

MOTORS and MOTORING



HIGHWAY SPECIFICATIONS ARE AGREED ON BY EXPERTS

Lincoln Highway Technical Men Decide on Section of Road Embodying Best Engineering Opinion.

A group of the leading highway engineers of America, sitting in New York in a two-day conference as a technical committee of the Lincoln Highway Association to decide on specifications for the ideal section to be built on the Lincoln highway as a type of main traveled highway that can be constructed, have agreed on the principal specifications.

The engineers had before them the specific problem of designing a section which, without compromise with the question of available funds, would represent the consensus of the best engineering opinion of the United States as to the most economical investment of public funds on main interstate routes of travel. The United States Rubber Company, which has furnished the funds for the construction of the section, has expressed the hope that a section can be built that will be the best that modern engineering can devise and that at the same time will be in the essential details within the reach of the pocketbook of the average state or municipality.

General Specifications.

The following general specifications were adopted, subject to review at the final meeting of the committee to be held soon in Chicago:

1. The specifications for the ideal section are to be predicated upon an average traffic of 15,000 passenger automobiles per twenty-four-hour day, traveling at a speed of thirty-five miles per hour, and 5,000 motor trucks per twenty-four-hour day, traveling at an average speed of ten miles per hour.
2. The width of right-of-way for the ideal section shall be 100 feet.
3. The drainage for the ideal section shall consist of submerged drains and catch basins.
4. The ideal section shall be constructed of concrete, ten inches thick, with reinforcement.
5. The ideal section shall be designed with earth shoulders on each side of the concrete.
6. The ideal section shall be lighted.
7. The ideal section's technical committee recommends that neither the ideal section nor any other road should be built without adequate, prompt maintenance being provided.

Should Embody No Curves.

8. The ideal section should embody no curves having a radius of less than 100 feet, and, where reasonably possible, curves should be eliminated entirely.

9. The ideal section shall be superelevated for a speed of thirty-five miles per hour.

10. The ideal section shall provide a foothold for pedestrians.

11. The ideal section shall be equipped with guard and warning rails, and all structures shall be protected by guard rails.

12. Specifications for the ideal section include the regulation of motor truck design, limiting the superimposed load to 10,000 pounds per inch with the road surface and to 8,000 pounds per wheel.

13. On the ideal section all crossings at grade shall be eliminated.

14. The technical committee recommends the establishment of comfort stations, park sites and camp sites along the ideal section.

15. All advertising signs are prohibited along the right-of-way of the ideal section, and all signs of direction or distance, except those placed or authorized by proper state authority, are prohibited.

Originate at Headquarters.

17. It is the sense of the ideal section's technical committee that all distance markers should originate at the municipal headquarters of any town or city.

18. It is the sense of the ideal section's technical committee that in so far as may be practical all obstructions to the vision shall be removed at intersecting roads for a distance of at least 500 feet each way from the intersection.

19. It has been expected when the technical committee was called into its first formal session that considerable differences of opinion would develop on many of the major items, and that there might be a deadlock on some points, but at the meeting a surprising unanimity of opinion was found to exist among those having in charge highway construction of the utmost importance.

20. Some of the foremost highway engineers in the United States were present at the conference. A rough estimate showed that the personnel of the committee had collectively jurisdiction over the expenditures of considerably more than a quarter of a billion dollars for highways.

21. All of the decisions were unanimous, with the exception of the total travel upon which the specifications are predicated, in which one member dissented, and the item number twelve predicated specifications upon a regulation of motor truck design, to which one member dissented.

Well Above Present Width.

It should be noted that the width of right-of-way decided upon, i.e., 100 feet, is well above that in general use at this time. It is also interesting to note that the board of engineers passing upon the specifications unanimously agreed that the limits of highway design can be drawn at a total traffic density per day of 20,000 mixed passenger and freight vehicles and that when traffic passes this point it is desirable to construct another parallel road rather than to increase the width or strength of the existing road to the end of concentrating the additional traffic on the one road.

The unanimous agreement of the technical committee upon the necessity of submerged drains in tile and catch basins, rather than the prevalent open ditch, is of considerable importance as indicating a feeling on the part of these highway engineers that the open ditch will ultimately be eliminated on all main routes of travel.

The unanimous decision that the ideal section should be lighted is also of great interest to those forward-looking highway administrators who are now making careful consideration of the problems which will develop during the next ten years.

