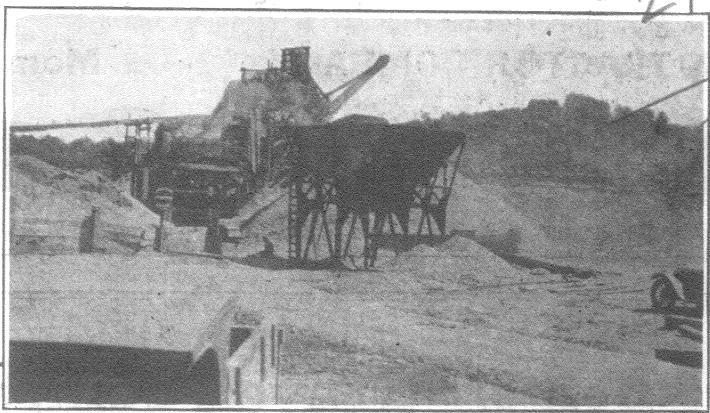


# ARKANSAS HIGHWAYS



A Typical Material "Batcher."

Handwritten calculations:

$$\begin{array}{r} 18 \\ 12 \\ \hline 30 \\ 18 \\ \hline 216 \end{array}$$
$$\begin{array}{r} 42 \\ 41 \\ \hline 83 \\ 164 \\ \hline 252 \end{array}$$
$$\begin{array}{r} 25 \\ 22 \\ \hline 47 \end{array}$$

225

NOVEMBER  
VOL. 3      1926      NO. 11

## "The "Caterpillar" is Called "The Nation's Road Builder."

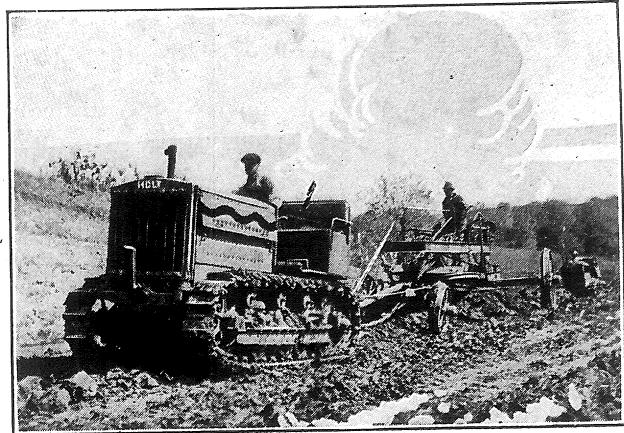
**H**ITCH a Grader blade behind the "Caterpillar" and go over the old road—bumps vanish, ruts are filled in, a crown built up to drain the water. Traffic speeds up—the smooth comfort of travel invites more travel—the community grows and prospers.

"Caterpillar" Tractors have brought the boon of good roads to many communities—they blaze new roads and maintain old ones, pulling scarifier, blade grader, elevating grader, hauling wagons and doing the dozens of odd tasks that require plentiful power.

Four models of "Caterpillars" on display at  
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"THIRTY"  
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**CATERPILLAR**  
REG. U.S. PAT. OFF.

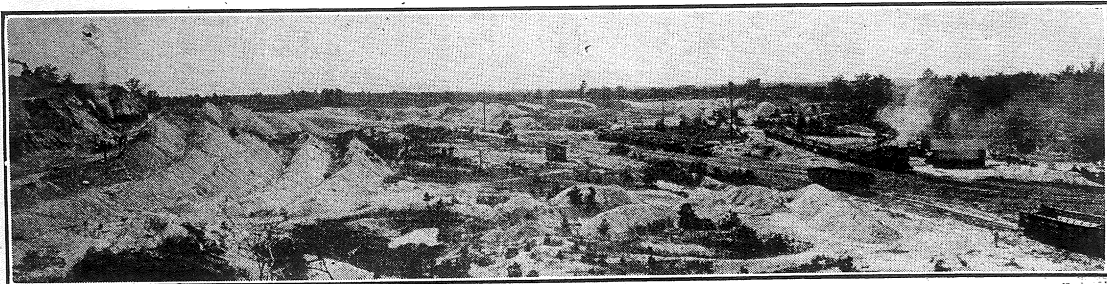
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Vice President & Treas.



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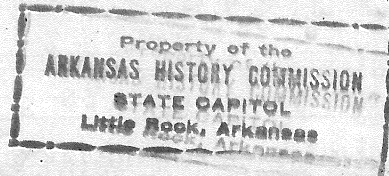
Plant: Benton, Ark.

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# ARKANSAS HIGHWAYS



Official Monthly Bulletin of the State Highway Commission

"Arkansas Highways" is edited in the offices of the Highway Department at Little Rock. Communications relative to advertising or articles and photographs submitted for publication should be sent to The Editor, care Highway Department, Little Rock. The bulletin is sent free to State and County officials, newspapers of the State and Road Commissioners who apply for it. Permission to reprint any matter contained in "Arkansas Highways," with proper credit, is granted to all newspapers of the State.

VOL. III.

NOVEMBER, 1926

NO. 11

## Wilson and Limerick Honored at Duck Dinner

Employes Arrange Affair at Camp Pike for Officials.

PREDICTION that the work of the State highway department during the past three years under Commissioner Herbert R. Wilson and Highway Engineer R. C. Limerick will be increasingly appreciated by the people of Arkansas as time passes was generally made by speakers at the duck dinner which was given honoring these two officials at Terral Hall, Camp Pike, on Friday evening, November 12.

The dinner was given by Little Rock employes of the department, covers being laid for 150 highway workers, engineers and friends. Frank Wittenberg, Jr., engineer of surveys and plans, acted as toastmaster. Talks were made by Robert A. Kern, engineer of District No. 6; Senator Paul Grabiell, former editor of "Arkansas Highways;" Tom E. Wood, rate expert of the department, and by Mr. Wilson and Mr. Limerick.

Mr. Kern spoke of the splendid team work, co-operation and feeling of real comradeship that had been built up in the department under the leadership of Mr. Wilson and Mr. Limerick. "Under these men the highway department has functioned without the slightest degree of friction, and the complete harmony has made possible the most effective results on the roads. I have never known a department of the State government that was as completely free from jealousy, bickerings and personal selfish ambitions as the highway department has been. Mr. Wilson and Mr. Limerick have set a real example of effective teamwork that has been contagious and has worked its way into every part of the department."

Senator Grabiell pointed out that up until 1923, Arkansas had been "lost in the wilderness," trying to find a way out of the mud, but in that year, with a proper sort of law to work under (the Harrelson law) Commissioner Wilson and Engineer Limerick, took hold of the problem and were well on the way to a complete solution when the

"fickle and changing winds of politics" drove them off the job.

"We shall hope for a continuation of the good work which these two men have done," Senator Grabiell said, "but regardless of what the future may bring us in the way of highway development, the accomplishments of the past three years will be more and more appreciated by the people of Arkansas as the days go by.

"For the first time, the people have seen real roads constructed economically and along a sensible, state-wide plan, without the ruinous bond issues of the old district system. For the first time they have seen a common-sense system of maintenance and patrol that has been designed to conserve road expenditures already made.

"They have seen three years of this sort of thing under the splendid leadership and team-work of the two men we are honoring here tonight, and they are not going to forget it.

"Regardless of the changing winds of political favor which have stopped the work which these men were doing, the people will appreciate more and more, as the years go by, the services which they have rendered, and will require from whoever may happen to be in charge of the department, more and more of the same kind of service.

"Arkansas will never be content to go back to the conditions which prevailed in our road affairs prior to the enactment of the Harrelson law. In the enactment of that law, and in the work of the department since its enactment, I am happy to have had my small part.

"I know that each one of the department employes has had the same feeling about his work under Mr. Wilson and Mr. Limerick, and I predict that no matter into what line of endeavor you may go, as a result of the breaking up of this organization, you will always be in-

creasingly proud of your share in opening up a new era in the road-building history of Arkansas in 1923-26."

Mr. Wood dealt briefly with the way the highway department has worked together "as one large family, each member filled with love and loyalty for the two heads, Commissioner Wilson and Capt. Limerick."

Mr. Wilson told of his regret at laying down the work "unfinished," but reminded his hearers that it was the people's verdict. "The department belongs to the people, not to any individual, and they have a right to do what they wish with it. Perhaps it is better for me personally, after all, for as I look back over the years I have spent in the department I see that if I had spent the same energy, the same ceaseless planning, the same sleepless nights, dealing with a private business that I have given trying to work out the problem of giving Arkansas a real road system, I would have amassed in hard dollars some of the mythical fortune that my political enemies have charged me with making in this office."

