

KENTUCKY HIGHWAYS



Official Magazine, State Highway Department

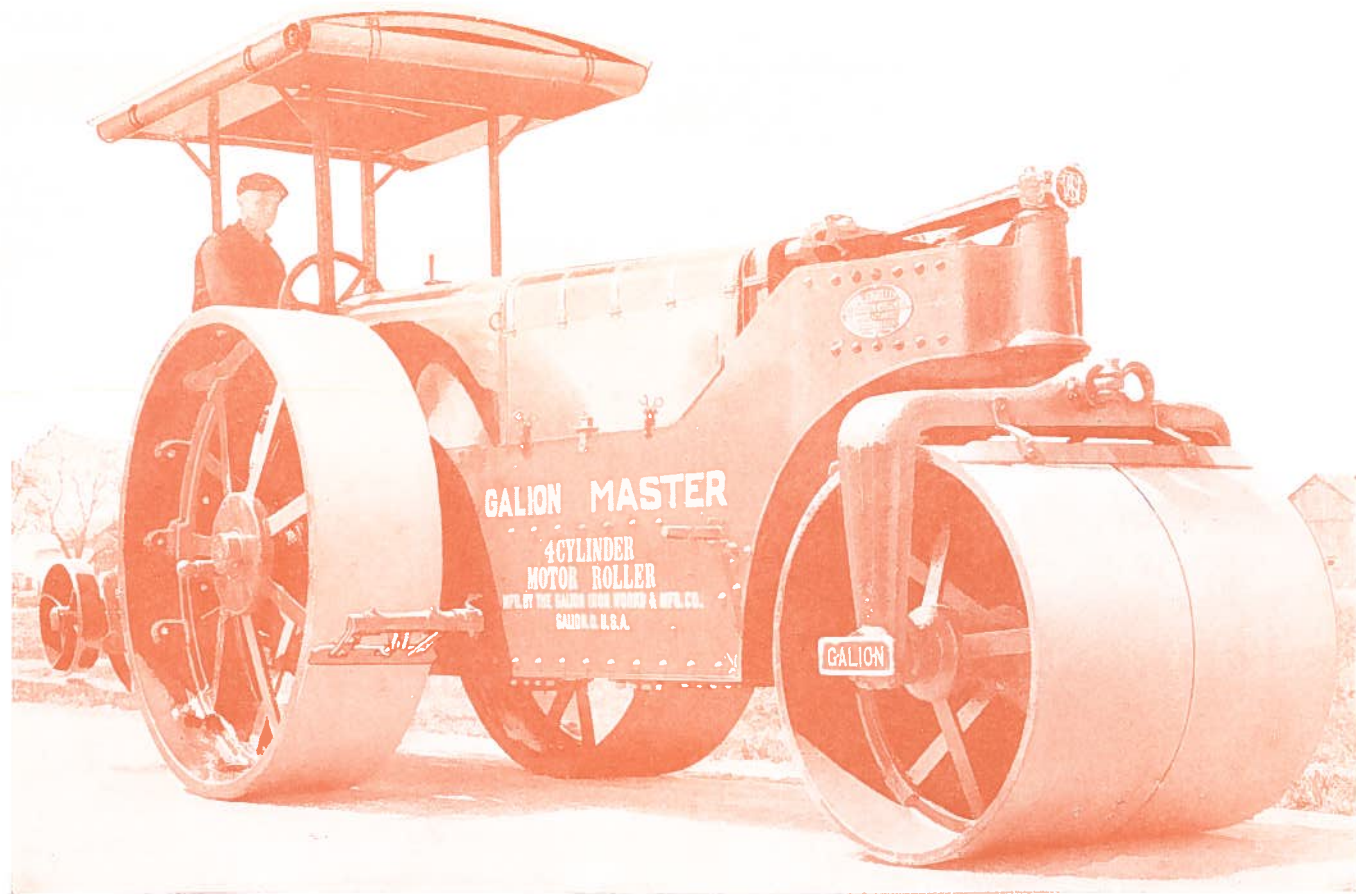
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Vol. I

OCTOBER 1926

No. 4



Road-Builders Everywhere Approve *The* GALION MASTER

Other Galion Rollers

The Galion line also includes steam rollers and motor rollers, tandem and three wheel in all the standard weights and McCormick-Deering and Fordson powered rollers in weights from three to ten tons. The line is modern and includes the latest and best developments in rollers.

Galion Graders

Fordson and McCormick-Deering motor graders and a complete range of horse and engine graders are included in the Galion line. Whatever your grader needs, Galion can meet them with modern, efficient machines.

Other Galion Products

These include Drags, Wheel Scrapers, Slip Scrapers, Fresnoes, Rooter Plows, Car Unloaders, Gravel Screening Plants, Corrugated Culverts, Cast Iron Culverts and a variety of other road building products.

"Tried out to our entire satisfaction," "doing excellent work," say officials of Grant Company, Kentucky, who have two Master Rollers.

"Has exceeded our expectations in every way. The extreme ease of operation, the starting of same and the action on the job in rock, shale, clay or loam is simply wonderful," says A. T. Purvis, of the Bird Purvis Construction Company, of Sanford, Florida.

"Climbs new stone with no effort at all and never sticks," says C. M. Gray, of Waterville, Ohio.

"Extremely pleased with its operation—handles very easily, starting without any trouble," says F. B. Tait, of W. W. Harper Construction Company, Somerset, Pennsylvania.

You'll want to know more about this roller. Ask for copy of new catalog now on the press.

The MASTER SCARIFIER

The Galion Master Roller is equipped with a powerful pneumatic scarifier which is without a superior in its field. The reversible teeth are 30 inches long and 2 inches square. They stand at a 45-degree angle at all times whether up or down. Pneumatic pressure is supplied by a gear-driven compressor—no belts to slip. This powerful scarifier tears up a strip six feet wide of any kind of paving.

In every detail from the frame of sturdy steel plate to the bronze bushings in the front rolls the Galion Master is made to give long, satisfactory service. Write for descriptive folder and prices.

New catalog now on the press.

Write for Galion prices and information on the Road Building and Maintenance Equipment you need—A line does it.

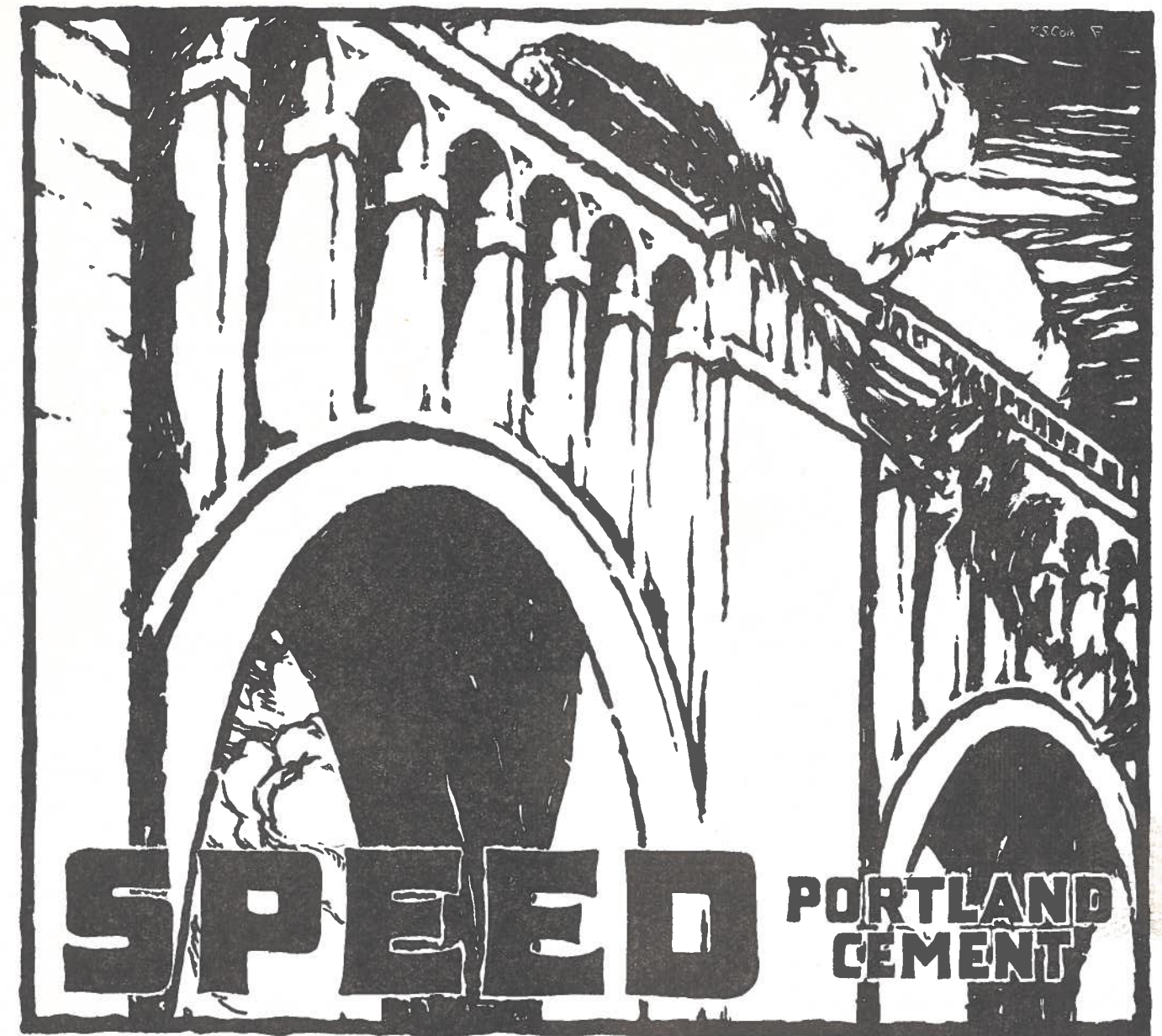
The Galion Iron Works and Mfg. Co., Galion, Ohio

KENTUCKY REPRESENTATIVES

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DEPENDABLE

An experience of ninety-five years in the manufacture of cement, large production, nearness of mills, fast transportation by interurban and steam railroads and adequate warehouse facilities assure you that dependability of product and service for which Speed Portland Cement has long been noted.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

Why Keep On Paying This Tax?

EVERYBODY expects to pay some taxes, but why impose unnecessary taxes on yourself?

Do you realize that every time you drive your car on an unpaved highway you are actually taxing yourself one to four cents a mile?

This is the cost of increased repair, tire and gasoline bills.

Highway research has definitely established these facts.

Each year you tax yourself in this way a good many dollars.

Instead of spending this money for increased transportation costs, why not invest it in Concrete Highways and pay yourself some dividends?

Concrete Roads and Streets pay for themselves in the saving they effect on the cost of motoring.

Their maintenance cost is so low that this saving alone returns good dividends on the investment, year after year.

You are imposing an unnecessary tax on yourself from which you get no return, by failing to work for more Concrete Highways.

Not in a long time have general conditions been so favorable for carrying on such public works as permanent highway building.

Your highway authorities are ready to carry on their share of this great public work. But they must have your support.

Tell them you are ready to invest in more Concrete Highways, now.

Portland Cement Association

Merchants Bank Building
INDIANAPOLIS, IND.

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

OFFICES IN 31 CITIES



Showing territory served with Lone Star Cement by the subsidiaries of the International Cement Corporation

How a simple idea built a business that spans two continents

TWENTY-FIVE years ago a group of men conceived the idea from which, in 1919, grew the International Cement Corporation. They determined to produce a super-quality cement and to maintain that super-quality day in and day out. As a result Lone Star Cement today enjoys a nation-wide reputation for quality and uniformity.

This has been accomplished

by maintaining the finest laboratory facilities, by developing and employing improved equipment, and by training men in every detail of manufacturing technique.

Dependable quality, a code of fair business dealing, and a human, neighborly understanding of the problems of the dealer and user, have built a business that now spans two continents.



A Nation-wide Symbol of super-quality cement and dependable building material service

INDIANA PORTLAND CEMENT COMPANY
CONTINENTAL BANK BUILDING, INDIANAPOLIS

Subsidiary of the International Cement Corporation

One of the world's largest cement producers—10 mills—annual capacity 12,000,000 barrels

BRANDEIS

Machinery and Supply Co.
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BUFFALO-SPRINGFIELD ROLLER CO.

Steam and Motor Rollers

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Steam, Electric and Gas Hoists

DOMESTIC ENGINE & PUMP CO.

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ERIE STEAM SHOVEL CO.

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Portable and Stationary Steam Engines and Boilers

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CHAS. HVASS & CO., Inc.

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Steam Air Compressors, Belt-Driven Air Compressors, Gasoline-Driven Air Compressors, Rock Drills, Air Tools

A. LESCHEN & SONS WIRE ROPE CO.

HERCULES Red Strand Wire Rope

INSLEY MFG. CO.

