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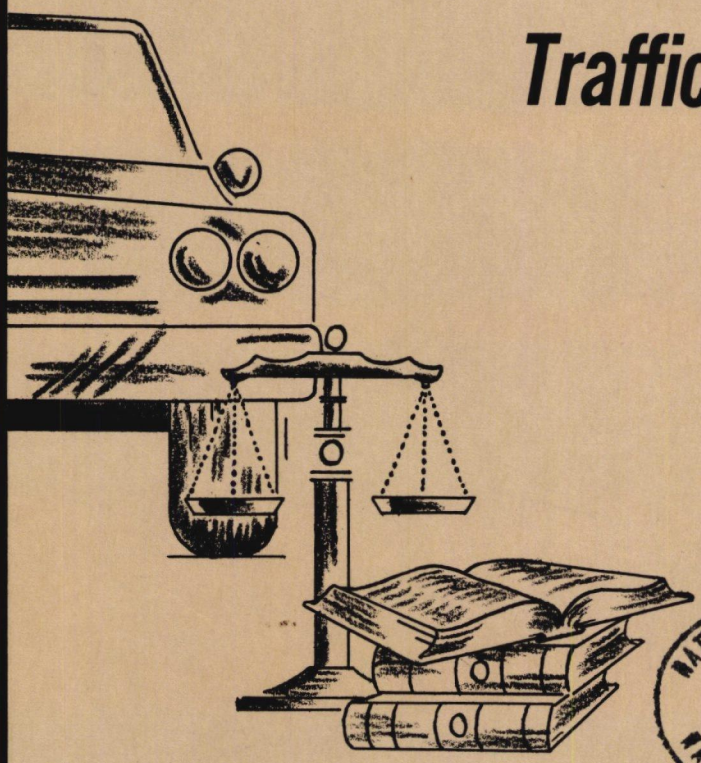
HIGHWAY RESEARCH BOARD

Special Report 86

a COLLOQUY on Motor Vehicle and Traffic Law



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Highway Research Board
Special Report 86

A Colloquy on Motor Vehicle and Traffic Law

A Compilation of
Papers, Commentary, and Discussions
Sponsored by the
Committee on Motor Vehicle and Traffic Law
Highway Research Board
February 2-3, 1965

Subject Classification
51 Traffic and Operations
53 Traffic Control and Operations
70 Legal Studies

HIGHWAY RESEARCH BOARD
of the
Division of Engineering and Industrial Research
National Academy of Sciences–National Research Council
Washington, D. C.
1965

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PREFACE

The papers and discussions which comprise this Special Report are compiled from a two-day conference held at the National Academy of Sciences in Washington, D. C., on February 2-3, 1965 under the sponsorship of the Highway Research Board's Committee on Motor Vehicle and Traffic Law. This conference, entitled "A Colloquy on Motor Vehicle and Traffic Law," had as its objective the exploration of some of the interrelationships of the law and the social and economic effects of the automobile. From an examination of these problems by a group of discussants selected to contribute the viewpoints of engineering, economics, administration, psychology, medical research, and environmental science, as well as the various disciplines of the law, it was hoped that a unique perspective for this subject could be achieved.

Viewing its subject thus, the conference was chiefly concerned with identifying the contribution that research might make toward improving the law as an instrument for making and carrying out public policy which reflects the best of both American capacity for achievement in science and technology and the American tradition of liberty, humanity, and justice in the law.

The Highway Research Board is sincerely grateful to the participants in this conference for their contributions to the discussion. The Board also acknowledges with particular appreciation the generosity of the Automotive Safety Foundation for its financial support of this project, and the assistance of William Talbott of the Automotive Safety Foundation in preparation of the conference materials for publication.

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CALL TO ORDER

LOUIS R. MORONY, *Director*
Laws Division
Automotive Safety Foundation

When this conference was conceived, and the planning of the program got under way, it was recognized that two days was not enough time to deal with all the aspects of motor vehicle and traffic law, or even to dig into any single aspect to the depth that eventually would be necessary.

Also, it was recognized that there was a natural inclination of legal thinking in the past to consider several aspects of motor vehicle law, such as driver licensing, registration, financial responsibility, and so on, as somewhat separate and independent legal entities, rather than as parts of a whole body of law in this area. Therefore, the problem was to suggest a way to organize this program so that it would provide the necessary flexibility for discussing this large and varied body of law, free of the restraints imposed by the more traditional approach designed to identify those matters which should command priority attention in legal research. We believe this colloquy will provide the forum which accommodates this approach.

We are asking you to look at the law in terms of several of its major or basic functions. There are, of course, various ways in which we might describe these functions of motor vehicle and traffic law, but we suggest the following four:

First, the function of providing a framework of rules within which administrative agencies can carry on their work.

Second, the function of reducing the injurious consequences of highway accidents.

Third, the function of facilitating the application of automotive engineering technology so as to expedite the flow of traffic with safety.

And fourth, the function of enforcing traffic regulation and administering justice.

We must ask ourselves what our purpose is here today. Perhaps the answer is that a start must be made in giving serious thought to where we have come from in the field of motor vehicle law, where we are today, and where we will be tomorrow.

Furthermore, I wonder if the underlying philosophy in court decisions, and administrative policy does not reflect the belief that these laws were designed to do something *to* people rather than *for* people. Again, where do we draw the line between where the concept of these laws performing a service stops and the concept of these laws as an extension of the police power begins? This is the type of conflict that only the law itself can resolve.

The interest of the Highway Research Board, and the business of this conference is in the development of new ideas, new concepts, and new appreciations of the relationships between the automobile—represented by over 80 million cars, 90 million drivers, and 800 billion vehicle-miles of travel each year—and

Opening Session *(left to right at table): Dr. Charles B. Nutting, National Law Center, George Washington University; Louis Morony, Automotive Safety Foundation; Dr. S. D. Cornell, Executive Officer, National Academy of Sciences; D. Grant Mickle, Executive Director, Highway Research Board; and Glenn Carmichael, American Association of Motor Vehicle Administrators (representing Mr. Edward Scheidt).*

the law, represented by thousands of new statutes, millions of official decisions issuing from our administrative agencies and courts, and billions of dollars in public revenue and private transactions.

I am sure that all of you recognize the importance and the potential result of accepting the challenge that underlies this conference. That is why I would like to paraphrase the closing sentence of the statement of purpose which appears in your program: The Highway Research Board is sincerely grateful to you for your willingness to share your insight and experience with researchers of the future.

INTRODUCTION

D. GRANT MICKLE, *Executive Director*
Highway Research Board

I think that at the outset of this conference there are two questions which I should answer, for I am quite sure that they are in the minds of many of you who have joined us for these next two days of discussion.

Why is the Highway Research Board interested in motor vehicle and traffic law? For that matter, why is the Board interested in legal research at all?

The answer to the last question is found in the growing realization that modern highway transportation systems are carried on within a framework of laws, regulations, and various types of legal arrangements. From the moment we begin to plan a highway system, and throughout all the steps that are taken thereafter to finance it, acquire its right-of-way, construct it, and operate it, we depend on the law to help get things done. Research in the law, therefore, complements research in highway planning and highway engineering to provide a balanced view of our highway transportation needs.

As to motor vehicle and traffic law in particular, we are now face to face with the urgent problem of making our highway system work as efficiently and safely as possible. With respect to our Interstate highway system, and the major remodeling of our urban areas, we are well past the stage where we can afford to be preoccupied with the building of highways, and are face to face with the problems that arise when traffic begins to use them.

Early in the 1950's the Highway Research Board established a committee in its Department of Economics, Finance and Administration to study highway laws. At that time the great need was to inventory what the states had on their books pertaining to construction of highways. In 1955 a special staff of legal researchers was organized within the Board's staff to carry out a series of studies to analyze and compare the highway laws of the several states. This has resulted in the publication of a series of 20 special reports covering the major functions of highway law—land acquisition, access control, contract law, inter-governmental relations, programming, traffic engineering, system classification, and so on. These reports have served as valuable reference materials for the work of modernizing state highway law.

In 1960, the Board's committee on highway law was taken out of the Department of Economics, Finance and Administration, and given the status of a special committee, with responsibility for exploring the possibilities of wider research horizons. Based on the work of this committee, the Board in 1963 established a Department of Legal Studies as one of the eight basic units of its organizational structure. The Committee on Motor Vehicle and Traffic Law is one of four committees working under this new department.

This conference is the first major activity which this new committee has undertaken.

I believe it is particularly appropriate that the committee should take its first steps in this way. The Highway Research Board's purposes are, among others, to encourage research and the utilization of research findings, to provide a national correlation service for highway research activities, and to provide a forum for the presentation and discussion of research. Many individuals and organizations are devoting their attention to the problems of motor vehicle and traffic law, but none are now performing these unique services for the multitude of governmental agencies and the research community. It is here—in the field of ideas—that the Board expects its Committee on Motor Vehicle and Traffic Law to make its major contribution.

It is a great pleasure for me to welcome you to this conference. I hope you feel, as we in the Board's official family do, that the business of exploring for new ideas is an exciting one, and that you are on the threshold of an opportunity which can significantly affect the evolution of the law for the future.

We are most grateful to you for joining us in this conference, and we wish you success in the discussions that you will have during the next two days.

THE ROLES OF LAW IN THE AUTOMOTIVE AGE

DR. CHARLES B. NUTTING, *Dean*
The National Law Center, The George Washington University

One might be tempted to say that the role of law in the automotive age is not conspicuously different from the role of law in any age. However, if by the automotive age we mean generally the era in which we live, it would appear that law has a significant and constructive part to play.

Let us look back for a moment to the origins of our Anglo-American legal system. Although this, like almost all generalizations, is subject to qualification, it is fair to say that the Common Law was essentially decisional rather than legislative in character and that it was little more than declared custom. It grew gradually through the expansion of precedent. It was made, or in the language of the period, "found" by judges.

With the coming of the industrial revolution and its attendant social and economic problems, the Common Law, although still useful in limited areas, proved to be an inadequate means of binding together a dynamic and rapidly changing society. As a consequence workmen's compensation laws replaced the archaic rules of master and servant. Later, social security statutes filled a void left vacant in a society which did not recognize an obligation to provide support for industrial and other workers after their productivity had ceased. Other examples will readily come to mind.

Now, in what is not only the automotive age but the atomic age and the space age, new problems beset society and offer new challenges to law and lawyers. Let me cite an example. Recently The George Washington University Law Review published a symposium on law, science and technology. In 456 pages various authors discussed such topics as "Anti-trust in Orbit," "Space Communications and Nuclear Energy" and, believe it or not, "Speculations on the Relation of the Computer to Individual Freedom and Right to Privacy." The general theme was that social, political and economic consequences must be considered and dealt with through legal devices

This conclusion is equally applicable to the automotive age as such. The arrogant chariots, as John Keats has called them, are being produced (fortunately, not as yet reproducing themselves) at a rate of over seven million a year. They clog our highways. They kill and maim our people. They pollute our atmosphere. They demand superhighways costing a million dollars a mile. They cause us to spend billions of dollars of public and private money. And yet we love, honor, and, I was about to say, obey them because they occupy a central position in our lives.

The automobile is far more than a status symbol, although in some of its manifestations it is clearly that It is a basic element of our society. It has changed the pattern of our cities, since it makes suburban dwelling possible and provides mobility for the entire population. It encourages the migration of vast masses of people to what to them are greener pastures. It opens up

recreational areas. It provides employment for millions, not only in manufacturing but also in the supporting service industries, in road building, oil production and the making of construction materials. It deeply affects the tax structure and to a considerable degree creates political controversy. Thus, the automobile must be viewed as a social phenomenon and source of problems which, as in the cases mentioned above, may require law making as a part of their solution.

Among the multitude of problems, only a few can be suggested for the purposes of this discussion. First, I would mention a basic matter which permeates all legal thinking This is a tyranny, not so much of words as of conceptions. Specifically, in this context, it is the dichotomy between "right" and "privilege." As you know, cases dealing with motor vehicle operation are apt to declare that certain types of regulation are constitutionally permissible because the operation of a motor vehicle is simply a privilege which can be withdrawn by public authority. Substituted service laws are one example, where it is said that in exchange for the "privilege" of using the highway a state may require a nonresident to accept service on some official such as the Secretary of State, coupled, usually, with attempted service by mail. This conception is an easy one for deciding cases, but I suggest that it is far from a realistic one. Actually, if by "privilege" one means something that can be taken away by arbitrary state action, the word is virtually meaningless. Even the substituted service laws provide for some reasonable attempt at actual service. If, on the other hand, we mean by "right" an interest that cannot be limited or extinguished by law we have an equally meaningless term, since no one has an unqualified "right" to operate a motor vehicle under all conceivable circumstances. Thus, this type of conceptualism is sterile and does not contribute to the wise solutions of problems.

If, on the other hand, we think, as did Roscoe Pound, of a "right" as a legally protected interest, the way is open for fruitful consideration. The question then becomes simply, what interests do we want to protect when the individual interest is contrasted with certain social interests such as public safety. Immediately definite individual interests appear. As examples, consider the man who makes his living as a truck driver or a traveling salesman; the suburbanite who has no public transportation which will get him to work; his wife who must visit the shopping center to buy groceries since no delivery service is available. Contrast these with the youngster who feels he must have a car to free him from the horrible necessity of walking half a mile to school or the hot rodder who enjoys drag racing on public highways Must we or should we treat all of these cases in the same way? Since I am asking questions and not giving answers, I shall leave it at that.

