more value would result from a report containing a series of well-planned pictures.

In the field of visual education the camera is to the photographer as the paint brush is to the artist. It is his means of painting the picture that he has observed. It is not only to give praise to the artist but to bring to the observer a record of a scene that he was not able to perceive.

THE STATE POLICE AND HIGHWAY SAFETY

Don F. Stivers,
Superintendent, Indiana State Police,
Indianapolis

Three major factors enter into highway safety: the car, the road, and the driver. In the main, you men are dealing with problems of the road. As for myself and my state troopers, we are dealing principally with the driver. The motor car itself is largely up to the manufacturers, who fortunately are improving the safety features of their products every year. This latter phase does not concern us except in the matter of motor vehicle inspections where equipment is believed defective.

The two former items, however, are of mutual concern. I am happy to report that the Indiana State Police have co-operated with the State Highway Commission in detecting the hazardous spots in our state system. Our officers have been encouraged to report the point at which the nature of the roadbed, or the traffic control devices, or the lack of them, seemed to be contributing to highway accidents. These suggestions have been periodically transmitted to the traffic division of the State Highway Commission, and the traffic and maintenance engineers have investigated and, wherever advisable, have rectified these conditions.

Our men do not pretend to be traffic engineers. They do not know whether their recommendations are sound in the light of the most modern thought. But they are constantly patrolling these roads and they know where trouble piles up. Hence, we have effected this relationship between the engineer and the policeman.

At least eighty percent of the activities of the Indiana State Police are in the field of traffic control and the servicing of accidents. More than a million three hundred thousand drivers ply the roads of Indiana holding Indiana driver's licenses, and hundreds of thousands of others travel the eight federal highways that run east and west across the state and the three major federal highways that run north and south. Indiana is literally the crossroads of the nation,
at least for the northern portion of the United States, and has traffic problems that cannot be easily mastered.

There are more than ten thousand miles of improved highways in the state system and more than fifty thousand miles of county roads, the majority of which must be patrolled, if at all, by the Indiana State Police. Fortunately, the roads themselves are good. I would compare the roads of Indiana most favorably with those of any other state in the nation. Perhaps our only disadvantage from the police viewpoint is that our roads are too good and lull our motorists into a false sense of security. The driver who is winding his way through the hills of Kentucky, where roads are built while you drive on them, where hazards may lurk around every winding turn, and where the diverse nature of the obstacles keeps the driver on the alert, may have accidents through bad judgment but at least he is awake to the possibilities in most cases.

Our broad white ribbons of roadway seem to draw the accelerator to the floorboard. The well-known traffic engineer, Maxwell Halsey, has advanced the theory that the average person becomes "velocitated" at high speeds. In other words, the person becomes accustomed to the speed at which he is traveling and gradually increases it. Each additional five miles per hour seems no faster than the previous speed. When he approaches a slow sign and slows down from 70 miles per hour to 40, he feels as if he were going 20 miles an hour. Another quirk of human nature makes persons resent bottle-necks in the stream of traffic and causes them to get out in the middle of the road. Our yellow and black dividing lines mean nothing to them. Some people express their lust for power through the steering wheel, the accelerator, and the horn. Still others cannot bear the thought of being passed by anyone on, say, a trip from Indianapolis to Chicago. The state trooper must reckon with all these peculiarities in his daily sessions by the side of the road. Without some outside restraining influence like the police, most people cannot realize that the motor car is the most dangerous weapon known to man and runs the current war a close race in number of deaths.

Traffic Accident Data

In the United States in 1939 approximately 32,500 persons died under the wheels of traffic. In Indiana, about three persons per day were killed in 1939, or a total of 1,029 persons. This was a reduction from 1938, in which 1,079 persons died. After two years of reduction, I regret to report that traffic deaths are again on the increase.

Indiana's automobile fatalities rose 18 percent in 1940 over the previous year, and have left a wake of dead bodies
totaling 1,217 persons. The increase in gasoline consumption, which was six percent over the previous year, is much less than the 18 percent increase in fatalities. Likewise, the 3 1/2 percent increase in automobile registrations cannot be used to account for the disproportionate climb in fatalities. Total vehicle miles traveled in Indiana in 1940 show an estimated increase of 10 percent. In 1940 we killed about 15 persons per hundred million miles of travel, while in 1939 we killed only 13.5 persons per hundred million miles of travel. Thus by almost any index we can use, accidents have actually risen much above the factors that might have accounted for the increase.

