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Police Control of the Automobile Driver

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POLICE CONTROL OF THE AUTOMOBILE DRIVER

WICHITA POLICE DEPARTMENT

[The Wichita Police Department, under the direction of Chief O. W. Wilson, recently conducted a study which was intended to determine the relative effectiveness—from the standpoint of traffic safety—of the various procedures and devices now being used by the police in effecting a satisfactory control of the automobile driver. The results of this study—made possible through the assistance of the Works Progress Administration (Project No. 7042)—have been previously announced in the form of a mimeographed publication. However, because of the importance of this study, the Journal presents to its readers the following abstract of the publication which in its completed form comprises 40 pages of mimeographed text and tables.]

In effecting a control of traffic, the police have their three traditional tools: Engineering, Education, and Enforcement. Their problem revolves about three factors: the Road, the Car, and the Driver. For the most part the problem of the road and of the car are engineering problems and the engineer is making consistent progress in building safety into the highway and into the automobile. The police have the two remaining tools, Education and Enforcement, to use in their control of the driver.

Driver failures resulting in accidents arise from three causes: (1) Physical defects, (2) Lack of driver skill, and (3) Improper driving attitude. The most important factor in automobile accidents is the attitude of the driver. That an improper driving attitude is responsible for from 60 to 90% of all accidents is a fair assumption; and any immediate substantial reduction in the accident rate must come from a control of this factor.

The police are confronted with the problem of what they should do in the fields of Education and Enforcement in order to train the unskilled driver and to correct improper driving attitudes on the part of all motorists. Education as a formal training provided by

the public schools gives much promise for the development of future skilled drivers. Such an educational process will also give some guarantee of improved attitudes. The responsibility, however, for providing such training rightly belongs to the school system, although the police are interested in it because the problem of protecting the lives and property of the citizen is theirs. Nevertheless, until such time as the public schools accept their responsibility the police must carry some part of the burden.

There is no sharp line of demarcation between Education and Enforcement. Enforcement, as a matter of fact, is a form of Education. *Enforcement* is not necessarily restricted to punishment, and for the purposes of this study it includes *all police efforts directed at the control of the driver.*

The Traffic Safety Institute of Northwestern University has demonstrated that the accident rate is generally lower in those cities having a higher Enforcement Index (ratio of convictions, for moving violations, to personal injury accidents). Enforcement to be most effective, however, must be selective. Since its purpose is to eliminate accidents it should be applied at locations and during the hours of greatest accident frequency, and against the violations which cause most of the trouble. But more important still, enforcement, to be selective, should be directed *at the driver most likely to become involved in an accident.*

This study does not pretend to discount the value of enforcement in controlling the driver. Instead, the need of enforcement (as defined above) is emphasized by the demonstration that the violation repeater is the accident driver. The point which is to be made, however, is this: Prosecution is only one of several forms of enforcement available to the police. Enforcement pressure, so necessary to a favorable accident rate, is not limited to prosecution, but includes other procedures as well, most of which are more acceptable to the motorists than is a fine or jail sentence.

While the ideal situation would involve the complete elimination of the factor of punishment, there are some persons who are not amenable to the control procedures which are effective on the great majority, and therefore prosecution may not be eliminated as a control device. The prosecution of this group is not limited in purpose to education by punishment, but includes as well the restraint of the incompetent (because of attitudes, or of skill, or of physical soundness). Jail sentences and revocation of licenses of the more wantonly vicious and otherwise incompetent drivers are the only

guarantee of protection left the general public. Prosecution, then, serves a useful purpose in dealing with the driver who will learn in no other way. Moreover, it serves as the control mechanism necessary in the proper operation of any of the other procedures.

The successful performance of the entire police job is predicated on public support. As the police fail to win the co-operation of the public and as they build up antagonism among the citizens, they will fail to do their job well. Treatment of the automobile driver is intended to improve his driving habits so that he will be less likely to become involved in an accident. So far as safety is concerned, this is the only justification for police action. All treatment procedures used by the police for this purpose prove distasteful to the public, and if they inconvenience and penalize citizens who should not have been prosecuted, there will be resentment against unreasonable action.

