

ARTBA's Founder Charts Early Interstate System Grant Program

By Tom Kuemen

The year was 1902, and already the newly founded American Road & Transportation Builders Association (ARTBA) was clamoring for a U.S. interstate highway system.

It was a different century — and the organization briefly was known by a different name, the American Road Makers (ARM) — but the record shows ARTBA may have been first to propose the first U.S. interstate highway system.

ARTBA's founder was Horatio Sawyer "By Gum" Earle, who carved himself a place in history by leaving an executive position with the League of American Wheelmen (LAW) — a high-powered bicycle association lobbying for improved roads — to found ARM, soon to become the American Road Builders Association (ARBA).

The initial goal in 1902 for ARM was the "Capital Connecting Government Highway," an interstate highway system connecting every state capital and the national capital.

"Such a highway would be the Eighth Wonder of the World," Earle said, in anticipation of the Eisenhower System of Interstate Highways. Even more prophetic, he urged that the system be constructed to facilitate national defense.

"Tributary roads would be built to it, and other less costly roads leading to these," he wrote. "And if such a system prevailed, an army could be quickly mobilized and all the necessary provisions

transported very quickly, even if every railroad train in the country was held up, for another use, by the national or state legislatures."

After a supportive state network was established, ARM's plan called for a commission to be appointed by the federal government, to be composed of the director of the Office of Public Road Inquiries (predecessor of the Federal Highway Administration), and the presidents of the American Road Makers, League of American Wheelmen, the National Good Roads Association, the National Grange and a number of top-flight civil engineers.

ARM prompted block grants, too

Just five years after its founding, the association's predecessor even anticipated what can only be called block grants from the federal government to state agencies, based on the amount of roads improved or built.

ARM's "no-strings" grant program anticipated by nearly 90 years the block grants provided by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and its successor, the current Transportation Equity Act for the 21st Century (TEA-21).

In 1907, based on the concept's success at the state/county levels, ARTBA's founder drafted a National Reward Road Bill and used the association to promote it to the U.S. House of Representatives. It would have abolished the exist-

ing Office of Public Roads and put in a decentralized system in which states would be reimbursed ("rewarded") with cash per mile of improved road for constructing roads that met standard specifications, not unlike the block grants instituted under ISTEA and continued in TEA-21.

Burdened by politics, doubts about an early federal role, a reluctance to impose road taxes, and the sheer volume of bad roads at every turn, neither proposal succeeded. A federal-aid program did not appear until 1916.

But by bringing government agency, road contractor and consulting engineer into common purpose, Earle's ARM grew in stature and influence to become the leading association in a booming industry, changing its name to ARBA in 1910 and to ARTBA in 1977.



Horatio S. Earle, 1902.



The Washington (D.C.) & Alexandria (Va.) Turnpike, main thoroughfare between the two cities in 1894. Photo courtesy of the National Archives.

ARM was a public/private partnership before those buzzwords had any meaning. Government agencies were a core element of both ARM and the League of American Wheelmen. Earle himself was a road commissioner in

ARTBA TIMELINE

1902

Feb. 13: Under the name of American Road Makers (ARM), government, contractor and trade press members found ARTBA, at the Cadillac Hotel in New York City. It would change its name to the American Road Builders

Association (ARBA) in 1910, and to ARTBA in 1977, to reflect the multimodal responsibilities of its membership.

W.S. Crandall serves as ARM president (1902-03).



Construction of the first object-lesson road in 1897 near the New Jersey Agricultural College & Experimental Station, New Brunswick, N.J. Photo courtesy of the National Archives.

Michigan. Throughout most of the 1900s, ARM's president was James H. MacDonald, state highway commissioner for Connecticut.

In fact, it wasn't until 1919 that a private sector professional, a consulting engineer, was elected president of ARBA and not until 1924 that a contractor headed the organization. Government agencies provided know-how, balance and credibility to the association early-on and throughout the next century.

But if it weren't for the bicycle craze of the late 19th Century, ARTBA might never have come about. Here's how it happened.

Good Roads For Rural Mail

At the turn of the century, better roads also transformed the farm in another way when Rural Free Delivery (RFD) brought postal service to the residents of America's rural areas. Previously, only urban areas had mail delivered to an address; persons in rural areas had to go to town to post and pick up mail.

