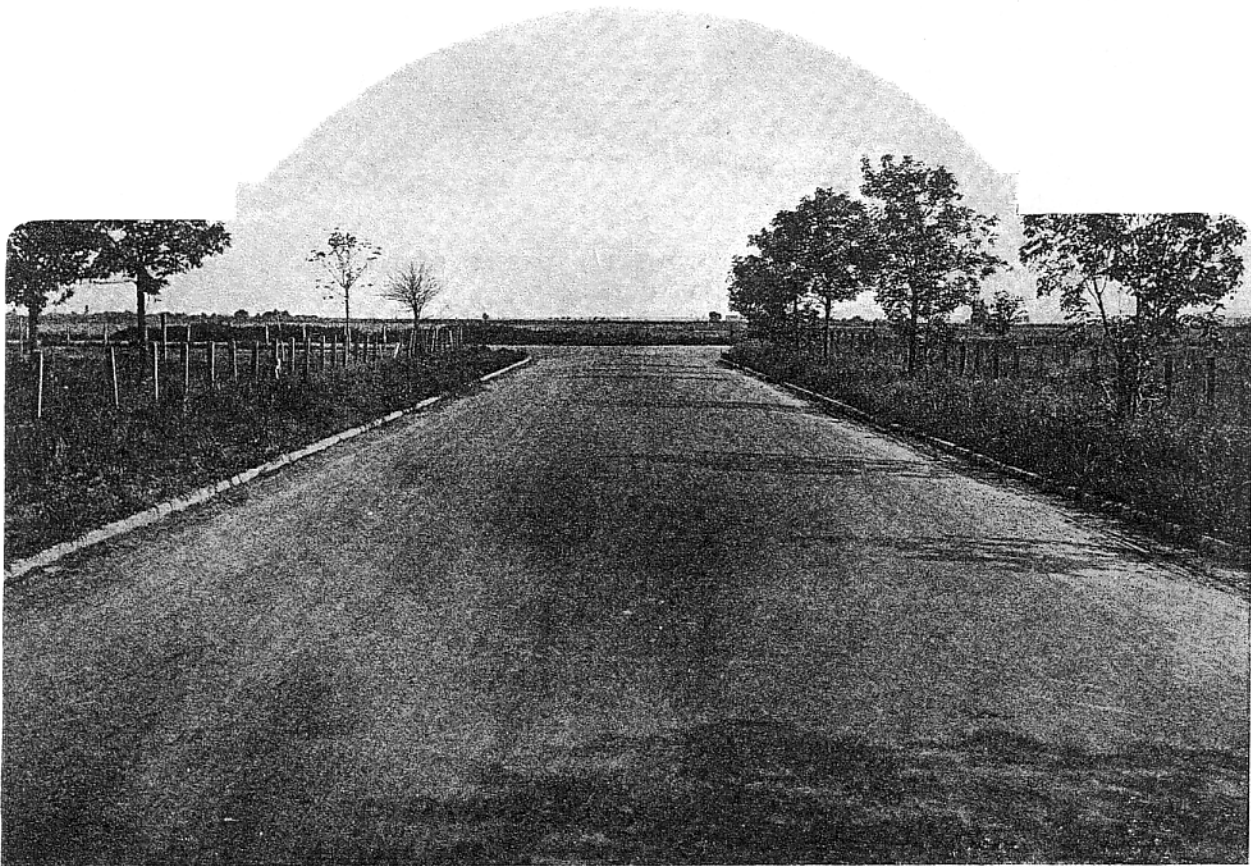


# ARKANSAS HIGHWAYS



As They Look in the Rice Country

**NOVEMBER**

**VOL.1**

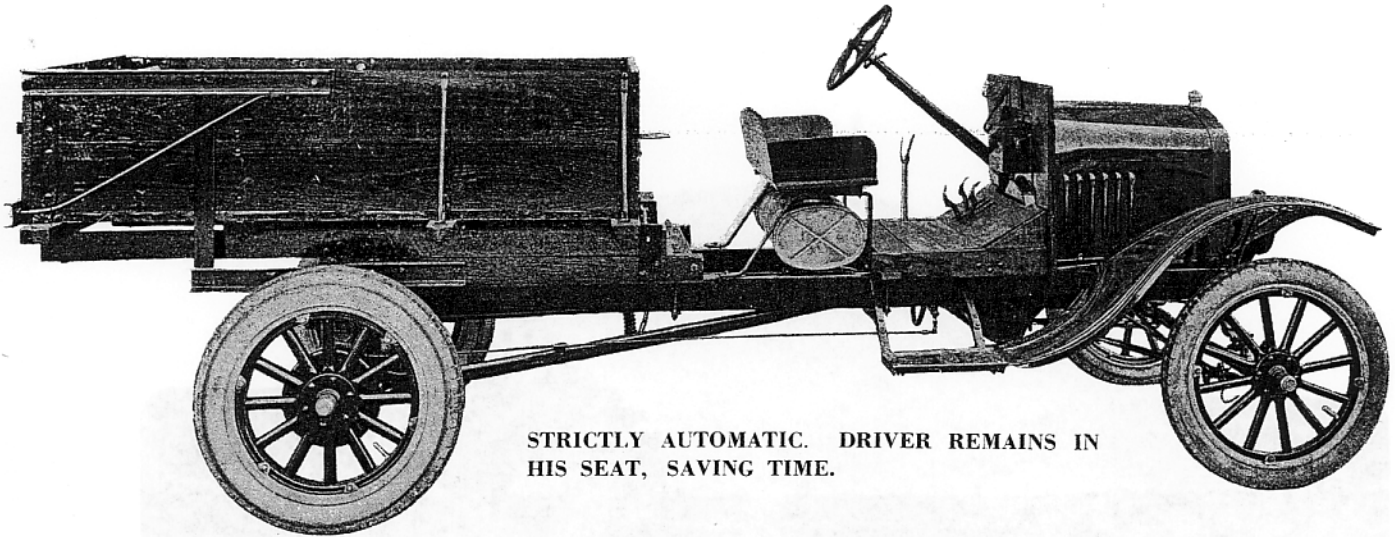
**1924**

**NO. 11**

# "THE WONDER DUMP"

UNLOADS INSTANTLY

FOR ONE TON FORD TRUCK CHASSIS

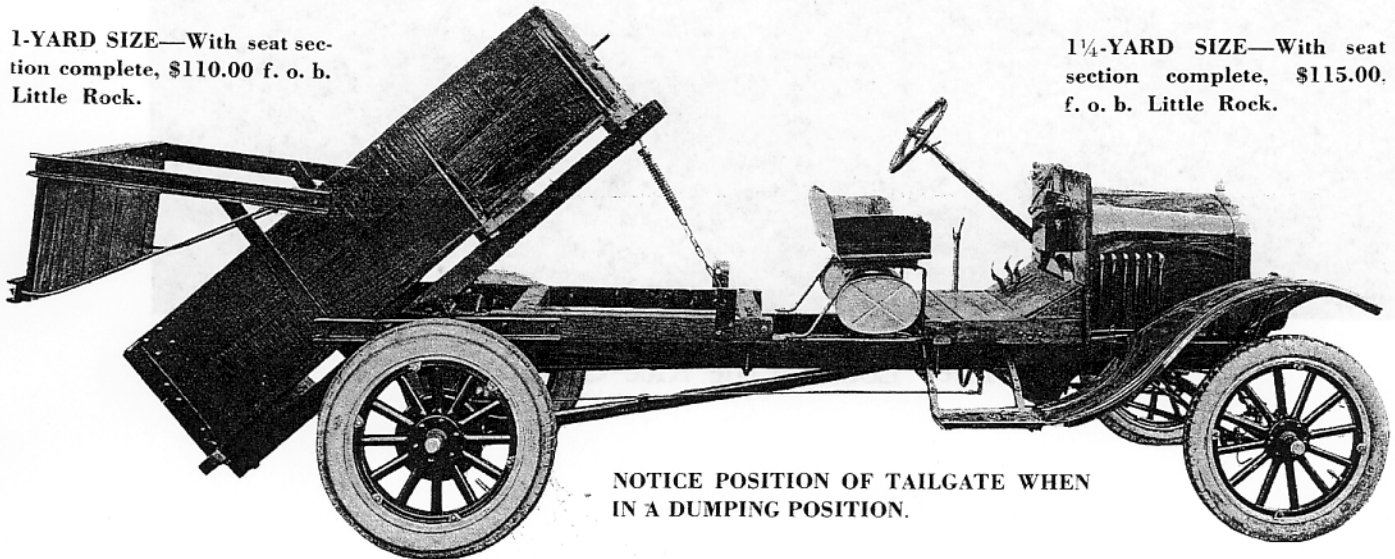


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To the contractor who wants to save time this is the greatest dump bed ever offered him at a minimum cost. No loose material can spill, rear cross arm securely bolted to the cross member over rear spring on chassis. No undue strain on truck frame. Made of Arkansas hardwood.

1-YARD SIZE—With seat section complete, \$110.00 f. o. b. Little Rock.

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Substantially constructed throughout. No light parts to break or get out of order. Will last indefinitely. Mail in your requirements today.

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# ARKANSAS HIGHWAYS



Official Monthly Bulletin of the State Highway Commission  
PAUL GRABIEL, Editor

"Arkansas Highways" is edited in the offices of the State 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 of charge 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 hereby granted to all newspapers of the State.



VOL. I.

NOVEMBER, 1924

NO. 11

## Loyalty and Efficiency--Keynotes of Highway Department Success

A Message to Employes by JOE A. BAILEY, Secretary, Arkansas Highway Commission.

LIKE the railroad, telephone and telegraph companies, and all other public service institutions, the Highway Department's functioning involves direct contact with large numbers of people.

In this construction and maintenance work it performs services in which large numbers of people are vitally interested. The interest in this direction is growing all the time.

We who are actively engaged in carrying forward the highway program come in direct contact with the public and, to a large extent, the public forms its opinion of the department from this contact. As a consequence, our attitude as representatives of the department must be friendly, helpful and considerate, without resentment at justified or constructive criticisms or suggestions. All such criticisms or suggestions should be considered in the light in which they are offered. If they are good, we can profit by them and thus strive continually to improve the service.

It would be well for each employe to keep in mind all helpful suggestions received and in turn refer them to the proper superior officer, thus strengthening and broadening the field of the department's genuine usefulness.

So far as the Highway department is concerned, we are the goods as displayed in the show windows. Any

employe, regardless of the position which he occupies, who loafs on the job or is inefficient in the work performed is a bad advertisement for the department and will tend to discredit it in the eyes of the public. Loyalty and efficiency are the keynotes of success in this as well as any other organization worthy of the name.



Joe A. Bailey.

No satisfaction equals that of knowing that the job for which you are responsible is well and efficiently performed. It is physically impossible for the executives at Little Rock at all times personally to oversee our organization and the work it does when spread all over the State, as it must be. The heads of each division of the department are dependent largely on the loyalty and efficiency of each and every employe for success in the great work on which we are embarked. Everyone connected in any way with the department should realize deeply his or her responsibility for this loyalty and efficiency in the conduct of the work in hand.

There is a large program before us in the next two years, and it is to be hoped, and I honestly believe, that an organization has been perfected which can effectively and economically put the work over in a way that will reflect credit upon