These figures are not particularly compelling in the newspaper headlines of 1940. It takes the shocking sight of bleeding bodies hurled into the ditch, heads and feet severed from their original connections, crumpled metal, broken glass, and motors in the driver's seats, fully to visualize the force of the moving motor car.

It is estimated that about thirty-five million dollars were wasted in mishaps of the roads last year in Indiana by the persons involved. This figure is based upon the conservative estimate that every fatality, with its proportionate accompanying personal injury and property damage accidents, costs approximately $30,000. This includes property damage, time lost from work, hospital and doctor bills, and other items. An average of ten dollars for every man, woman, and child in Indiana has gone into resounding crashes and human agony. During the same period it is interesting to note that the state police department cost every man, woman, and child in the State of Indiana approximately twenty-five cents for its entire operation. This is one-fortieth of the cost of the accidents they were unable to avert. It seems only logical that an increase in the number of men patrolling the roads to a point where they could effectively decrease the traffic toll would pay for itself manifold on a mere cash basis. As a matter of fact, the 1941 General Assembly is being asked for an addition of one hundred officers for the department in 1941 and another hundred in 1942. This will bring the patrol force to about three hundred and sixty-five officers.

**State Police Organization and Duties**

At present our uniformed division of troopers consists of about one hundred and sixty-five men. However, the one day off each week which is granted them, time spent in court, and special details, and illness and vacations, probably cuts this figure down to an effective force of about one hundred and thirty-five officers for the three hundred and sixty-five days of the year. The largest city in Indiana has more than three times this number of officers in its municipal police department.
Our personnel at present is directed from eight police posts and the headquarters in Indianapolis. Posts are situated at Dunes Park, Ligonier, West Lafayette, Pendleton, Putnamville, Connersville, Seymour, and Jasper. Each of these posts has from 15 to 25 men assigned to it, only a few of whom remain at the post at any one time. The remainder are situated in various towns over the area and are ready for trouble in that particular county. The posts all contain radio broadcasters, which operate for the benefit of the police barracks and their areas but must clear all messages through the control station in Indianapolis.

Each officer has an automobile assigned to him and usually travels alone, except occasionally at night. In the car he will have flags and flares, a first-aid kit, a fire extinguisher, and a .315 rifle. Each officer personally is equipped with handcuffs, a .38 Colt police special revolver, and twelve rounds of ammunition. In addition he may carry a blackjack and a tear gas gun. In addition to the other equipment assigned to him, the officer possesses a camera and a steel tape, both of which are frequently used in securing evidence in traffic-accident investigations. Every officer is a photographer and is trained to preserve those vital factors that will weigh most heavily in the scales of justice in favor of the truth.

A device that the officer has access to, which aids him in controlling traffic violators, is the drunkometer. New drunkometers, devices for testing the breath of the drinking driver, have been installed in each post, where all persons suspected of drinking while driving are brought for a test. We have reason to believe that more of our accidents are due to drunken driving than we can be sure about. Hence, we are very careful to check up on the condition of any person thought to be intoxicated. Contrary to what some might think, the dead-drunk is not necessarily the person most frequently involved in fatal accidents. The driver who is pleasantly aglow, who is more certain than ever of his ability to navigate, is the most dangerous driver.

An analysis of the alcoholic content of the blood of drivers killed in accidents in more than 200 cases in 1940 in Indiana revealed that approximately ninety percent had been drinking. A majority of these, however, were in the middle group where the law prescribes that they shall be considered under the influence of liquor if there is any evidence to support this claim. For many years it has been suspected that a majority of fatalities were caused by drunken drivers. While this partial survey seems to indicate that such is the case, state police are preparing in 1941 to make a more comprehensive study. Each officer has been given a small one-ounce glass bottle with a pinch of white powder in it, consisting of benzoic acid and sodium fluoride. He is instructed to secure from the coroner about two-thirds of an ounce of blood of
the driver killed in an auto accident, and place it in this bottle, label it, and send it to the scientific crime-detection laboratory of the department for analysis. The chemicals in the bottle preserve the blood and prevent the alcohol in the blood from evaporating.

