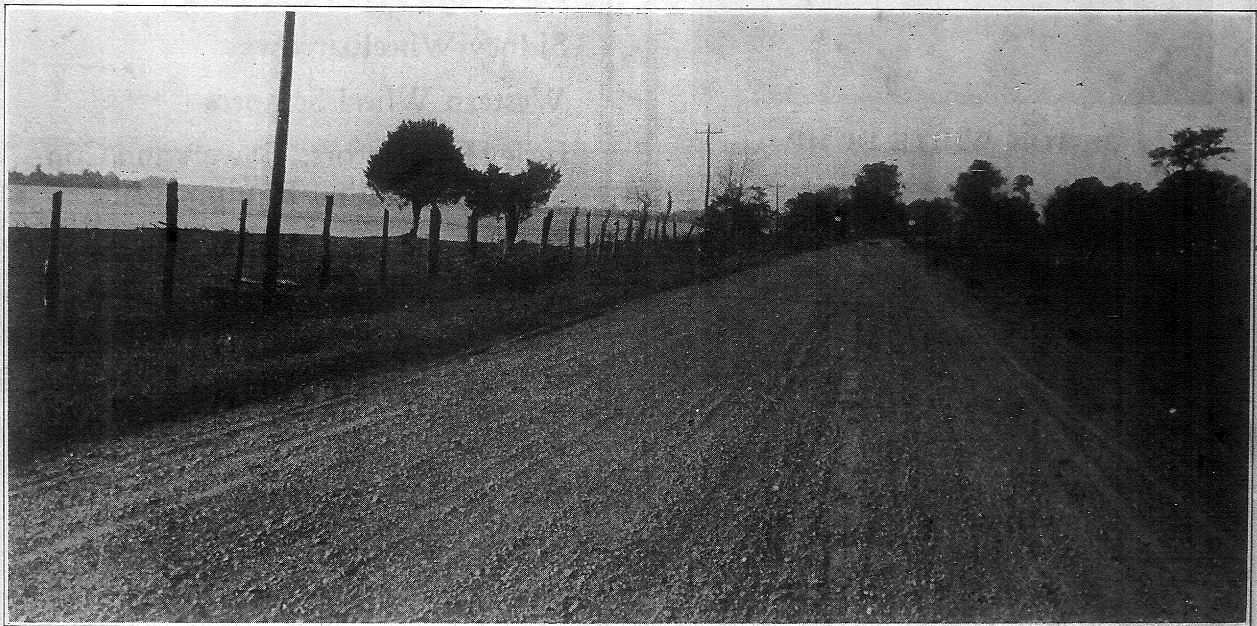


ARKANSAS HIGHWAYS

The Official Magazine of the Arkansas
State Highway Department, Little Rock



A View along Lake Chicot near Lake Village on State Highway No. 2.
This is one of Arkansas' famous fishing resorts.

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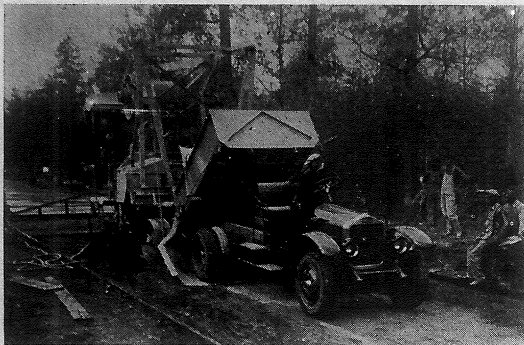
Vol. 5

JAN. • 1928

No. 1

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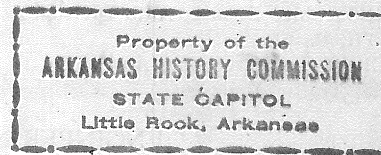
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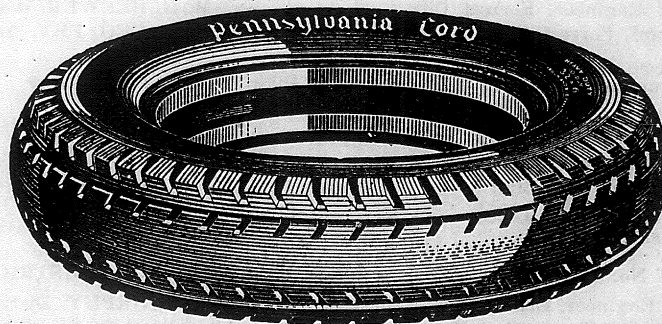
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ARKANSAS HIGHWAYS

*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 Bryan Lancaster, 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. V

JANUARY, 1928

No. 1

State Development Through Good Roads

By DWIGHT H. BLACKWOOD, State Highway Commissioner



With the beginning of the new year, I want to reiterate my intense desire to serve the people of the State to the very best of my ability as Chairman of the Arkansas Highway Commission. We are now formulating our program for the coming year, and while the mileage of new construction will perhaps not be as great as in the year just past out, the roads constructed will be of a more permanent character—concrete, asphalt, gravel and other surfacings. We are trying to build roads that will accommodate the additional thousands of motor vehicles which will go into use this year and the next and the next. I found in my visits to various sections of the State last year that roads built only a few years ago supposedly adequate for traffic for years to come are already hampered by transportation congestion.

A close study of the facts presented in this issue and other issues of ARKANSAS HIGHWAYS will bring to you a keener realization of the magnitude of the good roads movement and the part it is playing in the building and development of Arkansas. We have gone at building highways with the energy which has made the people of America the envy and admiration of the world. But we have made only a beginning as compared with what must be done. We must build more, better and wider highways.

To the building of highways Arkansas may well, for years to come, dedicate much of its constructive power and wealth. Improved highways mean better health and better educational facilities for all the people. Broader opportunities for the diversification of agriculture and for the increase of industry await good highways everywhere in the State.

To the building of more highways, to the maintenance of those that have been built and to the extension of highways generally, the people of Arkansas may well, with renewed zeal, throw into the work a spirit of co-operation, of initiative and of energy that will even surpass that of the past, with the full realization of what highways mean in the fullest development of Arkansas' opportunities.

Convention of American Road Builders' Association

A large delegation of officials, engineers, contractors and equipment dealers, headed by Commissioner Dwight H. Blackwood and Chief Engineer Chas. S. Christian, attended the American Road Builders' Association at Cleveland, Ohio, which closed January 13th.

This year was the twenty-fifth anniversary of the association. The convention and road show that was opened by President C. M. Babcock January 9, 1928, was testimony of the progressive change and great development that have been brought about in the association during the past few years.

Years ago the convention, made up almost entirely of engineers, discussed the economy of roads and showed the best methods of construction; later the convention spoke of maintenance, but not as the important and ever present problem that it is today. Now, in addition to the latest methods of construction and maintenance, the convention presents the solution of the problem of traffic control and highway operation in the light of most recent developments.

Several years ago some of the equipment manufacturers began exhibiting some of their products to the engineers and contractors attending the convention. This proved to be a great advantage, not only to the equipment producers but to the highway engineers, officials and contractors; and it became a regular practice to show road equipment at the Road Builders' Annual Convention. This was the beginning of the Road Show.

During the past few years, due to extended organization, the American Road Builders' Association has come to represent the highway industry—the maker of the highway as represented by the engineer, official, manufacturer and contractor, as well as the user of the highway, as represented by the general public.

At the convention the latest methods of construction, maintenance and operation are presented by carefully selected authorities. The exposition affords an opportunity for the engineer, official and contractor to see and compare in a few days the latest developments of road equipment and materials as produced by over three hundred manufacturers. The Road Show is also of a distinct advantage to the exhibitor, for it is an opportunity to present and display within the period of a few days his latest developments in equipment and materials to some 25,000 delegates comprising representatives from every State in the Union as well as many foreign countries.

With such mutual advantages, it is no wonder that the Road Builders' Convention, due to the serious interest of all attending, has changed during the past few years to one of the outstanding institutions of highway education and exposition.

There was a time when a road convention might have been considered an occasion for a vacation but it is now regarded as the clearing house of latest developments in the highway industry. Entire commissions and boards are attending or sending their staffs, for it is clearly seen by them that the information secured at the convention and road show will, in its application to local problems, offset many times during the year any expenses incurred by them in attending the convention.

Each year, from the standpoint of educational advantages, the convention and road show grows. Carefully selected highway authorities, always eager to make contributions to the art of road building, present well-designed papers. Manufacturers, wishing to present in an educational way their latest improvements, have long regarded the road show as the time to present their new productions to the highway public.

The program of the convention was coordinated by Mr. H. K. Bishop of the Bureau of Public Roads. He will be assisted by Mr. Frank Sheets and Mr. Fred White in the engineers' sessions and Mr. S. M. Williams and Gen. R. C. Marshall in the contractor's sessions. President T. J. Wasser of the County Highway Officials' Division, assisted by Vice-President of the Division, Mr. Chas. E. Grubb, had charge of the program on County Highway Officials' Day.