However, this does bring us into the whole area of licensing and sanctions. As to licensing, as far as I am aware the statutes generally require little more than a rudimentary knowledge of the law, which can be quickly forgotten once the test is passed, plus, in most states, some demonstration of driving ability. Testing of eyesight is also fairly common and in the District of Columbia in at least some cases this test is administered when one applies for license renewal.

It would seem to me that a fruitful area for investigation and possibly for legislation might be to discover what physical and mental requirements are really important in determining the fitness of a person to drive. Empirical research into driving habits, the causes of accidents and the extent to which such factors

as alcoholism enter into the situation would be rewarding. Indeed, to some extent, this research is now taking place.

However, I will offer the conjecture that these matters will affect the imposition of sanctions more than licensing since, as has been indicated, the motor vehicle is such an integral part of modern living that one can probably say that every person who possesses a minimum amount of skill and intelligence has a "right" to be licensed. As a practical matter the political turmoil which would ensue if truly rigorous licensing standards were enacted and applied would be virtually equivalent to revolution.

But what of the imposition of sanctions? Fines and imprisonment are usually provided for in the case of motor vehicle violations, but I doubt if we have sufficiently considered how effective they are in promoting safety on the highways which, after all, is the goal. Again, research projects could be constructed which might tell us a good deal about the way in which various sanctions operate and this, in turn, might bring about a reconsideration of the law.

At this point, however, I am going to assume that suspension and revocation of licenses are the ultimate weapons Here is a whole field for research and possible legislation. What is the actual practice in dealing with violators causing injury to person or property? Do considerations of economic necessity enter into the picture? What part, if any, does individual or political influence play? Do courts in various areas differ markedly in revoking or suspending licenses? If so, why? I do not believe we have the answers. If we do not, how can we devise a rational and coherent system for dealing with the problem?

Another area worthy of consideration involves the place of the highway in the automotive age. Here, a massive amount of work has been done by the Highway Research Board and others. But again I venture to suggest that some fundamental reconsiderations are in order. What, for example, is the *function* of the highway in the automotive age? The older cases, I understand, considered the highway as a service to land, and of course, it still is in many cases. But this led to the development of some rules with regard to access to highways and the "right to see and be seen" which probably can no longer be regarded as of universal application. The modern freeway is not really a service to abutting land. It is a people mover. Its function is to allow rapid travel from place to place, and in these circumstances, access to and from abutting lands is a nuisance rather than an advantage I think many of the legal problems regarding limited-access highways have been solved, but there remain certain fringes which may require further study.

One of these, certainly, is the problem of land acquisition and condemnation value. When a man's farm is bisected by a superhighway and he is forced to travel miles in order to cross it, his situation is far different from what it would be if a one- or two-lane road with unlimited crossing areas were constructed. Problems of diminished value of the whole farm as distinguished from the value of the actual land taken immediately emerge. My impression is that the case law on this topic is far from consistent and that the plight of the landowner is not fully appreciated. Studies of this topic and the suggestion of solutions should be well worthwhile.

A somewhat related area of investigation has to do with the control of abutting land not actually a part of the highway. This involves consideration, for example, of the control of billboards and signs within view of the road. I shall not attempt

to trace the history of anti-billboard legislation, but it may be appropriate to remark that, in addition to the traditional considerations of public safety, matters of esthetics seem to be receiving increasing attention. The scope of the police power and the extent to which the use of property may be prohibited or controlled for esthetic reasons are involved here. Also present is the question of standards if regulation is involved. In another place I have asked the question: "Can taste be codified?" I doubt it in this context, but in at least some cases zoning ordinances embodying esthetic requirements have been sustained.

Parenthetically, it may be noted that the power of the Federal dollar is involved here. By using the technique referred to by the opposition as bribery and by its proponents as incentive payment or reward, the Federal Government has caused some states to pass anti-billboard legislation in order to obtain a greater proportion of Federal funds for interstate highways. This is a common device when the government wishes to impose standards which would be difficult to require directly, and it seems to be impervious to constitutional attack.

A final series of problems—and these are of greatest interest to the practicing lawyer—concerns liability and litigation. Here we find varying emphases, in some cases limiting and in some cases increasing the scope of liability without fault. Although scholars did and some still do argue the question of what principle applies, if we take as a beginning point the mid-Nineteenth Century, I suppose we would find general agreement with the proposition that liability for personal injury or property damage depended on a showing of negligence on the part of the defendant. Of course, the rule was modified in some situations, but it was accepted for the most part. But negligence was in itself a slippery concept. And there were instances in which liability was imposed on persons who, by any ordinary lay standard, should not have been subject to the payment of damages. A classic example involved the "good Samaritan." At Common Law, one had no duty to come to the aid of a person in trouble, but if he did so, and was negligent in his assistance, he was liable. This has caused fear on the part of physicians who, it is said. might refuse to stop and give aid to a person injured as a result of an automobile accident for fear that they might subsequently face an action for malpractice. Although I am informed that there have been no cases in which recovery has been allowed, the fear even of accusation has caused the enactment in a number of states of "good Samaritan" statutes limiting recovery in such situations to what is called "gross negligence." In a somewhat similar situation, "guest statutes" have been adopted, restricting the liability of a driver for injuries suffered by a guest riding in his automobile.

Whether or not laws of this type make sense in terms of actual situations has not, as far as I know, been determined. But a much more important question is whether the principle of no liability without fault makes sense in terms of the problems of present day society. It has frequently been noted that jury verdicts in personal injury actions are quite unpredictable and have no real relation to the actual injuries involved. They may depend on the skill of the lawyers, the apparent economic status of the parties, the character of the witnesses or any number of other factors Many scholars have been concerned about this situation, and it has been suggested that, as in the case of workmen's compensation, the cost of injury should be borne by society through the device of insurance, that recovery should be limited to scheduled rates of compensation, and that the element of negligence or fault should be disregarded. Naturally enough this idea

has been received with modified rapture by plaintiff's attorneys who are generally compensated on a percentage of recovery basis. However, this is one field in which serious investigation is taking place, and before long we should have some data which will enable us to provide a sensible solution to the problem.

I cannot end this discussion without referring to one of my favorite themes. It is simply this. A primary task of the lawyer in modern society, whether missiles or motor cars are involved, is to contribute in a constructive way to the solution of social problems. Legal research must get out of the library stacks and into the market place. It must involve knowledge of other professions and disciplines. Although lawyers must always, to a degree, be client caretakers, there is a field for them which traditional legal education has tended to ignore. This is the field of research and legislative drafting. If I may be permitted to quote myself:

> Lawyers are experts in at least three things, apart from the substantive law The first is assimilating and explaining the technical knowledge of other professions; the second is the adjustment of human relations; the third is the use of language to convey rather than obscure meaning (Lawyers and Legislative Process, 54 W Va L Rev 278, 195 (1952).)

A lawyer then, can serve as a catalyst, bringing together different points of view, relating the importance of various things discussed and couching the whole result in appropriate language.

It is in this light that I see the roles of law in the automotive age.

FIRST SESSION

JAMES K. WILLIAMS, *Director*
Office of Highway Safety,
Bureau of Public Roads, Presiding

LAW, PUBLIC POLICY AND THE ADMINISTRATIVE PROCESS

EDWARD SCHEIDT, *Commissioner of Motor Vehicles*
State of North Carolina; President
American Association of Motor Vehicle Administrators

The broadly stated purpose of this colloquy is to present a perspective for a better understanding of the impact which laws and administrative practices relating to the ownership and use of motor vehicles have had and will continue to have on the economy and society of this country, upon engineering technology, and upon the development of a truly safe and efficient system of highway transportation.

Louis R. Morony, in his report to the Committee on Motor Vehicle and Traffic Law, stated that despite the fact that laws regulating ownership and use of motor vehicles directly and substantially affect the lives of most of us, little actual research has been done in this area.

I find myself in agreement—reluctant agreement—with Mr. Morony's conclusions. I say reluctant, not because I have reason to disagree, but because I hate to admit that he is right. I hate to have to admit that, in most part, much of the present regulation of the ownership and use of motor vehicles is based on empiricism This is not an indictment of present motor vehicle law and administration, but rather to lay the predicate for a review of the role which law, administration, and the administrative process play in the regulation of motor vehicle ownership and use, and to highlight the need for applied research in the motor vehicle area.

LAW AND PUBLIC POLICY—A REVIEW

The role of the law in this automotive age has been discussed by Dean Nutting. This is good, for knowledge of the legal framework into which motor vehicle law has been fitted and within which it must operate is basic to any understanding of the regulation of the motor vehicle function. It is basic to any understanding of motor vehicle administration. It is basic to any understanding of the administrative process.

At the risk of poaching on Dean Nutting's preserve, however, and with a considerable degree of trepidation occasioned by my own presumptiveness in daring to do so, I want to review briefly some of the history of governmental regulation as it has affected the conduct of individuals and the use of their

First Session *(left to right): Alan M. Voorhees, Alan Voorhees & Associates; Arnold Wise, New York State Motor Vehicle Department; Glenn Carmichael, American Association of Motor Vehicle Administrators (representing Mr. Edward Scheidt); James K. Williams, U. S. Bureau of Public Roads; Carl McFarland, University of Virginia Law School; Joseph Hennessee, American Association of Motor Vehicle Administrators; Edward Rockwell, Automobile Club of Michigan; and Fletcher Platt, Ford Motor Company.*

property and to try to fit such regulation into our present scheme of things. If I appear to oversimplify, bear with me, for time permits me to paint only with the broadest strokes of the brush.

Long ago, before the memory of any of us present, governmental regulation was relatively simple and unoppressive. Such regulations as we had were usually enforced through criminal penalties for specified antisocial conduct. In this relatively simple society it took a conscious intent to commit crime. There had to be a guilty mind, a wrongful purpose, a criminal intent, a conscious purpose to do wrong. These prohibited actions—regulations, if you like—were said to be *malum in se,* inherently and essentially evil and immoral in their nature and injurious in consequence without regard to whether noticed or punished by the state. These survive today as our typical Common Law crimes. Enforcement of these Common Law crimes, then as now, was aided by censure of the body public as well as by the body politic.

Civil penalties, I have been told, were imposed for some types of prohibited conduct not considered to be criminal in nature. Redress for private wrongs was through actions in tort or contract.

Somewhat later perhaps, but roughly parallel, was the development of another class of prohibited conduct, also categorized as criminal, which constituted a crime, not because the conduct was inherently wrong or evil but because it was prohibited by public policy as expressed in the statutes. These statutory crimes we describe as *malum prohibitum.* That is to say, such conduct is made criminal, not by its inherent evilness, but because it has been prohibited by statute. Public censure, a positive deterrent to the violation of Common Law regulation, has

been something less than effective as a deterrent to the violation of statutory rules and regulations.

Conduct prohibited by statute is made criminal without regard to any intent to commit. Most motor vehicle violations, unknown to the Common Law, fall into this category. Thus, for example, a man who inadvertently drives his automobile without proper registration is equally guilty with one who does so consciously and deliberately. One who unknowingly drives without proper headlight equipment, equally with one who does so deliberately.

There are some who say that it is unfortunate that we have chosen to enforce our motor vehicle regulations, especially in the registration, size, weight, and equipment areas, through imposition of criminal penalties. There are some who say that violations of motor vehicle regulations, including regulations affecting the speed and movement of vehicles, have been made criminal by historical accident, through necessity, if you will, of having to fit them into our existing legal pattern. They say that motor vehicle violations are not truly criminal; that they fall short of being crimes; that they should be removed from the criminal category and be redesignated as something lesser, perhaps even as civil violations.

The late Chief Justice Vanderbilt of New Jersey did pioneer work in this area. In recent years, both New Jersey and New York have pioneered by reclassifying some motor vehicle violations as motor vehicle offenses—a new category of conduct which falls short of being criminal. This is currently being considered by an interim legislative study group in North Carolina.

This I discuss with you, not to express any opinion of my own, but rather to acquaint you with a question that could affect the whole spectrum of motor vehicle law, policy, and administration.

It can, perhaps, be said that motor vehicle administration has its beginning and its ending in the law, and that statutory law constitutes public policy as expressed by the legislature.

This may be an oversimplification. Nevertheless, it is important to remember that under our system of government the power to regulate the conduct of individuals and the use of their property is vested exclusively in the legislature. Our courts universally agree that no parcel or part of this legislative authority can be delegated to a nonlegislative body.

While our courts are agreed that no part of the legislative power may be delegated to any nonlegislative body, they are in something less than agreement as to what actually constitutes such a delegation. In recent years, through necessity, it seems to me, the courts have shown a tendency to be much less strict in their interpretation and application of the nondelegation rule. In fact, our courts are becoming increasingly liberal in their approval of the delegation of some degree of rule making power within specified limits spelled out in the statutes.

It may come as a surprise to you—it reportedly has come as a surprise to some motor vehicle administrators—to learn that motor vehicle departments, like other governmental agencies, possess no inherent powers of their own. They are purely creatures of the legislatures, created by statute to administer and give force and effect to public policy as expressed in or limited by statute. To put this another way, the measure and extent of a motor vehicle department's authortiy is to be determined by the specific authority granted by the statutes,

not, as some opinion indicates, by the scope of authority not expressly denied to them by statute.