A minimum of inconvenience and penalty is therefore an important consideration in the police program of maximum safety. If the police apply the treatment to the entire motoring public of the community, it results in many drivers being treated who are not likely to become involved in accidents, and hence do not need the treatment. In addition, such unselected enforcement results in the dissipation of police energy, because treatment applied in the case of those not likely to become involved in accidents results in treatment not being available for those with the greatest accident expectancy.

It has not been the purpose of the Wichita Police to maintain the safest city in the country so far as automobile accidents are concerned, but to maintain a *maximum safety with a minimum of inconvenience and penalty.* Maximum safety is possible through the use in the most effective manner possible of the most effective control procedures available. To minimize resentment the control procedures must be selected on the basis of their acceptance by the general public. It is desirable, therefore, that the police utilize the most effective and acceptable treatment.

In order for the police to undertake an effective and satisfactory program of traffic control, it is desirable that they have some definite and reliable information regarding: (1) the accident expectancy of various groups of drivers, (2) the effectiveness of various types of treatment. It is the purpose of this study—which was confined to a consideration of personal injury accidents, and restricted to drivers having local Wichita addresses—to throw some light on these two

questions. Preparatory to this, however, a preliminary investigation was undertaken to determine the relationship between accident frequency and violation frequency. This was done in order to determine if it were possible to establish a measure of accident expectancy more reliable than the number of accidents.

Due to the frequency of moving violations it is impossible for the police to detect more than a very small per cent of the total. This immediately raises the question: Is it not likely that a person might be a persistent violator and yet have escaped apprehension by the police? The study shows that over 10% of the drivers in Wichita had reported-violations each year during the last four years. This means that the police were quite active in the apprehension of the traffic violator. The chance of the persistent violator escaping apprehension consistently is reduced considerably with reported violations of this frequency.

[On the basis of the exhaustive statistical study and tabulations contained in the complete report, the following questions were considered and answered:]

PROBLEM 1

What Is the Relation Between Accident Frequency and Violation Frequency?

Among five groups of drivers (approximately 500 in each group —classified on the basis of the number of their reported violations), who had driven from 1931 to 1937, inclusive, it was found that (a) in the group of drivers who had no reported violations there was a total of 18 accidents; (b) in the group composed of drivers who had each committed one violation there was a total of 39 accidents; (c) in the group with two violations there were 51 accidents; (d) in the group with three violations there were 68; (e) in the group with four violations, 82 accidents; and (f) in the group with five or more violations, 116 accidents. From these figures the following conclusion was reached:

Accidents are a function of violations; the accident expectancy of any group of violators is in proportion to the violation frequency of that group. Since accidents occur with relative infrequency, therefore, violations are a more accurate measure of accident expectancy than the number of accidents themselves.

PROBLEM 2

What Is the Accident Expectancy of Selected Groups of Drivers?

In 1937 there were 55,000 Wichita drivers (i. e., drivers having local Wichita addresses). From 1929 to 1937, inclusive, 5,531 were involved in accidents. Taking 55,000 as the number of drivers in 1929 (and the number was actually less—but exact data is not available for that year), 10.1% had accidents before 1938. And of the 694 accident drivers in 1929, 71, or 10.2%, repeated before 1938. From these figures the following conclusion was reached:

The first accident driver has little if any greater accident expectancy than the average driver.

There are approximately 5 non-injury (property damage only) accidents for every personal injury accident. Since there were 5,531 Wichita drivers involved in injury accidents during the nine year period covered, there were approximately 33,000 accident drivers in all, or about 3,600 per year. In fifteen years time a total of 54,000 drivers would be involved in first accidents. This means that at the present rate nearly every one who drives will be involved in an accident before he has driven 15 years.

