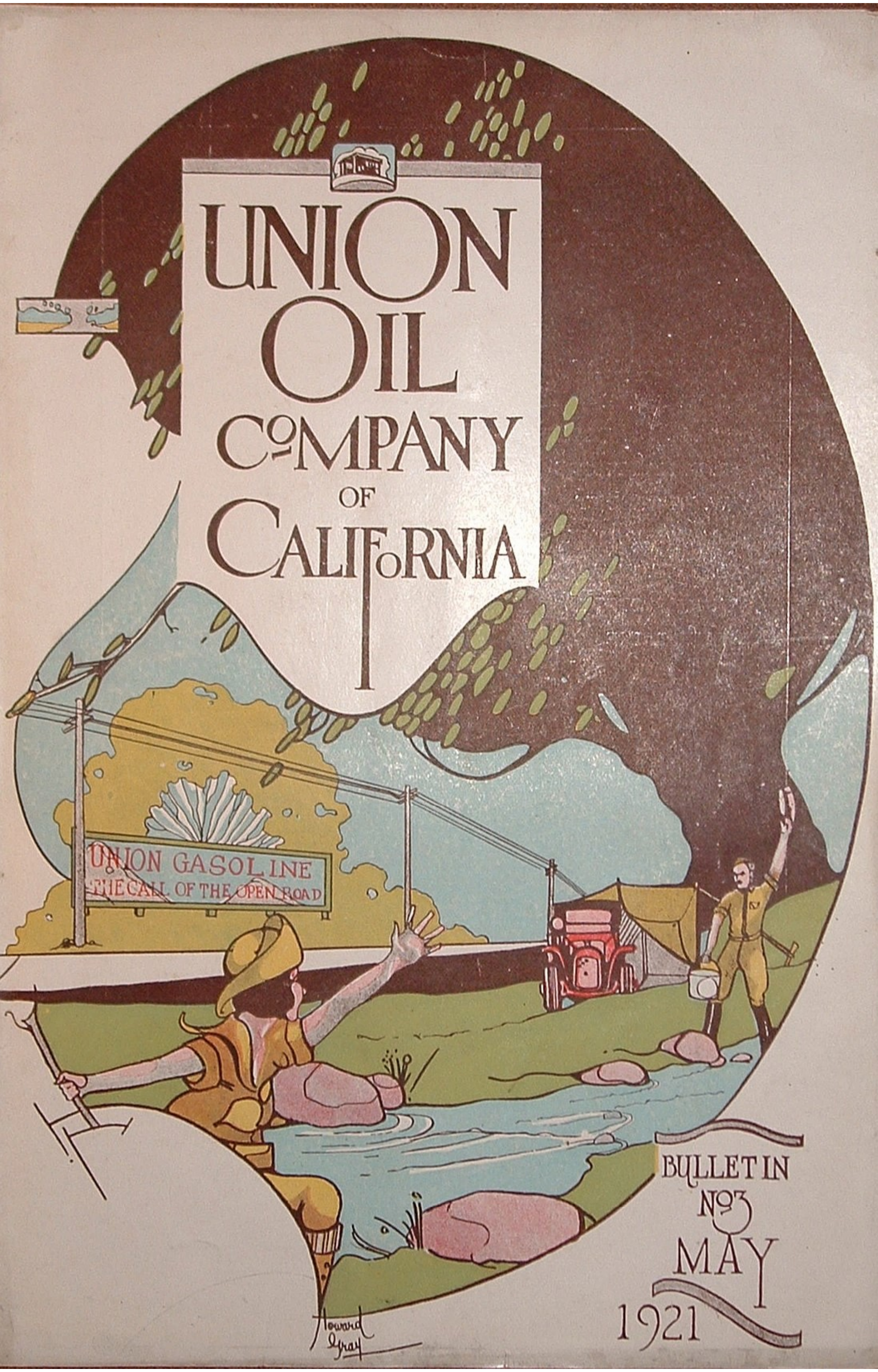
UNION OIL COMPANY OF CALIFORNIA



BULLETIN
No 3
MAY
1921

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Union Oil Company of California

Comptroller's Department

VOLUME 1 MAY, 1921 BULLETIN NO. 3

E. W. Eldridge

EXECUTIVE VICE-PRESIDENT

Mr. E. W. Clark

It has been aptly said of Mr. E. W. Clark that he is the "Sphinx of the Oil Industry," and this quality of silent wisdom has perhaps had much to do with his remarkable rise in a few years to a position of such uniform esteem and confidence among the leaders of the Petroleum business of the Country.

Mr. Clark is a product of rural New Hampshire, but when in his teens migrated to Nevada and was engaged, from 1876 to 1892, in Mining, Merchandising and Railroading in that State. By this time he had become more specifically interested in transportation as his proper field of endeavor, and deserted Nevada for Seattle, Washington, where for the ensuing five years he was connected with the Great Northern Railway and the Pacific Coast Company. In 1897 he came to California as Manager of the Pacific Coast Railway with headquarters at San Luis Obispo, in which company he still retains his vice-presidency and directorship.

In 1901 Mr. Clark first heard the call of the oil industry which was later to occupy his entire attention. He was one of the organizers of the Pinal Dome Oil Company of Santa Maria, California, which was prominent in California oil annals prior to being taken over by the Union Oil Company in 1917.

Mr. Clark's first actual affiliation with our company came as a result of his marked success in handling transportation matters. In 1910 the company was in the field for a manager for the newly completed pipe line system of the Producers' Transportation Company, (subsidiary of Union Oil Company), running from the San Joaquin fields to San Luis Obispo. The man to whom the position was finally tendered was Mr. E. W. Clark, present Executive Vice-President of the company.

In his capacity as Manager of the Pacific Coast Railway, which ran through the Union fields, Mr. Clark's many dealings with the company served to suggest him as the logical head of this large line. The offer was accepted and two years later Mr. Clark was appointed Manager of Transportation. In January, 1914, he became Vice-President, and in 1916 was also elected General Manager, since which year he has held both positions, the titles, however, being changed to that of Executive Vice-President in March of this year.

Throughout his career Mr. Clark has been strong for quick and decisive action, and has been at all times averse to personal publicity. During the war he served as a member of the National War Service Committee, and also as Chairman of a Sub-committee thereof, appointed specifically to deal with Pacific Coast problems. His insight and judgment are keen and resourceful. Of a generous turn of mind, he displays on all occasions such uniform patience and courtesy that men are drawn to him instinctively, and his friendship once formed is a strong and enduring bond.

Mr. and Mrs. Clark reside in a beautiful home in Windsor Square, Los Angeles.

The Refining of Oil

CRUDE petroleum consists of a mixture of hydrocarbons ranging in physical constitution from gases through the very volatile liquids, the less volatile gasolines, kerosenes and high gravity fuels to the liquids of high boiling points and great viscosity or resistance to flowing, such as lubricating distillates and heavy fuel oil. It contains as well certain semi-solid or plastic substances such as soft paraffins and asphalt. This complex but homogeneous mixture of various chemical series of hydrocarbons is the crude oil which comes from the wells and is transported by pipe lines, ships or tank cars to the refineries to be separated into refined marketable products, such as gasoline, engine distillate, kerosene, stove oil, lubricating oils, asphalt, etc. No one of these products is a definite chemical compound, but a mixture of compounds of the gas hydrogen and the solid element carbon combined in different proportions. Gasoline is a mixture of the low specific gravity, low-boiling or volatile hydrocarbons contained in the crude oil, while kerosene is composed of hydrocarbons of higher specific gravity and higher boiling points, and so on.

The specific gravity of an oil is the relative weight of a given volume as compared with the weight of the same volume of water. Refined petroleum oils all weigh less for a given volume than water, having specific gravities which may vary from about 0.65 in the case of the lightest and most volatile gasolines to about 0.825 in the case of kerosene. For any certain class of crude distillates, which are produced from crude oil from a certain district, the average of the boiling points of the different constituents is lower when the specific gravity is lower and vice versa. The same correspondence between specific gravity and boiling point is not always apparent when a comparison is made between two crude distillates, which are produced from crude petroleum from different districts, nor is it always apparent in the comparison of very highly refined oils prepared by different refiners, even when the refined oils are prepared from crude oil from the same district; that is, a lower specific gravity is not always associated with a lower series of boiling points.

Refining processes consist primarily in the separation of this complex mixture comprising crude oil into a number of simpler mixtures composed of fewer hydrocarbons whose boiling points are within a narrower range of temperature than the boiling points of the ingredients of the original crude oil. The processes of separation are so adjusted as to yield mixtures having boiling ranges suitable to the purpose for which the mixtures so produced are to be used.

The first step in refining is the separation of these different oils by distillation. If we fill a still with crude oil and gradually raise the temperature, the volatile materials, i. e., those boiling at low temperatures, vaporize from the body of the liquid. These vapors are conducted out of the still to condensers, the most common form of which consists of long coils of pipe immersed in water, where the vapors are cooled and condensed to a liquid, which then flows into a tank. As the distillation proceeds and the volatile oils vaporize and pass over into the condenser, the temperature of the still is caused to rise and oils of higher and higher boiling points vaporize and the liquid into which these vapors condense becomes of higher specific gravity and boiling point. When the mixture of these condensed liquids has the desired specific gravity and range of boiling points for commercial gasoline, the stream of condensed liquid is diverted or "cut" from the tank which has received this gasoline into another tank, and there gradually builds up a mixture suitable for engine distillate, kerosene or other products. In this manner the process may be continued until there is nothing left in the still but asphalt, or if desired, coke, which is principally pure carbon.

This is sometimes called the "rundown" or "batch" system of distillation, the still being filled or charged with one "batch" of oil after another and the desired products "cut" from the stream of distillates obtained from each still as the distillation proceeds. The batch system is, of course, slow, due to the time lost between charges, and is for this and various other reasons, now used by this Company only for the production of small amounts of specialized products, some form of the continuous distillation system being preferred.

In its elementary form the continuous system consists in employing a series of stills held at successively higher temperatures, the crude continually flowing into the first still, the residual oil from the first still flowing into the second, that from the second into the third, and so on until the final residue is drawn off at the last still. Each still delivers oil vapors overhead which are of higher specific gravity and boiling points from each successive still. It is not possible, however, by holding the first still at, say 200° F., the second still at 400° F., to thus take off all of those oils and only those oils at the first still with boiling points below 200° F. and all oils at the second still with boiling points between 200°F. and 400° F., as there is always considerable overlapping of the range of the boiling points of the distillate obtained at the successive stills. The light oils as they vaporize carry with them a certain amount of the heavier fractions, while other portions of the light oils are held imprisoned in the main body of the liquid and come off later with the higher boiling oils. This overlapping of the fractions is overcome to any extent desired by redistillation or by the use of special apparatus which serves to effect more thorough separation.

In commercial work a certain overlapping of the range of boiling points of the fractions or mixtures which form the various products is necessary to give the various products the characteristics which the consumer requires. Limits and standards, however, are set for each product, and the distillation is so controlled as to insure meeting the adopted standards. For instance, a kerosene produced with too low a flash point, that is, one containing too high a proportion of volatile oils, is not safe for use in lamps, and one which does not contain enough volatile matter does not burn well. So the distillation process is regulated accordingly.