MOTOR VEHICLE ADMINISTRATION—THE ADMINISTRATIVE PROCESS

We have said, and I think we are in agreement, that motor vehicle administration and the administrative processes have been superimposed on, if not fitted into, our existing legal system. They must be considered in this context. I express no present opinion as to the adequacy of this system in relation to the function of the administrative process.

It is difficult, if not impossible, to give a capsule description of the role of motor vehicle administration as we know it today. Trying to describe even the scope of motor vehicle administration is closely akin to the attempt of the three blind men to describe an elephant through their sense of touch. Ask any person here to describe motor vehicle administration, and he will first describe that part he has touched, or more specifically, that has touched or affected him. It is even more difficult to give a capsule definition of the administrative process. I will not attempt to do so. I will, however, present to you some actual problems in motor vehicle administration as they exist today.

In scope, motor vehicle administration covers all aspects of motor vehicle ownership, operation, and use. It can be said to begin with the licensing of automobile dealers and proceed through registration and certificate of title; driver control through driver license procedures; financial responsibility, including compulsory insurance; vehicle inspection; equipment approval; antitheft; traffic law enforcement; accident investigation, and central records. Ideally, we think, these related functions should all be grouped together in a single department under one administrative head.

Motor vehicle administration can be divided into three broad categories: regulation, service, and production. A further category, enforcement, could be added.

Most people, even knowledgeable ones, tend to overlook the importance of the service and production functions. Considering the service function, several examples will suffice to illustrate this point. First, in the area of registration and certificate of title, this service gives protection to both buyer and seller, provides an indication of ownership, and imparts a ready negotiability to automobiles.

Many services are performed in driver licensing. Examinations are scheduled; license certificates, both new and duplicate, are supplied; driver records are maintained and made available to interested parties; driver training courses are provided for beginning drivers; driver improvement counseling and training is provided for problem drivers.

Financial responsibility, including compulsory automobile insurance, provides a source of recovery for injury to persons or property and seeks to insure that drivers who cause accidents will bear the ensuing financial losses.

Most of the work of a motor vehicle department is taken up with a daily production job. In North Carolina, for example, approximately 200,000 new registrations and certificates of title must be processed each year. Annually over two million registration renewal notices must be prepared and mailed. Over two million registration plates must be made. Most of these must be distributed within a period of two months. Insurance records must be kept on each automobile registered in the state.

Approximately 75,000 new drivers must be examined each year. Each of our more than two million licensed drivers must be re-examined each four years. Records must be kept on each driver. Thirty-two driver improvement clinics must be staffed and maintained. Driver education training courses must be provided for 16- to 18-year-old youths who do not have access to such courses in the public schools. The logistics of this operation—and North Carolina is only in the middle workload bracket of states—is tremendous.

The foregoing would seem to make the role of motor vehicle administration seem simple, despite the volume of work involved. It might suggest to the uninitiated that the motor vehicle function is purely ministerial; that the administrative process consists largely of putting into effect well defined and adequately spelled out law or public policy. This is not so. To illustrate, let us look briefly at the role of motor vehicle administration in two areas of regulation and control. For our purposes we will consider the administrative role or the administrative process involved in the licensing of drivers and in discretionary license suspensions. For purposes of uniformity, we will refer to applicable provisions of the Uniform Vehicle Code.

Section 6-101 of the Uniform Vehicle Code prohibits the operation of a motor vehicle without a license. Section 6-102 contains a list of persons exempted from this general license requirement. Section 6-103 lists those who cannot be licensed. Section 6-110, the keystone statute, requires the department to examine every applicant for a license to drive. Such an examination must include a test of the applicant's eyesight, his ability to read and understand highway signs and signals, his knowledge of traffic laws, and an actual test of his ability to exercise *ordinary* and *reasonable* care in the operation of a motor vehicle.

This is your legislative mandate. You must examine each applicant for a driver's license. For your guidance, the delegating statutes contain only these four guides: the examination must include tests of applicants' (1) eyesight, (2) ability to read and understand highway signs and signals, (3) knowledge of traffic laws, and (4) ability to exercise *ordinary* and *reasonable* care in the operation of a motor vehicle. Does the role of motor vehicle administration still look simple and easy and uncomplicated?

Let us examine first the requirement that an examination for a driver's license must include a test of the applicant's eyesight. Is it significant that the statute uses the term "eyesight" rather than "vision"? How do you measure eyesight? As part of the administrative process you must determine the scope of this test. Shall it consist of a visual acuity test only? Shall it include tests for color blindness, tunnel vision, glare recovery? Should other tests be included? On what criteria can you base your decision? Who actually knows what type and degree of vision is needed in the driving task?

In your role as a motor vehicle administrator, you check with the available authorities. You look to see what other states are doing, and, as a matter of fact, your administrative determination at best is an educated guess. Let us assume that you have determined that the test shall include visual acuity, color blindness, tunnel vision, and glare recovery. What standards will you follow? How can you relate each of these tests to the driving task?

For the sake of brevity we will concentrate on testing for visual acuity. We know, in fact it is general knowledge, that the visual acuity norm is 20/20.

Is this to be our standard? Does the driving task require 20/20 vision? Would such a standard be reasonable?

If 20/20 is not to be the standard, what is the minimum vision needed to safely operate a motor vehicle? These and similar questions must be answered if you are to implement the legislative mandate that the department conduct a test of each applicant's eyesight. How can you test your answers? Several criteria are suggested. For our purposes, two will be listed. First, are the tests and the test standards reasonable? Second, are they reasonably related to the driving task?

We now move on to the second portion of the examination. How do you test for "reading ability" and "understanding"? Can we equate the "ability to read" with "ability to understand"? If we can, or if we can't, what norm shall we use? Should this norm be equated with educational level or with level of intelligence, or some combination of the two? In either event, what scoring standards shall be used, or, to state it more simply, what will you use for a passing grade?

You will note that I have not been answering questions; I have been asking them. Answering questions such as these are an important part of the administrator's role in the administrative process. Each of the other parts of the required examination carry with them their own questions to be answered. Specifically, I raise for you two additional questions. How much knowledge of the traffic law is needed in the driving task? How will you determine the degree of "ordinary" and "reasonable" control necessary in the operation of a motor vehicle?

Driver license examinations today in all American and Canadian jurisdictions are based on statutory authority identical with or substantially similar to these Uniform Vehicle Code provisions. It should not be surprising that identical questions have been answered differently in different jurisdictions. All jurisdictions test for visual acuity, but all jurisdictions do not use the same screening standard or the same standards for minimum vision.

Some jurisdictions test only for visual acuity. Some include tests for color blindness, tunnel vision, and glare recovery. At least one state, California, is engaged in a gigantic project in conjunction with the University of California at Los Angeles to validate a new dynamic vision test that includes perception and identification of moving objects on any plane within the range of an applicant's peripheral vision. Thus far, I've been told, no correlation has been indicated between visual acuity and dynamic vision testing scores. I have also been told that there has been a near perfect correlation between the dynamic vision test scores of the members of the U.C.L.A. baseball team and their individual batting averages.

The administrative process, whatever it is—and I still am fearful of attempting a definition before this erudite gathering—is not complete with answers to the foregoing question examples. These answers must be implemented. Tests must be devised. Operating rules, regulations, and procedures must be adopted. Logistics of an examining and licensing program must be considered. Personnel must be selected and trained; examining schedules must be established; supplies must be provided; forms must be devised; internal procedures must be established; examining rules must be promulgated.

The second example we have chosen to illustrate the administrative process and how it fits into our existing legal system is also taken from the Uniform Vehicle Code.

Section 6-206 (a) (2) authorizes the department to suspend the license of any driver upon a showing by its records or other sufficient evidence that the licensee "has been convicted with such frequency of serious offenses against traffic regulations governing the movement of vehicles as to indicate a disrespect for traffic laws and a disregard for the safety of other persons on the highways."

This statute, referred to by some as the "habitual violator" statute, has been used in good faith to permit the removal from the roads, through suspension of the driver's license, of persons with multiple violations on their driving records. This or substantially similar statutes have been subject to attack before our state courts on the grounds that they constituted an unlawful delegation of legislative authority without providing adequate standards or guides, or that they were void for indefiniteness. At present our courts are hopelessly divided with almost equal numbers upholding the statutes and voiding them on the grounds indicated.

This statute and the grounds on which it has been invalidated point up a weakness, if not a defect, in either our administrative procedure or in the legal system onto which it has been grafted. It would do little good at this stage to level indictments at either the legislature which wrote this law; at the administrative agency which sought to give it effect; or at the courts which delivered its interpretation. We must assume that each acted in good faith.

Further it points up the quandry in which administrative officials often find themselves as they seek to give effect to legislative policy. If the administrative process is to function as it was intended to do, either the statutes must become more specific in their delegation of rule-making or fact-finding authority or there must be a judicial relaxation of the basic rule that no part of the legislative power may be delegated to a nonlegislative body.

It was pointed out earlier that law constitutes public policy as expressed by the legislature. It was not intended to imply that the administrative process should not be concerned with the formation of public policy It cannot help but be concerned. The very manner in which a statutory law is implemented goes to the manner of its acceptance by the public. A good law—a good public policy—can be changed as a result of poor administration. I cite you one example antedating my own tenure as Commissioner of Motor Vehicles.

In the late mid-forties, the North Carolina General Assembly enacted a compulsory mechanical inspection law providing for state-owned and state-operated inspection stations. Whether through fault of the General Assembly which passed the law, or of the Department of Motor Vehicles which administered it, administration did not proceed smoothly Inspection lines were jammed. The public was inconvenienced; tempers flared, and the inspection program was repealed by the next session of the General Assembly. This might have been what was in Albert Coates' mind when he said that a driver's license law could be written with sufficient teeth in it to clear up our traffic jungles, but if it were enforced the General Assembly would be reconvened within six months on public demand to remove the offending law from the books

In my opinion, administration has a positive duty to participate in the formation of public policy. It has a duty to keep the public informed. It has a duty to offer its best advice and counsel to the General Assembly, to recommend needful laws for its enactment. During my incumbency as Commissioner of Motor Vehicles, I have sought to counsel with the General Assembly I have had prepared for them a program of recommended motor vehicle legislation in which

we have sought to analyze the problem and to recommend what appeared to us to be the best solution.

This brings me back to my reluctant admission earlier that much of our motor vehicle law and administrative regulation is based on empiricism. Many regulatory standards, legislative as well as administrative, at best are based on educated guesses. I suggest to you that our treatment of the motor vehicle and highway traffic problem merits more than guesswork. We need facts on which we can base intelligent decisions.

I hasten to make clear that I do not intend this as any indictment of present motor vehicle administration. Nor do I intend to imply that motor vehicle laws, regulations, and standards are either erroneous or based on false values. What I am saying is that after 50 years, in many cases, of empirical reasoning, it is time we try to validate our standards through a vigorous program of applied research.

For example, we desperately need to have a meaningful definition of the driving task. We need to know more about visual requirements as applied to the driving task. We need to know more about the effect of disease and physical impairment on driving ability. We need some way to measure the effectiveness of traffic laws and programs of driver improvement.

Further, in my opinion, research in this area should take into account the needs of those charged with the administration of our motor vehicle laws. Liaison must be established between the researcher and the administrator. We will not presume to tell you how to conduct your research. We will presume, in fact, we might be derelict in our duty if we did not presume, to suggest to you the areas that need researching.

Motor vehicle department records contain a wealth of statistical information that could prove useful. Our regulatory and licensing practices lend themselves admirably to the collection of other needed information. Heretofore, much of this information has been unavailable for use because of retrieval difficulty. With conversion of many departments to electronic data processing and punch card operations, retrieval is no longer a problem, and this information is now available for research purposes.

One further point and I will conclude this discussion. For research in motor vehicles to be effected, it must have direction, possess continuity, and the results must be made available for our use. The undirected shotgun approach to research in this area will not suffice.

What am I saying? I am saying that if motor vehicle administration is to do a better job, it must be given better tools. The results of applied research can provide us with better tools. We believe our competence in this area would be helpful in designing such tools. With financing made available to us, we believe that we are competent to construct tools designed for our own particular needs.

CONCLUSION—RECOMMENDATIONS

In summary, I shall be brief and concise. I have tried to give you a broad outline of the role of law, public policy, and the administrative process in the regulation of the ownership and use of motor vehicles. I have tried to fit the administrative process into our existing legal system. Through indirection, at least, I have suggested to you that. (1) consideration is now being given in some

quarters to the advisability of a possible reclassification of motor vehicle offenses; (2) if the administrative process is to serve its intended and hoped for purpose, either delegatory statutes must be made more explicit or there must be a judicial relaxation of the nondelegation rule; (3) administrative departments do and should participate in the formulation of public policy; and (4) research on a massive scale is needed to validate and upgrade our present programs of motor vehicle regulation.

We have not discussed these matters with you in the context of traffic safety. We have assumed that this audience does not have to be convinced of that need

I have come to one primary conclusion. That we need more and more research directed toward validation of existing regulations and standards.

As President of the American Association of Motor Vehicle Administrators, I solicit your help; we pledge our fullest cooperation.

