

ARKANSAS HIGHWAYS

DECEMBER

By Charles S. Blackburn.

Pan sits on sodden log in leaden mood,
Alone, Brown satyr, old, dull-sensed, his eye
Has lost the liquid glow that erstwhile wooed
Dryads who thrid green leaves when sunsets die.

His pipe that called to session in his lap
Nude nymphs when trees were green and wind was warm
Lies voiceless at his cloven feet. His sap
Of Eros now is chilled by snow and storm.

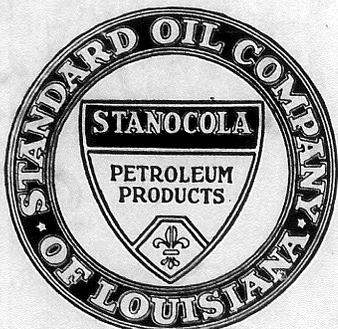
He lives through sobbing day and moaning night
As stoic, yielding to eternal fate:
Then Maiden Spring returns with love and light—
Time brings its sweetest stores to those who wait.

DECEMBER

VOL. 3

1926

NO. 12



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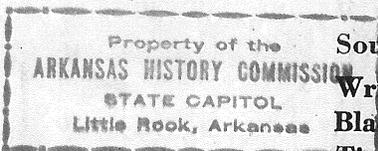
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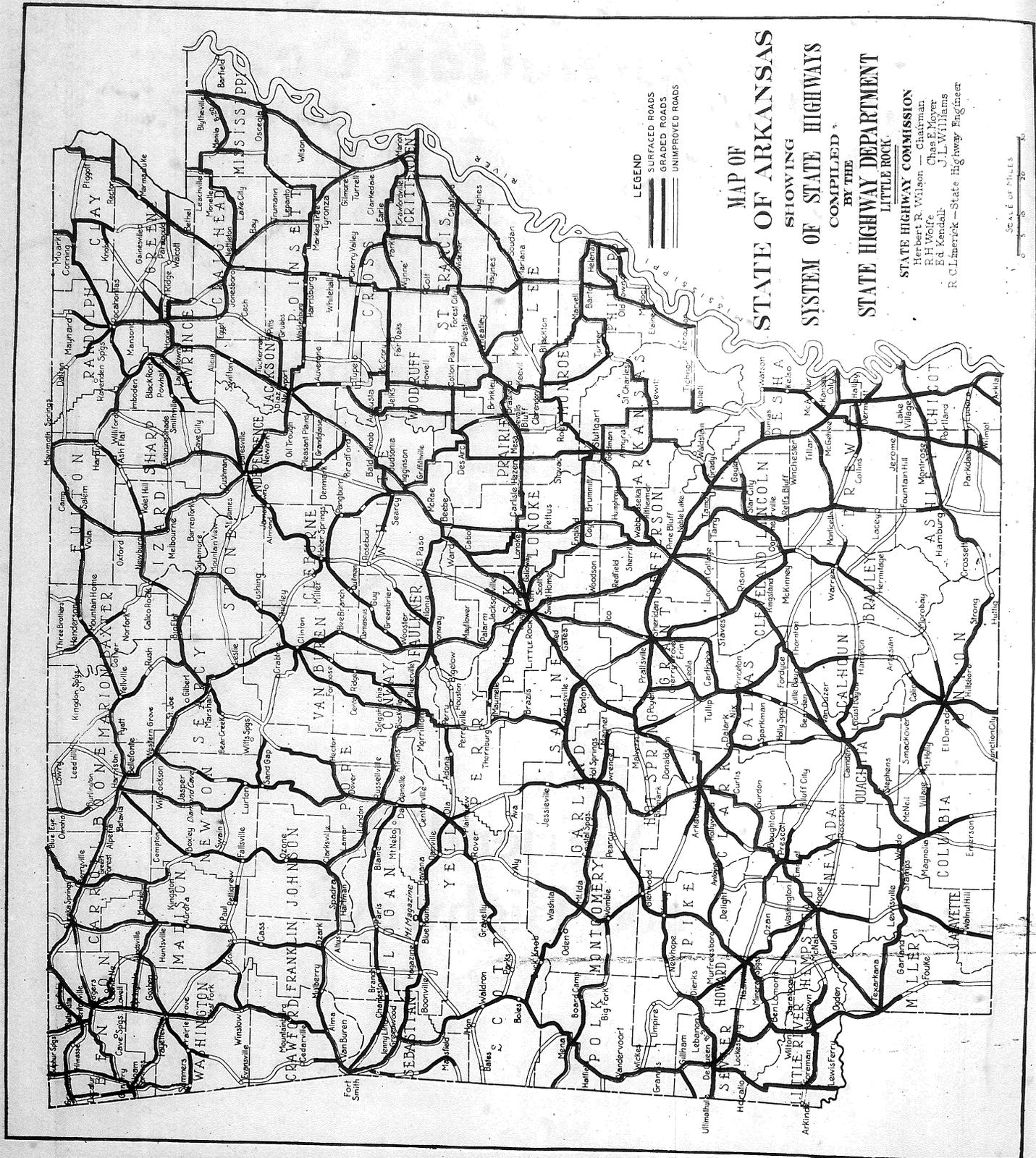
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Arkansas Highways as They Are Today

Showing Progress Attained Up to December 15, 1926.



**MAP OF
STATE OF ARKANSAS
SHOWING
SYSTEM OF STATE HIGHWAYS
COMPILED BY
THE
STATE HIGHWAY DEPARTMENT
LITTLE ROCK**

STATE HIGHWAY COMMISSION
 Herbert R. Wilson — Chairman
 Chas. F. Moyer
 Ed. Kendall
 J.L. Williams
 R.C. Limerick — State Highway Engineer

SCALE OF MILES
 0 5 10 20

ARKANSAS HIGHWAYS



Official Monthly Bulletin of the State Highway Commission

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VOL. III.

DECEMBER, 1926

NO. 12

Arkansas Highways as They Are Today

An Inventory of Highway Progress.

WITH the present issue, "Arkansas Highways" closes the third year of its history, and the event is coincident with the turning over of the entire department into new hands, pursuant to the expression of the popular will at the polls on August 10.

It has seemed fitting, therefore, to submit an inventory of highway progress to the people of the State through this medium, just as the mechanical forces are submitting their inventory of road machinery, and the accounting division its inventory of funds on hand, to the new administration.

Because of the limitations of space, and the manifest impossibility of cataloging in this issue the hundreds of individual road projects completed or partially completed by Commissioner Herbert R. Wilson, Engineer R. C. Limerick and their forces during the time they have been charged with responsibility for administration of the Arkansas highway program, the map to be found on the opposite page has been prepared, showing in graphic fashion the exact present status of our highway progress.

A careful study of this map will reveal to those familiar with the early history of the highway program in Arkansas the tremendous, almost herculean labors that have been accomplished, and the big task that still remains, if the State is to complete the program.

It will be remembered that in the fall of 1923, when the present law was put upon the statute books, Arkansas had nothing in the way of highways except a few scattered district programs, most of them largely uncompleted, and entirely disconnected.

Federal aid had been withdrawn from the State because of lack of a maintenance policy and because of the troubles in which the district system had become involved, and the highway department itself had been closed because of the failure of the legislature to appropriate funds for its work.

The passage of the so-called Harrelson Law in October

of that year gave the department its first real authority for the carrying out of a state-wide program, but the work could not really be started until spring opened up in 1924. It is, therefore, fair to say that the accomplishments of the present highway administration on the roads cover a period of about two years and a half of actual operation. From what was in the main a "paper system" of State highways, looking good on the map, but to be found nowhere else, the State has come in some 30 months, to the real system pictured on the opposite page.