the great State of Arkansas.

With these things in mind, let's all pull together.

## The High Cost of Changing State Highway Personnel

An Interview with THOMAS H. MacDONALD, Chief of the Bureau of Public Roads, U. S. Department of Agriculture.  
By SPENCER HUFFMAN, Washington Correspondent for The Highway Magazine.

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*Industry long ago learned that a large labor turnover is extremely expensive. Every effort has been made to keep it to a minimum. That it is just as costly and just as unwise to make frequent changes in the directing heads of state highway departments is herewith forcefully set forth by the chief of the U. S. Bureau of Roads.*

**T**HE State Highway departments are just as much big business organizations as the large department stores and as such should be managed on the same general lines, if efficient administration is to be had," Thomas H. MacDonald, chief of the Bureau of Public Roads of the U. S. Department of Agriculture, declared in an exclusive interview for *The Highway Magazine*.

"In the past two years many of the states have made changes in the directing personnel of their respective highway departments and the question has naturally arisen as to the loss and mistakes due to such changes.

"This constant turnover in highway departments is in my opinion a dangerous thing, and in the end will no doubt work to the detriment of the road construction programs in the states where such changes are too frequently made.

"The matter of turnover in highway departments is the same as the turnover in large business establishments. It is generally the case in the successful business house, that the management is directed by one man or a group of men who have spent years in the firm and are acquainted with the well defined policies of the organization with which they are associated.

"This same system should be observed in the highway departments in the interest of economy and efficiency. It takes several years for a man to become acquainted with the state program and problems confronting him, and where a man has grown up with the service, in my opinion, it is decidedly unwise to make changes.

"It cannot be honestly said that a change in a highway department is necessarily a reflection on the engineer when one man is 'stepped down' and a new man takes his position. These continual changes will only tend to hinder the production of results in road building, and may in many cases delay the work of the state for a considerable period."

One danger which may be encountered in too frequent turnover in directing heads is that of changes of policies which in the end will prove costly to the taxpayers. For instance one engineer who steps into the position of the incumbent will decide that the program outlined involves too great an initial outlay of money and will substitute a cheaper form of road. At first glance it would appear that the state would save a great deal of money, but time and

usage will demonstrate that the cheaper road instead of being economic will have cost a great deal more than the more expensive road originally planned.

"Another point that should be taken into consideration before making wholesale changes, is that of the program of

maintenance. Take as an example two roads which were built nearby. One road was well maintained by the highway department of the state and the other road, which from a standpoint of apparent service was equal in value and construction, was not maintained as it had originally been planned by the designer of the road. The well maintained road has stood up and is in just as good condition today as it was when first opened for traffic. The other road has so deteriorated as to be in need of entire resurfacing. It can be seen that the economical road is the one on which funds were spent for maintenance, and the more costly road, the one which was built and then, so to speak, forgotten.