Concrete Chutes, Buckets, Hoppers, Sheaves, and Concrete Distributing Equipment, Steel Derricks, Contractors' Cars, and Buckets, Skip Cars, Industrial Cars and Track, Concrete Cars and Hand Carts, Form Clamps, Derrick Booms, Cableway and Stone Skips, Excavators.

LE ROI CO.

Single and Multi-Cylinder Gasoline Engines

LITTLEFORD BROS.

Tar Heaters and Pouring Pots

McKIERNAN-TERRY DRILL CO.

Steam and Air Pile Hammers

SASGEN DERRICK CO.

Builders' Circle Swing Derricks, Tripod, A-Frame Pole, and Setter Derricks, Material Elevators, Guy and Stiff Leg Derricks, Winches and Crabs

THE T. L. SMITH CO.

Concrete Mixers in both Tilting and Non-Tilting Types, Paving Mixers and Smith Excavator and Loader

SMITH ENGINEERING WORKS

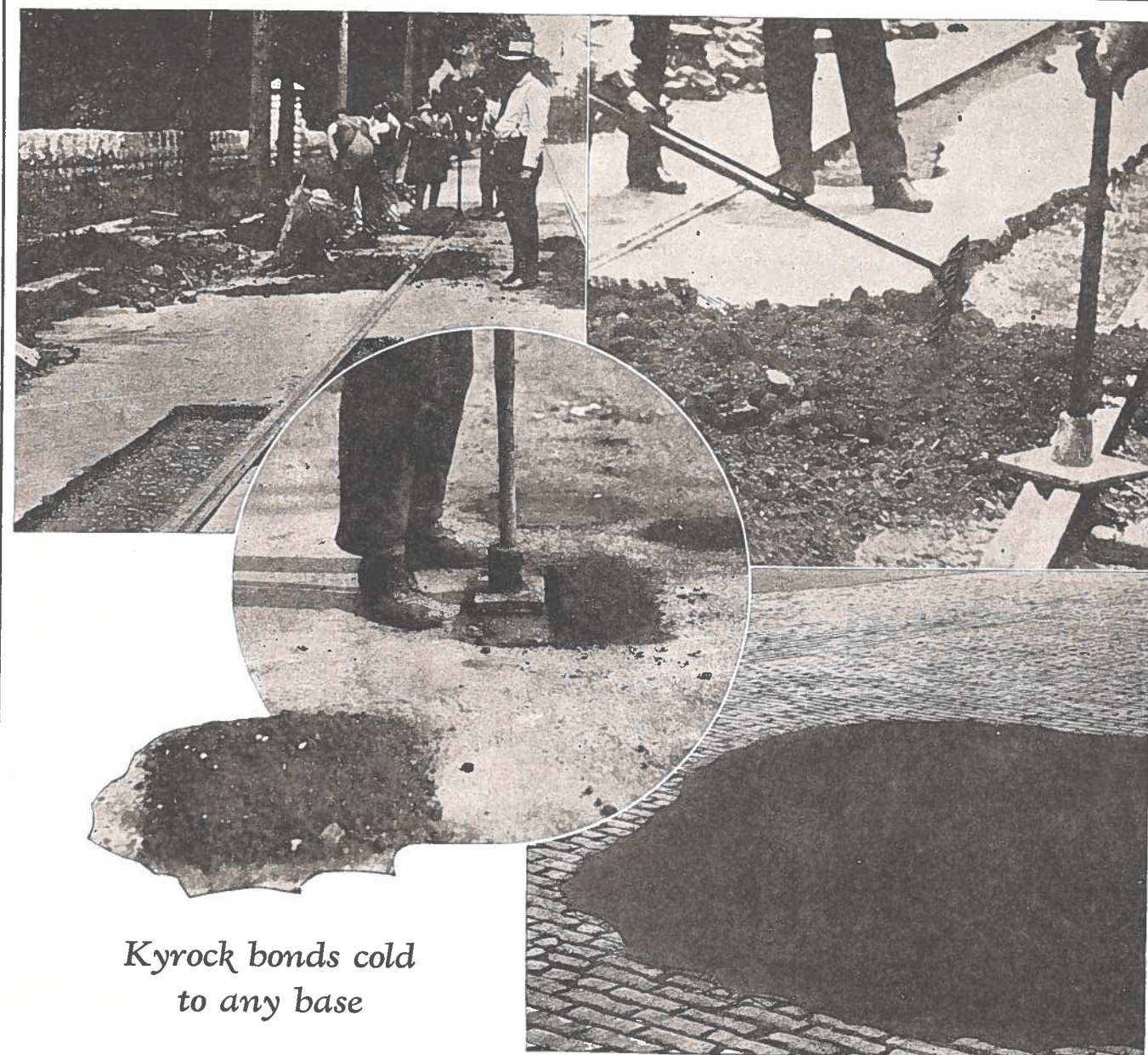
Telsmith Gyratory, Jaw and Reduction Crushers, Bucket Elevators, Rotary Screens, Gravel Washers, etc.

STERLING WHEELBARROW CO.

Sterling Wheelbarrows, Concrete Carts and Form Clamps

WESTERN WHEELED SCRAPER CO.

Wheelers, Slips and Plows



*Kyrock bonds cold
to any base*

KYROCK Simplifies Maintenance

Kyrock is laid cold without special equipment. Stored in the open without damage. Shovel it on, rake to grade, cold tamp or roll, and the job is done. Investigate Kyrock.

for Sheet Asphalt, Bituminous Macadam, Worn Brick, Granite, Concrete. Write for details.

KENTUCKY ROCK ASPHALT CO., Incorporated, LOUISVILLE, KY.

Kyrock
The Perfect
Pavement



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Are You Patronizing Them?

To Advertise in Kentucky Highways is to Sell to Its Readers—the Best Buying Class in This Section of the Country.

To Read Kentucky Highways is to Buy From Its Advertisers—the Preferred Manufacturers and Dealers of the Road-Building Industry.

KENTUCKY HIGHWAYS

Official Magazine of the State Highway Department

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"Kentucky Highways" is edited in the offices of the State Highway Department at Frankfort. Communications relative to advertising and subscriptions should be addressed to "KENTUCKY HIGHWAYS", 1100 West Broadway, Louisville, Kentucky. Subscription free on application. Permission is granted to reprint any matter contained herein. Please give proper credit.

GEO. L. WILLIS, SR., Editor.

Vol. I. OCT., 1926 No. 4.

HIGH SPOT IN
PATHWAY OF A
LITERARY GENIUS

On the great oneway highway, nothing so lightens the load and brightens the road as a good book, read in the reverent, God-fearing genius could accomplish what Bruce Barton has in one of the year's "best sellers," "The Man Nobody Knows." Unlike those fictionists, who, rushing in where angels fear to tread, have succeeded only in shocking the reverent, Mr. Barton has presented a wholesome, welcome portraiture of the person and personality of the Christ, which neither offends a proper sense of reverence nor can but increase the piety and faith of thoughtful men and women.

Only one little passage grates and jars. He, unconsciously perhaps, aids and abets the sceptics in their favorite method when he describes as probable fiction some of the stories of Christ's fame while he yet lived. That, as said, is one of the non-believer's favorite ways of denying the original greatness of the Man. They have taught the world to believe that the reverent references in the writings of Josephus are but pious forgeries of later years, and that Jesus and his activities were then not considered of sufficient importance to be even known to contemporaneous historians and scholars.

France's literary genius, Anatole France, has been guilty of the same useless impiety in recent years. In an absorbing little story he describes Pontius Pilate ruminating in a seaside resort in extreme old age, and paints a scene where he, in reminiscent conversation with an old worldly friend of Mary Magdalene, and in answer to questioning says he can not remember anyone by the name of "Jesus," and when pressed with reminders ponders long and then insists that he can not recall any trial or crucifixion of any such personage.

lieve, despite that day's crude methods of disseminating information, that "His fame did spread abroad;" that Josephus did consider Him more God than Man; that Pilate more probably died a remorse-crazed old penitent, and that the then small world in which the Savior lived and moved was thrilled and awed, as the whole world would be now, when he spoke as "Man never spake" before.

At any rate, no interested person should forego the opportunity and the privilege of reading "The Man Nobody Knows," and Mr. Barton's later success, "The Book Nobody Knows."

REPRESENTATIVE READ- The business men, firms and corporations of this and other states who are so liberally patronizing the advertising columns of KENTUCKY HIGHWAYS, will, like other friends of the magazine, be interested in learning that during the last thirty days there have been added, by request, to the regular subscription list of HIGHWAYS, 115 Kentucky hotels and public libraries; 400 Kentucky banks and an equally long list of high class individuals in and out of the state.

Enclosed with some of the magazines for October, and to be sent to any others on request, are copies of the new edition of the Department's tourist map and guide, just off the press and brought down as nearly to date as practicable. The necessity of hurriedly obtaining a new supply of these everywhere demanded publications has resulted in some omissions, rather than errors, as to condition of roads shown, roads like the Ohio River Route from Louisville to the Oldham County line, having been conditioned, and other routes not so shown having been put under construction since the work on the map was finished. Such omissions will be supplied in the larger, newer edition, soon to be printed.

DOUBLING THE JOY OF LIVING

A brilliant writer for McClure's Newspaper syndicate says "the man who sees the spiritual by-products of his business or profession doubles the joy of living." The engineers and road builders of America have a prosaic business, but it has a wealth of spiritual by-products. They set out, years ago, to build new roads and they have built a new kind of civilization.

They have saved rural communities from the isolation that starves men's souls and shrivels their spirits.

They have reduced the narrow provincialism of American towns and cities by linking them up with other towns and cities.

They have made possible the development of rural mail service. They have rendered the parcel post service possible.

They have made possible a reduction in the cost of getting farm products to and finished goods from railroad shipping points.

They have made the educational and cultural influences of America available to wider and wider areas.

They have, as a by-product of the aforesaid prosaic business, transformed the living conditions, the thought, the culture, and the life of the American people.

* * * * *

OUT OF ALL BOUNDS AND BOUNDARIES

KENTUCKY HIGHWAYS aims to pay little if any attention to misrepresentations by other publications unless they get as much as one hundred per cent wrong, and doesn't consider even that much "inaccuracy" as enough to get excited about, when it is one of a certain class of newspapers that is doing the talking. But the Louisville Times editor has recently gotten up into the 200-per-cent-inaccurate class, and seems determined, having declared the horse full seventeen feet high, to stick to it. He has several times referred to the wonderful road improvements being made in Southeastern Kentucky, and more than once has spoken of the Pineville-Harlan road as costing "two million dollars"! This road, the Bell and Harlan county part of the "Mayo Trail" is known as Federal Project 151 a., b. & c., and is just 26.17 miles long; and has been awarded to one contractor for \$720,714.38.

* * * * *

CUPID IN CAMP, AND THE PSYCHOLOGY OF SIGHTOLOGY

All roads for the last several months have been leading to and from camp—the Kentucky River camps, the tourist rest spots, and the summer camps at the seaside and around the great lakes. Cupid seems to haunt these camps, and shows more activity in them and more actual results than in all the winter campaigns he makes. We have been doing a good deal of "observing" at these places of recent years, and have come to the conclusion that more wedding engagements are made at or follow these camps, and strangely too that more old engagements are broken at or following them than anywhere else in the world. Trying to "figure" out the psychology of the thing we have come to the conclusion there are figures in it but no psychology; that it is all figures and sight-

ology, and that both of the sets of results just mentioned are due to the fact that the people, old and young see more of each other at the camps and seaside than elsewhere, and that's what gets results. See?

* * * * *

UNIVERSAL TRAFFIC LAWS AND TRAFFIC CONTROL

The general public seems slow to grasp, if capable of fully grasping, the magnitude of the revolution brought about in the material life of America by the advent of the motor vehicle. Universal road and motor vehicle laws will soon be as essential to orderly life in this country as the Federal Judiciary system itself. Soon it will be as necessary to have in each State Highway Department a Traffic Division to assist as well as control the multitudes on wheels, as to have in the cities a police force or a fire department. Those who fail or refuse to foresee it are either without proper vision or else do not properly benefit by what they have seen transpire in little more than a decade.

* * * * *

INCOMPETENT AND TO BE DISREGARDED BY THE JURY

There appeared at about this point on this page of KENTUCKY HIGHWAYS for September a paragraph susceptible of such interpretation as might offend automobile clubs, their officials or employees. The editor of HIGHWAYS, who was responsible for the paragraph, regrets its appearance in these columns, and hereby offers apologies to the auto clubs of this and other States and to any of their members, officials or employees who may have taken offense thereat.

Highways and the Public Safety

HIGHWAYS of the United States must be constructed in the future with a view to protecting lives and not merely to provide a temporary means of transportation, in the opinion of Secretary Hoover of the commerce department.