COMMENTARY

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In the opening lines of the preceding paper, we gain a bit of perspective concerning the principal geography of the subject of motor vehicle law. It has to do, first of all, with the matter of getting the traffic over the road, second, with doing so with safety, and third, with some important byproducts in the nature of service functions. Also, there are references to an empirical approach, which is said to characterize administration of motor vehicle laws. Of course, "empiricism" means experience, facts, and practicalities. Embedded here are the basic problems of this body of law. There is no law, on any subject, apart from the facts and the situation. That is why law is so complicated. It follows the incredible complexities of human nature and human activity.

It is obvious that there is something bothering people who must work in the field of motor vehicle law and administration. One hears the word "delegation" come up over and over again. So, in order to make plain what I mean, I might say a few things about the point at which I would begin to approach this subject.

I suppose all lawyers—and certainly all law professors—try to see in three directions at once. They want to know what the law *was,* what the law *is,* and what the law *ought to be.* This cannot help but be confusing, because what the law *is* often depends largely on what the law *was* But the latter is really not particularly important here—this law that was, the so-called Common Law. We had no highway law in olden days, except a few rules about the King's Highway. The King's Peace was part of the body of rules having to do with the protection of travelers, not against their own mistakes or those of other travelers, but against outlaw elements. So I cannot see how we profit from the law that was.

We are hardly any better off with the law that is. While this motor vehicle law is basically statutory in its form, it is very hard to find, and it is very often poorly written We have an index of sorts to the things courts say in the United States, but if we want to look at what our legislatures or highway commissioners have been saying through their regulations, we have nothing to which we can

readily refer. We must go through the 52 codes to find what the statute is in the states, the District of Columbia, and the United States. Even if we do so, a great deal is not there. Certainly missing are the administrative agencies' rules and regulations, municipal ordinances, and a great deal of so-called special or local legislation.

In short, we face a serious problem the moment we attempt to discover what the law *is* in this field.

I can illustrate what I say by the Code of Virginia. The laws relating to motor vehicles are scattered through 15 titles of an approximately 50-title code in addition to the title which carries the heading, "Motor Vehicles." According to the index, there are 36 provisions on stopping a motor vehicle, about 30 on turning one around, and 21 provisions on speed. Actually, as I will amplify in a moment, those on speed do not have much significance, either, because they merely pass the problem on to someone else.

We do, of course, gain one thing out of this situation. Since most of the motor vehicle law is statutory in its form, it is man-made, and hence we do not hesitate in saying that it can be changed, built upon, and improved. The rub comes in deciding how to do so. Perhaps the trouble is not so much in *how* you do it, but what to do that will be better. Most of the Virginia provisions on speed say that somebody should make this policy—that is, decide what the speed limit should be. There are at least half a dozen provisions in the motor vehicle title of the Code of Virginia saying that cities and towns, the state highway commission, and school boards can decide on such a simple matter as a speed limit. The rub is that such decisions are controversial. After all, why should a public officer rush to decide some of these things unless and until there is considerable public demand? He just does not volunteer.

Much more could be said about that situation generally, but I would like to get on now to what I think I see and hear about this matter of the so-called delegation of authority. Presumably, different people mean very different things when they speak of delegation of authority. To my way of thinking there is virtually no block or bar left to delegation of authority if a properly advised and fully informed penman writes the authority to delegate. This is a fact that the current generation of administrators should recognize.

With Virginia as an illustration once more, there is virtually no limit on delegation. Virginia's situation is not unique in this respect, all states delegate a tremendous amount of authority to their administrative agencies. It has become the fashion to think that delegation of authority to administrative agencies is a Federal phenomenon, and that it has been oppressive. We think of it as one of those things that somehow characterize the evils of the modern age. We should read our history more closely. Personally, I do not know of anything that illustrates an oppressive bureaucracy more clearly than the Navigation Laws of England in the Eighteenth Century (which the new United States copied about 1790). Under those laws a ship, which was then the only vehicle of consequence, could be stopped in the harbor by a bureaucrat who could prevent the unloading of the ship at his discretion. Nowadays, of course, we are not nearly as oppressive. I suppose one consequence of not being oppressive is the danger of becoming lax.

In Virginia there is also a great deal of legislation that looks to me as though it was drafted in the style of the old "Henry the Eighth Clause." Henry VII

actually invented this clause, and it read that whatever the administrator did would be the law. That is, whenever the administrator did something the statute would be deemed amended to cover the case. You can imagine how this appealed to Henry VIII, and why it is remembered by his name. You cannot get anything that is broader than that, yet we have a provision something like it in Virginia for cities and towns. It states that they shall have all the powers granted to them plus all the powers usual to municipal corporations as well as all the powers they ought to have. They have, in short, potentially and virtually all the legislative powers of the Commonwealth. This is a broad delegation of power, and it is about as close to a Henry VIII Clause as you can get. But it is limited to local governments.

The potential field of authority is not so wide open as far as the administrative process is concerned. It is necessary that the statute contain some designation of subject matter and some form of a goal or policy to be achieved. I do not think that it is too difficult to provide that much in the highway field, because there the goal is to get the traffic over the road safely. You may be well advised to use more words than that, of course, but it is hardly any different than saying "reasonable rate" or "public convenience and necessity."

There are times, also, when politics is such that it is better to solve some of the basic questions—some of the hard-fought issues—by a statement in the legislation. The best example of that, I think, is in the public utility holding company act which the late Speaker of the House thought was the most significant piece of legislation of the New Deal. The issue there, as most lawyers forget, was whether the administrative agency should be given the authority to "simplify the structure," as it was euphemistically put, or whether you should write into the bill in so many words that there will be no utility holding companies serving more than one locality. If they had left as hot an issue as that was to the administrator's discretion, the pressure on the administrative arm would have been such that it would never have gotten around to act. So, the question had to be fought out in Congress. And it was. Probably nothing in the motor vehicle field presents as severe a test as that. But properly drawn legislation can do much to ease the way for administrators.

This problem is not at all unique to the motor vehicle and traffic field. I suppose that motor vehicles and television have changed the Twentieth Century more than anything else, at least outwardly. The motor vehicle problem is unique in one way since it concerns everybody. A larger segment of the public is concerned. But in other respects it involves the same problems that have been met in other fields of activity. Take the matter of industrial safety, which is pretty close to the field of highway safety. Statutes on that subject, state and Federal, lay down few of the guidelines and leave virtually all of the rules to the administrative arm. Also in the matter of food and drugs, which perhaps is another "species" of safety, this same thing occurred. Thus the real problem is not so much to find precedent or theoretical legal working room; the problem is how to deal with a subject which involves so many people that it takes courage to make some really significant regulatory decisions.

I want to mention one other field which I think is particularly interesting, and which is also a very old activity, going back even to Magna Carta. This is the matter of regulating weights and measures. Most people do not realize that the power to regulate this matter is written directly and specifically into the Consti-

tution of the United States. There is no reason under the law why Congress (or its delegees) should not regulate weights and measures, even down to the capacity of an ordinary cup. The Constitution confers that complete power over weights and measures. But Congress has never exercised this power, except to lay down a few simple definitions about what is a yard, a pound, a quart and so on.

What further was done there begins to get close to what may have to go on in the successful handling of the problem we are examining here. An organization was set up, federally sponsored to a degree under the leadership of the Bureau of Standards, but really run by the commissioners on weights and measures of the States of the Union. Of course they had to have a basis to go on and, very briefly, several model "uniform" laws were drawn up. One was suitable for a big state; another, not so extensive and complex, was more suitable for other states. As I recall, there were three in all. They have been dropped out of the handbooks, but everybody has them and uses them.

Once each year this group of state and Federal officials meets and compares notes on the regulations that have been issued under these types of laws. They issue an annual rule book. The group naturally has some very complex things to deal with. We talk about whether a driver licensee's vision ought to be 20/20. But what about the problem of establishing a standard for measuring the capacity of the hose that goes into your gas tank? What about compensation for the effects of heat and cold? What about the testing of a hundred different kinds of meters, scales, and measuring devices? These are all looked at, and once each year the regulation or standards are updated in the light of what has been learned.

All this has a direct bearing on the problem of the so-called delegation of powers in the states States may say that their legislatures could not adopt such federally proposed or unofficially adopted regulations. But this has not posed any problem in the weights and measures field. For example, the Virginia statute says that the Commissioner of Weights and Measures will promulgate the rules respecting weights and measures, but in so doing he is to take into account the model regulations proposed by the National Conference of Commissioners on Weights and Measures. He will be advised by them, but he will *promulgate* his own regulations. Since the state administrative officer has used his own independent judgment on the question of whether to go along with the rest of the country or not, we have no problem with the validity of the delegation of power, and no problem of surrender of the state's sovereignty.

There is a great deal more that might be said about the approach used in connection with the problem of weights and measures. I do not think it is any more or less scientific than the problem in the motor vehicle field, but there is one significant difference. In the case of weights and measures, the pressure is put on the minority, as typified by the merchant who has a scale in his shop or a gasoline pump. This generally does not present a very difficult problem. Or, at least, it does not present the same problem that occurs when one tries to provide for regulation of the great majority, as is the case with traffic and use of motor vehicles.

Nevertheless, there is a need to expedite the flow of traffic while at the same time keeping down the speed to safe level. When you try to do this, you face a difficult task of reconciliation. Of course, this is nothing new. We have had to achieve difficult reconciliations in the past. For example, the problems of work-

ing out a policy to reconcile rail and motor vehicle traffic needs call for reconciliation at very high policy levels. We could find other examples more specifically related to the highway traffic field. Obviously we have to reconcile speed with slowness in order to get the traffic over the road safely.

Reconciling needs for both speed and safety becomes a critical problem in a single place like the Holland Tunnel. It is even more difficult to make a rule for statewide application. In Virginia, for example, there is a general maximum limit of 55 mph. This, however, is subject to change by the highway commissioner or any city or town. Also, it applies only to a passenger car; another rule prescribes 45 mph for a truck, and a third requires school buses to stay below 35 mph except on divided highways, where they can go up to 45 mph. What is the basis for these differences? The statute does not say. Again, take the rule that all traffic must stop whenever a school bus stops. The net practical effect of this statute is to have a clumsy bus (perhaps driven by a teenage student and sometimes moving at a snail's pace on a winding road) bring all traffic in both directions to a sudden stop whenever it stops, at the busiest morning and afternoon hours. Obviously when their total effect is considered, these rules do not advance the policy of expediting the movement of traffic. Do they foster safety? We do not really know.

We see the same situation in the regulation of trucks. Some kinds of trucks would be kept off the highway if we were serious about expediting traffic. An example of this is the truck carrying such an overload of logs that it almost cannot get up the hills. The harmful consequences for both movement of traffic and safety are obvious.

We can see another problem in connection with license plates. What are license plates for? Are they for the benefit of the police, the tax authorities, or the individual driver who wants to identify his automobile? Most people would probably say they were for public identification purposes. If so, they are certainly poorly placed and, when the matter is looked at objectively, it may be questioned whether in this day and age they are the best means of identification we could devise. It seems to me that we ought to re-examine the whole license plate system in terms of the purposes we want it to serve.

Once a policy is arrived at, the next problem is drafting workable statutes and regulations. Knowing this conference was coming, I gave my class in legislation an examination based on motor vehicle law. I selected the speed laws of Virginia as the basis for my questions. It took two and a half single-spaced legal size pages to set down a condensation of the state speed law, the pertinent provisions of the Virginia Constitution, an ordinance of one municipality, and some administrative regulations. Then I gave them questions based on this material. Perhaps some law schools would not think of giving an examination on material like this, but here, I thought, we were getting right down to the grass roots of the law. Several of the students said they never faced such an ordeal. They all had cars and knew about speed, but to take these two and a half pages of laws on this presumably simple matter and put them all together so they made sense gave them considerable difficulty to say the least. These were third-year law students! How can we expect the man in the highway or motor vehicle department, or any other intelligent layman, to follow through a consistent line of interpretation or behavior based on such a body of laws?

In that examination, I asked my students some of the same types of questions that any lawyer might have to face. Were the delegations of authority valid? In the set of laws I gave them, there were three different types of delegation, each governed by a different set of rules—one set for delegations to municipalities, another for delegations to administrative agencies, and a third set for delegations to courts. The students also had to decide which provisions were conflicting, and perhaps hardest of all, they had to decide what the sanction was. Would an offender be penalized under the municipal ordinance, or under the criminal law of the state? On the face of the Code of Virginia, almost nobody could figure out this aspect of the laws very well because of the way they are written.

It seems to me we have at least half a dozen things in the typical code of motor vehicle laws that are likely to require some real effort to straighten out. We regulate the roadways, and that is done very well. We have learned to use the advantages and help that our engineering technology can give us in the design, construction, and marking of the roadway. But the further we get from this tangible technology, the further in trouble we are. We do a good deal in regard to the vehicle, particularly about the old vehicle that needs to be tested before it is allowed to be used by the public. We exert some control over motor fuels, tires and equipment. But when we come to the problems of testing and licensing drivers, and supervising the way they use their licenses to drive, we find a vast area where the motor vehicle administrators and law enforcement people are simply making expedient decisions on the basis of their personal reactions to the factual situations presented to them from day to day. There is no real guidance furnished by the statutes or regulations. There are no studies of techniques and results. There is even little observation and comparison of the experience and practices of the several states. Here is an area where we need to have not only better laws, but more considered bases for the laws we write. Perhaps the example of what was done in the weights and measures field bears looking into as a guide to what could be done.