There was a kicker: RFD routes had to be a minimum of gravel or macadam-surfaced. As RFD gained in popularity, self-taxation for road improvements gained popularity and pressure was brought on local governments for action.

In Dallas County, Texas, "Routes are seldom less than twenty-five miles in length, where all or nearly all of it is over graveled roads or roads that will not become impassable," reported the [Dallas Daily Times Herald](#) in September 1899.

While some rural residents were skeptical -- stating RFD would spoil the rural ambience -- most patrons were ecstatic, as a journey to town and back for an expected letter could cause a farmer to lose a half-day.

"Rural delivery has now been sufficiently tried to measure its effects," reported a Maryland postmaster in 1899. "It stimulates social and business correspondence and so swells the post receipts. Its introduction is invariably followed by a large increase in the circulation of the press and of periodical literature. The farm is thus brought into direct daily contact with the currents and movements of the business world. A more accurate knowledge of ruling markets and varying prices is diffused and the producer, with his quicker communication and larger information, is placed on a surer footing.

"The value of farms, as has been shown in many cases, is enhanced," he reported. "Good roads become indispensable, and their improvement is the essential condition of the service. The material and measurable benefits are signal and unmistakable."

A time of confidence, prosperity

ARTBA was founded in a time of confidence and prosperity, as the United States entered the 20th Century with a new sense of internal unity and international purpose.

While Teddy Roosevelt's Progressive Party would not be founded until 1912, the philosophy of Progressivism invigorated the nation at the turn of the century and infused the American public with a can-do social spirit.

And navigable, reliable roads — as promoted by the good roads movement of the 1890s — symbolized America's Progressive spirit as it began the new century.

The condition of America's highways back then scarcely can be realized today. Nearly all highways outside cities lacked hard pavements and were lucky to be of macadam or gravel surfaces. Nearly half the city streets in the U.S. were unpaved in 1890. For farmers, the opportunity to haul heavy loads was greatly limited.

"The farmers, with growing intelligence, see that with smooth, hard highways they can get their grain to market at much less cost and under more favorable conditions for the market," wrote Charles R. Henderson in [The Social Spirit in America](#) (1897). "The capitalists are eagerly looking for employment of their idle funds. The noble army of bicyclers, to whom tacks, broken glass,

ruts, mud and heavy sand seem mortal enemies of joy, are allies of the associations consecrated to improved ways."

Farmers, bicyclists and roads

Indeed, farmers and bicyclists were the prime movers of the good roads movement which swept America from 1893 through about 1916. Farmers had raged against predations of the railroad monopolies for decades and knew improved roads could tilt the balance against the railroads.

"All the surplus of the West, in order to find a market, must, to some extent, at least, pass over some railroad," grouched Edward Winslow Martin in [History of the Grange Movement](#), or, the [Farmer's War Against Monopolies](#) (1873). "The cost of transportation to the East eats up about one-half of the value of the wheat and the farmer's

profit is made small in order that the heavy freights may be paid and the large profits of the middle-men gained."

Bicyclists had different complaints. Far removed from rural lifestyles, they usually were well-heeled,

urban individuals who could afford costly manufactured bicycles to ride for weekend recreation. New-design bicycles offered an intoxicating freedom to explore city and countryside.

"High-pressure advertising campaigns caused Americans to spend over \$300,000 [\$5.8 million in 1999] on bicycles in May 1896 alone," reports William L. Richter in

"It is said that city people go insane because they feel so much jar and crash and crowding, while country folk become insane because of isolation and loneliness. Good roads favor nervous equilibrium."

— [The Social Spirit in America](#), Charles R. Henderson (1897)

ARTBA TIMELINE

July: The Good Roads Exposition and Michigan Good Roads Association draws 15,000 delegates to Greenville, Mich., the largest good roads event held to-date. Thousands take a good roads train to visit an object-lesson road under construction.

1903

Feb. 13-14: ARM holds its first convention at the Wayne Hotel in Detroit.

Transportation in America (1995). By 1900 over a million bicycles were produced.

"Bicycle Mania" was accused of causing everything from massive financial losses by existing businesses that now competed with the bicycle for money, time and attention, to ruining the health of young men and the virtue of young women.

Bicycle clubs appear

The first bicycle club was founded in 1878 in Boston. In 1879 the national League of American Wheelmen (LAW) was founded, into which local clubs later were merged. "Full-fledged bike tours, picnics and other activities became common," Richter said. The association also provided an important first: its handbook included national and regional road maps.

