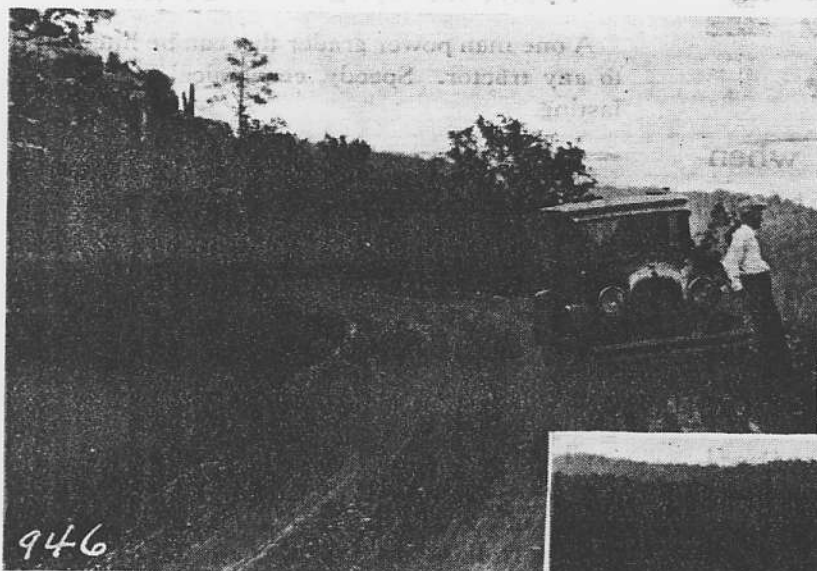


ARKANSAS HIGHWAYS

**The Official Magazine of the Arkansas
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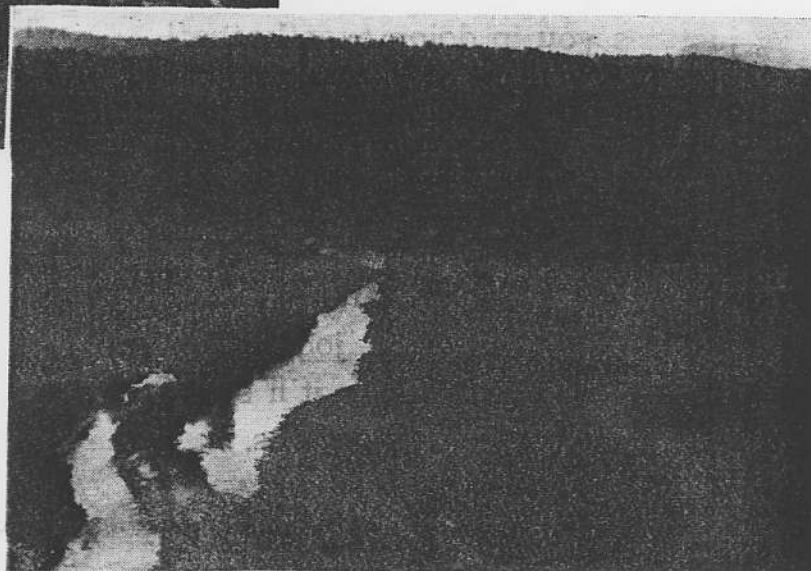


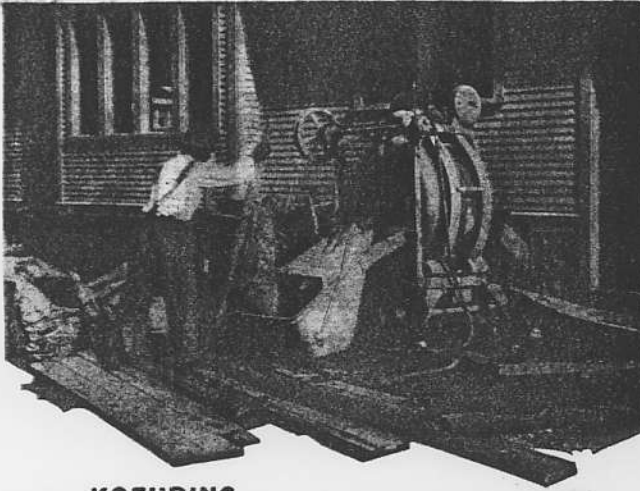
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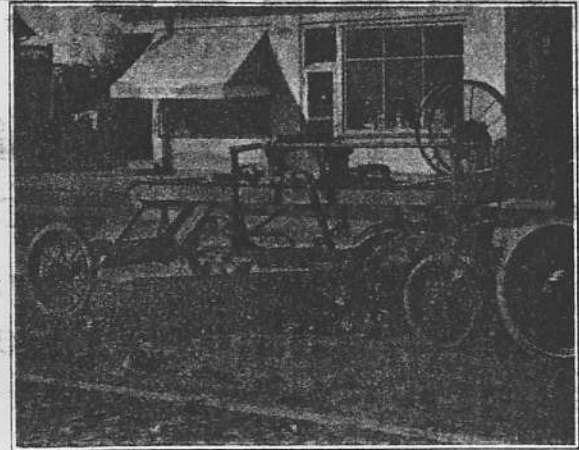
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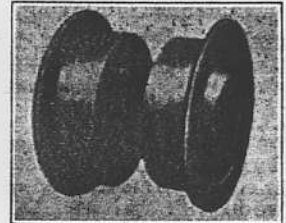
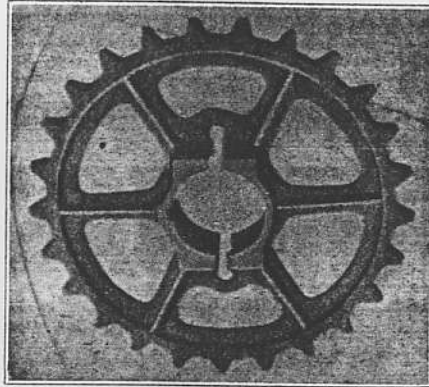
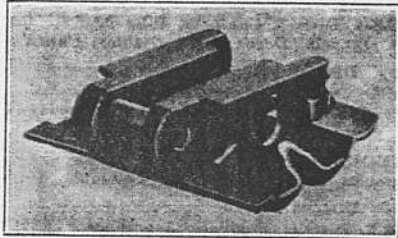
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ARKANSAS HIGHWAYS

*Official Monthly
Magazine*



*State Highway
Department*

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

VOL. VI

MAY, 1929

No. 5

Newport and Augusta Bridges Under Contract For Immediate Construction

State Highway Commission Awards Big Contracts to Lowest
Bidders At May Letting.