"In one instance the program of one engineer was sidetracked by that of a new man. Maintenance was sidetracked and presently a corner break occurred. This road broke down at the rate of thirty-three feet a day under heavy traffic and was soon in such poor condition that a vast amount of money was found necessary to put it in first class condition.

"There can be no economy in endeavoring to save money at the expense of maintenance. Neither can there be economy where the turnover of directing heads of highway departments is great.

"Perfection in work can only be procured by continuous organization, and the policy of changing heads too frequently sets up a condition of uncertainty in highway departments which certainly is not conducive to efficient management."

Discussing the evils of the large percentage of turnover of directing heads in highway departments, Mr. MacDonald called attention to the recent statement of H. G. Shirley, chairman of the State Highway Commission of Virginia, in which it is pointed out that only harm can result from politics playing too large a part in the administration of road building programs of the states.

*Concluded on Page 11*



**Thos. H. MacDonald, Chief of the Bureau of Public Roads.**

# Geology of Arkansas Road Materials and Their Distribution

By E. E. Bonewits, Assistant District Engineer.

**G**EOLGY divides the material of the crust of the earth into rocks which have been laid down during different geologic times called eras. These are divisions of the first order and modern geology generally recognizes five eras. The eras are divided into periods, and the periods divided into epochs.

It is interesting to note that of the rocks of these eras, three are represented in this state; the oldest formation exposed being the Collier shale of the Ouachita Mountain region, which belongs to the Cambrian, or oldest system of the Paleozoic, or third era. The youngest formations are those of eastern and southern Arkansas, which are of the Pleistocene and recent epoch, Quarternary period of the Cenozoic, the fifth or present era.

For the purpose of this discussion, we shall divide the state into six areas, not in the order of the state's geology, but rather as a basis of location of the state's road-making materials.

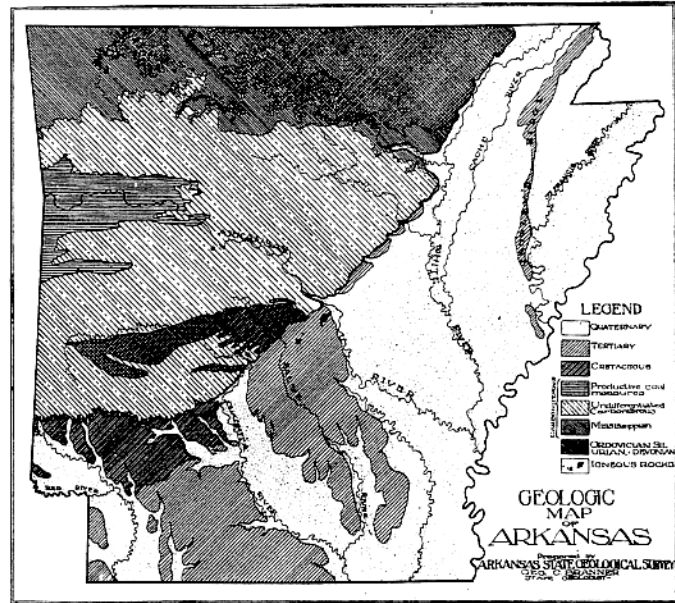
First, we will divide the state by drawing a line beginning at the Missouri state line in Randolph county, thence southward through Pocahontas, Black Rock, Newark, Grand Glaize, then generally following the Missouri Pacific railroad through Little Rock and Benton to Arkadelphia and thence turning westward through Murfreesboro, Nashville, Center Point and Locksburg to the Oklahoma state line, near Ultima Thule. This marks the shore line of the old Mississippi embayment. East, southeast and south of this line lies the area known as the Gulf Coastal Plain, which was once covered by the waters of the Gulf of Mexico.

Lying within the Gulf Coastal Plain is an elevation in northeastern Arkansas, known as Crowley's Ridge, the axis of which begins in the northeast tip of Clay county, makes a slight bend to the west and extends southward through Greene, Craighead, Poinsett, Cross, St. Francis, Lee and ends in Phillips county, near Helena; although, some of the orange sands of Crowley's Ridge are found in several of the counties southwest of Lee county. The Gulf Coastal Plain and Crowley's Ridge make two of our divisions.

The area of the state lying north and west of the old shore line, we will divide into four districts. The first is the Ozark Plateau, extending across the northern portion of the state from Randolph county westward, and is about forty miles wide. South of this is the Boston Mountain area of Boston Plateau, which also extends across the state from the old shore line to the Oklahoma state line and has an average width of about thirty-five miles. South of this we have the Arkansas Valley, with a width of forty miles, and south of the Arkansas Valley, we have the Ouachita Mountain region, having a width of fifty to sixty miles. This region has a hilly plateau along its southern border about fifteen miles wide, which lies between the Ouachita Mountains and the old shore line.

## CHERT.

In the Ozark District, the most bountiful material is the chert, which belongs to the third geological era and is of Mississippian age. This material is widely distributed over the northern counties of the state, and is found on top of the so-called flint ridges of that area. The talus, or fractured particles of the material is found in great abundance along the ravines and hill sides ready for use.



Because of its angularity and natural gradation of sizes, it compacts very readily in use as a road material and has a high resistance to abrasion. The old ridge trails of this area, some of which have been in use for 100 years, are a testimony to the good quality of this material. It is to this immense deposit of chert that the gravel bars along White river owe their origin and the water-worn gravels along the old shore line north of Little Rock are partly chert gravels.

There are several areas of the Bigfork chert exposed in the Ouachita Mountain region between Polk and Pulaski counties. Mr. Miser reports this to be 700 feet thick in Garland county. It is much shattered and contains a black shale with which it is interbedded, which serves as a binder. It has been used extensively around Hot Springs and is an excellent road metal. It is of the Ordovician period.

## NOVACULITES.

The Novaculites of this state exist in the Ouachita Uplift and form the outer fringe of the hills of this area and to this impervious formation, the zig-zag hills near Hot Springs owe their existence. Novaculite is very similar to chert, with the exception that it is more brittle. It has been my experience that the chert is more usually found broken up to small sizes than the novaculite. Like chert, it is found in abundance along the ravines and hill sides and by a systematic search can be found of a size ready for use as a road material.