Losses must be minimized, products must be clean cut, and well fractionated, and yet must be prepared in large quantities at a high rate. This means accurate and constant laboratory control of all refinery operations, involving careful tests of all raw materials as well as of all products manufactured, stored, or shipped, and up-to-date refinery equipment carefully handjected in the manufacture of refined oils. The manufacture of lubricating oils and asphalt is, in general, based on similar principles—the details of the operations, however, are quite different. The crude as it is received by boat or pipe line may include oils from many California districts and from Mexico, or other foreign countries. Each lot of oil received is sampled led in accordance with the best practice.

The following sketch outlines briefly the handling to which a crude oil is subwith the utmost care. These samples are distilled and tested in the laboratory to ascertain what kind of materials may best be made from them, and what yield to expect.

The first process in handling the crude is "topping." In topping a portion of the crude is distilled off, large enough to remove all of the light oil fractions. The residuum is tested frequently for flash point and gravity, and by distilling in the laboratory, to determine whether the complete removal of these light materials has been effected. The residue from this topping distillation is fuel oil, a marketable product as it comes from the stills, unless the original crude should be of a character such as to yield suitable lubricating oils, in which case it is run to asphalt.

The next step is the further fractionation of these "tops" or crude naphtha. The prime object of this distillation is to obtain gasoline, and it is usually carried out in stills heated with steam only and provided with efficient fractionating devices. Due to the care used in fractionation, the rate of distillation at the steam stills is necessarily much slower than during the topping of the crude. The gravity and temperature of the streams of condensed vapors are carefully checked in the "tail-house" and all temperatures are under constant observation. Whenever a "run-down" tank in which the streams are collected, is filled with the gasoline and is ready to be pumped to storage, the laboratory must sample and test it for color, gravity, odor, purity, and boiling point range before it is considered acceptable for shipment.

In the re-run stills the bottoms from this steam still distillation are again re-distilled and segregations are made which produce engine distillate, kerosene and the light fuel

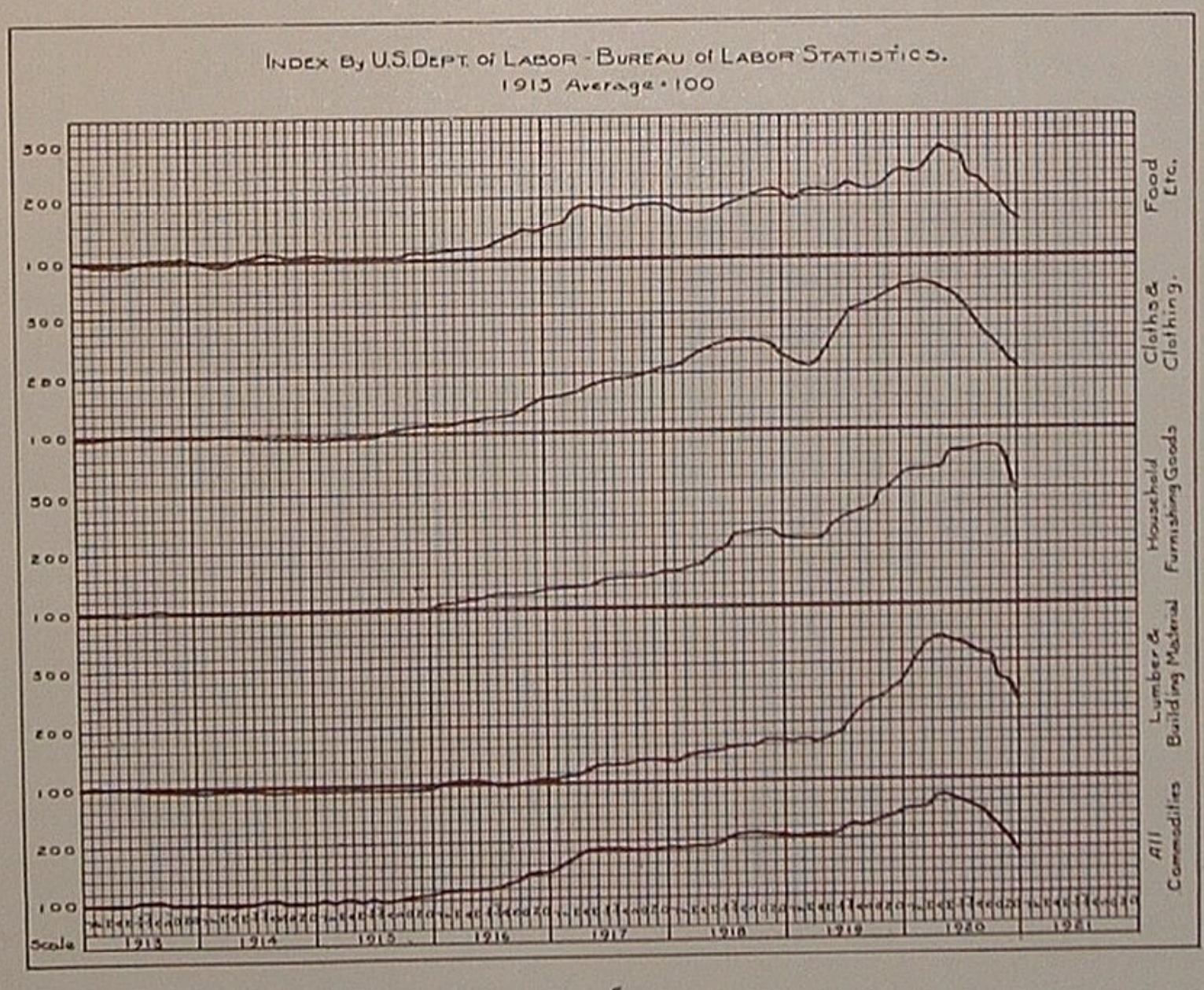
oils for stoves, furnaces or Diesel engines. There is opportunity in this distillation to vary considerably the products, as the temperatures may be adjusted, and the streams may be mixed together in such a way as to obtain a number of different materials, each having special characteristics.

There are numerous kinds of refined oils of about the grade of kerosene which the trade demands, such as illuminating oil of various kinds and paint thinners. To produce these commodities the partially fractionated cuts made at other stills are brought to grade in what are called "flash stills," where the oils are heated by injecting steam into the mass of the oil. In these stills the partially fractionated kerosene distillate "cut" from the re-run stills is re-distilled. The vapors condense to a liquid of comparatively low boiling points and the bottoms are the kerosene stock which is treated with acid to make a kerosene. In the laboratory the kerosene is subjected to further careful testing and must come up to the water-white standard of color and to the proper gravity, flash and fire tests. It must also burn properly in standard lamps and heaters before being passed.

The refining work is ended when the finished oils are pumped to the storage or shipping tank, but the laboratory supervision continues.

Refined products totaling many millions of gallons each month are shipped from the Company's refineries in tank cars, ships, drums, barrels, and cans. Pumps, pipe lines, automatic can and barrel fillers, box-nailing machines and roller conveyors assist in the rapid handling of the products. Every shipment is carefully tested at the laboratory before it is allowed to leave the refinery, samples being taken from every ship tank, from every car and from every vessel from which cans or drums are filled, also numerous containers are tested at random, to be sure that all shipments comply with specifications and are in proper condition for sale.

J. M. EVANS.



The Trend of Prices

THAT the general level of wholesale prices of today is no higher than that of four years ago, has brought out with renewed interest discussions of what actually constitute the facts behind the demoralizing price fluctuations of the past six years. In the United States, for instance, using the average wholesale price level of 1913 as 100, the figure rose from this point in 1915 to 207 in 1918; then advanced to the pinnacle of 272 in May, 1920, dropping in the next seven months to 177. This means that in May, 1920, $2.72 would buy no more in the open market than $1.00 in 1915, whereas in January, 1921, $1.77 would equal the 1915 dollar in commodities purchased. In England, France and Italy prices advanced even more rapidly and have not yet reverted in the same ratio as in this country.

The question naturally arises in the minds of most of us, what is it about war that occasions such pronounced price inflation? And why should they further advance after the war, not reaching their highest mark until eighteen months following the signing of the armistice? Then why drop with such an astounding rapidity as to cause such business depression?

The rise in prices has been generally attributed to some decrease in productivity, and the greater demand, both resultant from the war. It has been the generally accepted view that increased currency and bank credit were both brought about by high prices, these resulting primarily from the increased demand for goods in connection with their scarcity; and the consequent rise in prices also made necessary the issue of more paper currency to take care of business incidental to the enlarged commercial activities.

This position looks feasible enough until we go below the surface in an endeavor to analyze which is foremost—the demand for goods or the ownership of a medium of value by which to place that demand with assurance of attention from the sellers. The obvious conclusion is that there can be no demand without a prior possession of money or its equivalent. No dealer will sell his goods unless the prospective buyer has money or credit, and he cannot obtain credit unless he has properties, securities or quick assets and business volume.

We can thus arrive at the true reason underlying the astounding upheaval of prices throughout the world during the period of 1914-1920. At the same time we are confronted with impressive examples furnished by the war of one of the fundamental principles of money; that it is increased currency and credit, not secured through the regular and normal progress of industry and commerce, which brings increased prices. The money principle involved is that the issuance of currency, nonredeemable in gold, is infallibly followed by depreciation of the currency, resulting from the simultaneous advance in commodity prices.

The illustrating examples of these facts carry us back to 1914, when Europe first became engaged in the great conflict. Money being essential to the prosecution of war, the belligerents abandoned the gold standard and issued huge supplies of paper money. Great Britain increased her one pound and ten pound notes by an entirely new issue, which had reached a total of 293 million pounds at the cessation of hostilities. The currency of France swelled in the same period from 6,000 million francs to 30,500 million, while the total of Italy's paper bills rose from 2,500 million lires to 8,000 million.

This so-called fiat money, that is, "irredeemable paper currency, not resting on a specie basis, but deriving its purchasing power from the declaratory fiat of the government issuing it," was accepted in the world markets in values substantially varying in accordance with the faith the buying public had in the various governments and also governed by the exchange situa-

tion developed from foreign purchases. As the United States maintained the gold standard, both during and after the war, the values of these currencies in terms of the American dollar exemplify this to some extent. The English pound decreased from the French franc dropped from 19.3 cents to $3.90 in February of this year, while the normal $4.87 to $3.19, later climbing to 7.3 cents. As the German mark cannot be exchanged for exportable coin at its face value, its worth is measured by the popular belief in the slight chance of its ever being redeemed by the German Government, as is illustrated by the fact that it is quoted at one-twelfth its former value. In a similar manner, the issue of millions of non-redeemable government notes by England, France and Italy, during 1914-1919, had the natural effect of making sellers demand more for the same amount of goods than would have been required had the regular gold standard currency been furnished.

This analysis, then, lies back of the huge war prices of 1914-1920. The various governments, finding themselves in financial straits, issued paper currency which was nothing more than government notes. These monetary government issues were manifestly actual money only as the chances of their future redemption by the respective nations were good or bad. When put in general circulation, they naturally entailed a reduced purchasing power. The currency was in effect the same as corporation bonds, issued at a stated par, but dropping in value because of strained financial conditions of the issuing corporation. Thus, because vast sums of money were suddenly put in circulation, and credit was universally increased, prices went phenomenally high.