"As cyclists roamed the hinterlands, one salient fact came back to them: American roads were in serious disrepair," Richter wrote. "Ever since the Civil War, roads had been allowed to disintegrate as public concern turned to the railroads."

It is an irony that in the 19th Century not only was it the bicycle culture that launched the good roads movement that spurred the automobile industry; it also launched what is now the American Road & Transportation Builders

Association.

"The bicycle is the father of the good roads movement in this country," wrote ARTBA's Earle, in his book, The Autobiography of "By Gum" Earle (1929). "The League of American Wheelmen was the first organization that promoted the building of better roads. The League fought for the privilege of building bicycle paths along the side of public highways ... [and] fought for equal privileges with horse-drawn vehicles. All these battles were won and the bicyclist was accorded equal rights with other users of highways and streets."

The Wheelmen set up information booths on certain days to

promote better roads and how to get local governments to fund road reconstruction. "Farm journals backed the crusade," Richter wrote. "Good roads meant more goods taken to town for sale and brought home from the store to improve rural life."

"There were scores of publications," Earle wrote, "including national and state. These were the means used for

disseminating good roads propaganda throughout the country. The bicycle, with its allied interests, without question, was the pioneer of the good roads movement in the United States."

Earle was very active in the league and there learned much about the politics of building roads. Under Earle's tenure as chief consul of the Michigan Chapter of

"When the bicycle made its advent in the late 1870s, it soon became so popular that it was looked upon as a nuisance by the great majority of people in cities, towns and villages. The farmer, because it frightened his horses on the public highway, hated this new means of transportation. In consequence, the rights of the bicyclists were curtailed wherever possible ... During this early period, bicyclists were as much hated as automobilists were in the 1890s."

— "By Gum" Earle, ARTBA's Founder, 1929



A mud road in Canandaigua, N.Y., 1894. Courtesy of the National Archives.

the League in 1899, the organization dropped bicycle racing and adopted good roads as its main mission. Its first International Good Roads Congress was held at Port Huron, Mich., in July 1900.

ARM fought road opposition

It's easy to laud the goals of the good roads movement, but it's hard to imagine the strong opposition it faced.

American citizens may have been rich in land and possessions, but road building demanded high taxes. Local and rural residents were bitterly opposed to being taxed to construct roads so bicyclists and other out-of-towners could pass through more easily.

In response, as Michigan



Cross-section of Telford pavement from an engineering drawing submitted by the City of St. Louis, Missouri, for publication in an October 1897 supplement to Scientific American.

1904

January: President Teddy Roosevelt tells good roads advocates that he is sympathetic to their cause because "we are a civilized people, and we cannot afford to have barbaric methods of communication."

Feb. 10-11: Some 1,129 registrants from 29 states attend ARM's second convention, in Hartford, Conn. Strong government representation is ensured. Connecticut Highway Commissioner James A. MacDonald is elected president and will remain so for seven years.

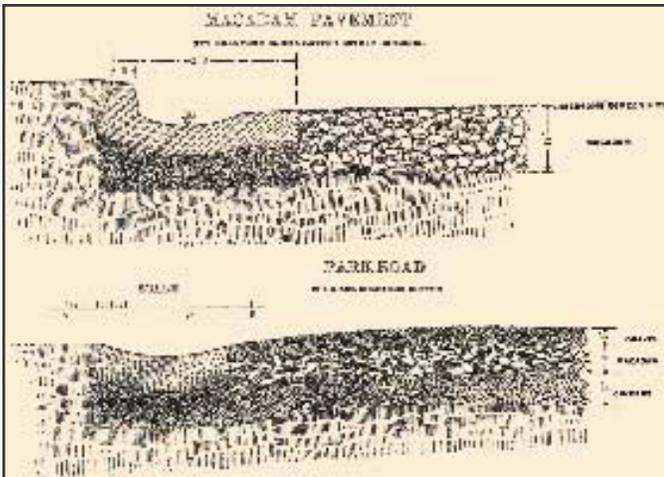


A turn-of-the-century New England bakery truck relied on good roads to make deliveries. Photo undated. Courtesy of the National Archives.

highway commissioner and head of the early ARTBA, Earle rode the circuit in defense of improved roads, hearing obstinacy much of the way. "The farmers, in certain localities, were so bitterly opposed to good roads they would not permit good roads to be built, even when constructed without any cost to them," he wrote. "Farmers went to the polls carrying banners reading, 'Don't vote your farms away.'"

