

# Bankers to Give Auto Credit O.K.

## Condition of Industry Vastly Changed Since Pioneering Stage of a Few Years Ago.

### Business Is Stabilized

By JOHN W. PRENTISS.  
(Reprinted from The Spur, July 15, 1920.)

Five years ago one of the biggest banks in New York refused to accept a well-known motor stock as collateral in an ordinary car loan. A few weeks ago the greatest banking house in the world became associated with the General Motors company as its bankers. What has caused this transformation in the attitude of the banks toward the automobile industry? Obviously, it has been the realization on the part of the banker in the meantime of the fact that he had greatly underestimated the strength and the qualities of permanency inherent in the motor industry which make it today, for instance, second only to the iron and steel industry in size. But more specifically it is due to such facts, for instance, as that the very company whose securities were not acceptable as banking collateral five years ago has since that time distributed in cash dividends more than \$55,000,000 and has paid out of earnings, and has invested in its business, also out of earnings, twice that amount, until today the value of its gross annual volume of business is greater than the gross business of any railroad system in the world.

### Financiers Were Too Slow.

The average banker is slow to change his opinions and his mode of life. That is perhaps one of the reasons why most bankers are called conservative. That is also perhaps the reason why 10 years ago even one in Wall Street did not appreciate that transportation by means of gas engines was a coming means of transportation and that transportation by steam engines was going to be less profitable in the future on account of the inroad made by the gas engine. At any rate, the banker had no confidence in the gas engine proposition and retained a good deal of his old-time confidence in the steam engine proposition. The result has been that the so-called Wall Street community (our national investing public) has lost money in railroad stocks and bonds while the element which saw the future in the motor car and which lived in the middle west instead of on Manhattan island made a lot of money in motor car securities.

### Automobile a Staple Business.

Ten years ago our Wall Street banker had a motor car which he looked upon more or less as an expensive fad. Today he finds that he must not only have one himself, but that his wife or his daughter has one, that his butcher has one, that his grocer has one and that he is absolutely dependent upon the motor car. He can go nowhere without the danger of being run over by a motor car. As a matter of fact, the roads upon which he almost entirely for his daily bread and his daily transportation. In spite of this fact there are a good many people in the banking community who seem to think that the motor car industry is not a staple and permanent business. A well-known banker in New York the other day said to me: "How long is your banking business going to last?" and added, "Is this banking going to be in business next year?" Whereupon the highly indignant banker replied that he was and the motor car man said, "So is our company."

### Trucks and Cars Essential.

We hear a good deal of talk in the newspapers these days of tight money—that loans to automobile companies are going to be restricted on the theory that the automobile is a non-essential. In the first place, very few automobile companies are dependent upon the use of automobiles. It is distinctly essential. The word "pleasure car" is a misnomer—there really is no such thing today. Twenty-five years ago the farmer had a horse and buggy to drive him to town. Today he has a so-called "pleasure car" which costs less to run than the horse and buggy and which does 10 times the work.

### 30,000,000 Cars for U. S.

Much discussion has been heard for a good many years about the saturation point in the automobile business, but no saturation point will probably be seen until there are at least 30,000,000 automobiles in the world and today the United States controls the markets of the world for motor cars. This is the only country which has learned how to produce in quantity, to standardize its output and therefore to produce cheaply.

### In the United States today there are 7,800,000 (estimated) automobiles and trucks in use; in England there are 625,000; in France there are 280,000 (estimated) automobiles in use, and in all Europe there are 1,900,000 (estimated) automobiles in use. The rate of consumption in the United States is going to require at least a million cars and trucks a year for the next five years. What the demand for the rest of the world will be it is hard to foretell, but it is a well-known fact that a medium-priced American automobile can be sold instantaneously in any part of the world today and in many foreign countries it is sold at a higher price in American dollars than it brings in its own country. Furthermore, the average life of an automobile is only about five years.

### Ford's Doubting Thomases.

A few stories illustrative of the point of view of motor industry leaders with respect to the so-called "saturation point" in the motor industry are worth repeating. We recall, for instance, the conference which Henry Ford held with his subordinates some years ago to discuss

By CLARK G. POWELL.  
Secretary of The Omaha Automobile Trade Association.

Why is the automobile put in the nonessential class by the Tenth Federal Reserve Bank of Kansas City, is the question which thousands of automobile, truck and tire dealers are asking their bankers.