Conditions in the United States, while somewhat different from those in England and France, were also governed by the same principle of the inflated gold dollar. We were, however, able to maintain the gold standard throughout. During the early part of the war, the fighting nations sent to this country one billion dollars in gold in payment for exported war supplies. Our monetary gold stock in 1916 stood at nearly three billions, or one-third more than just before the war. There could be but one effect of the sudden injection of this extra billion in gold into our monetary system: credit was generally expanded and prices ascended to an astonishing level.

While the spectacular price rise of this period was not caused by the issuing of fiat money, from an economic standpoint the billion in gold was not ours: nor did it come to us on account of the normal development of trade and commerce. Its effect was, therefore, the same as that brought about by the lavish printing of currency without gold backing, which took place in other countries. The verity of this assumption is clearly shown by our government figures for gold stock, bank clearings and average of wholesale prices for the period in question. These show that our gold stock was 1,817 millions in 1914, and 3,080 millions in 1918. Bank clearings, which fairly indicate credit expansion, increased in the same period from 155,241 millions to 332,349 millions; and wholesale prices (using the 1913 level as 100) from 100 to 196.

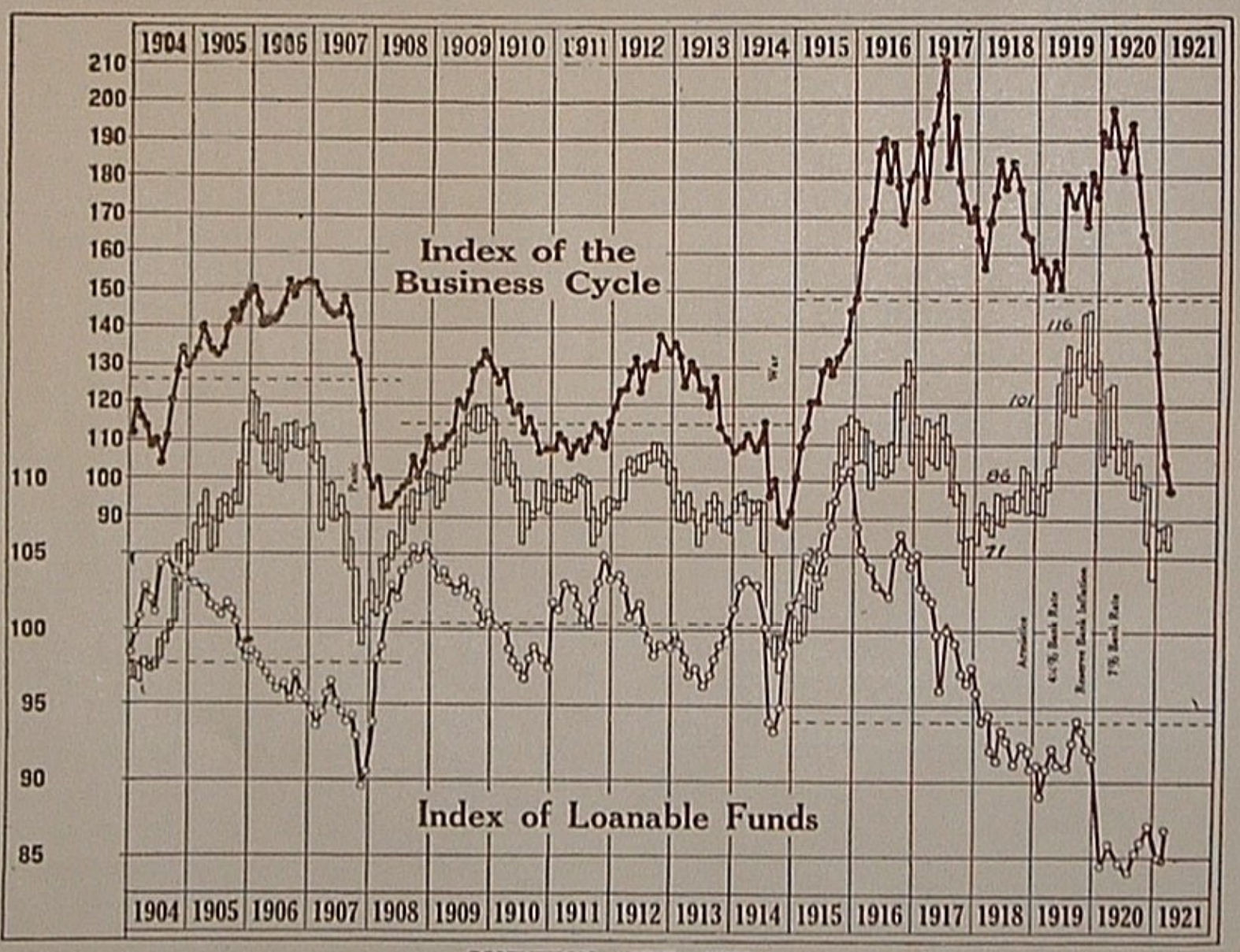
It seems fair to assume, however, that conditions following the conclusion of the war would immediately revert to the normal, and the analyst is surprised to note that the greatest increase in bank clearings and wholesale prices took place after the armistice was signed. This is more mystifying when it is considered that our gold stocks decreased by three hundred millions in 1919-1920, in May of which year the peak of high prices was reached, the average standing at 272, with bank clearances at a correspondingly high mark of 451,000 millions.

The fact that similar inflation occurred after the civil war and in the late struggle was general with all the participating nations, leads to an explanation. Briefly, the main contributing factors were the extravagant speculation in commodities, caused by the world wide feeling of buoyancy and hopefulness; the floating of additional government loans (our own Victory loan) which were mainly taken care of by free extension of credit by banks; and the buying craze incidental to the sudden release of the people from the curtailment of luxuries which had prevailed during the period of the emergency.

This buying fever ceased abruptly in the

latter part of 1920, and the inevitable economic readjustment began. By January, 1921, the level of wholesale prices was at 177, the 1917 mark. Fortunes were made by many undeserving speculators during the period of high prices; numbers of deserving business men failed in last year's sudden downward slide; and through it all the public was the innocent sufferer. However, conditions in this country are at present very hopeful. Wholesale prices have come down; labor and retail prices are rapidly readjusting themselves, and a normal and enduring level of all three seems very close at hand.

We have endured hardships on account of one of the greatest evils and most unjust aftermaths of war — the demoralizing changes in price levels. We can be thankful that our government has not been compelled to abandon the specie basis and add the injustice which through history invariably follows the use of fiat money. In addition to having weathered a rougher economic storm than the United States and facing even greater bonded indebtedness, the public of the other warring nations have their millions upon millions of at present unredeemable paper currency to take up, paying every pound, every franc, every lire, in its normal gold equivalent.



CONDITION, APRIL, 1921

GENERAL BUSINESS, top line, approximately at low ebb. STOCK MARKET, middle line, beginning to recover.
SUPPLY OF LOANABLE FUNDS, bottom line, tending to increase.

A hen doesn't quit scratching just because the worms are scarce.

Floorwalker—"Looking for something, madame?"

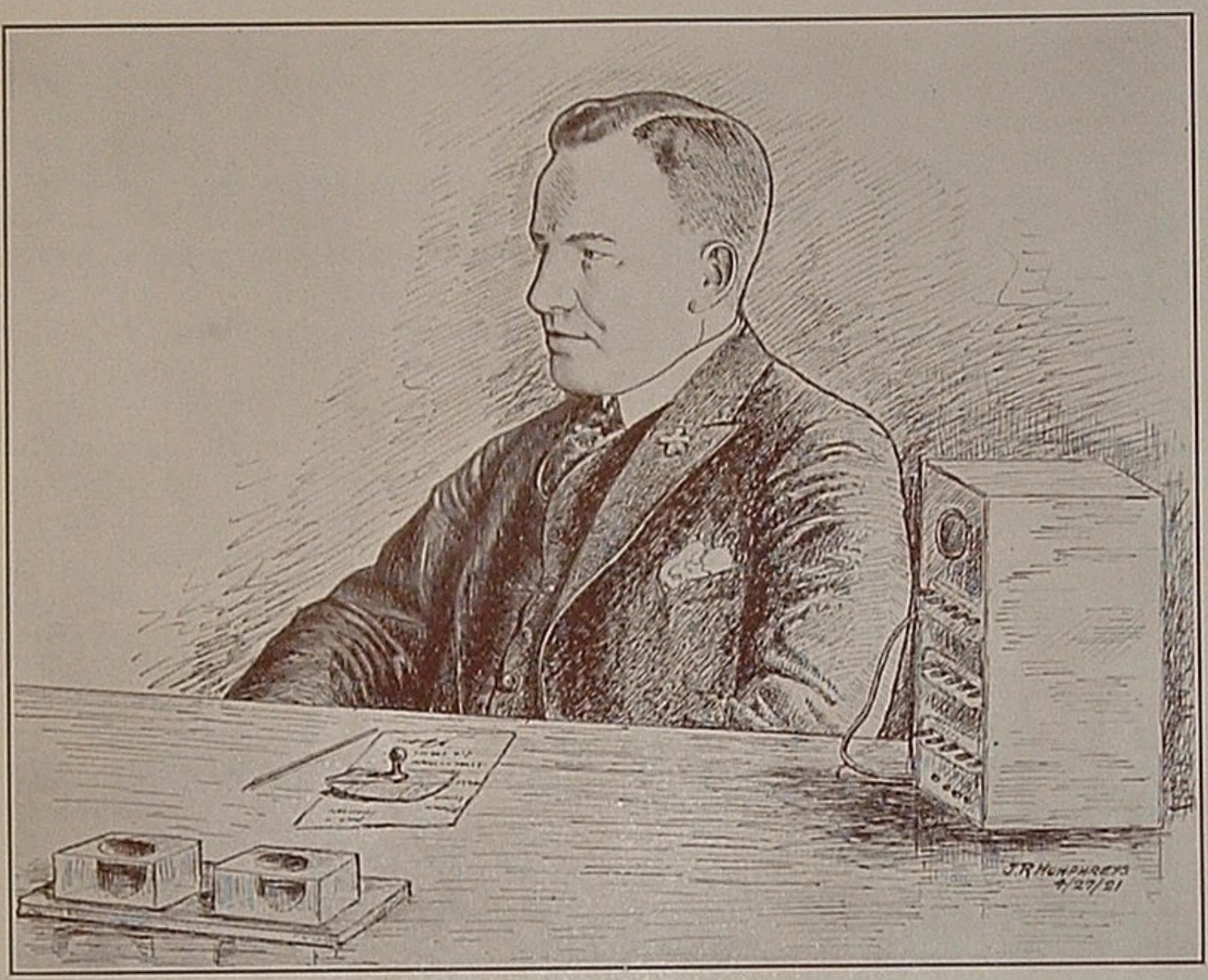
Fat Lady—"Husband."

F. W.—"First aisle to your left—male order department."—*Chaparral.*

The things we have to struggle for are appreciated most—a seat in a crowded car is worth two in an empty one.

Don't sit down in the meadow and wait for the cow to back up and be milked—go after the cow.