This same fact is evident in the case of the No Violation Group discussed in Problem 1. Accident frequency is a function of violation frequency. But the No Violation Group had 18 accidents! Some of these 18 accidents are accounted for by violators who were included in the group as the result of the constant percentage of undetected violations. But some of them must be accounted for by sheer chance—the skillful, observant driver who has the relatively rare "unavoidable" accident to which a second driver may or may not have been the sole causative factor.

On the basis of the foregoing figures the following conclusion may be stated.

No driver is accident immune; if he drives long enough he will finally have an accident.

During the nine-year period covered by the study, there were 5,866 accident experiences, of which 335, or 5.7%, involved drivers with more than one experience. Therefore, even if all these accident drivers had been subjected to a treatment which was 100%

effective, the number of accidents would have been reduced only 5.7%.

From this, the following conclusion seems quite reasonable:

Treatment of the accident driver does not offer the solution to the accident problem.

It is interesting to note that while the mere fact that a driver has been involved in an accident does not increase his accident expectancy measurably, subsequent accident experiences definitely classify him as an accident prone driver. This is clearly indicated by the following figures: Of 5,531 accident drivers, 302, or 5.5%, had a second accident during the period under survey. Of the 302 second accident drivers, 30, or 9.9%, had a third accident. Probably the reason the second accident driver group does not more greatly exceed the first accident driver group in frequency of next succeeding accident is because the first accident driver group has had a longer period of exposure than the second accident driver group.

Further proof of the greater accident proneness of the second accident driver as compared to the first accident driver is found when consideration is given to equivalent exposure periods. Of 694 accident drivers in 1929, 17, or 2.4%, repeated in the next two years (1930 to 1931, inclusive). Of these 17 drivers, 3, or 17.7%, had a third accident in the following two year period (1932 to 1933, inclusive).

First accident drivers in each succeeding year reflect a similar experience. In each case the per cent of second accident drivers who have a third accident is markedly greater than the per cent of first accident drivers who have a second accident in comparable periods of time. By way of total, of 2,790 first accident drivers, 67, or 2.4%, had a second accident in the following two years. Of these 67 accident repeater drivers, 13, or 19.4%, had a third accident in the next following two year period. From this it would seem that the driver who has had a second accident is eight times more likely to have a third accident than is the first accident driver to have his second accident. However, in considering a larger number of accident repeaters over a longer period (14 years), it was found that of 2,790 first accident drivers 93, or 3.3%, had a second accident in given periods of time, and of these 93 repeaters 12, or 12.9%, had a third accident in comparable periods of time. From this it would seem more nearly correct to state that the driver who has had a second accident is four times more likely to have a third accident

than is the first accident driver to have his second accident.

The conclusion permissible from the foregoing statistics may be stated somewhat as follows:

Just as every dog is expected to have one bite, so every driver seems destined to have his first accident. But, as with a dog whose second bite classifies him as vicious, a second accident classifies a driver as accident prone.

The relative accident expectancy of the Accident Driver and the Violator is demonstrated by the fact that of 694 accident drivers in 1929, 9% had an accident in the period 1930 to 1937, inclusive, as compared to 500 violators arrested in 1929, 14.8% of whom had an accident in the same period.

These figures, together with others of a more detailed nature (which are contained in the original and complete report of this study), indicate that

The Accident Driver group has a lower accident expectancy than any of the violator groups except possibly those with one reported violation each.

Of the first 1,000 violators in the Wichita Police file, 31.8% had more than one reported violation. Since there are 1.7 violations for each violator, and since there were 70,256 reported violations during the years 1929 to 1937, inclusive, there were 41,500 drivers involved. Of these, 31.8%, or 13,200, were repeaters responsible for 59.6% of the violations. These 13,200 repeaters represent 24% of the total (55,000) drivers, and they had 50.8% of the accidents. Since 24% of drivers had half of the accidents, then it follows that this group of violation repeaters are more than three times as accident prone as the remaining 76% of the drivers who did not repeat. Since the no-violation group (also 24% of total drivers) had 11% of the accidents, the violation repeater group is almost five times as accident prone as the no-violation group. If the violator could be prevented from repeating, the number of accidents would be cut in half, almost.