Two of the most important structures in the toll bridge program of the State Highway Department were placed under contract for immediate construction at the May meeting of the State Highway Commission. Like all the rest of the thirty-two jobs awarded, the two bridges went to the lowest bidders on each of the various items involved.

The Missouri Valley Bridge & Iron Company of Leavenworth, Kansas, was low bidder on the sub-structure and super-structure of both the Augusta and the Newport bridges across the White River.

The Parham Construction Company of East St. Louis, Illinois, was low bidder on the concrete approaches to the Augusta bridge, and the List & Weatherly Company of Kansas City was low bidder on the concrete approaches to the Newport bridge.

Including both approaches and the bridge itself the Augusta structure will cost \$450,612 and the Newport structure \$458,200. This is considerably less than the estimates made by engineers, indicating that the State is getting a bargain price on these two important jobs as the result of keen competition among contractors.

Dwight H. Blackwood, chairman of the Highway Commission, announced that plans are being made to receive bids on the other six toll bridge projects included in the present program at the June and July meetings. These structures will bridge the White River at Cotter and Clarendon and the Arkansas River at Ozark, the Ouachita at Calion and Felsenthal and the Red River at Garland City.

More than two-hundred miles of paved, graveled or graded roads were included in the 32 projects on which contracts were awarded at the May meeting, the total amount of work contracted for being in excess of \$2,600,000. More than two hundred bids were received at the letting.

A slight change in the location of the Newport bridge has been necessitated by the decision of federal engineers that the bridge must give a greater clearance for river

traffic than had originally been provided for. The change in location, however, will not delay the project greatly and the work will be started by each of the contractors as soon as the present high waters have receded. All of the work is to be under the supervision of Ira G. Hedrick, Consulting Bridge Engineer for the Highway Department. A complete list of the projects on which contracts were awarded at the May meeting with the price bid is as follows:

Job No. 493, State Highway No. 71, Polk County, 223 feet of steel and concrete bridges over Ouachita River on the Mena-North road, Richardson Ayres, Hope, \$25,079.

Job No. 494, State Highway No. 64, Franklin County, 462 feet of steel and concrete bridges on the Ozark-Mulberry road, Blackshire & Blackshire, Harrison, \$39,405.

Job No. 652, State Highway No. 70, Garland and Hot Spring counties, twenty-one and one-half miles of gravel surfacing on the Hot Springs-Glenwood road, C. H. Atkinson Paving Co., Malvern, \$62,398.

Job No. 680, State Highway No. 67, Hot Spring County, ten miles of concrete paving on the Malvern-Donaldson road, T. S. Clements, Shreveport, La., \$186,900.

Job No. 781, State Highway No. 115, Calhoun County, nine and a half miles of gravel surfacing on the Thornton-Hampton road, C. & C. Construction Co., Daytona Beach, Fla., \$13,196.

Job No. 791, State Highway No. 167, Cleveland and Dallas counties, 1,095 feet of concrete deck girder bridges on the Fordyce-North road, Maxwell Construction Co., Columbus, Kan., \$57,309.

Job No. 896, State Highway No. 22, Logan County, four and a half miles concrete pavement on the Fort Smith-Dardanelle road, Shultz Construction Company, Fort Smith, \$90,193.

Job No. 186, State Highway No. 3, Crittenden County, fifteen miles of gravel surfacing on the Lehi-

Chatfield road, C. A. C. Construction Co., Daytonia Beach Fla., \$10,247.

Job No. 187, State Highway No. 3, St. Francis and Crittenden counties, eighteen and one-half miles of gravel surfacing on the Widener-Chatfield road, W. B. Williamson, Water Valley, Miss., \$20,020.

Job No. 209, State Highway No. 65, Jefferson County, nine and a half miles of concrete paving on the Little Rock-Pine Bluff "Dollarway," Walter J. Bryan Paving Company, Birmingham, Ala., \$179,973.

Job No. 391, State Highway No. 19, Nevada County, eight and a half miles of gravel surfacing on the Laneburg-Rosston road, Jackson & Self Glenwood, \$41,948.

Job No. 447, State Highway No. 71, Polk County, 126 feet of concrete deck girder bridge over the Kansas City Southern Railroad tracks on the Mena-Hatfield road, Cook & Ransom, Ottawa, Kan., \$10,789.

Job No. 1037, State Highway No. 1, Poinsett County, nine miles of grading, drainage structures and gravel surfacing on the Harrisburg-Cross County line road, M. Tansey, Harrell, \$72,170.

Job No. 1074, State Highway No. 18, Craighead County, seven and a half miles of grading, drainage structures and gravel surfacing on the Poplar Ridge-Monette road, C. D. Duke and Garland Airington, Jonesboro, \$27,681.

Job No. 3102, State Highway No. 4, Hempstead County, seven and a half miles of gravel surfacing on the Hope-Washington road, Ellis & Lewis, Little Rock, \$8,167.

Job No. 5100, State Highway No. 25, Cleburne County, thirteen and one-half miles of crushed stone or gravel surfacing on the Heber Springs-Quitman road, Nelson Bros., Memphis, Tenn., (shipped in material), \$34,041.

Job No. 5102, State Highway No. 16, Cleburne County, twelve miles of gravel or crushed stone surfacing on the Heber Springs-Pangburn road, C. G. Robbins, Heber Springs (shipped in gravel), \$19,264.