Apparently there is a lack of understanding between our financiers and the men who are using automobiles in their daily tasks as it would seem that the automobile and the truck provide a real solution to our transportation difficulties.

No doubt there is ample justification for putting the damper on speculation and profiteering, but why any sane man should choose to class transportation with non-essentials is beyond explanation.

Some time ago member banks in the Tenth Federal Reserve district were informed that the Federal Reserve bank at Kansas City would discontinue to rediscount automobile paper and this action has virtually forced many bankers to refuse to loan money for the purchase of automobiles, trucks, and accessories.

### Industry Handicapped.

Although pressure has been brought to bear upon the situation from various angles, supported by indisputable evidence that the automobile and truck are vital factors in our very existence, the Tenth Federal Reserve district has turned a deaf ear. In this district they have severely handicapped the largest industry in the United States, the automobile industry and its kindred industries.

According to interviews with various bankers and others who have studied the situation, some action on the part of the Federal Reserve bank was necessary to stop speculation and profiteering. This district has put into effect a graduated interest scale somewhat similar to that of the Bank of England. This limits the borrowing power of the banks by raising the interest rate on loans to a point where credit is exceeded. The theory is that this action will force the banks who are overloaned to reduce their loans

### Plans for an output of 25,000 cars.

His "young men," as he called them, rose in revolt at the suggestion; told Mr. Ford that he could not sell 25,000 cars in any one year, and that even if he could, he could not obtain the steel to manufacture them, to which this man of wonderful vision replied as follows: "Boys, you are all wrong. I can take a map of the United States, cut it into four sections, sell 100,000 cars in each section, and only scratch the surface." Mr. Ford was not to be deterred; he is best measured by the fact that the Ford company will sell this year more than 1,000,000 cars, and the end is not there.

### Durant's Answer.

Similarly, William C. Durant, the guiding genius of the wonderful General Motors organization, was asked some five years ago when the saturation point of the automobile industry, and his answer was approximately this: "The saturation point in the automobile industry will be reached when they stop growing boys." Mr. Durant's meaning, of course, was that when generations stopped succeeding each other, the use of automobiles would diminish, but while population continued to increase the demand for automobiles would continue similarly.

### Relieved Congestion.

Recently such things have been common as sending a whole flotilla of automobiles over the road in the height of winter and sending fleets of trucks to all parts of the middle west to move their own fuel and iron and steel, which would be impossible in any other industry; but the automobile men were able to do it and thus maintained production in the early part of this year when other industries were practically shut down. The writer, for instance, saw dealers from Richmond, Va., and Dallas, Tex., driving three and five cars over the road from Cleveland, O., last spring. Thousands of miles of inconvenience for only three cars, and yet there is talk of saturation in the motor industry!

### Need Greater Production.

Not until the rest of the world has as many cars as the United States do our automobile men believe they need concern themselves with anything more than temporary abatement in the demand for cars and when, and if that condition is ever reached, there will be a demand, as indicated above, for a replacement of about 2,500,000 to 4,000,000 cars a year, which is from two to four times as many cars as have ever been turned out in a single year. The day is rapidly arriving when this great industry, which was looked upon with suspicion by so many of the banking fraternity, is coming into its own.

### Cole Aero Eight

## Stock Car Sets New Cuban Speed Record

Although the Cole Motor Car Co., in common with most manufacturers of high-grade motor cars, long ago withdrew from the field of track racing, individual Cole owners are rolling up some remarkable victories in stock car events in various parts of the world.

A few weeks ago the Cole Motor Car Co. received word from Havana, Cuba, to the effect that Roland Markham, driving a stock Cole Aero-Eight at Oriental park there, set a new stock car mark for Cuban drivers by going a 10-mile course in 9 minutes and 10 seconds, or at the rate of 65.45 miles per hour.

Markham's late victory being the second in which, with an Aero-Eight, he has beaten the field of fast cars and established a new Cuban record. In a 30-mile race on the same track a little over a year ago, Markham's Cole Aero-Eight traveled the 30 miles in 29 minutes and 15 seconds.

Markham's newest Cuban record was established on a one-mile dirt track used ordinarily for horse racing. The Cole entry was a regular stock chassis.

English motorists are now paying 80 cents a gallon for gasoline.

and it is apparently accomplishing its purpose in this respect.