Captain Limerick spoke briefly of his work with Mr. Wilson, the splendid harmony that had always existed between them, and the effective co-operation given by all the engineers and employees.

"I can truthfully say that Mr. Wilson and I have never had a cross word between us in all the years of our work together. We have had differences of opinion, but they have always been worked out and harmonized in the furtherance of the highway program."

Captain Limerick referred to rumors that he would continue with the department under the new administration, and declared they were unfounded. He said he would not be an applicant for a position with the department. He indicated that he would go into private business but gave no hint of the details of his plans.

#### MOTOR VEHICLES IN FOREIGN COUNTRIES.

The ratio of population to motor vehicles in some of the more important foreign countries is as follows: France, 1 to 69; Germany, 1 to 272; Japan, 1 to 2,645; India, 1 to 7,497; Russia, 1 to 8,896; China, 1 to 39,695.—*Engineering and Contracting.*

Parking space has been discovered at last. Afghanistan has one motor car for every 1,200,000 inhabitants.—*Wichita Eagle.*

#### EUROPE LIKES MOTOR BUS SERVICE.

Although there are more motor buses in operation in the United States than in any other country, the American total of 80,000, compared to the rest of the world's 101,000, gives us in this field nothing like the tremendous lead we have attained as owners of motor vehicles in general.

The number of buses running in Europe, according to the Department of Commerce, is about 78,000. Of these 35,000 are in France and 20,000 in Great Britain. Germany is surprisingly low in the list, being credited with only 500 buses. This is said to be due to the country's network of railroads and its inland waterway system. In countries like Spain, where railroad service is poor, the motor bus has been a great boon. Spain has ten times as many vehicles as Germany.

In the United States in the rural districts the motor bus has had its most rapid development and has wrought the greatest changes. Four thousand buses carried passengers in 1925 over 36,000 miles of highway in New England.

The motor bus has supplemented the work of the private automobile, the telephone and the radio in overcoming the isolation of the farmer. In some cases it offers serious competition to the railroads, but in others, often under railroad ownership, it serves as an important feeder to steam and electric lines.

The League of Nations should consult Mr. Dempsey on the art of avoiding fighting.—*Manchester Union.*

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**ROAD SERVICE**

## Tennessee Company Gets First Harahan Contract

Earthwork awarded to Galley & Company of Knoxville, Low Bidder.

ON its bid of \$216,299, which was approximately \$66,000 lower than the highway department's estimate of the cost, the firm of T. J. Galley & Company of Knoxville, Tennessee, was awarded the contract for earthwork on the 8,000-foot embankment on the Harahan Viaduct project at a special meeting of the highway commission on November 16. Work, under the terms of the contract, will commence immediately, and will be completed in 300 working days.

The signing of the contract was another step in the long series of negotiations conducted by Commissioner Herbert Wilson during the past three years, which many times seemed about to fail because of the many conflicting interests involved, and the difficulty of harmonizing all of them.

The most recent step, itself, seemed about to fail, when on November 15, L. S. McFadden and others, who had failed to delay the project at the regular October meeting of the commission, secured from Chancellor J. E. Martineau a temporary injunction restraining the commission from awarding the contract.

The following morning, however, while the commission was engaged in tabulating the bids on the earthwork, the Supreme Court, through Justice Carroll D. Wood, issued a writ of prohibition which had the effect of nullifying Chancellor Martineau's injunction of the night before, and accordingly, the commission proceeded to let the contract to the lowest bidder.

Bond for faithful performance of the contract was made by the Galley Company, and the contract was signed by Commissioners Wilson, Wolfe and Moyer. Commissioner Land Williams of Mississippi county, recent appointee to the commission, who introduced a resolution at the October meeting, which would have delayed the handling of the Harahan project until 1927, and Commissioner Ed. Kendall, voted against the awarding of the contract.

M. B. Norfleet, Jr., attorney for the viaduct commission, denounced the attempted delay as a move to rob Mr. Wilson of credit for the completion of a project on which he had spent a great portion of his time during his administration.

He pointed out that after three years of negotiations all interests had been harmonized and plans carefully laid for the co-operation of the highway commissions of Arkansas and Tennessee, the Federal Bureau of Public Roads and the City of Memphis, and that any delay at this time in the consummation of understandings already reached might precipitate another long battle which might entirely wreck the undertaking.

This position was supported by Mayor Rowlett Paine of Memphis, who attended the letting. "The present viaduct," he said, "is in dangerous condition, and whoever delays the present plans for immediate construction, even

for one day, will be morally responsible if some terrible catastrophe occurs endangering the lives of persons using it. Memphis is ready and anxious to proceed with immediate construction work."

Mayor Paine pointed out that Memphis is paying 45 per cent of the cost of the structure direct, and will pay 60 per cent of the temporary bridge tolls that will be used to provide Crittenden county's share of the expense. The agreement worked out by Commissioner Wilson and Mayor Paine eliminates any direct taxation on Arkansas lands, providing the entire cost of the project, \$1,164,000, through Federal aid, the city of Memphis, and tolls from the old wooden viaduct during the construction period.

Because of its extreme importance as a "magnet" bringing tourist traffic through the Memphis gateway into Arkansas, Commissioner Wilson has worked untiringly from the very beginning of his administration to get all the various factors harmonized in the working out of the problem, and the actual beginning of construction operations this month will be a big moment for him.

### NEW SURFACES ON OLD ROADS.

One of the most discussed problems coming before those charged with highway administration is the problem of salvaging old roads and streets which were honestly built according to former accepted standards of engineering, but which have become inadequate for present day needs. Increasing consideration is being given by engineers to the great value of old roads, which by reason of their long use have become compacted until they make an ideal foundation, much more durable than any new embankment or grade might be.

Many states, Arkansas among them, are seeking as far as possible to conserve these old foundations of well-packed gravel or macadam through the application of a bituminous wearing surface.

J. D. Strain, highway official of Pittsburgh, Pennsylvania, discussing his experience along this line, says:

"In earlier days, in every city a great deal of block stone pavement was laid. We had this condition in Pittsburgh. The years passed on, and while the street was still there, it did not have the smooth, even wearing surface desired by the auto drivers. The question was whether to tear up these entire streets and put down a modern pavement from the ground up, or to salvage if possible, the investment already made, which in our case was very great.

"And so we began covering this block stone with from three to four inches of bituminous concrete covered with a one and one-half inch top. This treatment has been given to mile after mile of our city streets, with the result that we have high class driveways meeting every modern demand, with a saving of more than one-half the cost of new construction."

## Forty States Represented at Highway Meeting

Pinehurst, North Carolina, Entertains American Association.

UP-TO-THE-MINUTE ideas on all phases of highway construction and maintenance, and the administration of highway department affairs were discussed and compared at the twelfth annual meeting of the American Association of State Highway officials, held November 8, 9, 10, 11 and 12 at Pinehurst, North Carolina.

Officials representing all but eight of the States of the Union were in attendance. Commissioner Herbert R. Wilson and Engineer R. C. Limerick, who have attended the last five sessions of the association, representing the Arkansas department, were unable to go to Pinehurst, as a result of the pressure of business incident to the winding up of the Harahan Viaduct negotiations, and they were represented at the meeting by O. L. Hemphill, assistant State highway engineer.

Mr. Hemphill participated in much of the round table discussion, and reported a very profitable and enjoyable session. Principal speakers before the convention were the Hon. Wm. M. Jardine, Secretary of Agriculture; Thomas H. MacDonald, chief of the Bureau of Public Roads; Governor Angus W. McLean of North Carolina, and Francis Sisson, vice president, Guaranty Trust Company, New York City.

Louis D. Blauvelt, State highway engineer of Colorado, was elected president of the association, succeeding Frank Page, chairman of the North Carolina Highway

Commission. Frank T. Sheets, highway engineer of Illinois, was elected vice president. The 1927 convention probably will be held in Denver, home city of the new president.

Among the many subjects discussed at the convention at Pinehurst were plans and surveys; design; specifications; construction; bridges and structures; tests and investigations; maintenance; administration, traffic control and safety; uniform accounting; publications and highway transport.

Thirty-six states now issue highway bulletins similar to "Arkansas Highways," according to Mr. Hemphill, who stated that it was generally agreed that they were of great value in keeping the public advised as to highway needs and progress.