Job No. 338, State Highway No. 71, Miller County, two miles grading and drainage structures on the Texarkana-Arkansas-Louisiana line road, J. S. Young, Texarkana, \$44,697.

Job No. 777, State Highway No. 3, Columbia County, one mile of grading, drainage structure and concrete paving on the Magnolia-McNeil road, McGuire & Cavender, Texarkana, \$22,667.

Job No. 373, State Highway No. 7, Clark County, five miles of grading and drainage structures on the Arkadelphia-North road. J. W. White & Son, Monticello, \$33,486.

Job No. 3105, State Highway No. 53, Nevada and Clark counties, ten and one-half miles of gravel surfacing on the Gurdon-Whalen Springs roads, M. O. Weaver, Iowa Falls, Ia. (local gravel loaded on trucks), \$14,448.

Job No. 480, State Highway No. 64, Franklin County, three and a half miles of grading and drainage structures on the Altus-east road, Rye Brothers, Russellville, \$28,539.

Job No. 491, State Highway No. 71, Washington County, four miles of grading and drainage structures and eight miles of concrete pavement on the Fayetteville-North and South road, Porter Construction Company, Tulsa, Okla., \$174,842.

Job No. 841, State Highway No. 9, Perry County, six and a half miles of grading and drainage structures on the Perry-Owensville road, D. B. Hill, Little Rock, \$60,560.

Job No. 875, State Highway No. 22, Yell County, seven and a half miles of concrete pavement on the Fort Smith-Dardanelle road, Grady Garms, Little Rock, \$142,659.

Job No. 5101, State Highway No. 25, Independence County, eleven miles of gravel surfacing on the Batesville-Heber Springs road, M. C. W. Construction Company, Jackson, Mo., \$12,559.

Job No. 1115, State Highway No. 16, White and Woodruff counties, concrete approaches to the steel span of the White River bridge near Augusta on the Bald Knob-Memphis road, Parham Construction Company, East St. Louis, Ill., \$259,332.

Job No. 1116, State Highway No. 16, White and Woodruff counties, sub-structure and superstructure of the steel span of the Augusta bridge across White River, Missouri Valley Bridge and Iron Company, Leavenworth, Kan., \$191,280.

Job No. 5104, State Highway No. 67, Jackson County, construction of sub-structure and superstructure of the steel span of the White River bridge at Newport on the Little Rock-St. Louis road, Missouri Valley Bridge and Iron Company, Leavenworth, Kan., \$218,662.

Job No. 5105, State Highway No. 67, construction of the concrete approaches to the steel bridge across White River at Newport, List & Weatherly Construction Company, Kansas City, Mo., \$239,538.

Job No. 3104, State Highway No. 8, Clark County, seven miles of gravel surfacing on the Arkadelphia-Glenwood road, Ellis & Lewis, Little Rock, \$15,152.

Job No. 450, State Highway No. 71, Washington County, four and one-half miles of grading and drainage structures on the Clear Creek-North road, Cole Bros. & Denniston, Fayetteville, \$26,178.

Job No. 789, State Highway No. 3, Cleveland County, 4,000 feet of alternate types of bridge and 2,500 feet of earth embankment approaches on the Rison-Kingsland road, J. F. Mullins, Pine Bluff (alternate timber and steel type), \$131,842.

Job No. 794, State Highway No. 4, Ouachita County, four and a half miles of gravel surfacing on the Camden-Hampton road, Ellis & Lewis, Little Rock, \$8,332.

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Little Rock-Memphis Road Engaging Attention of Highway Department

Difficult Problems of Highway No. 70 to Be Solved in the Near Future.

While there are a large number of problems to be worked out by the State Highway Commission in every section of the State, those of Highway No. 70 probably are of wider interest, not only in Arkansas but throughout the entire Southeast, because they involve the permanent improvement of the principal route from Little Rock to Memphis.

This route, which must be closed under high water conditions such as have prevailed recently in the White and Cache River bottoms, is being made an all-weather road as fast as plans can be worked out and construction completed sensibly and economically.

A considerable amount of earth embankment already has been thrown up at various points on the route, but true economy dictates that these dumps must be permitted to dry out and settle completely before State money can consistently be spent for paving. Also there are many bridges to be built before the route through the lowlands can be opened to the public.

In several places the location of the new route has been delayed by right-of-way disputes and the unwillingness of the State Highway Commission to permit the State to be held up by local property owners.

Such disputes are responsible for the failure of the State Highway Commission at its May meeting to award the contract on project No. 180 which included grading, drainage structures, bridges and concrete paving of twelve miles from the St. Francis County line to West Memphis. This is a project of primary importance in the working out of plans for Highway No. 70, but several property owners along the designated route have not been willing to contribute the right-of-way necessary for this proposed high type of road and it may be necessary to work out some other location, probably along the Rock Island Railroad from near Hulbert to Widener. This particular project, which it is hoped to get under way during the present summer, is estimated to cost approximately \$400,000.

Next in importance is State Highway Project No. 145, known as the Brasfield Cut-off beginning at Cache River and running east a distance of 5.7 miles, which now is approximately seventy per cent complete. As soon as the present high water recedes work is to be pushed at a rapid rate. It is proposed to take bids on the bridges necessary to complete this project, totaling over 4,000 feet, in the near future. The bridge over Cache River is already planned in this connection.

Plans are being completed for ten miles of paving from the Lonoke County line east to a point beyond Hazen.

Seasonable weather, it is hoped, will make possible the completion of surveys and plans on the immediate section between Brinkley and the Crittenden County line.

D. H. Blackwood, chairman of the Highway Commission, is endeavoring to assure the entire completion of Route No. 70 from the end of the present pavement south of Carlisle to the Harahan Viaduct with a high

type surface, alignment and drainage structures within the next two years.