Our Little Rainbow



The subject of our sketch for this issue is too well known to invoke much comment. Aside from the marked absence of the perpetual smile, the picture is typical and will prove of reminiscent interest to those whose ailments have forced them to seek, from time to time, "prescriptions." He is what we are prone to term in the vernacular a real **WHITE** man, and can be said to number his friends by the hundreds. He has earned this confidence because of his ability and his popularity by exceeding loyalty to his friends, to the Company, as well as to the country of his adoption. It is to his credit that, although living in this age of social and economic unrest, he is absolutely devoid of any **RED** tendencies; although in his younger days he was considerable of a painter, his particular forte being towns and villages, and his favorite shade **VERMILION.** In all sports from **BLACK** African Golf down to Checkers he is an adept, and is game clean through. His worst enemy could never in his wildest moments accuse him of showing the slightest semblance of a **YELLOW** streak. As host, be it at a tennis tournament or a quiet luncheon, he invariably "does it up **BROWN**"; but to mention his success in this capacity is sure to awaken an innate modesty with a resulting blush which can be likened only to the **VIOLET.** He hails from that troublous but beautiful **GREEN** Isle of Erin, but as becoming to the head of the Safety First Department, finds a keen satisfaction in his present residence in this glorious **ORANGE** country. Ever since the dark days which began with the enforcing of the Volstead Act he has naturally been **BLUE**; in fact, he still is, and always will be G. G. Blue.

The Hollerith Tabulating Machines

as used in

THE COMPTROLLER'S DEPARTMENT

THE Hollerith Tabulating Machines are used in the Comptroller's Department for the compilation and analysis of sales totals, of stock shipments and of freight charges against stocks. How the machines do this, at a speed many times as fast as can be attained by the most expert clerks using hand methods, may be of interest to our readers. A description of the procedure by which the tabulating division prepares the several different sales reports required by the management will make clear the principles on which the machines operate.

The process really starts with the tank truck salesmen and warehousemen at the distributing stations, each of whom makes a report to his station every night of the sales or shipments made by him during the day. These reports list the individual sales in columns for each commodity, showing the quantity only on each sale. The pricing and extending of the sales silps and orders, or on cash sales, the checking of prices and extensions, is done in the district office. The station enters the total sales of each truck salesman and of the warehouse on a daily sales report, which is totaled and sent to the district office with all the sales slips. The district office in turn enters the sales (quantity total of each commodity) at each station on a daily sales summary, which is totaled and sent to the Comptroller's Department, with the sales slips from all the stations and with copies of the adding machine lists prepared by the district office as a check on the quantity totals prepared by the stations, and to ascertain the money value of the day's sales.

The sales slips, as soon as received in the head office are turned over to compto-meter operators, who check the correctness of the extensions, any errors found being called to the attention of the district office. We are now ready for the punching of the cards, which is the first step in the Hollerith process.

Figure (1) is a good representation of the punching machine. These machines are very simple—a flat bed on which the card is placed, a device for moving the card automatically through the machine column by column, and twelve keys similar to typewriter keys. The keys are lettered from 0 to 9, inclusive, and X and R; (the last two are not used in our punching). As the card moves through the machine the keys are depressed one by one by the operator and the corresponding figures in the successive columns are punched out with a circular hole. An expert operator will punch two hundred cards per hour, and, considering that each card requires thirty-four key depressions, and that the operator at the same time is translating the information on the sales slips into code, the operators have to be exceedingly nimble with brain and fingers. (The first eleven columns on the card are not used in our work, and the machines are set to start punching at the twelfth column.)

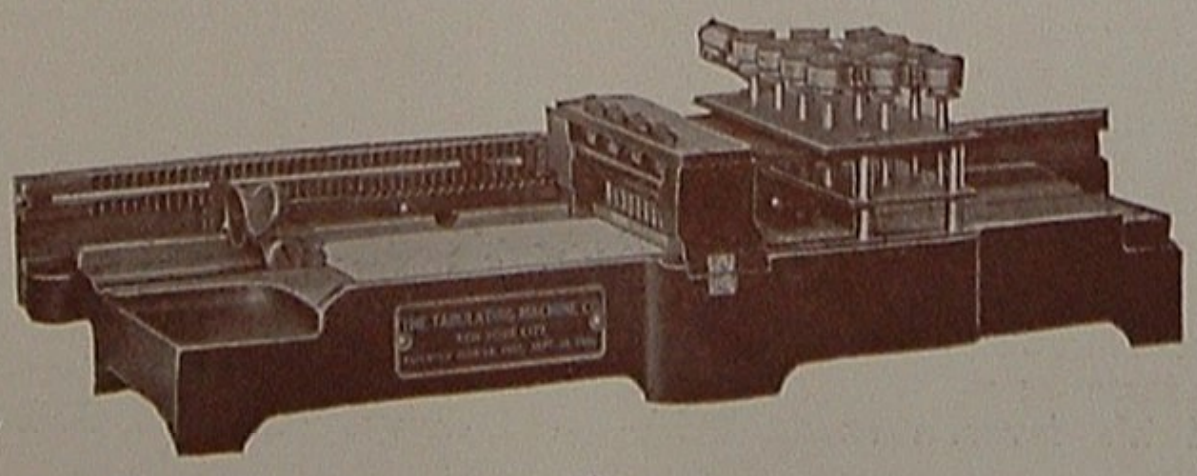


Figure 1

Figure (2) is a diagram of the card used for the analysis of sales.

The vertical rows of figures on the card (0 to 9) are called "columns." The horizontal lines (000—111, etc.) are called "rows." The sections into which the columns are divided by the heavy vertical lines are called "fields."

The information that is shown on the sales slips in *figures*, such as "Invoice No.," "Quantity" and "Amount," are punched on the cards as the figures appear on the invoice. The information shown on the sales slips in *words*, such as "Territory," "Point of Shipment," "Salesman," and "Commodity," is translated into a prearranged figure code and the cards punched accordingly.

The "Quantity" and "Amount" fields are known as *"adding* fields." All reports of sales are expressed in quantities and money values for each Commodity, Salesman, Territory, etc., and the accumulation by the machines of the figures in these two fields gives the total amount to be shown in the reports. "The Territory," "Point of Shipment," "Salesman" and "Commodity" fields are what is called *"sorting* fields." The cards are sorted by the sorting machines successively with respect to the figures in these fields, and when all the cards of the same classification have been placed together, the total quantity and amount of each class are secured by the tabulating (adding) machines. The "Invoice No." field and "Operator's Check" field (the single column at the extreme right) are neither sorted nor added. The figures punched in these fields serve to identify the card as to invoice number and the operator who punched the card.

A card is punched for each item on each sales slip. White cards are used for sales (customers' charges) and red cards for returns and allowances (credits to customers). An interesting feature occurs in punching "credit" cards. Suppose the sales slip shows the customer to have received an allowance of $1.73.

Instead of punching the "amount" column	00001.73
We punch	99998.27
(Note the addition)	(1)00000.00

When this card passes through the tabulator, the machine, instead of adding $1.73, adds the second series of figures, which are the ones that appear on the card. The effect is the same as though we had subtracted $1.73. To illustrate: We have

a white (charge) card for $10.00 punched	00010.00
and a red (credit) card punched	99998.27
The adding machine adds the two numbers.....	(1)00008.27

The (1) being beyond the capacity of the machine does not register, and we have

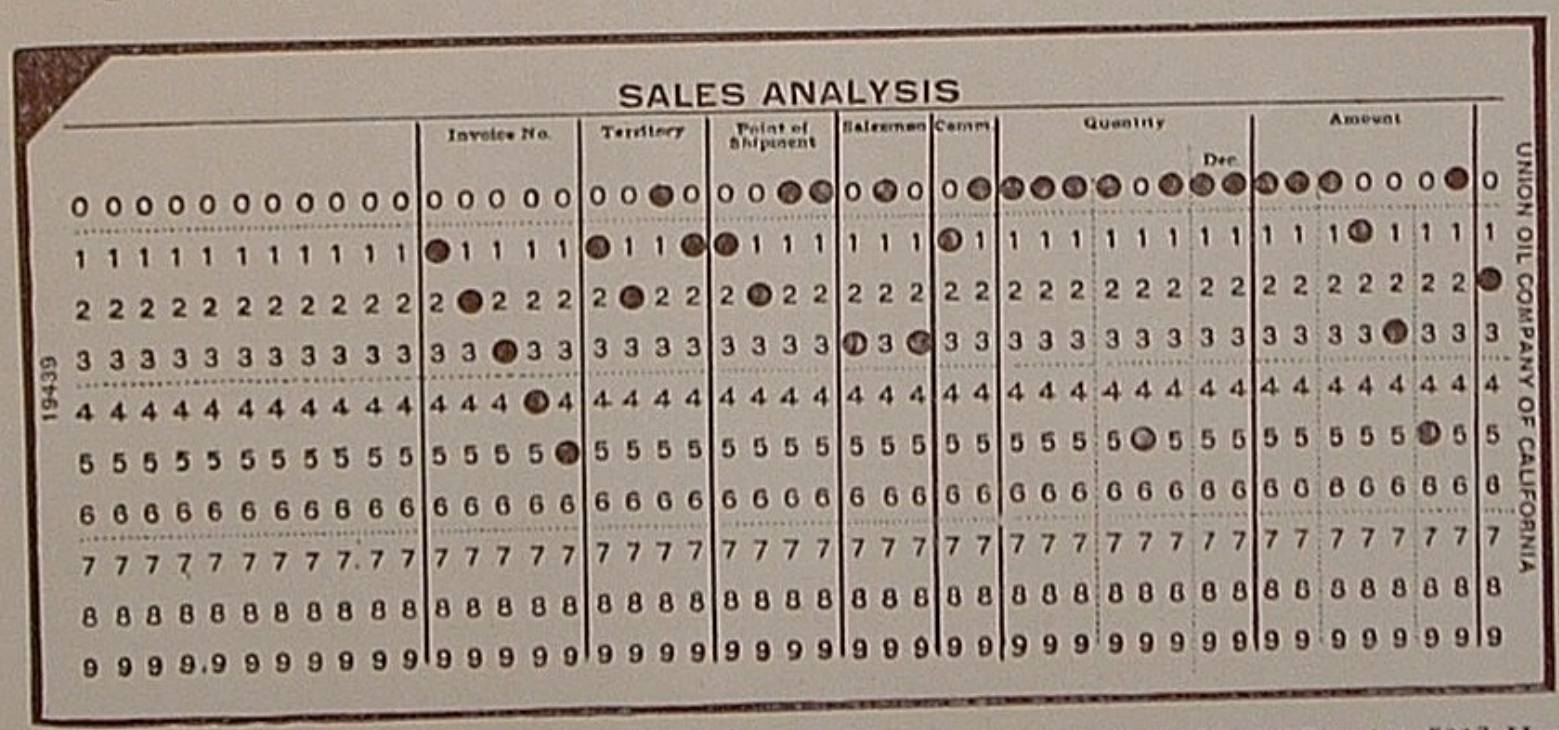


Figure 2---[Translation of Card]. Invoice number, 12345. Territory---[12] Oakland District, [01] Hayward Station. Point of Shipment [12] Oakland District, [00] Oakland Station. Salesman [303] T. E. Jones. Commodity [10], Gasoline. Quantity [50], [Gallons]. Amount, $13.50. Card punched by Operator No. 2.

the result 00008.27—$8.27, which is the $10.00, less $1.73. This is the principle of "complementary numbers," which is known and used by expert comptometer and adding machine operators.