### Transportation Essential.

But this still leaves the all-important question unanswered. Why should the farmer be forced to find other means of going to and from his farm and of hauling grain, cattle, and produce to market. Surely we cannot deny the fact that the automobile and truck provide faster and cheaper transportation than the horse-drawn vehicle.

If we accept the motor vehicle as a time-saver and an expense reducer, why should we discourage its sale? Would it not be better to even make an exception on automobile paper which would favor that industry?

If the action of the Federal Reserve bank is aimed at the food speculator, the profiteering landlord, the man who is floating stock issues, the man who is speculating on ridiculous real estate values and numerous others who come under this class, why don't we pinch our case? It would be very simple.

We might rule that the banks, regardless of whether they were overloaned, could borrow and loan, at the normal rate of interest, money to be used to move grain, to feed cattle, to furnish transportation. This would do no harm to the nation without harming necessary progress.

### Necessity Is Proved.

Numerous and varied facts have been supplied by those connected with the automobile industry and broad-minded financial experts, who have proved beyond doubt the necessity for motor transportation. Some of this data is submitted herewith.

The National Automobile Chamber of Commerce of New York City made an investigation recently, which developed the fact that farmers, doctors, lawyers, contractors, real estate and insurance men were the largest buyers of motor cars. Picture these men without automobiles today. Their efficiency would be cut in half.

This same investigation developed the following facts: (Compiled from replies to question cards sent to car owners.)

37 per cent of car owners improve their living conditions because of automobile.

### 90 per cent of all cars are used more or less for business.

60 per cent of mileage of average car mileage and 78 per cent of farmer car mileage is for business.

34 per cent of average mileage is instead of trolley or railroad, or where there is no other means of communication.

Average car owner adds 57 per cent to his output through use of automobile; farmer adds 68 per cent to his efficiency.

### Net Gain of 3,000,000 Men.

The use of the passenger car, accordingly, has meant a net gain to industry of 3,000,000 men. There are more than 7,000,000 automobile owners in the country, each increasing his efficiency 50.7 per cent through the use of the car, making an addition to the business productivity of the country in excess of 3,000,000 workers. As there are between 800,000 and 900,000 men

### Open Service School at LaFayette Factories

"Motorists who have become firm believers in the economy of high quality and consequently high priced cars have learned the importance of proper lubrication and expert mechanical inspection," asserts Ralph Hitchcock of the LaFayette-Hayward Co. "In order to have every LaFayette distributor's service station under the direction of an expert who knows the LaFayette car as well as the makers, a post-graduate service school has been opened at the plant. Men who have had years of experience on high-grade cars, who know how to meet and work for owners of such automobiles, are admitted from the cities where distributors are located. Engine, transmission and axle are completely torn down and built up by the men, under the direction of the designer and other engineers, D. McCall White, creator of the LaFayette, lectures on the engineering features of the car. D. C. Selheim, works manager, talks on production methods; ignition and carburetion are explained in detail by specialists; then follow long rides in a LaFayette car at varying speeds and over all sorts of roads.

Houser, technical manager of the plant, is in direct charge of the school while F. E. Cooper, superintendent of final inspection, is leading instructor.

"Between serving in class room and personally testing every LaFayette that comes off the assembly line," McCall White is kept busy. "Personal test drives" are made both by him and his co-producer, E. C. Howard."

### Weak Valve Springs.

Weakening of the springs which close the valves is a common cause of faulty engine operation. Whenever the valves are taken out the springs should be examined to see that they are all of the same length, or rather that all of the inlet set are of the same length and all of the exhaust, as the exhaust springs will probably be a little longer than the others. If one spring is shorter than the others in its set it should be stretched or else a metal plate must be put under it to bring tension up to equality with its fellows.

### Lexington Winner

## In Economy Drive Against Big Field

"We beat 'em again," is the word just received by the local racing dealer, when the Minute-Man Six hung up another record to its credit.

This time it is for economy, and won over a field of 12 contenders with a showing of 2 1/4 miles to the gallon. The record made at Norfolk, Va., upon a heavy churned into mud as cars of all makes and kinds struggled for supremacy.

In the final showing the Lexington entry swung easily into first place. This victory for economy was made over cars light and heavy, and all classes and descriptions, many of the finest cars in America being represented.