Another matter that needs looking into is the way we enforce the law. Lawyers (and law professors) ordinarily do not like to talk about enforcement, so actually we have done very little about getting to know this aspect of the law. Whatever may be wrong with police and enforcement practices, however, cannot be blamed on the Common Law. The Common Law did not have any police system as we know it today. The modern police system did not come into use here or in England until Queen Victoria had gray hair. Up until that time the law required individuals to take the responsibility. If they wanted to have someone prosecuted under the criminal law, an individual had to take the initiative. In practice, however, we have gotten away from those devices of simpler times. Now we have either the "cop" or the "gang-buster" concept of enforcement. I think we shall have to get away from that by a better use of the technology science has made possible. There must be some room in this scientific age for devices to measure speed automatically, take down the identity of a car exceeding the limit, record the data in a manner which is beyond reproach or question, and thus provide a basis for dealing with the offender.

So I would say that if we have a policy—and we really do not have any choice except to adopt the policy of moving traffic as expeditiously as it can be done with safety—we should also turn attention to the problem of enforcement. And here the difficulty is that regulation of traffic simply involves too many people.

Everybody's business becomes nobody's business, and matters of great importance go unhandled.

In the December 20, 1964, issue of the *New York Times Magazine* there is an article on administrative agencies, and it opens with the following statement by Godkin, a journalist at the turn of the century: "Men soon get accustomed to the evils of their condition, particularly if there is nobody in particular to blame. The inaction or negligence or shortcomings of great numbers assume the appearance of a law of nature." Now, I submit, that is exactly what we have here. But perhaps a change is coming.

Here is another item, this one from the *Daily Progress,* a very good newspaper we have down in Albemarle County. It starts out in an editorial: "If automobile manufacturers don't do something about increasing the safety factors in their product, they may be forced to do so by federal or state legislation."

It could be that the time is past when one would find himself crying in the wilderness if he talked about this problem. The trouble is that no glittering generalities will solve it, and it is not a glamorous subject. This applies both to the writing of the laws that will be needed—and to the problem of enforcing them.

And here some new approaches should be developed. For example, suppose you did develop a mechanical method of detecting speeders and recording the identity of their cars. With such a new device you would first, not arrest everybody whom it detected, but rather note their identity and send a postcard to them, letting them know you knew they were speeding. This would be the initial step in educating the public to the fact that new enforcement methods were being used and that they were effective. Thereafter, the jobs of the legislator, the enforcement officer, the administrator, the traffic court judge, and even the motorist would become easier. I venture to say that it might do more good than a model code of laws.

DISCUSSION*

FLETCHER PLATT, *Manager*
Traffic Safety and Highway Improvement Department
Ford Motor Company

I do not see that it makes any difference whether we are talking about law or highway transportation. In looking at the various aspects of the law relating to highway transportation, we see that people are involved in numerous different ways. We should look at this as a systems problem.

Highway law, as it involves the acquisition of rights-of-way, affects the rights of people as landowners. As it deals with the licensing of drivers and registration of cars, administrative law touches people in an entirely different way. The public generally thinks of motor vehicle laws as traffic safety laws, but in fact, they are involved with carrying on various other administrative functions as well.

* CHARLES W. PRISK, *Deputy Director, Office of Highway Safety, Bureau of Public Roads,* also participated in this discussion, however, technical difficulties prevented recording his remarks

When considering the Uniform Vehicle Code, the safety aspects of licensing, vehicle equipment laws, rules of the road, inspections, etc. are not separated from the other policy or administrative objectives of the law.

Perhaps we should take a new look at highway transportation laws to see whether the movement of people and goods is the primary purpose, and safety a secondary effort to achieve an efficient system. Perhaps we will find that although safety gets the major share of attention and public discussion, it is only a part of the total combination of factors that make up efficient traffic movement.

With specific regard to laws which promote safety, we might compare them to the way we regulate aviation. The Federal laws and regulations regarding the use of aircraft work successfully with practically no official enforcement program. There are no Federal officials issuing tickets for speeding. Pilots are well trained and abide by the red warning line on the plane's air speed indicator. Licensing laws are strict enough to greatly reduce the need for enforcement.

I suggest it might be beneficial to take a look at some other countries and what they have done to deal with their growing traffic problem. I am told, for example, that Switzerland has very little formal regulation of traffic, but much stricter requirements about the licensing of drivers. The situation thus appears to be the reverse of ours, since here we have relatively easy requirements for licensing drivers and great emphasis on traffic law enforcement.

It seems to me we should regard this as an inefficiency in our system, and probably it will remain so until we differentiate between those things we are doing to protect the public against specific acts of unsafe driving and those things that are merely designed to encourage people to good driving habits. We should recognize that the side of the law which deals with forming habits involves situations which are neither civil nor criminal violations.

If we look at this matter from the standpoint of the people who violate traffic laws, it is of interest to note some research carried on recently at the University of Michigan indicating that there is a considerable measurable difference in driving habits of people with high accident rates and no violations, and people with high violation records but low accident rates. It seems to me that if drivers with high accident rates and drivers with high violations can be separated by test, it should cause us to reexamine our requirements on driver licensing and revocation.

Turning again to this problem of dealing with violations of traffic law through enforcement by the police and the courts, a study was made at Michigan State University a few years ago examining for a six-month period the traffic violations and arrests that occurred on a section of a Michigan state highway. It seems amazing, but this study showed that there were about 3,500 actual violations for every arrest that was made by the highway patrol. This gives some idea of the size of the problem of enforcing safe driving practices on the highway by regulatory methods.

When we look at the whole process of motor vehicle administration, therefore, it seems to me that we should separate, in a systems concept, the problems of safe driving, safety regulations which are required from the standpoint of keeping traffic moving efficiently and safely, and those matters which by their nature call for regulatory action. In this way we may make it more logical for the general public to understand the function and the meaning of the law.

Mr. Williams.—By using the Federal Aviation Agency as an illustration of a method of administering certain laws with minimum enforcement, you were not suggesting a similar structure to administer motor vehicle law, were you?

Mr. Platt.—No, I was not recommending it. I used it to indicate that there were different ways of dealing with a man-machine safety problem.

ALAN M. VOORHEES, *Consultant*
Alan M. Voorhees and Associates

This discussion interests me although I am not an administrator, but an engineer. I find that as an engineer, however, we have the same objectives—that of getting the traffic over roads safely and efficiently. But in carrying out these objectives we each have different responsibilities. The administrator must provide the plan, while the engineer is faced with building and operating highway facilities.

It appears from this discussion that we are each short on facts and we need more research to support our programs. In these areas I think that cooperative efforts would be very helpful. For example, my office staff recently worked on a project dealing with accidents at railroad grade crossings. In this study, we were trying to isolate the kinds of physical environment that influence accident rates at grade crossings. What site distance produced accidents? What effect do different protective devices have on accidents?

If we could have correlated the data related to the railroad grade crossing with the characteristics of the drivers who had accidents, we would have been in a much stronger position to provide guidance for solving the grade crossing problem.

Engineers can use the records of administrators in a great many ways. For example, in Connecticut we used the motor vehicle administrator's records to contact several thousand people regarding their recreational travel. This helped plan for highways to serve recreational travel.

Professor McFarland's point about finding some way short of an arrest to let people know they were being observed reminds me of a story they tell about destination study on a freeway. Since it is impossible to stop people on most freeways, a method was contrived to record license numbers, and with the help of the motor vehicle department it was possible within 24 hours to send a letter to these people, saying they were seen on a certain freeway a certain time and date. The letter asked where they were going and where they had come from. Some of these got misaddressed, and created embarrassing problems. But the study did obtain valuable data, and such efforts should be continued in the future to assure that we can cope with the problems that we now face in engineering our highways.

ARNOLD W. WISE, *Counsel to the Commissioner*
New York State Department of Motor Vehicles

There are four points to which I would like to direct my remarks. I think that what has been said so far leads us to further consideration of, first, the nature of a license to drive, and, second, the delegation of authority to the motor vehicle commissioner regarding driver licensing. The relationship of these two things needs to be better understood. I would also like to talk about a third matter, the vagueness of statutes; and, fourth, the nature of traffic violations.

Looking at the nature of a license, we in New York are probably under a disadvantage because our highest court has already held that a driver's license is not a naked privilege, but rather a valuable property right. Notice it did not say a *vested* property right, but rather a *valuable* property right. In practice this means that when you deal with a right of this type you are faced with the problem of providing "due process of law" whenever the license is taken away. This includes advance notice of what the administrator is going to do, confrontation of the person involved with the witnesses or evidence to be used against him, and so forth.

In my opinion, this doctrine which has grown up puts too much protection around the driver. I have seen many cases where a driver with a record of many violations against him has been allowed to continue to drive because you cannot merely use a numerical system—such as a "point system"—to decide what to do about this driver and when to do it. You must give him a real hearing, and this is what we have to do even in our persistent violation cases.

If we pursue this subject we get to the question of delegating authority to decide who is a persistent violator, and to other questions. But, continuing to focus on this matter of the hearing, New York procedure calls for a proceeding at which the violator is permitted to give an explanation of the circumstances surrounding the violations of which he has already been convicted. At this point we do something which I think most people will agree is correct; that is, we give the man an opportunity to explain his economic situation, his exposure to traffic, etc. As a result, we cannot be accused of taking the same action against a taxi driver who drives thousands of miles each month in a congested traffic and a casual driver who merely takes his car out on weekends for pleasure. The economic aspects are always difficult for the administrator. I note that Rhode Island and some other states have now taken the same position as New York as to the nature of the license.

Earlier I raised the question of whether the driver might not have too much protection under our present system. I can illustrate this by reference to a bill which was introduced in the legislature recently, and which is typical of many bills that sometimes pass state legislatures It provided that before any electronic, electrical or mechanical device could be used for measuring speed, the police agency using it would have to put up a sign about half a mile ahead of the point where the device would be used Of course this is ridiculous from the police viewpoint of law enforcement. Technically, the bill would have required a sign even in those cases where a speedometer was being used to measure speed.

Another example: Before a motorist in New York is permitted to plead to a traffic violation charge, the law requires that he be told that something may happen to his license if he is convicted on the basis of this charge. If he is *not* told this, he has not been accorded due process of law.

We also have to be extremely careful about handling the license. The New York driver's license is a two-part affair. On one part there is space for a record of convictions for traffic violations, which, the law says, should be detached from the license proper. This stub with the record on it is intended to be used by the court for the purpose of determining punishment in the event of another violation. The statute says very clearly that this part shall not be used by the police officer or anyone else when the driver is stopped. Even the court cannot look at this part until after conviction. There is a good theory behind this, of course,

and that is that you do not want the court or police to be prejudiced in any way by this record.

However, you can imagine the result of this rule Recently a driver who was stopped by a police officer gave the officer the entire license, with the record stub still attached to the license. Then he went into court and pleaded guilty, but the higher court reversed the conviction. They said that giving the conviction record stub, voluntarily or involuntarily, to the police officer constituted prejudice to his case.

You can see how much protection this has given the motorist All he has to do is somehow get this conviction record stub in the policeman's hands, and he cannot be convicted. This is what I call too much in the way of protection, and it illustrates a type of problem which I think needs to be looked into. It is the inevitable result of the courts' efforts to deal with the driver's license as a valuable property right.

Going back to the question of the delegation of authority to determine cases of persistent violators. Mr. Scheidt's paper noted that most statutes provide that the administrator may take action against the "persistent violator," but they do not say who shall be deemed a persistent violator. The New York statute is drafted this way, but even though no particular standard is spelled out, we have had no particular difficulty with this delegation.

Indirectly, we have been criticized for possible use of an electronic system in performing our duty of getting the persistent violator off the road. We have been charged, in effect, with redelegating our authority to an electronic tape system. Push-button suspension of drivers' licenses is not desirable, either on the part of the public or the administrator.

As to the matter of delegation of authority, generally, I would like to refer to the last statute added to our equipment law. It related to tires and had to do with tread depth of tires. The statute provided that the commissioner shall promulgate rules governing the safe operating condition of tires, capable of being employed by a law enforcement officer through visual inspection of tires mounted on vehicles. If the statute had merely left it at this, we would have been in difficulty with the delegation. However, the law went on to say that the inspection should include visual comparison with simple measuring gages, and that the requirements shall encompass the effects of tread wear and depth of tread. So, in the end this statute specifically pointed out to us what we were to decide; that is, condition as revealed by looking at the tire and measuring the tread In the light of this statute, the commissioner issued a rule that there should be a minimum tread depth of 2/32nds of an inch for determining safe condition. How did he arrive at this figure of 2/32nds? It was a sort of compromise, since we had to do something specific. I point this out to indicate that if you are careful in drafting your legislation, you will write in some type of standard on which the administrator can base his decisions

Professor McFarland.—Why did you state your standard in terms of 32nds of an inch rather than 1/16ths?

Mr. Wise.—This was for a practical reason. It was shown to us that all of the depth measuring gauges are calibrated in 32nds of an inch.

Professor McFarland.—Yet the private individual probably would be better able to understand a 16th of an inch, since this is the way his cheap ruler is calibrated, and he could mark it on his ruler and do his own measuring. So you wrote your regulation for the benefit of yourselves rather than the public, and you may have to suffer for that.

Mr. Wise.—This is very true, and we have had the public writing in to us to say that everybody knows 2/32nds is the same as 1/16th, so we should use the 1/16th figure that is more easily understood.