Uniform traffic regulations throughout the United States and Canada also are necessary, he declared in a statement made public by the American Road Builders' Association.

"Uniform laws by the states are necessary to check the terrific toll in life and property that reckless automobile driving levies annually in America," Secretary Hoover said.

"The activity of the American Road Builders' Association in securing such regulations should be supported by the entire country along the lines recommended by the national conference on street and railway safety."

Property loss as the result of accidents in the past 12 months was placed by the secretary at more than \$600,000,000, with a death toll in excess of 30,000.

"When we had only three people in a township," he concluded, "they did not require traffic rules to keep their elbows out of each other's ribs, but when we get a million in a community, somebody has to tell them how to move or they will run into each other. Roads must be constructed wide enough and numerous enough to handle them."

Monthly Financial Statement, Highway Department

ESTIMATED RECEIPTS		ESTIMATED DISBURSEMENTS	
Fiscal year, July 1, 1926, to June 30, 1927		Fiscal year, July 1, 1926, to June 30, 1927	
Gasoline Tax	\$ 4,750,000.00	Administration	\$ 300,000.00
Motor Licenses	4,100,000.00	Location	200,000.00
Motor Busses	70,000.00	Maintenance and Equipment	3,000,000.00
Federal Aid	1,416,000.00	Old State Aid Debt	500,000.00
Interest	40,000.00	Truck License Refund	400,000.00
Ad Valorem Taxes	900,000.00	Construction	6,876,000.00
Total	\$11,276,000.00	Total	\$11,276,000.00
Fiscal year, July 1, 1927, to June 30, 1928.		Fiscal year, July 1, 1927, to June 30, 1928.	
Gasoline Tax	\$ 5,125,000.00	Administration	\$ 300,000.00
Motor Licenses	4,500,000.00	Location	200,000.00
Motor Busses	85,000.00	Maintenance and Equipment	2,000,000.00
Federal Aid	1,416,000.00	Truck License Refund	400,000.00
Interest	40,000.00	Construction	9,166,000.00
Ad Valorem Taxes	900,000.00	Total	\$12,066,000.00
Total	\$12,066,000.00	Total	\$12,066,000.00

RECEIPTS AND DISBURSEMENTS TO DATE					
RECEIPTS		DISBURSEMENTS			
	July	August		July	August
Fed. Aid on Constr. New Proj.	.....	.....	Fed. Constr. Old Proj.	\$ 312,935.72	\$ 253,764.73
County Aid on Constr. New Proj.	.....	\$ 54,642.84	State Constr. Old Proj.	213,049.44	264,878.16
Co. Aid Main. and Recon.	\$ 2,500.00	.....	Reconstr. Old Proj.	33,513.89	66,913.41
Fed. Aid on Constr. Old Proj.	129,423.67	103,786.02	Fed. Constr. New Proj.	29,511.46	106,544.34
Co. Aid on Constr. Old Proj.	218,524.76	248,171.99	State Constr. New Proj.	15,611.84	66,052.72
County Aid on Main. and Re-	.....	.....	Advertising	238.97	217.29
constr. Old Projects	1,250.00	400.00	Com. on Frt. Refunds	213.98	.....
Blue Print Revenues	34.20	32.10	Interest on Warrants	2,130.03	1,767.02
Freight Refunds	839.83	273.96	Settlements on Old St. Aid Work	31,721.29	.....
Misc. Equipment Revenue	132.36	7.67	Topographical Survey	1,520.58	3,966.56
Misc. Maintenance	83.05	148.14	Truck License Refund	.....	.....
Total Bridge and Ferry License.	70.00	17.50	Payments of old St. Aid.	221,128.31	2,235.76
State Revenues:	.....	.....	Maintenance:	.....	.....
Mileage Tax	16,359.62	7,726.74	Ordinary	90,131.25	122,601.27
Gasoline Tax	396,745.08	378,086.08	Surface Treatment Contract	372.06	25,744.69
Interest on Deposits	45,000.00	1,500.00	Surface Treatment Force Acct.	18,436.21	15,426.05
Motor License Tax	115,058.31	67,037.19	Additions and Betterments	4,336.12	4,731.78
Ref. Interest on Warrants	112.22	.21	Detours and Temporary Roads	125.12	10.80
Motor Transportation Dept.	.....	.....	Equipment	65,708.68	105,256.35
Totals	\$926,133.11	\$858,830.44	\$300,000.00 Budget	26,111.75	22,880.11
Total to Date	.....	\$1,784,963.54	\$200,000.00 Budget	2,176.80	14,448.36
			Toll Roads Purchased	.....	8,500.00
			Interest Deferred Payments	.....	79,448.48
			Totals	\$1,068,973.45	\$1,165,387.88
			Total to Date	.....	\$2,234,361.33

STATUS OF ALL BUDGETS AS OF SEPTEMBER 1, 1926	
Estimated Construction Budget for Biennial Period Ending June 30, 1928	\$16,042,000.00
Estimated Cost to Complete Contracts Executed since July 1, 1926	5,680,178.60
Balance in Construction Budget	\$10,361,821.40
County Contributions not included in above estimates:	
Maintenance Budget for Biennial Period Ending June 30, 1928	\$ 5,000,000.00
Expenditures to August 31, 1926	452,880.33
Balance in Maintenance Budget	\$ 4,547,119.67
\$600,000.00 Special Budget Administrative	\$ 600,000.00
Expenditures to August 31, 1926	48,991.86
Balance in \$600,000.00 Budget	\$ 551,008.14
\$400,000.00 Special Budget Location	\$ 400,000.00
Expenditures to August 31, 1926	16,625.16
Balance in \$400,000.00 Budget	\$ 383,374.84
For Repayments of Old State Aid Work	\$ 500,000.00
Expenditures to August 31, 1926	223,364.07
Balance in Budget	\$ 276,635.93
Truck License Refund	\$ 800,000.00
No Expenditures	.....
Balance Truck License Refund	\$ 800,000.00
Total Budgets for Biennial Period Ending June 30, 1928	\$23,342,000.00
Contracts Executed and Charged Against Construction Budget, and Expenditures on all other	.....
Budgets to August 31, 1926	.....

New Work Awarded in September

SEALED bids were received by the State Highway Commission at the office of the State Highway Engineer, Old Capitol Building, Frankfort, Kentucky, until 2:00 P. M. on the 3rd day of September, 1926, for the improvement of the following roads, and the awards were given:

Green: Greensburg-Hodgenville road from near Allendale (end grading project F. A. 126-A) to the Larue County line near Mt. Sherman, 6.9 miles grade and drain. Mason Construction Co., \$95,991.87.

Jessamine: The Russell Cross Roads-High Bridge road, from intersection with Lexington-Harrodsburg pike near Russell Cross Roads, to High Bridge, 6.2 miles surfacing. Guy Coleman Co., \$67,529.44.

Letcher: The Pound Gap-Seco road from the Virginia State line at Pound Gap to Seco (including the towns of Jenkins and Hammond, 10.4 miles surfacing. Cadell Construction Co., \$300,519.32.

Ohio: The Owensboro-Morgantown road from Beda to Beaver Dam (not including town of Hartford), 7.54 miles surfacing. Corum Bros., \$62,766.88.

Pendleton: 5.68 miles penetration macadam. J. M. Perkins Co., \$117,763.24.

Pendleton County: 5.68 miles penetration macadam, J. M. Perkins Co., of Frankfort, \$113,763.34.

Warren-State S. P. 1-a. Approximately 4.5 miles Rock Asphalt. Raymond Contracting Co., \$92,000.00.

Monroe: S. P. 37-a. 7.76 miles grade and drain, Mason Construction Co., \$70,703.66.

Also on September 27 and 29 sealed bids were received for the improvement of the following described roads. The successful bidders who will soon be awarded the work, unless re-advertised, also follows:

Anderson-Franklin: The Lawrenceburg-Graefenberg road from end of F. A. 134 at Alton to intersection of Midland Trail near Graefenberg, 6.6 miles grade and drain. J. M. Perkins, Frankfort, Ky., \$53,623.64, grade and drain.

Fayette: The Lexington-Richmond road from approximately 1,100 feet southeast of city limit of Lexington, thence southeastwardly to Ashland Golf Club, 0.378 miles surfacing. Louis des Pogust, Lexington, Ky., \$4,762.00, reinforced concrete.

Garrard: The Lancaster-Crab Orchard road from Lancaster to the Lincoln County line, 6.3 miles surfacing. R. E. Van Camp, Columbus, Ohio, \$48,490.19, waterbound macadam.

Graves: The Mayfield-Paducah road from north city limit of Mayfield to McCracken County line, 13.815 miles surfacing. N. E. Stone & Co., Madisonville, Ky., \$56,181.20, bank gravel, unrolled.

Henry: New Castle-Frankfort road from 1½ miles south of New Castle, thence southeastwardly to North Pleasureville, a distance of approximately 5.432 miles surfacing. Muir & Welch, Nicholasville, Ky., bank gravel, \$93,272.46; w. b. macadam, \$102,673.36; bit. macadam, \$117,430.16.

Hickman: The Cliton-Fulton road from near Fulton County line to south city limit of Clinton, 6.4 miles surfacing. Carter, Carter & Braden, Clay, Ky., \$72,-204.20; bank gravel.

and drain. Connelly Construction Co., Somerset, Ky., \$81645.27

Connelly & Lutes & Son, Somerset, Ky., w. b. macadam, \$86,941.54; bit. macadam, \$104,211.32.

Lincoln: The Stanford-Lancaster road from Stanford to the Garrard County line, 5.5 miles surfacing.

Nelson: The Bardstown-Springfield road from end of State maintained road approximately 3.0 miles southeast of Bardstown to the Washington County line, 4.0 miles surfacing. L. E. Marks Co., Bardstown, Ky., \$44,212.07, w. b. macadam.

Perry: The Hazard-Jackson road from Hazard towards Lotts Creek, 1½ miles surfacing. R. H. Bolling, Norton, Va., \$41,413.65; reinforced concrete.

Perry: The Hazard-Whitesburg road from Glomar, east of Hazard, to Knott County line at Sassafras, 9.382 miles surfacing. Codell Construction Co., Winchester, Ky., creek gravel, \$51,772.82.

Shelby County: Three revisions, approximately 6, 4 and 3 miles east of Shelbyville, 1.15 miles grading.

Enforce the Law

(Editor M. O'SULLIVAN in *Shelby Sentinel*)
IF THE width of our public roads were increased to twenty or more feet the liability to accidents would be lessened. Speed, with careful driving in such a case, could be increased and the resultants of accidents would be in lesser degree than with a slower speed upon a narrower roadway.

"Our narrow roads make it imperative on the motorist to slow down for safety's sake.

"There is no stress to the argument that elsewhere automobilists go at a greater speed than in this county. In such places the roads may be wider and the hazard the less even though the speed be increased.

"On account of our narrow roadways the safety of all demands a slowing down of the automobile.

"It has been stated a possible 75 per cent of all travel is gadding about for anything and everything except business. If such be true then the demand for slowing down should be insistent. Speeding upon narrow roadways should be prima facie evidence of criminality. There is no necessity for such speed in 75 per cent of all travel and it is this 75 per cent that violates the speed laws more grievously and more often.

"Let public sentiment force these speeders to keep within the law's limits as the safety of all is dependent upon the observance of such a law. In Shelby County with its narrow roadways it is imperative. Make them slow down. Life and limbs demand their meed of protection. Enforce the law. Never mind the criticism. Enforce the law sensibly and often."

Gasoline taxes for 1925 and 1926

Gasoline taxes collected in the United States, Kentucky and other states in 1925 were as follows:

Total gasoline taxes collected in U. S.	\$146,028,940
" " " " Ky.	3,041,560
" " " " Ind.	7,832,462
" " " " Calif. ...	16,150,387
" " " " Fla.	7,657,507

Closing the Gaps

Progress Being Made in Completing the Major Highway Routes in the State.

WHEN the present State Highway Commission came into office in the early part of 1924, a complete survey was made of all the major highway routes through this State in order to ascertain the probable cost of the completion of these trunk-line roads. It was estimated at that time that the cost of this work would run somewhere between six and seven million dollars. Due to the fact that a large number of contracts were then under way for construction, which hypothecated the major portion of the road revenues up until the fiscal year ending June 30, 1926, it was impossible to then plan the letting of contracts for the completion of all the gaps in these roads, but wherever county funds were found available to match Federal funds contracts were let on these major highways and even up to the first of this calendar year, the Commission was exerting every effort to finance and let contracts on these "gaps."

During the winter months of 1925-1926 agitation was started for an additional two-cent gasoline tax and with the probability of its passage, the Highway Commission again made a re-survey of these through routes with a view of setting aside sufficient moneys for their speedy completion. It was realized at that time that should the department start the new construction of all these gaps at one time it would be impracticable and at the same time impossible for the through travel to get through Kentucky, so in making the plans for this work the outline called for the new construction of certain gaps, and the reconstruction of others, under traffic.