The department is planning to eliminate a great many of the dangerous railroad crossings on the route from Little Rock to Memphis. Construction of the Brasfield cut-off will eliminate the present dangerous curve at Dagmar. A dangerous crossing at Bisco will be made unnecessary by the relocation of the new highway on the south side of the Rock Island Railroad. Between Wheatley and Goodwin, two railroad crossings will be eliminated in like manner. In the vicinity of Palestine the proposed location will remain on the north side of the Rock Island railroad, but an overhead crossing will be constructed. Two crossings west of Madison will also be eliminated.

The entire section will be built on the best alignment obtainable, eliminating all dangerous curves and sharp angles. The most radical change of alignment to be made is on that portion between Widener and Shell Lake, where the old highway is exceptionally irregular in this respect.

When finally completed Route No. 70 from Little Rock to Memphis will cease to be dependent upon the whims of the weather and the stage of water in the White and Cache Rivers and will be truly an all-weather route, adequately taking care of through traffic and in a way to make it a source of real pride to the people of the State.

A NEW BRIDGE AT LAKE CITY

Lake City is to have a new highway bridge over the St. Francis River under plans now being made by the State Highway Department. With trestle approaches the structure will be more than a mile long. It will be built of creosoted timbers and steel and will replace the present untreated timber bridge. This will be part of an extensive program in Craighead County, one of the lightly-bonded counties of the State, which will include graveling the highway from Jonesboro to Sedgewick and a connecting link between Jonesboro and Lake City highway and the Paragould-Cardwell road.

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Arkansas Honored By Parnell Appointment

Governor Made Vice-President of National Association.

Governor Harvey Parnell was elected Vice-President of the United States Good Roads Association at its recent joint convention with the Bankhead National Highway Association held at Memphis. Judge J. P. Lightfoot of Fort Worth, Texas, an outstanding leader in the national highway movement, is President of the Bankhead organization. Former Governor W. W. Brandon of Alabama is President of the United States Good Roads Association.

The Memphis meeting was featured by the old dispute between Texas and Oklahoma over parallel routes of the Bankhead Highway, one an all Texas-Arkansas route, the other containing an alternate stretch through Oklahoma. Arkansas delegates to the convention were not particularly interested in the battle since the Oklahoma route is merely a branch or alternate designation.

Among those taking prominent part in the convention were Former Governor Charles H. Brough, who explained and lauded the provisions of the Martineau Act, and Judge J. G. Thweatt of DeValls Bluff.

Governor Brough, in an eloquent address, explained how the Martineau Act relieved land owners of excessive road taxes and made possible an adequate State-wide program of permanent highway building.

Governor Brough predicted that the Federal aid appropriation by Congress will be increased from seventy-five million to one hundred twenty-five million annually, the increase now being sponsored by the American Automobile Association.

Governor Brough cited arguments of the association in support of its proposal as follows:

1. State and local governments are now expending the stupendous sum of \$1,500,000,000 annually for construction of roads. To this amount the Federal Government is contributing only \$75,000,000 or approximately five per cent.

2. Under the war excise tax, which was the last hang-over war levy repealed, motorists paid into the treasury \$1,100,000,000, while the Federal Government has expended approximately \$660,000,000 under the Federal-Aid Highway Act. This leaves a balance of nearly \$500,000,000 still due the car owners of the nation.

3. The present Federal-Aid Highway system of approximately 200,000 miles of important interstate roads has been only one-third completed, and under the present program, it will require at least ten or fifteen more years to complete this important program.

4. There were forty motor vehicles registered in 1928 to every mile of improved highway, while the ratio ten years ago was seventeen motor vehicles to every mile. This clearly shows that highway-building agencies are not keeping pace with the increase in number of motor vehicles.

5. The Federal Government, through the use of the highways for mail and parcel post delivery, for military purposes and other governmental activities, has been one of the principal beneficiaries of improved highways. It should therefore assume a greater part of the burden of building them, and this would in turn help toward the solution of the farm problem by facilitating the distribution of agricultural products.

Governor Brough pointed out that while the Federal-Aid policy is doing much toward giving the nation an adequate system of highways, the fact cannot be ignored that our car manufacturers are crowding our road builders. Moreover, congestion is increasing at a greater rate than our roads are expanding. This means that the time has come to enlarge the present program and look even beyond the completion of the system already designated.

Predatory interests, ever anxious for personal gain at the expense of the millions of car owners, have used the slow-process in road-building as argument for toll roads. While it is true that Congress has been quick to resent attempts to interfere with Federal aid, it is also true that these private projects, in many instances, have their advocates. There is no room for toll roads in the American scheme and safeguards must be thrown around the highway program to the end that free highway transportation may not be endangered."



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Carpenter Dam To Create Summer Resort Near Hot Springs

Beginning of Work Stimulates Interest in Property Around Shores of New Lake.

While the construction of two large dams on the Ouachita River near Hot Springs by the Arkansas Power and Light Company, has been dictated entirely by commercial and utilitarian purposes of interest and significance to the entire State it is now apparent that the incidental result may be the creation of a summer resort which will give to Hot Springs a great attraction for the pleasure-seeking public, in addition to the seasonal attractions resulting from the wide-spread popularity of the medicinal baths.

This has been emphasized by the increasing interest in land bordering the proposed lake which will be created by the erection of the Carpenter Dam, on which actual construction is being started this month.

Throughout a large area affected by the proposed improvement, and especially in the neighborhood of the two beautiful concrete arch bridges being built above the dam by the State Highway Department, land formerly held at a very low price has begun changing hands at fancy figures among those who sense the possibilities and have the money to carry out their ideas.

Proximity of the new lake to Hot Springs, and the present road and bridge program of the State Highway Department will make the lake unusually accessible to sojourners in the Vapor City, and assure its immediate popularity, even greater than that already won by Lake Catherine, the body of water created by the erection of Rammel Dam.