The program had sessions selected for the interest of engineers and officials and sessions selected for the particular interest of the highway contractors.

No Further Payments

Murphy had been careless in handling the blasting powder in the quarry, and Duffy had been deputed to break the news gently to the widow.

"Mrs. Murphy," said he, "isn't this the day the man calls for Murphy's life insurance payments?"

"It is," replied Mrs. Murphy.

"Well, now, a word in your ear," said Duffy. "Sure and ye can snap your fingers at him today."

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Some Methods of Maintaining Gravel Roads

By Edward L. Bandy, Field Engineer, Arkansas Highway Department

We are taught that there are three cardinal virtues: "Faith, Hope and Charity, and the greatest of these is Charity." In our highway system we have three major departments: location, construction and maintenance, and the greatest of these is maintenance.

The failure or success of a highway department is known by the neglect or upkeep of its highway system. The stranger crossing a State for the first time will know that the highway department has been and is functioning efficiently if he finds there has been provided for him roads that are smooth surfaced, sufficiently wide for traffic, well marked, with easy bridge approaches, solid bridge floors, and no water, mud nor dust to mar the pleasure of travel. He will realize and appreciate the efforts put forth by the highway department to provide highways that meet the demands of present day traffic.

About three-fourths of the improved highways in the United States are gravel surfaced. Highway engineers devote most of their time to building and maintaining this type of road. As this type requires constant maintenance, I will mention some of the defects.

The most common defects of gravel roads are corrugations, oversize stones, pot holes, excess of loose gravel, and because of loose gravel, the dust nuisance. One or a combination of all of these make travel uncomfortable and, at times, unsafe. The object of the highway maintenance department is to keep the highways free from these defects. However, there are some gravel roads of light construction which serve very heavy traffic, and which cannot be maintained satisfactorily. The remedy for such roads is a higher type of construction.

The easiest and most effective way to eliminate corrugations is to cut the surface of the road, when it is wet, to the depth of the corrugations with a grader or planer. The blade should be set at an angle with the longitudinal axis of the road and the cutting should be done from the center toward the side. After this has been completed the loose material should be bladed back from the sides of the road and spread uniformly over the surface.

As pot holes develop they should be filled with gravel—if possible with the same kind of gravel as is on the road. The best time to do this work is just after rainfall while the holes are full of water, so that the material will bond.

Oversize stone should be bladed off the road and kept off.

Loose gravel causes cars to skid, increases the dust nuisance, and because the gravel is loose and has not bonded is sufficient reason to believe it will not bond unless given special treatment. The constant whipping of the gravel by traffic eventually takes all the bonding properties out of the loose gravel and the binder dust is deposited on adjacent property making the property less valuable—surely objectionable for residential purposes—is a menace to health and dangerous to traffic. The best and least expensive treatment for loose gravel is to blade it to the shoulders before the binding properties are lost and leave it there until the road surface is thoroughly wet, then spread it uniformly over the surface, by blading, that it may bond and become an integral part of the road.

Another important factor in highway maintenance is the stock piling of gravel at advantageous places along the road. Surfacing from one-half to one inch in thickness is lost each year, depending upon the volume of traffic, climatic conditions, and quality of surfacing material. For this reason stock piling is necessary to replenish the gravel as it disappears and ruts develop.

The following is a quotation from Iowa highway specifications regarding maintenance of gravel roads:

"Hauling gravel and dumping it on the road does not produce a gravel road. The most important part of the construction work lies in the attention which the road receives while the gravel is being compacted. A road newly surfaced with gravel is nothing but a possibility. The success or failure of such a possibility depends very largely on the attention which it receives during the first year."

On many gravel construction projects the gravel surface does not receive systematic maintenance, consequently rough sections develop. Traffic compaction results in humps, ruts and depressions. To insure a reasonably permanent, smooth riding surface the maintenance should be constant during the compaction stages. The blading should be continued so long as any unevenness of surface appears.

Our specifications are complete regarding maintenance under construction. Sec. 37, par. 37.3:



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"Compaction of the gravel will be brought about by systematic maintenance under traffic—

"Ruts or depressions that develop shall be filled at least once each day by the use of a blade grader, planer or other suitable means, so as to present a smooth uniform surface. If required, additional material shall be added as directed by the engineer. The required crown shall be maintained by the use of a blade grader or other suitable tools."

If our specifications are strictly followed regarding the size and grading of stone, the amount of binder and the proper maintenance is given the newly placed gravel, our gravel roads will have smooth riding surfaces, their lives will be prolonged and the routine maintenance for the first few years materially reduced.

HIGHWAYS IN THE LAND OF YESTERDAY

This is the "motor age," we read and are told on numerous occasions—it is the road building era, we hear from the best and recognized authority—and yet we are at times a bit skeptical, wondering if this applies in a general sense.

There is hung on memory's wall, a picture of a road not on the highway map, over which we one time, or maybe many times traveled, and this road was so thoroughly bad, so miserably rough, that we just have a desire to feel and know that it has fallen into the hands of the highwayman.

It was a stretch of road winding tortuously along the side of an apparently useless hill, the road never seeming to get on toward the top but rather striving along over the gullies, the outstanding ledges of rock, over insolent stumps, just reminding the weary traveler that it was not a premediated thing that the road was there, but instead that it had just kinder hung there by reason of there being nothing else for a road of this kind to do. There may have been a journey, and naturally there comes the question of how has this road fared with the advent of the motor age and the era of highway building.

It would be satisfying to the curious to go and see—or if not this road the other one—the road that led through the entrancing woods, where vines climbed in graceful profusion over jutting boulders, and shed waxy petaled flowers over your head as you rode beneath—but, where the creek crossed the route there was a most forbidding piece of road, it gave so foreboding thoughts, as to kill all the pleasure of the wondrous beauty already recounted.

These are the roads, two of them that we have left behind, while we have been traveling the other way, and we cannot crush the impulse that bids us spend the thought in wondering if the roadbuilder has found these, and if the today have joined the modern class—if they have lost their ruggedness, and if the old hillside road is still holding on to the washing side of the hill over which some travelers in the yesterdays wished to go.

Visions of the old roads come when we find ahead the stretch of black top highway, leading on and on, in the modern way.—*Texas Highway Bulletin.*

"Where did you absorb those fine principles of yours—at your mother's knee?"

"No. Over my father's."—*Exchange.*

HIGHWAY DEPARTMENT MAKES GOOD

The big amount of construction work done on the roads in Jackson County during the past several months reflects credit upon the State Highway Department, and we believe the citizenship of the county is willing to extend to Commissioner Dwight Blackwood and his organization an expression of appreciation for this activity. The department has since its work became organized in the county shown every inclination to co-operate with the public and rush the program through to completion as rapidly as possible.

For a time it was predicted that Newport would not be out of the mud by winter so far as the Olyphant road was concerned, but Blackwood and his forces have seen to it that it is possible for one to reach Little Rock from Newport in a little more than two hours if one chooses to step on the gas.

For a time it was predicted people of Swifton and persons living in that section would encounter mud all during the winter if they attempted to come to Newport. But Blackwood and his forces have seen to it that Swifton folk can come to Newport in less than an hour if they choose. Local merchants have felt the benefits which both projects give through stimulation of trade.

These two projects completed Highway No. 67 through the county, and as a result tourist traffic has increased.

Every working day is being used to complete the work in District No. 2 and before long the people in those sections where construction is in progress will have reason to rejoice.

A road from the county line to Harrisburg will afford quick access to Memphis from Newport at an early date.

Plans are said to be in the making for the gravel road from Newport to Tupelo, and as soon as the legal technicalities are removed from the State owned toll bridge matter, a case to determine which came to the supreme court from Augusta, a bridge will be built over the White River at Newport, according to information from the department at Little Rock.

The Independent is willing and anxious to endorse the Highway Department, because we feel that the organization is due a word of commendation from this county. We do not feel that the people should any longer feel that the department has failed to give us a square deal.

With what has already been accomplished here by the department and promise of more activity as quickly as it can be gotten to intelligently, the people of the county can look forward with hope and confidence to the development that better roads bring about.

And aside from the benefits which actual road construction gives the county, the building program is releasing a lot of money in the county which finds its way through the different channels of trade.

With the highway organization a little more than one year old, the business of spending the highway revenue amicably has been done successfully, and we doubt if any State in the Union has ever been treated to as many miles of improved roads in so short a period.

The highway organization has acquitted itself admirably and nothing is likely to be done in the next few years to disrupt it or stop it from going ahead in the present satisfactory manner.