### "WHAT ARE THE CHARACTERISTICS OF A GOOD AND SAFE DRIVER?"

An analysis of the opinions submitted on this vital problem disclosed that the seven men to whom this question was submitted by Thos. P. Henry, President of the A. A. A., are in accord in six major essentials, as far as good driving is concerned. These are:

1. The good driver has a high degree of self control at all times, this control manifesting itself in various ways.
2. The good driver always maintains his car in such shape that it responds easily and quickly, thus assuring control of the car as far as the purely mechanical equation is concerned.
3. The good driver regulates his speed in accord with the conditions of the road over which he is traveling, and never travels at such a rate that he cannot stop it within the clear space ahead.
4. The good driver invariably exercises due regard for the rights of others and always applies the simple axioms of courteous behavior.
5. The good driver accepts the safety of the pedestrian as a primary consideration.
6. The good driver keeps his mind on the road ahead, as day dreaming or chattering at the wheel causes many more accidents than are caused by bee stings.

Formerly the chief reliance of the country in matters of transportation, the railroads have been crowded into second place by the rapid development of improved highways. There are now 251,000 miles of railroad in America, as contrasted with approximately 500,000 miles of improved roads. But this comparison does not show so strikingly as the comparison between the "rolling stock" of the two systems. Including locomotives and other items, the railroads have 2,600,000 units of equipment, while there are more than 20,000,000 motor vehicles operating on the highways.

Flowers are now being grown by electric light. We knew that wild oats were—*American Lumberman.*

## How Many of Your Machines Are Tied Up? —and How Often Does This Happen?

HAVE you ever counted up the actual loss of time and money caused by disabled machinery in a year? The result would astound you! Most of it is the fault of insufficient—or *in-efficient*—lubrication.

Quality oils and greases, properly used, can save unnecessary wear and tear—which in turn means costly tie-ups for costly repairs. Gay lubricants have been used by Arkansas contractors for 20 years and have been proved satisfactory and dependable under the most trying stress and strain.

Specify Gay oils and greases and insure your machines against the junk pile! May we quote you quantity prices?

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## Automobile Investments Lost Without Roads

Commissioner Wilson Analyzes Autoist's Interest in Highways.

**A**UTOMOBILE owners generally agree to the justice of the rapid shift in taxes that has been made in the last few years from the land to the motor car, in the matter of highway construction and maintenance, but now and then there is still a kicker to be found.

Such people, in the judgment of Herbert R. Wilson, State Highway Commissioner, have failed to analyze carefully the auto owner's real interest in the highways of the state. "The new highways, as a matter of fact, have made the automobile worth whatever it is to the owner. Who wouldn't rather have a good, cheap car, in a section of the country served with good roads, than an expensive car, no matter how luxurious and costly, in a country with nothing but mud roads?"

"This is the real answer to the question of who ought to pay for the roads. Figure it out for yourself. Say you have a medium-priced car, costing \$1,000. It is worth par as long as it can be used, or so long as there are good roads over which to operate it. It is worth very little, or nothing, without the roads. If one county has roads and another does not, then your car is worth \$1,000 in the first county, and nothing in the second.

"In other words, the small tax which the autoist pays when he buys his gasoline and oil, is for the purpose of

protecting the investment which he already has in his car, keeping that car at par value, not only at home, but wherever the owner may wish to go in the state. A state-wide system of all-year, comfortable highways, makes his car worth its full value everywhere in the state.

"In the United States we are spending approximately ten billions each year for automobiles and motor bills, and one-tenth of that for highways. Which is absurdly cheap right-of-way when compared to the 40 and 50 per cent spent by our railroads for their own right-of-way. The idea of spending 90 per cent for rolling stock and 10 per cent for right-of-way maintenance would make a railroad man shiver, and yet that is what the autoists of America are 'getting away with.'

"And still, some of them feel that the farmer who happens to live along the hard road ought to pay all the cost.

"But we are rapidly getting away from that idea in Arkansas, and we will never go back to the old unfair system of highway taxation. Arkansas, if she is wise, will continue to spend a greater and greater per cent on her roads, but the increase must come from the automobile and truck owner, and not from the farmer, who is too heavily burdened already."

## Much Highway Work Planned in National Forest

Many Beautiful Drives May Soon be Taken in Ozarks.

**R**OAD work estimated to cost \$100,000, supplementing projects which have been pushed during the past year by the U. S. Forest Service, is being planned for the coming year in the Ozark Forest Reserve of Arkansas, according to recent announcement of Supervisor H. R. Koen, following a tour of inspection with officials from Washington.

Work will begin January 1 on a lateral road to connect the Sylamore-Big Flat road and the Calico Rock road in Stone county. This will provide a 12-foot scenic drive through one of the most beautiful sections of the national forest. It will cost \$45,000 when completed.

A lateral will also be constructed joining the Mt. Levi

road in Pope county with the county road near Ladd's Bridge on Big Piney Creek.

January 1 will see completion of the Victor road connecting the State highway at Freeman Springs with the Witt Springs highway at Raspberry Knob. This is an 8½-mile cut-off which will shorten by 23 miles the present loop from Russellville by way of Raspberry Knob, Ben Hur, Sand Gap and Freeman Springs.

Another road which will be completed early in January is the Mt. Levi road, from Sand Gap to Clarksville.

Repairs have been completed this fall on the forest roads from Lurton to Bass; Sand Gap to Douglass, and Freeman to Dover.

### A BIG DEPARTMENT, WELL MANAGED.

The State Highway Department is the largest financial institution in Arkansas. A total of nearly seven million dollars was expended by this department during the fiscal year ending June 30, according to an audit of the department's books, just completed. The audit disclosed one small error of only 40 cents, which is remarkable for a department handling such a sum.—*Russellville Courier-Democrat.*

"Beating a train to the crossing is like trying to hug an old maid—there isn't enough to gain to pay for the risk."—*All Florida Motorist.*

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## Mr. Moore Apologizes to Arkansas

Editorial from "Arkansas Democrat."

Under this headline there appeared in a recent issue of the Hutchinson (Kan.) News, a letter written to the "folks back home," by Ed M. Moore, who, with Mrs. Moore, was making an automobile trip through the Southern states. The letter was written from Monroe, La.

Mr. Moore, according to the letter, seven years ago had driven across the state and had formed opinions of Arkansas and its roads which were far from complimentary. But evidently he has changed his mind since his recent tour.

"Take off your hats to the state of Arkansas," he writes. "It has Kansas beaten a mile on roads. We entered the state at the northwest corner and were on pavement of some kind all the way except eleven miles east of Alma, Arkansas.

Here's the "reaction" Mister Moore got from the trip through the wonderful Ozark region even though he was unlucky enough to pass through on a rainy day.

"The day we drove through the Ozarks it had to rain and we missed the beauty of the scenery. It is evidently a mighty pretty drive in dry weather. Around Rogers, Arkansas, I saw some fruit farms that if I owned one of them I would not trade it for all the orange groves in California. What Arkansas needs more than anything else is to know how to use printer's ink. It has resources and they should tell the world."

We're glad Mr. Moore enjoyed the "buggy ride"

through the state of Arkansas. And we hope that the next time he takes such a trip he will bring with him the writer of the headline in the News. This is what the second "bank" of that headline told the News readers:

"Moore Says Backwoods State Has Kansas Beaten Every Way for Roads."

"Backwoods State" is a convenient expression for a headline writer minus imagination or vocabulary but it's a decade too aged to fit any description of the Arkansas of today—as Mr. Moore evidently discovered.

### GASOLINE TAXES TOTAL LARGE SUM IN UNITED STATES.

During the first six months of the present calendar year a total of \$84,939,373 in taxes was collected on motor vehicle fuel, according to figures just compiled by the Bureau of Public Roads.

This was disposed of as follows: \$5,148,949 cost of collection; \$54,981,677 used for State highways; \$19,338,976 for local roads; \$6,329,413 used for payments of State and county road bonds and \$4,140,998 for miscellaneous purposes.

The average tax rate for the period, of all the States, was 2.39 cents a gallon, on June 30. The net gallons of gasoline taxed and used by motor vehicles in all the States aggregated 3,560,978,586, and the estimated additional gallons, not taxed and not used by motor vehicles, (reported only by Illinois, Massachusetts, New Jersey and New York), aggregated 856,450,000.

The total tax earnings on fuel for motor vehicles—the \$84,939,373 mentioned—represent the actual taxes available for disposal. The gross tax assessed prior to deduction or refunds and the exemption refunds deducted from the gross tax, are not totaled for the country as a whole, the statement says, because, while showing the procedure for obtaining the total tax, it is "of minor importance." Collection costs in many States, it is said, are paid from other State funds.

