SAFETY ON THE HIGHWAYS

By Prof. W. K. Hatt,
Head, School of Civil Engineering, Purdue University.

The construction industry amounts to an output of six billion dollars a year in the United States, that is fourteen per cent of the national income. Of this, one billion is put into highways in one form or another.

We are only at the beginning of the highway industry, however. The farther we go the more important the operation of the highways becomes. Operation involves a most important element—the maintenance of roads. State Highway Engineers are alive to the importance and complexity of the problems of maintenance. Our county highway superintendents have no less interest in this very difficult task of maintaining roads against the traffic of motor vehicles. They, as well as the state engineers, are gravely concerned with the safety of the roads under their charge.

Accidents are increasing rapidly with the seventeen million motor vehicles on the roads of the United States. The use of the highways under certain critical conditions of traffic is now a hazardous occupation.

Accidents on streets and highways increased fourteen per cent last year, whereas accidents in other classes decreased. Twenty-two thousand six hundred people were killed on the streets and highways of the United States last year; eighty per cent of these were killed either in driving automobiles or getting in the way of automobiles. Half of these accidents were due to recklessness and carelessness. We may contrast this figure of twenty-two thousand six hundred with the fact that in the four years of the Civil War one hundred and ten thousand Union soldiers were killed in battle or died of wounds. It has been said that if the highway accidents keep on at their present rate, we will approach in four years the casualties of the Civil War.

There are four persons concerned in avoiding accidents—first, the engineers who build and maintain the highways; second, the manufacturers who supply the automobiles; third, the man who drives the automobile; and fourth, the pedestrian who walks the roads. Each of these four must look ahead and do his best to avoid accidents. We must not only desire safety, but we must also study the cause of accidents in a scientific way, and then create the conditions which promote safety.
The county highway superintendents have no way of preventing the reckless and careless person from driving an automobile. It is up to the state authorities to license only competent persons after an examination as to their fitness. The county highway superintendents, however, can make the roads reasonably safe for the reasonable driver.

It is this growth of accidents on the highways that led Mr. Herbert Hoover, Secretary of Commerce of the United States, to call a National Conference on Street and Highway Safety in Washington, D. C. To this conference were gathered various persons interested in building highways, in constructing automobiles, in planning cities, in education in the public schools in order to study the reasons why accidents occur and the best means of preventing them.

There is a lot of misinformation and erroneous views of the cause of highway accidents. Many unexpected facts result from a careful study. For instance, it is found by actual observation that more accidents occur on the straight part of a road than on curved parts. This is contrary to the usual view. The fact that there are more accidents on the straight roads is explained by the extra precautions taken by the drivers in points of danger, like curved roads, whereas on the straight-away their attention is diverted and they become careless.

Another erroneous view is sometimes held that high speed is in itself a necessary cause of accidents. The fact is that one vehicle moving too slowly is likely to force other vehicles, which travel at a reasonable rate of speed, to pass it, and thus incur a danger on a two-track road.

The fact is that our highways are now becoming so crowded that speed is necessary if they are to discharge the traffic. Any piling up of traffic because of slow speed will increase accidents.

In other words, we are coming to the condition of a railway where traffic must be kept going over the tracks, and there must be all sorts of signs, signals and controlling devices. These traffic rules, these signs and signals are for the purpose of expediting traffic and not for slowing it.

To promote safety on the highways the roads should have a minimum width of 18 feet. The grades should not be too steep, not over six per cent. There must be a good clear vision ahead for at least three hundred feet. White streaks should be painted in the middle of paved roads at the top of hills and around curves so as to keep cars on their own paths of travel. The bottom of telegraph poles and other side projecting objects should be painted a light color. Signs should indicate steep grades, sharp curves, and railway crossings. Highways cannot be made "fool proof," but signs will warn the careful driver.
The automobile builder must furnish good brakes which work when required and proper lights which will not drive the approaching vehicle off the road. He must limit the width of trucks so that they may be passed without danger.

The driver must see that his brakes are maintained in good condition, the whole car in good working order, and a wind shield wiper installed.

A pedestrian must obey traffic laws, must not do any "jay walking." When on the road at night the pedestrian should carry a lantern and keep on the left side of the road. For the pedestrian the engineer should provide a smooth path along the side of the road in the shape of a good shoulder to the road. As a fundamental rule, the driver of the automobile should yield to the pedestrian when their paths intersect. Only competent drivers, those without physical defects that interfere with safe operation, should be licensed, and reckless drivers deprived of their cars. The punishment of wilfully reckless drivers is seldom adequate. Somewhere carelessness becomes a crime.

The whole question of highway safety is one of the most vital questions before the public. It influences the layout of city streets and the work of city park commissioners. Final solution does not depend upon general opinions, but on scientific study of the causes and nature of accidents.

Systematic, thorough and continuous education of the public will lead to fewer accidents, as in fields of industrial accidents. Uniformity of laws in the several states will also promote safety.

In Indiana we have a large mileage of good roads, but much must yet be done to increase highway safety. Curves should be widened and banked, guard rails of substantial type should be erected on the shoulders of embankments, especially near curved roads approaching bridges where many people now run off the road at night. There are many narrow bridges in Indiana which should be changed to two line traffic bridges at least twenty-two feet wide between rails. Roadway shoulders should be kept in good condition. To the users of automobiles we must say, test your brakes, keep your wind shield clean, use your lights so as not to blind an on-coming car, keep your own side of the road, and be careful not to pass a car in front of you unless you have a sure right-of-way against an oncoming car. Lose a minute and save a life.