We will now take up again the explanation of how the sales are accumulated and analyzed from the sale slips and summaries sent in from the district offices. As soon as the cards are punched for a day's business from one district, they are run through the tabulating machine to determine if the total quantity money value of the sales, as punched on the cards, agrees with the total of the day's business as reported by the district office. If not, the cards are checked back with the adding machine lists which accompanied the sales slips and the error corrected. This preliminary check on the accuracy of the punched cards is important; for one, possibly the greatest advantage of the Hollerith system and one of the reasons for the speed in analyzing figures which can be obtained by this method is, that once the cards have been punched and verified with the pre-determined totals, no matter how many times, or into how many classifications they may be sorted, the total of all classes is always the same. This for the reason that the amounts punched on the cards are unalterable and the addition of the figures is a mechanical process. In this way we entirely overcome the human liability to error in copying and adding figures by hand methods. The cards having been verified as to correctness of punching, we are now ready to begin the sorting and analyzing.

(To Be Continued in Next Issue)

NOT UNDERSTOOD

Not understood. We move along asunder,
Our paths grow wider as the seasons creep
Along the years; we marvel and we wonder
Why life is life? And then we fall asleep,
Not understood.

Not understood. We gather false impressions,
And hug them closer as the years go by,
Till virtues often seem to us transgressions,
And thus men rise and fall, and live and die,
Not understood.

Not understood. Poor souls with stunted vision
Oft measure giants by their narrow gauge;
The poisoned shafts of falsehood and derision
Are oft impelled 'gainst those who mould the age,
Not understood.

Not understood. The secret springs of action,
Which lie beneath the surface and the show,
Are disregarded: with self-satisfaction
We judge our neighbors, and they often go,
Not understood.

Not understood. How trifles often change us!
The thoughtless sentence or the fancied slight
Destroy long years of friendship and estrange us,
And on our souls there falls a freezing blight;
Not understood.

Not understood. How many breasts are aching
For lack of sympathy! Ah! day by day,
How many cheerless lonely hearts are breaking!
How many noble spirits pass away,
Not understood.

Oh, God! that men would see a little clearer;
Or judge less harshly where they cannot see!
Oh, God! that men would draw a little nearer
To one another! They'd be nearer Thee,
And understood.

—Thomas Bracken.

CALIFORNIA OIL STATISTICS FOR THE MONTH OF MARCH, 1921

District	Gross Barrels	March	February	Daily Average 1920	1919	1918	1917
Kern River	658,397	21,239	20,846	20,377	20,907	22,083	23,543
McKittrick	211,902	6,836	6,760	7,106	7,773	8,385	8,974
Midway-Sunset	4,539,257	146,428	141,684	103,641	88,985	95,429	101,628
Lost Hills-Belridge	344,642	11,117	10,985	11,362	12,770	14,967	17,423
Coalinga	1,297,236	41,846	40,763	42,888	44,956	44,823	43,559
Santa Maria	488,411	15,755	15,774	15,869	16,665	19,747	16,393
Ventura-Newhall	179,717	5,797	6,498	5,601	4,858	3,827	3,115
Los Angeles-Salt Lake	103,252	3,331	3,724	3,608	3,625	3,691	3,981
Whittier	64,612	2,084	2,175	2,300	2,744	2,866	3,127
Fullerton	537,044	17,324	16,103	14,309	12,017	11,943	12,411
Coyote	632,252	20,395	21,269	23,859	27,952	34,563	31,393
Montebello	794,649	25,634	26,288	30,395	33,153	18,735	2,200
Richfield	541,992	17,484	13,887	7,009	2,646	8	.....
Huntington-Newport	97,000	3,129	1,187	104	.....	.....	.....
Summerland	4,500	145	161	148	148	148	148
Total	10,494,863	338,544	328,104	288,576	279,199	281,215	267,895
February	9,186,907	328,104	.....	.....	.....	.....	.....
March	.....	.....	338,544	338,544	338,544	338,544	338,544
Difference	1,307,956	10,440	10,440	49,968	59,345	57,329	70,649

SHIPMENTS AND STOCKS

Stocks March 1, 1921	20,228,207
March Production	10,494,863
Total	30,723,070
March Shipments	9,144,432
Stocks April 1, 1921	21,578,638
Stocks Increase March	1,350,431
Stocks January 1, 1921	19,618,846
Total 1921 Surplus	1,959,792
Daily Average	21,775

DAILY AVERAGE

Daily	March	February	1920	1919	1918	1917
Production	338,544	328,104	288,576	279,199	281,215	267,895
Shipments	294,982	317,410	310,941	282,873	290,836	297,986
Surplus	43,562	10,694	*22,365	*3,674	*9,621	*30,091

*Shortage.

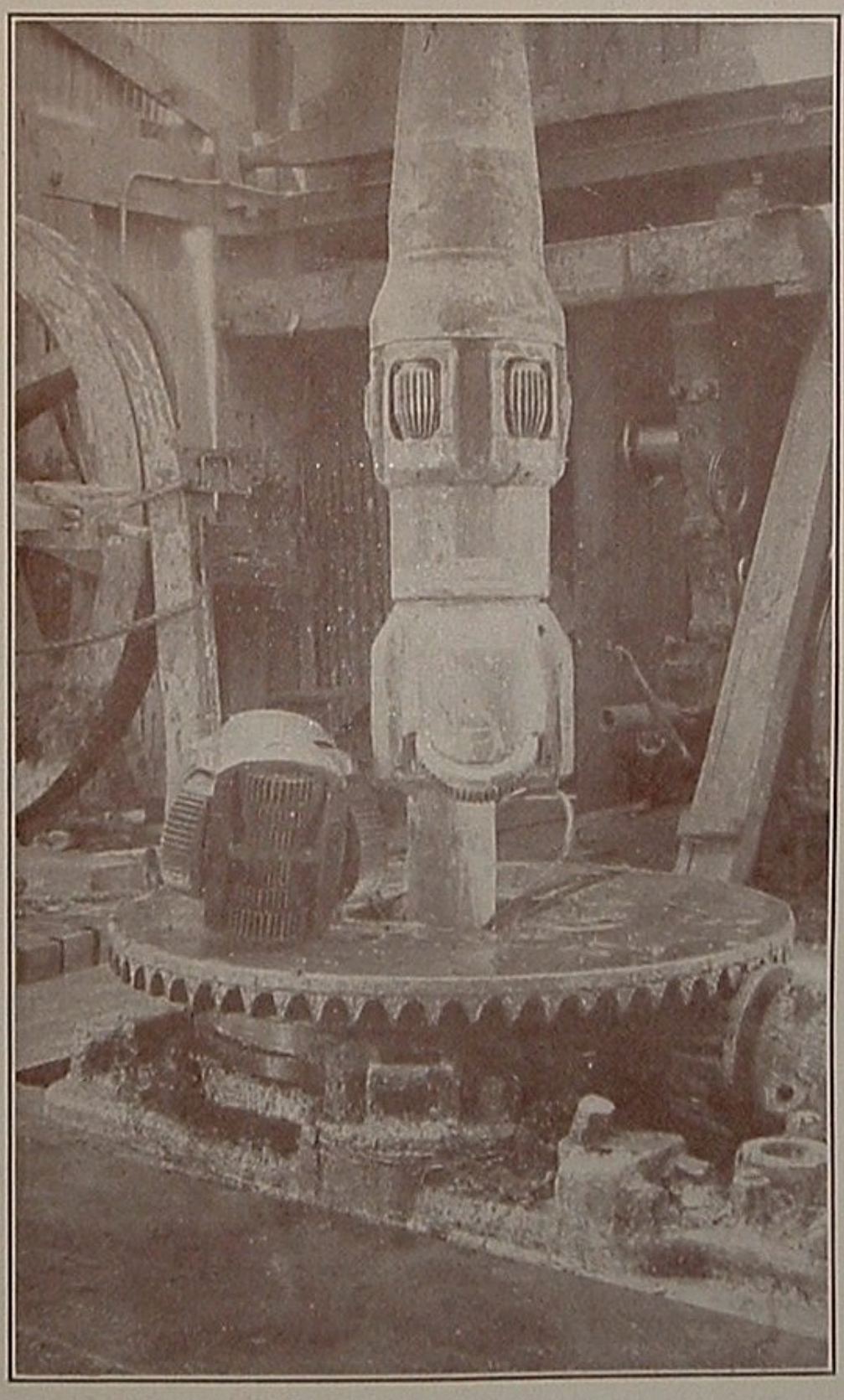
SUMMARY OF FIELD OPERATIONS FOR MARCH

District	WELLS New Rigs Up	Active Drilling	Completed	Active Producing	Aban-doned
Kern River	4	22	7	2,163	..
McKittrick	4	12	..	330	..
Midway-Sunset	34	105	25	2,539	4
Lost Hills-Belridge	2	11	1	596	..
Coalinga	13	52	6	1,317	3
Santa Maria	2	23	2	426	2
Ventura-Newhall	2	37	4	534	3
Los Angeles-Salt Lake	1	6	1	665	..
Whittier-Fullerton	14	154	14	1,011	6
Summerland	..	...	..	142	..
Huntington-Newport	9	45	1	6	2
Miscellaneous Drilling	4	66	..	....	3
Total	89	533	61	9,729	23
February	98	515	58	9,673	10
Difference	9	18	3	56	13
Average 1920	77	403	49	9,299	13
Average 1919	58	340	47	8,774	18
Average 1918	50	362	50	8,210	13
Average 1917	65	361	63	7,398	14

The Development of Oil Production

A BOOK could be written on the subject of the Oil Development in the way of drilling wells and producing oil of any oil company which has a business history extending over any great number of years; whereas the story of the small operator who enters the field with limited capital in these times of high prices of labor and supplies, unless he succeeds in developing production almost immediately, is soon told. The Union Oil Company of California is one of the successful companies and has been producing oil for many years, so in this issue of the Bulletin we will confine our discussion to the operations of our own Company.

In the development of a new field the lands are first acquired by the Geological and Land Department and it then becomes the duty of the Field Department to arrange for the development of the property which includes road building, the construction of camps, drilling rigs, pipe lines, tele-



Interior of Derrick
showing
Rotary Table
and bit
withdrawn
from hole.

phone lines and tanks, and the providing of drilling equipment, casing, supplies, fuel, water, etc. After the wells are completed and production obtained the lifting of production is done by the Field Department. The gas produced is turned over to the Gas Division of the Company for distribution. The oil is delivered to the Pipe Line Department by whom it is carried to the Manufacturing or Sales Departments for refining and marketing.

Up to the past few years the greater amount of drilling was done with standard tools, but now the rotary rigs running in all the Districts throughout the State greatly outnumber the standard type.