With a few scattered exceptions, all of the "surfaced" roads shown on the map have been actually surfaced or re-surfaced during the present administration. Most of the sections of road shown as "graded" have been graded since the passage of the Harrelson Law. Many of the still ungraded sections have been placed under way and are partially complete either in grading or in drainage structures. Virtually all have been surveyed and preliminary plans laid for their gradual improvement up to the standards of the State highway system.

But the map speaks best for itself, and shows, better than any verbal description might do, the progress that has been attained in road construction. It does not, of course, show the numerous modern bridges that have been erected, taking the place of fords, ferries or inadequate and unsafe bridges of other days. Neither does it show the more than 200 railroad grade crossings, sources of great danger to the traveling public, that have been eliminated through the re-routing of highways or the construction of under or over-passes.

Still another important feature not shown by the map is the new system of road marking that has been completed this year, and which has proved of invaluable aid to users of the state highways.

The progress that has been recorded, it is well to remember, has been accomplished out of current revenues of the department. Therefore it has been slower and more

painfully economical than many of the more enthusiastic advocates of good roads have wished. But no bonds have been issued, no new taxes laid upon lands, and no burden placed upon anyone except upon the actual users of the roads, through the gasoline and motor vehicle taxes.

As has been said, Mr. Wilson and Mr. Limerick found themselves under the necessity of taking over a "paper system" of highways many hundreds of miles of which were either impassable trails, or poorly constructed, worn-out district roads.

To do this economically out of current revenues called for the policy which was adopted, viz. to do only such "maintenance" work on the undeveloped roads as was absolutely necessary to keep them passable, meanwhile relocating them along modern lines, clearing right-of-way, grubbing and grading to full width and line, installing as rapidly as possible the bridges, culverts and other drainage structures, expending every penny, so far as possible, with an eye to the future, so that it would contribute, in the end, to a real highway, constructed in line with the very best engineering thought. Then when it became possible to add the final touch, the surfacing, whether of gravel, shale, concrete or asphalt, the finished road has been of a kind easily and economically maintained.

This policy has resulted in the progressive development of the system with a minimum of waste for purely temporary work.

Hundreds of miles of improperly constructed district roads, in line with this same policy, have been widened and salvaged through re-surfacing and the installation of adequate drainage structures, many of which were omitted in the original construction, resulting in rapid deterioration.

In summing up the progress of the past three years, it should not be overlooked that for the first time, a real system of road maintenance and patrol has been worked out, which will be of increasing value to the taxpayers and road users of the State, as the permanent highway system becomes more and more nearly complete.

Much of the trouble and dissatisfaction that resulted from the old road district system of road-building was directly caused by the lack of any provision for maintenance. Many roads that had been built through district bond issues were not taken care of and naturally began to deteriorate noticeably long before the bonds were paid out. It was the lack of any provision for maintenance of roads after they were built that was a principle factor in the withdrawal of Federal Aid from the State in 1923.

The working out of a maintenance program has been one of the greatest accomplishments of the past three years. Of necessity, it was complicated, at the outset, with problems of original construction, re-construction, and salvaging of worn-out or improperly constructed roads.

But with the passage of time, these problems became simpler, and with increased mileage of properly built, lined and drained roadway, the highway department has been able to work out the details of a regular patrol system, under which at a minimum cost, it is possible to keep roads up, preserve the original investment and keep

surfaces comfortably smooth, and passable in all sorts of weather.

For purposes of maintenance, the State system was divided, first into six, and later, into ten districts, and these districts, in turn, into sections of varying length, dependent upon the nature of the road and the conditions of travel. These sections were placed in charge of local foremen, responsible for their upkeep, and the general result on the main traveled highways has been such as to win the hearty approval of the traveling public.

As contrasted with the old conditions, under which parts of virtually all state highways were impassable during several months of the year, the new system won universal commendation. But the public constantly expects and demands better and better service, and from a desire for "passable" all-weather roads, the step is short to a demand for smooth and permanently surfaced roads of gravel, concrete or asphalt.

To meet this demand as rapidly as possible has been the aim of the department, and considering the funds available, much has been accomplished. All of it has been on a "pay-as-you-go" basis. If greater speed is wanted in the surfacing program, new sources of revenue must be found, or a smaller proportion of present revenues must be devoted to bond relief. Such matters of policy will doubtless have to be worked out by the oncoming legislature.

Whatever the future may bring, however, in the way of road revenues or road policies, it is certain that the period from the enactment of the Harrelson Law in 1923 to the end of the working season of 1926 will be long remembered for the remarkable start that was made toward giving the State a completed system of highways without additional burden upon lands.

Grading and drainage structures have been completed on the Marmaduke road connecting Paragould with Marmaduke, and preparations are under way for the laying of gravel on this important link. The Hopkins river bridge, an important structure, will be a much-appreciated part of this road when completed.

The Boston Transcript thinks that in this day of unenforced traffic laws and regulations the old adage about the survival of the fittest will have to be changed to read the survival of the flittest.

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Arkansas Roads Built Economically, Federal Report Shows

Summary of Road Expenditures Shows Many Points of Interest.

MANY people have gained from one source or another the idea that while Arkansas has made greater progress in road building than a majority of the States of the Union, it has been a progress attained at a huge and disproportionate cost. Quite to the contrary, the latest report of Thomas H. McDonald, chief of the Bureau of Public Roads at Washington, shows that Arkansas has gotten a greater mileage for the money expended than a number of the so-called "banner States."

It shows that in 1926 Arkansas stood in ninth place in actual mileage completed during the year. It shows that in the matter of road mileage completed since the beginning of the Federal aid system, Arkansas stands 15th, in spite of the fact that the funds expended on the work have been much less than 20 other States have had to work on.

Twenty-two States have received larger amounts of Federal aid than Arkansas, and 30 have had larger construction funds from local sources. Which emphasizes the extremely economical basis on which road building has been put in the State during the past few years.

Going into detail concerning the construction year which closed July 1, 1926, the report says of Arkansas:

"The Federal aid highway system included 5,007 miles of which 1,418.5 miles have been improved with Federal aid. Of the improved mileage, 281.6 miles were added during the year. At the close of the year, 213.3

miles were under construction and 31.1 miles were approved. The mileage improved with Federal aid consists of 3.1 miles of sand clay, 919.2 miles of gravel, 48.2 miles of water-bound macadam, 84.1 miles of bituminous macadam, 248.4 miles of bituminous concrete, and 114.1 miles of Portland cement concrete, in addition to which there are bridges with a total length of 1.6 miles.

"The total cost of the roads completed was \$4,375,-795.99, of which the federal share was \$2,317,678.87. The disbursement of Federal funds to the State was \$1,710,-136.62. This, added to the disbursements made during previous years and subtracted from the State's total apportionment of \$11,605,804, leaves a balance of \$2,503,-265.69 of unexpended funds to the credit of the State."

GOOD ROADS AND FEMININE FOLLY.

The automobile and good roads are charged by a social service worker with causing the downfall of the modern girl. This is very sad, if true, but it cannot be remedied by doing away with the car or the highway. They have come to stay. The modern girl, or her parents, will have to find some other way out.

When similar charges, affecting the modern boy, were made against the saloon, the country said it had to go. But the auto and good roads serve too many legitimate needs to be dispensed with because they contribute to the delinquency of some. There are those who assert that a little more parental discipline and control will solve the girl problem, without going back to the horse and buggy and the mud roads of our fathers.

Contract has just been awarded by a Little Rock district for the paving of more than 50 blocks in the territory just south of State Fair Park. The work will cost more than \$175,000, and will be of interest to the entire state because it will give a direct and much shorter route to the State Fair for all tourists coming from the southern part of Arkansas.

