Superelevation.

Another feature which affects the safety of the traveller, and also the wearing-qualities of the pavement on curves, is the superelevation of the roadway. If the ordinary camber is used the traffic tends to cut in on the inside of the turn to obtain the assistance of the banking effect of the camber, and one-half of the road takes most of the traffic.

Superelevation is now more or less standardized in most of the States in the U.S.A. The following tabulation shows recent practice :—

State.	Pitch of Fully Superelevated Section.		Transition Section and Rate.
	Pitch per Foot of Width.	Radius (in Feet).	
California mountain roads	¾ in.	Up to 75	Length, 30 ft. (15 ft. on curve and 15 ft. on tangent).
	⅜ in.	100 to 150	
	⅛ in.	225 to 300	
Indiana ..	½ in.	All curves	Length, 100 ft. Full superelevation at principal curve.
Michigan	1 in.	66 to 150	Length, 100 ft. (75 ft. before principal curve to 25 ft. past, to reach full superelevation).
	¾ in.	150 to 300	
	⅝ in.	300 to 450	
	½ in.	450 to 700	
New Jersey ..	⅓ in.	All curves	Length, 100 ft. Full superelevation at principal curve.
New York	1 in.	Up to 300	Length of transition varying from 85 ft. to 35 ft. before principal curve.
	¾ in.	800 to 1,500	
	½ in.	1,500 to 2,500	
Ohio ..	½ in. to ⅛ in.	190 to 1,400 5,000	Length, 100 ft. (from 50 ft. before to 50 ft. past principal curve).
Pennsylvania ..	½ in.	50 to 300	Spiral transition on inside curve according to special table.
Washington	⅝ in. to 0·22 in.	190 5,000	Same as Ohio.
West Virginia	¾ in.	75	Length, 75 ft. (one-third superelevation at principal curve and two-thirds at 25 ft. past principal curve).
	0·3 in.	400	

The following formula is sometimes used for arriving at superelevation :—

$$\text{Superelevation in inches per foot width of roadway} = \left(\tfrac{1}{2} + \frac{75}{\text{Radius of curve in feet}}\right).$$

An American formula for concrete roads is—

$$E = \cdot 067 \frac{S^2}{R}$$

where E = slope in feet per foot of width, S = speed in miles per hour, R = radius of curve in feet.

Where there is horse traffic on concrete roads the superelevation should not exceed 1 in. per foot of width of roadway. In laying out pavements the transition from camber to full superelevation should be complete at the commencement of the curve.

Oiled Earth Roads.

There are a number of earth and sand roads in the United States which have simply been given two coats of asphaltic base petroleum or petroleum residuum, and have successfully carried heavy traffic. Where the ground seems to be more or less of a gravelly nature the oiled road has proved particularly successful as a cheap expedient. This is probably due to the fact that such soils have excellent natural drainage.

The roadway is first shaped, dampened, and rolled with a 10-ton roller until the surface is unyielding. The surface is then loosened and pulverized with a cultivator and harrow to a depth of 4 in., and again watered to make it roll satisfactorily. All stones over 3 in. in diameter are removed or broken up. After further rolling with the 10-ton roller minor depressions are filled up, and the road again dampened, and finished off with a 5-ton roller. Oil at a temperature of between 300° and 400° F. is applied with pressure distributing-sprays at a rate of ⅝ U.S. gallon per square yard, and left for at least twelve hours, when a layer of ¾ in. to ½ in. screenings sufficient to absorb all the surplus oil is evenly spread. A second coating of oil at the rate of ⅜ U.S. gallon per square yard is then applied, and after a further lapse of twelve hours a layer of somewhat finer screenings is spread, any surplus stone being raked or swept off. The surface is then given a final rolling until it is uniformly smooth. Any sticky places are to be treated with further screenings, as necessary.

This type of treatment is quite commonly used for the first surface on new roads in suburban subdivisions in California. It deals effectively with the dust problem, and is very suitable to a dry climate.