The no-violation group (13,500 drivers) had 486 accidents. One driver in *28* had an accident.

The one-violation group (28,300 drivers) had 1707 accidents. One driver in *16* had an accident.

The repeater-violator group (13,200 drivers) had 2263 accidents. One driver in *6* had an accident.

The accident drivers are for the most part recruited from the group of violation repeaters. The Accident group had 432 violations as compared to 195 violations by the No Accident group during the same period of time. Only 5.7% of the accident drivers are recruited from the Accident Driver group.

From these figures the following conclusion seems logical and sound:

Treating the Accident Driver in order to make him immune from further accidents is locking the barn door after the horse is stolen. To materially reduce the accident rate the treatment must be applied before the accident, to the group having the greatest accident expectancy. This is the violation repeater group.

Age is presumed to be a factor in accident proneness. This assumption is based on the recognized irresponsibility of youth which is gradually overcome by maturity. It is not easy to substantiate this conjecture with trustworthy data. A Connecticut study contains data which indicates that the age distribution of the accident drivers follows almost exactly the age distribution of the licensed operators.[1] To conclude from this that age is not a factor in accident proneness would be to ignore possible variations in exposure among the various age groups. Some age groups may drive more miles, or drive under more hazardous conditions than others, thus apparently equalizing the age group distribution, whereas, in actual fact, some age groups may be much more accident prone than others.

Unfortunately there was no information available until 1934 regarding the age group distribution of the Wichita drivers. But the age distribution of the nearly half million licensed operators in Connecticut should be fairly representative of the Wichita age distribution. On this assumption 32.4% of drivers are in the 20 to 29 year age group, and 28.5% of drivers are in the 30 to 39 year age group. Of the 1500 drivers arrested for traffic violations in Wichita from 1934-1936, 47.1% were in the 20 to 30 year age group and 24.8% were in the 30 to 40 year group. In other words, 32.4% of the drivers (aged 20 to 29, inclusive) had 47.1% of the traffic arrests, whereas 28.5% of the drivers (aged 30 to 39, inclusive) had only 24% of the traffic arrests. Since accident proneness is related directly to violation frequency, the 20 to 30 year group appears to

[1] Statistical Summary of Traffic Accidents, published by Connecticut Motor Vehicle Commissioner, 1937. Bulletin Number 8, page 11.

be considerably more accident prone than the 30 to 40 year group.

The per cent of arrested drivers who repeated within a given period is also a measure of accident proneness, because it is measure of violation frequency. It is significant, therefore, that approximately 38% of the drivers under 25 years of age repeated within a year, as compared to 28% of the age group 25 to 29, inclusive. After 30 the percentage remained about constant at approximately 25% up to 50 years of age. The small number above this age makes further interpretation unwise.

The foregoing analysis results in the following conclusion:

On the basis of accident expectancy, drivers under 25 years of age are most badly in need of treatment.

PROBLEM 3

What Is the Relative Effectiveness of the Different Types of Treatment Available to the Police?

This study of the relative effectiveness of treatment was restricted to the years since 1933 in order to avoid variations in frequency of reported violations. After 1933 the frequency of reported violations remained nearly constant.

The effectiveness of treatment may be measured in two ways: by the percentage "cured," and by the elapsed time before subsequent violation.

The Percentage Cured:

If, following a certain treatment, 50% of the subjects do not repeat in a given period of time, whereas following another kind of treatment 75% do not repeat in the same period of time, then the treatment resulting in a 75% "cure" would seem to be most effective. This assumes, of course, that the "illness" was equally severe in the case of the subjects in both groups. Some drivers are more violation prone than others; some are more amenable to treatment.