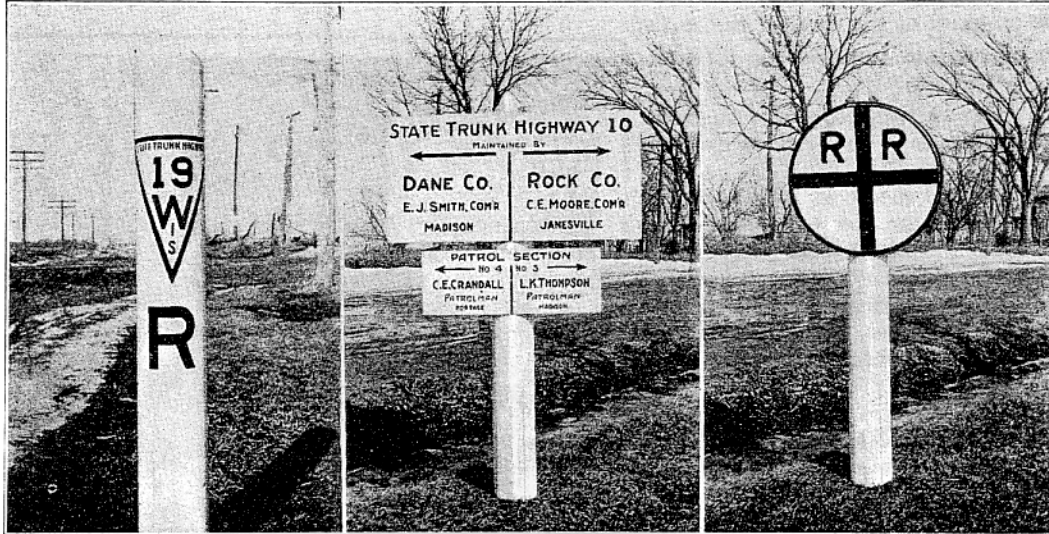
The lower part of the novaculite formation is considered to be of Devonian age, while there is some question as to whether the upper part is Devonian or Mississippian. The gravels along the old shore line south of Little Rock are partly Novaculite.

## GRAVELS.

The most valuable road building material of our state is our gravel. Probably the most important deposits are the hill and bank gravel deposits found along the old

*Continued on Page 4*

## Marking Highways So Tourists Can't Get Lost



Here we have an illustration of Wisconsin's splendid system of highway marking which will give the reader a general idea of the system now being worked out for Arkansas, which will be completed early next year.

As was shown by the Little Rock Arkansas Democrat in a feature article some weeks ago, the proposed system of road marking will enable the tourist in Arkansas to know at all times just where he is going. With the highway and patrol section numbers on the sign-board, compared on the small map distributed free of charge by the State highway department, the traveler can tell at all times just where he is on the system, without losing time and temper through frequent inquiries.

The name of the patrol foreman will establish the responsibility for the condition of the highway in any given section, and create a rivalry between foremen that will result in vigilant maintenance.

### GEOLOGY OF ARKANSAS ROAD MATERIALS AND THEIR DISTRIBUTION

*Continued from Page 3*

Coastal Plain shore line. These gravels are water worn, having been placed while the land was under water, and they contain a sufficient amount of clay to give a good hard consolidation when used as road metal. North of Little Rock, the gravels are partly chert, smoothed by the action of water, but irregular in shape. It is from this area that the Newark gravel, with which many miles of eastern Arkansas roads are surfaced, is shipped. South of Little Rock, the gravels are partly Novaculite rounded by the action of water and carrying enough clay and sand to give them compaction. Gravel is shipped from these deposits near Benton.

Probably the largest deposits of gravel in the state lie in Clark, Hempstead, Pike, Howard and Sevier counties and several of the towns of these counties are located on hills underlaid with this gravel. The size of the pebbles is usually under one inch, grading down to sand and with enough clay to act as a binder. A few boulders are found with the smaller gravel, but are not in sufficient quantity to make their separation expensive. These gravels are located in the Trinity formation; the lower phase has been given the name of Pike, the upper phase of the deposit taking the name of Ultima Thule and are so-called because of their wide exposure in Pike county and at Ultima

Thule. Several gravel beds of the Bingen Formation are also present. A report of the United States Geological Survey entitled, "Gravel Deposits of Caddo Gap and De Queen Quadrangles," describes gravels of those areas in detail and is of special interest. The Trinity formation is Lower Cretaceous and the Bingen Formation is of the Upper Cretaceous period.

Bank gravel also occurs along each side of the Arkansas River Valley; the city of Little Rock being built principally on one of these beds. These beds are often at considerable height above the water. Dr. Branner says that "at Little Rock, they rise to a height of 140 feet above the river, while in Logan county they reach a height of 160 feet, but never reach the highest hills." These beds occur along the river as far south as Pine Bluff, and while a considerable number of large boulders are found in them, care in selecting will reveal these gravels of a size suitable for road building use without treatment.

Gravel is obtained at a number of places along Crowley's Ridge and several of the roads of east Arkansas have been surfaced with these gravels. They are especially good and plentiful in the vicinity of Jonesboro; however, there are other deposits along the ridge that are of the proper size, gradation and have sufficient binder to make good road metal, and along the lower slopes of the ridge, deposits may be found in the streams where the pebbles have been concentrated. Dr. Branner mentions Little Crow Creek, near Madison, as one example. Gravels on Crowley's

*Continued on Page 5*

# Surveys and Plans for New Highway Construction

By Frank Wittenberg, Jr., Engineer of Surveys and Plans.

Since the passage of the so-called Harrelson Act and the resultant restoration of Federal Aid to Arkansas, the State highway department has made every effort to build the most important missing links in a State highway system of "roads that go somewhere."

In actual practice, the old method of building roads through the agency of separate boards of commissioners has made this extremely difficult, due to the fact that each road district constructed to meet its own individual needs without respect to the State system as a whole. A large proportion of the old mileage constructed, however, has been conserved as a part of the State system and is now under systematic maintenance.

Immediately following the re-organization of the highway department under the new law there came a rush of requests from practically every county in the State for new road construction. Some districts had funds on hand; others were in the first stages of organization, but surveys and plans were needed for practically all of them.

Several projects, such as the Little Rock-Hot Springs highway, had been previously approved by the U. S. Bureau of Public Roads, and were immediately placed under construction, and work was begun on surveys and plans for new Federal Aid projects.

Surveys have been completed in the following counties for Federal Aid projects during the year that is closing:

## NEW SURVEYS COMPLETED.

COUNTY.	BETWEEN.	MILES.
Cleveland.....	Rison and Warren.....	6.8
Desha .....	McGehee and Youcapin.....	2.9
Desha .....	McGehee and Bartholomew Bayou.....	2.9
Drew .....	Dermott and Collins.....	8.2
Grant .....	Leola and Poyen.....	3.1
Greene .....	Paragould and Hopkins Bridge.....	7.1
Lee .....	Marianna and Wheatley.....	12.0
Lee .....	Marianna and Forrest City.....	11.0
Lee .....	Marianna and Barton.....	15.0
Lee .....	Marianna and Chatfield.....	15.0
Monroe .....	Brassfield and Brinkley.....	6.6
Monroe .....	Blackton and Marvell.....	7.0
Nevada .....	Emmett and Prescott.....	1.9
Newton .....	Mt. Judea and Forest Boundary.....	7.3
Sebastian .....	Greenwood and Mansfield.....	12.0
St. Francis .....	Wheatley and Forrest City.....	13.6
Union .....	El Dorado and Smackover.....	10.8
Union .....	El Dorado and Junction City.....	4.0
Van Buren .....	Clinton and Leslie.....	22.0
Woodruff .....	Augusta and Jelks.....	7.0
Total mileage.....		198.3

Perhaps the greatest evil remedied by the new State-wide highway law was the letting of highway construction contracts without adequate preliminary engineering investigation. No funds were available under the old district method of road construction for such preliminary work, since bonds could not be sold prior to the filing of plans and estimates. Since no engineering contracts for preliminary work were valid until the approval of the assessment of benefits and this assessment could not be made until the preliminary work had been completed, engineers were in no

position to furnish adequate service for this part of the work.