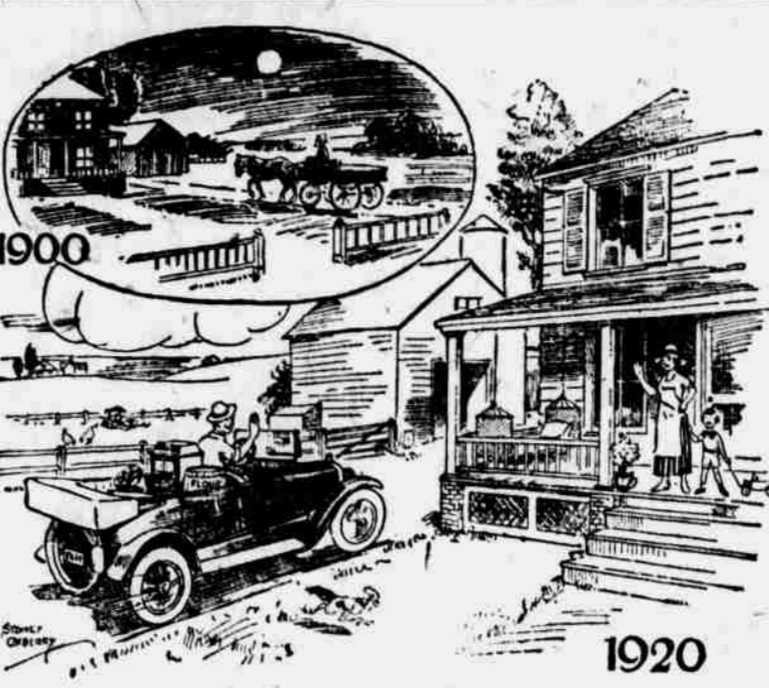
Other recent Lexington victories were made when a Lexington won a \$5,000 New York open challenge race, covering gasoline economy, acceleration or "kick speed," fast speed on high gear, low speed on high gear, high gear power on hills, and fast high gear power on hills.

One hundred and nine cars accepted the challenge and a Lexington Minute-Man six stock car defeated all of the contesting cars on all points.

Again when two Lexingtons finished first and second in the Pike's Peak hill-climb classic in face of a blinding snow storm, they won a world victory over cars of all makes and kinds, some of them specially built. The two Lexington winners were stock cars with the exception of their special bodies.

Combined federal and states expenditures for road building may reach a total of \$250,000,000 this year.

# Dealers' View of Credit Situation In Nebraska



Farmers own one-third of the passenger cars in the country. Seventy-eight per cent of their cars are for business, and a recent canvass of farm owners showed that they had increased their productivity 68 per cent through use of the automobile.

90 per cent of all cars are used more or less for business. 60 per cent of mileage of average car mileage and 78 per cent of farmer car mileage is for business.

34 per cent of average mileage is instead of trolley or railroad, or where there is no other means of communication.

Average car owner adds 57 per cent to his output through use of automobile; farmer adds 68 per cent to his efficiency.

### Net Gain of 3,000,000 Men.

The use of the passenger car, accordingly, has meant a net gain to industry of 3,000,000 men. There are more than 7,000,000 automobile owners in the country, each increasing his efficiency 50.7 per cent through the use of the car, making an addition to the business productivity of the country in excess of 3,000,000 workers. As there are between 800,000 and 900,000 men

### Why Auto Tires Do Not Require Oiling

Why does the motorist never oil his tires? Road wear, chafing and constant flexing would seem to demand oiling. Automobile bearings and all working parts of a car are oiled against friction. Why no oil for a tire? This question is often asked by motorists, asserts Robert C. Brien, manager of the Omaha branch of the Miller Rubber Co. Here is the answer:

"The fabric carcass of the tire is much like the human body. For one thing it is self-lubricating during its life. The breaker strip is its backbone. Piles of fabrics are the ribs and the rubber between them, like muscles, hold all parts together. The fabric carcass gives strength and shape. Friction gum is the lubricant.

### Core Must be Taken.

"Like the human body the tire may look good on the outside, but be shot inside. Its greatest enemy is under-inflation. Abusive treatment causes so much bending, flexing and chafing, that the carcass, in spite of its enormous strength, is unable eventually to bear up and is broken and torn.

"In the fabric tire, the carcass is constructed of interwoven strands of cotton. Fabric is built up layer upon layer, each thoroughly impregnated with rubber. The number of these piles, each of which is cushioned, depends upon the size of the casing. The earliest successful tire was a fabric, according to the Miller Rubber Co., Akron, O.