When the Legislators convened at Frankfort in January, 1926, it seemed that the one issue in the minds of most of them was a provision for more roads. They had heard the demand from the people back home for more miles of highways. They realized that the State Highway Department would require additional funds if any great amount of additional construction was to be carried forward during the next biennial period. They, therefore, passed a measure providing for an additional two-cent tax on gasoline. After this measure was passed by both Houses, signed by the Governor and became a law, the Highway Commission immediately began to prepare its budget for the biennial period beginning on July 1, 1926, and ending on June 30, 1928, and included in the budget for construction, provision was made for the construction of the gaps in the following trunk-line roads:

1. The road from Ashland to Louisville, known as the Midland Trail.
2. The road from Louisville toward Nashville, Tenn.
3. The road from Henderson by way of Hopkinsville to the Tennessee State Line at Guthrie.
4. The road from Covington, Ky., to Knoxville, Tenn., by way of Lexington, Corbin and Cumberland Gap, known as the Eastern Dixie.
5. The road from Louisville to Paducah, known as the Ohio River Route.
6. The road from Louisville by way of Bardstown, Springfield, Danville to Mt. Vernon.

Midland Trail.

Louisville road embraced 13.5 miles of road between Owingsville and Farmers, in Bath County, and a bridge over Tygart Creek, in Carter County. One contract has been let for grading, drainage and concrete surfacing on the first mentioned gap to the extent of 2.0 miles at an estimated cost of \$115,000. Another contract on the Bath County gap has been let for the grading of that section of road between Salt Lick and Farmers, 3.9 miles in length, at an estimated cost of \$82,000. That portion of the road between Owingsville and Farmers which will not be surfaced with concrete this year is now being handled as a reconstruction project by maintenance forces, constructing a traffic-bound gravel and macadam road. By handling the work on this section of road in this manner traffic will be able to use the road this season, whereas if the department had attempted to pave the entire 13.5 miles it would have been impossible to provide for the travel for another year. The bridge over Tygart Creek has been provided for; a contract was recently let for the construction of this structure at an estimated cost of \$70,000. It will not be possible to finish this structure until some time during the calendar year of 1927; however, a good detour is provided over the old existing bridge.

Louisville-Nashville Road.

In planning a Louisville-Nashville road the Highway Commission thought it best to make immediately available a serviceable road between these two cities without interrupting traffic, and for that reason a combination of the Western Dixie and the Jackson Highways is being used as the route from Louisville to Nashville by way of Bowling Green, Scottsville and Gallatin, Tennessee. At the time the Commission's budget was made up there was approximately seventeen (17) miles of very rough road on the Western Dixie between Upton and Glasgow Junction. This road is now being resurfaced by the Maintenance Division forces, as a traffic bound road and the work is approximately seventy-five (75) per cent complete. The estimated cost of the resurfacing of this seventeen (17) miles of road is \$45,000. At the same time a number of contracts have been let on what is known as the Western Dixie between Bowling Green and the Tennessee Line. These contracts are: Simpson County, State Project No. 15-A, 2.4 miles surfacing and Warren County, State Project No. 15-A, 2.4 miles surfacing. And on the Jackson Highway: Barren County Federal Aid Project 28-C, between Glasgow and the Allen County line, 7.4 miles grade and drain; and Allen County Federal Aid Project, 112 between Scottsville and the Barren County line, 10.1 miles of surfacing. The total expenditure on the Louisville-Nashville road as listed above under this program of work amounts to \$485,000. At the end of this construction season traffic can go from Louisville to Nashville by way of Bowling Green, Scottsville and Gallatin, Tennessee, or by way of Bowling Green and Franklin.

Dixie Bee Line.

Contracts have been awarded on the Henderson-

Line, as follows: Between Madisonville and Morton's Gap, grading, surfacing and an overhead crossing near Barnsley; and in Christian-Todd Counties, contract for grading and drainage has been let from Pembroke, the end of State-maintained road, to the Tennessee State line at Guthrie. At the end of this season traffic can use the Dixie Bee Line over a surfaced road from Henderson to Hopkinsville. From Hopkinsville it will be necessary for travel to go by way of Clarksville which is now being reconstructed as a traffic-bound road. The total expenditure of the above mentioned contracts is estimated at \$250,000.00.

Eastern Dixie.

Traffic is now using the road by way of Falmouth, Cynthiana and Paris to Lexington pending the completion of the Dixie between Williamstown and Georgetown, which is under contract. On the Eastern Dixie south of Lexington the following contracts have been awarded:

Contract for surfacing between Berea and Round Stone, 9.5 miles in length; the reconstruction of 3.5 miles of macadam between the Kentucky River and Richmond; and the surfacing of 5.8 miles between Williamsburg and Jellico on the alternate route to Knoxville, Tennessee. With a view of completing the main road between Lexington and Cincinnati by way of Georgetown and Williamstown at the earliest possible date, contract has recently been awarded for the 6.5 miles of surfacing in Grant County. The total estimated cost to complete the above mentioned contract is \$650,000. At the end of this construction season travel can go from Covington to Knoxville by way of Falmouth, Cynthiana, Lexington, Richmond, Corbin and Cumberland Gap over a hard surfaced road. While it is not possible to finish the surfacing between Berea and Round Stone during this construction season, considerable repair work is now planned on the Scaffold-Cane Road which is now being used as a detour, and this repair work will be completed before bad weather this winter.

Louisville-Paducah Road.

At the beginning of this biennial period when the Commission made its plans for the work outlined in this article it was planned to do all the work that is possible on this road towards surfacing it during this biennial period. Working along this line a large number of contracts have been awarded for grading, drainage and surfacing of a total mileage of 55.6 at a total estimated cost of \$675,000.

Louisville-Mt. Vernon Road.

The Louisville-Mt. Vernon Road by way of Bardstown, Springfield and Danville is the short cut for travel between Southeastern Kentucky and Louisville. Contracts have been awarded on the grading and drainage of 8.1 miles extending from Mt. Vernon to the Lincoln County line and before this article goes to press, contracts will have been awarded on that section between the Rockcastle County line and Stanford by way of Crab Orchard. Also the reconstruction of a four-mile section between Bardstown and Springfield in Nelson County.

Weather Misfortunes.

The reader's attention is called to the fact that the weather conditions prevailing since July 1 and up to the present have been perhaps the most unfavorable for road work of any before in the history of road building in Kentucky. The result is that the hope indulged for the completion of certain of these gaps in

suitable weather for construction prevails from now on to December 1, it is possible that a large number of the gaps will still be eliminated by the end of the building season.

Hopes Realized.

It is no longer a hope, expressed, that travel can go East and West and North and South through Kentucky, but, in fact, it is now a reality and at the end of this construction season Kentucky will have as good connections for through travel across the State as any of the adjoining States. The Commission has not been working by a hit or miss rule in awarding contracts, but it has been following a well-thought-out plan in the endeavor to accommodate, not only the local people within the bounds of the State, but at the same time the through travel; that is, at all times, welcome. The Highway Commission does not want to create the impression with those who are not acquainted with the road building program in this State that all the road revenues are being spent on the through highways above listed, hence, their attention is called to the fact that more than 200 contracts for construction and reconstruction are now in progress in more than ninety of the 120 counties so that not only through travel will be taken care of but at the same time the "farm-to-market" roads are receiving attention. The obligations of the State in paying for the contracts which were let prior to the time this Commission went into office have been practically liquidated of the State Aid being made toward the liquidation of the State Aid debt, created prior to the Commission form of highway administration.

Kentucky's Climate Best In the Country

HERE comes a shock of surprise for the army of folks who are always abusing Kentucky's weather, and doing absolutely nothing toward improving it. The following is from a prominent official of the United States Weather Bureau at Washington:

"Kentucky climate is one of the State's attractions not much brought into the limelight until put on a comparative basis. Lined up alongside the respective climates of 47 other Commonwealths, that of Kentucky is such as to arouse appreciation of natives and attract the attention of outsiders. 'Kentucky holds an enviable mean between extreme cold and long winters of the northern States, and the equally long, heated summers of those to the southward,' says C. F. Marvin, Chief of the United States Weather Bureau at Washington, in a letter published by the K. & I. Terminal Railroad Co., of Louisville. Mr. Marvin points out how the State is at least partially immune from tornadoes of the southwest and the hurricanes of the southeast, and concludes his interesting letter on Bluegrass State weather as follows: 'Without going into more details, it is conceded from the weather records of this Bureau that Kentucky enjoys on the whole a climate considered about as good as the best the country affords.'"

WOMAN

Not she with traitorous kiss her Saviour stung,
Not she denied him with unholy tongue;
She, while apostles shrank, could dangers brave,
Last at the cross and earliest at the grave.

Wider Highways and Wider Rights of Way

By J. S. WATKINS

[Mr. Watkins, First Assistant State Highway Engineer, has to deal with too many different road problems to have a hobby, but if he had one it would be "wider rights of way," with plenty of room to widen the roads whenever necessity demands it.]

TEN years ago no one would have dreamed of the traffic that goes over the roads today. It is not possible to predict the traffic conditions ten years hence. On the experience of independent bus and truck operators, some of the railroad companies have recognized the fact that short haul passenger transportation by the motor bus, and short haul freight by the motor truck are not only economical over good roads but are meeting the demands of the public. Ten years ago most of the travel was composed of passenger cars, which year by year have been so greatly increasing in number. But in the past five years the bus and truck travel, especially on the main highways, has shown a wonderful development.

To demonstrate the enormous increase in motor vehicles in this State the records of the Kentucky State Tax Commission give the following statistics:

	1915	1919	1925
Passenger cars registered...	19,500*	80,903	232,794
Motor trucks registered...		9,105†	26,177†
Motor busses registered...			

*No separation of trucks and busses that year. All registered under one head.

†Trucks and busses registered under one head.

The above actual statistics show in a measure the increase in travel in Kentucky in the past ten years—but it must be remembered that people from almost every State in the Union more and more are coming through this State, and the percentage of cars with a foreign State license on our main roads is now running high.

Some of the Eastern States, especially Pennsylvania and New York, and some of the Northern States, especially Michigan, have, in the past two years, carried on an extensive program of widening of highways, particularly adjacent to the centers of population. As for example, in Chester County, Pennsylvania, the Pennsylvania Highway Department has widened the old eighteen-foot pavement (Lincoln Highway) with a new ten-foot strip on either side, making a pavement thirty-eight feet in width with safety lines dividing it into four traffic lanes. This is just one specific example of pavement widening of the large program of similar work that has been under way in Pennsylvania and the other States above mentioned. In the State of Michigan, adjacent to Detroit, the "Super Highway," leaving the end of Woodward Avenue and leading toward Pontiac, has been partially completed. This highway consists of two forty-five-foot concrete roads with curb and gutter, and is divided into eight traffic lanes. The width of the right of way on this road is 216 feet.

The program of work before a good many Eastern States and some of the States north of us, is now a program of straightening and widening. Many of these States have their entire system paved, but the traffic demands are becoming too great for the width and the alignment of the pavement. Some of these States have completed transport surveys and are now in position to determine the width of pavement necessary

In considering the above points showing the necessity for wider pavements, it must be remembered that in practically every instance one of the great problems has been the question of additional right of way width.

Adequate width of right of way is essential for any highway and it is believed that generally two traffic lanes will take care of the present traffic demands in this State on all main roads with the possible exception of sections of trunk line roads adjacent to the centers of population. A pavement constructed with proper grades and alignment with two traffic lanes ten feet in width, with shoulders of sufficient width to permit the parking of cars, will discharge an enormous amount of traffic.

It has been the practice of this department for the past several years to require a minimum width of right of way for all main roads of sixty feet on a level section or more where necessary on account of the slope of the ground. For the secondary roads, fifty feet minimum width is required. The rights of way on practically every section of road on the main highways that have been constructed by this department since 1920, are sixty feet in width, yet the rights of way on some of the main roads in Central Kentucky that were taken over from the counties for State maintenance vary from thirty-five to fifty feet. An example of this narrow width of right of way can be seen on the Louisville-Lexington Road, no part of which was originally constructed by this department, but was taken over from the counties for State maintenance. It is generally realized by the public that the right of way on this road is too narrow. It is impossible for this department to construct wider shoulders on this road on account of the property line fences; but should the counties furnish a right of way of minimum width of sixty or even seventy-five feet the entire road between Louisville and Lexington could be made safer for the travel, and with wider shoulders to permit the parking of cars, it would safely discharge a larger number of vehicles in a given time.