### PURE AND SIMPLE.

I never smoke, for cigarettes are harmful to the best of us, And smokers often make themselves obnoxious to the rest of us;

I never drink. I know that liquor lessens man's ability And hastens his approach into the stages of senility.

To spend my time in dancing I consider utter waste of it, And as for petting, why I've never even had a taste of it, I never ride in autos; I'm averse to their rapidity; I seldom read the newspapers; I question their validity. I disapprove of bridge; in fact I'm utterly opposed to it, My personal engagement book is absolutely closed to it, You ask me where I keep myself in this broadminded century?

I'm serving a life sentence in the local penitentiary!

—U. S. Army Speedometer.

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## The Need for More Highways

By L. I. Hewes, Deputy Chief Engineer, U. S. Bureau of Public Roads.

HIGHWAY construction and upkeep has only one end, namely, to serve transportation. Highway transportation in America today is measured by the presence of 20,000,000 motor vehicles, and on an average of 14 miles travel per gallon of gasoline there would result an annual average radius of travel of not less than 6,500 miles. This is a tentative figure. In California the average is higher, probably 7,000 miles. The annual operating bill for the country is doubtless close to \$9,000,000,000; it may be more. The annual expenditure for all rural highway purposes is therefore about 10 per cent of the total bill of \$10,000,000,000 for highway construction, upkeep and operation. It is this high operating cost, which is nine times the cost of construction and upkeep, which shows clearly the need for more highways.

These traffic figures take no account of the reason for the presence of 20,000,000 motor vehicles upon our highways. It is not the business of the engineer nor of the contractor to investigate at this time the economic or philosophical principles which cause the presence of these motor vehicles and the huge bill for their operation. We are confronted with the condition, and to engineers and contractors that condition demands action. We are concerned with the direct question of reducing the operating bill and ultimately of reducing the entire highway transportation bill, both for operation and construction and upkeep. We must look forward to the time when the highways will require more upkeep and less for construction. But we must first look forward to a reduction of the \$800,000.00 difference between operation and upkeep. However, since the rate of increase of automobiles and of the wealth in the country constantly changes the total annual figure, it is perhaps better to say that we look forward to a reduction in the 9.1 ratio now presented by operating costs and highway production costs.

We know as a basic principle that improved highways are reducing the cost of running automobiles and motor trucks. We know that the 5000-mile life of tires has been extended to 15,000 miles or more by highway improvement. It is probable that the wear and depreciation on tires is as directly traceable to poor road conditions as in any other single operating item. We know that the machine wears out faster on poor roads than on good roads, and we have a measurable direct evidence in the behavior of the tires. The operating costs of motor vehicles is made up of a number of items and the cost of these items has been variously studied. Some of the costs are independent of road conditions. Such for example are items of insurance, garage and interest on investment. Costs for fuel, rubber, repairs and depreciation are directly chargeable to the road.

Very few cars spend less than \$100 per year for gasoline. The total gasoline bill for operating our country-wide motor vehicles is therefore nearly \$2,000,000,000. A large mileage of the operation which requires this gasoline is now on improved highways and it is impossible to segregate economic or advantageous operation from the

wasteful or disadvantageous operation. Probably never will we positively fix the loss in excess gasoline costs due to poor highway surface. We are at liberty to guess that some of the motor vehicles do not operate on good highways. We have in America nearly 3,000,000 miles of rural highways and only about 500,000 miles or one-sixth, can be classed as really improved. We thus have 2,500,000 miles of unimproved highways, and we know that motor vehicles still operate on these unimproved roads. The Federal Aid system of interstate and inter-county highways totals, theoretically, about 200,000 miles, or 7 per cent of the total mileage on record in 1921. It is hoped that this mileage will serve nearly 80 per cent of the people. This mileage is about two-thirds completed, and incidentally 65,000 miles have been built without any Federal Aid. On the main highway system of America it is evident then that there is still to be improved about 78,000 miles, and over this unimproved mileage there now operates daily and at a loss a part of the 80 per cent of the total automobile and motor truck traffic of the country. In other words, approximately one-third of the rural traffic, which is held to be 80 per cent of the total traffic, or about 27 per cent of the major prevailing motor operation, is probably moving at a disadvantage over unimproved roads. So it is consequently quite probable that every one of the 20,000,000 motor vehicles pays a mud gas tax of a little more than 1/2-cent per mile upon 25 per cent of its annual operating mileage. If this is so, the annual gas mud tax for the country would be close to 150,000,000.

To this gasoline loss, which is one of the items that measures the need for more highways, there must be added the loss of rubber, the wear and tear on the machine, the necessary repairs, and there then results an approximate measure of the unnecessary operating bill. It is sometimes held that the decrease in gasoline consumption on the improved highway as compared with the unimproved highway gives us the rating factor for the decrease in all costs. It may be that our \$9,000,000,000 would therefore be decreased to about \$6,300,000,000 annually if our highways were sufficiently improved to be operated at the minimum cost. At present we omit consideration of the 93 per cent of rural highways, mostly unimproved, over which 20 per cent of the motor traffic must still move at economic loss for an indefinite period.

A saving of \$2,700,000,000 in annual operating costs of highways seems almost incredible, because the dimensions of the operating bill are themselves hard to accept, yet in a recent address at Detroit, Mr. Graham, Secretary of the United States Automobile Chamber of Commerce, made the statement that the automobile manufacturing industry was now America's greatest industry. In other words, highway transportation is today served by the greatest manufacturing industry in the country for the rolling stock alone. What then cannot be said of highway transportation in general when we add to the motor production the activity of highway construction itself and

its upkeep, and to that add all the other industries of motor transport proper? Truly the task of the engineers to bridge the gap between the science and the industry with respect to highway transportation is enormous. It is not possible that \$2,500,000,000 are yearly wasted because of the lag of highway improvement behind the demand to operate motor vehicles, and isn't it quite evident that we need go no further to demonstrate the need for more highways? We cannot escape the conclusion that the gap between the expenditure for operating the vehicles and the expenditure for establishment and upkeep of the highways must be reduced.

We may apply ourselves intelligently then to the problem of educating the public to the waste that unimproved highways mean. Laws must be passed in keeping with modern conditions. Granting that legislation lags behind science, the responsibility of the engineer and of the contractor, who is the indispensable ally of the engineer, is correspondingly increased. If we examine the setup of money that is going into America's highway today we find that with 1924 as representative, the automobiles paid \$300,000,000 in gasoline tax and license fees and that most of this money was applied to highways, and a large part was administered by State highway officials.

There is no question that legislation is needed in many sections to increase the amount of such fees. It is fair to state that the consumers of automobiles, or the operators, paid also a large Federal excise tax on new machines and parts. In fact the automobile and motor truck operator paid in 1924, on the basis of his total taxes, nearly half the rural highway bill. Without doubt there are many defects in the present diversified system of taxing the motorist. We have been required to set up a budget for highway expenditures with incredible swiftness. In 20 years the automobiles have occurred. They have multiplied our highway expenditures fourfold in 10 years. Is it not surprising that there are defects and discrepancies in our tax rates. It is going to require much hard work actually to determine the advantageous and fair rate of taxation for highway purposes that the motorists under all the varying conditions in the 48 States should pay. The outstanding evidence is, however, that the motorist as an individual is not opposing his license and gasoline taxes. He is violently in favor of improved highways and when he is convinced that his taxation is for highway purposes he is content.

There are items of highway improvement that partake of the nature of perpetual community investment and give rise to the question of the fairness to the automobilist if he is required to pay 100 per cent for such items. We can apply, in various ways, time-tried formulae of taxation according to the benefit theory and the facility theory or the theory of capacity to pay. There is no question that primarily the automobilist is the direct beneficiary of the taxation of his machine when exclusively for road purposes. There is no question that another class of beneficiaries exists, namely, the land owners. There is a great question, however, as to whether or not the group of land owners and group of automobile operators are distinct. As the degree of saturation is approached, as in

California today, these two groups tend to become less distinct, in fact to become identical. With a ratio of 3.4 people per motor vehicle in California, it is difficult to imagine that the land-owning class does not also own the automobiles.