Under the new law, sufficient funds are available for preliminary engineering work and each project is given the  
*Concluded on Page 9*

## GEOLOGY OF ARKANSAS ROAD MATERIALS AND THEIR DISTRIBUTION

*Continued from Page 4*

Ridge belong to the latest geological era and are of Tertiary age.

Bank gravels are also obtained from several places along the Mississippi river. It is from these deposits that the famous Tishimingo gravel comes.

The geology and location of the bank or hill gravels of the Gulf Coastal Plain are summed up in the United States Geological Survey, Bulletin No. 624, as follows: "Gravels (road metal). Along Crowley's Ridge in Clay, Greene, Craighead, Poinsett, Cross and St. Francis counties; on and near the highlands of Randolph, Lawrence, Independence, Jackson, White, Pulaski, Saline, Hot Spring and Clark counties, and in Bradley, Calhoun, Dallas, Drew, Howard, Jefferson, Lafayette, Pike and Sevier counties. These gravels consist almost entirely of chert, quartz and novaculite pebbles and range in age from Lower Cretaceous to Quaternary."

In addition to the bank gravels, innumerable gravel bars are found along the principal streams and their tributaries and at several places, gravel and sand is dredged from the stream beds. The material is also used as concrete aggregate, plaster, railroad ballast, etc.

### LIMESTONES.

Limestones are especially abundant in the Ozark Plateau and range in age from Ordovician to Carboniferous. A few deposits are exposed in the Boston Mountain area and in Garland, Montgomery, Sevier, Hempstead, Clark and Little River counties. These last four counties contain very little limestone as such, although they contain much marl and chalky material.

At a number of places in the above localities, the limestone is quarried and crushed as a road material, concrete aggregate, ballast, etc. Boulders and field stones of the material are used extensively as a base provided with a top dressing of gravel, chert or novaculite. Limestone, when crushed, may be bound with accumulated dust and fine material from crushing, shale, clay or bituminous material may be used in the penetration method. A number of roads have been constructed of this material alone using the dust and fines in connection with water and rolling, topping out with screenings in the construction of water-bound macadam. It is also used as aggregate in various types of asphaltic concrete pavements and limestone dust is used as a filler in asphalt surfaces. The chalk of White Cliffs, Little River county, has been used extensively as an asphalt filler.

### IGNEOUS ROCKS.

The only igneous rocks of the state that are suitable for road building material are syenites of Fourche Mountain,  
*Continued on Page 11*

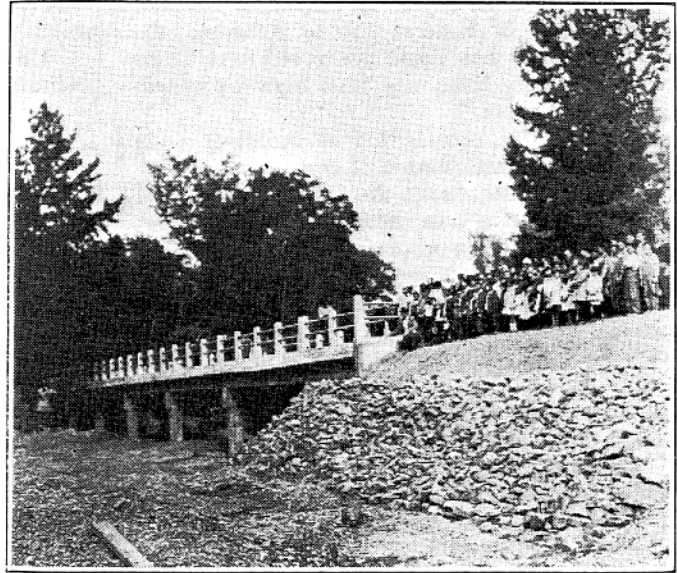
## New Bridge Opened on Lower Hot Springs Road

County Judge Charles Davis Drives First Car Over It.

Automobile tourists over the lower Hot Springs highway, the old county road that is being used as the Benton to Hot Springs detour pending the completion of the new cement boulevard that is being laid as State Highway "A-6" over the "upper route," will rejoice at the news of the completion by Garland county of a handsome new concrete bridge over Ten-Mile Creek at Lonsdale.

The structure fills a long felt need, as traffic has been fording the creek for several years, since the washing away of an old county bridge, and has often been interrupted after heavy rains. It is 200 feet in length, built on what is known as trestle type lines, designed by the State Highway department, and constructed by Merritt and Merritt, Hot Springs.

It was dedicated recently with considerable ceremony, Judge Charlie Davis of Garland county, driving the first automobile over the bridge in the presence of 200 school children and many citizens of Lonsdale and Hot Springs. Mayor Harry A. Jones of Hot Springs, headed a delegation of more than 30 cars from the resort city, and music for the occasion was furnished by the Hot Springs Rotary Club Boys Band.



THE NEW LONSDALE BRIDGE.

## A New Arkansas Product for Road Work

Those who realize how much industrial development has to do with the continued growth and expansion of our "Wonder State" must take pleasure in the way native Arkansas materials more and more are being worked up at home into finished products.

A new instance comes to our attention as a result of a new advertiser, listed this month among the patrons of "Arkansas Highways." On the inside front cover page the reader will find a description of an exclusive Arkansas product of interest to road builders, "The Wonder Dump," a Ford

truck bed designed by Arkansas men and made out of native Arkansas materials at the plant of Saxon & Dickinson in Little Rock.

Many readers will recall that Dr. R. L. Saxon and John W. Dickinson recently bought at a receiver's sale, the splendidly-equipped half-million dollar plant of the Climber Motor Company. These gentlemen have decided, in view of the remarkable road-building activity of the State and surrounding states, to specialize in the production of this automatic dump-bed, constructed along new, labor and time-saving lines. Their decision has been justified by the already heavy demand for the product, shipments having been consigned to county judges, contractors and construction companies in Arkansas, Texas and Oklahoma.

Along with our other advertisers, who are making the publication and distribution of "Arkansas Highways" possible through their support, we are glad to commend them to the favorable consideration of those having need for such equipment.

### GOOD ROADS

By Virginia Ruth Graydon, age 11.

Good roads don't come from the open air,  
Because there's money involved somewhere  
To make these wide and beautiful roads  
For cars to travel upon with loads.

We fell the timber and move the rocks;  
Pile up the dirt to absorb the shocks—  
In the days gone by we had no roads,  
And took the shocks like the ancient toads.

We move the fence and pull the stumps  
To provide a way for Ophelia Bumps.  
So concrete, gravel and asphalt tops  
Placed in alignment instead of rocks,  
Make boosters of us instead of knocks,  
And Lincolns, Cadillacs, Dodges and Fords  
Can now be seen on all our roads.