Another paradox is that many climb to considerable heights by remaining on the level.

—*Florence (Ala.) Herald.*

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Madison County Bridge Openings Celebrated

Five Towns Join in Rejoicing Over as Many New Bridges.

CITIZENS of Madison county, and especially of Huntsville, Alabam, Hindsville, Marble and Kingston, are highly elated over the completion or near-completion of five important bridge structures that have been projected and under way for a long time, which will knit the county together as it has never been before, particularly, in times of high water. A celebration was held at Huntsville and at the McMurray ford on War Eagle, on December 18, commemorating the bridge progress of the county, a basket dinner and speaking being held. The Highway De-

partment was represented by Ed Kendall, commissioner, whose home is at Marble.

Concrete bridges over Kings river between Marble and Kingston and War Eagle at the McMurray ford are just being completed, and two timber bridges over Holman Creek and one across Glade Creek will be opened early in the year. The importance of these structures to Madison county can only be realized when it is recalled that in past years, each of these streams has many times been swollen to such an extent as to cut various sections entirely off from communication except by roundabout travel.

With the completion of these five bridges, Madison county no longer will be seriously inconvenienced by high water, even during the rainiest seasons, and the citizens can always get the benefit of the new highways which they serve.

THEM WERE THE DAYS.

Sir: We have found an excuse for "the sinuous and undulating layout of some of our ancient roads," in the Nottingham, New Hampshire, Town order of 1809. "Voted to buy ten gallons of West India rum for the surveyors to be drunk while at work on the roads."—*P. A. S., in Engineering News-Record.*

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What About Toll Bridges?—A Question of Interest

By O. L. Hemphill, Assistant State Highway Engineer.

BECAUSE of the large mileage of rivers in the State, the people of Arkansas should be very much interested in the toll bridge question, a question of importance to any state which has a considerable mileage of large rivers without bridges at all highway crossings.

Until a bridge is provided where a highway crosses one of these streams, traffic must cross the stream by means of a ferry, a method always more or less unsatisfactory, always dangerous to a certain degree, and a method which always must be considered as a temporary means of handling traffic. A ferry, because of its more or less undesirable features, present to some degree at every ferry, is considered with disfavor by the traveling public. This disfavor is growing all the time, and has reached the point where public opinion demands that bridges replace ferries wherever there is any considerable volume of traffic. The traveling public, of course, always favors a free bridge over a toll bridge, but, with a realization that it is not always possible to construct free bridges, this same public is willing, and generally urges, that toll bridges be constructed in those cases where free bridges are not possible.

It should not be understood that this article attempts to say that the public in general favors toll bridges, but there is no use denying the fact that public opinion prefers a toll bridge to a ferry. What public opinion wants it usually gets, provided the opinion is strong enough, so we might as well admit that we are faced with the alternative of providing free bridges, or of having toll bridges constructed where the traffic is heavy enough to insure an adequate return on the investment.

The statements in the preceding paragraph are general in their nature. Let us now consider specific conditions in the State of Arkansas, and see how we are situated regarding bridges. \$12,000,000 is a conservative estimate of the amount necessary to construct adequate highway bridges at those places where navigable streams are crossed by the roads of the State Highway System, and where no bridges now exist. This estimate does not include anything for the construction of bridges over the Mississippi river.

The construction of a bridge means the expenditure of a large amount of money on a short section of highway. This statement means more with an illustration of comparative costs. Many of the bridges required in Arkansas would cost \$350,000 or more. This sum would build ten miles of concrete road, or from thirty to forty miles of gravel road. These figures include the cost of ordinary grading and small drainage structures. With the limited amount of State funds available, as compared to the large mileage of State roads needing improvement, it is plain that no very considerable amount of State funds can be used in the construction of bridges, where a large expenditure adds but little to the completed mileage of the State Highway System.

Conditions being as they are, we may be assured that

toll bridges are going to be built at a number of places in Arkansas, unless funds for the construction of free bridges are provided by local improvement districts, and this will happen in only a few cases. Since we can be sure that there are going to be some toll bridges in Arkansas, in addition to those now in operation, we should be interested in the question of how these toll bridges are to be built and operated. Will they become free bridges after their cost has been paid by the tolls of those who use them, or will they continue to take a tax from every traveler who passes over them, ten, fifteen or twenty years after they have paid for themselves?

There is much that might be said against the latter condition. It is a fact that such bridge, for private gain, places a toll barrier across a highway that has been paid for by the public; and that construction, by the State or county, of the roads leading to a toll bridge, really accrues to the benefit of the individual or corporation owning the toll bridge franchise, for the bridge would pay but small return without passable roads leading to it.

A remedy which has been suggested for this condition is a provision in the franchise for turning the bridge over to the State or county after it has earned enough in tolls to pay for itself and pay a certain return on the investment, but it is doubtful if many bridges will be built under such a plan. The individual or corporation that secures a franchise and constructs a toll bridge, hazards the investment against the probable returns from tolls. Under this kind of franchise there is no guarantee that six per cent will be earned on the investment, but there is a provision against earning more than that amount. There is little incentive, therefore, to hazard an investment in this kind of bridge, for while the investor chances a loss, the maximum return is but little more than can be secured from absolutely safe investments.

Several of the States of the Union are vitally interested in the toll bridge question, and the fact that many States have no large streams is the only reason why this question is not more of a national one than it is. With the steady increase in long distance automobile travel, however, so that more and more people drive over the roads of other states, hundreds of miles away from their own locality, this question is forcing itself on the attention of a large percentage of the national population, and the people of many states, heretofore not interested in the question, are now voicing their sentiments in tones loud enough to be heard everywhere.

A great many thinking people now are advocating the opinion that all highway bridges should be built by the State or by political subdivisions of the State. Realizing the fact that the money is not available for constructing all the necessary bridges as free bridges, and that some toll bridges must be built, they are advocating that the State or its political subdivisions should build and operate such toll bridges as are necessary, collecting tolls for only such

a length of time as will allow the bridges to be paid for with the tolls collected.

A bill was introduced at the last session of the Arkansas legislature, authorizing the State Highway Department to build bridges over the larger streams of the State, financing the cost of construction by bond issues and retiring these bonds with tolls collected, but this bill did not become a law. The same legislature, however, did pass a bill providing for the construction of a toll bridge over Red river, at Fulton, to be constructed and operated by the State Highway Department under the same plan proposed by the proposed general act. This bridge will become a free bridge after the bonds are retired. The county judges of Miller and Hempstead counties issued a franchise to a corporation, granting authority to construct and operate a toll bridge at this place, and this corporation, claiming that the authority of the county judges in this matter is superior to the authority of the legislature, has taken court action to prevent the construction of this bridge by the Highway Department.

Before a bridge can be built over a navigable stream that extends into two states, a bill authorizing its construction must be passed by the Congress of the United States. Most acts of Congress giving authority for corporations to construct and operate toll bridges, also confer the same right of eminent domain that is exercised by other public utilities, consequently, in those states where state authorization is not required, an act of Congress can allow a toll barrier, in the form of a toll bridge, to block a State highway without the assent of any state agency. Sometimes, in fact, this action is against the desire and wishes of the State, and this, of course, brings on a discussion as to the invasion of the rights of the State.

In Arkansas, by reason of Constitutional authority given to county judges, a franchise for a toll bridge must be secured from the county judge of the county in which the bridge is to be located. In the event that the bridge spans a river forming a boundary between two counties, the franchise must be issued by the county judges of both counties. Here we have the fact that a county, by reason of the action of its county judge, may allow the placing of a toll bridge across a road of state-wide importance, perhaps of national importance; a bridge which will require every traveler on this important road to pay a tax for a period which may vary from twenty-five to fifty years. The road on which the toll bridge is to be located may have been improved for many miles on either side of the bridge with funds provided by the entire State, or, in some cases, with funds provided by the entire Nation as Federal aid. Because of the demand of the public, however, for bridges of some kind, this condition will not only continue to exist, but will become more common, until some provisions are made whereby toll bridges can be built and made free bridges as soon as paid for by tolls collected.

