the soul of an artist?"

He: "I knew you painted the minute I looked at your face."

Sunset on the Painted Desert

HARRY • E • RIESEBERG

AROUND IS SAND and in the distant hills
Whose ruddy sides glow in the setting sun,
No living green, the heated, scorched earth
Lit by mysterious splendor as the day
Is ended. Blue and orange is the east;
The west all gold; and stillness over all.
The scene is hallowed, and a reverence
Springs in the softened heart the while the eye
Dwells on the splendors of the dying day.
And distant stands, black set on russet ground,
A Navajo in Indian hut, and near the door
A pony silhouetted on the desert sky;
A yellow globe, the sun drops in a sea
Of gold, while quickly turn the ruddy cliffs
To duller hue; a cool, sweet-scented breeze
Springs like a lover to embrace the night.
A feathered creature of the dusk pipes up
As flitting aimless by from level to cliff
He bathes his wings in cooling welcome eve.
Meanwhile, we jaded children of the West
In pensive meditation seek our rest.