Fishing, boating, swimming and other aquatic sports will be brought within a few minutes ride of Hot Springs and a large beautiful territory will be made accessible to those who desire summer homes adjacent to the lake.

The future history of the development may safely be predicted in view of the experience of other sections of the country where smaller artificial bodies of water have been created by public works. A notable example is to be found in the State of Ohio, where many years ago a long earth embankment was constructed to form a body of water known as the Lewiston Reservoir, to provide water for the Miami and Erie Canal extending from Toledo to Cincinnati.

In this instance the project was entirely utilitarian but the days of canal boating are over and the importance of the Lewiston Reservoir to the State of Ohio at the present is entirely in its facilities as a great playground for the people.

Cottages and playgrounds completely border the reservoir, now known as Indian Lake, and thousands of visitors every summer avail themselves of its beauties and pleasures.

So important has it become in the general economy of the State that the State Highway Department has built several concrete highways to its borders, which are now virtually surrounded by concrete bridges and reinforced concrete embankments.

The adjacent territory has become a farming district of great prosperity due to the ground which has been cultivated for fruit and other farm products.

The history of Indian Lake in Ohio will undoubtedly be repeated in the new Hot Springs Lake region with even greater impetus resulting from the already large clientele possessed by the resort city.

Both bridges being constructed by the Highway Department across the lake will be completed during the next few months and opened to the public and the highways leading to them are scheduled for hard-surfacing. Both the Glenwood and the Arkadelphia roads served by these bridges are highly important thoroughfares carrying very heavy traffic and the many attractions of the lake which they will border will be brought to the attention of thousands of tourists every year.

It is not surprising that Hot Springs people and particularly those who were far-sighted enough to acquire property cheaply adjacent to the lake, are beginning to bank quite heavily on Carpenter Dam, the Glenwood and Arkadelphia bridges and the new State highways leading to them.

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New Law Governing Contractors' Bonds Meets Approval

Wide-spread satisfaction among reputable road contractors was expressed at the May meeting of the State Highway Commission from the provisions of the new law governing contractors' bonds which was passed by the last session of the Legislature.

Under the new law surety is liable not only for labor and material actually used in construction work but virtually all other items of indebtedness that can be contracted in behalf of the job during its progress.

The law was designed to correct abuses growing out of the failure of irresponsible contractors to pay gas and oil dealers, country merchants, and State laborers resulted from the contractor who had bid his job too low and as a consequence had fallen into financial difficulties.

It is another step towards correcting conditions under which irresponsible contractors put themselves in competition with responsible firms and bid in jobs impossible figures hoping to make a profit and get out through "gypping" every one possible. The complete text of the bill which is now in effect is as follows:

"A Bill for an act to be entitled: 'An act to protect those who furnish labor, material, camp equipment, fuel, oil, and gasoline, food for men and feed for animals, labor and material expended in making repairs on machinery or equipment, lumber and material used in making forms and supports, rentals on machinery, equipment, mules and horses, and all other supplies or things entering into the construction of public buildings or works or necessary or incident to the construction of the same.'

"Be It Enacted by the General Assembly of the State of Arkansas:

"Section 1. That all bonds required by any commission or commissioners or board, or the agent or agents thereof, county courts or judges thereof, or any

other public officer or officers for the construction of any public building, levee, sewer, drain, road, street, highway, bridge or other public work or works; or for altering, improving, or repairing said public buildings or works aforesaid, shall be liable for all claims for labor, material, camp equipment, fuel, including oil and gasoline, food for men and feed for animals, labor and material expended in making repairs on machinery or equipment used in connection with the construction of said public buildings or works aforesaid, lumber and material used in making forms and supports and all other supplies or things entering into the construction, or necessary or incident thereto or used in the course of construction of said public buildings or public works; said bonds shall also be liable for rentals on machinery, equipment, mules and horses used in the construction of said public buildings or public works aforesaid, and all persons holding such claims shall have a right of action on said bonds.

"Section 2. That all bonds referred to and enumerated in Section 1 of this act shall be and are hereby required to be made by surety companies which have qualified and are authorized to do business in the State of Arkansas.

"Section 3. All officers or persons enumerated in Section 1 of this Act shall require of every contractor and bondsman a bond specifically including liability for the things enumerated in said Section 1 hereof, but the failure or refusal of said officers or persons to include said provisions in said bonds shall not prevent the holders or owners of claims, as provided in Section 1 of this act, from collecting said claims or bringing suits and enforcing such claims against said bonds. Provided, however, that all suits to enforce claims on bonds as provided herein shall be commenced within six months from the date of final estimate to the contractor."

The Goal in State Highway Building

An Editorial From the Arkansas Gazette

Just after the State Highway Commission had announced important reconstruction work for Highway No. 70, which is the Little Rock-Memphis road, the commission had to announce that high water in the L'Anguille river bottom had made necessary the closing of this route to buses and trucks between Brinkley and Forrest City. No. 70 is likewise closed on account of high water between Brasfield and Dagmar, except for light traffic.

The reconstruction announcement said that the earthwork for the relocated section of Highway No. 70 between Brasfield and Dagmar will be completed during the summer and a temporary surface will be put on before another winter brings the floods that have time after time closed this major link in the State highway system. The commission is also preparing for reconstruction work on No. 70 from Brinkley to West Memphis, with a view to relocating some sections of the road, eliminating several grade crossings, and shortening the distance by straightening the right-of-way. These

projects, it is explained, are part of a general plan to pave Highway No. 70 and several other cross-State roads during the next two or three years. Before this can be done the relocation work is necessary. The Federal Road Bureau has shown an unwillingness to share the cost of permanent surfacing on roads where there are grade crossings and sharp turns. But such work is worth its cost without regard to the question of Federal aid.

More people might be pleased for the time and a greater superficial showing made if the State highway funds were spent with the object of spreading them out as thinly as possible. But that would not be the way to build a railroad system to serve Arkansas and it is not the way to build a highway system. The Highway Commission is fundamentally right when it adopts as its basic program the proper improvement of those cross-state roads that are the essential trunk lines in our State highway system.