A recent decision of the Comptroller General of the United States, relative to the provisions of the Federal Aid Highway Act regarding payment of Federal aid on roads leading to toll bridges or ferries further complicates the toll bridge question so far as Federal aid is concerned. According to this decision, Federal aid cannot be used on

a road which exclusively serves any kind of toll service, whether this toll service be a ferry, a bridge owned and operated by an individual or corporation, or a bridge owned and operated by the State or a political subdivision of the State. In other words, on a road leading up to any kind of toll service, no Federal aid can be used beyond the point at which some road leads off, by which a detour of the toll service can be made. It makes no difference if the toll bridge is operated by the State or a political subdivision, with the expressed intention of making it a free bridge when paid for by the tolls collected. According to a Comptroller General's decision it is a toll service, and Federal aid cannot be used on a road which serves it exclusively.

Toll bridges will be built in Arkansas, and this cannot be denied. The question which should be considered seriously by every citizen of the state is: How and under what conditions are these toll bridges to be constructed and operated?

ST. FRANCIS RIVER BRIDGE STARTED.

Pile driving for the two spans of the proposed St. Francis river bridge near Paragould, a much-needed connecting link between the Arkansas and Missouri state highway systems, has been begun this month, and will be pushed rapidly to completion under direction of the State highway department.

The structure will total 3,000 feet in length, the construction being largely of creosoted timber.

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The Development of the Special Assessment on Real Property

By W. W. Zass, Construction Engineer.

The underlying basis of any public improvement is that it should prove of some practicable value or benefit to the community in which it is planned. Whether this improvement be local or general and whether the benefit proves to be economic or social the principal holds fast, the status does not alter.

In no age has a public improvement been initiated without taxing the community in some form or manner, either directly or indirectly. In earlier times individuals shared equally in benefits derived from the improvement, community improvements were community enterprises actively participated in by all able-bodied men, the assessment was in labor and no currency was involved. Through this method stockades, town-halls and churches were erected, community roads were built and in some instances crops were cultivated and dwelling houses constructed.

Barter was the means of exchange. The individual produced his own living.

As the communities grew in numbers and wealth the improvements demanded grew greater in magnitude and cost. Individuals amassed a greater share of goods and commodities than their neighbors and the idea of contributing their own labors proved irksome.

Tangible or real property became the universal measurement of wealth.

Natural resources became scarcer and more valuable. In lieu of labor required an equivalent value in materials was accepted. Industries grew more diversified, a national currency was established on a sound basis, the older methods of contributing a pro rata share in labor or materials proved cumbersome and unfair as the distribution of wealth became more and more unequal.

Rather than assess or tax the individual in the community it was held agreeable to tax the tangible wealth of the community thereby prorating the cost of improvements and the benefits received on a more rational basis. It was reasoned that the individual receiving the greater benefit from any improvement was the individual possessing the greater property holdings either in valuation or acreage in that community and that he should be taxed or assessed a benefit in a direct proportion to the ratio of his holdings to the total holdings of the community over which the benefit or improvement occurred.

These assessed benefits as they were learned to be called were made either on an acreage valuation or a combination of both in conformity with the ideas or practice of that community. This system of assessing benefits has continued in vogue down to the present time with some slight modifications. Personal or intangible property now as in other days has generally been exempted from assessments for public improvements mainly due to the difficulty of ascertaining and evaluating it.

In the matter of highway improvements the system of assessing the adjacent property owner for the entire cost of the improvement is antiquated and dates back to the age when slow moving vehicles were the only method of locomotion and the benefits derived from the road were mostly local in character. In these days of fast moving

motor vehicles conveying both freight and passengers long distances in a minimum of time the highways are no longer purely local in character and the vehicle owner as well as the adjacent property owner receives a benefit from the improvement and should be assessed accordingly.

It can be stated that real property should be subject to taxation for highway purposes only in direct proportion to the tangible benefits accruing from such improvements and the tax on the road-user, or a fuel and vehicle tax, is equitable and fair to the extent that such tax should not exceed an estimated or determined damage that the vehicle causes the highway in excess of some other vehicle fixed as a criterion and in excess of the savings accruing in the various charges for fuel, depreciation, repairs and overhead through using an improved road in lieu of an unimproved one. The proper adjustment of these benefits should prove the ideal method for pro-rating the costs of financing our highways.

"DETOUR" A SIGN OF REAL PROGRESS.

Anathema and satire have been cast at the word "detour" until some state highway departments have abandoned use of the word and substituted the term "temporary road."

In the early days of road construction it often happened that the road provided amounted to little more than an indication of how you could find your way around the section temporarily closed. Nowadays, however, detour is becoming an honorary term because more care is being taken in providing temporary roads and especially because it marks the construction of a better highway.

The student of road construction, the lover of better roads and the extensive motor traveler at heart welcomes the sign "detour" just as he welcomes any other temporary annoyance which he appreciates he must encounter in order that he may later receive a permanent benefit.

Detours are found on the Lincoln Highway in almost every state in the Union. To say today that any highway has been "completed" would be to deny an inexorable law of progress. A highway may today seem completed and adequate for traffic needs which five or ten years from now will appear as obsolete as a last year's bird's nest. When you encounter new highway construction it is a certain indication that you are in a non-progressive community.—*Georgia Highways*.

From a country town with no paved streets, and comparatively few sidewalks of modern construction, Batesville, during the past year has evolved into a beautiful city with more than seven miles of concrete pavements, and almost as much curbing and sidewalks. Streets paved during the year include Main, College, Boswell, Harrison, Bates and Broad. With work started on the proposed concrete bridge over White river, which will replace the old ferry at this point, and attract an increasing volume of trans-state automobile traffic, Batesville is soon to taste the wonderfully rejuvenating effect of well-planned public improvements.

Fore-Sighted Policies in Road Construction

By William M. Jardine, Secretary of Agriculture.

THE construction of earth roads on the lines and grades and with the drainage provisions that will be required by the pavement of the future is a recognized application of sound principles. But it has much wider applications than that. The acquisition of rights of way of ample width for the future so that, when the need arises, it will be possible without heavy expense or the injury of private property to effect the necessary improvements, is another highly important feature. The same foresighted policy suggests the location of the improved highways in relation to railroads at crossings in such manner as to provide satisfactorily for separation of grades, and it applies also to provisions for the construction of future by-pass highways around cities, and for the diversion of traffic from routes of growing congestion.

To anticipate thus the needs of the future implies a knowledge of the probable traffic importance of the various roads which can only be obtained by a careful and detailed study of the present distribution and the factors inherent in the economic and physical characteristics of the state. Such studies have been made by the Bureau of Public Roads in co-operation with the highway departments of a number of the states, and the reports, recently published are familiar to many people.

The highway department that has in its possession such information as these surveys can really plan for the future. It has substituted facts for opinions; it knows the present and probable future importance of its roads; it knows the density and also the weight of the traffic to which each road is now subjected and to which it is likely to be subjected in the near future. It can, therefore, devise a reasonable program of construction extending into the future, it can budget its funds intelligently! it can determine the order in which the various highways should be improved and give a satisfactory answer to those who favor priority for other roads; and it has in its possession an adequate basis for the necessary decisions as to the character of improvement required for each road.

This is sound and businesslike administration of highway improvements. It is the reverse of the casual and haphazard procedure which too often has subjected the business of highway improvement to political manipulation, and produced discontinuous, unbalanced, and uneconomical development instead of well articulated systems of improved highways.