It is now the policy of this department to secure general warranty deeds for the right of way on any road that is taken over from the counties for maintenance, or for any road that is to be newly constructed. The officials of this department have recognized the fact that without deeds it is impossible to protect the rights of way from encroachments. In practically every section of the State landowners are willing to sign an easement for the right of way, but are opposed to conveying the land. This can be explained by the fact that in almost every section of Kentucky the boundary lines of property call for to the center of the road; hence when the property owner sells his farm he sells and conveys a half strip of road right of way. The owner does not stop to figure that he has, for a long term of years, been paying an acreage tax on several acres of road right of way which is non-productive in so far as farming is concerned.

All rights of way should be properly maintained; the weeds and grass should be cut during the summer season, so that the entire width shall present a neat appearance. In setting a standard for right-of-way width consideration should be given not only to the

overdone; sufficient width should be taken for future estimated needs but bearing in mind the cost of the maintenance to the entire right of way.

In this age when any road is constructed, improvements spring up along the right of way over night; gasoline stations, garages, buildings for business purposes, stone farm entrances, and stone walls are constructed along the lines of the road right of way. For this reason, therefore, all State highway organizations should make a very careful study of the traffic conditions and the anticipated future needs before the right of way width is established; for when it becomes necessary to widen the right of way of a road all the fences and all the improvements along the right of way lines must be moved back, and the burden of cost in most instances will be very great.

It has been the general practice of land holders in Kentucky in rebuilding their fences, to set out a foot or two every time. Some of the roads that were built more than fifty years ago on a right of way width of fifty feet are proof of the above statement. Fifty feet of right of way purchased some fifty or sixty years ago now measures on the ground from twenty-five to thirty-five feet. The general warranty deed and the constant patrolling of the State roads by our maintenance forces are eliminating the encroachment evil.

The River of Life

The intellectual average in the United States Senate will be again lowered if "Jim" Reed, the stormy petrel from Jefferson City, carries out his just announced determination to retire at the end of his present term.

In a scrap book of literary gems collected in Washington is the following from the "remarks" of Senator Reed over the remains of Champ Clark in the House of Representatives four years ago:

"A wonderful stream is the river of life. A slender thread emerging from the mysterious realm of birth, it laughs and dances through the wonderland of childhood. Its broadening currents sweep between the flower-decked banks of youth, romance, and hope. A mighty torrent, it rushes over the rapids of manhood and breaks in foam upon the rocks of opposition and defeat. Then glides away across the barren, sterile fields of age, until it is engulfed and lost within the waters of the eternal sea. There queenly robes, the foul beggar's rags, the rich man's gold, the pauper's copper pence, the jeweled diadem of princes, and the thorny crown of martyrs are washed and swept by the same ceaseless tides.

"The miracle of birth; the mystery of death, remain the unsolved problems of all time. The shepherd who three thousand years ago upon the plains of Syria observed the procession of the planets and contemplated the decrees of fate was as wise perhaps as is the wisest of today. He only knew that, standing here upon the bank of time, his straining eyes could not glimpse even the shadowy outline of the farther shore."

NOT ENOUGH WATER

Teacher asked her class if they could compose a rhyme using the word "Nellie." Johnny Jones, being called upon, rose, much embarrassed.

"There was a pretty little girl named Nellie,
Who fell in the water and wet her little feet."

State Bankers Endorse State's Highways and Other Programs

LEADING bankers of Kentucky, which in this State means leading citizens of their respective communities, in annual State convention at Louisville this month, adopted a lengthy set of resolutions that read as a State paper should read. Among the outstanding features of this report by the resolutions committee was the following:

The condition of the State hospitals for the insane, charitable and penal institutions is a disgrace to the State and a crime against the unfortunates detained in them and for whose decent keeping the citizens of the State are responsible. The unsound and costly method of financing the expenses of the State by warrants without fixed maturity representing a fluctuating floating debt expose the taxpayer to the hazard of unnecessary costs and possible embarrassment of State credit. The burden of bond issues to meet our obligations in these respects is negligible and the need is so great that relief should be had at once. This association therefore pledges itself to support the program of the State Administration for the two bond issues to be voted upon in November for these purposes and urges its members actively, to lend their influence to a successful issue of the election.

The natural resources of Kentucky have hardly been touched. Her fertile lands are sparsely settled and generally poorly cultivated; her hills are teeming with minerals and her unharnessed waters are flowing to the sea. But however great her natural resources may be the greatest of all her resources is her man power and woman power, her boys and girls, the men and women of tomorrow. The education of her youth, the better equipment of mind, and the training of efficient and capable citizenship is the one sure means of realizing upon all her other potential values and lifting Kentucky to the place which we would have her occupy. Educational experience has proved that education works downward and not upward. Set a high standard that challenges the ambition of youth and youth will strive to attain it. The first step in the upbuilding of a higher educational plane for Kentucky should be the development of a great well equipped State University prepared and able to serve its sons and daughters, and at the same time the development and extension of the country high school system and the common schools.

One of Kentucky's greatest needs is a complete and comprehensive system of hard surfaced highways. Good roads are not only an educational force of the greatest value but a direct and immediate stimulus to the development of the material resources of the State. We commend the State Administration for the progress it has made in the development of the road system and pledge our support to a continuance of the highway building program.

High Spots On Highway Maintenance

By M. D. ROSS

[Mr. Ross, whose offices are at Covington, is one of the Department's seven district engineers—an earnest, studious man, learned in and wedded to his profession.]

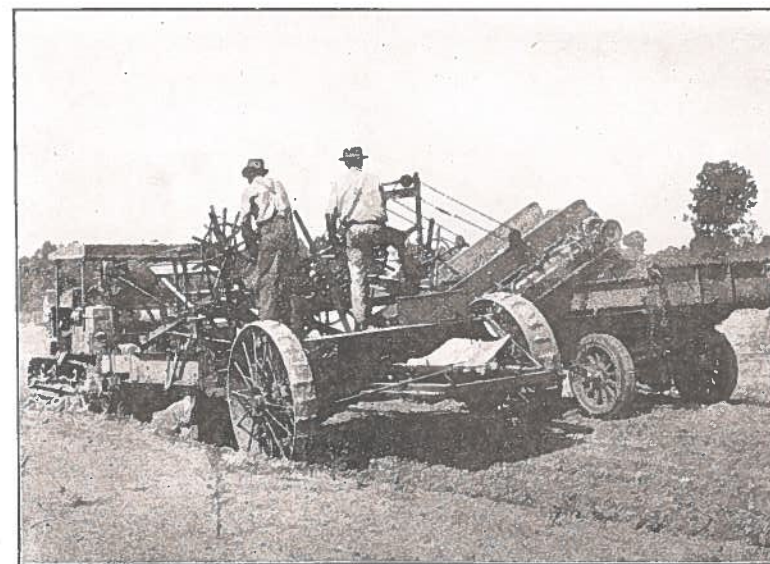
THE public has promoted, financed, and built thousands of miles of various types of roads and today we are endeavoring to keep this mileage in condition so as to meet the increasing demands of modern transportation. This mileage which represents the huge amount that has been invested must be taken care of so as to insure fair returns in the form of service. In order to obtain this there must be a developed maintenance organization founded on practical ideas, honesty, and co-operation.

One of the most important functions of the State Highway Department is an efficient maintenance organization. Only a careful study of maintenance work in different localities reveals the number of administrative organization methods. One of the most important requirements in the maintenance organization is that there must be some place to fix responsibility. Without this being definitely placed, understood, and respected by each party affected, positive control over the field work would be lost. All employees must be loyal to their superiors. Fairness and discipline not only create respect, but obtain the most efficiency out of men, and create interest which always gets the best results. To permit men of lower rank to go over the heads of intermediate superiors has a great tendency to jeopardize the efficiency of the field forces. Each employee should be assigned to some particular work and he should be made to understand that it is necessary for him to take care of his end. It is very essential that the heads of the various road gangs consider and study their men closely and place them to the best advantage, as no organization can be made up of misfits, and function properly.

The problem of maintaining our roads today is becoming more difficult all the time. It differs entirely from construction, as in constructing roads we have certain specifications quite definitely laid out and generally followed to the letter so that there is only one plan to carry out. On the other hand, there are so many new changes taking place in the conditions of roads and the methods of maintenance, that it is absolutely necessary that every man in the organization should have an initiative to help to make the entire organization efficient.

In the past few years the field organization has been changed, owing to various types of road and traffic conditions. When the Kentucky Highway De-

partment started maintaining the roads they had constructed and taken over from the various counties, it was thought best to establish a patrol system, giving one man certain mileage to look after. This man was equipped with a light truck and small tools; various materials were placed along the road at different points for his use. After this method had been in practice a year or more, it was found that in most cases it was entirely unsatisfactory. It was found that one man could do very little towards keeping up any section of the road, other than a little patching of the surface and handwork in ditches, the labor spent could hardly be seen. After trying this method there was organized a gang system which is in vogue at the present time, and is found to be very successful. This system has organized gangs stationed at various localities throughout a district, having at its head a foreman in charge of from ten to twenty men, or as many as is necessary to look after a certain mileage of road, the size of a gang depending upon various conditions such as, type



Maintenance Force "Elevating Grading"

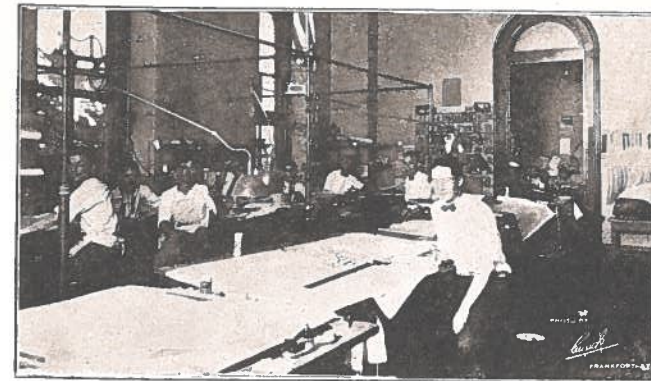
of road, amount of traffic, etc. The gang system has not only been found more efficient than the patrol system, but is considerably cheaper, as can readily be seen that it is much easier to get a small number of first class men to act as foremen of these gangs, when under the old system each man had to be relied upon to take care of his part. Under the old patrol system it was rarely ever found where one man could take care of any section of road satisfactorily. No matter how good he was, or how much interest he took in his work, it was impossible for him to accomplish very much by himself. It was also found that there were so many patrolmen needed that very few of a great number were competent and took interest in their work. These gangs are well organized and have competent foremen at their heads who are able to handle any phase of the road maintenance. They all have assigned them complete lists of road equipment and are held responsible for same. One of the most important parts of a maintenance organization is efficient equipment organization. It is very necessary that each district have its branch shops in charge of competent mechanics, who can be in close touch at all times with all machinery in the district. Of course, it is absolutely necessary that the equipment organization be separated, with its own head as this is one organization of its own.

It has been truthfully said that maintenance of a road should begin on the day the road is completed. It

Continued on page 20

Where the Weary Never Rest

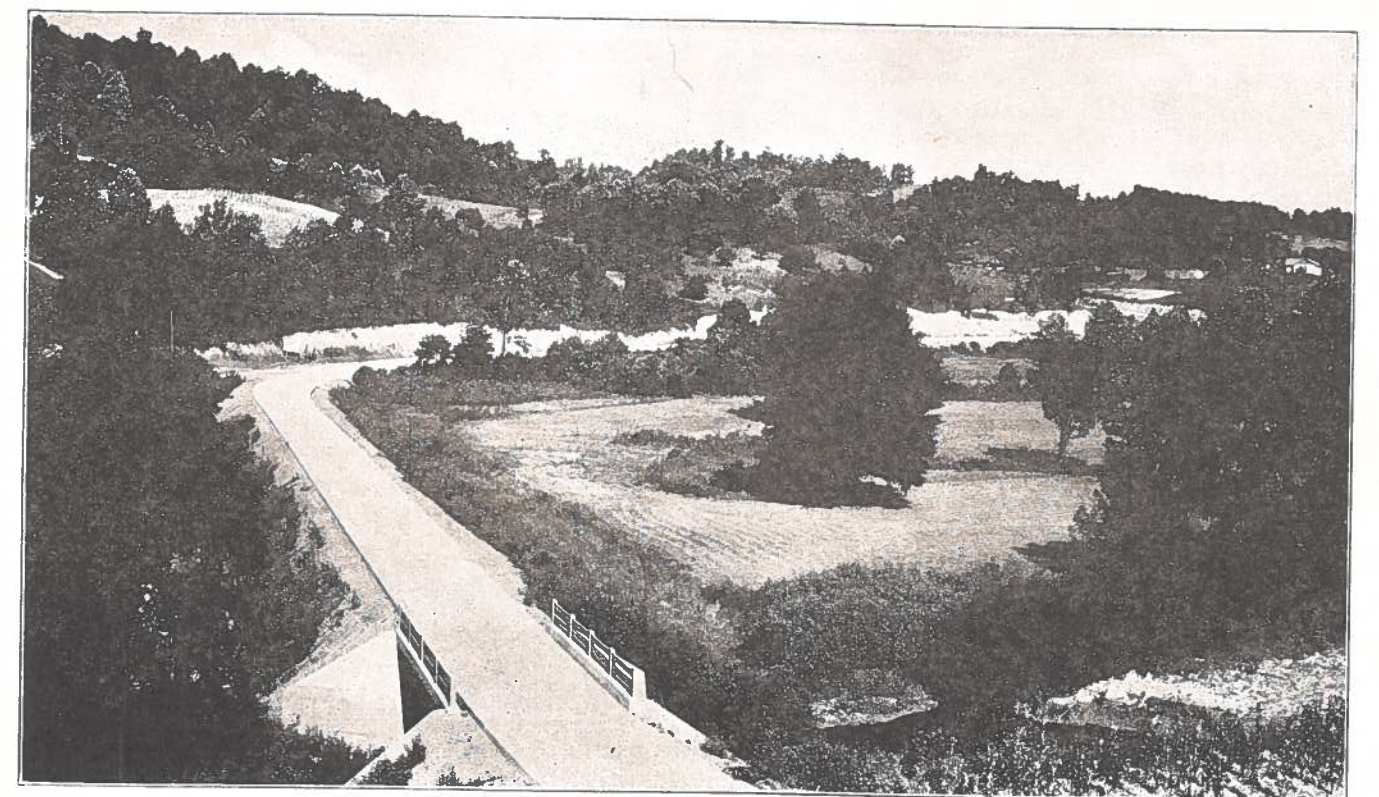
Scenes in the Central Offices of Highway Department at Frankfort



Top, left: Commissioners and Chief Engineers in session. Top, right: Part of Auditor's force. Middle, left: Bridge Engineers and Draftsmen. Middle, right: Engineer and part of his drafting room force. Bottom, left: Office, Division of Equipment. Lower, right: Office, Executive Inspector.