## "SAY IT WITH PICTURES"

Designing &  
Illustrating  
of every kind



Printing Plates  
in one or more  
colors

**PEERLESS ENGRAVING CO.**  
Fourth and Louisiana - Little Rock



**"HIGHWAYS AND PROSPERITY."**

Blytheville Independent.

Completion of Mississippi county's new system of permanent highways will be a great factor in the development and upbuilding of Blytheville and the entire county. These fine highways will not only cause a great number of people in this section of the state to make their homes in Blytheville, from which place they will be able to conduct their farming and other operations in this and adjoining counties, but it will be a means of bringing a large number of people from other sections of the country who are anxious to locate in a community more desirable than the one in which they now live.

During the present summer several thousand automobile tourists have passed through Blytheville on their way north and south. Look over the line of cars parked on Main street any day and you will see by the license tags that many of the cars are from Illinois, Indiana, Kansas, Louisiana, Texas and many other states. In fact an automobile bearing a New York tag is about as common a sight as to see a freight car which belongs to the New York Central Lines.

Many of these people are well-to-do business men who have permanent connections in their respective homes, but others are people who are looking over the country seeking new homes. If they are interested in farming lands they must be impressed with the farm scenes they find in this section of the state. If a city with every indication of prosperity and progressiveness will attract them, they will be impressed with Blytheville.

Completion of the Scenic Highway will bring a far greater number of tourists to this city. Each year there is a greater number of people passing through Blytheville and they go back home telling of the rich farming land and the big opportunities for greater development which they find here. Mississippi county has no mountain scenery, but people cannot live on scenery. This county has the soil which will enable any man to make a good living and that is what interests the man who must make a living.

**FIVE TRAGEDIES.**

A man struck a match to see if the gasoline tank in his automobile was empty. It wasn't.

A man patted a strange bulldog on the head to see if it was affectionate. It wasn't.

A man speeded up to see if he could beat the train to the crossing. He couldn't.

A man touched a trolley wire to see if it was charged. It was.

A man cut out his advertising to see if he could save money. He didn't.

**MOTOR TRUCK MAKES RAPID PROGRESS  
ON TRANSPORTATION WAYS OF WORLD**

The present year will go down in motor truck transportation history as an epochal one in many respects. The motor commercial vehicle is now carrying the heavy burdens of the world. More than 1,500,000 tons of freight were hauled over the highways during the last year.

The development of the motor truck can be judged by production figures. In 1904 only 411 motor trucks were produced. Five years later the figures jumped to 32,255. In 1915 no less than 74,000 trucks were made. There was a tremendous increase in production in 1917, the number reaching 128,157 trucks that year. Last year 392,760 commercial vehicles were built, the wholesale value of which amounted to \$311,144,434.

The use of the motor truck as a valuable auxiliary has been recognized by many of the railways in the country. Its worth has been proved in that short haul on less than carload lots. Other developments of great benefit to transportation are predicted along this line for the future.

—New York-Herald Tribune.

**COUNTIES WANT RE-CLASSIFICATION.**

There are indications that a number of the counties of the State will ask the coming session of the General Assembly to re-classify them under the bond reduction section of the new highway law.

In Hempstead county, which is a typical instance, two petitions are going the rounds, one fostered by a group of citizens desiring a larger percentage of the county's share of the highway fund to be devoted to the retirement of bonds, the other by the county judge, who thinks the present division of 25% for bonds and 75% for the county roads under his care is about right.

In most of the counties, the movement for re-classification is for the purpose of securing a greater percentage of bond relief. This is significant, in view of the way the opponents of the new highway measure in the special session of 1923 pooch-pooched the offered relief and termed it "largely mythical." To the contrary, so beneficial has it proven that those counties whose representatives gave them only a slight percentage of bond relief, leaving most of the funds in the hands of the county judge, now are seeking re-classification so they can get more reduction in their bonded district taxes.

**A WOODRUFF COUNTY PROBLEM.**

Wonder if the motorcycle cop provided for our road will ever show up. He is needed for many reasons, especially to stop the cars that go down these roads at 30 or 40 miles per hour with no light except on the end of cigarettes. —Maberry Correspondent of the McCrory Leader.

There is good ground for this protest. A car going so fast should have brighter lights. The driver should use cigars instead of cigarettes. —Arkansas Gazette.

**Phone GUNNELS COMPANY**  
**6116 Tires, Tubes, Accessories**  
**Painting and Upholstering**  
**—ROAD SERVICE—**

## Leaves From the Editor's Notebook

### THEY ARE HERE TO STAY.

It is increasingly evident to those who have opportunity to sense the real sentiment of the people of Arkansas that the new highway system is here to stay, in spite of the occasional murmurings of the peanut politicians and political muckrakers who would profit most by a change or a disruption at the hands of the next legislature.

Fewer and fewer, in recent months, have been these murmurings, and louder and louder has grown the voice of the substantial citizenship of the State, as reflected in the daily and weekly press, protesting against any disturbance in the personnel of the highway commission or the department, or in the system under which they are operating.

This is significant, for buzzards grow more and more numerous in the vicinity of a prospective corpse. If the people were not manifestly satisfied with what they have in the matter of highways and highway programs, the political buzzards would have been growing in number and vociferousness in the past few months, instead of fewer and quieter, as they have done.

Arkansas wants no change in the new highway system. Her people want it tried out thoroughly and honestly before there is any sort of a material change. "Roads that go somewhere" are here to stay.

One has only to read the newspapers, or stand quietly on the street corners for a little while to learn that very conclusively.

Members of the next General Assembly, who will be called upon to deal with such changes as may be proposed, should take the pains to do a little of this reading and a little of this listening between now and January, in order that there may be no doubt in their minds about the real desires of the people whom they are to represent.

### TAKE YOUR TIME, TAKE YOUR TIME!

Ordinarily we are not so very enthusiastic at finding our car decorated with a windshield sticker when we come back to it after leaving it parked for an hour or so, but the latest specimen of this form of free advertising would seem to justify itself by its timeliness and its wisdom.

Distributed by an army goods house doing business at many points in the State, it shows, in blue and white, a traffic cop with arm extended, and the legend, "Take your time, save a fine."

If ever there was need for a concerted drive to impress upon motorists the imperative necessity for cautious driving it is now, when good roads are rapidly increasing the number of automobiles and the temptations to speeding, and traffic congestion is making life on the highways more and more dangerous.

Latest figures assembled by the U. S. Census Bureau show a total of 14,000 deaths last year from accidents caused by motor vehicles, a death rate of 14.9 per cent per 100,000 population, as compared with 12.5 per cent in the previous year, and 10.4 in 1920. That is a startling increase, but the official figures do not come as any surprise to those who read the daily papers. It is hard to pick up a newspaper and not find on the front page at least one fatal accident reported as a result of speeding or careless driving.

It is good to know that Arkansas does not appear in the Census Bureau's leading and sensational figures,



but we all know that fatalities of this kind have been all too common in past weeks and months, and most of them, sad to relate, could have been avoided by a little more care and thoughtfulness on the part of drivers.