While this evidence cannot be used against the dead man, nevertheless it may often fix the responsibility for an accident upon the dead driver and acquit a driver who is alive and wrongfully accused of negligence.

One or two bottles of beer will not usually place the person under the influence of liquor according to the legal definition, which is based upon the percentage of alcohol in the blood. From three to six bottles of beer usually places the subject in the doubtful class, where further evidence must be forthcoming to prove his innocence or guilt, and more than six bottles almost invariably places the drinker under the influence of liquor according to law. The only difference between a dented fender and a dead driver is an inch or a second. The margin of safety may be only a second or two which the benumbed brain must take to convey the danger message to lagging muscles. The inch or two by which the danger might be averted may not be gained when the liquor has delayed the hand and the foot from executing their fateful errand.

In the case of the drinking driver, the laws of man may restrain his actions, the laws of chemistry may fix his guilt, but the laws of physics will often seal his fate.

A majority of our officers' time is spent in patrolling the highways, looking for violations in the rules of the road, and checking drivers' licenses. These contacts constitute the major relationship between the state troopers and the motor- ing public. On the basic principle that the average citizen is a law-abiding person and is sometimes merely thoughtless or careless, or even ignorant of the law, Indiana troopers are taught to deal with them respectfully. The "Where's the fire?" attitude is no longer considered a tactful approach to the correction of an erring motorist. A courteous reminder of traffic regulations corrects more bad driving practices and wins more friends for law enforcement than were ever won by browbeating tactics.

When an officer steps up to an automobile, he usually knows what action he intends to take, or makes a decision on his action within a few moments after he stops the driver. Explanation of your suspicious actions in an automobile may convince an officer of your good intention, but arguments in themselves are almost certain to confirm any inclination he may have had towards an arrest.

In minor violations he may issue a warning ticket. This ticket is not an "out" for the driver, inasmuch as a copy of the ticket is filed in that driver's record at the Motor Vehicle Bureau in Indianapolis. In effect, the warning ticket gives
the driver another chance to do better, although a sufficient number of these tickets will be equivalent to an arrest. When two violations of the same nature accumulate in the file, or a total of three warnings, convictions for traffic violations, or traffic accident reports, or any combination of these are on record, the chief hearing judge or his deputies throughout the state issue citations calling the driver into their offices to show cause why his driving license should not be suspended or revoked. A hearing judge may dismiss the defendant or suspend his operator's license for ten or thirty or sixty days or six months, or revoke it for the entire year. The penalties for driving while suspended are severe. In general, these suspensions are accomplishing their purpose. To forbid a man to drive a car who has shown himself to be negligent and incompetent in his operation of it strikes at the very root of the accident problem. Ravages to property and life may be honestly reduced by this selective enforcement attack on the driving privilege itself. The state police are thus the first line of defense in the war against traffic hazards; but if a motorist should fail to be impressed by a warning, the state may fall back on the judge at the motor-vehicle bureau.

As engineers well know, all events have a cause whether it can be discovered or not. In the state police we take the viewpoint that for every accident there is a cause, and skilled investigators should be able to establish this cause in the majority of the cases. A large percentage of accidents are brought about by a violation of the traffic code. Hence our emphasis upon courteous but impartial law enforcement. However, we cannot personally influence the driving habits of every Indiana citizen, and dozens of crashes occur every day upon the streets and highways of Indiana.

Traffic accidents, in our everyday thinking, are usually tragedies occurring to someone else. An accident cannot happen to us—until it does. The shock of an accident leaves participants trembling and frightened even when uninjured. They cannot think quickly and clearly at a time when right actions are imperative. In like manner, the motorists who come upon an accident are often badly excited and mill around helplessly. The first two or three persons arriving on the scene of a rural accident may be of great service if they will remember a few simple precautions, but the dozens of persons who clutter up the highway out of sheer curiosity become a hazard and a nuisance that is thoroughly deplorable.