Perhaps the question of the method of financing highways, which is after all the form in which the need for more highways is most frequently stated, is not a question as to what name to give the group of taxpayers; it is rather a question of deciding what form to give to the financing. There are able advocates of long-term bonds and there are notable examples of such methods, particularly in New York. The old argument that the road wears out before the bonds mature is scarcely longer tenable. Even if the pavement or hard surface were to considerably depreciate under modern traffic in spite of the best maintenance, it is probable that the appreciation of the well-built and designed roadbed and drainage structures as a public utility for the transaction of business is greater than the incidental depreciation of the surfacing. But many States have found it much cheaper to shorten the term of bond, and 20-year deferred serial bonds are consequently more frequent. The grade crossing elimination program is retarded in many States because of the pressure for construction money. Without doubt permanent grade separation structures are reasonably permanent investments and would be a safe asset against loans for highways. The pay-as-you-go plan from automobile revenues could in many cases be wisely supplemented by judicious borrowing for grade elimination structures. Such structures become a part of the highway equipment and they are largely in the nature of an investment of the public at large for comfort and safety. A notable case in point is the recent issue of \$300,000,000 in New York State to eliminate such crossings, with the proviso that the State may advance a part of the railroad's share, to be later reimbursed.

The entire question of taxation and rate making for highway purposes is still in a rather crude stage of development. Experience in borrowing for highways is also comparatively new. Enormous sums have already been borrowed by States and counties and there have been some instances of bad arrangement of the loan but on the whole the expenditure of the proceeds of highway bond issues of all kinds has been economically sound and very profitable.

It should be noted that highway engineers have until recently never had complete measure of highway traffic in any State. In California probably as much or more is known about the volume of traffic in detail, and its characteristics, as is known in any State of the Union. It must be remembered, however, that the highway engineers do not control traffic and they have never had enough money to build enough highways to get ahead of the demand by the public for more service.

The public, moreover, does not see the invisible but real income produced by highway operations, whereas it is highly conscious of the increment of increased taxation for highway bond requirements. It is the very fact that highway borrowing has been profitable that should warn us not to over-extend such methods of financing. The

cities have been paying a large share of the cost of rural highways and they are beginning to realize that their own special problems require, because of the automobile, constantly increasing expenditure within the city limits in the near future. There must be a wise partition of the funds for highway facilities within and without the cities. There is no question but the cities must have wider and faster roads for motorists. Detroit is already beginning to construct her 80-foot boulevards such as Washington Avenue. To provide for the discharge of main trunk avenues into the city streets is still an unsolved problem.

In concluding, I wish it were possible to quote from the address of Thomas H. MacDonald, chief of the Bureau of Public Roads, at Detroit. He represented the government at the recent visit of the Pan-American delegates to the road conference in South America. He came back with a vision of contrast. He told the convention that as a result of the observations of crude and wasteful attempts at highway transportation in the South American coun-

tries, he found himself with renewed faith and enthusiasm for the program we are now carrying through. He felt that it was no exaggeration to say that without the progress which has been made during the past two decades in highway transportation and operation, this country would be subject to the same depressing conditions of travel which are presented perhaps in the extreme in these South American republics. There they are still operating largely over trails and unimproved roads, over which are hauled, by oxen, heavy vehicles of great variety through mud and over rocks. Mr. MacDonald made an earnest plea to the American Association of State Highway Officials to at least sustain a sympathetic interest in the development of the South American roads. He was convinced that a fundamental principle of our relations with the Latin-American countries required us to carefully consider not our own superior progress in the matter of highways and other affairs, but rather the great advantage of educating those countries to the need for more highways.

## Legislature May Be Asked to Provide Funds for State Advertising

Leading Citizens Start Movement In Which State May Take Part.

REALIZING the fact that Arkansas is "all set" for a real industrial boom, a group of prominent citizens representing all sections of the state, and many of its largest and most important interests and activities, now is formulating plans for a campaign of advertising throughout the nation, similar to campaigns which originally directed the attention of the country to California and Florida.

This group of citizens, which is asking for no publicity or advertising for its individual members, but is concerned solely with the boosting of Arkansas and her resources, is entitled to, and should receive, the generous support of the state at large, and if feasible and practical, the financial aid of the oncoming legislature.

Now that our road system has been so far advanced as to give easy access by automobile, to every county in Arkansas, and our hydro-electric potentialities have been demonstrated effectively on the Ouachita and Little Red rivers, many of our leaders think the time is ripe for some judicious exploitation of the undeveloped wealth that is ours, in order that the necessary capital for its development may be attracted here.

Arkansas has always been a land flowing with the traditional milk and honey, rich in the products of forest and field, of hill and bottom, of plantation and mine. Of recent years, her developments, by her own people, has been phenomenal. She has become a storehouse filled to overflowing with rich goods and merchandise, varied and complete as that of some department store of unbelievable bigness.

But like such a department store would be without advertising, Arkansas has failed to attract the attention and interest of the world largely because the world is almost entirely ignorant of her wares.

It is to supply this vital lack, and start her goods moving off the shelves, that these Arkansas citizens are concerning themselves. Their plans are still more or less

indefinite; but that they will be worked out, with or without the active cooperation of the State government, is certain. With wealth, beauty, climate, scenery and varied resources, it is unthinkable that Arkansas should longer hide her light "under a bushel."

Much has been done, in a small way, by various governmental agencies in the past few years, to tell the world about particular developments in the state, such as roads, agriculture, and labor conditions, through the appropriate departments and publications. But the work that needs to be done is larger than that, or indeed any which any state department could be expected to do. It must be a work done, for the most part, outside the state, in the centers of wealth and population, where there are men and capital to be attracted.

The energy and the money expended along these lines, if properly directed, in the next few years will bring Arkansas the new blood and the new capital which are essential if the Arkansas "boom" is to be brought about in this generation.

A country without highways in a few years would belong to the dark ages. The greatest single forward movement being taken by the race of men today is the means of intercommunication. The greatest single thing for the advancement of learning, intelligence, and of civilization is the opportunity that is afforded for the people of a country and of various countries to mingle with each other.

—Senator J. A. Reed, Missouri.

According to the "Journal of the American Belgian Chamber of Commerce in Belgium," the ever-increasing demand for Portland cement all over the world has nearly doubled in the last three years, and reliable statistics show that it will again double itself in the next two years.

## Good Roads Week to Be Widely Celebrated

Special Programs January 10-17 Throughout America.

SCHOOLS, fraternal organizations, business associations and highway departments everywhere in the United States will join in celebrating Good Roads Week January 10-17, with special programs given over to a review of highway progress.

During the week the annual convention of the American Road Builders' Association, with a gigantic machinery exhibit valued at more than \$3,000,000, will be staged in the Coliseum, Coliseum Annex, Greer Building and Congress Hotel, Chicago. One of the program features at Chicago will be an International Day, devoted to a study of the highway problems and progress of Latin-American countries, with speakers from Mexico, Central America, Brazil and Peru.

The program and show will be in general charge of H. G. Shirley, new president of the association, chairman of the Virginia State Highway Commission, and Charles M. Upham, managing director, Raleigh, North Carolina.

Several delegates are expected to attend the convention from Arkansas.

Officers of the association, in addition to Mr. Shirley and Mr. Upham, include—Secretary: E. A. Birchland, 37 West 39th St., New York. Treasurer: Jas. H. MacDonald, New Haven, Conn. Vice Presidents: W. R. Smith, Meriden, Conn.; S. T. Henry, Spruce Pine, N. C.; S. F. Beatty, Chicago; Samuel Hill, Seattle.

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### IMPORTANCE OF SMOOTH ROAD SURFACES

Experiments by A. T. Goldbeck at the Arlington Experiment Station of the Bureau of Public Roads indicate that a 5000-pound wheel load moving at 20 miles per hour would produce a stress which could readily be carried by a 6-inch smooth concrete slab, but which in a slab having  $\frac{1}{2}$ -inch unevenness would require a thickness of 10 inches of concrete to carry the stress. Similarly, a 6-inch smooth slab would be subjected to no greater stress than a 7-inch slab having a surface variation of  $\frac{1}{4}$ -inch.

These tests illustrate the extreme importance of obtaining a smooth surface finish on concrete roads and joints in a perfect plane.—*California Highways*.

In common with other branches of State government, the Highway Department was closed on the afternoon of November 22, out of respect to the memory of James W. Mehaffy, justice-elect of the Arkansas Supreme Court, who was killed in an automobile accident near McGehee on the morning of November 20. "Jim," as he was familiarly known among his wide circle of friends in the department, led the ticket in the August primary for nomination to one of the two new places on the court. He would have been the youngest associate justice, having just reached the age of 40. His untimely death was peculiarly tragic.

## TUCKER

SAND AND GRAVEL CO.

Benton, Arkansas

WASHED AND SIZED GRAVEL  
CONCRETE SAND AND  
CONCRETE MIX

We furnished Sand and Gravel for  
the construction of 26 miles of the  
Little Rock-Hot Springs Highway.