EDWARD ROCKWELL, *Attorney*
Automobile Club of Michigan

Commenting on Commissioner Scheidt's paper with reference to the role of the administrator in the field of motor vehicle law, I think that the general public fails to appreciate the importance of his activities in carrying out the mandates of the statutory law. "Enforcement" to the public is something they see within the context of a police officer carrying out his duty on the streets and highways, taking action against the violator. It is much more difficult for them to recognize the obligation of the administrator to "enforce" the law, perhaps in a less dramatic fashion.

In most states the law requires the citizen, when he applies for a license to operate a motor vehicle, to submit to a rather thorough examination of his qualifications and knowledge, but once licensed, this same driver has a feeling that the administrator no longer has any relationship to him, or he to the administrator. He becomes a sort of "forgotten man."

Only when through his own actions he becomes a subject of administrative attention by reason of his driving failures, does he suddenly become aware of the administrative enforcement power. His license is in jeopardy, and often the reason or logic for this perilous situation escapes him He is told that his license is going to be suspended or revoked, or otherwise limited, and this is happening to him because the law requires the administrator to take this action. Why the law requires this action remains unexplained or unclear, because he does not recognize this action as important in the preservation of the safety and welfare of the general public He thinks that he is being persecuted by some remote and impersonal agency of government that neither understands his problems, nor cares

Some substance is given to his conclusions by the courts, which lend a sympathetic, if not too realistic, ear to his complaint on appeal, and reinstate him as a licensee in many instances where the public concern in safe highways is given secondary consideration to his emotion-charged plea of necessity. He finds himself back on the road, a few dollars poorer as the result of legal expenses, and certainly none the wiser.

Why the administrator put him through this expense remains a mystery So we must ask ourselves "Does it make sense that the administrator must do many things required of him by the law in the enforcement of statutes, rules and regulations, all of which are perhaps predicated on the common good of society, and yet be required to do this to a public that neither knows or understands why he must do these things?" Should not the people understand the

reason behind the rules they are required to live by as they drive their precious vehicles around the streets and highways of the state?

I submit that if the more than 90 million drivers in this country knew the reasons behind administrative enforcement policies and practices, there would be a greater acceptance of them, and this, in turn, would create an atmosphere of more efficient and effective administration. The most important product of this new climate would be fewer accidents. Perhaps for the first time the driver would recognize that these seemingly complicated and arbitrary rules and regulations are really nothing more than a blueprint for survival—his survival and that of his family, his property, and the community where he lives.

And the administrator, charged with this awesome responsibility to the public, appears to overlook the necessity of informing and helping the public to recognize these important facts of life. He appears more inclined to seek a change, a "toughening up" of the law, or to get another law passed, which generally adds more to the confusion of the situation than it contributes to the resolution of the problems to be faced.

As an example of what is meant when I suggest that the administrator is more inclined to pass another law than to enforce the one already in existence, let me cite the results of a rather extensive study undertaken in Michigan to determine how many motorists continued to drive after their operator's license had been revoked or suspended. It was found from a sampling of 1,000 such cases, that over 50 percent of these motorists went right on driving. I would hazard an opinion that similar results would come from similar studies in other states.

Understandably, the administrator and the enforcement people complained that they didn't have enough manpower to enforce the revocation or suspension. But I think that they completely miss the point. They fail to recognize that the important thing about these findings was the reflection of the public attitude about driving while under revocation or suspension. The average man on the streets feels strongly that he has just as much right to drive his car as he has a right to do anything else within the limits of his means. The concept of "privilege" just doesn't make sense to him. He certainly recognizes his constitutionally protected rights of trial by jury, right to counsel, and the many other rights which he may safeguard when subjected to the criminal laws of the land. How then, he asks himself, can this important "right" to drive be "arbitrarily" taken away by some administrator, for some reason which doesn't quite add up to him?

His answer to this question, and the answer so frequently reflected in judicial reversal of administrative orders, is that they can't do this to him. So he continues to drive in spite of the revocation order. And the public seems to condone this conduct. It is even more ironic to him when he reads in the papers where the highest courts in the land are constantly granting new trials or reversing convictions of felons whose rights have in some way been overlooked or underprotected. I think that an average person recognizes and accepts the principle that he is accountable for his behavior. And I think that it is equally true that if this same person would recognize how his behavior behind the wheel of his automobile gives rise to this same accountability to society, he would likewise accept that.

This, then, I conceive to be a most vital change of direction that must be taken by the administrator: to help the public to understand better the reason

why the law states what it does, and why the administrator must act as he does.

A welcome byproduct of this new direction perhaps might be a reduction in the number of legislative proposals which promise to "resolve" this knotty problem in one fell swoop, and a reaffirmation in the mind of the legislator and administrator alike that the law—to quote Mr. Morony—is supposed to "do something for people, not to them."

I take strong exception to a growing trend among administrators to call upon a heterogeneous group of people from diverse walks of life, whose primary qualification for selection is that they are otherwise not occupied with business or personal affairs, to gather and dictate policy on what should be in the law and how it should be enforced. I think that citizens must play an important role in the formulation of broad general policy, for they must pay for and submit to changes in the direction of law that come about in the name of progress. But it becomes somewhat of a farce if these same people are asked to pass judgment on matters more properly within the domain of the specialists, the professional people in the various disciplines of science and law who are eminently more qualified to answer such problems. I think that the administrator must recognize that in the making of administrative policy, a sense of perspective is necessary in determining what properly lies within the field of the experts, the professionals, and what lies within that area where the citizen rightfully should be heard.

It seems to me that substantial efficiency can result in the public interest if the motor vehicle administrators would improve registration and titling practices. In other words, the two functions under registration and title law procedures appear to be the raising of taxes and fees through registration and assuring a clear title. Certainly there are many things that can better serve the public interest if a broader perspective is adopted insofar as registrations and titles are concerned. A great deal of needed information should be made available to many businesses and public agencies of government by the administrative agencies. Certainly much information is available for needed economic reasons.

I would have an honest difference of opinion with Mr. Wise over his suggestion that the motorist in New York or anywhere else today enjoys overprotection. If we look at our judicial procedure, we find that in connection with any charge—whether bigamy, bootlegging or what-have-you—the defendant who wishes to enter a plea of guilty has to be advised of the consequences of his plea before the court will accept it. In a good many states the law requires that courts do this whenever suspension or revocation of a license is one of the possible consequences under the driver license law or financial responsibility law. I think this is good. It helps explain the law to the general automobile-driving public. I believe the public wants to obey laws, and I submit that when a motorist gets on the highway he has a right to be protected by good administrative and judicial procedures. He has as much right to expect this as he has a right to expect that law enforcement will work for his protection on the highway to the greatest extent possible.

We all realize—and Mr. Morony puts it well in the statement of this conference's objectives—that we have to be concerned with a reconciliation between law and science, for the automobile is one of many benefits derived from modern science and engineering technology, and the problems of modernizing motor vehicle and traffic law have parallels and comparables in all other fields of law.

Too often the motorist, who is an ordinary person, is referred to as "the nut behind the wheel," and a maniac, and a lot of other things.

The truth is that he is just an ordinary citizen, yet he probably contributes more to the domestic economy than any other citizen, regardless of his business or class. Motor vehicle owners are probably the most overtaxed group in comparison with the problems they cause or the demands they make on the economy. The owner pays for the administration and enforcement of the laws that his driving necessitates; he pays for the highways and traffic lights that are built for automotive travel, and he contributes revenue to all levels of government.

The engineer has done a wonderful job in designing and constructing good highways and automobiles, but I feel that there are a great number of us, as has been indicated here, who are outmoded in our thinking about types of laws and methods of administration. I sincerely hope that this meeting will provide some much needed direction for the law as it attempts to meet the challenges of the automotive age.

DR. JOSEPH P. HENNESSEE, *Counsel*
American Association of Motor Vehicle Administrators

Perhaps there was a little reluctance on the part of Professor McFarland to come to grips with the question of what the law used to be, and how we have progressed to where we are today. I have no charter to speak for anyone except myself, but we make a mistake if we lose sight of how we got to where we are today in motor vehicle administration. We need to keep this in mind if we are to move forward.

The agenda indicates that we should be concerned with exploring some of the interrelationships of the law and the social and economic effects of the automobile. With this in mind as we go back to the early days of the automobile, we are forced to recognize that in the beginning the automobile was regarded as a nuisance and was regulated as a nuisance. It went so far that some courts said the automobile could be banned from the highways altogether. This was easy when the automobile was only an occasional phenomenon that appeared spouting smoke and noise and scaring the cattle in the field and normal horse traffic on the highways.

So we resorted rather naturally to approaching it as we approached any other nuisance. In those days, I do not think we considered very carefully what was involved in a license to operate one of these machines. Even later, when we began to license automobile drivers, I believe it was an inadvertent choice of words that led us to speak of a license to drive as a mere privilege which a bountiful sovereign could grant or take away at his pleasure.

Now, however, we have gone from the point where an automobile was an occasional nuisance to a point where we have 80 million cars and 92 million drivers. This is more people than the total that voted in the last presidential election.

It was easy to treat the automobile as a nuisance when it was only an occasional problem, but it is a far different matter when there are so many people involved. The entire approach to the automobile has to be couched in terms that will be acceptable to 92 million people.

There are no longer simple answers in this matter. Those who think so should recall the story told of Will Rogers when he was asked how to deal with the

German submarines which were sinking ships in World War 1. It was simple, Will said, all you have to do is boil away the water in the ocean and pick them up off the bottom. Well, he was asked, how do you do that? And Will Rogers' reply was: "Don't bother me with details. I've given you the main idea; it's up to you to work out the details."

This story applies to a good many laws that our state legislatures have passed, for in this same way they have created some of the basic problems of administration. They have given us the main ideas, but they have failed to fill us in on the details.

Professor McFarland suggested that the states generally—the legislatures—have all the power they need to delegate necessary authority to motor vehicle administrators. I do not agree. The courts have, from time to time, rapped the knuckles of administrative agencies, and once an administrator has had his knuckles rapped for trying to implement a delegation of power he is naturally more wary.

It seems to me that this point is one of the most basic problems of present administrative law. The difficult position of the administrator in justifying his decisions to the courts is illustrated by the case of *Thompson v. Smith,* decided by the Virginia Supreme Court in 1930, wherein a statute was voided on the ground that it was a delegation of legislative authority. This case expresses a fundamental principle of administrative law, but it also is important as being the first major case to recognize that the use of an automobile is a necessity in our existence, and that there is something else protected by the Fourteenth Amendment in addition to life and property. It says that the use of an automobile is in the nature of a liberty which the law protects.

So I think that Mr. Scheidt makes an extremely important point when he says that there is today a completely different reception of the automobile by the public, and a completely different reception of the laws, which he describes as the old Common Law of crimes. We all know that the ideas involved in these laws cannot possibly be applied to the daily habits of 92 million people as they once were—or still might be—when only a small minority of the public was the object of the regulation. I think that this is the significance of Professor McFarland's point: when 92 million people are all doing the same thing it becomes easy to rationalize this behavior and attitude. This is why there is no real public censure about being cited for a traffic violation. Enforcement of these laws becomes a totally different type of problem from that of enforcement in the days when the hue and cry was raised in order to bring a culprit to justice. We need to give considerable thought to this aspect of traffic and motor vehicle laws, particularly those dealing with size and weight, equipment, and vehicle registrations. We should ask whether the regulations that we all agree we must have in this area should be in the form of the criminal law or through some other legal or administrative process.

Mr. Williams.—The recurring question that comes to my mind from the paper and discussion we have heard so far is exactly who is it that determines what is in the best interest of the public. This is a rather elusive area, I realize, but I suspect that many would agree that in the development of governmental processes in this country, we never contemplated as complex a highway transportation system as we have today As layer upon layer of new laws and regulations

are imposed on the motoring public, the average driver feels more and more remote from the processes which establish the law and administer it. Personally, I am fearful that this opens the door for more and more arbitrary decisions as to what is in the public interest. Public policy, I fear, is not always in the public interest, depending upon what motivates it and influences its administration.

Mr. Scheidt's paper raised what I feel is a key point when it referred to the need for more research to validate many of the regulations and procedures that are now in effect. The paper also referred to a legislative mandate to the administrator to provide examinations which will test eyesight, knowledge of traffic laws, and other matters. Today we hear a good deal about the periodic need to re-examine all drivers. This has an attractive sound about it, but at this point it promises more in theory than can be delivered in practice because the truth is that we do not know what to examine for. We need to know much more about those medical and physical characteristics which are accident-causing factors.

This need to validate regulations now in effect and to do more fact-finding should be considered. Is this something that we all would recognize as a critical need if we are to progress in improving our administration? I think it relates quite clearly to legal research, since laws and regulations are supposed to reflect these conditions accurately.