—*Newport Daily Independent.*

The Permanent Surfacing of Highways

By Thomas H. McDonald, Chief of the Bureau of Public Roads, Washington, D. C.

Service wears. A strong man spends his energy in useful labor. A great leader passes on; and we say, "He wore himself out in service." We mean it as the warmest praise; the highest eulogy.

A highway is a thing of service. It cannot serve unless it is used; and it cannot be used without wearing out. If I were shown a pavement of any considerable age that showed no signs of wear, I should regard the investment in that pavement as a useless waste of capital.

So whenever I hear mention of the alliterative delusion of "permanent pavements," instinctively I close the portcullis of my mind and prepare to resist a siege of propaganda.

Yet there is a sense in which we may properly regard the highway surface as permanent. Indeed, it must be permanent in this sense else the service it was created to render will be seriously impaired. But it can only be made so by constant rehabilitation; by continual repair of minor defects; by regular replacement of worn parts; by periodic renewal of the entire surface; and by the substitution of stronger and more durable materials as the need arises; in a word, by constant maintenance and reconstruction.

In every European land there are sublime cathedrals that the hand of time seems never to touch except to render them more beautiful, more majestic. We have seen in recent years a demonstration of the way in which this appearance has been maintained through the ages. We have seen their beauty marred by war, their very foundation shaken; and already, before ten years have elapsed, we have seen them restored, their beauty enhanced, their sublimity exalted; the turmoil of the great war in history but another storm withstood.

In the history of these sacred structures of Europe, I think we may find a perfect example of that kind of permanence which we may establish as an ideal of all work of highway improvement in this country. Consult the archives of the church and you find that not one of these great religious structures was built all at one time. Without exception, their construction has been the work of successive centuries. Each generation has contributed to the building of the structures as they now stand; and in every age the repair of the ravages of time has been a labor of love and spiritual devotion that has had first claim upon the means and energies of a devout people.

It is so, and only so that our highways may be made permanent. Exactly such a process of growth and constant care is expressed by the policy of stage construction, which I am convinced is the only sound basis for economic highway improvement, and which I, therefore, commend to the people and highway authorities.

Highway improvement is essentially a continuing process. No more than the cathedral builders do we build in one operation a complete and lastingly satisfactory structure. We build today to meet the needs of today and perhaps tomorrow, and we preserve what we have built as well as may be against the destructive forces of nature and traffic. But, if we think that we shall ever come to the end of our road building we have

learned very little from two thousand years of road building history; more, we must be utterly insensible to the impressive lesson of the last thirty years' experience in our own country.

In these thirty years the traffic on our main roads has increased from a few vehicles a day to many thousands daily in some instances. The number of registered motor vehicles has doubled and redoubled in practically every State in the last ten years. We may confidently expect that it will double again in the next ten years, and what lies beyond that we do not know. But, of this we may be very sure: That twenty years hence whatever improvements we now make will be inadequate, and that we will then, as now, be confronted with the necessity of making still further improvements.

If that sounds pessimistic it is as far from my intention as the desire to disparage in the slightest degree the usefulness of the types of pavement that are commonly described as "permanent." Such surfaces become necessities when traffic attains a certain volume and weight, especially when the traffic includes a large number of heavy motor trucks.

It should be borne in mind that improvement by paving is economical only when the traffic is of the volume and kind that requires such a surface.

The mileage of paved surfaces is everywhere less than it should be. Our highway traffic has increased so rapidly that we have been unable to keep pace with it. Revenue in the amount desirable and necessary for the road construction required has been unobtainable; and the road builder has lagged seriously behind the producer of vehicles on this account.

The basic principle of highway improvement is that all roads should be improved to the maximum degree the traffic will justify, but no road should be improved to an extent in excess of its earning capacity; and the earning capacity of an improvement is measured by the aggregate reduction in vehicular operating expense which it makes possible. Applying this principle there is no difficulty in justifying the cost of expensive pavements on main, heavily traveled highways, but to advocate that all roads should be thus paved is merely another way of urging expenditure in excess of income.

Accepting this principle as the touchstone by which to measure the degree of improvement required, recognizing clearly that the work of improvement must continue without end to keep pace with the increasing demands of traffic, and striving for "permanence" by continuous and complete maintenance, highway officials will make no mistake. To forsake this well tried course in order to follow the will-o'-the-wisp of "permanent surfaces" is to court the failure and loss of public confidence that has invariably followed the deterioration of the supposedly everlasting pavements.

"That's our general superintendent—son of the president—he began at the bottom and worked up—started in as an oiler, right after he left college."

"When was that?"

"Oh, he graduated last June."

—Wall Street Journal.

Record of Road and Bridge Contracts Awarded from January 1, 1927 to January 18, 1928