In the federal-aid work we feel the need of such precise information daily and I look forward hopefully to a not far distant time when it will be available in all states.

Not all the exact information it is possible to obtain, however, will suffice to provide an orderly and systematic improvement of the main roads in the states which still rely upon the financial assistance of the counties to carry out the state program. Certainly there has been experience enough to prove that complete connection of main arteries is practically impossible so long as there is dependence upon county financing. The reasons are perfectly obvious. All sections of the major state roads in the

various counties are not invariably the roads in which the county interest is the greatest. By their very nature the roads of the state and federal aid systems are the most heavily traveled highways. In many instances the traffic which demands their improvement is contributed in a smaller degree by counties through which they pass than by other counties or even other states. It is not unnatural that the authorities of such counties should be unwilling, and they often are financially unable, to assume a share in the cost of the improvement. So long as any state fails to provide state funds for such roads the development of the main state and interstate roads along strictly economic lines will be hampered.

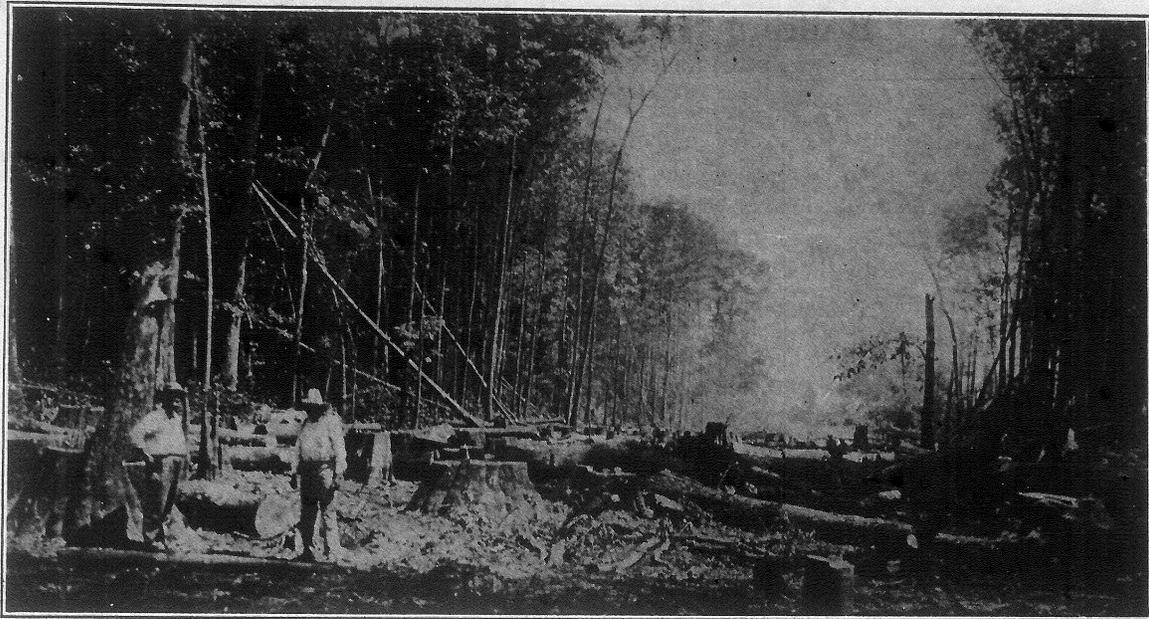
Full operation of the provision of the federal highway act which aims to correct this condition has been twice deferred in the federal legislation to give the states concerned more time to correct their laws. There ought to be no further delay. I am sure that the members of this organization from the affected states will join me in the hope that the necessary laws and constitutional amendments will be provided before the Congress shall again have this legislation before it for further action.

It is manifestly unfair to the counties themselves to expect them to participate in the cost of improving the main lines of traffic. To do so places a burden upon them which they should not be expected to bear. The improvement and upkeep of the roads tributary to the main systems are of the highest importance to agriculture and the county and local funds must be preserved for this purpose. The traffic on the state roads is a wide-ranging traffic. The greater part of it originates in and is destined to the cities, and any system which causes the rural communities to contribute to the expense of improvement in greater proportion than the benefits they derive is unfair and ought to be remedied.

CHARGES OF BONDED DISTRICT GRAFT.

An echo of the old days of the improvement district method of building State highways, or sections of State highways, has been heard this month in the sensational testimony of a Pine Bluff investment banker relative to alleged bribes paid to district commissioners, presumably for their influence in engineering bond sales. We do not know the merits of the various charges made in this testimony, and are not concerned with the investigation, which will probably be taken up by the legislature in January. But it is of interest to observe that every development since 1923, when the present Harrelson law was enacted, has shown more and more clearly the folly of the district system as a method of building highways. The latest echo merely confirms the judgment of the people when they decided to get away from it.

It's the irony of fate that a man never sees so many fine fishing worms as when he's hard at work digging in his garden.—*Nashville Southern Lumberman.*



“The Road Must Go Through”

(Reproduced from our June issue by request.)

IN the scene pictured above may be found an epitome of the spirit which is now driving the State Highway Department in its program of road building.

“The Road Must Go Through.” Whether it be through the rocks of North Arkansas, or the cypress brakes of Eastern Arkansas, over the hills or through the swamps, the broad highway must be laid over which Arkansas may come into her own.

The new highway law under which it has been possible for the department to function efficiently during the past two years is only now coming into full force and effect, and work is in progress virtually everywhere in the state. It is hard to get out of the sound of the tractor and grader outfits that are transforming rough trails into broad roads; the boom of the blasting, the buzz of the saw, the crash of the tree, the noise of the hammer or the rat-a-tat of the bridge riveter. Things are doing on the highways of Arkansas. “The road must go through.”

This is a great thing for the citizens of Arkansas. It brings them closer together, it increases friendship and understanding, makes intercommunication and commerce easier, prosperity more all-embracing. Unity of thought, harmony of action, strength of purpose result to the Commonwealth.

And under the present law these arteries of trade, these highways of which we are so increasingly proud, come to us easily and without undue burden on anyone as a result of the gasoline and license taxes. Properly administered during the next few years this law will insure

to the entire State their benefits and advantages, and every section will be knit together with every other section by “roads that go somewhere.”

These things are tangible benefits which should never be traded for the dreams of the theorist or the pleasant pictures drawn by the facile brush of the artful politician who for one reason or another would like to substitute his ideas for the ideas that have been proven by the people to be good.

“The road must go through.” In putting it through many things are needed. Men, organization, money, machinery, dynamite, all the thousand and one things that enter into the great task of road-building under a variety of physical difficulties. But more than that and above all these are the law itself, and the public sentiment which alone can preserve it against tinkering and experimentation.

Doubtless it can and will be improved as the years go by. But if the great program now before the State is to be fully realized, her citizens must be alert against any reversal of the machinery of road-building that has been so carefully set up during the past few years of invaluable experience through which Arkansas has passed.

Let a united citizenship, permeated with the same spirit that is driving the department in its work of conquering the physical obstacles that are slowly and surely being overcome, see to it that all legislative and political obstacles are as completely mastered, and that nothing is left undone to assure the success of the highway program. “The road must go through.”

Building Highways For Safety

By PROFESSOR S. S. STEINBERG

University of Maryland

THE present is pre-eminently the age of individual transportation. There are to be found on our highways today more than twenty million motor vehicles, sufficient in number to supply one to each family in the United States. It is predicted that in seven years we will have one vehicle to every four persons, sufficient to furnish one to each individual that is old enough to reach the steering wheel. We travel about unhampered by fixed schedules, at speeds that annihilate time and space, and are limited only by the physical condition of our roads.