In an effort to cancel any variation in violation proneness which might be present in groups selected on the basis of treatment, pairs of groups were chosen, each pair of which had been subjected to the same treatment procedure, but in reverse order. That is, one group was first warned and then later fined as the result of a subsequent violation. The mate to this group was first fined and then warned on the next violation.

A similar pair of groups was selected, the drivers of one group of which had been sent to traffic school and later warned, and the others having been first warned and later sent to traffic school. Another pair was chosen in one of which the drivers had been arrested and sent to traffic school and in the other group the sequence of treatment was reversed.

The percentages of these groups who did not repeat within 365 days were tabulated. The greater the percentage who did not repeat, the more effective the particular treatment was assumed to be. Of the group whose first treatment was arrest, 26% did not repeat; and of this 26% whose second treatment (for subsequent violations) was merely a warning, it was found that 33% did not repeat. In the case of those drivers who were warned as their first treatment, 23% did not repeat; and following their arrest as a second treatment 38% did not repeat. This would seem to indicate that arrest was more effective than a warning.

Moreover, the warning becomes less effective as it is used repeatedly on the same offender. The first warning resulted in a median elapsed time of 209 days; the second of 170 days; the third of 95 days and the fourth of only 69 days. The first warning resulted in 35% who did not repeat in the following 12 months. This was reduced to 25% in the case of the second warning, 9% for the third and 6% for the fourth.

Data are not available to demonstrate whether the arrest suffers a similar depreciation of effectiveness with continued application. It seems probable that it does, however, since the depreciated effectiveness of the warning apparently affects adversely the effectiveness of the arrest. The arrest with one prior warning resulted in a median elapsed time of 295 days and 42% who did not repeat as compared to 203 days and 24% in the case of the arrest preceded by three warnings.

Of two other groups, one was treated by warnings and the other by traffic school instruction. Thirty-nine per cent and 46% who did not repeat following traffic school treatment is in sharp contrast to 23% and 18% who did not repeat following a warning, and would indicate that the traffic school is much more effective than the warning.

Traffic school instruction appears to be a more effective treatment device than even arrest and fine, when effectiveness is measured in per cent cured. In the case of arrest, 18% and 31% did not repeat within a year as compared to 26% and 30% in the case of traffic school.

Based upon the foregoing figures, and upon others of a more detailed nature, the following conclusion resulted:

As measured in terms of the percentages of violators who do not repeat within a given time, the warning is less effective than arrest, and traffic school treatment is markedly more effective than arrest.

A similar conclusion resulted from a consideration of various groups with regard to "elapsed time before subsequent violation."

Relative Cost of Enforcement Treatments:

The police should weigh carefully the relative cost of the various treatment procedures used in determining their traffic control policy. The cost must be measured in two different ways: (1) The money cost of administering the treatment; (2) the cost in terms of loss of public sympathy and support, which results from resentment against unusual punishment or punishment which is unfair in terms of justification and severity. Since the police budget does not (or at least should not) receive the money obtained from fines, this sum should not be subtracted in determining the administrative cost.

The warning notice has the least cost. Officers working with equal diligence will issue a greater number of warning notices than arrest notices, for the reason that the warning notice carries no penalty; consequently, the cost of administering this treatment is the least of all. In addition, the very little resentment created by the warning notice is greatly outweighed by the good will induced by this treatment procedure. The cost in terms of resentment is all on the credit side of the ledger.

The cost of administering the arrest procedure is considerably greater than the warning. In addition to more man power being required to serve a given number of arrest notices as compared to warnings, there is an additional cost represented in time spent in court, and in time spent apprehending violators who have failed to appear in answer to a court summons. As measured in terms of resentment, the arrest is the most expensive form of treatment. Rare indeed is the driver who pays a fine without some resentment. In nearly every instance the citizen loses faith in the police who are instrumental in penalizing him for an act which he almost invariably justifies in his own mind. The cost to the police of the arrest procedure is so great that this form of treatment should be reserved for use as a last resort.