"[At another meeting] at which I was to speak," Earle wrote, "a physician read a ten-page typewritten epistle, claiming that the roads already existing were perfectly satisfactory to the farmers; and, if owners of the 'red devils' (meaning automobiles) wanted any better roads, they should buy the right of way and build their own roads, and not use the farmers' roads and scare their 'hosses.' The letter was vociferously applauded."

When in 1900 ARTBA's founder Earle asked the governor of Michigan to send 1,000 delegates to a LAW event in Port Huron, he was told no. "The Governor declined," Earle wrote, "saying that while he was in favor of good



Cross-section of Macadam and Park Road pavement from an engineering drawing submitted by the City of St. Louis, Missouri, for publication in an October 1897 supplement to *Scientific American*.

"I have had a hand in the formation of county, state and national organizations for the betterment of the public highways ... Of all these, the most far reaching in its influence and benefits, was the founding of the American Road Makers, the name of which was subsequently changed to the American Road Builders' Association.

This organization has wielded a mighty influence in the land, and without doubt has been the principal factor in winning the national battle for better roads. From a small membership with comparatively little influence, [ARBA] has developed into the most powerful organization of its kind in the world ...

When organized in 1902, the total expenditures for good roads for all the states of the union aggregated less than a half a million dollars for that year ... there would be expended in 1928, more than one billion, three hundred million dollars for the same purpose."

—"By Gum" Earle, ARTBA's Founder, 1929

roads, the majority of the people of Michigan were not. He was right."

Nonetheless, to reward Port Huron for underwriting the congress, a mile of macadam road was constructed there under the supervision of the new federal Office of Public Road Inquiry (OPRI), 1899 successor to the original Office of Road Inquiry of the Department of Agriculture (1893).

This was an early "object lesson" road construction project, one of many that would promote good roads practice under the aegis of the good roads movement and the federal government. It would be followed by similar best-practice demonstrations from Kansas to Alabama to New York State that year and the next.

Autos launch ARTBA

The explosive growth of the "red devils" after 1900 caused a shift for leadership for better roads from bicycles to the automobile. There were only 14,000 autos registered in the U.S. in 1901; by 1910 there were 458,000, accord-

ing to Department of Commerce statistics.

By 1910, automobile companies were buying one-eighth, and by 1917, one-fourth, of all advertising in mass market magazines in the U.S., reported Clay McShane in *Down the Asphalt Path* (1994).

Thus, it was the auto that launched ARTBA from a platform based on bicycles. Earle saw power shifting away from bicycles and wanted to spearhead an automobile-driven road construction group.

"After the bicycle had had its day, then came the automobile with its demands for rights and privileges on the public highways," Earle wrote. "Therefore I organized the American Road Makers, afterward called the American Road Builders' Association. I drafted the constitution and by-laws of this national organization, copies of which, on December 26, 1901, I mailed to a carefully selected list of two hundred persons."

His letter, ordaining the overthrow of a monarch named "Mud," requested secrecy until after Earle's successor as president at the League of American Wheelmen had been elected. "Not that our forces will conflict with theirs in the

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W.L. Dickinson serves as ARM president (1904-06).

1905

ARM meets in Port Huron, Mich.

1906

No ARM convention is held.

least," he added. "Far from it, for we shall seek to ally all organizations with us in this struggle for freedom."

Four regional divisions were to be established, and membership fees and annual dues of \$5 were suggested. "This is not a cheap affair, and cheap members will not be solicited," Earle wrote.

Convention at the Cadillac Hotel

Only 25 of the 200 who were sent the original solicitation responded to Earle in kind. And of them, only three were present in person — with 16 present by proxy — at the founding of ARM, later ARBA, later ARTBA, at the Cadillac Hotel in New York City on Feb. 13, 1902.

In addition to Earle, those ARTBA founding members present were:

- William Pierson Judson, deputy state engineer of New York, Albany.
- Col. W.L. Dickinson, president, Connecticut Valley Highway Association, Springfield, Mass.
- William S. Crandall, editor, Municipal Journal and Engineer Magazine, New York City.

"Although only four persons were present, I considered it a large and honorable convention, because the purpose in view was both large and honorable," Earle wrote in 1929.