GASOLINE TAX BREAKS RECORD IN APRIL

Figures recently compiled by David A. Gates, State Commissioner of Revenue, show that gasoline tax collections in April reached a total of \$715,889. These figures are a record for the collection of gasoline in this State.

It is not expected that May collections will be so large in view of the fact that part of the April collections resulted from a change in regulations governing these collections made by the new State Highway Law. One of the most important changes makes the tax due when the gasoline is brought into the State or when delivered to the retailer. Under the old law the tax was not due until sale was made to the consumer. Because of this change many manufacturers, wholesalers and retailers paid tax on gasoline carried over from the preceding months.

CONTINUED RAINS DELAY HIGHWAY CONSTRUCTION

Not only have the agricultural and commercial conditions of the State been retarded by the continued rains of the past month but State highway work, both that being done by State forces and that which is under contract, has been seriously impeded.

Regular maintenance work on gravel and earth roads has been impossible some of the time and conditions have been such that heavy traffic has cut up road surfaces badly in many cases.

Everything is set for the season's work, however, and a few weeks of dry weather should see greater progress in the highway program than has ever been recorded in a similar period.

PLANS MADE FOR 1930 WICHITA GOOD ROADS SCHOOL

Figures just announced by Fred G. Wieland, Secretary of the Southwest Road Show and School of Wichita, Kansas, indicate that more than 25,000 persons attended the show and good roads school this year. Eleven States were represented with exhibits, not including the large number of colleges and universities which contributed to the program.

Plans are already being made for the fifth annual show of the school to be held in Wichita on February 25, 26, 27, 28, 1930. The school will be held under the supervision of the Kansas State Highway Commission, the Federal Bureau of Public Roads and other organizations, as in the past.

INTERNATIONAL HARVESTER COMPANY TO HAVE NEW HOME

Announcement has been made by Floyd Sherrod, manager of the Little Rock Branch of the International Harvester Company, that his headquarters on Ferry Street will be moved next month to Second and Collins Streets, to the old Terminal Warehouse.

This property was recently acquired by the International Harvester Company for \$120,000 and will be remodeled to suit the company requirements at the cost of approximately \$25,000. Mr. Sherrod is in charge of the company's business throughout Arkansas and sections of Oklahoma and Missouri and transacts a large volume of business annually in farm machinery, trucks, tractors and parts.

HIGH WATER CLOSES ROUTE No. 70

Flooding of the L'Anquille River bottom has again resulted in the closing of Highway No. 70, the main road from Little Rock to Memphis, between Palestine and Forrest City.

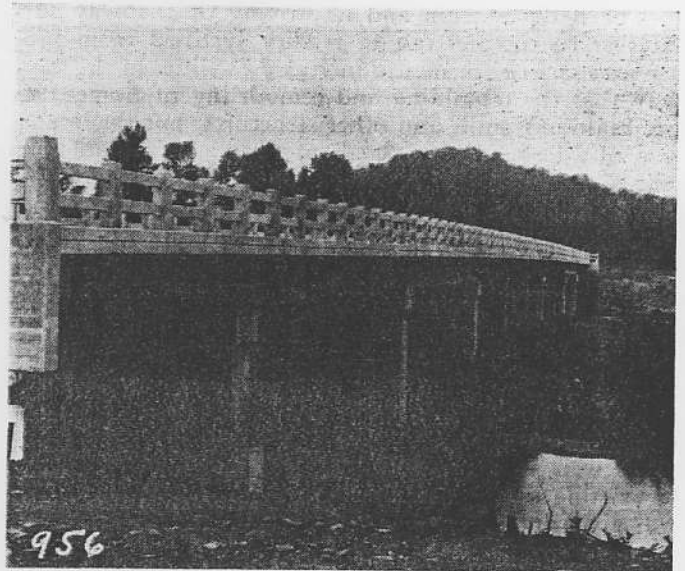
Traffic is being routed over No. 70 as far as Wheatley, thence on No. 8 to Moro; No. 3 to Marianna; No. 1 to Barton; No. 20 to Helena, thence by ferry across the Mississippi to Lulu, Mississippi, thence to Memphis over U. S. Highway No. 61.

TWO JOBS TO BE READVERTISED

Proposals were received at the May meeting of the State Highway Commission for eighteen miles of crushed stone surface on the Clinton-Conway road in Van Buren County and on twelve and one-half miles of gravel surface on the Pleasant Plains-Bradford road in White and Jackson County but none of the bids received were satisfactory to the commission. It was announced that these bids would be readvertised in the near future.

MADISON COUNTY WORK CONTINUES

In spite of the wet weather which has made work very difficult even in the mountain sections of the State, improvement of State Highway No. 23 south of St. Paul and No. 16 east of Red Star in Madison County has been continued. These roads are being surfaced with crushed stone and gravel. Contracts have been let for eight small concrete bridges between St. Paul and the Washington County line.



SHOAL CREEK BRIDGE IN LOGAN COUNTY

One of the more important small bridges recently completed is the Shoal Creek bridge on the Dardanelle-Paris road, Route No. 22, Section 4, in Logan County.

This structure, built entirely of concrete, was erected by the Maxwell Construction Company of Columbus, Kansas, in 170 working days, at a cost of \$26,074.20.

The bridge is 388 feet long, and permanently solves a traffic problem that has been perplexing, due to the vagaries and fickleness of celebrated Shoal Creek, a wet weather terror.

Principles Guiding Solution of Highway Location Problems

A Paper by A. R. Losh, District Engineer, Federal Bureau of Public Roads.

One of the most difficult and worrisome problems with which the State Highway Department is constantly confronted is that of highway location and probably no other highway question of interest to virtually all communities of the State is so poorly understood. We are, therefore, privileged to give readers of "Arkansas Highways" this month the benefit of a very interesting and comprehensive paper read before the recent meeting of the American Society of Civil Engineers in Dallas, by A. R. Losh, Federal District Engineer, in whose district the State of Arkansas is located.—Editor.