### Built for Endurance.

"The cord carcass is constructed of layers of cords which run parallel in each ply and are not interwoven. The number of plies, each of which is run at right angles to the other, varies with the size of the tire. So strong are the carcasses that they are able to stand blows that would mount up into the tons.

"When the motorist takes care of

leaving things to be true of the man who buys an automobile "on time." The figures below are the average for the six months between April 1, and September 30, 1919:

Average Age of Purchaser	35
Average Car Cost	\$1,644
Average Monthly Payment	\$49
Average Income (Monthly)	\$175
Average Per Cent Payment to Income	27.7 per cent
Average Per Cent Note for Car	58.3 per cent
Average Road Estate Owned	\$6,823

This would indicate that these men are well able to buy automobiles and they are certainly entitled to credit in buying transportation as much as in buying a house to live in.

### Something Wrong.

Evidently there is something wrong with our scheme in this district. Few, if any other districts, have found it necessary to curb motor transportation and why an agricultural district should be chosen to try out such a plan is beyond conception. Our financiers tell us there is more money in the United States today than there has ever been. Nebraska is reported to have a 117.6 per cent crop compared with the average for the last 10 years. Iowa is reported to have a 107.2 per cent crop. Other states in this section have had bumper crops. Our security certainly is gilt edge. The only thing which stands in our way is the lack of transportation, both passenger and freight, but our federal reserve system sees fit to curb the only solution.

If our bankers are pinched why doesn't our federal reserve system come to the rescue? Our farmers have bumper crops. The security is gilt edge and the Federal Reserve bank at Kansas City has the power to both issue and borrow money.

### Hardship on Banks.

According to numerous distributors, the ruling regarding automobile paper is forcing a real hardship on some of the smaller banks. It is forcing the withdrawal of money on time deposit. Some individuals are finding it very profitable to loan the money which they have just deposited at 4 per cent interest to finance the sale of automobiles. Most of these loans are secured by notes from farmers bearing 6-7-7.9 per cent interest.

### Truck Agent Sells Sale Contracts to Farmers

"During a recent trip through the middle west and southwest, visiting distributors and dealers," asserts J. W. Kenneth of the Indiana Truck corporation, "I picked up some valuable information as to the scheme employed by one of our big, alive distributors in a mid-west city in financing paper on the resale of trucks.

The officers of the organization get out into the rural farming sections, visit the small towns that are surrounded by rich farms and where the farmer has money. They get acquainted with the banker in these villages and learn the fellows who have money and are not depositing it in the banks. Any number of farmers far out from the cities are afraid to deposit their money in banks, fearing additional taxation by state or government, so they have cash on hand at home. This distributor shows the farmer a bunch of notes bearing 8 per cent interest that fall due from month to month; they show him that a substantial payment has been made on the truck by the purchaser, which shows good faith, then the distributor allows the farmer an additional discount of 2 per cent, and he buys the notes for cash."

### Vacuum Tank Needs Draining

At the bottom of the vacuum tanks, which are now used on so many cars to secure proper fuel feed, there is located a drain cock. Many owners seem to think this is some sort of an ornament, but it should be opened at intervals, once a week or so. Generally a little water and possibly some rust will flow out, but the gasoline begins to come. In many cases it will be necessary to insert a bit of wire to clean out the drain cock of an accumulation of foreign matter. If this latter is permitted to remain long enough it will work its way back into the carburetor and make trouble.

### Daily Lubrication.

Clutch collar and thrust bearing: grease or graphite. Spring bolts: grease or graphite. Drag link joints or steering gear: grease or graphite. Tie rod and king bolts: cylinder oil. Steering gear case: grease or graphite. Brake levers and clevises: cylinder oil. Commutator: cylinder oil (few drops). Steering post: cylinder oil. Brake shaft and pedal bearing: cylinder oil. Lubrication Every 500 Miles. Spring leaves: graphite or heavy oil. Crankcase: cylinder oil, drain, flush out and refill. Magneto distributor: drop of cylinder oil in holes. Gearcase: oil, light in winter and heavy in summer. Lubrication Every 1,000 Miles. Wheel bearings: grease or graphite after thorough cleaning. Universals: grease or graphite. Torsion tube, radius rods and similar parts: grease or graphite. Gearcase: drain, flush with kerosene and refill with oil, light for winter and heavier for summer. Broken Chains. When the cross pieces of the anti-skid chain break, so that the chain strikes against the fender in passing, it is poor practice to wire the broken pieces across the tire, as the wire will quickly be worn through. By wiring under the felloe a more permanent repair will be secured.