## PEERLESS ENGRAVING COMPANY

ARTISTS — DESIGNERS — ENGRAVERS

FOURTH AND LOUISIANA

LITTLE ROCK

## Arkansas Well Advertised by Her Roads

Fort Smith Times-Record.

THE NEW YORK TIMES of some time ago contained a brief letter from a New Yorker which interests citizens of Arkansas.

"As a recent New Yorker," it reads, "let me say the east has something to learn from Arkansas in the way of good roads, for, while many equal, I've seen nothing in the United States to beat the good, hard-surfaced roads of that state, where motoring is an exhilarating pleasure.

"And I wonder how many otherwise well-informed Americans and about-to-be Americans know that it is the only state in the union where purest diamonds are found?

Also that there are great resources of water power? How many know it's a mountainous and not a swamp country, except along its eastern littoral? When enthusing about America, Arkansas is entitled to a high note in the scale."

It is remarkable, yet it is true, that a large number of people who were never in Arkansas have such definitely fixed ideas about the state, all of which are wrong. Arkansas is generally regarded as a swamp country. As a matter of fact most of its residents never saw a swamp.

When our roads so impress the visitor that he writes letters to the papers about them, and gets the letters printed, the roads are paying some dividends beyond the speeding up of commerce.

Charles E. Moyer, a member of the Honorary Highway Commission for the past two years, this month was renominated for the office of mayor of the City of Little Rock. Mayor Moyer's second term will begin in April.

Steel traffic treads are being tried out many places as a means of prolonging the life of wooden bridges. It is indicated that they will be found to pay for themselves many times in the floor replacements which they will save.

A pedestrian has rights—yes. But too often they are only the last sad rites.—*Tampa Tribune.*

### VAN TRUMP TESTING LABORATORY

PAVING AND TESTING ENGINEERS

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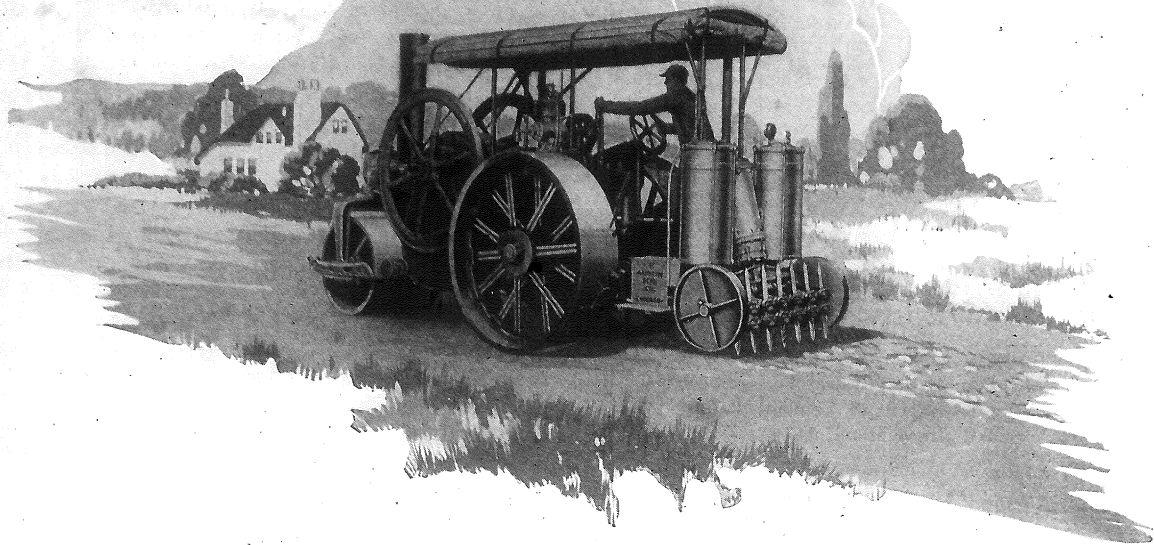


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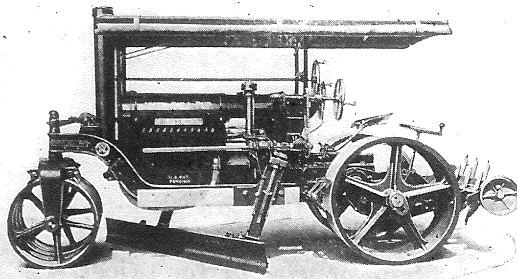
# A Study In Rollers

by the Manufacturer of America's First, most Popular and most Complete line of Motor Rollers



## Austin Motor Rollers

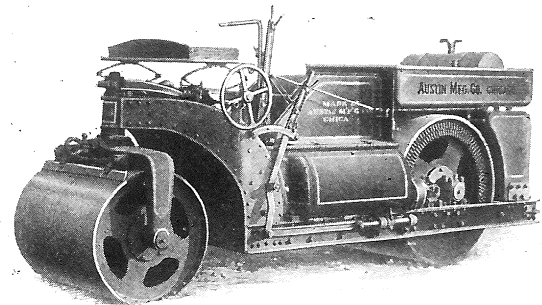
are built in three sizes, weighing 10, 12 and 15 tons, and are supplied with either single, twin or four-cylinder motors.



**BULL-PUP**

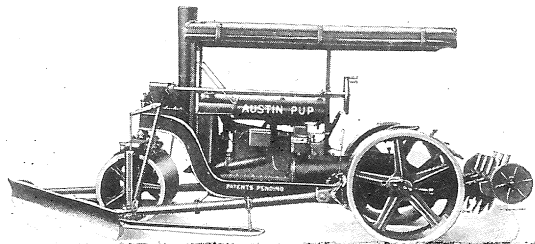
Normal weight 5 tons, which can be increased to 5½ or 6 tons. Power supplied by International 10-20 tractor.

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**AUSTIN TANDEM ROLLERS**

Built in four sizes, weighing 5, 6, 7 and 8 tons, and with either twin or four-cylinder motors.



**AUSTIN-FORDSON PUP ROLLER**

Normal weight 3¾ tons, which can be increased to 4, 4½ or 5 tons. Fordson power.

The Austin-Western Road Machinery Co.

400 N. Michigan Ave.

Chicago, Ill., U. S. A.

## How Road Shoulders Are Maintained in Massachusetts

By A. W. DEAN, Chief Engineer,  
Massachusetts State Highway Department, in "Highway Magazine."

Shoulders on main traveled roads in Massachusetts are kept in good condition by the use of a road grader and a treatment with asphaltic oil in the spring, and by the filling in with gravel of all slick places and dragging twice each week thereafter, as described herewith.—Editor.

**T**HE SHOULDERS of the highways of Massachusetts are regarded as a part of the traveled way, and are maintained accordingly.

In general, we have four types of shoulders; bituminous macadam, concrete, gravel and grass. The first two of these are mainly on the heavily traveled routes. Gravel shoulders are found almost entirely on the routes of secondary importance, and the grass shoulders are found on Cape Cod, where the absence of gravel makes this type of construction necessary.

On the heavily traveled routes, where the shoulders are of gravel and of bituminous macadam or concrete, the first of these is generally in connection with roads that have been resurfaced, reconstructed or widened. In such cases the surface is generally not more than 18 to 20 feet wide, and the shoulders, in consequence, receive a large amount of traffic, where the vehicles, in passing each other, turn out upon the shoulder. Shoulders of these roads are particularly difficult to maintain. It is considered necessary to keep them filled to the same elevation as the hardened surface, and to keep them free from ruts and holes and depressions. This is done by careful filling in of loose material with a road grader during the early spring, before the material has entirely dried out. All slick places are then filled to grade with good gravel. Twice each week thereafter, generally on Monday and Wednesday or Thursday, these shoulders are dragged in with an iron road drag weighing about 250 pounds, drawn by a Ford truck. As soon as the shoulder has been put into condition, generally during April or May, it is given a surface application of 30 per cent asphaltic oil, and in some cases, where the travel is particularly heavy, is given a second application during August and September.

It is the aim of the department to keep the material composing the shoulders in a soft, workable condition, in order that dragging will be practically the only maintenance required; as it is found that the formation of a crust on the shoulder necessitates constant maintenance with patching materials, and that it is, in spite of this maintenance, difficult to prevent the formation of pot holes, etc.

As fast as the roads on the main lines are resurfaced or reconstructed, the hardened surface is either made wide enough to obviate the necessity for a shoulder, or the shoulder itself is hardened with bituminous macadam or bituminous concrete four inches in thickness, laid in two courses for a width of three to five feet. This type of shoulder requires practically no maintenance beyond occa-

sional mixed patches and a surface treatment at intervals of two to three years.