NAME AND ADDRESS OF CONTRACTOR	STATE JOB No.	ROAD and SECTION NUMBER	COUNTY	Length in Miles or Ft.	NATURE OF WORK	Total of Contract Award Plus Material Furnished by State
Vincennes Bridge Company, Vincennes, Indiana.....	100	3-S-16	Lee	1,800 Ft.	Steel bridge and substructure.	\$239,348.80
Hall and Williams, Des Arc, Arkansas.....	600	38-S-2	Prairie	1,800 Ft.	Timber bridges and approaches.	16,357.60
Geo. W. Nickels & Son, Box 471, Hot Springs, Ark.....	601	11-S-10	Garland	1,417 Mi.	Grading, drainage structures, concrete pavement.	47,722.85
Kow Paving Co., Topeka, Kansas.....	400	6-S-5	Sebastian	0.640 Mi.	Topeka mix pavement.	17,088.74
F. D. Harvey & Co., 688 S. Bellevue, Memphis, Tenn.....	101	22-S-1	Phillips	6.058 Mi.	Grading, drainage structures.	17,687.50
Tarrant & Miles, El Dorado, Ark.....	300	1-S-8	Lafayette	9.594 Mi.	Grading, drainage structures, gravel surfacing.	45,250.21
Miss.-Ark. Construction Company, 8613 W. Markham, Little Rock, Ark.....	702	29-S-2	Calhoun	14.788 Mi.	Gravel surfacing.	27,669.25
Lawrence Construction Company, Jackson, Miss.....	703	4-S-10	Calhoun	14.788 Mi.	Gravel surfacing.	27,669.25
Lynch & Hill, Little Rock, Ark.....	705	15-S-4	Bradley	6.306 Mi.	Concrete paving.	146,430.16
Kochfzky & Prosser, Carbondale, Ill.....	700	115-S-3	Calhoun	16.828 Mi.	Grading, drainage structures.	48,964.69
Miss.-Ark. Construction Company, 8613 W. Markham, Little Rock, Ark.....	704	167-S-2	Union	10.814 Mi.	Grading, drainage structures, concrete paving.	321,811.15
McGuire & Cavender, Texarkana, Texas.....	701	2-S-4	Columbia	3.163 Mi.	Grading, drainage structures.	18,811.59
Seiz Construction Co., McGehee, Ark.....	200	167-S-2	Union	355 Ft.	Reinforced concrete girder, bridges.	40,870.88
J. G. Newkirk, Chaudrant, La.....	301	59-S-1	Chicot	7.810 Mi.	Gravel surfacing.	54,428.30
McGuire & Cavender, Texarkana, Texas.....	302	71-S-1	Miller	7.950 Mi.	Grading, drainage structures.	42,776.22
J. W. Covington, Benton, Ark.....	706	71-S-1	Miller	200 Ft.	Two reinforced concrete girder bridges.	16,286.35
J. F. Mullins, Pine Bluff, Ark.....	201	4-S-10	Calhoun	98 Ft.	Treated timber bridge.	3,088.59
Merchants Transfer Company, Little Rock, Ark.....	1000	4-S-16	Desha	400 Ft.	Two treated timber bridges.	12,211.00
James & Hopper, Alma, Ark.....	401	25-S-8	Greene	7.765 Mi.	Gravel surfacing and grading, drainage structures.	79,998.24
Ellis & Lewis, Muskogee, Oklahoma.....	500	71-S-15	Crawford	4.737 Mi.	Grading, drainage structures.	27,057.41
E. J. Lynch, Little Rock, Ark.....	707	25-S-4	Independence	10.953 Mi.	Gravel surfacing.	40,065.90
Lynch & Hill, Little Rock, Ark.....	1016	15-S-3	Bradley	13.503 Mi.	Grading, drainage structures.	32,885.71
Bunnell & Mook, Paragould, Ark.....	1017	115-S-3	Calhoun	364 Ft.	Steel and concrete bridges.	42,277.03
S. C. Taylor, Birmingham, Ala.....	501	1-S-21	Clay	1.470 Mi.	Grading and gravel surfacing.	19,344.23
B. H. Heard, Little Rock, Ark.....	802	34-S-5	Clay	9.563 Mi.	Grading, drainage structures.	35,824.06
Peters & DeCamp, Little Rock, Ark.....	1015	16-S-11	Cleburne	8.899 Mi.	Grading, drainage structures.	52,852.66
C. B. Gregg, Jonesboro, Ark.....	402	9-S-8	Conway	93 Ft.	Steel and concrete bridges.	7,454.28
James & Hopper, Alma, Ark.....	120	18-S-4	Craighead	3.038 Mi.	Grading, drainage structures, gravel surfacing.	23,895.90
W. J. Runyan Paving Co., Sheffield, Ala.....	102	64-S-2	Crawford	8.967 Mi.	Burnt shale surfacing.	18,856.27
Fuller Construction Co., Dallas, Texas.....	515	1-S-14	Cross	15.131 Mi.	Gravel surfacing.	37,621.37
J. M. Howell, DeQueen, Ark.....	331	70-S-20	Crittenden	4,200 Ft.	Concrete structures	450,339.34
J. G. Newkirk, Doddridge, Ark.....	1101	18-S-1	Jackson	1,180 Ft.	Untreated timber bridges.	13,759.81
Luten Bridge Co., Little Rock, Ark.....	803	29-S-1	Lafayette	11,000 Ft.	Gravel surfacing	45,216.00
Ellis & Lewis, Muskogee, Oklahoma.....	332	71-S-12	Logan-Scott	274 Ft.	Concrete bridges	23,807.64
Richardson Ayres, Hope, Ark.....	900	22-S-3	Logan	9.671 Mi.	Grading, drainage structures.	54,772.42
S. O. Taylor, Birmingham, Ala.....	103	71-S-4	Little River	7,459 Mi.	Gravel surfacing.	21,637.00
J. D. & R. P. Sims, Hughes, Ark.....	315	14-S-3	Marion	8,504 Mi.	Grading, drainage structures.	73,955.76
J. G. Newkirk, Doddridge, Ark.....	718	17-S-1	Monroe	10,236 Mi.	Gravel surfacing.	33,888.46
J. P. McNulty, Pine Bluff, Ark.....	333	19-S-3	Nevada	7,575 Mi.	Grading, drainage structures.	35,298.66
J. P. McNulty, Pine Bluff, Ark.....	333	24-S-6	Ouachita	1,449 Mi.	Grading, drainage structures.	9,516.92
Williamson & Williams, Batesville, Ark.....	1001	26-S-6	Pike	7,600 Mi.	Gravel surfacing.	21,104.60
Harvey Brown Construction Co., Little Rock, Ark.....	615	63-S-7	Poinsett	2,000 Ft.	Steel and Concrete bridges, grading.	111,645.41
W. D. McCoy & Son, Fort Smith, Ark.....	404	70-S-10	Saline	20,000 Mi.	Grading and structures. Flood damage.	33,839.08
O'Hagan & McVicker Co., Kansas City, Mo.....	405	71-S-14	Sebastian	15,309 Mi.	Grading, drainage structures.	78,110.80
Interstate Construction Co, Paris, Texas.....	415	22-S-1	Sebastian	227 Ft.	Concrete bridges.	31,696.05
O'Hagan & McVickers Co., Kansas City, Mo.....	403	22-S-1	Sebastian	9,954 Mi.	Grading, drainage structures.	40,910.31
M. D. L. Cook, Little Rock, Ark.....	715	71-S-11	Scott	2,260 Ft.	Concrete bridges and grading.	32,948.26
A. A. Davis & Co., Kansas City, Mo.....	502	2-S-5	Union	18,235 Mi.	Concrete surfacing.	457,031.59
L. T. Campbell, El Dorado, Ark.....	717	14-S-12	Jackson	8,804 Mi.	Grading, drainage structures and gravel surfacing.	81,991.54
M. E. Gillioz, Monette, Mo.....	804	4-S-13	Bradley	5,680 Mi.	Grading, drainage structures.	51,323.75
Thurber Construction Company, Fort Worth, Texas.....	901	22-S-5	Yell	8,249 Mi.	Grading, drainage structures.	68,238.34
M. E. Gillioz, Monette, Mo.....	915	14-S-3	Marion	6,856 Mi.	Grading, drainage structures.	58,452.50
Cook & Ransom, Ottawa, Kansas.....	1103	65-S-1	Boone	7,890 Mi.	Grading, drainage structures.	98,031.30
Johnson Team & Dray Co., Little Rock, Ark.....	221	71-S-12	Logan-Scott	7,645 Mi.	Grading, drainage structures.	38,108.82
C. H. Atkinson Paving Co., Chillicothe, Mo.....	224	35-S-8	Drew	4,662 Mi.	Gravel surfacing.	26,832.65
J. P. McNulty, Pine Bluff, Ark.....	227	4-S-15	Drew	154.4 Ft.	Treated timber trestle.	4,735.80
Cook & Ransom, Ottawa, Kansas.....	316	31-S-1	Jefferson	6,312 Mi.	Gravel surfacing.	31,719.88
Griffin & Harville, Gurdon, Ark.....	317	70-S-5	Pike	8,810 Mi.	Grading, drainage structures.	62,719.93
P. W. Fletcher, Hannibal, Mo.....	339	24-S-5	Nevada	7,912 Mi.	Grading, drainage structures.	24,180.64
Winstead & Gunter, Siloam Springs, Ark.....	416	19-S-3	Nevada	6,344 Mi.	Gravel surfacing.	28,360.39
F. L. Scull, Conway, Ark.....	503	22-S-1	Sebastian	7,973 Mi.	Grading, drainage structures.	49,587.31
Pioneer Construction Company, Kansas City, Mo.....	504	25-S-4	Independence	131.3 Ft.	Steel and concrete bridge.	13,168.13
M. E. Gillioz, Monette, Mo.....	616	63-S-2	Sharp	224.11 Ft.	Steel and concrete bridge.	21,727.79
Jas. Spencer & Son Const. Co., Mulvane, Kansas.....	617	6-S-6	Hot Spring	12,412 Mi.	Grading, drainage structures.	128,401.76
W. L. Davis, Kansas City, Mo.....	618	70-S-8	Garland	17,227 Mi.	Grading, drainage structures.	123,326.53
R. O. Gwin, Sheridan, Ark.....	621	64-S*8	Faulkner	4,483 Mi.	Grading, drainage structures and gravel surfacing.	29,199.48
W. L. Davis, Kansas City, Mo.....	831	9-S-4	Hot Spring	16,544 Mi.	Grading, drainage structures.	64,285.00
Earnest Euler, Mansfield, Mo.....	923	64-S*8	Conway	5,100 Mi.	Gravel surfacing.	15,969.75
C. M. Greene, Lowell, Ark.....	924	5-S-9	Baxter	15,450 Mi.	Grading, drainage structures.	84,910.55
J. F. Mullins, Pine Bluff, Ark.....	1004	16-S-4	Madison	8,396 Mi.	Grading, drainage structures.	72,075.60
Forcum James Construction Co., Dyersburg, Tenn.....	1030	39-90-S-1	Greene-Clay	626.67 Ft.	8 treated timber pile bent bridges.	18,587.39
F. D. Harvey & Co., Jonesboro, La.....	1039	14-S-13	Poinsett	8,122 Mi.	Grading, drainage structures and gravel surfacing.	115,081.45
Forcum James Construction Co., Dyersburg, Tenn.....	1043	1-S-21	Clay	2,580 Mi.	Grading, drainage structures and gravel surfacing.	35,881.05
Kochfzky Bros., England, Ark.....	1102	14-S-13	Poinsett	7,769 Mi.	Grading, drainage structures and gravel surfacing.	74,742.85
P. F. Connelly Pav. Co., Little Rock, Ark.....	629	15-S-8-9	Lonoke and Jefferson	6,382 Mi.	Grading, drainage structures and gravel surfacing.	67,006.68
		70-S-14-15	Lonoke	5,476 Mi.	Double bituminous surface treatment.	26,144.30

Record of Road and Bridge Contracts Awarded from January 1, 1927 to January 18, 1928