The traffic school creates some resentment because of the amount of time required in attendance. However, the amount of good will created by the close contact between the police instructor

and the student greatly outweighs this resentment. Traffic violator schools should be limited to from twenty to thirty students. On this basis the amount of time spent by the instructor in preparation, in lectures, in out of class discussion and in examinations, is such as to make it possible for him to completely instruct violators in the traffic school at the rate of about twenty for each eight hours. Since the traffic school treatment is about twenty per cent more effective than arrest, this means that the traffic school instructor does an amount of work in an eight hour day equivalent in effectiveness to twenty-five arrests. The average motor-cycle officer devoting all of his attention to the moving violator will not average more than five arrests a day the year around; consequently, it would take a squad of five men to average twenty-five arrests a day.

This does not mean, however, that the eight hours spent by a police officer instructing in traffic school is equivalent in effectiveness to the work done by five traffic officers on the street. The presence of the five traffic officers on the street provides, in addition, other services which must not be ignored. Their presence on patrol serves to deter violators as well as the criminally inclined. In addition, they are available for police emergencies of both a traffic and non traffic character.

The cost of administering a driver clinic treatment (which upon the basis of Wichita's brief experience with it, has not proved to be so effective as the arrest treatment) is from two to three times as great as that of the traffic school because of individual attention given the subject. The good will created by this form of treatment is probably greater than in the case of the traffic school, for the reason that the penalty in terms of lost time is less, and the close contact with the clinic technician makes possible the development of a very fine relationship.

Summary

A second accident classifies a driver as accident prone but the first accident driver has little, if any, greater accident expectancy than the average driver. The accident driver has a lower accident expectancy than any of the violator groups except possibly those with one reported violation; consequently, using the accident as a device for selecting the driver most badly in need of treatment is inadvisable. Certainly, harsh treatment accorded the accident driver merely because he has been involved in an automobile accident is not justified.

No driver is accident immune; if he drives long enough he will finally have an accident. The police should direct their attention at the problem of extending the period of time within which all

drivers will probably have an accident, and in addition, extending the driving exposure before accident of the average driver. To materially reduce the accident rate, the treatment must be applied before the accident, to the group having the greatest accident expectancy. Since the accident frequency is a function of the violation frequency, the group having the greatest accident expectancy is the violation repeater group. The police must direct their attention at making the motorist violation conscious. As the police succeed in diminishing the frequency of violations, they will succeed in cutting down the frequency of accidents

The drivers most badly in need of police attention are in the violator group. Of this group, drivers under twenty-five years of age stand most badly in need of treatment. This is the section of the motoring public on which the police should focus their attention if they hope to obtain maximum results.

While the warning notice is of least effectiveness, in view of its low administrative cost to the public much greater use should be made of this treatment device. Because of the depreciating effectiveness of the warning notice, it should be used only in the case of the first violation. An exception may exist in the community where an unusually large number of warnings would seem to indicate the advisability of their use in the case of second violations as well as of the first. It would seem that the traffic school treatment, because of its great effectiveness, should be used in those individual cases where the warning has proved ineffective. In view of the heavy cost of the arrest, this procedure should be used only as a last resort when both the warning and the traffic school have proved ineffective, or in the exceptional case of violations, the grave nature of which indicates the need for more harsh treatment. Due to the high administrative cost of the driver clinic, it would seem best to reserve this treatment for drivers who have demonstrated by a long series of violations, or by their accident frequency that they constitute a peculiar problem which demands individual attention.

It is inadvisable for the police to publicly announce the schedule of treatment sequence and prerequisites. To do so invites argument. A preferred procedure is to announce that treatment is based on the circumstances of the violation and the accident and violation history of the individual driver.

This study may suggest procedures most effective in providing a maximum of safety, with a minimum of inconvenience and penalty to the motoring public. Such procedures must be used if the police are to win and maintain the public support so necessary in the performance of their total job.