After founding ARM, Earle turned his attention to improving the road system in Michigan. By 1907, as state highway commissioner, Earle felt that battle had been won and turned his attention again to the national scene. That year, he drafted ARM's National Reward Road Bill, and promoted it to the U.S. House.

While improvement of Michigan's highways was Earle's proudest achievement, he knew the association he founded would long have greater reach and profit to his citizens. "From a small membership with comparatively little influence, [ARBA] has developed into the most powerful organization of its kind in the world," Earle said.

ARM defines federal role

The good roads movement was launched at a Chicago meeting in October 1892 by Gen. Roy Stone, a magisterial figure in the history of American roads and highways. Over a thousand persons attended the charter meeting of the National League for Good Roads.

At its second national meeting, in Washington, D.C., in January 1893, the National League advocated the formation of a National Highway Commission.

In those early days, roads were primarily a local responsibility, with minimal state and no federal involvement. For example, only 16 state road agencies had been formed by 1906. So little was known about the condition of the nation's roads that the first federal road agency's name described its mission as inquiry as to road conditions.

In 1893 the U.S. Congress

established the Office of Road Inquiry (ORI) — with Stone as U.S. special agent and engineer for road inquiry — as part of the Department of Agriculture, to investigate road conditions and dispense information on good road construction practice.

In 1899, the ORI was renamed the Office of Public Road Inquiry (OPRI). Headed by Martin Dodge, the agency continued the educational efforts begun by Stone. Dodge lobbied Congress and traveled extensively, fighting for good roads.

In the meantime, ARM lobbied to keep responsibility for road building at the state level, while maintaining a federal role for subsidies. In a 1907 letter to a congressman, ARTBA's founder wrote "I am a believer in government aid for roads built good enough to merit it, but I am

opposed to any plan whereby the United States Government will have anything to do with the actual building of them.

"We have plenty of men who can build good roads economically in every state in the union, without getting them from Washington," Earle wrote on behalf of ARM. Reflecting the local government flavor of

ARM at this time, he wrote "I believe it is best for states, counties and townships to do everything they can for themselves, rather than to transfer all their business in governmental affairs to Washington." ARM's philosophy reflected

"It is not at all unreasonable to believe that in a few years the automobile will completely displace the street railway and the horse-drawn carriage ... When the time shall come, as it must, that horses are banished, and the rails of street cars removed, giving place to asphalt avenues and automobile service, city life will be a joy and satisfaction greater even than was felt by the happy people of Utopia."

— Louisiana and the [St. Louis World's] Fair, Commemorative Edition (1905)

Working With Surfacing

Technology transfer, then as now, was a prime mission of the U.S. government's road improvement outreach. The Office of Public Roads (OPR) investigated best-practice road building at the turn of the century and publicized best practice through the object-lesson program.

Sand-clay roads were one example of object-lesson roads. This type of surfacing was often used in the South and involved mixing clay with sand. Rain would cause the surface to firm up and prevent extensive rutting. In the South, sand-clay surfaces were inexpensive and the materials were at hand.

In the quest to build a "dustless road," OPR-involved experiments at Jackson, Tenn., in 1905 studied the use of coal tar and petroleum oils in suppressing dust, while falling short of an asphalt-paved surface.

In 1908 the OPR studied whether blast furnace slag might make a good road aggregate when mixed with lime, limestone, tar or asphaltic road oil.

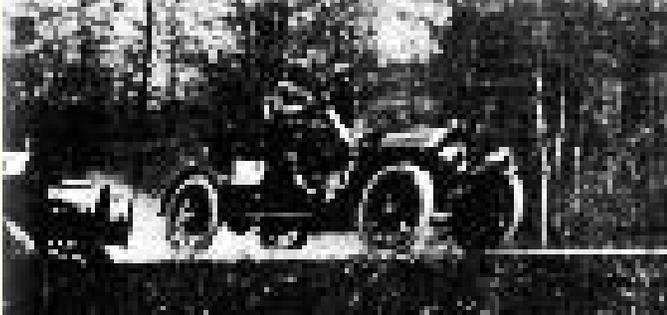
Research continued at the federal level on road materials. Between 1908 and 1916 the Office of Public Roads worked with dozens of experimental roads, including soil/oil mixes, portland cement concrete, and paving bricks. The results of these experiments, and the object lesson projects, were bulletins distributed to counties, states and engineering colleges.