On the roads of secondary importance, where the gravel shoulders are the rule, the maintenance is not so intensive. All of them are shaped and pulled in with a road grader in the spring, all necessary filling is made at this time, and at any other time during the season when the shoulders become slack, and most of them receive a surface application of light oil. They are, however, not dragged as frequently as those on the main lines, generally not more than once a week, and in some cases not so often.

The grass shoulders at the Cape are most satisfactory and pleasing. They require no maintenance beyond mowing once a year. Such shoulders, of course, would not be practical in any other part of the state unless the road surface could be constructed so wide that there would be practically no occasion for machines to go onto the grass.

The use of oil on the gravel shoulders prevents the material from being thrown entirely out of place under travel, and from being washed away by surface water. The use of the drag smooths out the material on the shoulder and pulls it back in place against the edge of the hardened surface. This type of maintenance not only renders the shoulder safe and sightly, but, it is found, is essential in order that the edge of the surface itself shall be protected.

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*Permanent roads are a good investment—not an expense*

## Don't Let Your Community Make The Same Mistake

Within recent years many communities have made the mistake of paving their highways at what they considered a "bargain price." The taxpayers thought they would save thousands of dollars.

But no one could foresee the astounding increase in motor traffic that was to come. As a result roads not built for permanence were soon badly in need of expensive repair. Annual maintenance costs piled up staggering totals.

In many instances the maintenance has not only wiped out the hoped for saving, but has exceeded original cost. And in many cases also it has been necessary to build entirely new roads—of permanent construction.

There are communities, however, which refuse to be misled by bargain price offerings. Many of these also built roads several years ago. And they built for permanence with concrete.

Those concrete roads, built in accordance with approved standards of highway construction, are in as good condition today as when they were built. And the cost of repairs and maintenance has been merely nominal. In fact, this saving is actually paying for these permanently paved highways. And remember that this saving will continue long after the bonds are paid for.

Which of these communities will yours be? Think it over. Then write us for facts and figures. We can prove to you that the most economical paving in the end is concrete—it has repairs built out and the maintenance built in.

Send today for our free illustrated booklet—  
"Concrete Streets for Your Town"

### PORTLAND CEMENT ASSOCIATION

Syndicate Trust Building  
St. Louis, Missouri.

*A National Organization to Improve and Extend the Uses of Concrete*

OFFICES IN 31 CITIES

### DON'T CROWD, GIRLS!

*(Classified advertisement)*

American Ev. Lutheran jolly man, looking young, pleasant appearance, good natured, mechanic, also a good farmer, have means, sound mind, not inhabited to booze, shows, tobacco, or miserliness, wishes acquaintance with a good looking, clean, neat, medium respectable common sense farmer's daughter. Include picture with first letter. Factory girls curiosities and sports strictly excluded. D. C. A., Sheboygan Falls, Wis.

—*The Merrill (Wis.) Daily Herald.*

### INTERESTING POINT.

The prisoner had been convicted a dozen times before.

"Your honor," he said, "I should like to have my case postponed for a week. My lawyer is ill."

"But you were captured with your hand in this man's pocket. What can your counsel say in your defense?"

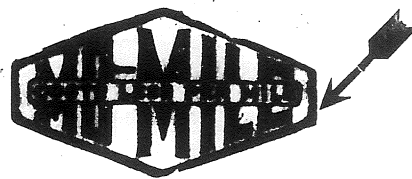
"Precisely so, your honor. That is what I am anxious to know."—*Detroit Free Press.*

### CAN DIV. 3 SUPPLY THEM?

"Position open at a large copper mine in Sonora, Mexico, for a capable underground surveyor who can play piano in a peppy jazz dance orchestra."—*Classified ad in the Engineering and Mining Journal-Press.*

Speeches at public dinners in Japan are made before the dinner commences. Now we know what is meant by the Wise Men of the East.—*London Humorist.*

"Look for the Mo-Mile Sign"



## More Miles Per Gallon

Others Claim it--  
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Independent  
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*A Grade for Your Machine*

STEEL  
FOR BRIDGES AND  
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Fabricated Structural Work

WROUGHT IRON RAILINGS, PIPE RAILINGS,  
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Bridge Bolts and Hardware

*Always Get Our Prices.*

Arkansas Foundry Company

1500 East 6th Street Little Rock, Arkansas  
*"We Repair Contractors' Machinery"*

SIGNS OF THE TIMES.

The following signs have been observed on the rear of certain cars in Washington and other cities:

- A Tin You Love to Touch.
- 'Don't Laugh at Me; You May Be Old Yourself Some Day.
- Mah-Junk.
- The Covered Wagon.
- Four Wheels. All Tired.
- Four Wheels and No Brakes.
- Sick Cylinders.
- Oil by Myself.
- One Hundred Per Cent a Merry Can. 99 per cent Static.
- Danger! 20,000 Jolts.
- Don't Push Me Big Boy.
- Little Bo-Peep.
- Pray as You Enter.
- Keep Off; My Rear End Is No Bumper.

—Pathfinder.

AN OPTIMIST.

"Gosh! You had a close call! That certainly was an awful accident!" exclaimed the friend who had dropped in at the hospital to call on the bandaged victim.

"Yes," he replied dreamily; "but thank goodness I got an eyeful of what I was looking at before the car hit that telephone post and I was knocked unconscious."

—Cincinnati Enquirer.

Warrenite-Bitulithic Pavement

—“A WARRENTed Product”—

DURABILITY—

Five years after a road is laid, what story does it tell? If it's a Warrenite-Bitulithic Pavement—it's just getting its escond wind—going strong, and good for many more years of heavy wear.

If a fair initial expense and long life with freedom from repair spell economy, then you can economize by specifying Warren Pavement.

Warren Brothers Company

A national organization to build good roads.

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- Los Angeles, Cal.
- Portland, Ore.
- Washington, D. C.
- New Orleans, La.
- St. Louis, Mo.
- Utica, N. Y.
- Dallas, Texas
- Birmingham, Ala.
- Minneapolis, Minn.
- Charlotte, N. C.
- Harrisburg, Penn.
- Oakland, Cal.
- Sidney, Australia
- Vancouver, B. C.
- Toronto, Ont.
- Buenos Aires, B. A.
- Chicago, Ill.
- Memphis, Tenn.
- Tokyo, Japan
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Gradually through the years there has been built up a State-wide appreciation of what the "Calvert-McBride" mark means on printing—

**Quantity Production  
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Lowest Price**

*These Things Tell the Story*

**CALVERT-McBRIDE PRINTING CO.**

Fort Smith

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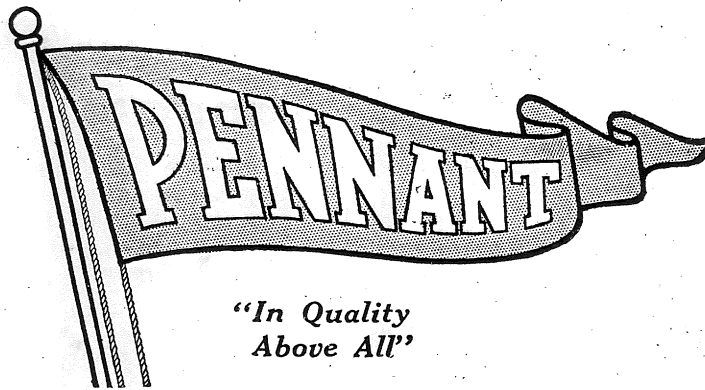
### WE ARE NOT REALLY POOR.

Because of the failure in the price of cotton this year, many a heart will be filled with disappointed ambition; but poverty is pretty much as we think it. Is one who can have a fat fowl for Thanksgiving dinner and generous vegetables, all served on a white tablecloth—is that person poor? No, not while father is there to carve the turkey and mother to cut the apple pie.

I like to think of the assembling of the clans on Thanksgiving. Nothing is more characteristically American than the effort of son and daughter to reach the old roof in time to eat Thanksgiving dinner with the parents.

Three hundred and six years ago there landed on the shores of New England 100 Pilgrims. When first they landed on the icy coast, they were forced to live under a single roof, so bitter was the winter. And when the long winter had gone 51 had died. Compare the first reaping held in the autumn of 1621 with the magnificent crops and the ability to have neighbors and to associate with our kind and to look elsewhere for our food if adversity touches us temporarily. We cannot have the sun shining always; clouds and shadows come into every life.—*Progressive Farmer.*

Rights of the Arkansas Railroad Commission to require surety bonds from operators of jitney-buses were upheld this month by the Arkansas Supreme Court. The decision was rendered in a case brought up by Jerome Hester and Henry Slaughter of Pulaski county, who sought to compel the commission to accept personal sureties.