Standard tool drilling is accomplished by the use of what is commonly known as the standard rig and derrick. This rig includes the necessary machinery for handling the drilling tools, sand pump, and casing. The "drilling string" consists of a rope socket, jars, stem, and bit, which are suspended in the well on a cable. If the well is dry and not at a too great a depth a manila (hemp) cable is generally used, either 2⅛", 2¼", or 2½" in diameter; but where fluid is in the well drilling progresses too slowly on account of the buoyancy of the manila cable. Then the wire line must be used, for the reason that it is heavier, and smaller in diameter, which permits the tools to drop faster and to strike a harder blow on the bottom of the well. The stroke of the drilling tools is produced by what is known as a walking beam. This beam is balanced on

Grant Under-reamer

This Tool collapses so

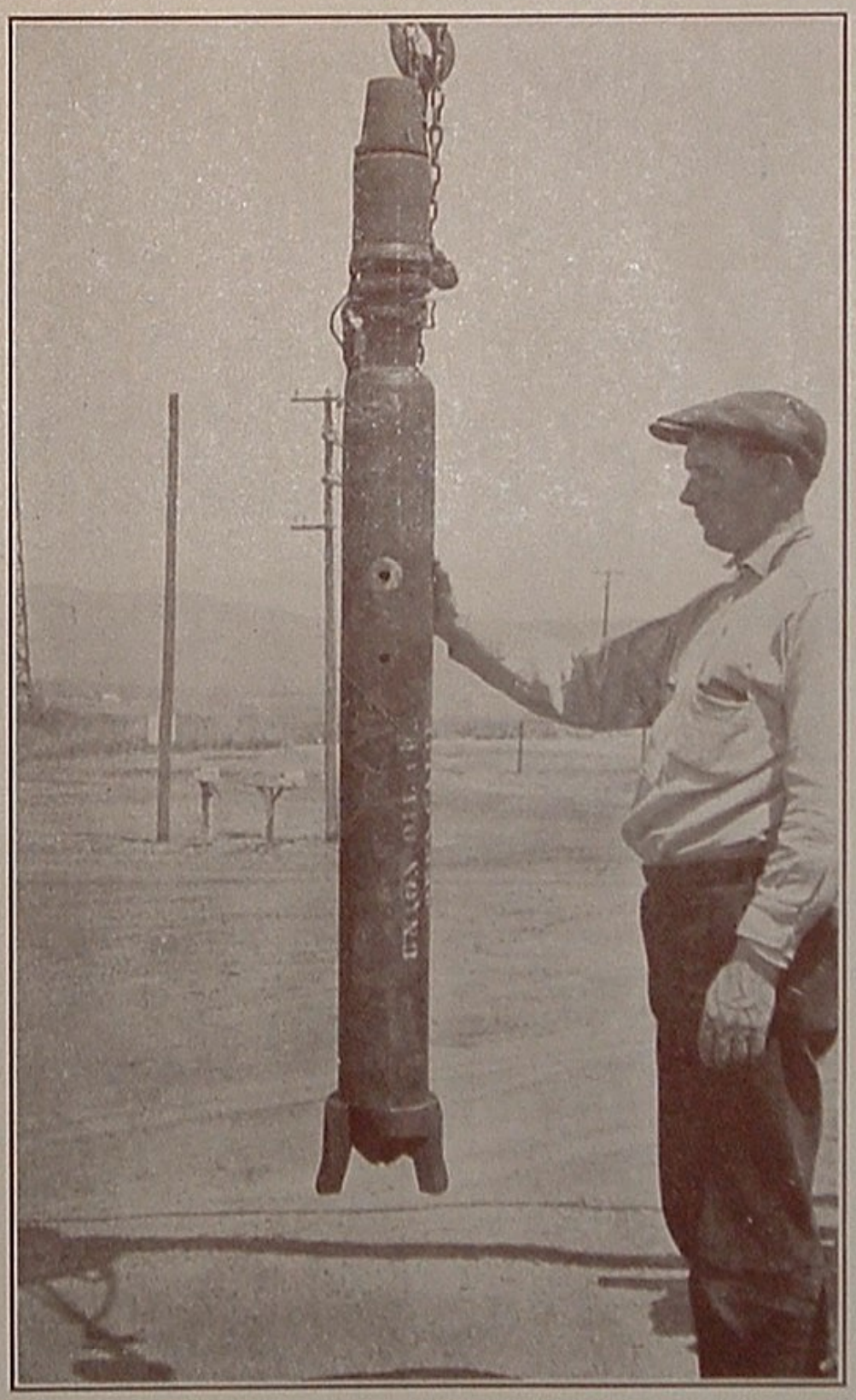
that it goes down

through casing

then expands to ream out

wall of well,

so casing will follow.



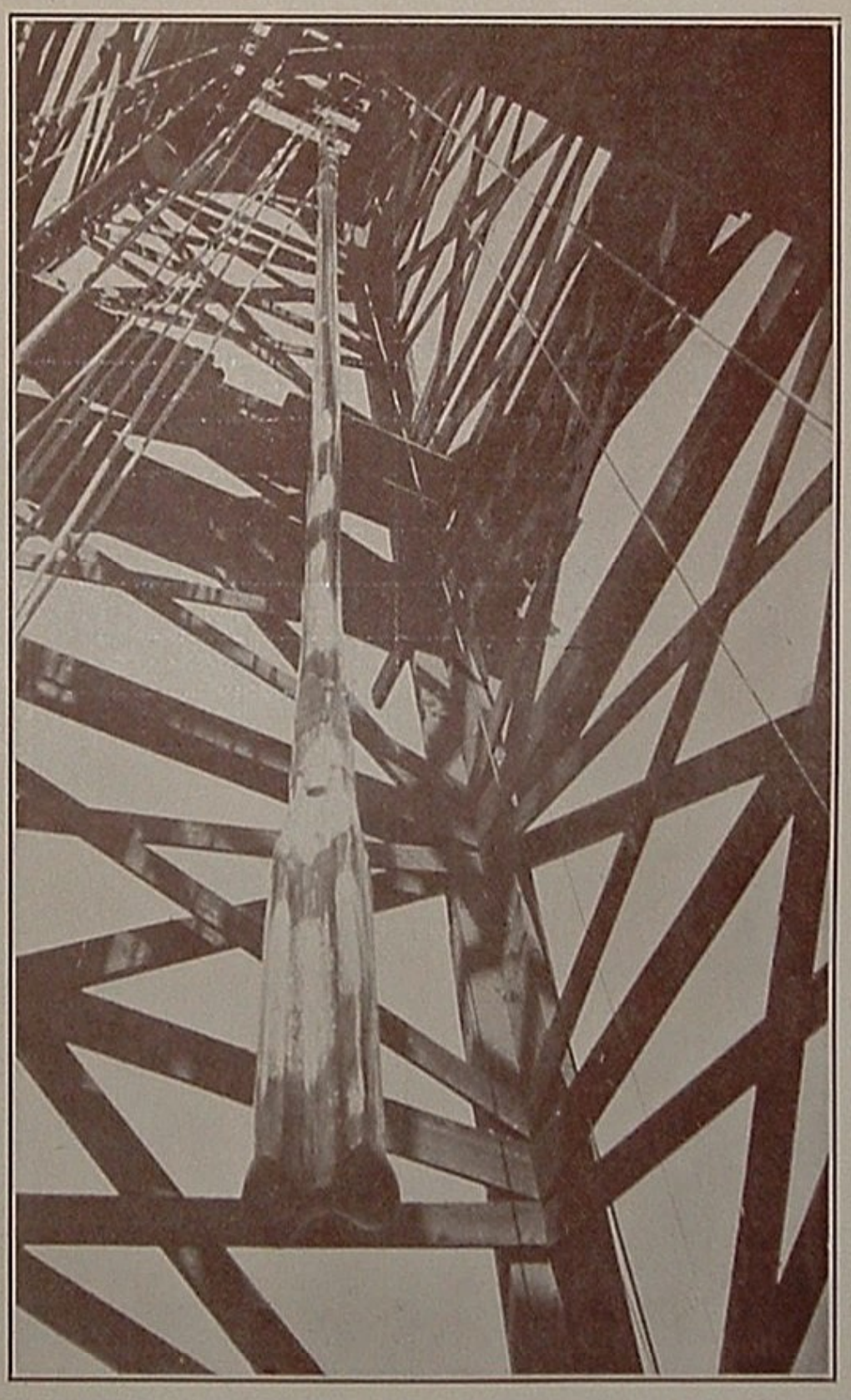
the samson post. One end of the beam is connected to the crank shaft by the means of a pitman, and the other end has a temper screw which clamps to the cable, and as the crank revolves it gives the beam an up and down motion whereby the tools are raised and lowered in the well at a rate of speed sufficient to allow them to drop freely and strike bottom. The temper screw connecting the cable to the beam is six or seven feet in length and by raising or lowering the screw the driller can keep the tools at a point where they will drill the best.

The accompanying photograph shows the general appearance of a string of standard tools.

After the formation is drilled up with the standard tool bit, and the tools withdrawn from the well, the cuttings are removed by a sand pump or bailer.

Where casing is being carried as the drilling progresses, the hole is generally drilled twenty-five to forty feet ahead of the casing and then reamed out by the use of an under-reamer to a diameter which will permit the casing to follow freely. This operation is repeated until the casing has been carried to a sufficient depth or to a point where it is not possible to go further, then if the well has to be drilled still deeper a smaller string of casing is inserted inside the first and the same drilling operations followed.

Before entering any oil or gas formation it is best to have all water shut off above such formation. The shut off is generally



Interior of Derrick.

Showing string of Standard Tools suspended by Wire-drilling Cable.

accomplished by the use of cement, which is forced down through the inside of the casing and up on the outside. The casing being lowered to the bottom of the well, and the inside filled with water, a valve at the top of the casing prevents the fluid from coming back to the surface from the inside of the casing and also prevents the cement from seeking its level, i.e., partly inside and partly outside. Therefore, the cement must necessarily remain up back of the casing until it sets. In case there is any gas in the well, or other agents which might cause agitation of the fluid, the cement will not set and where such a condition occurs, when the well is opened the unset cement usually comes back into the casing and is pumped out to the surface. It is then necessary to recement the same string of casing or insert another string of casing, which may be cemented at a greater depth.

When the water is properly excluded from the well and we have reached the oil or gass bearing zone the well is drilled into the "sand" to the desired depth and perforated casing placed through all the oil or gas bearing strata, which permits the oil and gas to enter the well. The well is then ready for production either by pumping or flowing naturally.

The rotary rig is generally used in connection with certain parts of the standard rig. The same derrick can be used and the rotary draw works can be attached to one side of the derrick; and by providing an extra engine foundation for the rotary engine and the necessary other rotary equipment, such as the rotary table, swivel, casing block, casing hook, grief pipe, drill pipe, tool joints, bits, pumps, fishing tools, etc., the rotary system is ready for use. The cost of maintaining rotary drilling rigs is possibly three or four times greater than that of maintaining standard tools; but the speed at which the hole can be drilled greatly outweighs the high cost of operation, and at the same time a great saving in the casing is effected. In most cases the rotary well can be drilled to a point where we can permanently shut off the water from entering the well by the use of only one string of casing, whereas, with the standard tools perhaps four or five strings of casing may be necessary to reach the same depth.