Section, State Garage

Where is Built Anything From a Motor to a Battery of Trucks



Stirling view of road 17 miles west of Frankfort

High Spots on Highway Maintenance

Continued from page 17

is not usually necessary to do much to a road surface for a short time after the construction. However, it is absolutely necessary that all ditches, culverts, catch basins, and any other drainage be kept open. It is most important that we keep the water away from the road as it is the greatest evil we have to contend with and causes considerable more damage than any ordinary traffic. One of the most expensive parts of maintaining roads is taking care of the drainage, due to slips and slides along the road, caused by soil formation, new construction, and heavy rainfall. It is very important that all the weeds should be cut along the roadside for the entire distance of the right of way, and small gulleys on shoulders and on slopes should be filled before they become wash-outs. Thousands of dollars have been spent in taking care of these situations which have been absolutely necessary to take care of the road-bed. However, from the public's standpoint the money, at times, may seem to have been wasted. The only part of the work that is really appreciated by the traveling public is that the road be kept open, the surface kept smooth and free from pot holes.

Maintenance costs depend entirely on the type of road to be maintained, and the amount and kind of travel. It has been positively proved from past experience that maintenance on lower type roads is costing considerably more money than those of a higher type. The operating cost of vehicles are as real as fixed charges of maintenance of way cost, although less apparent because they do not pass through the public tax fund. They represent expenses which, while borne privately, are nevertheless, paid from the same purse that pays the taxes, and they constitute a drain upon the public which is none the less burdensome because borne privately. All of which means that the higher type well maintained road is much cheaper, both to maintain and to the traveling public. This is easily verified when comparing present day construction with the old type which we are having difficulty maintaining on our main highway. The desirability of a carefully constructed and maintained system of state highways is no longer questioned. Each state has come through, or is passing through a period in which more and better highways are demanded.

Big Increase in Motor License Tax

The records in the Automobile Department of the State Tax Commission for July and August show the collection of motor vehicle tax for July to be \$131,317.07, and for August, \$67,351.79, a total for the two months period of \$198,668.86.

For July, 1925, the collections were \$98,091.02, and for August, \$57,167.05, or \$155,258.07, for the period.

This means an increase for the period, this year over last year, amounting to more than 35 per cent. Such a percentage of increase if kept up would mean that instead of the \$3,987,435.57 collected in the year ending June 30, 1926, the total collections for the year ending June 30, 1927, would be \$5,382,037.00; whereas the conservative budget-makers have put it at \$4,100,000.00.

Lords of Creation

The American Farmer and What Roads Help Do For Him

WE HEARD a small town talker the other day refer to a farmer who still lives on his farm (there are such) as a "rube." The Kentucky farmer has never been a "rube"—not even a "rural resident" since the advent of the telephone, radio, artificial lights and rural delivery mail.

With the building of a billion dollars worth of new roads in America each year the American farmer is coming to be more than ever a lord of creation.

When the day's work is done, even if he lives on the farm, he is only a few miles away from entertainment. If he prefers to sit by his fireside he can read his daily papers, delivered by the rural routes, get his daily market reports over the radio, or listen to the best music and lectures that America can offer.

His children are seldom more than twenty minutes away from an excellent high school. There they are being trained in all the social graces, taught the fundamental principles of culture, and living a life as broad and as beautiful as that enjoyed by any of the city children. On commencement day it is impossible to distinguish between the youths from the farms and those from the city.

The co-operative marketing associations have taught him the art of working with other men. The good road makes it possible for him to attend frequent meetings, participate in the discussions and become a part of the busy world of thinking and action.

Rural roads put him in easy touch with distant markets. If his local merchant cannot supply him with the goods he wants, a couple of hours' drive will bring him to a city of twenty thousand or more where he can buy anything he wants.

The modern farmer is not easily imposed upon. He is a poor customer for gold-brick merchants. Bankers' figures show that the average city dweller is much the easier victim of the con man.

Improved rural roads mean consolidated schools, less loss in crops, advantageous marketing. The hard surfaced road has done much to give the American farmer his opportunity as a business man.

It is true that the rural church has had hard sledding, but the farmer can reach the village or city church with greater ease over good roads than he could get to the rural church a few years ago through the mud.

Good roads make good citizens. The election booth is seldom more than five minutes away from the kitchen door and the farmer is voting, and rapidly learning his political lessons.

One billion of dollars spent for rural roads means that the American farmer is now living as close to the world as the city dweller. He no longer lives alone, astride his plow. He is on a highway where "the race of men go by."

OR POSSIBLY HER RADIATOR

Little Johnny, a city boy, in the country for the first time, saw the milking of a cow.

"Now you know where the milk comes from, don't you?" he was asked.

"Sure!" replied Johnny. "You give her some breakfast food and water and then drain her crankcase."

Keeping Step With Progressive Neighbors

COUNTIES all over the State continue to insist on voting bonds for county aid in construction of the primary system of highways. Little Casey County will have voted \$200,000 by an overwhelming majority when this appears in the October number of HIGHWAYS. Washington County will vote the same amount tomorrow, October 2. Nelson County, on September 4, voted a 20 cents road tax for five years, equivalent to \$125,000. Rowan County voted \$150,000 September 11. Boone County is making enthusiastic preparations for a big vote on a similar \$400,000 issue on November 20. Mercer County is all set for a similarly liberal amount, but the date for the election had not been set when this was written. The same is true of Floyd and Robertson Counties, which may wait, with a half dozen not mentioned, until spring to take their vote. These, added to the fifty counties reported in the last issue, will make a very representative number of the counties in a State supposed to be against bonds for roads.

The *Lexington Herald* of an early date in September says:

"Boyle County steps into the line of progressive counties that are voting for advancement and passes an issue of \$100,000 in bonds for the building of roads. The measure passed by a vote of more than three to one.

"The list of counties that have taken similar action is a most impressive one. The State Highway Commission, going into office facing not only debts but obligations in the form of contracts, sought first to fulfill its obligations before entering into new work. It determined that financial soundness was more necessary than a showy program. It established itself upon a paying basis. After two years of frugal management, it then announced it was ready to build roads and, with federal aid available, called upon the counties to do their part.

"The result has been wonderful. Some have characterized the campaign led by Governor W. J. Fields for the State road bond issue a failure. The measure was defeated. The result, however, was an awakened interest and a sincere co-operation in road-building throughout the Commonwealth.

"Those counties whose citizens have the vision to participate in this program are most fortunate.

"The counties that are traversed by State and Federal highways in the primary road system of Kentucky will enjoy the same advantages that those of the present age enjoy whose citizens in the past had the vision to make sacrifices or offer the inducements to have them obtain railroad lines."

Chairman Montgomery of the State Highway Commission, is a personal friend of Mr. J. A. Cheek, a Boyle County pioneer in good road building, which fact probably explains the following letter which has appeared in Mr. Cheek's home papers:

Mr. J. A. Cheek,
Danville, Ky.

Dear Mr. Cheek:

I am very much pleased to know that your bond issue carried, which will enable you to co-operate with the Road Department from time to time without having to consider the question of where your funds will have to come from.

The Highway Commission now has a definite program in practically every section of the State and if we can keep the people from getting too impatient we can work out a good system of roads in the next five or six years.

Assuring you that I appreciate your interest in road matters, I remain,

Yours very truly,

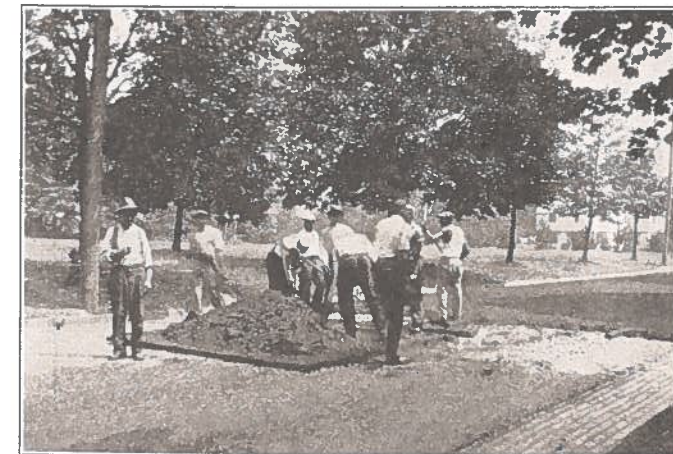
(Signed) W. C. MONTGOMERY,
Chairman.

Kyrocks in a University Town

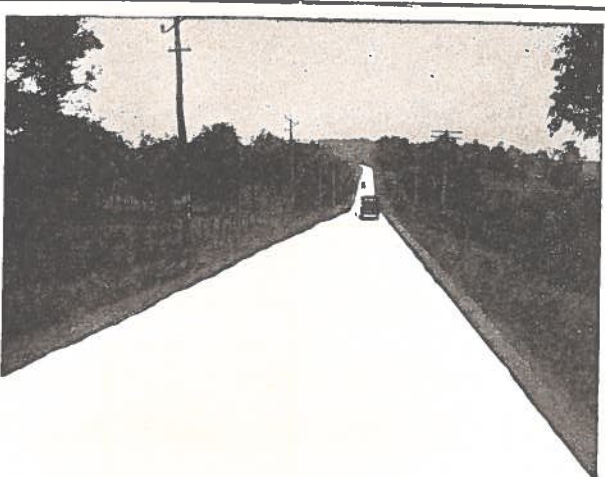
By GEO. M. BROWN

[Mr. Brown is Borough Highway Engineer at Princeton, N. J., and what he writes about Kyrocks would be worth reproducing, even if it were not a Kentucky Product.]

IN THE early spring of 1923 the Princeton University authorities were confronted with the problem of surfacing an old macadam road which was fast going to pieces under heavy traffic. It was decided to use "Kyrocks" or Kentucky Rock Asphalt, because of the ease and simplicity of construction, and the apparently high grade permanent results produced. The road was scarified, some new stone rolled in, and the Kyrock surface spread and rolled, using the University labor force. This road passes between the railroad station and the power house and immediately carried heavy traffic. All of the materials used on a state highway of Lawrenceville were trucked over it in seven-ton Mack trucks. Building materials and structural steel used in several University buildings also came upon it. This road provides the only alternative to the over-crowded main street of the borough, Princeton, and for this reason the traffic has been quite



Prospect Street, Princeton, 1926



IT'S CONCRETE
—Now we can Relax!

YOU may not say it, but you feel it; and instinctively, on coming to a broad, level stretch of inviting concrete you relax from the tension of riding—and prepare to enjoy yourself.

As your preferences become more definitely known, and as tax-payers learn that final economy is worth more than initial savings, more roads like the one above will greet you everywhere. This stretch of road, between Lexington and Winchester, Kentucky, was built in 1919 of Kosmos Portland Cement.

Kosmos Portland Cement Co., Incorporated, Sales Offices, Louisville, Kentucky; Mill, Kosmosdale, Kentucky.