The following reprint from Motor World of August 25, 1920, illustrates just what is happening to some of the smaller banks.

At least one Iowa automobile dealer has found a way of getting co-operation from banks in these times of tight money. His methods, though drastic, were highly effective.

For obvious reasons the dealer's name is not given, but he is one of the pioneers in the motor car business in a central Iowa town of about 4,000 people.

When his home town bankers began to tighten up the dealer went to the banker with whom he had always done business and asked for assistance for himself and his customers. It was not forthcoming.

The dealer had lived in the town for years and had a pretty good idea of the citizens who were depositors in this particular bank. He tried out such a plan in beyond conception. Our financiers tell us there is more money in the United States today than there has ever been. Nebraska is reported to have a 117.6 per cent crop compared with the average for the last 10 years. Iowa is reported to have a 107.2 per cent crop. Other states in this section have had bumper crops. Our security certainly is gilt edge. The only thing which stands in our way is the lack of transportation, both passenger and freight, but our federal reserve system sees fit to curb the only solution.

If our bankers are pinched why doesn't our federal reserve system come to the rescue? Our farmers have bumper crops. The security is gilt edge and the Federal Reserve bank at Kansas City has the power to both issue and borrow money.

According to numerous distributors, the ruling regarding automobile paper is forcing a real hardship on some of the smaller banks. It is forcing the withdrawal of money on time deposit. Some individuals are finding it very profitable to loan the money which they have just deposited at 4 per cent interest to finance the sale of automobiles. Most of these loans are secured by notes from farmers bearing 6-7-7.9 per cent interest.

### Truck Agent Sells Sale Contracts to Farmers

"During a recent trip through the middle west and southwest, visiting distributors and dealers," asserts J. W. Kenneth of the Indiana Truck corporation, "I picked up some valuable information as to the scheme employed by one of our big, alive distributors in a mid-west city in financing paper on the resale of trucks.

The officers of the organization get out into the rural farming sections, visit the small towns that are surrounded by rich farms and where the farmer has money. They get acquainted with the banker in these villages and learn the fellows who have money and are not depositing it in the banks. Any number of farmers far out from the cities are afraid to deposit their money in banks, fearing additional taxation by state or government, so they have cash on hand at home. This distributor shows the farmer a bunch of notes bearing 8 per cent interest that fall due from month to month; they show him that a substantial payment has been made on the truck by the purchaser, which shows good faith, then the distributor allows the farmer an additional discount of 2 per cent, and he buys the notes for cash."

### Vacuum Tank Needs Draining

At the bottom of the vacuum tanks, which are now used on so many cars to secure proper fuel feed, there is located a drain cock. Many owners seem to think this is some sort of an ornament, but it should be opened at intervals, once a week or so. Generally a little water and possibly some rust will flow out, but the gasoline begins to come. In many cases it will be necessary to insert a bit of wire to clean out the drain cock of an accumulation of foreign matter. If this latter is permitted to remain long enough it will work its way back into the carburetor and make trouble.

### Daily Lubrication.

Clutch collar and thrust bearing: grease or graphite. Spring bolts: grease or graphite. Drag link joints or steering gear: grease or graphite. Tie rod and king bolts: cylinder oil. Steering gear case: grease or graphite. Brake levers and clevises: cylinder oil. Commutator: cylinder oil (few drops). Steering post: cylinder oil. Brake shaft and pedal bearing: cylinder oil. Lubrication Every 500 Miles. Spring leaves: graphite or heavy oil. Crankcase: cylinder oil, drain, flush out and refill. Magneto distributor: drop of cylinder oil in holes. Gearcase: oil, light in winter and heavy in summer. Lubrication Every 1,000 Miles. Wheel bearings: grease or graphite after thorough cleaning. Universals: grease or graphite. Torsion tube, radius rods and similar parts: grease or graphite. Gearcase: drain, flush with kerosene and refill with oil, light for winter and heavier for summer. Broken Chains. When the cross pieces of the anti-skid chain break, so that the chain strikes against the fender in passing, it is poor practice to wire the broken pieces across the tire, as the wire will quickly be worn through. By wiring under the felloe a more permanent repair will be secured.