Although we are improving our highways at a rate never dreamed of before, we cannot keep pace with the demands created by the enormous increase in vehicles. Last year alone, more than 4 1-3 million motor vehicles were produced, an increase over the preceding year of 20 per cent. During this period about 40,000 miles of highways were surfaced, an increase of but 11 per cent. It is then evident that we are producing and absorbing motor vehicles twice as fast as we are providing roads upon which they may conveniently travel. This condition has brought about a traffic congestion on our streets and roads so acute that we have come to realize that one of the major problems facing the country today is to provide sufficient road and street capacity to permit safe operation of our vehicles. Our highway transportation system has been the means of bringing to each of our citizens advantages of an educational, social and economic nature such as are enjoyed by the people of no other nation.

The enormous increase in traffic on our limited mileage of improved roads, coupled with the ever-increasing speed and weight of motor vehicles, has meant not only a great economic loss, but has resulted in a steady increase in highway accidents, taking a toll in human life and property damage so great as to arouse public opinion to a demand for more extensive highway improvement to keep abreast of motor vehicle registration. The demand is for roads so built and maintained as to permit quick and safe transportation at all times. Likewise, highway engineers now realize that safety is as important as engineering and economics in the design and operation of our highways.

As evidence of this development we might cite that the American Road Builders' Association, the largest organization of highway engineers, road contractors and road machinery manufacturers in the country, has selected as the chief topic for discussion at its next annual meeting the matter of highway safety. This meeting will be held at Chicago, during Good Roads Week, from January 10 to 14, 1927. It is the opinion of the members of this organization that safety on the highways will be best promoted by building wider roads; by a more extensive improvement of our secondary roads, thereby relieving the main highways of considerable local traffic; by properly posting warning signs where traffic hazards cannot be

eliminated; and, finally, by securing the adoption of a uniform traffic code in all the states.

In the interest of safety, highway engineers are relocating the main roads to eliminate curves, to avoid railroad grade crossings, and to reduce steep grades. Incidentally, these relocations save distance, avoid costly bridges and mean large benefits to the motorist in the cost of vehicle operation. For instance, in Illinois a road 150 miles long was relocated almost entirely throughout its length, thereby saving 30 miles of unnecessary distance and eliminating 31 grade crossings. The saving in vehicle operation to the citizens of that state, as a result of this improvement, is estimated at one million dollars a year. Again, relocating the road from Kansas City to St. Louis, a length of about 300 miles, saved 41 miles in distance and eliminated 15 grade crossings, with an estimated saving in vehicle operation to the citizens of Missouri of \$100,000 a year.

One of the developments of the future may be separate roads for freight and passenger service, a low grade, heavily constructed road for trucks and a less expensive type for passenger vehicles. A road planned primarily for trucking between Boston and New York is now under construction.

To relieve traffic congestion and to promote safety at the intersection of important roads, highway grade separations are now being planned. The first structure of this kind is now being erected just north of Chicago at a very congested highway intersection. The design provides for two levels. Through traffic proceeds on an overhead bridge on one of the roads while turning traffic swings wide of the bridge and uses the ground level.

One of the most recent experimental developments in the interest of public safety is lighting the rural highway at night. The greatest menace of night driving is the abundance of glaring lights which makes driving at such times dangerous. It is found that a large percentage of highway accidents occur at night due to this cause. Lighting the highway not only reduces this danger, but also increases the capacity of the road by making it available for maximum use throughout the 24 hours of the day, and serves as an inducement for trucks to operate at night when passenger traffic is at a minimum.

WIDER ROADS NEEDED.

Streets and highways being too small for modern traffic accounted for 84 lives every day last month in this country. Enlarge the streets, or keep the people from them.—*Hot Springs Sentinel-Record.*

Do you remember—when the country storekeeper hesitated about buying an automobile for fear the farming community would not trade with him?—*Chicago Tribune.*

Federal Aid Victory Insures National Progress

California Highways

PASSAGE by Congress of the federal aid appropriation, which was recently approved by the President, means the continuation, unhampered, of the American road building program. Few things will make a greater contribution in the immediate future to the progress, prosperity, and solidarity of the nation. With this encouragement from the federal government the states will carry on construction of that great system of national highways first definitely established under the Highway Act of 1921.

Continuation of this wise policy of state and federal co-operation in highway building, although overwhelmingly supported in congress and generally favored by the people, was not accomplished without a nation-wide campaign by its supporters. The appropriation of \$75,000,000 for each of the fiscal years 1928 and 1929 was strenuously opposed in the Senate by a small group of Eastern men who threatened a filibuster and who, apparently, from a national point of view, have no conception of the importance of highways.

Their rich constituencies are able, they assert, to build their own highways and for those beyond the borders of their states they have no concern. The need and desirability of continuous trunk highways, binding together all sections of the country, bringing the citizenship closer together, and providing, also, for the national defense, means nothing to them.

The West, whose great natural resources contribute annually to the wealth of the East, has ever been alert to the necessity of highway construction as a means of development. Alarmed by the growing hostility of certain Eastern interests, the Western states, in the face of sectionalism, began the campaign that rallied the friends of federal aid from every state in the Union. Never before in the history of this legislation, reported Congressman Dowell, did an appropriation have such unanimous support as was accorded the 1926 federal aid bill.

The State of California will receive from this appropriation approximately \$2,500,000 a year, a small share of what the state undoubtedly will expend for highways during the same period. California eventually could complete her highway system without additional federal aid, but she recognizes that progress in other Western states, where great areas are still in federal ownership, would stop almost altogether without the helping hand of the national government; the continuity of the whole highway building program of the country, of far greater importance than actual cash contributions from Washington, would be destroyed.

The California Highway Commission is proud to have had a part in bringing about favorable action by the Congress. In the dark hours when some went so far as to predict an overthrow of the federal aid policy by the recently adjourned Congress, Chairman Harvey M. Toy, by personal appeal to civic organizations, governors, highway officials, congressmen, and senators, urged united ac-

tion by the Western commonwealths. The warning from the West found willing workers beyond the Rockies, who convinced Congress that the great majority of the people of all classes throughout the country desired continuation of federal aid for roads. Eventually there came to its support the American Association of State Highway Officials, American Automobile Association, American Bankers Association, American Farm Bureau Federation, American Federation of Labor, National Grange, American Road Builders Association, National Automobile Chamber of Commerce, and the Chamber of Commerce of the United States.

It is to be hoped that the wisdom of federal aid, or the attitude of the people toward it, will not again be questioned until an improved highway connects every community, in every state of the Union.

MODERNIZED JINGLE BELLS.

Blow that horn, blow that horn, jump upon the gas,
Oh, what red hot fun it is, another car to pass!
Roaring down a concrete road, the surface sure and fine,
Give her all that's comin', kid, we're touching eighty-nine.
Ninety-five the meter says, the speed laws all are hash.
Holy sweet patootie, but we're heading for a crash,
Toll, oh bells, toll, oh bells, keep tolling all the day.
For another sorry dumb-bell's being laid away.

WASTED DOLLARS!

DID you ever stop to realize that grueling punishment your machinery must take daily? Jolting—straining—bumping—frequently over rough, torn-up roads? Without *proper lubrication* this treatment will result in wear and tear that will add hundreds of dollars to the upkeep of your machines.

Guard against this useless drain of your pocketbook! Gay Oils and Greases will protect the vital parts of your machinery and reduce the toll of broken parts, wear and depreciation.