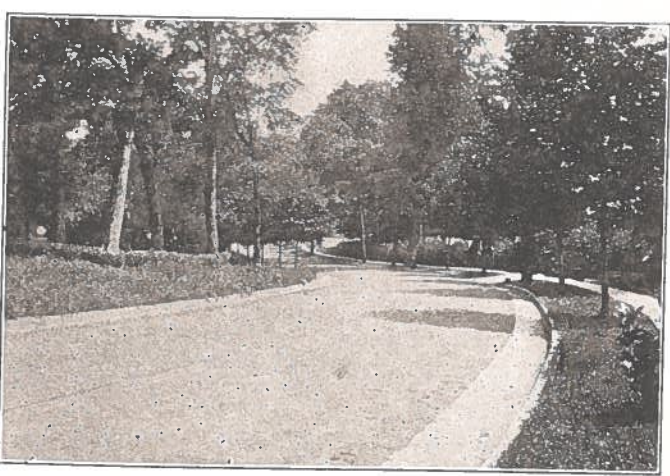
This road is in perfect condition today, showing no signs of wear nor marking from the chains of trucks and taxicabs. The riding surface is perfect, with no waves or rolls. This road was so satisfactory that in 1924 the University constructed another drive on the campus immediately behind historic Nassau Hall, passing in front of the twin Greek temples of the Cliosophic and Whig Societies. James Madison and Woodrow Wilson were members of the latter. Nassau Hall was the seat of the Revolutionary Congress at one time.



Alexander Street, 1926

The borough of Princeton has fifteen miles of old macadam streets. For some years they have been maintained against the inroads of automobile traffic by annual or semi-annual surface treatments. This is a constantly recurring expense which, if capitalized, would amount to an extravagant figure. There were no permanent results and it was decided to attempt a more satisfactory and lasting solution.

The experience of the University with "Kyrock" seemed to point to the way out. In 1925 Hibben Road, an old macadam street in a residential section was scarified by the borough street forces. Some difficulty was encountered in getting rid of the surface dirt which would have prevented the formation of



Hibben Road, Laid 1925

a good bond of the Kyrock to the base stone. The engineering representative of the Kentucky Rock Asphalt Co., who gave active service on this whole job, suggested that a harrow be dragged over the scarified road behind the roller. This was done, resulting in rattling down the surface dirt and leaving clean stone on top. From now on, the road will be in perfect condition.

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HELTZEL heavy duty Curb and Gutter Forms were purchased by Wayne County officials after using other makes and after observation of Wayne County work constructed with HELTZEL Forms by R. D. Baker & Co., J. A. Mercier Co., Julius Porath and Ferdinand Porath, The Thomas E. Currie Co., and others operating in Wayne County.

Note the construction to prevent any of the rails from spreading or the face rail from creeping up—also the adjustable lateral braces. Templates can be removed without disturbing side rails.

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TRUSCON
STEEL CO.
HIGHWAY PRODUCTS

Kyrock in a University Town

Continued from page 22

and rolled. The result is a high grade surface that looks good for an indefinite period of service. The street is practically skid proof although there is an eight per cent grade on a double curve and the crown is fairly high. There is a concrete curb and gutter.

In July, 1926, the borough re-surfaced another macadam street, Alexander Street, with Kyrock. The road was scarified and re-shaped and one layer of 1½-inch stone was added. This stone was bound with screenings, some of it dry and some of it was water bound. The excess of screenings was broomed off, leaving a tight surface with the larger stones projecting. A "green" crew of negro laborers was used. After a few minutes of training, the rakers learned the knack, and did a splendid job of raking. Strips of two by fours were laid on the base as guides in securing the proper thickness of 2¼-inch loose, which compacted into 1½-inch finished surface under rolling.

At an intersection, about a dozen heavily loaded coal wagons, drawn by three horses each, passed across the loose material before rolling. When this part was rolled, it was found that there were ruts at right angles to the axis of the road. Upon cross rolling and subsequent traffic these ruts have disappeared. This was really an abuse of the material and the fact that a good result was produced in spite of it indicates, to my mind, the fool-proof character of Kyrock. I know of no other material, even concrete, which could be treated in such a manner and still give good results.

This road is the continuation of a township road carrying heavy traffic and the new improved surface will attract this traffic and give a real test to the material.

The borough forces immediately started work on re-surfacing another macadam street, Prospect Street. The treatment was the same, scarifying, placing one layer of new stone, binding with screenings and then a Kyrock surface. On Prospect Street are located the majority of the exclusive students' clubs and it is one of the show streets of the borough. At the time of writing, this job is still incomplete but the portion already laid during a spell of hot weather, has the smooth, black, even appearance of a splendid boulevard. Consideration is being given to the possibility of surfacing all the macadam streets in the borough with Kyrock.

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Highways and the Waters Beneath Them

The Relation Between Drainage Area and Waterway Required for Culverts and Small Bridges

By JOHN T. LYNCH

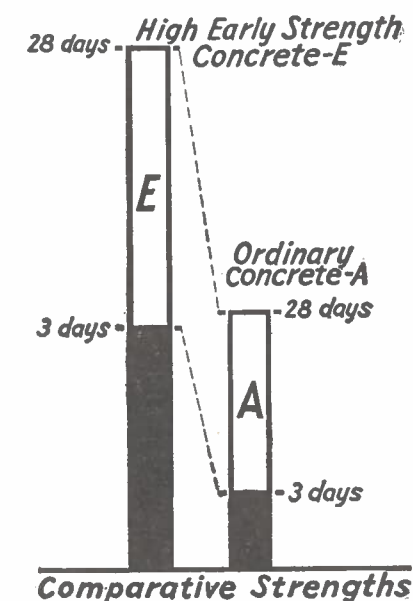
[This paper by Mr. Lynch, who is the Field Drainage Engineer of this Department, was prepared for, and read before the Kentucky Academy of Science May 1, 1926.]

IN THE construction of permanent highways, one of the most perplexing problems confronting the engineer is the determination of the proper sizes of openings for drainage structures. This is particularly

difficult for the smaller structures, such as culverts, since it is often impossible to obtain definite high-water information for very small streams, frequently remote from dwellings. Furthermore, the cost of one such structure is generally not sufficient to justify extensive and costly investigations. It is, therefore,



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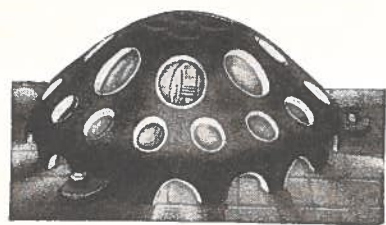
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almost imperative to establish some method of general application, whereby the required size of opening may be estimated from the size of the area drained and its physical characteristics.

There are, in more or less general use, a number of formulae which contain, as a definite term, the size of the drainage area and also contain a variable factor "C" to be determined according to the conditions existing in the particular area under consideration. Most of these formulae are of the form: $X = C A^n$, where "X" is the required size of opening in square feet, "A" the drainage area in acres or square miles, "n" a fractional exponent varying from 0.5 to 0.8 in the different formulae and "C" the variable factor.

Talbot's Formulae states that the required waterway in square feet is equal to the three-fourths power of the drainage area in acres, multiplied by a factor "C" which is to be determined according to local conditions. This formula has been widely used in the Mississippi Valley states and general experience indicates that the exponential term (three-fourths) takes care, with sufficient accuracy, of variations in area up to three or four square miles. The only problem then remaining in the application of this formula is the correct determination of the value of the variable factor "C" for the particular area under examination. Most text books suggest values of "C" varying from one-third for flat country to one for hilly country and on up to two for mountainous or very steep country, the assumption being that the required size of opening increases with the steepness of the area drained and that all other factors are negligible.

When, about two and a half years ago, I was first assigned the task of making field studies and recom-

mendations for drainage structures to be built by the State Highway Department, there had never been any systematic study made of this problem and tables were in use giving values of "C," increasing with the steepness of the topography. On this basis, a much larger opening would be required for a drainage area in the eastern or mountainous part of the State than for one of equal size in the western, or flatter part. It soon became apparent, however, that the reverse was true and that smaller values could be used for "C" in the eastern than in the western sections. This discredited any method of determining "C" based on topography alone and if the formula was to be used at all, some new method would have to be found for determining the variable factor, based on broader considerations and adapted to conditions as they exist in this particular State. It was obviously necessary to discard all preconceived theories and to begin to assemble data to be used as a basis for study.

After a drainage structure has been in use for a number of years, it is usually possible, by questioning local residents, to determine whether it is too large or too small and to estimate fairly closely the correct size for this location. Frequently, also, at locations where there are no existing structures, fairly reliable high-water information can be obtained and conditions are such that the required waterway can be estimated with a fair degree of accuracy. It was thought that if studies should be made of these locations where conditions were reasonably definite, rules might be evolved which could be applied to other locations where conditions were more uncertain.

From time to time, therefore, as the opportunity offered, such locations were examined and notes made

as to the topography, shape of drainage area, vegetation and other factors which it was thought might affect run-off. Drainage areas were measured on maps or otherwise estimated as accurately as possible and the value of "C" in Talbot's Formula computed for each location. This information was recorded on blanks prepared for the purpose and filed for future reference. About 250 streams were thus examined and the results recorded. The investigations were made in 35 different counties, well distributed throughout the State.

From an examination of the assembled data, it appeared, that for streams in a particular locality, there was not a wide variation in the computed values of "C" but that for streams in widely separated sections there was a considerable variation. This suggested the preparation of a map giving average values of "C" for each section of the State. All of the values which had been computed for streams in a particular locality were therefore averaged and the resulting average value placed upon a map in its proper location.

After the average values for each locality had been thus plotted, the figures were studied with a view to determining their general trend so that values could be assigned to other localities where no data had been obtained. The figures showed a gradual increase from east to west, averaging about 0.4 along the Big Sandy and about 1.0 in the Jackson Purchase. In Barren, Cumberland and Metcalfe Counties, there appeared a group of abnormally high values ranging from 1.0 to 2.0.

An effort was then made to determine the cause for this sectional variation and several geologists were consulted with the thought that it might be due to vari-

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ations in the porosity of the underlying strata. From these it was ascertained, that in Barren, Cumberland, Metcalfe and neighboring counties there is a particularly hard, impervious shale or slate lying close to the surface, which might account readily enough for the abnormal run-off found in that section. It was thought that the other variations might be similarly accounted for and accordingly a geologist was employed to prepare a map of the State showing variations in the porosity of the formations in the different sections. This map explained the abnormally high run-off referred to as well as several other erratic groups of figures, but it failed to explain the gradual increase in values from east to west, which was the most striking and unexpected result of the investigation.

It was then thought that there might be some variation in storm rainfall intensity which would explain this condition and accordingly the Technical Reports of the Miami Conservancy District of Ohio were examined. These reports give the results of a study by the Morgan Engineering Company of storm rainfall in the eastern half of the United States, which was the most exhaustive that has ever been undertaken. They contain maps, called Isopluvial Charts, prepared from the records of the U. S. Weather Bureau, showing variations in storm intensity in different sections. For example, one chart shows the maximum 24-hour rainfall, in inches, which on the basis of previous records, would be expected to occur on an average of once every fifteen years. Other charts give similar information for storms of different duration and for different periods of expectancy.

An examination of these charts, which all indicate similar trends, reveals that much heavier storms are

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to be expected in the western part of the State than in the eastern part. On an average of once every fifteen years, a maximum 24-hour rain of 2.8 inches might be expected in Eastern Kentucky while in Western Kentucky a maximum 24-hour rain of 5.2 inches might be expected with the same frequency. This condition gives at once a reasonable and satisfactory explanation for the increase from east to west of values of "C" in Talbot's Formula.

Having thus determined the causes for the sectional variations in the average values of "C" which had been computed, the map on which these had been plotted was completed by drawing lines, much like contour lines, assigning values to all sections of the State. These lines were made to conform to the computed values, which had been determined from actual field observations, and the Isopluvial Charts and the geological map were used as guides in projecting them across sections where no definite field information had been obtained.

The engineer in the field can, from this map, determine the average value required for "C" in Talbot's Formula in the section in which he is working. In applying this to a particular problem, he must consider whether the topographical conditions in the drainage area being examined might be considered normal for the general section, and if not, he must use his judgment in making a corresponding adjustment. Factors, such as storm rainfall intensity, which he cannot determine from an examination of the ground, are taken care of in the average, sectional value, and with experience he should be able to make the adjustment required by variations in topography, etc.

The investigations were considerably handicapped because of the fact that only about half of the State has been topographically mapped and drainage areas could not, therefore, be accurately determined in many sections without making expensive surveys. It is hoped that further studies will permit the construction of a much more accurate map and will also indicate more clearly the adjustment which should be made on account of variations in topography, vegetation and stream conditions.

BE THE BEST THAT YOU ARE

If you can't be a highway then just be a trail,
If you can't be the sun be a star;
It isn't by size that you win or you fail—
Be the best of whatever you are!