It is recognized that the detail problems of location depend upon the peculiar conditions of the individual project. Equally so it is true that there are general problems on roads of the same class but these may be decidedly different for roads dissimilar in their uses. Thus different governing conditions apply in the location of roads for sectional and interstate traffic than do for local roads serving small agricultural communities. Roads located primarily for parkways, pleasure drives and for recreational purposes where scenic considerations are of major importance will naturally impose conditions differing from those of the other classes. There is, however, one fundamental principal which we believe should be the controlling feature in any road location. Briefly this is that the resulting location should be adequate for the present and prospective future needs of the highway. The present needs are readily determined, the future needs require the exercise of judgment and foresight.

The reconstruction and improving of roadway surfaces and structures can be readily justified from prolonged usage or for needed increased facilities in the same way that the rebuilding and remodeling of homes, office buildings, mills and other structures, but the relocation of a large portion or all of the road does not present a similar case. This change of location involves a substantial loss of the right-of-way, roadbed and structures as well as the expense of their reproduction on the new line. It is difficult to find suitable explanation or justification for the building by the present generation of many of its main highways three times and on three different locations.

It is not to be understood that the mistakes in location in the past rest solely upon the highway engineer—this is not the case. Many of our earlier improved roads were not located but merely followed land lines or existing rights-of-way of older roads. The engineer was given little or no opportunity to develop a suitable location. Road funds were provided by local governmental units and the roads placed on locations acceptable to the governing boards or commissions. Most of the present lines of travel were originally only local roads and the subsequent traffic development was not anticipated. This condition no longer exists except for the local roads. The main highways are financed by the road user at large, by the State and by the Federal Government. The engineer should approach the location problem with the future uses of the road in view and endeavor to provide a location which will be suitable for this purpose. This will include in addition to alignment, grades, stream crossings and similar engineering works, the provision for future development of the

highway and its protection from encroachment by industries and other utilities. Briefly the mere located line without adequate right-of-way and roadside protection will not be sufficient.

It will be the writer's purpose to discuss the major problems of locating State and Federal aid highways. The engineer has received very little assistance on highway location from engineering textbooks. The subject is discussed only briefly if at all, and then usually on the assumption that the existing road will be followed with only minor changes in alignment. The location of highways purely as transportation lines is not the usual practice. This is not a condition readily attainable nor is it strictly desirable on public highways. The service of the project in the highway plan as a whole is the consideration which should be followed.

There are still some who would consider the present highway building as primarily of local importance and for the immediate local needs, it being proposed at some future time to build a system of through highways on more direct lines. Such a line of reasoning has been followed to a considerable extent in the past with the following results:

(a) The location of important through highways has been materially affected by purely local considerations.

(b) Frequently local and through traffic were combined where a separation would be preferable.

(c) When reconstruction for the through traffic is undertaken it is exceedingly difficult to make adequate relocation.

(d) When the indirect line is used a number of years development along it results in increased property values which may be seriously impaired by substantial changes in location.

(e) Right-of-way changes resulting from relocations are usually more expensive than if made under the original construction due to increased property values and damages to improvements.

(f) The value of the old road in right-of-way, road-bed, surfacing and structures, is a loss unless the road can be used advantageously for local purposes. But even in this case it must be considered that one mile of main highway costs as much as several miles of serviceable local roads and there is a loss in changing a main road to a local one.

(g) The road-bed structure consolidated and compacted by years of use is lost for reconstruction purposes.

It is this line of reasoning which would make the work of the engineer follow the development of the country rather than lead and materially aid in that development. It is the line of least resistance, of temporary expediency and of future changes with attendant losses. The aim of the engineer should be to provide a location which will remain as a major line of highway transportation and so planned to meet the requirements of the future. A location of this character approaches

the "permanent road feature" as nearly as it is humanly possible to do so.

On all highway projects there are administrative controls or restrictions which determine at least the general location of the project—or the route of which it is a part. Thus the termini of the project are predetermined and the intermediate location may or may not be fixed. These restrictions will occur under the following classifications:

1. Major control points of the Federal Aid System determined by the Secretary of Agriculture and the State Highway Departments and subject to modification by joint action.
2. State Highways and control points designated by State Highway Commissions under legislative authority.
3. Control points for State highways fixed by legislation.
4. County or road district bonds issues used for a portion of construction cost may require a definite location to be followed.

Under conditions 1 and 2 there are opportunities for a general engineering study before the controls are specified and also for a revision of controls based on further engineering investigations. Condition 3 may or may not be based on engineering investigation or permit some departure from the established route at the discretion of the State Highway Commission. Condition 4 presents the greatest difficulty as frequently where local funds are contributed the detailed location is fixed to serve local wishes primarily. The writer has known of cases where the increased cost of these features placed by local in-

fluences were greater than the local funds provided. A recent case of this kind occurs in Jefferson County, Oklahoma, where county funds provided to aid in the construction of U. S. Highway 81 on a location determined by the county officials. This location involved three more railroad intersections, one additional bridge and some increase in distance over a location selected by the State Highway Commission and the Bureau of Public Roads.

This system of financing has been responsible for most of the unsatisfactory locations in the southwest during the past 15 years. Where it is necessary to continue this system of financing in fairness to all parties concerned the location should be determined in advance of the local arrangements for financing.

Even under control conditions 1, 2 and 3 there is too great a tendency to follow existing lines of improvement with relatively unimportant control points established; while under condition 4 this often reaches the point of affecting the detail of location. Regardless of how the conditions are imposed they may in effect restrict the work of the locating engineer to mere details of design. Administratively controls are necessary and in the writer's opinion should be general in character and limited to the following conditions:

A. A town or city located on or near the general line of the route between adjacent control points of the route.

B. A town or city of sufficient importance to be a terminal point for the traffic passing between the adjacent controls.

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C. A junction point, preferably near a town or city, of several highways for the distribution of traffic.