So it will be well if we all take home to ourselves the message of the little blue advertising sticker and "take our time, and save a fine."

It may be that by so doing we will not only save the fine, but we may save a life, an infinitely more precious thing. Let's all slow up a little and take our time!

## Surveys and Plans for New Highway Construction

Concluded from Page 5.

necessary study by the State highway engineers to assure adequate plans and estimates. On all Federal Aid projects engineers from the U. S. Bureau of Public Roads, acting in conjunction with representatives of the State highway department, pass on all features of the work from the selection of the route to the supervision of construction. Construction

costs are kept at a minimum by the careful selection of routes and detailed preparation of plans.

Routes have been selected for over 300 miles of new surveys, covering some 57 projects and Federal Aid plans for the following new projects have been completed, contracts for the majority listed having already been let:

### FEDERAL AID PLANS COMPLETED.

COUNTY.	BETWEEN	Federal Aid No.	Number Bridges	Cost Estimated.	Federal Aid Estimated.
Faulkner	Conway and Damascus	174	7.69	\$106,300.00	\$47,000.00
Grant	Leola and Poyen	172-A	2.57	32,800.00	15,400.00
Jackson	Bradford and Grand Glaise	197-A	4.61	Not yet estimated	
Lee	Marianna and Wheatley	190-A	4.15	53,800.00	26,900.00
"	Marianna and Forrest City	191-A	2.61	39,500.00	19,750.00
"	Marianna and Barton	192-A	4.11	49,700.00	24,850.00
"	Marianna and Chatfield	183-A	2.35	50,000.00	25,000.00
"	Marianna and Chatfield	183-B	7.03	Not yet estimated	
"	Marianna and Chatfield	183-C	5.16	Not yet estimated	
Miller	Texarkana and Lewisville	184-A	3.96	44,700.00	22,350.00
Monroe	Clarendon and Brinkley	156-A	3.05	40,300.00	20,000.00
Monroe	Brassfield and Brinkley	185-A	6.57	Not yet estimated	
Nevada	Emmett and Prescott	201-A	1.89	32,000.00	16,000.00
Poinsett	Marked Tree and Harrisburg	179-A	4.01	38,000.00	19,000.00
"	Truman and Marked Tree	180-A	5.27	74,500.00	37,250.00
"	Truman and Marked Tree	180-B	11.10	Not yet estimated	
Pope	Russellville and Atkins	207-A	2.02	Not yet estimated	
Union	El Dorado and Smackover	182-A	10.75	173,000.00	86,500.00
Woodruff	Augusta and Jelks	188-A	7.03	89,900.00	44,950.00
St. Francis	Marianna and Chatfield	183-A	2.35	50,000.00	25,000.00
Total Mileage			98.28		

In addition to Road Plans completed, separate contracts have been let by the bridge department, in charge of Mr. N. B. Garver, for the following bridges:

### NEW CONTRACTS LET BY BRIDGE DEPARTMENT.

COUNTY.	BETWEEN	Federal Aid No.	Number Bridges	Cost Estimated.	Federal Aid Estimated.
Izard	Batesville and Mammoth Spring	59-E	38	\$163,500.00	\$ 65,000.00
Fulton					
Independence					
Searcy	Marshall and Snowball	73	2	25,000.00	12,200.00
Pope	Russellville and Forest Boundary	170-C	8	82,700.00	41,300.00
Pike	Kirby and New Hope	204-A	1	23,800.00	11,900.00
Newton	Jasper and Harrison	153	1	32,500.00	16,250.00
Johnson	Russellville and Clarksville	169	1	47,500.00	23,760.00
Saline	Hot Springs and Little Rock	175	7	65,000.00	7,000.00
Garland	Hot Springs and Little Rock	176			
Faulkner	Little Rock and Conway	None	1	17,600.00	None
Totals			59	\$457,600.00	\$177,410.00

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**BUILDINGS**  
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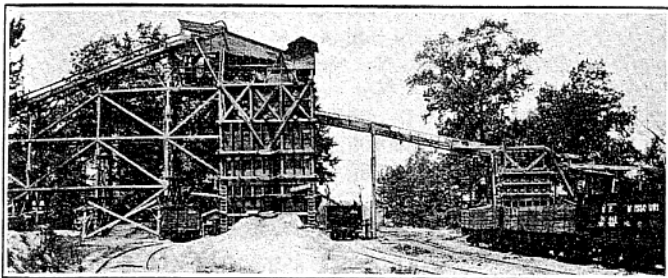
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1500 E. 6th St. Little Rock, Ark.

*"We Can Repair or Duplicate any Piece of Road Machinery"*

**Ball-Benton Gravel Company**

821 Southern Trust Bldg. Little Rock, Ark.



Plant: Benton, Ark.

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**FOR HIGHWAYS—FOR RAILROAD BALLAST**  
**—FOR CONCRETE CONSTRUCTION**

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Our capacity for washed ballast, washed concrete gravel or washed sand is from 60 to 70 cars per 12-hour shift.

Our service to road districts, railroad projects and large construction jobs is of proven dependability.

Call us over Telephone 4-3788 or Long Distance 133, Little Rock, or Benton 93, for quick action.

**J. J. BALL, President**  
**CHAS. M. KING, Secretary**

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| Schramm Compressors        | Clyde Steel and Timber Derricks                |
| Trenchers and Back Fillers | Steel Bridges                                  |
| Fuller & Johnson Engines   | Concrete Carts and Wheelbarrows                |
| Sand and Gravel Pumps      | G. M. C. Trucks                                |
| Rex Mixers and Pavers      | Conveyers                                      |

**The Blaw-Knox Lines**

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| Batcher Plants     | Road Forms       |
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**Physical Tests.**

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**Little Rock, Ark.**

## THE HIGH COST OF CHANGING STATE HIGHWAY PERSONNEL

*Concluded from Page 2*

"Mr. Shirley states," said Mr. MacDonald, "that it takes from one to two years to become familiar with the conditions of the average highway system, and that it is a great waste when we see at least twenty-three states changing their directing personnel.

"Failure of the public to realize the great importance of the rapid advancement of road administration, construction and maintenance has contributed largely to the present evil of too frequent changes. It is necessary for the highway engineer or administrative head to recognize changes in road building methods, and to direct and co-ordinate their work in order to meet them. In so doing they sometimes antagonize the leaders of the various parties and organizations who feel that the head of the department is going faster than the times justify and as a result a change is made.

"In this connection I might say that the engineer is in a better position to know the needs of his community than the layman. This is his business and the man in such work will generally endeavor to give the best to suit the needs of his locality and as economically as possible.

"Some criticism has been directed against engineers in the states on the ground that the 'ultimate' road has not been constructed. Here I might say that we do not know what the ultimate road will be, but we must do the best we can do to best serve conditions as they are, with, of course, a glance into the conditions which might arise in the future.

"By this I mean that where an engineer has a certain appropriation for road building he will generally study conditions and use that fund so as best to meet the needs of the most people in his section. If the engineer starts building an expensive concrete road with funds that will carry it but a short distance, with an expensive but small addition each year, he soon meets with decided opposition.