NAME AND ADDRESS OF CONTRACTOR	STATE JOB No.	ROAD and SECTION NUMBER	COUNTY	Length in Miles or Ft.	NATURE OF WORK	Total of Contract Award Plus Material Furnished by State
M. Tansey, Bastrop, La.....	719	24-S-6	Ouachita	12.215 Mi.	Grading, drainage structures.	71,544.55
Philpott Construction Company, Pine Bluff, Ark.....	720	115-S-1	Union	3.746 Mi.	Grading, drainage structures and concrete pavement.	100,204.61
R. J. Lynch, Little Rock, Ark.....	723	35-S-5	Cleveland	4.815 Mi.	Grading, drainage structures and gravel surfacing.	28,725.78
C. H. Atkinson Paving Co., Chillicothe, Mo.....	736	2-S-7	Union	273 Ft.	Treated timber trestle bridges.	8,404.42
Lakeside Br. & Steel Co., No. Milwaukee, Wisconsin.....	800	7-S-10-11	Pope-Yell	2,045 Ft.	Steel and concrete bridge.	534,137.35
Cook & Ransom, Ottawa, Kansas.....	805	22-S-3-4	Logan	11.741 Mi.	Grading, drainage structures.	72,734.11
Lahar Bros., Springfield, Mo.....	1018	39-S-2	Clay	0.967 Mi.	Grading, drainage structures and gravel surfacing.	6,245.22
Lahar Bros., Springfield, Mo.....	1019	39-S-1	Greene	5.344 Mi.	Grading, drainage structures and gravel surfacing.	44,773.72
Lahar Bros., Springfield, Mo.....	1023	90-S-1	Clay	6.522 Mi.	Grading, drainage structures and gravel surfacing.	79,847.27
S. C. Taylor, Birmingham, Ala.....	1025	67-S-22	Clay	0.318 Mi.	Grading, drainage structures and gravel surfacing.	6,163.14
E. E. Davis & Co., Oklahoma City, Okla.....	121	16-S-18	Cross	13.882 Mi.	Grading, drainage structures and gravel surfacing.	102,276.47
Miss.-Ark. Construction Company, Little Rock, Ark.....	123	78-S-1	St. Francis	1.178 Mi.	Grading, drainage structures and gravel surfacing.	11,670.23
Joe Selz Construction Co., McGehee, Ark.....	217	13-S-7	Jefferson	3.442 Mi.	Grading, drainage structures and gravel surfacing.	58,701.58
Reynolds & Sutton, Tyler, Texas.....	323	24-S-2	Howard	11.293 Mi.	Grading, drainage structures.	79,080.37
W. P. McGeorge & Co., Pine Bluff, Ark.....	324	27-S-5	Pike	7.604 Mi.	Grading, drainage structures.	126,774.49
Richardson Ayres, Hope, Ark.....	342	71-S-5	Sevier	345 Ft.	Reinforced concrete deck girder bridge.	28,188.58
C. H. Atkinson Paving Co., Chillicothe, Mo.....	347	8-S-5	Clark	7.623 Mi.	Gravel surfacing.	28,004.08
Hinson Bros., Muskogee, Okla.....	406	71-S-15	Crawford	8.219 Mi.	Grading, drainage structures.	93,089.29
Williamson & Williams, Batesville, Ark.....	505	11-S-17	Sharp	5.000 Mi.	Grading, drainage structures.	41,364.86
W. L. Davis, Kansas City, Mo.....	507	R. I. D. 2	Jackson	8.885 Mi.	Gravel surfacing.	33,664.21
A. A. Davis Co., Kansas City, Mo.....	508	R. I. D. 2	Jackson	5.946 Mi.	Gravel surfacing.	15,870.93
A. A. Davis Co., Kansas City, Mo.....	509	R. I. D. 2	Jackson	3.874 Mi.	Gravel surfacing.	18,003.21
B. H. Heard, Little Rock, Ark.....	512	16-S-11	Cleburne	129.5 Ft.	Two concrete bridges.	10,149.84
M. K. Orr, Tschula, Miss.....	519	14-S-12	Jackson	1,520.5 Ft.	Bridges.	40,496.82
Bradley & Talbert Construction Co., Sheridan, Ark.....	619	35-S-1	Saline	8.201 Mi.	Grading, drainage structures.	54,983.73
Stanley, Fowler & Kennedy Const. Co., Malvern, Ark.....	620	67-S-7	Hot Spring	10.687 Mi.	Grading, drainage structures.	53,268.21
Stanley, Fowler & Kennedy Const. Co., Malvern, Ark.....	628	6-S-7	Hot Spring	5.703 Mi.	Grading, drainage structures and gravel surfacing.	30,107.81
Browne & Ross, Arkadelphia, Ark.....	727	4-S-12	Bradley	12.515 Mi.	Grading, drainage structures and gravel surfacing.	104,219.03
R. J. Lynch, Little Rock, Ark.....	731	11-S-1	Cleveland	1.992 Mi.	Grading, drainage structures and gravel surfacing.	18,938.10
J. A. Perdue & Co., Pine Bluff, Ark.....	735	15-S-3	Bradley	6.000 Mi.	Gravel surfacing.	33,622.54
J. N. George & Bros., Centerville, Ark.....	806	7-S-10	Yell	8.039 Mi.	Grading, drainage structures.	34,805.71
J. N. George & Bros., Centerville, Ark.....	807	7-S-10	Yell	6.458 Mi.	Grading, drainage structures.	58,637.44
M. E. Gillioz, Monette, Mo.....	903	65-S-1	Boone	11.134 Mi.	Grading, drainage structures.	72,925.70
A. A. Davis & Co., Kansas City, Mo.....	1021	67-S-22	Clay	11.553 Mi.	Grading, drainage structures.	37,705.54
United Construction Co., Cincinnati, O.....	131	50-S-1	St. Francis	289.7 Ft.	Treated timber bridges.	8,327.00
Sam B. Boyd, Columbia, Mississippi.....	341	24-S-5	Nevada	11.554 Mi.	Grading, drainage structures.	52,754.14
Richardson Ayres, Hope, Ark.....	349	27-S-5	Pike	7.307 Mi.	Grading, drainage structures.	41,878.23
Ware Construction Co., Little Rock, Ark.....	506	11-S-14	Independence	9.027 Mi.	Grading, drainage structures.	86,345.76
Hope & Lybrand, Sheridan, Ark.....	622	35-S-3	Grant	15.739 Mi.	Grading, drainage structures and gravel surfacing.	85,031.10
S. E. Evans, Clarksville, Ark.....	623	67-S-9	Saline	4.028 Mi.	Grading, drainage structures.	25,744.55
Ellis & Lewis, Muskogee, Okla.....	725	2-S-4	Columbia	10.358 Mi.	Grading, gravel surfacing.	90,198.61
C. H. Atkinson Paving Co., Chillicothe, Mo.....	737	35-S-5	Cleveland	63 Ft.	Concrete girder bridge.	5,916.50
Maxwell Construction Company, Columbus, Kansas.....	808	22-S-4	Logan	388 Ft.	Concrete girder bridge.	26,074.20
Blackshire & Blackshire, Harrison, Ark.....	930	101-S-2	Marion	514.5 Ft.	Steel bridge approach spans.	31,029.53
Davis Construction Co., Booneville, Mo.....	1022	67-S-21	Randolph	6.049 Mi.	Grading, drainage structures and gravel surfacing.	95,198.38
Gibson & Robins, Hoxie, Ark.....	1024	67-S-18	Lawrence	2.800 Mi.	Grading, drainage structures and gravel surfacing.	18,857.17
W. J. Runyan Paving Co., Sheffield, Ala.....	1026	67-S-21	Randolph	8.028 Mi.	Grading, drainage structures and concrete pavement.	202,645.15
Bunnell & Mack, Paragould, Ark.....	1070	18-S-4	Craighead	180 Ft.	Concrete bridges.	15,780.13
Geo. W. Nickels & Son, Hot Springs, Ark.....	1100	70-S-6-7	Hot Spring-Montgomery	8.839 Mi.	Grading, drainage structures.	63,646.44
Forcum James Construction Co., Dyersburg, Tenn.....	132	1-S-8	Phillips	6.058 Mi.	Gravel surfacing.	39,295.08
Forcum James Construction Co., Dyersburg, Tenn.....	222	13-S-6	Lincoln	12.414 Mi.	Grading, drainage surfacing and gravel surfacing.	65,083.53
Kochitzky Bros., England, Ark.....	246	114-S-1	Lincoln	8.683 Mi.	Grading, drainage structures and gravel surfacing.	75,446.36
Maxwell Construction Co., Columbus, Kansas.....	319	70-S-5	Pike	135.62 Ft.	Concrete bridge structures.	12,987.19
F. E. Wright, Gurdon, Ark.....	329	4-S-4-5	Howard and Hempstead	9.890 Ft.	Grading, drainage structures.	20,561.54
Interstate Construction Co., Paris, Texas.....	410	10-S-1	Sebastian	13.056 Mi.	Grading, drainage structures.	75,980.36
C. N. Geren & Son, Fort Smith, Ark.....	414	22-S-2	Franklin	8.757 Mi.	Grading, drainage structures.	44,345.12
Interstate Construction Company, Paris, Texas.....	417	8-S-1	Polk	12.698 Mi.	Grading, drainage structures.	120,064.91
Ware Construction Co., Little Rock, Ark.....	523	11-S-14	Independence	7.009 Mi.	Grading, drainage structures.	69,661.73
J. C. Elliott & Co., Leola, Ark.....	631	46-S-2	Grant	7.070 Mi.	Grading, drainage structures and gravel surfacing.	44,581.29
C. H. Atkinson Paving Co., Chillicothe, Mo.....	639	6-S-6	Hot Spring	350 Ft.	Four concrete girder bridges.	34,294.52
Atkinson Bros., Pine Bluff, Ark.....	722	167-S-2-3	Union and Ouachita	9.575 Mi.	Grading, drainage structures.	69,416.34
Atkinson Bros., Pine Bluff, Ark.....	732	115-S-1	Union	4.944 Mi.	Grading, drainage structures.	33,232.59
Rowan & Rickard, Pine Bluff, Ark.....	740	3-S-2	Columbia	0.511 Mi.	Grading and concrete pavement.	14,324.55
Cook & Ransom, Ottawa, Kansas.....	801	22-S-4B	Logan	13.913 Mi.	Grading, drainage structures.	108,763.08
B. F. Brooks Construction Company, Dallas, Texas.....	810	105-S-1A	Pope	5.833 Mi.	Grading, drainage structures.	46,888.32