One of the most important matters to be decided upon by the ideal section committee and which must precede any construction, is the question of cross section design, i.e., the number and arrangement of traffic lanes to be provided on the ideal section.

Only One Disagreement.

This was practically the only point upon which a disagreement was encountered, and that was over the question of the construction of a three-traffic-lane pavement, say twenty-seven feet wide, would be the proper procedure, while others preferred the construction of a four-traffic-lane, separated by a central parkway to the end of segregating travel according to direction. Others were in favor of separate travel lanes for motor trucks and passenger cars.

The Lincoln Highway Association is having competent engineers draw up suggested specifications for each of these cross section designs and the matter will be carefully considered at the next meeting of the technical committee.

The Lincoln Highway Association, as well as the office of public roads of the federal government, has issued a bulletin concerning the specifications determined upon, which will be of very wide technical and general interest.

Interstate Highway System Next in Order.

A. A. A. Official Believes Future Central Funds Should Be Spent That Way.

If the present Congress should appropriate any money under the provisions of what is known as the federal aid road act, the opinion prevails here that the expenditure of the joint federal and state money would be confined to highways of an interstate character. The House is more likely to favor an appropriation than the Senate, as there is an understanding in the House that the districts in not a few states for more money from the federal treasury with a view to complete road projects already approved.

While one can appreciate the anxiety on the part of highway officials in certain states to obtain increased money from the federal treasury, comments Chairman George C. Diehl of the A. A. A. roads board, "the plain facts in the case are that any further money from the central treasury to complete road projects already approved.

Exactly as states first gave aid to counties and then accepted a definite state system of inter-county roads, the next step is to operate to the states from the federal government ought to have a distinct connection with an interstate plan of big highways such as is outlined in the Townsend bill that has the support of farm organizations, business associations and the motor vehicle road users."

Small Towns Benefit.

Motor Tourists Spend Much Money En Route to Resorts.

In a recent issue of the official organ of the Dixie Overland Highway Association we note the following instances proving the effect travel has in developing communities, says Motor Life.

It is now estimated that the average motorist spends over \$10 daily while traveling.

This is the smallest of benefits to the towns and counties through which a main highway passes. It has been estimated that 100,000 people located in the west because of the Portland exposition in 1905.

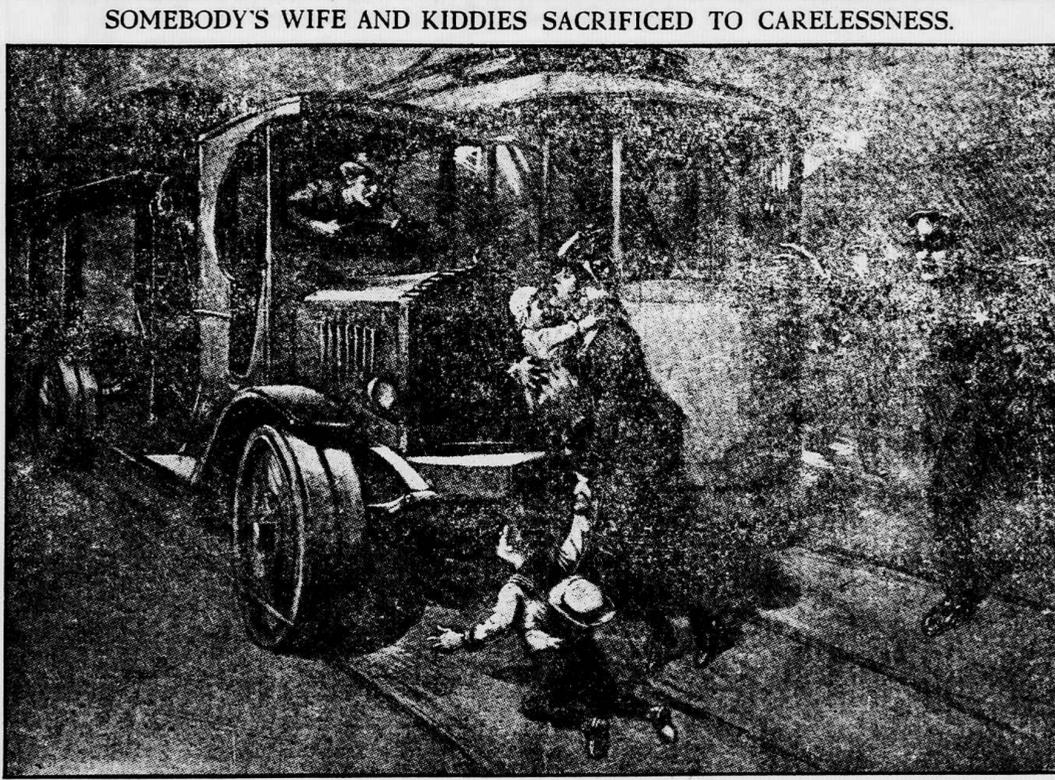
Gold attracted the first population in California. A great increase resulted from the "tourist" rates and advertising of the railroad companies.