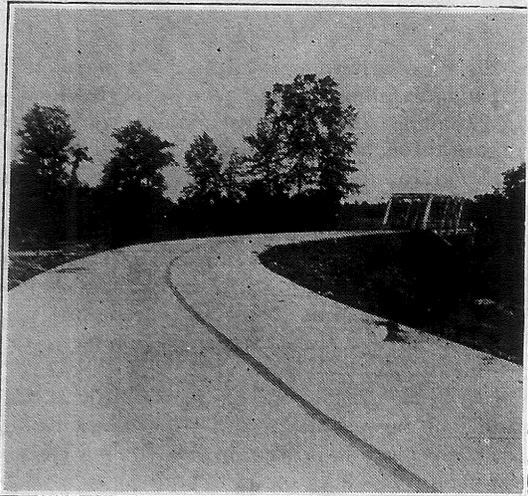
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Stations all over Arkansas and Memphis.

ON THE HOT SPRINGS ROAD



An Interesting Curve on the Popular Drive from Little Rock to Hot Springs

"See here!" exclaimed an indignant motorist, drawing up behind a native on a country road. "Why do you have all these bumps every here and there on the road?"

"Why, mister," was the answer, "didn't you notice? Them was put there so as to give a feller's car a start to jump the puddles."

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High grade sharp sand,
washed and screened

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Road surface gravel our
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BOY! SOME LEAP!

"David Thomas of 34400 Joliet street, operator of the motion picture machine, leaped from the operator's booth when the film ignited and closed the fire door, thus preventing the flames from spreading. His trousers, containing \$45 in cash, which he left in the booth, were destroyed."—*News item in a Pennsylvania paper.*

TOO CHEAP.

Rastus: Here's dat quatah ah borrowed from yuh last yeah."

Sambo: "Yuh done kep' it so long dat ah don' know if it's wuff while fo' me tuh change mah 'pinion of yuh jes' fo' two bits."—*Life.*

PROMISING PETS.

"For Exchange—Two mountain Lions, year old, male and female, weigh about 150 lbs. each, eat anything, very fond of women and children. What have you? C. W. Powers, Columbus, New Mexico."—*Notice in a Wisconsin business monthly.*

To visualize the international situation in the Balkans, suppose Florida and California were contiguous.

—*Detroit News.*

A shingle, a cigaret and knickers make a lot of difference, but they don't fool a mouse.

—*New Haven Register.*

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TWO MORE VIADUCT VICTIMS BURIED.

Still further emphasis on the importance of speedy replacement of the present wooden viaduct approaching the Harahan bridge at Memphis with the proposed steel and concrete structure now under way was laid this month in the burial of Carl King and Morris Meek, 17-year-old boys, whose car plunged through the frail wooden guard rails to the ground 25 feet below.

The accident occurred on the morning of December 5, when their car was side-swiped by another on the narrow runway. It was the sixth accident of the kind in recent months.

The occurrence called to mind the recent words of Mayor Paine of Memphis in Little Rock on the day when the embankment contract was let by the Highway Commission to the T. J. Galley Company of Knoxville, over the objection of various persons. The mayor declared that "those responsible for further delay might find themselves morally guilty of unnecessary loss of human life."

The new viaduct will be wide enough and strong enough to eliminate all the dangers encountered in crossing the present unsubstantial bridge.

SPECIALISTS.

"Does your man work, Mrs. Waggs?"

"Oh, yes; he peddles balloons whenever there's a parade in town. What does your husband do?"

"He sells smoked glasses during eclipses of the sun."

—*Life*.

THE ENGINEERS.

Cincinnati is entertaining a distinguished company of engineers. Cincinnati and every other city, ancient or modern, is the product of the genius of engineers.

The great tower of Bel, the pyramids, the Parthenon, the enduring military roadways of imperial Rome lived first in the brain of the engineer. The engineer was the pioneer of all civilization—the essential progenitor of art, literature and science. Without his guiding assistance the race never would have traversed continents and seas; never would have weighed and measured the stars; never would have spanned the earth with rails of steel or filled the heavens with the aerial craft of this wonderful age; never would have tunneled the eternal hills nor plumbed the ocean depths; never would have harnessed the Olympian thunderbolts—still would be struggling in the environment of a primitive barbarism.

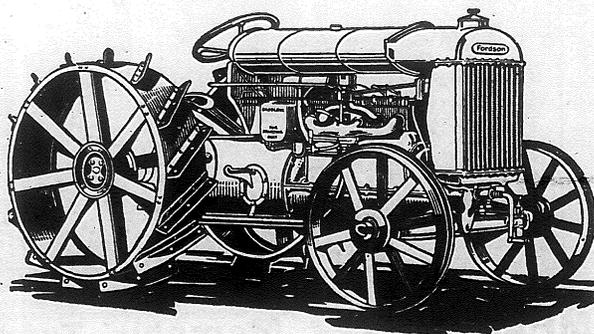
The world is moving forward to surpassing destiny, and still the engineer, not the warrior, not the statesman, not the captain of commerce, leads the way.

So the paths of civilized progress for centuries have been smoothed for the feet of ever-coming generations by the men who measure, plan and build. In war and in peace they meet the exigencies of their times, triumphing over all obstacles.

Like all great constructive factors in the development of civilization, these men are not trumpet-blowers; they are the quiet, efficient agents in the scheme of purposeful progress.—*Cincinnati Inquirer*.

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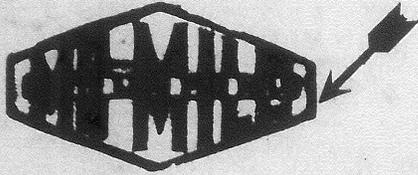


Largest and oldest Ford Dealers in the state. Fordson Tractors, together with road equipment of all kinds, including rubber-tired wheels, skid chains, graders, maintenance equipment and Crawler Tracks.

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All approved in Highway Work Throughout the Country.

"Look for the Mo-Mile Sign"



**More Miles
Per Gallon**

Others Claim it--
We Guarantee it!

E. R. Russell Oil Co.
Little Rock, Arkansas

**LITTLE ROCK BAR URGES PASSAGE OF
NEW HIGHWAY LAW.**

At a meeting held this month, the Little Rock Bar Association unanimously endorsed the recommendation of its legislative committee urging the passage by the next General Assembly of the following law:

"A highway statute, based on the principle that the State shall construct, own and maintain the entire State highway system, the cost of construction and maintenance to be paid out of funds to be derived from the use of the highways, without the imposition of any tax on lands for this purpose."

The legislative committee making the original recommendation is composed of Charles T. Coleman, J. F. Loughborough, J. H. Carmichael, T. S. Buzbee and C. W. Gray.

At a cost of \$40,000, expended through the Jefferson County Bridge Commission, citizens of Pine Bluff are placing a concrete surface on that part of the Pine Bluff bridge over the Arkansas River formerly used for railroad tracks. Under regulations of the commission, autos will use this part, while wagons and other slow-moving or heavy vehicles must use the wooden runways on each side.

Searcy is in the midst of an extensive-paving program which, when completed, will provide more than eight miles of modern streets with curbing and guttering, serving the entire business and most of the residential sections.

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

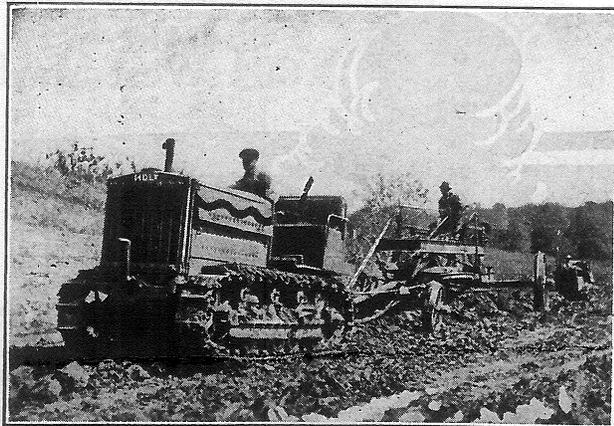
HITCH a Grader blade behind the "Caterpillar" and go over the old road—bumps vanish, ruts are filled in, a crown built up to drain the water. Traffic speeds up—the smooth comfort of travel invites more travel—the community grows and prospers.