SECOND SESSION

BURTON W. MARSH, *Director*
AAA Foundation for Traffic Safety, Presiding

LAW, HIGHWAY ACCIDENTS AND RESEARCH

DR. BARRY G. KING, *Division of Accident Prevention*
Public Health Service
U. S. Department of Health, Education and Welfare

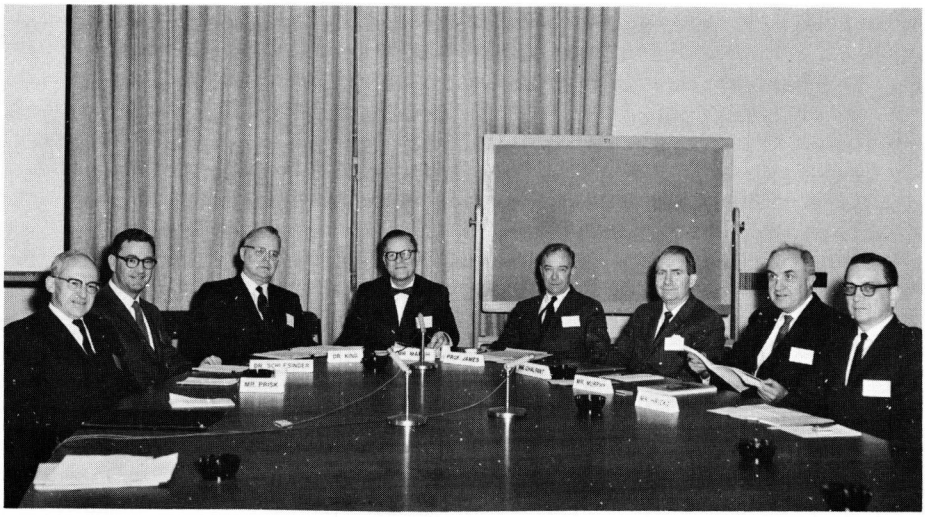
There is, I have been told, increasing reliance being placed on medical evidence in the formulation of standards for legislation, supporting administrative action, determining accident causes according to the principle that legal liability goes with negligent conduct, and in determining the extent of personal injury attributable to traffic accidents. This is clearly a subject area that calls for greatly increased research activity. There is a requirement for reliable data in the medical and behavioral sciences to provide a directly relevant and sound factual basis for such medical evidence.

If laws and medicine are to work far more closely in the future in this area—and this appears to be essential if we are going to reduce the great number of fatal and nonfatal moving motor-vehicle accidents—we should become better acquainted professionally. We should each learn about the problems and the concepts of our colleagues in the different collaborating professions and disciplines This is a prerequisite to an attempt to relate and coordinate our activities toward the common goal of reducing traffic deaths, injuries, and property damage.

This report then, is designed to present the general scope of the public-health and medical activities in the prevention and control of accidental injuries, and the amelioration of the seriousness of the consequences when injuries occur. It will present some of the concepts of the life sciences which are recognized as relevant to injury prevention. I hope that some elements of the medical and public-health problems will serve to stimulate the expression of professional viewpoints of the attorneys, motor-vehicle administrators, engineers, and legislators participating in this colloquy.[1]

I have received a strong impression that I am expected to include comments on physical and mental fitness for drivers, and on alcohol and driving. I accept these assignments. In turn, I ask permission to discuss such things as alertness, motivation, and communication as elements common to all our approaches—medical, legal, and administrative—to safeguard the health and property of the public from accidents.

[1] Some questions which were anticipated by an attorney who was kind enough to review the material in this draft are shown in the Appendix



Second Session *(left to right): Charles Prisk, U. S. Bureau of Public Roads; Dr. Lawrence Schlesinger, George Washington University; Dr. Barry G. King, U. S. Public Health Service; Burton W. Marsh, AAA Foundation for Traffic Safety; Fleming James, Jr., Yale Law School; Milo Chalfant, Michigan Department of State; Joseph Murphy, D. C. Motor Vehicle Department; and Andrew Hricko, Insurance Institute for Highway Safety.*

Extending Horizons

The incantation "education, engineering, and enforcement" was for many years the proprietary remedy confidently recommended by those concerned with accident prevention. Unfortunately, this did not make accidents "go away." It is apparent that we must have knowledge of causal factors and their interrelation as a substantial base for education. There must be a sufficient knowledge of man (e.g., the extent of his capacities, behavioral characteristics, physical dimensions, and stress tolerances) as a substantial basis for engineering design and construction of devices intended to be safe for use by man. We have to have laws and ordinances that accomplish their intended purpose—this requirement is the subject of a refreshing and stimulating article by an attorney and municipal judge.[2] Thus "education, engineering, and enforcement" represent only an incomplete categorization of types of measures for prevention and control of accidents. Further, such a concept restricts imagination and comprehensive treatment of the accident prevention problem.

We are now more sophisticated in our approach. We emphasize factual knowledge and understanding as prerequisites to effective control programs. We must also emphasize utilization of the art and ingenuity essential for application of control measures once they have been developed.

If we are to make real advances in the research and technical aspects of the problem, we will have to agree not to establish boundaries which would limit those in pursuit of the knowledge and understanding necessary for solution of

[2] Isaacson, I., "A New Approach to Accident Prevention," Reprinted from the *Lewiston Evening Journal,* Aug. 1-5, 1961.

problems in their own technical field. At the same time, let us try to apply our primary effort in the areas of our competence, even when the solution to problems appears to be "obviously" far simpler—and "the grass much greener"—than in the subject areas in which we have special knowledge and experience.

The term "interdisciplinary approach to accident prevention" is a familiar one and indicates recognition that many professional, technical, and administrative specialists are essential for significant advancement. For this, each specialist can work alone on one aspect of an accident control program as a part of an effort coordinated by planning and free exchange of information by the collaborating investigators. Alternatively, various specialists can organize themselves into a team and, as such, work together on a common problem. I hesitate to list disciplines which can contribute in the interdisciplinary approach since I, too, may restrict imagination. However, I think we know that they include engineering, epidemiology, statistics, the medical, behavioral, social and political sciences, economics, jurisprudence, education, religion, journalism, operations research, and a more recent arrival into the technical constellation—management science.

Public Health and Medical Participation

The concept of disease and injury as resulting from interaction of the host, the agent, and the environment is a useful one. The primary frame of reference for public health and medical activities is the host factor, specifically with respect to injury, impairment, and death. Accordingly, it is necessary to develop knowledge relevant to the host's ability to escape involvement in potentially hazardous situations; i.e., accident avoidance, minimizing injury when involved in an accident, and amelioration of the consequences of injury when it occurs.

In the first category—avoidance—we are concerned with studies of man's body measurements. his motor and sensory capacities, i.e., ranges of capabilities; higher functions of the nervous system such as interpretation, integration and decision; knowledge and experience; the physiological and psychological condition such as motivation, alertness, attention, anxiety, fear, and anger at critical moments; degradation of sensory, motor, and intellectual capacities by alcohol, drugs, disease, and other stresses, and, finally, with the resulting performance or behavior—the extent to which he exercises his capacities as influenced by knowledge and biological state or condition.

In minimization of injury, we are concerned not only with the performance or behavior during the period of involvement but also with human tolerances to the single or the combination of stresses which may be acting.

In the third category—amelioration of the consequences of injury—we are concerned with the timeliness and adequacy of medical care. This involves the acquisition, transport, and emergency care of the patient, his course through the chain of medical management; and medical rehabilitation in the event of an impairment or disability.

It is necessary to develop prevention or control measures which are both feasible and appropriate for the population, the environment, and special circumstances or conditions which may pertain.

What are the control measures which are within the capability and are characteristic of public-health and medical methods? Such remedial measures include.

Mass Communication for dissemination of information for prevention and control of injury.

Directed communication to selected individuals and groups.

Motivation.

Education, training, and response conditioning for injury prevention.

Emergency medical services.

Medical regimens: nutritional adjustments, surgical restorative measures, medication, disease control regimens, psychiatry, physical conditioning, and extension of capability for compensatory responses.

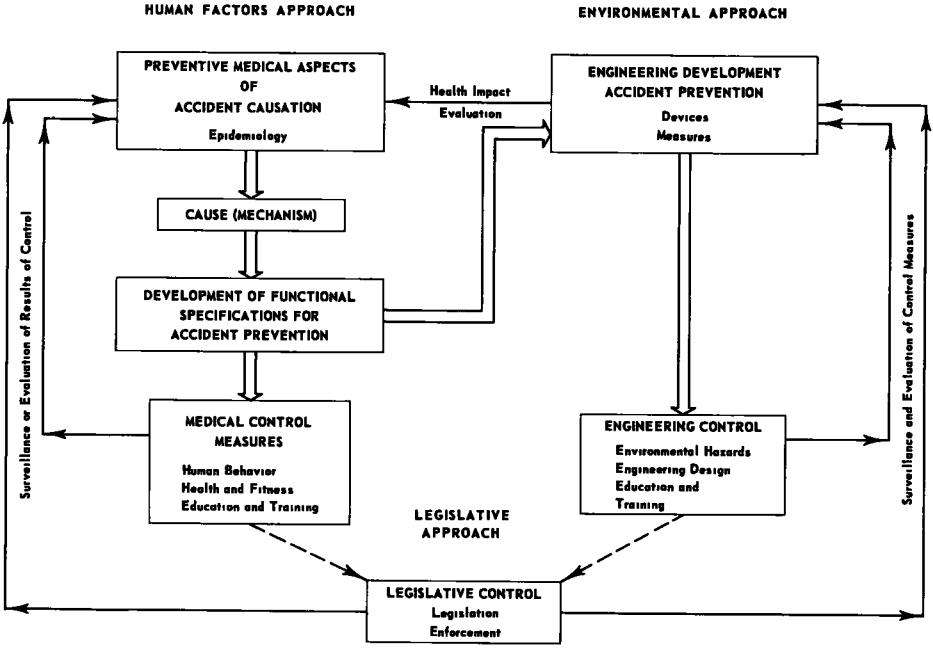
There is, in addition, a large measure of medical consultation for administration, management and instruction which would supplement the more conventional educational and training activities. Examples include:

Engineering solutions for public protection based upon the functional specifications for human requirements.[3]

Personal protective devices or equipment designed to meet functional specifications of human requirements.

Engineering review and analysis of specifications for structures and devices, or existing structures and devices, to determine that adequate physical characteristics such as strength, dimensions, energy dissipating characteristics, ease of maintenance, and use-instructions are provided for.

[3] What are functional specifications for human requirements? They are intended to answer the following questions What is the nature and extent of protection required? What are the limits in terms of time, force, complexity, amount, and role that must be considered in the engineering design? That is, in summary, specifications to insure compatibility with man's capability, physical, physiological, and psychological characteristics



Schema—Interrelation of approaches to accident prevention

One additional comment should be made in regard to scope before proceeding. The primary frame of reference for the colloquy is the motor vehicle. A listing of specific problem areas in prevention of moving motor-vehicle injuries would be appropriate—but it would not be feasible to read out such a list here. I can, however, refer you to reports by Goldstein [4,5] and Fox [6] which will provide examples of research problems confronting us.

Interrelations of an approach to accident prevention are illustrated in the accompanying schema.

ALCOHOL

It can be accepted as a fact that at some concentration within the body, alcohol affects driving adversely. Information on how alcohol is absorbed into the body and how it acts physiologically and psychologically contributes to the basis of decisions in legislation, enforcement, and motor-vehicle administration. For example, knowledge of the distribution of alcohol, with respect to concentration and time after being taken into the body, is important for interpreting the results of alcohol tests and relating the quantitative measurements to capability and behavior. Here, the interest is twofold. First, how alcohol is generally taken up following ingestion, and how it generally acts. Second, in the case of a specific individual at a specific time, what variables can influence the absorption and the actions of alcohol?

Routes of Entry

Alcohol can be absorbed through the membranes lining the mouth, stomach, small intestine, and colon; through the lungs by inhalation; from the subcutaneous tissues upon injection in moderate concentration, and reabsorbed from the bladder when urine concentration exceeds that of the blood. While all these possible paths of entry should be recognized, the stomach usually absorbs about 20 percent of ingested alcohol and the intestinal tract the remainder.[7]

The entry into the body of alcohol by means other than digestion would, of course, have implications for enforcement procedure. Harger and Hulpieu report the results of some investigations on absorption through the skin and through the lungs.[8]

Analyses of blood samples, taken at intervals during nine hours, failed to reveal any blood alcohol in subjects whose legs were swathed in cotton soaked in 200 cc of 95 percent alcohol and covered to prevent evaporation. Animal experiments, however, did show appreciable alcohol concentration following application of tincture of iodine to shaved, scarified skin of guinea pigs. In the inhalation studies on man, it was concluded that it would require about 10 hours, breathing two or three times the normal volume per minute of air containing 0.8 to 0.9 percent alcohol vapor, for the subject's blood alcohol to reach a concentration of 0.15 percent.

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[4] Goldstein, L G, "Human Variables in Traffic Accidents," Highway Research Board, Bibliography 31, Div of Eng and Indus Res, National Academy of Sciences-National Research Council, Washington, 1962

[5] Goldstein, L G, "Whither Accident Research," *Traffic Safety Research Review*, 7, No 1, 1963

[6] Fox, B H, "Some Miscellaneous Assessments in the Drinking-Driving Problem," *Alcohol and Traffic Safety*, U S Public Health Service Publication No 1043, 1963

[7] Goodman, L and Gilman, A, *The Pharmacological Basis of Therapeutics*, (2d ed) Macmillan, New York, 1955

[8] Harger, R N, and Hulpieu, H R, "The Pharmacology of Alcohol," *Alcoholism*, edited by G N Thompson, Springfield, Ill, Charles C Thomas, 1956

Absorption

Alcohol diffuses readily. According to the laws of diffusion, the greater the concentration of alcohol in the digestive tract, the more rapid the absorption. The concentration is determined by that of the beverage ingested and its subsequent dilution. Low concentrations of alcohol *per se* increase secretion of hydrochloric acid secreting cells of the stomach; high concentrations increase the secretion of mucus. Thus, both favor dilution. In beverages, however, extractives or cogeners may reduce secretions.