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NAME AND ADDRESS OF CONTRACTOR	STATE JOB No.	ROAD and SECTION NUMBER	COUNTY	Length in Miles or Ft.	NATURE OF WORK	Total of Contract Award Plus Material Furnished by State
Keliher Contr. Co., Little Rock.....	335	67-S-12	Hempstead and Miller	1206.24 Mi.	Reinforced concrete arch bridge.	\$477,058.58
Rye Bros., Russellville.....	429	64-S-23	Crawford	4.612 Mi.	Grading and drainage structures.	45,506.64
Arthur L. Walker, Memphis.....	648	67-S-7	Hot Spring	249 Ft.	Three reinforced concrete bridges.	20,088.60
D. B. Hill & Co., Little Rock.....	813	65-S-8	Van Buren	8.073 Mi.	Grading and drainage structures.	66,023.29
Altman-Rogers Co., McAlester, Okla.....	824	10-S-5	Perry	8.651 Mi.	Grading and drainage structures.	37,633.71
S. E. Evans, Clarksville, Ark.....	838	64-S-4	Johnson	7.583 Mi.	Grading and drainage structures.	60,085.31
D. B. Hill & Co., Little Rock.....	926	65-S-6	Searcy	10.413 Mi.	Grading and drainage structures.	172,469.55
Hall & Parrigan, Martin, Tenn.....	1094	67-S-22	Clay	180 Ft.	Four reinforced concrete bridges.	27,307.89
W. P. McGeorge & Co., Pine Bluff.....	1107	3-S-12-13	Prairie	255 Ft.	Four treated timber bridges.	7,717.10

One Hundred and Forty Thousand Dollars in Viaduct Tolls

Highway Department Nets \$109,000 in Five Months' Operation of Harahan Structure

Tolls from the Harahan viaduct for the five months the structure has been operated by the State Highway Commission have netted \$21,828 a month, it was shown in a statement prepared yesterday by direction of Highway Commissioner Dwight H. Blackwood to be presented to the Highway Commission at its monthly meeting, January 18.

Gross collections from July 25th to December 31st amounted to \$140,207.70 and operating expenditures to \$31,066.36, leaving \$109,141.34 net tolls. Gross tolls averaged \$28,041 a month and net earnings averaged \$21,828 a month.

When the State took over the structure from Crittenden County, a balance of \$20,463.40 was left in the fund after the State allowed the county to retain \$50,000 as reimbursement for construction and repairs. This \$20,000 added to net tolls since the Highway Department has been in charge makes a balance of \$129,604.74 in the toll account. This fund will be used to pay the State's share of the cost of the new viaduct.

DETAILED STATEMENT

The detailed statement follows:

Received from Crittenden County Court when viaduct taken over, \$20,463.40; collections from July 25 to December 31, \$140,207.70; total, \$160,671.10.

Operating expenses—Salaries for five months, manager, \$1,500; bookkeeping, \$1,280; traffic officers, \$1,325; collectors, \$9,541.25; foreman, \$1,834; total salaries, \$15,480.25.

Maintenance account—Bridge labor, \$2,371.75; printing coupon books, \$108.50; miscellaneous items, \$355.19; disinfectant, \$6; staples, nails, bolts, etc., \$724.29; stationery, \$167.49; cash register tickets, \$199.61; bridge lumber and piling, \$8,139.24 (about \$5,000 worth now on hand); water and ice, \$195.80; ax handles, \$5; auto supplies and repairs, \$749.68; electric supplies, \$227.03; bedding, towels, etc., \$81.82; coal, \$133.50; stoves, lanterns, etc., \$21.25; telephone, \$25; empty barrels for fire protection, \$25; total, \$13,536.15.

Insurance and equipment—Fire insurance on office, \$58.13; burglary, \$117.77; collectors' bonds, \$117.50; adding machine, \$135.95; typewriter, \$92.50; automobile, \$500; truck, \$648.36; cash register, \$380; total, \$2,049.26.

Total operating expenses, \$31,066.36.

Toll receipts are running considerably less in winter months than in the summer and fall.

Mary had a little lamb,
Given by a friend to keep.
It followed her around until
It died from want of sleep.
—Exchange.

"Why are you running a steam roller over that field?" asked the stranger.

"I'm trying to raise mashed potatoes," explained the farmer.—Lehigh Burr.

1,500 Tons

700 Sizes

STEEL PRODUCTS

CENTRAL SUPPLY COMPANY

LITTLE ROCK, ARKANSAS



Dangerous Crossing

"Marriage," said the philosopher, "is like a railroad sign. When you see a pretty girl you stop; then you look, and after you've married you listen."

Excavation work on the big sewer had reached a low, mucky place and the Italian laborers were having their troubles with the soft mud.

Suddenly there arose a shout.

"C'mear, queek! Bringa da show! Bringa do peek! Pietro's stuck in the mud up to de knees!"

"Tell him to wade out," shouted the foreman.

"He canna no wade—he wrong end up."

Facts of the Case

Reporter—Were you and Murphy cool and collected after the explosion yesterday?

Flaherty—Well, you see it was this way. I was cool, but Murphy was collected.

Hitting On All Six

Motto for motorists: Pedestrians should be seen and not hurt.

Another: Say it with brakes and save on the flowers. Don't kid about safety. You may be the goat.

Time saved at a crossing may be lost in the emergency ward.

No domestic science course is necessary to enable a girl to make a traffic jam.

Why Fathers Leave Home

"Father, freight is goods that are sent by water or land, isn't it?"

"That's right, son."

"Well, then, why is it that the freight that goes by ship is called a cargo, and when it goes by car it is called a shipment?"

And then Johnny wondered why father put on his hat and sauntered outside to get the air.

Full Steam Ahead!

Women, says an English paper, have invaded all but thirty-seven of the occupations of the world. There are as yet no women engine-drivers.

There isn't any back seat in a locomotive cab.

The new automobiles are coming in a variety of colors, but the pedestrians will still have to be content with black and blue.

House Wanted? No.

Newlywed to the real estate salesman who is trying to sell her a home: "Why buy a home? I was born in a hospital ward, reared in a boarding school, educated in a college, courted in an automobile, and married in a church; get my meals at a cafeteria, live in an apartment; spend my mornings playing golf, my afternoons playing bridge; in the evening we dance or go to the movies; when I'm sick I go to the hospital, and when I die I shall be buried from an undertaker's. Why should we buy a house, I ask you? All we need is a garage with a bedroom."

Damaged Goods

Insurance Agent: "Come with me, you can get damages for this."

Negress (hit by truck): "Good Lawd, man, ah don't need no mo' damages. What ah needs is repairs."

Coop or Coop-Pay?

Two colored gentlemen were talking about automobiles owned by their respective employers.

"An' den he bought dis new 'coop.'"

"You don't call dem 'coops'; dey is pronounced 'coop-pay.' A 'coop' is what you put chickens in."

"Yes, sah, dat's what he does with his one."

A balky mule has four-wheel brakes.

A billy goat has bumpers.

The firefly is a bright spotlight.

Rabbits are puddle jumpers.

Camels have balloon-tired feet,

And carry spares of what they eat;

But still I think that nothing beats

The kangaroos with rumble seats.

Epitaph

Here lies the bones of Engineer Sweet,
Who built the detour to the left.

He gasped this last on a pile of fines,

"Tourists don't believe in signs."