The principle of rotary drilling is cutting the formation from the bottom of the well with a rotary bit, which is attached to the bottom of the drill pipe or drill stem, as it is frequently called. The drill pipe is rotated by a table on the derrick floor which is connected to the driving mechanism by means of gears or sprocket chains. Mud laden fluid is forced by pumps into a flexible hose, which is attached to the swivel or top of the drill pipe; the fluid passes down through the drill pipe and bit to the bottom of the well, and returns to the surface outside of the drill pipe, bringing with it the mud and such cuttings as are torn loose with the rotary bit. The heavy cuttings are settled out in sluice boxes and the mud returned to the pumps for further use. The rotary mud being constantly circulated around the drill pipe fills all porous formations with mud, and the rotary motion of the bit and drill pipe produces an inside wall of mud around the well from top to bottom; where the mud fluid is kept at the proper consistency there is little danger of the wall caving to any dangerous extent.

The many tools and appliances necessary in drilling, fishing, repairing, shutting off water, pumping, etc., cannot be shown, but a few of the most important ones are shown in the accompanying photographs.

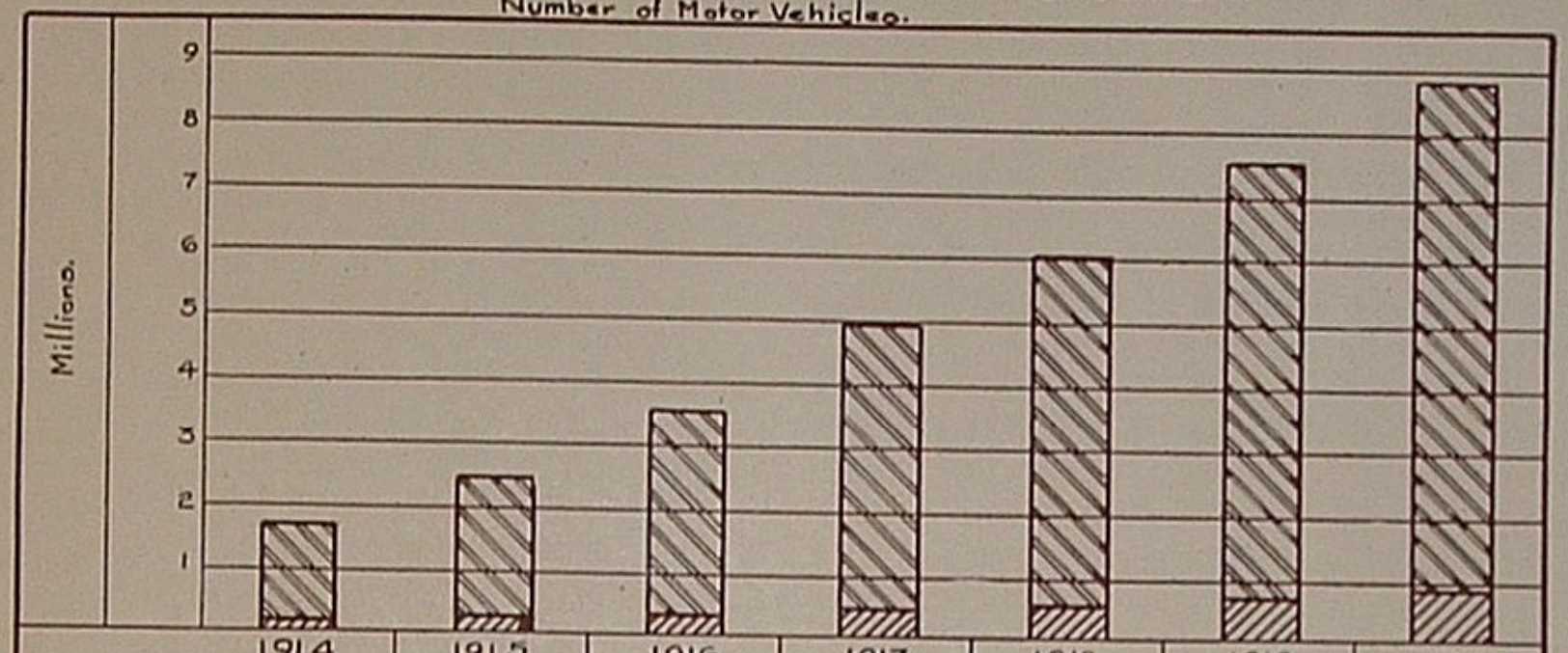
F. F. HILL.

The birds are moulting. If only man could moult also—his mind once a year its errors, his heart once a year its useless passions! How fine we should all feel if every August the old plumage of our natures would drop out and new quills take the vacant places! But we have one set of spotless feathers to last us through our three score years and ten—one set of feathers, which we are told to keep spotless through all our lives in a dirty world. If one gets broken, broken it stays; if one gets blackened, nothing will cleanse it. No doubt we shall all fly home at last, like a flock of pigeons that were once turned loose snow-white from the sky and made to descend and fight one another and fight everything else for a poor living amid soot and mire. If then the hand of the unseen Fancier is stretched forth to draw us in, how can He possibly smite any one of us, or cast us away, because we come back to Him black and blue with bruises, and besmudged and bedraggled past recognition?

—James Lane Allen.

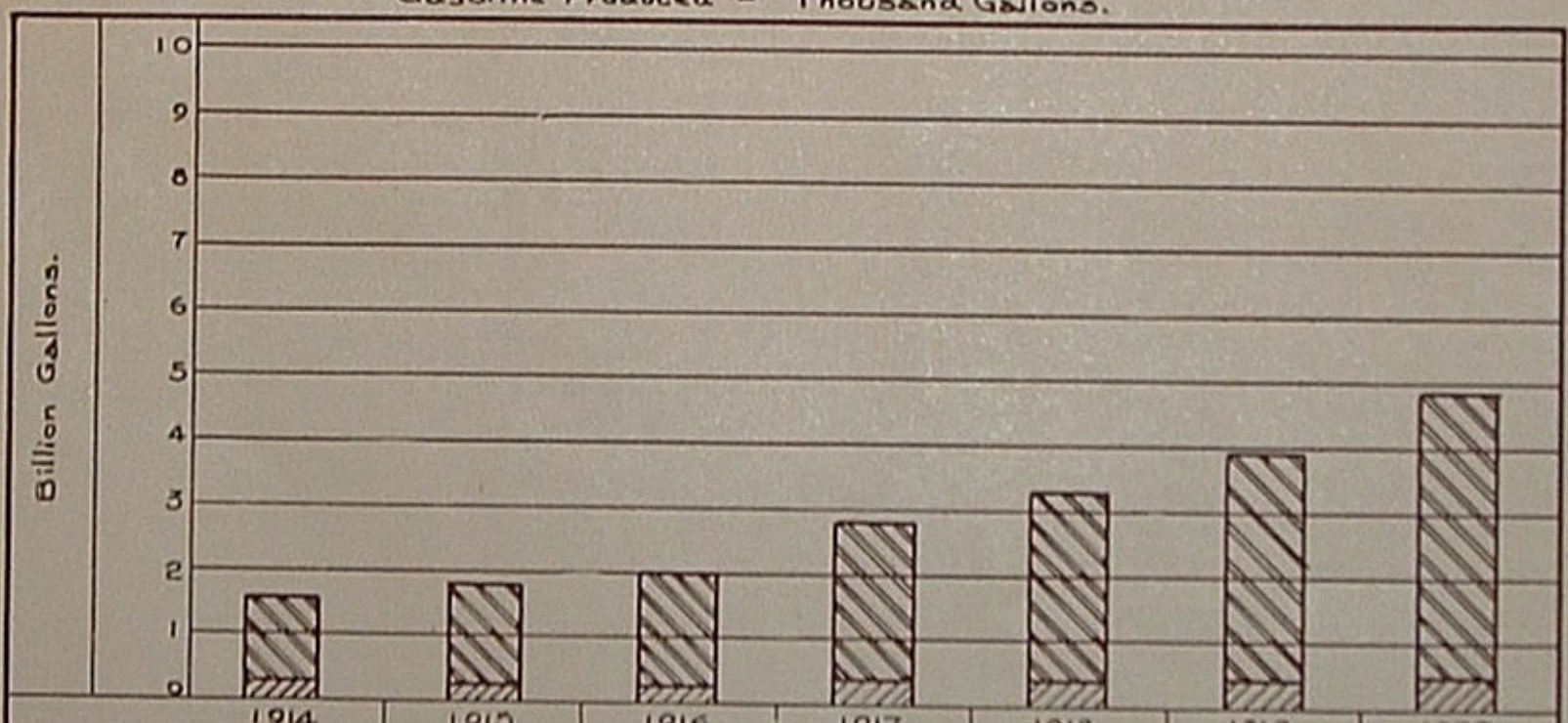
MOTOR VEHICLES & GASOLINE PRODUCTION.

Number of Motor Vehicles.



YEAR	TOTAL FOR COAST California	Coast	REMAINDER OF U.S.A.	TOTAL FOR U.S.A.
1914	123,516	175286	1,593,434	1,768,720
1915	163,975	233101	2,246,641	2,479,742
1916	232,440	339215	3,245,352	3,584,567
1917	306,916	466975	4,525,577	4992.152
1918	364,800	569307	5,533,667	6,103,974
1919	477,450	738536	6857,967	7,596,503
1920	568,892	882241	8,005,331	8887,572

Gasoline Produced - Thousand Gallons.



YEAR	TOTAL FOR CALIFORNIA.	REMAINDER OF U.S.A	TOTAL FOR U.S.A.
1914	300,000 Est.	1,160,037 Est.	1,460,037
1915	290,000 Est.	1,457,200 Est.	1,747,200
1916	309,481	1,749,400	2,058,881
1917	386,822	2,463,724	2,850,546
1918	434,592	2,935,921	3,370,513
1919	417,793	3,540,064	3,957,857
1920	451,426	4,431,120	4,882,546

COMPARISON OF INCREASE OF MOTOR VEHICLES AND GASOLINE PRODUCTION

Number of Motor Vehicles

	1914	1915	1916	1917	1918	1919	1920
California	123,516	163,975	232,440	306,916	364,600	477,450	568,892
Washington	30,253	38,223	60,734	91,337	117,278	148,775	175,000
Oregon	16,477	23,585	33,917	48,632	63,324	83,332	103,790
Arizona	5,040	7,318	12,124	19,890	23,905	28,979	34,559
Total Coast	175,286	233,101	339,215	466,775	569,307	738,536	882,241
Per cent inc. over 1914	.....	33.00	93.52	166.30	224.79	321.33	403.32
1915	.....	.....	45.52	100.25	144.23	216.83	278.48
1916	.....	.....	.....	37.60	67.83	117.72	160.08
1917	.....	.....	.....	.....	21.97	58.22	89.01
1918	.....	.....	.....	.....	.....	29.73	54.97
1919	.....	.....	.....	.....	.....	.....	19.46
Remainder U. S. A.	1,593,434	2,246,641	3,245,352	4,525,377	5,336,667	6,857,967	8,005,331
Per cent inc. over 1914	.....	40.99	103.67	184.00	247.47	330.39	402.39
1915	.....	.....	44.45	101.43	146.44	205.25	256.32
1916	.....	.....	.....	39.44	70.60	111.32	146.67
1917	.....	.....	.....	.....	22.35	51.55	76.90
1918	.....	.....	.....	.....	.....	23.86	44.59
1919	.....	.....	.....	.....	.....	.....	16.73
Total U. S. A.	1,768,720	2,479,742	3,584,567	4,992,152	6,105,974	7,596,503	8,887,572
Per cent inc. over 1914	.....	40.20	102.66	182.24	245.23	329.48	402.47
1915	.....	.....	44.55	101.32	146.23	206.34	258.40
1916	.....	.....	.....	39.27	70.34	111.92	147.94
1917	.....	.....	.....	.....	22.31	52.17	78.03
1918	.....	.....	.....	.....	.....	24.41	45.56
1919	.....	.....	.....	.....	.....	.....	17.00