Since the automobile age the "Gold Coast" and the "Land of the Setting Sun" have been the mecca of the automobile traveler.

Because people have been induced to travel to the west, many have located there, others have made investments. For many years it has been said, jokingly, "Florida's best crop is her tourist crop." In Florida that crop is now largely picked by the former tourists, who have settled by thousands in the "State of Flowers," the "Land of Eternal Youth."

Free Lecture
on
Solutions by Owners of Auto Troubles
By EDWARD H. COOLEY,
Educational Director,
American Motor School,
Auspices
HENDRICK MOTOR CO.
at
Takoma Garage
21 Cedar Street
Saturday, Jan. 22, at 7:30 p.m.
at 7:30 P.M.

Questions Answered
Which will not start? Is trouble electrical or mechanical?
When car simply stops, how trace and correct trouble?
What are the most important sounds to listen for when driving? Question Drawer.
Public Invited



The driver took a chance with a motor truck, the most deadly machine on the street. It kills thousands every year. Remember, you can never bring back lives crushed out by your machine. You can never forget.

WANTS U. S. ROADS PROGRAM KEPT UP

American Association to Ask Congress for Huge Sum for Next Five Years.

Congress will be urged, according to the program formulated by the American Road Builders' Association for its nationwide good roads congress and national good roads show to be held in Chicago, February 9 to 12, to extend for five years the federal road-building program which by law terminates with the close of the government's present fiscal year.

Congress will be urged to provide additional funds for expenditure under the terms of existing legislation and the newly formed program of the congressional leaders at the rate of at least \$100,000,000 for each of the five years beginning July 1, 1921.

In the advocacy of this procedure the association will be in hearty accord with the attitude expressed by Secretary of Agriculture Meredith in his recent annual report.

Will Seek Harding's Aid.

The association, which includes in its membership the highway officials of the national government, and those of the states, counties, cities and townships in the United States and Canada, together with highway engineers and contractors and manufacturers of road-building machinery, road materials and highway transportation equipment, is also preparing to ask President-elect Harding to recommend in his inaugural address and in his first message to Congress a broad program of federal aid in highway construction.

The enormous appropriations for highway work already made by states and municipalities—appropriations that total more than \$1,000,000,000, according to the most reliable reports covering bond issues and direct levies for road building and road maintenance—presage, it is believed, an unprecedented volume of road work in sixteen states.

Funds still available through federal aid are placed at \$160,000,000 by officials of the bureau of public roads. In addition, funds obtained from direct levies and other sources of state revenue and county issues are estimated to amount to \$296,200,000. The Chicago meeting will bring together from all parts of the country the men who will supervise the expenditures of these vast appropriations for a thorough discussion of their problems and an accurate estimate as to the future.

Expect Very Big Convention.

The convention promises to be one of the greatest in point of attendance and in results ever held in the history of the good roads movement. The governors of the several states and territories of this country, and Canada as well as the mayors of 2,000 American and Canadian cities have been asked to appoint official delegates to the meeting.

In some instances governors and mayors will head their delegations in person. Seven thousand road and street contractors and thousands of army, automotive and chemical engineers, agriculturists, editors, bankers, motorists and large users of trucks, as well as officials of boards of trade, chambers of commerce and other organizations interested in road and street improvement, have been invited to attend.

The program will cover every vital subject related to highways and their use. The prepared papers and discussions will deal with all points of view.

Everywhere among road builders the outlook for unprecedented activity is growing out of the delays that have been due to the heavy cost and the scarcity of labor and materials during the war, is considered most promising, and optimism as to the future of road building seems certain to prevail at the congress.

Beware of rear end trouble

For the rear end is known as the "Backbone of Your Car." The transmission and differential gears constitute the backbone of your automobile. These gears must perform in some instances service more severe than that which falls upon any other part of the car. These gears carry the whole driving load.