**PIERCE PENNANT GASOLINE IS FULL OF "PEP AND GO."  
PIERCE PENNANT AUTOMOBILE OILS AND GREASES  
ARE LASTING.**

**PIERCE PETROLEUM CORPORATION**

# Meyer & Greenwald Construction Company

General Contractors



Monroe, Louisiana  
and  
Meridian, Mississippi

## TO OPEN ROAD FROM BAPTIST FORD TO SULPHUR CITY.

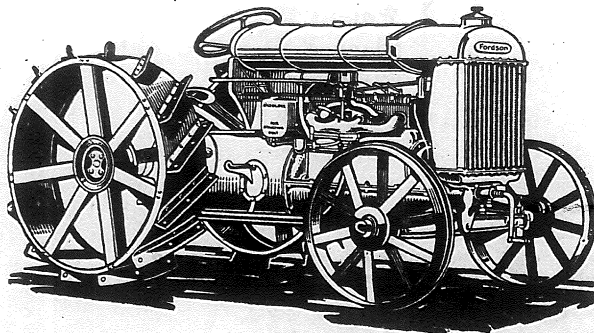
The farmers living southeast of Greenland, over in the direction of Sulphur City and Hazel Valley, are greatly interested and pleased by the work of the local road authorities in opening up a county highway connecting that region with the state highway. Considerable work has already been done, and when the plans are completed those places will be several miles nearer the county seat than they are now. At present all the Sulphur City and Hazel Valley folks are obliged to travel a round-about way to get to Fayetteville, but the opening of this road will make a much shorter and better way by striking the Ft. Smith state highway near the Baptist Ford just south of Greenland.

Already a mile or two has been cleaned up and graded and when the job is completed the road will open up a thickly settled region which is now scarcely accessible. Everybody in that neighborhood is loud in appreciation of the interest Mr. Terry, the road overseer, is showing in the good work.—*Fayetteville Countryman*.

This month has seen the completion of the nine-mile gap in the Pine Bluff-Rison highway, long a terror to wet-weather tourists. More than \$36,000, furnished under a joint agreement between the highway department and County Judge R. H. Williams, was expended in the work, which gives Pine Bluff easy access to Fordyce, Camden and El Dorado.

## SHOEMAKER-BALE AUTO COMPANY

601 West Markham Street



Largest and oldest Ford Dealers in the state. Fordson Tractors, together with road equipment of all kinds, including rubber-tired wheels, skid chains, graders, maintenance equipment and Crawler Tracks.

Your Business Solicited

All approved in Highway Work Throughout the Country.

## Russell Motor Patrol

MADE IN TWO SIZES

**No. 2-Fordson Tractor for Power**  
**No. 3-Mc Cormick-Deering 10-20 Tractor  $\frac{1}{2}$  Power**

Better Built Motorized Patrol Graders. They meet the need for more highly finished maintenance machines. Their popularity is growing daily and the demand is rapidly increasing. Russell Machines are built of oversize parts with the resulting low cost upkeep. They have highly finished machine cut gears, machined bearings, tight joints and rigid construction throughout. Scarifier is adjusted to work independently if desired.

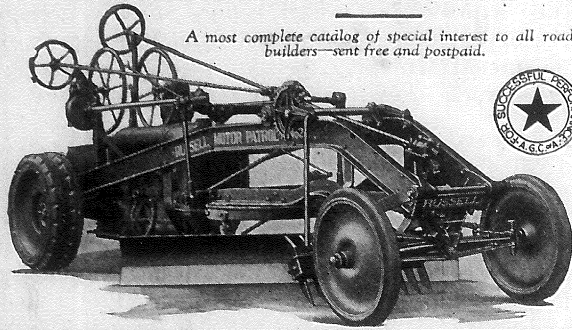
No. 2 Russell Motor Patrol weighs 8500 pounds. The No. 3 Motor Patrol has more speed and is heavier weighing 10250 pounds. Length of blades finished 8-10-12 ft. made of special carbon steel.

The complete Russell Line for road construction, road maintenance and road repairing includes—

8 Sizes Road Machines—2 Sizes Elevating Graders—

Maintenance Patrol Machines for both Motor and Horse Power, Scarifiers, Road Drags and Wheel Scrapers, Drag Lines, Gravel Screening, Crushing and Loading Equipment, Steel Beam Bridges, etc.

RUSSELL GRADER MANUFACTURING COMPANY  
OF TENNESSEE, 489 Main St., Memphis, Tenn.



A most complete catalog of special interest to all road builders—sent free and postpaid.

### BLOWING AWAY OUR ROADS.

During the past summer the State Highway Commission of Virginia endeavored to solve the dust problem. Asphalt oil or calcium Chloride was placed on sections of road in front of every store and church on the state highway system.

The chairman of the highway commission says that dust is getting to be the greatest problem the highway department has to deal with. Not only does it cause great personal discomfort and material damage, but being wafted away by every passing wind it leaves the road bed in a deplorable condition.

In every state, it will be necessary to build 10 miles of country roads for one mile of heavier paved state highway. The problem of maintaining old gravel and macadam roads, and eventually surfacing them with a suitable waterproof surface at a minimum of expense, must occupy the attention of our road builders.

The rapidly moving automobile throws dust for several hundred feet on each side of the highway, thereby damaging crops and fruit to such an extent that the products are often unmarketable. Now is the time to consider this problem before "next summer" is here.—*Arkansas City Star.*

### GOOD ROADS ITEM.

"Wagner-St. Luke's—Owing to the good condition of the roads in this locality, our regular weekly worship of Almighty God has been discontinued."

—*South Dakota Churchman.*

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*Write for Catalog.*

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STEEL  
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*Our facilities for supplying  
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are unexcelled.*

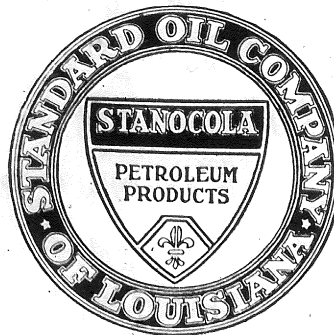
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# ARMCO CULVERTS

*Look Under Your Roads for the Proof*

there can be--there is only one

**"PURE IRON" for Culverts**

In almost every State and in Canada there are many ARMCO Culverts that have been in use from 10 to 18 years. Can other culverts claim as much?

There can be *only one* purest and most uniform iron made for culverts. The chemist, the metallurgist, the microscope ALL say this is genuine ARMCO Ingot Iron and NO OTHER. In every other culvert metal impurities are either purposely left in or purposely added.

In ARMCO Ingot Iron the Microscope shows a *uniform* ferrite grain structure—a solid, unbroken wall against corrosion.

If you want corrugated culverts exactly like those which have definitely established the economy of this construction during the past 18 years you will look for the Blue Triangle Trademark. They can be found under NO OTHER BRAND.

*"ALWAYS AT HOME"*

## DIXIE CULVERT MANUFACTURING CO.

*Armco Ingot Iron Culvert Pipe  
Calco Automatic Drainage Gates  
Armco Ingot Iron Tanks*

Welded Gas and Oil Tanks

**LITTLE ROCK,  
ARKANSAS**

*Smith Concrete Mixers and Pavers  
Great Western Slips  
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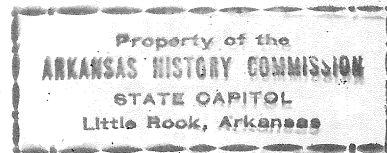
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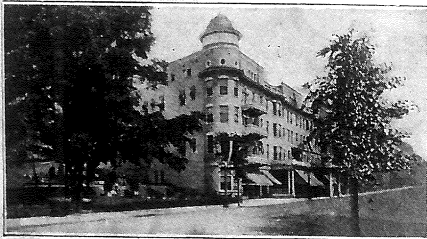
healing thermal waters. Especially beneficial in all forms of neuritis, rheumatism, high blood pressure and allied ailments. Also regularly patronized by many business executives, athletes and sportsmen



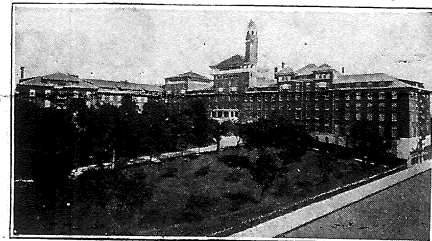
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