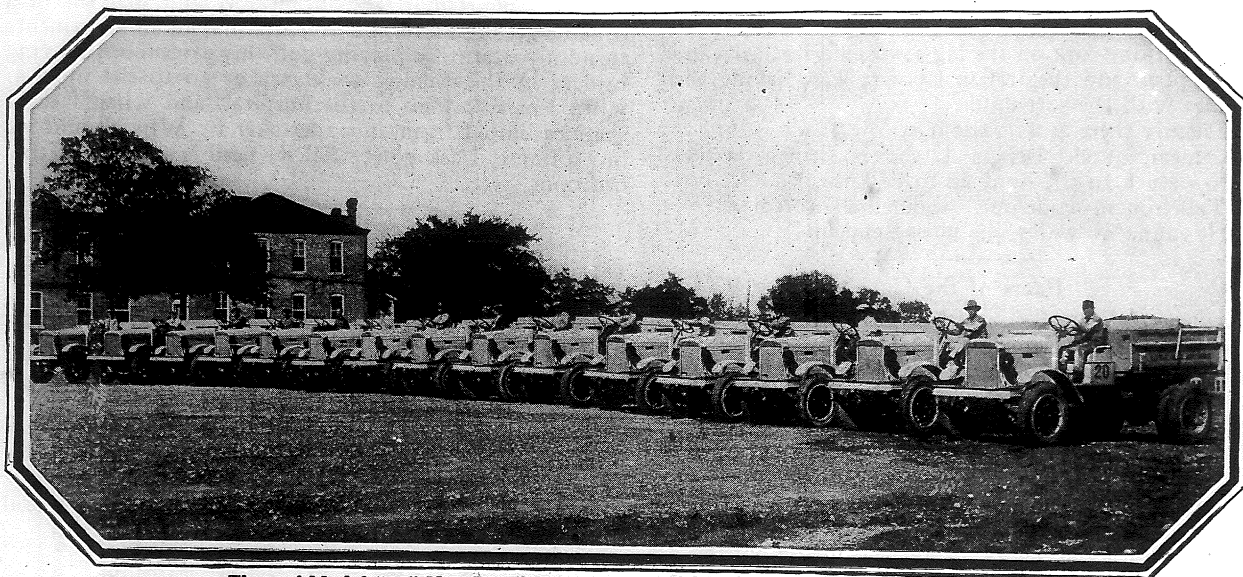
A tourist from the East had stopped to change tires in a desolate region of the Far West.

"I suppose," he remarked to a native onlooker, "that even in these isolated parts the bare necessities of life have risen tremendously in price."

"Yer right, stranger," replied the native gloomily, "an' it ain't worth drinkin' when ye get it."

Fleet After Fleet of
HUG
Roadbuilder Trucks

Has been delivered to Road Builders and
Contractors during the 1927 Roadbuilding Season



Fleet of Model "80" Hug Roadbuilders delivered to M. D. L. Cook, Little Rock, Ark.

HUG Fleet sales records constitute a record of pride and achievement. They are an indication of successful Hug Performance and are the direct result of the superior earning power of Hug Trucks.

The ultimate value of any equipment depends on its Earning Capacity. Hug earning capacity is based on more than one or two years' performance. Many Hug fleets are operating for the fifth season—and have paid for themselves many times over. They have completed jobs

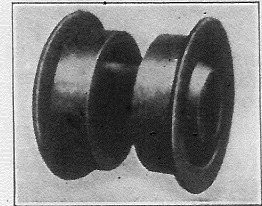
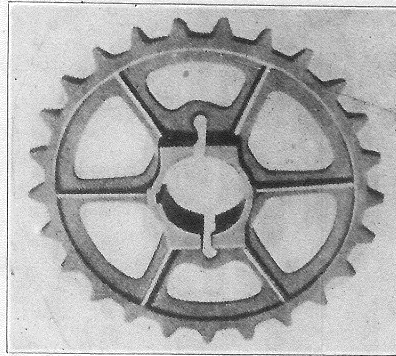
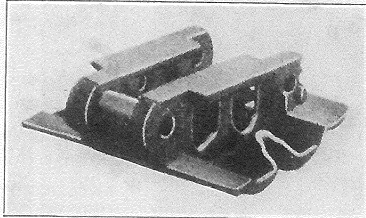
where the ordinary revamped commercial truck failed to "make the grade."

Hug success has been made possible through a thorough understanding of the needs of the Roadbuilding field, and a sincere effort to constantly improve and build specialized Roadbuilding Transportation Equipment.

The 1928 Hug Roadbuilder Models have additional improvements, gained by long experience and research, that will make the Hug a still better Roadbuilder Truck.

THE HUG ARKANSAS TRUCK CO., Distributors
421 East Markham Street LITTLE ROCK, ARKANSAS

The HUG Co.
Highland, Illinois



SOME OF OUR PRODUCTS

WE MAKE

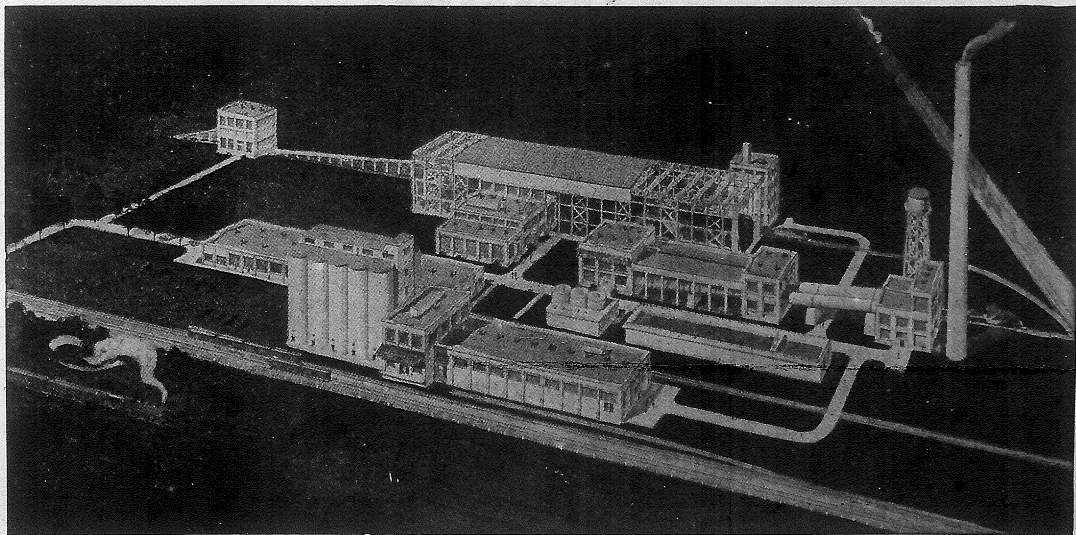
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EXCLUSIVELY

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Manufacturers of High Early Strength Portland Cement



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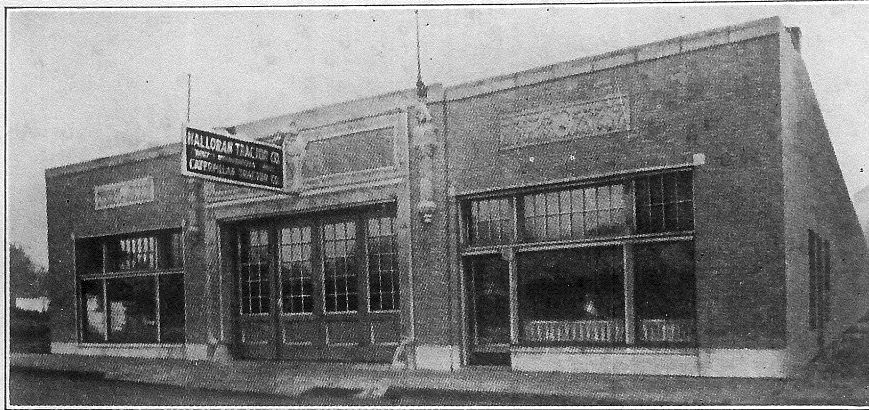
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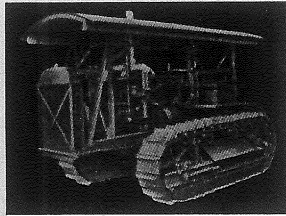
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STOCK, NEW
TRACTORS AND
REPAIR PARTS

FACTORY-
TRAINED
SERVICE MEN

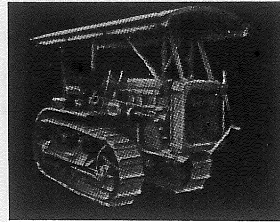
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EQUIPPED
SHOP

REPAIRING
OVERHAULING
REBUILDING

All three models of "Caterpillar" Tractors are carried in Stock at Little Rock, as well as at Memphis—thus insuring you immediate delivery.