To withstand the strain the gears must be correctly lubricated.

EBONITE

Puts a smooth, slippery film of lubricant over and around your gears, and keeps out friction and noise. One filling will last an entire season.

Sold in five and twenty-five pound cans by garages, gasoline stations and accessory dealers.

Call for it by name—EBONITE.

BAYERSON OIL WORKS
Manufacturers Erie, Pa.
Pennsylvania Petroleum Products
Motor Oils, Greases

PRICES GUARANTEED AGAINST REDUCTION
On All Models

CHANDLER

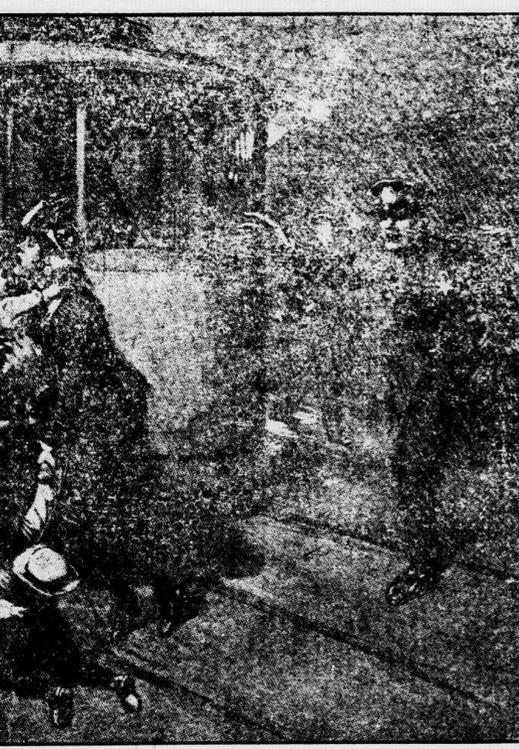
To June 1, 1921

Touring	\$1895	Coupe	\$2895
Roadster	\$1895	Sedan	\$2995
Dispatch	\$1975	Limousine	\$3395

F. O. B. Factory
Reductions, if Any, Carry a Refund
This Is Your Protection

WARRINGTON MOTOR CAR CO.
1800 14th St. N. W.

SOMEBODY'S WIFE AND KIDDIES SACRIFICED TO CARELESSNESS.



The driver took a chance with a motor truck, the most deadly machine on the street. It kills thousands every year. Remember, you can never bring back lives crushed out by your machine. You can never forget.

TAXES HIGH IN ITALY.

In all countries the taxation on automobiles has been increased since the armistice, but in no country has it been so exorbitantly increased as in Italy. The new tax, which is to be effected January 1, 1921, has caused a great deal of dissatisfaction in all classes of industry. It seems even to the socialists, who are responsible for this new legislation, are looking upon it with alarm, says Motor Life.

With a tax of \$3,000 on two well known Italian post-war models, and with taxes of \$240 on the twelve-horsepower Fiat, which would be no means be considered a high-powered car, and \$230 on the new fifteen-horsepower four-cylinder, which is rated at twenty-two-horsepower under the Italian taxation scheme, few purchasers will be found for these cars. This will be felt by manufacturers, motorists in general and workers, who will undoubtedly be thrown out of employment in large numbers.

EXCEPTION IS NOTED.

From the American Motorist.

Everybody believes in exercise, but not when it is associated with road-repairs to a refractory motor.

The City Women's Club of London has its home in Oliver Goldsmith's old house in Wine Office court.

AUBURN Beauty-SIX Sedan at the New York Show this year.

It was a critical audience. A new spirit prevailed. Nothing was taken for granted. The car that won approval delivered the goods.

Quality beneath the surface was recognized. The Auburn exclusive torque arm construction and the annular ball bearing transmission, together with the 4-bearing crankshaft, were accorded due worth. Other notable features—unusually large brake drums, positive pump-driven oil system, and a unique type of clutch construction, which assures most easy operation—were critically appraised.

Beauty was judged as it should be—of value only when it served to emphasize and accentuate the strength and durability built into the car.

Price, for the first time in years, received careful consideration—not for price alone but for the value represented in the price—an honest, present-day dollar-for-dollar value based on present deflated merchandise prices. It is not hard to understand, therefore, why Auburn should have been accorded pre-eminence. Quality—beauty—price—with twenty-one years' engineering knowledge as assurance that each is in ideal relation to the other.