D. Topographical features based on engineering investigations.

Within the limitations established as controls the engineer should so far as practicable determine upon an economic location considering at their relative weights both through and local traffic. This selection will be the line which will provide the long run least cost, including construction, maintenance, and traffic operations. The shortest line will usually be the economic location for the reason that practically all items of cost except earthwork and structures vary directly with the length of the line. In a country of broken topography the cost of earthwork and structures may be much less on the longer line but the other items of construction, and of maintenance and operation will usually determine the location. Local traffic can usually be served cheaper by lower priced lateral spurs from the main line than by attempting to give direct service.

One of the usual problems before the engineer is whether or not to swing the main line from its direct course in order to give highway service to an intermediate point such as a small town or community. Theoretically the problem can be solved by estimating the cost of construction, maintenance, and operation for each of the two possible layouts, i. e., the main line direct with a lateral spur and the main line on indirect location through the intermediate point.

A similar problem is that of combining two or three highways for some distance out from the city in order to reduce construction mileage. While economically de-

sirable, frequently this involves the questionable practice of encouraging traffic congestion at junctions and terminals.

Studies of State highways show a substantial volume of traffic outside the purely local class. Thus the California studies of 1922 show the average length of truck hauling to be 31 miles and of passenger busses 41 miles. The Pennsylvania studies show 43.8 per cent of the State highway traffic travels 50 miles or more and for the Ohio study this figure is 30.3 per cent. Similar data are not available for the State highways of the Southwest, but it is believed a larger percentage of long distance movement exists.

Traffic of this character is benefited more by the possible economic operation over the whole line than by the detail location through small communities with which they may have little or no contact. This provides the basis for considering the needs of local and through traffic separately. It is recognized that grades, character of road surface, alignment, traffic hazards, and conditions causing loss of momentum, use of brakes, and extra wear on the machine are all factors affecting adversely the cost of traffic operation but the data are not available in a form to be readily used.

(To be concluded in June Issue)

A young man, desiring to light a cigarette while talking to a modern girl, asked politely:

"Do you mind if I smoke?"

"Hell, no," she replied. "I don't care if you burst into flame."

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Helen: "I've just found out that you get \$2,000 allowance on your income tax return for being married, and you only give me a miserable \$10 a week."

Out of Father's Control

Visitor: "How many controls have you on that radio set?"

Host: "Three—my wife, son and daughter."

Expert

Lady: "Isn't it wonderful how a single policeman can dam the flow of traffic?"

Boy: "Yes, Granny; but you should hear the bus drivers."

The Safest Settlement

An Apache boarded a trolley car and refused to pay his fare. At the corner of the street the conductor signaled a policeman to enter and pointed out the burly individual.

"That man doesn't want to pay his fare. Will you get him out of this car?" asked the conductor.

The policeman took one look at the Apache.

"I'll pay for him myself," he said.

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"Lindbergh!" they yelled in unison.

Gypsy: "I'll tell your fortune, mister."

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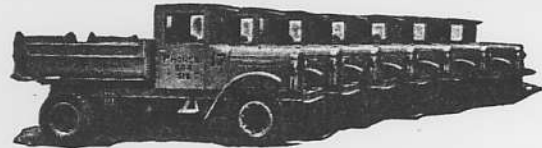
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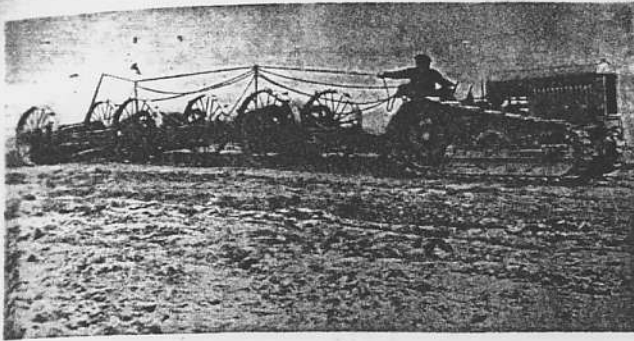
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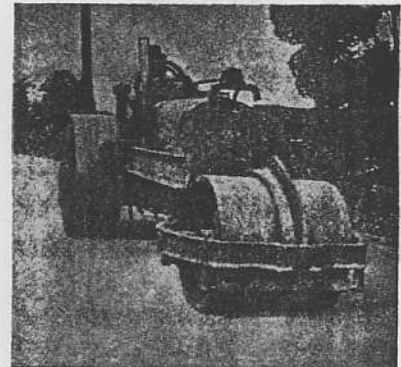
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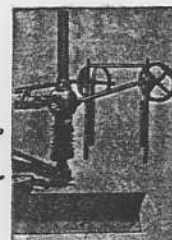
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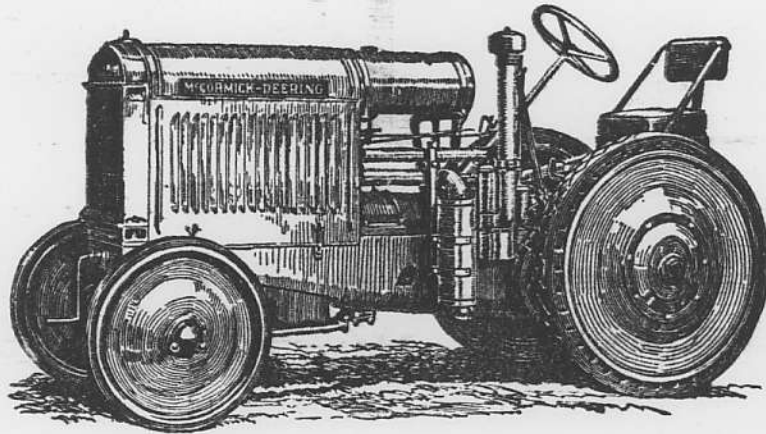
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