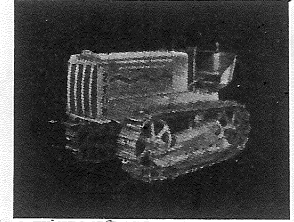


←
"Caterpillar"
Sixty
Tractor



→
"Caterpillar"
Thirty
Tractor

→
"Caterpillar"
2-Ton
Tractor



HALLORAN TRACTOR COMPANY, *Distributors*

MEMPHIS, TENNESSEE

"Standard"
Motor Oil



"Standard"
Gasoline

are the two Motor necessities so essential to the efficient operation of your Automobile or Motor Truck—Look for the dealer displaying "Standard" signs and call for "Standard" Motor Oil or "Standard" Gasoline by name.

ASPHALT

The Standard Oil Company of Louisiana, with its modern Refinery at Baton Rouge, is the largest manufacturer of Asphalt and Asphaltum products in the South.

Asphalt and good roads are synonymous and you will find it used on better Highways from Maine to California and from Canada to the Gulf of Mexico.

Standard Oil Company of Louisiana

NEW ORLEANS, LOUISIANA

Announcing the
Adams Motor Grader

USING McCORMICK-DEERING 10-20 TRACTOR

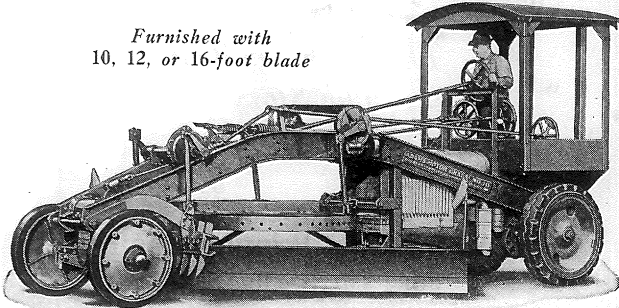
AN outstanding engineering achievement—the result of several years of painstaking development. Introducing a new, easier and quicker type of blade control and exceptional strength and rigidity. Has machine-cut, enclosed gears, machined ball and socket joints and bearings and an all-riveted construction. Write for folder.

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Furnished with
10, 12, or 16-foot blade



Carey Elastite Expansion Joint is furnished in thicknesses, lengths and widths as desired. Comes cut ready to use, or in sheets up to 36 inches wide. Inexpensive, easily installed, with ordinary tools and ordinary labor. Store it anywhere—it's good 'til used.

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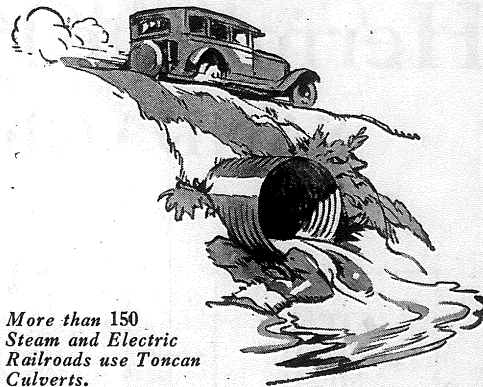
**Carey
Elastite**
THE ONLY EXPANSION
JOINT

More than 10,000
tests prove that

REG. U.S. PAT. OFF.
TONCAN
COPPER
Mo-lyb-den-um
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will far outlast any other metal used in corrugated culverts. No other culverts contain copper and mo-lyb-den-um. No other corrugated culvert iron possesses equal resistance to rust and corrosion.

The alloying of copper and mo-lyb-den-um with pure iron to defeat rust is the discovery of the country's leading metallurgists, working in America's finest laboratory. It is the greatest improvement ever made in culvert iron.



More than 150
Steam and Electric
Railroads use Toncan
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SECOND AND BUTLER STREETS

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Russell Motor Patrol in 4 sizes Perfected Powerful Units

Better Built Motorized Patrol Graders. With these highly finished machines comes refinement of design eliminating mere clumsy weight—machines which give speed and ease in control and a standard of efficiency which can scarcely be overestimated—then too, they afford a minimum of up-keep cost.

Russell Motor Patrols are built in four sizes—

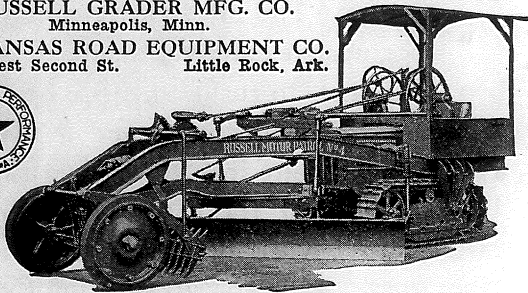
- No. 2 for Fordson tractor for power
- No. 3 for 10-20 McCormick-Deering tractor for power
- No. 4 for "Caterpillar" 2-ton tractor for power
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Each of the four models No. 2—No. 3—No. 4—No. 5 is equipped with scarifier—worked with blade or independent of blade, as desired.

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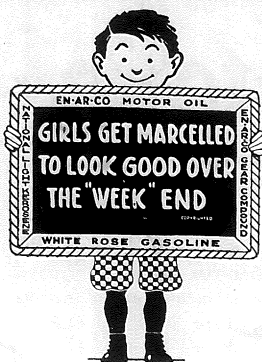
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*Our facilities for supplying
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are unexcelled*

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At the Sign of
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Four plants located at strategic points throughout the great Southwest enable us to give the utmost in service to contractors operating in Arkansas, Louisiana, Texas, Oklahoma and Missouri.

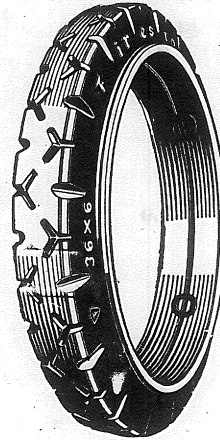
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For Economy

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5 Important Causes of Culvert Failure

Field investigation of some 18,000 culverts indicates the five principal types of culvert failures are:

- 1 **CRACKING:**
Due to load of traffic and fill on brittle material. Can be avoided by using elastic materials.
- 2 **DISJOINING:**
Caused by lateral soil movements and poor foundations. Can be minimized by using culverts having a positive bond between adjoining sections.
- 3 **BREAKING:**
Due to impact of traffic on culverts under shallow fill. Can be avoided by using flexible type culverts.
- 4 **UNDERMINING:**
Caused by erosion of foundations. Can be minimized by using a type of culvert adaptable to unusual conditions.
- 5 **DISINTEGRATION:**
—Of Porous Materials
Caused by freezing and thawing. Can be avoided by using a non-porous material.
—OF Metallic Materials
Caused by electrolytic action due to the presence of impurities in the metal. Can be minimized by using culverts made of a metal containing a minimum of impurities—**ARMCO INGOT IRON.**

Armco culverts provide protection against the greatest number of destructive elements

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Dixie Culvert Mfg. Co.
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Welded Gas and Oil Tanks

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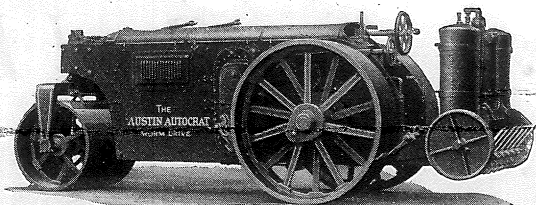
M. E. SHERLAND, Sec.-Treas.
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The First Time In Roller History

—the worm drive has been adapted to roller use, giving a transmission which is free from vibration—allowing a greater ease of control and a flexibility never before known in the operation of any roller.

The steamline design allows unobstructed vision to the operator, at the same time serving as a most protective shield against dust, the elements and thievery.



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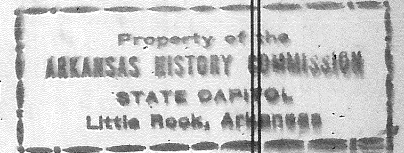
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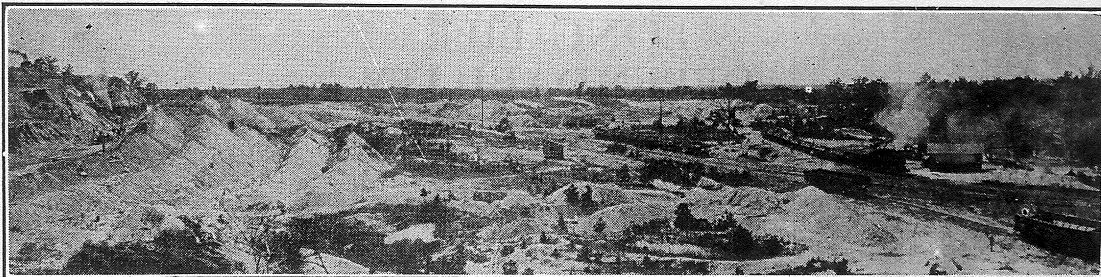
Little Rock, Arkansas

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