"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
Memphis:

"SIXTY"
"5-TON"

"THIRTY"
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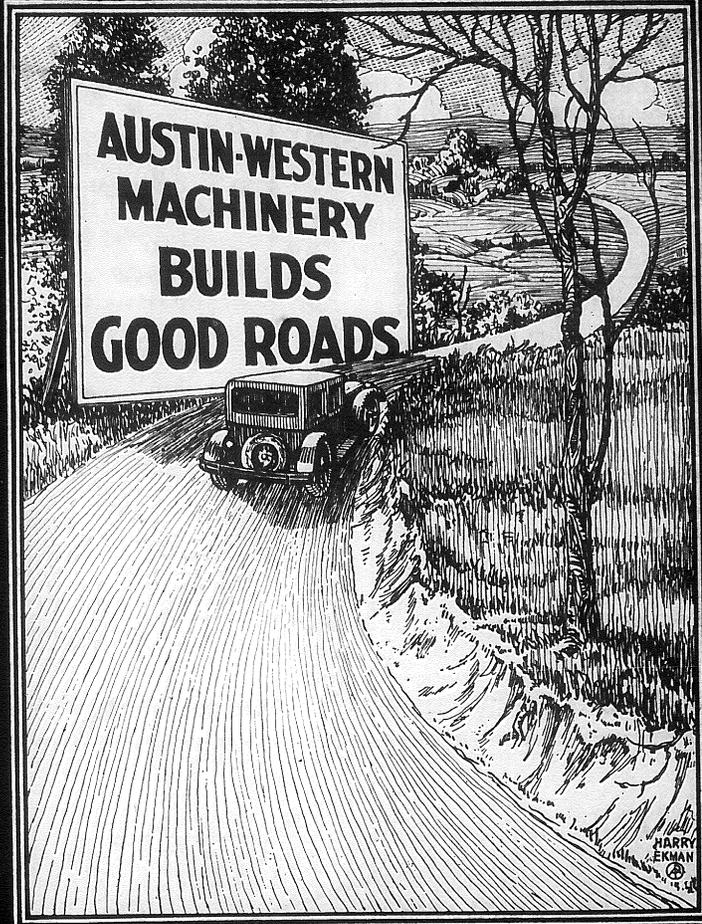


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Scarifiers, Culverts,
Motor Graders, Sprinklers,
Wheelers and Scrapers,
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Leaning Wheel Graders,
Straight Wheel Graders,
Steam Rollers, Sweepers,
Elevating Graders, Plows

See these machines at the
National Good Roads Show.

Chicago
Jan. 10-14

Recent years have witnessed remarkable progress in the science of road building — progress that has been made possible only through the use of new and improved machinery.

For more than half a century this Company has done its part in hastening this development by always providing machinery correctly designed to meet the latest requirements of road construction.

Tangible evidence that it is still doing so will be found in the new 1927 General Catalog. The coupon makes it easy for you to ask for your copy.

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BRANCHES IN ALL PRINCIPAL CITIES.

Please send me a copy of the new 1927 Austin
Western General Catalog.

12

TWO EMPLOYEES RETAINED.

As this issue of *Arkansas Highways* goes to press, the newspapers of the State are carrying stories to the effect that O. L. Hemphill, Assistant State Highway Engineer, will be retained by Dwight H. Blackwood, incoming State Highway Commissioner, and promoted to the position of State Highway Engineer, succeeding R. C. Limerick. Also that W. W. Mitchell, engineer in charge of District No. 4, with headquarters at Fort Smith, will be retained in his present capacity, in response to the strong requests made for him by Fort Smith commercial bodies.

Announcement of other employees under the new administration is expected during the next few days.

MORE MAINTENANCE NEEDED.

Whatever the legislature may do to the highway laws of Arkansas, it should put an increase in maintenance first. Traffic is heavier. It has increased receipts. If the state does not turn back into maintenance enough of the increase to keep the roads in good condition, it is breaking faith with the motorists who pay the tax, and it is breaking a fundamental law of road building—to save the investment, save the surface.—*Fort Smith Times-Record*.

"JUST AS GOOD."

Glenn Frank's elevation to the presidency of a university hasn't made him solemn yet. He tells the Missouri teachers, "We no longer burn our heretics; we fire them."—*The Christian Register*.

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 second 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.

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PIERCE PENNANT AUTOMOBILE OILS AND GREASES
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Russell Motor Patrol

MADE IN TWO SIZES

No. 2-Fordson Tractor for Power
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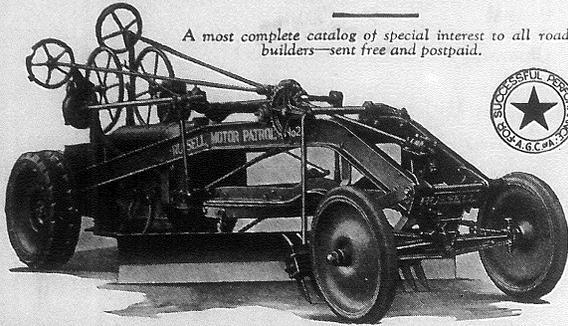
Better Built Motorized Patrol Graders. They meet the need for more highly finished maintenance machines. Their popularity is growing daily and the demand is rapidly increasing. Russell Machines are built of oversize parts with the resulting low cost upkeep. They have highly finished machine cut gears, 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.

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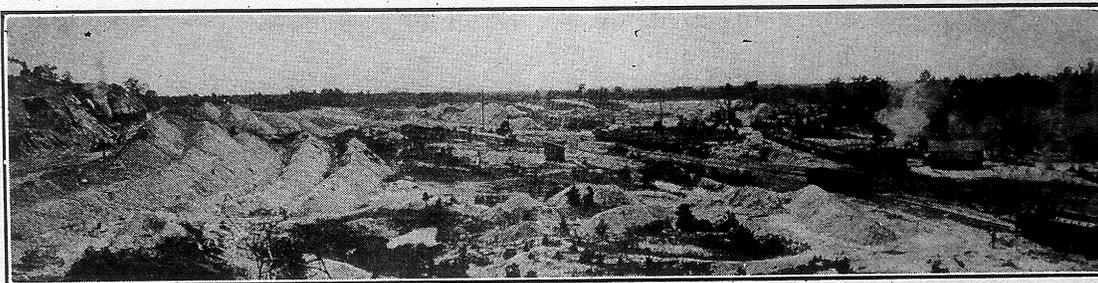
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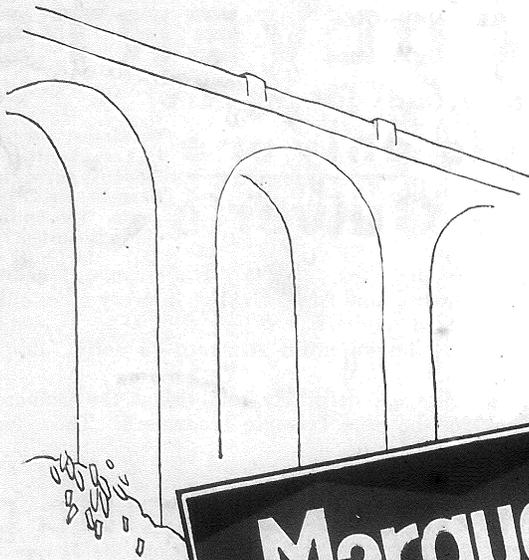
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