# Passenger Auto Comes Into Favor

## Term "Pleasure Car" a Misnomer In Day When Passenger Vehicles Are Productive Force.

### Rapid Forward Strides

By CHARLES CLIFTON.  
President, National Automobile Chamber of Commerce

The greatest single new productive force in the development of the United States in the past 20 years, has been the automobile.

Scarcely two decades ago, highways transportation the world over was no faster, hardly more efficient, than the caravans which pushed their way across the desert to Babylon 2,000 years before. The introduction of the passenger car has wrought a revolution in travel almost overnight and the changes which are today being brought about through the ever broadening use of the motor vehicle, have already geared a world to a new efficiency of commerce, a new standard of life, a new philosophy of thought.

As the telephone brought communities into closer contact mentally, so the automobile is serving to bind communities together physically. Two or three days later the banker began to feel the effects.

Finally after a good many savings deposits had been removed he asked the dealer to come to his office. Then he asked for an explanation of what was going on.

The dealer's answer was short and to the point. "Don't do any more of this business with my depositors," said the banker. "Come in and I will handle your paper as usual."

And in at least one town the war was over.

During the last two months, Henry Ford and the Ford Motor Co. have purchased the Detroit, Toledo and Ironton railroad, a 400,000 acre timber tract in northern Michigan, and a coal mine in Kentucky. And it is reported that other purchases are under consideration.

Two thousand railroad workers are automatically made "Ford men." In the near future they will be permitted to share in the investment opportunity with the thousands of other Ford employees. The minimum wage system and bonus distribution also will apply to the railroad men.

The Detroit, Toledo and Ironton railroad will soon be known by another name. Avoiding congested centers, the railway is a direct line to the coal fields of southern Ohio and the West Virginia and Kentucky boundaries. Solid coal trains may be routed through to Detroit without delay or interference.

Timber from virgin forests of the Upper Peninsula of Michigan will be used to furnish lumber for Ford automobile bodies and other requirements. Another link added to the chain of Ford industries is the Ford saw mill, located just outside of Detroit.

These acquisitions are wonderful links in the chain of Ford industries. Few outside organizations are being depended upon year by year. Already work on the Ford car and Fordson tractor commences with the ore in Ford furnaces. Soon the coal will be transported from mines on a Ford railroad, and soon the timber will be cut from Ford virgin forests.

The following table may be accepted as generally accurate in its recommendations for lubrication attention to the various parts of the mechanism, though there will be variations in regard to certain cars and models.

Clutch collar and thrust bearing: grease or graphite. Spring bolts: grease or graphite. Drag link joints or steering gear: grease or graphite. Tie rod and king bolts: cylinder oil. Steering gear case: grease or graphite. Brake levers and clevises: cylinder oil. Commutator: cylinder oil (few drops). Steering post: cylinder oil. Brake shaft and pedal bearing: cylinder oil. Lubrication Every 500 Miles. Spring leaves: graphite or heavy oil. Crankcase: cylinder oil, drain, flush out and refill. Magneto distributor: drop of cylinder oil in holes. Gearcase: oil, light in winter and heavy in summer. Lubrication Every 1,000 Miles. Wheel bearings: grease or graphite after thorough cleaning. Universals: grease or graphite. Torsion tube, radius rods and similar parts: grease or graphite. Gearcase: drain, flush with kerosene and refill with oil, light for winter and heavier for summer. Broken Chains. When the cross pieces of the anti-skid chain break, so that the chain strikes against the fender in passing, it is poor practice to wire the broken pieces across the tire, as the wire will quickly be worn through. By wiring under the felloe a more permanent repair will be secured.

### Man Power Multiplied.

Of the actual mileage of cars on which figures were obtained about 60 per cent was for strictly business purposes, not including use of cars in place of trolley or railroads, or for shopping. The average increase in business productivity due to motor cars was 56.7 per cent. Translated into working capacity this means that the 6,800,000 cars in daily use in America add every day the equivalent of over 3,800,000 workers to the nation's productive resources. This is equal to nearly a sixth of all of the wage earners in America. So the automobile industry has increased America's man power by one-sixth at a time when man power is the world's most serious problem.

To carry it one step further, since the number of men employed in the sales and manufacturing of passenger cars, including the making of parts and accessories is about 800,000, the industry can fairly claim to have contributed to the nation four times as much as it has cost in man-power.

This ratio is approximately correct as shown by arriving at it from