"On the other hand, the man who takes this same appropriation and builds a length of road that will serve the greatest area, and, in building, plans for the future, is the man who is needed in his position; and it is decidedly unwise to make a change.

"My suggestion is that when the man is found who efficiently directs the work of his department, he should not be molested. Then the state will benefit not only from the possession of good roads but a saving in construction, which means a saving in taxes."

## GEOLOGY OF ARKANSAS ROAD MATERIALS AND THEIR DISTRIBUTION

*Concluded from Page 5*

near Little Rock. The two principal varieties are known as "blue and gray granite." The material is used practically in the same manner as limestone.

### SHALES.

The shales have no particular geologic horizon, but may be found of any stage from the Cambrian to the Tertiary. The clay (Argillaceous) shales have little value as a road material except as a binding agent for other materials. The sandy (Arenaceous) shales where no other material is at hand, have been used successfully as a surfacing material, especially where they contain lime or iron.

Waste shale from the coal mines of western Arkansas has been burned in the slag piles and the resulting clinker used with varying success as a surfacing material in the coal mining district.

### SANDSTONES.

The sandstones of the state are widely distributed over the state west of the old shore line. While some of these deposits are unsuited for road making, most of them are well adapted as a base material because of their compactness. They may be crushed and bound with loam, clay or shale with the introduction of a chert, novaculite or gravel top dressing or surface. Sandstone boulders and field stone are often placed by hand on a prepared subgrade and the sharp projections sledged off in the construction of a Telford or commonly called field stone base. Some more durable material is then used on the surface.

Seven asphalt deposits of the state have been reported on by Hugh D. Miser and A. H. Purdue in the U. S. Geological Survey, Bulletin No. 691-J. Three of these are in Pike county, and four in Sevier county. The asphalt has impregnated the sands (and some gravels) of the Trinity formation. The deposits are so thin and the overburden so thick that it is unprofitable to work them. Nearly 500 tons was mined near Pike City up to 1906, and the material was used in paving a Little Rock street, but because of the introduction of old asphalt taken from a street and mixed with the Pike asphalt, and the improper preparation of the combined materials, the paving was not entirely satisfactory.

No detailed account of the road materials of the state can be given in this short paper, but it is hoped that the generalized treatment of the subject will be of interest and assist in the location and proper selection of those materials.

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Jaeger Concrete Mixers

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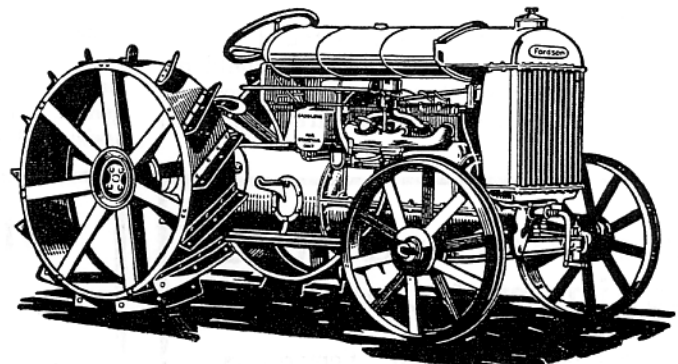
When you employ this firm to build your streets and highways, you get the services of an experienced organization owning more construction equipment than any other Arkansas firm of contractors.

We own and operate the largest sand producing plant in the state, furnishing Arkansas river, washed, channel sand exclusively.

A combination of the material production with the construction business means an ultimate economy to the purchaser.

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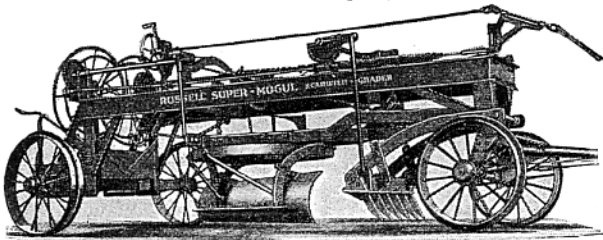
Russell Machines are models of efficient, simple and economical operation. They have extra strength built into all the parts we know are most likely to be put to unusual and extreme demands.

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Yet although the mileage of Concrete Roads and Streets has been steadily increasing, our highway system today lags far behind the automobile. The great majority of our highways are as out of date as the single-track, narrow gauge railway of fifty years ago.

Such a condition not only seriously handicaps the progress of the automobile as a comfortable, profitable means of transportation, but also holds back commercial, industrial and agricultural advancement in practically every section of the country. It is costing taxpayers millions of dollars annually.

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Your highway authorities are ready to carry on their share of this great public work. But they must have your support. Tell them you are ready to invest in more and wider Concrete Highways now.

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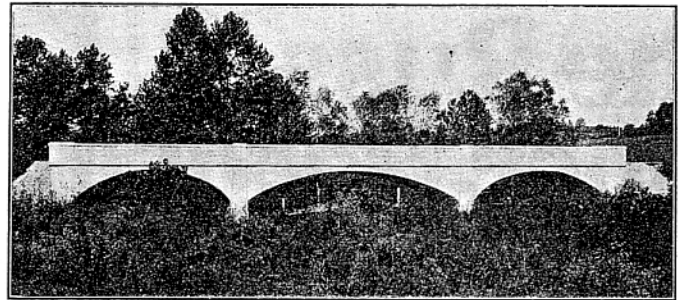


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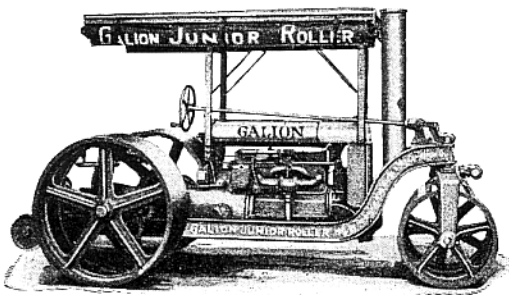
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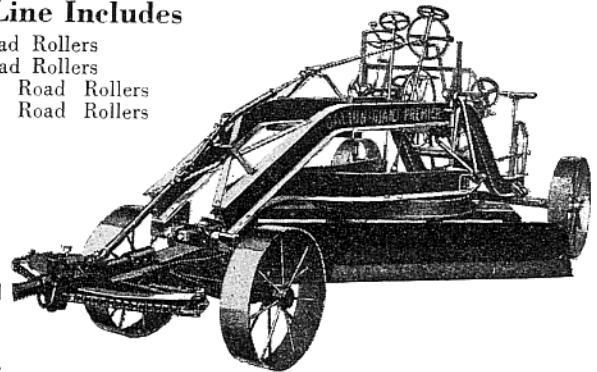


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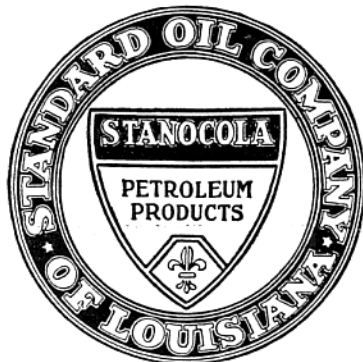
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