From One Who Knows

Mr. J. R. Williams publisher, of the *Appalachian Journal*, at Knoxville, writing to the State Highway Engineer about other matters, incidentally says: "The writer has just toured from Cincinnati to Knoxville and finds a wonderful improvement in the Kentucky roads since we came over the same Eastern Dixie Highway two years ago. We toured in five States and your roads compare most favorably with the State highways in other States."

HOLD 'EM

"Take your hands out of your pockets, Willie."
"Can't, my suspender's broke."



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For example, the bridge illustrated above—228 feet long, with 13 pile bents carrying a 16-ft. roadway—was erected in twelve days from the time the material was delivered. No heavy equipment is necessary for such a job and local labor is usually available.

Other advantages of creosoted timber for highway bridges include, low cost, permanence, absence of maintenance, and expansibility to meet any changes in traffic conditions.

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KH9-GRAY

Low Bid Sometimes Too High

Despite the continued close bidding and competition among contractors for road construction work, at each of the lettings semi-monthly or oftener in the Highway Department, the Commission is constantly rejecting any and all bids and re-advertising for new. This means that the Commissioners have been told by their watchful Chief Engineers that even the lowest bid on some of these particular jobs is unreasonably high. Their wisdom in adopting these recommendations of the engineers is frequently shown in the subsequent bidding. On July 26, last among the several projects

upon which sealed bids were opened were Federal Project 106 C., a 6.9 mile grade and drain job in Green County. The lowest bid was for \$100,794.26. Another was State Project 6 e & F., a 10.4 mile bituminous macadam construction job in Letcher County, the lowest bid on which was \$295,644.95. Upon recommendation of the engineers all bids in both cases were rejected, and the two projects were re-advertised for September 3, when the new low bid on the first named project was \$4,802.54 less, and on the second \$35,522.50 less, making a total saving on these two little jobs of \$40,325.04.

COMPARATIVE LOW BID UNIT PRICES

The following is a comparison of Average Unit prices on low bids received during the calendar year ending December 31, 1924, with those received during fiscal year ending June 30, 1926:

ITEMS	UNIT	AVERAGE UNIT PRICES	
		Year Ending Dec. 31, 1924	Year Ending June 30, 1926
Clearing and Grubbing.....	Acres	92.315	19.85
Removing Trees and Stumps.....	Each	4.95	3.48
Excavation—			
Earth	Cu. Yds.	.45	.34
Loose Rock	Cu. Yds.	.885	.56
Solid Rock	Cu. Yds.	.93	.76
Earth Borrow	Cu. Yds.	.44	.325
Solid Rock Borrow.....	Cu. Yds.	.95	.73
Macadam	Cu. Yds.	.997	.878
For Structures	Cu. Yds.	1.14	1.00
Foundation Dry Earth	Cu. Yds.	1.11	1.12
Foundation Wet Earth	Cu. Yds.	2.32	2.78
Foundation Dry Rock	Cu. Yds.	2.06	2.07
Foundation Wet Rock	Cu. Yds.	3.50	3.39
Removing Unclassified Slides.....	Cu. Yds.	.59	.32
Overhaul	Yd. Sta.	.03	.03
Grading and Shaping.....	100 Ft. Sta.	5.62	4.84
Scarifying and Reshaping.....	Sq. Yards	.045	.034
Removing Existing Pipe.....	Lin. Ft.	.855	.478
Removing and Relaying Existing Pipe.....	Lin. Ft.	1.175	.869
Standard Rural Catch Basin.....	Each	42.50	25.00
Removing Stone Fence.....	Cu. Yds.	.60	.83
12-inch Class A Corr. Metal Pipe.....	Lin. Ft.	1.69	1.59
12-inch Class B Corr. Metal Pipe.....	Lin. Ft.	1.85	1.42
18-inch Class B Corr. Metal Pipe.....	Lin. Ft.	2.365	2.097
24-inch Class B Corr. Metal Pipe.....	Lin. Ft.	3.24	3.04
36-inch Class B Corr. Metal Pipe	Lin. Ft.	6.00	
18-inch First Class Pipe.....	Lin. Ft. D. S. Vit.	2.42	
18-inch First Class Pipe.....	Lin. Ft. R. Conc.	2.785	2.605
24-inch First Class Pipe.....	Lin. Ft. D. S. Vit.	3.555	
24-inch First Class Pipe.....	Lin. Ft. R. Conc.	3.49	3.59
18-inch Second Class Pipe.....	Lin. Ft. D. S. Vit.	2.80	
18-inch Second Class Pipe.....	Lin. Ft. R. Conc.	2.00	2.22
24-inch Second Class Pipe.....	Lin. Ft. R. Conc.	3.00	2.85
Concrete Curb and Gutter.....	Lin. Ft.	1.77	1.25
Class A Concrete.....	Cu. Yds.	21.26	19.43
Class B Concrete.....	Cu. Yds.	19.75	19.12
Class D Concrete.....	Cu. Yds.	62.03	48.405
Bituminous Surf. Bridge Floor	Sq. Yds.	3.78	1.20
First Class Stone Masonry.....	Cu. Yds.	15.905	9.28
Box Culvert Stone Masonry.....	Cu. Yds.	13.40	9.59
Stone Paving	Sq. Yds.	2.71	2.43
Scrap	Cu. Yds.	1.88	2.91
Structural Steel	Lbs. Hard Grade	.07	.065
Lumber Piling	Lin. Ft.	1.35	1.11
Crushed Limestone (Surfacing).....	Tons	2.96	2.31
Stripping Gravel Pit.....	Cu. Yds.	.355	.22
Clay Binder	Cu. Yds.	1.00	1.00
Reinf. Concrete Paving.....	Sq. Yd.	2.71	2.365

EWALD SPRING
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Springs for All Cars and Trucks

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East 3215

312-14-16 South Clay Street

LOUISVILLE, KENTUCKY

Backfire and Sparks

By THE OFFICE GROUCH

This column isn't all nonsense.

* * * * *

There is more truth than poetry in it.

* * * * *

Reckless driving isn't always wreckless.

* * * * *

And the stings are not our fault. Truth hurts.

* * * * *

Good morning, have you used the Channel today?

* * * * *

Writers have rights that usually turn out to be rites.

* * * * *

The man who controls himself usually controls the situation.

* * * * *

Half the time formerly devoted to rural mail delivery is saved by auto service.

* * * * *

In the language of Ring Lardner, "Orange Juice" sorry we started this column?

* * * * *

Our cook discovered we were starting to try to live within our income, and she left.

* * * * *

A friend just back from Petoskey says everybody there sings, Yes, Sir, "Asthma" Baby.

* * * * *

It is easy to take things as they come. Letting go of them is sometimes our hardest job.

* * * * *

One of our female vacationists asked about the traffic in Chicago; said she couldn't see it for the autos.

* * * * *

Nobody in the office has married or died this month but the candy vendor and the "War Cry" lady were in.

* * * * *

A city man's daughter says she wants a car with a right hand drive so she can window shop while driving in traffic.

* * * * *

Scientists say we retain the same brain cells we had in infancy. We wish to amend by inserting after "cells" the words "if any."

* * * * *

On recent survey in bridge department: "Between Sta. 10 and 10 plus 25 we will have to provide a cattle pass for A. N. Nuttleman."

* * * * *

Asked to make a sentence using the word "diadem," Johnnie said: "People who drink moonshine diadem sight quicker'n people who don't."

* * * * *

The editor boasts that this magazine hunts only big game, but we know a "flea" that is sorry it jumped on him.

Phone—East 2977

Falls City Quarry Co.
Incorporated

Crushed and Building Stone

Blankenbaker Lane and River Road

L. & N. Siding

Rural Route No. 1

LOUISVILLE, KENTUCKY

Some practical forms of farm relief are visible along the highways where farming families have gone into the gasoline, oil and refreshment business.

* * * * *

Overheard on office telephone board—Contractor: "Please hold up my bid, I forgot to figure in the steel and concrete." Office Engineer: "That's all right, you are already the high bidder."

* * * * *

One of the chiefs of division, away on vacation, writes. "If there are any weddings or funerals while I'm gone put me down light on subscription; this trip is costing like H—."

* * * * *

Indiana and other Northern States in ordering all advertisers off the rights of way include Route Boosters and auto clubs, which they think were getting a little too much free advertising putting their names on signs put up with other people's money.

* * * * *

"Kentucky reported twelve killed and forty-two injured." No, that isn't a news note from the front in any recent war. It is only the report of casualties from reckless auto driving during a part, not of a year, but for a part of the month of August, alone!

* * * * *

In the face of co-operative efforts to lower grade crossing accidents, eighty-eight more persons were killed and 408 more were injured during the first five months of 1926 than for the same period last year. Accidents increased by 307. The number killed was 859, as against 771, and the injured 2,606, as against 2,198.

Gasoline Taxes

Continued from page 12

Total gasoline taxes collected in Michigan.	\$8,742,392
" " " " Ohio	9,133,785
" " " " Pa.	8,352,798
" " " " N. Car. . .	6,238,508

Half the states collected more gasoline tax than did Kentucky; some smaller states more than twice as much.

The gasoline consumption in Kentucky and the corresponding amount of taxes coming from that source into the state road fund showed a steady increase of something like 25 per cent for the spring months of this calendar year, but during the first two months, July and August, of this current biennium and fiscal year, the per cent of increase has not been that large or more than 10 or 12 per cent, the comparisons being made, of course, with the corresponding months for last year.

The total gasoline taxes due for July according to the figures in the State Tax Commission's office (these figures are never the same as those shown by the state auditor, treasurer and highway department auditor, who deal only with cash received and when received) were: \$550,000 and for August \$560,000. The taxes for the same months last year (when the rate was three instead of five cents a gallon, were for July, \$319,563.44; for August, \$327,967.56. Even after allowing for the increase in rate, this year's increase, particularly for August, would indicate receipts for the year as nearly a million greater than the estimate furnished by conservative officials in making up the



WHEN!

"It
Reigns
Where
It's
Poured"

When the people of this world become so virtuous that the courts and prisons may be abolished for all time; and when the high peaks of the Rocky Mountains crumble in decay to the level of the plains below, then there will be a more perfect Portland cement manufactured, and it will be by the—

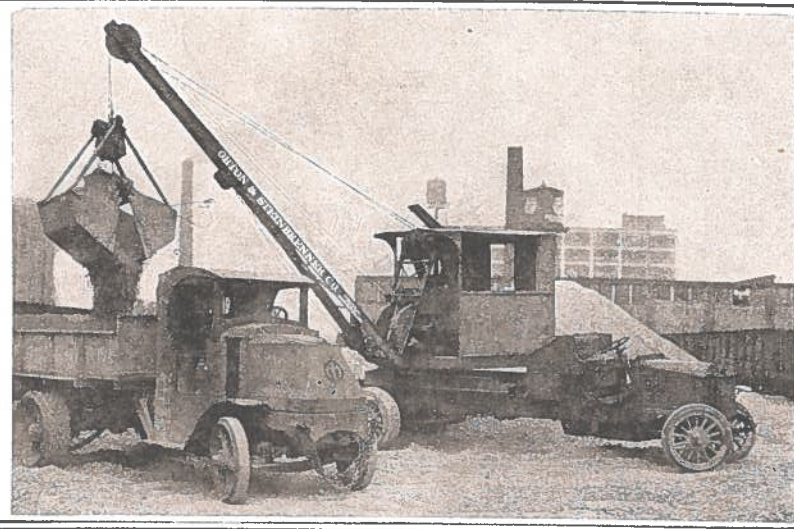
SIGNAL MOUNTAIN
PORTLAND CEMENT COMPANY
CHATTAHOOGA, TENNESSEE.

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DEPARTMENT OF STATE ROADS
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Manufactured to meet the specifications of the
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We specialize in Road, Street, Bridge and Mu-
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**"ORTON"
TRUCK CRANES**
Full Circle Swing

"Rex" Pavers and Mixers
"Johnson" Bins and Hoppers
"Metaform" Road Rails
"Hug" Trucks, Subgraders, Etc.
"Haiss" Digger Loaders
"Russell" Graders, Etc.
"Williams" Clam Shell Buckets
"Corrugated Bar" Re-inforcement

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Big Price Reduction

Equipment of all kinds, Tractors and Repairs, Shovels, Cranes,
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Ohio Valley Rock Asphalt Company

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Large Sums Are Expended Yearly

to level out the ruts and waves of nonrigid roads—roads, *whose surfaces undergo constant deformation* due to the impacts of pounding traffic. Carefully built concrete pavements are different.

Being rigid and unyielding they distribute the pressure of concentrated loads over a large area of underlying soil *and they remain true and even as built.* Obviously their cost of maintenance is low.

Because “Marquette” is a Portland cement of *uniform high strength*, pleasing color and dependability, it is used *extensively* on county, state and federal highway construction.



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