Gasoline Production in Thousands of Gallons

California			309,481	386,822	434,392	417,793	491,325
Per cent inc. over 1914	.....	.....	.....	.....	.....	.....	.....
1915	.....	.....	.....	.....	.....	.....	.....
1916	.....	.....	.....	24.99	40.36	35.00	58.76
1917	.....	.....	.....	.....	12.29	8.01	27.02
1918	.....	.....	.....	.....	.....	†3.82	13.10
1919	.....	.....	.....	.....	.....	.....	17.60
Remainder U. S. A.	.....	.....	1,749,400	2,463,724	2,935,921	3,540,064	4,128,675
Per cent inc. over 1914	.....	.....	.....	.....	.....	.....	.....
1915	.....	.....	.....	.....	.....	.....	.....
1916	.....	.....	.....	40.83	67.82	102.36	136.00
1917	.....	.....	.....	.....	19.17	43.69	67.58
1918	.....	.....	.....	.....	.....	20.58	40.63
1919	.....	.....	.....	.....	.....	.....	16.63
Total U. S. A.	1,460,037	.....	2,058,881	2,850,546	3,370,313	3,957,857	4,620,000
Per cent inc. over 1914	.....	.....	.....	.....	.....	.....	.....
1915	.....	.....	.....	.....	.....	.....	.....
1916	.....	.....	.....	38.45	63.70	92.23	124.39
1917	.....	.....	.....	.....	18.23	38.84	62.07
1918	.....	.....	.....	.....	.....	17.43	37.08
1919	.....	.....	.....	.....	.....	.....	16.73
Coast			912	828	763	565	*557
Remainder U. S. A.			539	544	530	516	*511
Total U. S. A.			574	571	552	521	*520

†Decrease

*Gasoline produced per vehicle yearly.

NOTE: In 1920 there were 72,000 visiting automobiles to California.

The Station Department

INASMUCH as we have in this and the previous issue, outlined the organization of the Station Department, the following brief sketches of the business history of the responsible officials, will doubtless be of interest to our readers.

C. W. Ralph.

Back of the personal popularity which Mr. C. W. Ralph, Manager of Stations, enjoys among members of his own and other departments of the organization, is a well-earned respect for his ability and qualifications along lines of the marketing of oil and the handling of distributing stations.

While Mr. Ralph's connection with this company only dates from 1914, he has been actively engaged in the selling end of the oil industry for the better party of the past three decades. His earliest preferences centered around the marketing of lubricating oil. It was as a salesman of this commodity for the Vacuum Oil Company in and around Chicago that he first displayed signs of marked ability in productive salesmanship. He was employed by this concern for six years in the late nineties.

In 1902 Mr. Ralph shifted his headquarters to Minneapolis, Minn., where he held the appointment as manager of the Penn Oil and Supply Company. His position with this company entailed the complete handling of both sales and construction matters incidental to the extensive operations of the organization throughout the northern states adjacent to the Twin Cities.

Mr. Ralph's oil experiences have made him familiar with marketing conditions in all parts of the country. Having covered the Northern and Central states in his work with the two firms already mentioned, he transferred his allegiance in 1909 to the Indian Refiniing Company at Cincinnati. As traveling representative for this company his territory included the Southern States, where he called on the large jobbing accounts with sufficient success to warrant his appointment in 1910 to Northern District Sales Manager. While in this capacity his headquarters were transferred in 1912 to Chicago, the scene of his earliest associations with the oil business. Mr. Ralph had direct charge of the marketing of the company's products at distributing stations which spread over the Central and Northern States and into Canada.

In June, 1914, Mr. Ralph joined the ranks of the Union Oil Company of California as Manager of Lubricating Sales with offices in San Francisco. His worth won almost instant recognition and in a surprising short time he was appointed to the position he still holds as Manager of Stations.

Aside from his business capacity the feeling of congenial co-operation which Mr. Ralph has injected into his department has had much to do with the success of the present Station Department organization. Mr. Ralph is never too occupied for a cheery greeting, never too busy for a word of personal encouragement.

J. M. Geary.

Mr. J. M. Geary, who was appointed an Assistant Manager of Stations April 1, 1918, still speaks of the good old days of 1909 when, as a Salesman in the San Francisco territory, he first began to endorse Union Oil Company pay checks. Mr. Geary continued in the Bay City district until March 1, 1912, when he was sent to Seattle as Assistant Special Agent. On June 1, 1913, he was transferred back to the San Francisco Sales Department, where he remained until March 14, 1914, when he was made Special Agent at San Jose. He was called from this territory on August 14, 1916, to assume the role of District Sales Manager of the Los Angeles District. He retained this position until given his present Head Office assignment.

W. L. Standard.

Mr. W. L. Standard first came to the Union Oil Company in September, 1911, when he assumed the position of Superintendent of Lubricating Oil Sales under Mr. Botsford, which position he also held with Mr. Kelson and subsequently under the present regime. The necessity for developing our various marketing facilities necessi-

J.D.a. 1914

W.L.S 1911

Jmg 1909

tated some relief being accorded to Mr. Ralph, and on April 1, 1918, Mr. Standard was appointed Assistant Manager of Stations, in charge of Lubricating Oil Sales, and this position he is successfully handling today. For the past ten years he has practically been in charge of the marketing of the many different brands of Union lubricants now on the market.

J. T. Armitage.

Two Assistant Managers sufficed Mr. Ralph until June 9, 1920, when the increased marketing activities demanded further executive assistance and warranted the appointment of Mr. J. T. Armitage as an Assistant Manager of Stations. Mr. Armitage began with the Company in 1914 as a salesman at San Francisco and graduated to Manager Export Department, San Francisco, August 18, 1916; to Acting District Sales Manager of San Francisco District, January 9, 1917; and to District Sales Manager of this branch May 16, of the same year.

R. W. Martin.

Mr. R. W. Martin, Assistant to Manager of Stations, joined Mr. Ralph in February, 1910, when the latter was connected with the Indian Refining Company, and has been associated with him continuously since that date. The varied experience accumulated in this period has made him a valuable aid to the Manager of this Department.

SAN FRANCISCO MAIN STATION BASEBALL TEAM

(Standing, Left to Right): Lester Lohmeyer, Center Field; Bill Cornelius, Shortstop; Murray White, Utility; F. H. Hamlin, Manager; Ine Heydenfeldt, Right Field; R. R. Reeseman, First Base. (Sitting, Left to Right): Leslie Head, Catcher; Eddie McGuire, Pitcher; Mack McCarron, Playing Manager, Second Base; Donald McKenzie. Left Field; Joe Mullen, Third Base.

The employees of the San Francisco Main Station have recently organized a baseball team and are now meeting representative teams from the Industrial and Commercial concerns in the Bay Cities. They are making a wonderful showing and we know we can depend on them giving their opponents a good run for their money and in the end our boys will come out with the majority of games in their favor.

Seen Thru "Field" Glasses

A STORY IN PICTURE

Even when a man has a family tree he is sometimes obliged to get out and root for himself.

"Bredren!" exclaimed the preacher as he came across a portion of his flock engaged in pursuing the goddess of chance, "don' yo' all know it's wrong to shoot craps?"

"Yas, pahson," admitted one parishioner, sadly, "an' b'lieve me, Ah's payin' fo' mah sins."—The American Legion Weekly.

Sooner or later either your good work or your bad work will find you out, and you will either get promoted or be given a seat on the toboggan.

Physicians claim that good health requires that the mouth be kept closed while sleeping; but we all know of serious physical consequences resulting from not keeping the mouth shut when awake.

Refined and Crude

When you kill time you kill success.

The real trouble with many who think they have a hard row to hoe is—they don't like to hoe.

"I haven't seen you for a month; what have you been doing?"

"Thirty days."—*Octopus.*

"Do Englishmen understand American slang?"

"Some of them do. Why?"

"My daughter is to be married in London, and the Earl has cabled me to come across."—*Boston Transcript.*

A negro applied to a cotton plantation manager for work.

"All right," said the manager. "Come around in the morning and I'll put you to work and give you what you are worth."

"No, suh; I can't do dat," replied the negro. "I'se gettin' mo' dan dat now."

Private Squib: "What's bitin' you, anyway?"

Private Squab: "Nothin's bitin' me."

Private Squib: "Well, you gave me a nasty look."

Private Squab: "I never gave it to you; you were born with it."—Q. M. C. Recruiting News.

The kirk in a certain Scottish village was in urgent need of repairs, and Sandy McNab, a very popular member, had been invited to collect subscription for the purpose.

One day the minister met Sandy walking irresolutely along the road. The good man at once guessed the cause.

"Man, Sandy," he said, earnestly, "I'm sorry to see ye in this state."

"Ah, weel, it's for the good o' the cause," replied the delinquent, happily. "Ye see, meenister, it's a' through these subscreeptions. I've been down the glen collectin' fun's, an' at every hoose they made me hae a wee drappie."

"Every house! But — but — surely, Sandy, there are some of the kirk members who are teetotalers?"

"Aye, there are, but I wrote tae those!"

A squeezed dollar emits no music.

The head that is loaded with wisdom doesn't leak at the mouth.

Your grip on success depends largely on the other things you are willing to let go.

Don't be a fool just because you happen to know how.

Tomorrow is the soft bed of ease on which the weak lie down to rest.

If it's worth while you can afford to work your finger nails off for it. If it isn't, forget it.

Hewson: "That man Scalper has a natural bent towards speculation."

Hume: "Yes, and the last time he bent too far and got broken."

Doughboy—"Over in America we got a lilac bush fifty feet high."

Tommy Atkins—"I wish I could lilac that."—*New Success.*

Colonel—"So poor Mike has committed suicide, has he? Well, I should have thought that would have been the last thing he'd have done."

Sergeant—"Indade it were, sir."

Lew McCall says that motorists who come through Columbus en route for Kansas City have about the following conversation when they stop at the fiilling station here:

If it's a Cadillac, the driver says: "How far is it to Kansas City?" "One hundred and forty miles," is the reply. "Gimme twenty gallons of gas and a gallon of oil," says the driver. Then comes a Buick and the chauffeur says: "How far is it to Kansas City?" "One hundred and forty miles." "Gimme ten gallons of gas and a half-gallon of oil," and he drives on. Along comes a flivver and the driver uncranks himself, gets out and stretches, and asks: "How far is it to Kansas City?" "Oh, about one hundred and forty miles." "Is that all? Gimme two quarts of water and a bottle of 3 in 1," and hold this son-of-a-gun until I get in."—Columbus (Mo.) Advocate.

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