1907

January: In *Wilson v. Shaw*, the U.S. Supreme Court affirms that the U.S. Congress has the right under the interstate commerce clause of the Constitution to construct interstate roads. This puts an end to the controversy of whether the federal government could expend money on roads.

March 12-13: ARM meets in Pittsburgh, Pa.

E.L. Powers serves as association president (1907-23).



A "speeding" test conducted by the federal government in 1909 on Conduit Road, near Washington, D.C. Courtesy of the National Archives.

the ultimate relationship between local, state and federal participation that we enjoy today.

But a federal involvement would unfold nonetheless. In 1905, Congress followed Martin Dodge's urgings and established the permanent Office of Public Roads (OPR). An engineer, Logan Waller Page, who had studied road building on the Continent, was named chief engineer.

The contemporary movement of importing European roadbuilding philosophies to the United States — such as end result specifications and contractor warranties — actually dates to this era, observed the Federal Highway Administration's Richard Weingroff recently in its journal, Public Roads.

"The U.S. Department of State asked its international consuls for information on roads in other



A Raleigh, N.C., city street, macadamized as an object-lesson road during a 1902 state "good roads" convention. Photo courtesy of the National Archives.

countries," Weingroff said. "The State Department's nearly 600-page report in 1891 confirmed what good roads advocates had been saying: In country after country, roads were in better shape than those in the United States, often with the national government helping keep them that way."

France was deemed to have the best roads, State found. "It is the opinion of well-informed Frenchmen ... that the superb roads of France have been one of the most steady and potent contributors to the material development and marvelous financial elasticity of the country," the consul found.

The World's Columbian Exposition in Chicago (1893) hosted a convocation on the sad state of U.S. roads. "Men coming from all parts of the land and from every walk in life, drew aside from the contemplation of the triumphs of American civilization to counsel together on one great reproach to that civilization, the common roads of this country," wrote seminal figure Roy Stone in 1894.

And one comment there was that even the ancient roads of the Inca were superior to what the U.S. had to offer. "Columbus discovered America in vain if, after four hundred years, we are still behind the ancient Peruvians in one of the elements of civilization

... [the Inca] possessing a system of roads which astonished their Spanish conquerors more than all the other marvels of that marvelous land."

Page led the U.S. delegation to the First International Road Congress, October 1908, in Paris, reported Weingroff. In a scene that will be familiar to exposition-goers, "For the exhibition hall, OPR provided full-size drawings of the Page Impact Testing Machine, photographs of a racing car traveling at different speeds over a stretch of road in an experiment to determine the amount of dust raised, and a technical description (in three languages) of the OPR's hardness machine," Weingroff wrote. **TB**

**NEXT MONTH:
1910-1919 — Highways
Boost the Industrial Economy**

About the Author

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100th Anniversary Trivia...

1. What organization did the American Road Makers emerge from?

- A) League of Bicyclists
- B) League of American Wheelmen
- C) Americans for Good Roads
- D) National League of Good Roads

2. Who succeeded Horatio Earle as ARM president in 1904?

- A) George Tillman
- B) E.A. Stevens
- C) A.W. Dean
- D) James H. MacDonald

3. How many people were present when the ARM constitution was ratified in 1902?

- A) 4
- B) 14
- C) 40
- D) 140

4. According to Horatio Earle, how much did it cost to build a one-mile gravel road in the state of Michigan in 1905?

- A) \$735
- B) \$935
- C) \$1035
- D) \$2035

5. How many miles of public roads existed in the U.S. in 1909?

- A) 500,000
- B) 1.2 million
- C) 1.7 million
- D) 2.2 million

Answers: B, D, D, A, B, D

ARTBA TIMELINE

1908

January: OPR completes work on an object-lesson (best-practice demonstration) road at the State Fair Grounds in Sedalia, Mo. The road, on a sticky gumbo soil, is 24 feet wide, 4 inches deep at sides, and 6 inches deep at center.

July: ARM holds legislative convention in Buffalo in conjunction with the American Automobile Association and the National Grange.



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1909

Oct. 26-29: ARM holds annual convention in Columbus, Ohio, and over 1,000 people attend. For the first time, an exhibition is held, and is the beginning of what shortly would be called the "Road Show," ultimately evolving into today's ConExpo/CONAGG exposition.