The Motor Company of Washington
Conn. Ave. and R. I. Ave., at M St.
Phone Main 6177

AUBURN Beauty-SIX

QUESTIONS AND ANSWERS FOR THE AUTOMOBILISTS

Answers to Last Week's Questions.

1. There are two ways of locating a cylinder which misfires regularly. One way is to remove the spark-plug wire from one plug at a time. When cylinder is discovered the engine will run the same as though the wire were connected. Another way is to open the compression cock of one cylinder at a time and watch the flame passing through the open cock. The cylinder not firing will not give forth a flame—only a quick hissing noise during each upward stroke of the piston.

2. To tell when valves of an automobile engine open and close, by the position of the flywheel, the inlet valve should open when the flywheel has traveled from 10 to 15 degrees from top dead center of the piston. The exhaust valve should open at about 45 degrees of flywheel travel before the piston starts on compression stroke. The exhaust valve should close when the flywheel has traveled about 10 degrees after the piston finishes exhaust stroke.

3. Gasoline is obtained from crude petroleum which is first put on the market it sold as low as 4 cents per gallon—before automobiles used it.

4. Usually there are two coils in an ignition system, primary and secondary circuits. More than one coil in flow through wire at the same time or for instance, the secondary or high-tension current both flow through the same certain wires in the ignition system.

5. To find out if the oil contains acid, dissolve a small amount of the oil in alcohol and by holding a tube which contains the mixture in warm water, the natural position of the usual blue litmus paper will turn red if there is any acid in the oil.

6. Air and water take in the same volumes do not absorb the same amount of heat in a given time. Air will not absorb heat as quickly as water.

7. Brakes must be so adjusted that with a moderate pressure on the foot pedal they will stop the car, but will not lock the wheels, but should operate so that with additional pressure they will grip sufficiently to lock the wheels when required. Brakes which act too quickly will cause premature wear of the rear tires, and if they are not quick enough of action the car and its passengers will be in danger whenever the brakes are called upon to stop the car. Great pressure should not be necessary to operate them efficiently.

8. Judgment should be used in the operation of the spark control, and its position on the steering wheel should be according to engine speed and engine load. When a car is traveling a smooth level road the spark control should be advanced as fully as the speed of the engine requires, but when the engine is laboring through mud ruts or other poor roads, the natural position of the spark lever should be in retard, as the car very seldom attains any but a very slow speed.

9. The trouble which will cause a noticeable lack of power while an engine is pulling a car and yet which will allow the engine to run fairly well while idling, is usually lost compression due to poorly seating valves, leaking rings, cylinder out of round, or other compression troubles, poor

SHUTTERS

for Radiators
dash, New cores
installed a day
make radiator. Freeze-proof Radiators for
Ford, Wiltzette's Auto, Radiator and Fender
Mfg. Works—Two places, 319 13th ave., 12314
P. st. n.w. Yellow Fronts.

BATTERY Ignition and Starter SERVICE

All makes of batteries re-charged, repaired and rebuilt. Ignition, starter and generator repairs. Tires, tubes and accessories.

Federal Battery Service, Inc.
1314 9th St. N.W.
Phone No. 14 8240
2800 Sherman Ave.
(Cor. Girard)
Phone Columbia 5137

AUBURN Beauty-SIX

From a painting of the Auburn Beauty-SIX Sedan at the National Automobile Show.

AUBURN Beauty-SIX

It was a critical audience. A new spirit prevailed. Nothing was taken for granted. The car that won approval delivered the goods.

Quality beneath the surface was recognized. The Auburn exclusive torque arm construction and the annular ball bearing transmission, together with the 4-bearing crankshaft, were accorded due worth. Other notable features—unusually large brake drums, positive pump-driven oil system, and a unique type of clutch construction, which assures most easy operation—were critically appraised.

Beauty was judged as it should be—of value only when it served to emphasize and accentuate the strength and durability built into the car.

Price, for the first time in years, received careful consideration—not for price alone but for the value represented in the price—an honest, present-day dollar-for-dollar value based on present deflated merchandise prices. It is not hard to understand, therefore, why Auburn should have been accorded pre-eminence. Quality—beauty—price—with twenty-one years' engineering knowledge as assurance that each is in ideal relation to the other.

The Motor Company of Washington
Conn. Ave. and R. I. Ave., at M St.
Phone Main 6177

AUBURN Beauty-SIX