The average citizen's knowledge of first aid for the injured is comparatively slight; hence, his ministrations should be limited to making the victims comfortable. Badly injured persons, especially those with broken limbs, should not be moved, except as a last resort. Within a short time a first-aid expert or doctor is apt to ride along and stop, or the
trooper will arrive to care for an injury. When the police arrive, all those who have been assisting should place themselves at the disposal of the officer to do as they are told.

With a skill born of exact training and considerable experience, the officer must quickly and accurately undertake each step of the protection of the road, the care of the injured, the collection of data likely to reveal the cause of the accident. In that one accident the officer must demonstrate his capacity to manage traffic, understand the laws of motion, be fully versed in the intricacies of first aid to the injured, and in the exact steps in accident investigation, apply psychology in the handling of persons involved, know the science of photography, perhaps apply the chemical tests of the drunkometer, and act quickly, calmly, and courteously.

As I have mentioned before, the state police department does not possess a personnel commensurate with its task in traffic. It is not blessed with the man power constantly to patrol every mile of Indiana roads during every hour of the twenty-four, and must compensate for this shortage of men by other means. The concept of selective enforcement has come to the rescue. This system, unknown to most safety men only a few short years ago, is now an indispensable feature of the safety program. When, through the accident reporting system, the state authorities have become familiar with the why, when, and where of traffic accidents, an enforcement program can be set up, by stationing men at places and during the time at which an undue number of accidents have been found to occur, instructed to make mandatory arrests for the violations causing these accidents.

To meet the challenge the department has been forced to concentrate most of the force at the points where their presence is most needed and where their work will make the greatest dent on death and injury statistics. Particularly on Saturdays and Sundays when traffic is the heaviest, all other activities are subordinated to traffic control. Men are not permitted days off at that time, and night patrols are run into the early hours of the morning.

**INDIANA ACCIDENTS AND ENFORCEMENT RECORDS**

A report from the Director of Traffic of the State Highway Commission shows that approximately 60 percent of the rural accidents are occurring on 27 percent of the state highway mileage. While this fact is no doubt due to the much larger traffic flow on these roads, it also indicates to enforcement officers and engineers that more good can be done in accident prevention by concentrating their efforts on these roads. Particular attention is invited to the following specific locations:
TWENTY-SEVENTH ANNUAL ROAD SCHOOL

Jct. U. S. 6 and S. R. 15 __________________________ 7 accidents
Jct. U. S. 6 and U. S. 41 __________________________ 7 accidents
U. S. 52—Lafayette By-pass to Montmorenci ________ 27 accidents
U. S. 24—Logansport to Peru ______________________ 29 accidents
U. S. 50—Vincennes to Montgomery _______________ 33 accidents
S. R. 9—Marion to Anderson ______________________ 50 accidents
S. R. 67—Spencer to Indianapolis __________________ 60 accidents

The traffic director also reports that the travel mileage on the state highway system in 1940 was three billion, eight hundred and twenty-two million, seventy-nine thousand miles. Slightly less than half of that mileage, or one billion four hundred and ninety-three million, eight hundred and eighty-seven thousand, was traveled on the county highway system in Indiana in 1940. Five hundred and seventy-three persons were killed in automobile accidents on the state highway system in 1940 and 156 persons were killed on the county highway systems in Indiana in 1940. As you can see, the task ahead of the departments dealing with the state highway system is very great; but the problems confronting the men controlling the county highway systems are not inconsiderable and deserve far greater attention than they often get.

The device of the enforcement index is utilized as a numerical value for the relationship between violation convictions and traffic fatalities. This enforcement index is computed by dividing the number of convictions secured for moving-traffic violations by the number of fatal accidents. During 1939 our enforcement index for the state police department was 3.21. In other words, we were convicting three and one-fifth persons for moving-traffic violations for every accident in which a person was killed on a rural highway. For the first eleven months of 1940 our enforcement index had dropped from 3.21 to 1.82, or to one and four-fifths convictions for moving-traffic violations for each rural fatality.

This decline in the index might have been caused by the decrease in the number in arrests or an increase in fatalities. As a matter of fact, both circumstances contributed to it in 1940. It seems to prove that good traffic arrests, up to a certain saturation point, do result in a decrease in number of fatalities. We have been told that an enforcement index of ten is ideal for cities; that is, the securing of ten convictions from moving-traffic violations for every fatal accident. What the enforcement index should be for state police has not been determined. Of course we are far from an enforcement index of ten. We cannot hope to obtain it or anything near it with our present personnel. Since we are confident that we could reduce accidents by increasing our arrest schedule and our issuance of warning tickets, we trust that we shall be given the force necessary to accomplish it.
Officers chosen for this important task of protecting the lives and property of Indiana citizens are selected by a merit system of initial qualifications, by investigations into their previous careers and by physical and mental examinations and other qualifying tests. Applicants who run the gauntlet of the original tests must attend a six-weeks training camp, at the end of which approximately half of them will be appointed to the force according to the grades they have secured in training.

It is true of police officers as of traffic engineers that they must be trained for their responsibilities if they are to be of any particular value. Even after they have finished their early training, they are brought back year after year for retraining at various special courses and for a week at summer camp. They are never allowed to forget what they learn, or to go stale.

**Indiana Traffic Safety Council**

One of the activities which was begun by a group of prominent Indiana civic leaders known as the Indiana Traffic Safety Council consists of the organization of county safety councils comprising officials concerned with safety matters. This group of officials serves under one of their number, selected as a county safety director and as a contact man for that county in the intercounty section of the Indiana Traffic Safety Contest. On this county safety council are usually found the county highway supervisor or county surveyor, as the case might be, the circuit-court judge, the coroner, the prosecuting attorney, the sheriff, the county superintendent of schools, and the county commissioners. The group unifies the safety measures undertaken by county government.

This group is a purely voluntary organization, but I should like to emphasize its value in formulating public opinion on ends desired by its constituent members. The county highway supervisor, for instance, if he can secure the backing of this group with a worthwhile project for the construction, improvement, or maintenance of his roads, probably would gain his ends much more easily than if he stood alone. The coordination that could be effected by all these officials in their various fields would get more attention for their projects, in the common cause of safety, than is now accorded any one of them separately.

Further, this group, in larger counties at least, could urge the employment of a trained traffic engineer for its county highway system and would eventually be able to stimulate interest and sell the idea to the necessary persons. The state may take the lead in guiding and sponsoring a state-wide safety program; but until it is broken down into much smaller units, such as the county, and vigorously supported by local officials, it will continue to waste its force on unheeding heads.
However, with the realization that this lies in the future, and that you are now doing your utmost with what you have, education and enforcement must pick up the task and carry it forward. In a very real sense, police work is both education and enforcement. We are the mopper-uppers of the reckless and ignorant when other means of controlling them have failed.

In the traffic war, unlike other wars, the police, who are the defenders of the public, are seldom the victims of the fight. Innocent lives pay the price for our modern high-speed transportation system. The sole aim of the trooper’s arrests and warnings, his safety speeches, and his motor car inspections, and his own training in safety and first aid, is to reduce accidents to the lowest point. To be effective, his work must be publicized, for the state trooper knows that it is almost as effective to arrest one man who will tell others, or to make it known through the press to the community, as it would be to arrest ten persons for traffic violations. He seeks only to influence the driver by whatever legitimate means are required to get him to conform to safe practices and the law. The trooper knows what every citizen must sooner or later learn: that traffic safety is dependent upon the personal responsibility of every motorist and every pedestrian whether he exists in the very shadow of the law or whether he is a hundred miles from an officer. In the prevention of accidents, the police can only remind us of what we can do for ourselves.

EXPRESS HIGHWAYS IN THE CHICAGO METROPOLITAN AREA

Harry W. Lochner,
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There has been developed within the Chicago metropolitan area a comprehensive system of paved highways. These highways pass through the numerous suburban cities and villages, the through-traffic movement being interrupted by local traffic, local parking, traffic lights, and pedestrians. With but slight modification, this I believe to be true of most metropolitan areas in this country.

The highway system in Cook County has been superimposed on the greatest concentration of railroad facilities anywhere in the country. Eight percent of the entire railroad investment in the United States is within less than one-half