Food in the stomach tends to reduce the concentration directly as a diluent, and by its effect on gastric secretions. Some foods may influence the rate of absorption of alcohol by delaying the passage of the stomach contents into the intestine where the major portion is taken up. Tuoven has reported reduction in maximum blood alcohol when stewed beef or boiled potatoes are taken with alcohol; this reduction is greater than occurs when the food is taken before alcohol.

Alcohol passes directly through the lining of the digestive tract without change in chemical composition. Dubowski states that at the alcohol-distribution equilibrium the alcohol concentration in the body fluids and tissues is proportional to the water content.[9] This is what would be expected in a diffusion process since alcohol and water are miscible. However, a gradient in concentration in fluids or tissues would be expected under conditions in which loss of alcohol can occur. For example, the concentration in blood drawn from a vein may be less than that in an artery. This is because the blood loses some alcohol as it passes through the lungs and some as it passes through the capillaries to flow into the veins. Absorption may continue for several hours when several drinks are taken, and for about 45 to 90 minutes after the last drink. The peak blood level may occur between 30 and 90 minutes after a single administration depending on the amount ingested.[10] Blood concentration of alcohol is the resultant of absorption, its distribution throughout the body, oxidation, and excretion through the lungs and kidneys. Thus, there is a rise, a maximum peak or plateau, and then a fall in blood alcohol levels

Elimination

Ninety or more percent of the alcohol is burned in the liver with water and carbon dioxide as end products. The remainder is excreted. The rate of elimination of alcohol is independent of concentration down to the 0.005 to 0.010 percent (Dubowski, citing Mellanby, 1919, and Westerfield and Schulman, 1959). This means that the mechanisms for elimination are working at a maximum and can only eliminate so much alcohol per unit of time with the higher concentrations When large amounts of alcohol are ingested, oxidation may not be complete—acetaldehyde and acetic acid are excreted in the urine. Unoxidized alcohol is also excreted by the kidneys. Values for oxidation of alcohol in the postabsorptive state are about 10 cc per hour (Mellanby). Blood alcohol clearances may vary widely; e.g , 0.006 to 0.040 percent per hour (Abele, cited by Dubowski).

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[9] Dubowski, K M , "Alcohol Determination—Some Physiological and Metabolic Considerations," *Alcohol and Traffic Safety*, edited by B H Fox and J H Fox, U S Public Health Service Publication No 1043, 1963

[10] Fox, B H , "Some Miscellaneous Assessments in the Drinking-Driving Problem," *Alcohol and Traffic Safety*, U S Public Health Service Publication No 1043, 1963

The rate of oxidation may be influenced by concurrent digestion and metabolism of other foodstuffs, but this problem is as yet unsettled. However, Widmark, whose work has been confirmed by other investigators, found that the clearance rate in the postabsorptive state is sufficiently constant (13 mg/100 cc/hr) so that by determining blood alcohol, either the total amount in the body or the blood concentration at a prior time could be calculated (cited by Harger and Hulpieu). So far, we do not have data that would demonstrate a significant influence of disease, other than its influence on overall metabolism, on the blood-alcohol clearance curve.

Effects of Alcohol on Man

Alcohol, after absorption in sufficient amounts, affects nearly every body tissue. It is a primary and continuous depressant of the nervous system.[11] Like other general anesthetics, there may be an excitement stage as the lower centers of the brain are freed of the higher inhibitory control mechanisms. There is little margin between anesthetic and fatal doses. (This raises the question of death from alcohol *per se* among fatalities in moving motor-vehicle accidents.)

Alcohol interferes with the utilization of available oxygen; intoxication is a form of histotoxic anoxia.

The effects of alcohol at given blood-alcohol levels, within certain limits, depend not only on the individual, but also the circumstances—including the influence of others and that of the environment. At the higher levels, the effects show less evidence of variability in the fact that performance is degraded. With blood-alcohol levels between 0.15 and 0.25 percent, the clinical evidence of being under the influence of alcohol is generally sufficiently convincing to most physicians for the purposes of medical diagnosis. There is, however, always the question of bias—for the most part an unintentional and unconscious bias—when rendering medical decision on "being under the influence" following arrest. This may account for differences in medical opinion of the physicians reported in the Liljestrand study cited by Borkenstein, et al.[12] There was marked disagreement between two physicians on the percentage of cases with blood-alcohol levels at 0.10 to 0.20 "under the influence."

The considerable variation in individual behavior at various alcohol levels has greatly complicated the problem of driving and drinking. I believe at least four points warrant emphasis in this regard.

1. Many of the experimental studies attempting to measure sensory or motor responses or both are subject to criticism for technical reasons.

2. Where experiments are well designed and conducted, there remains the problem of interpretation and importance (for traffic safety) of the findings. The development of highly sensitive methods of measurement and the detection of statistically significant differences, however small, constitute real challenges to the investigator. The fact that a measurable change has occurred in a sensory response does not necessarily establish that the change is of practical (as contrasted with statistical) significance in behavior or performance. The investigator, gratified at his success in measurement, should and will report it. He may

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[11] Goodman, L. and Gilman, A., *The Pharmacological Basis of Therapeutics*, (2nd ed.), Macmillan, New York, 1955

[12] Borkenstein, R. F., Trubitt, H. J., and Lease, R. J., "Problems of Enforcement and Prosecution," *Alcohol and Traffic Safety*, U.S. Public Health Service Publication No. 1043, 1963

view his study as a very sensitive test for detecting the earliest possible effects on the nervous system, for example. Those with less scientific knowledge and experience, however, attempt to interpret the results as constituting evidence of a performance decrement. For the most part, the effects demonstrable in a group of subjects are of little help in determining the effects on a specific individual at a specific time.

3. The matter of relevancy must also be considered. Is the specific sensory-response used or related to the specific task under consideration? Does it represent maximum capability, or would it be increased or decreased under altered circumstances?

4. All biological as well as physical experimental measurement *per se* involve perturbation. In many experimental laboratory situations the experimenter occupies too great an area in the field of measurement and tends to amplify the true value; i.e., accentuate the effect. This is not a result of lack of objectivity of the experimenter himself, but may occur by virtue of interaction of subjects with the experimenter—the interpersonal factor.[13]

Some Assessments of Status of Knowledge

In spite of the large gray area of uncertainty with respect to capability and performance over about half the range of blood alcohol concentrations compatible with life, we are getting closer to a statement of the problem of the driving task and of drinking driving performance. Fox has made some assessments of research findings, and concludes: "that a case has been made for the logical picture that alcohol in amounts above a certain hazy range on the order of 0.5 percent is the cause of increased accidents and injuries on the road," but hastens to warn that "even if a perfect case were made logically, we would need hard data about driving behavior on the road of the kind that people do in real life." He cites as things we know: "(a) increase in variability of speed, (b) more variable steering movements, (c) changes in simple reaction time, (d) decrease in perception and complex reaction times, (e) decrease in motor skills and (f) increased sleepiness."

These are considered with respect to performance and adjustment to emergencies. Predictions as to consequences of these changes for driving performance should be made with the clear realization that they are inferences—and not to be reconstituted as "fact" by successive repetition. For example, in considering excessively greater variability in steering and speed behavior, it could be inferred to be "on the face of it more dangerous." Those who varied toward excessive speed might be more likely to have an accident. Those who crept along might be less likely to have an accident, but alternatively, unexpected demand on reaction in an emergency might increase the danger of an accident. These inferences, however, remain to be proved.

Immediately relevant to the subject of the colloquy are his comments on the statistical implications of certain laws and ordinances:

"When we consider behavior on the road . . . , we find that there is great overlap between performance with and without alcohol. The major question here may be: Is the separation of performance in the two conditions so great

[13] King, B G, *A Critique—Mass Communications for Safety*, Presented at the Safety Communications Study Symposium, Denver, 1963

that performance with certain levels of alcohol will lead to unacceptable danger to the public?"

* * *

"(1) Variation in general terms exists within the same person and between people. (2) There is overlap in performance among people who have and have not drunk alcohol. This leads to a basic problem in legal philosophy. (3) Many regulatory laws have been passed on the theory that the danger to a few on a few occasions justifies rules applying to many occasions which prevent injury or danger on those few occasions. Some are based on engineering and some on intuitive grounds. All such rules imply someone's decision process as to a balance between greatest permissible danger (or least permissible safety requirement) and such things as cost, ease of enforcement, public acceptance, and the like. (4) The same situation exists in the case of drinking and driving, or speeding."

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"From the above development, it is relatively easy to make the next jump. If this is the case with speeding, for example, why should it not be so with alcohol level? In both cases, some people did not endanger lives because their skill in driving was greater than the skill of the group that did. Should this lead to a definition of the illegal act as drinking to a certain blood level, followed by driving? Should this alone be the illegal act, rather than intoxication or alcohol influence leading to degraded performance [based upon statistical information available]?"

* * *

"I submit that the statistical nature of some regulations and ordinances would be added to the points already considered by others."

PHYSICAL STANDARDS

I have avoided including the heading, "driver licensing," in the section heading since this is far too comprehensive a subject, involves areas outside the realm of public health and medicine, and requires specialized knowledge in the fields of economics, legislation, and public administration.

Two statements by Paul V. Joliet with respect to medical condition and driving provide a useful frame of reference for the present discussion. "There will come a time in the life of some of us when we will become disabled to such a degree that we will no longer be able to drive with reasonable safety. Those who become so disabled should not have a driver's license," and "The goal we seek is a selective procedure which will make licensing an efficient screen to separate safe drivers from drivers unsafe because of medical conditions."[14]

R. A. McFarland has stated that there have been no experimental research findings which demonstrate that drivers with any disease have greater accident rates than those of a matched group without disease.[15] This situation is not unique to traffic accidents. In a report in 1959, A. P. Iskrant, referring to all

[14] Joliet, P V, Concluding Remarks, Presented at the National Conference on Medical Aspects of Driver Safety and Driver Licensing, Chicago, Nov 18, 1964

[15] McFarland, R A, "The Epidemiology of Accidents," *Accident Prevention*, prepared under direction of Program Area Comm, Am Public Health Ass'n, with cooperation of the Public Health Service, Dept of Health, Education, and Welfare, McGraw-Hill, 1961

types of accidents, stated that sensory deficiencies, organic disease, and physical defects influence the occurrence of accident and/or ensuing injuries and/or consequent disability and death. He emphasized that the exact role of the individual conditions or deficiencies in their effects on accidents is not clear.[16] The conditions or combination of conditions which affect the accident potential is speculative.

It is not known, and may not be possible to know, just how important disease and impairment may be in contributing to accident involvement, influencing the outcome of an accident when it occurs, or in determining the seriousness of the consequences of injury when one occurs

There is, however, a firm point of departure. These are physical disabilities which interfere with or make an individual unable to operate a motor vehicle. There are conditions involving loss of consciousness, and hence loss of control of the vehicle; there are mental conditions which are so extreme that the deficit or impairment prevents the performance of tasks essential in driving.

In the case of physical disabilities, the assessment of functional capability of the driver under specified conditions of operation, traffic, etc., can be determined by direct test. It has not been considered essential in the past to involve medical determination. I do not know whether this might have certain legal implications. I mention it only because at this conference we are trying to learn more about one another's problem areas. Certainly, the subsequent driving experience of those with disabilities who are tested and licensed should be determined. This would appear to be a worthwhile area of research collaboration by physicians, medical and behavioral scientists who are knowledgeable about the extent and prognosis of the condition and about physical and behavioral compensations for the impairment, and by the public administrators and enforcement officers who have responsibility for decisions with respect to the nature and conduct of the test and denying the license.

Sudden incapacitation by loss of consciousness or other reasons falls directly into the area of medical problems. Studies have been reported which determined the prevalence of cardiovascular impairment, epilepsy, "black out" spells, and nervous and metabolic conditions among populations of drivers. In one study involving over 27,000 drivers who had accidents, there was no evidence that sudden incapacitation had occurred or that the condition and the accidents were causally related.[17] In another, the recorded histories and the results of physical examination of a group admitted to a hospital emergency ward because of accidental trauma and those of another group admitted to emergency for nontraumatic conditions during the same period were reviewed; concomitant disease was considered to be causally related to trauma in 8.2 percent of 355 cases.[18]

In another report, a physician states that he accumulated newspaper reports of over 100 instances of death of a driver at the wheel attributed to heart failure occurring in New York City within the period of a year. This was without systematic examination of his customary daily paper. A large number of these

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[16] Iskrant, A P, "Relationship Between Medical Conditions and Accidental Injuries," 1959 Governor's Traffic Safety Conference, Sacramento

[17] Cannon, B W, "Inattention Blamed in Majority of Auto Mishaps," *Medical Tribune*, Nov 21, 1960

[18] Tannebaum, C S, "The Relation of Concomitant Disease to the Occurrence and Management of Trauma," *Amer J Surg* 95 897, 1958

reports were probably completed without medical evidence.[19] Even when autopsies are performed there is some question as to whether the medical condition caused the accident or whether the accident aggravated the existing condition and may have resulted in the sudden incapacitation. In spite of the fact that it is logical to assume that sudden incapacitation and accidents may be causally related, we must depend solely upon case histories as evidence that sudden incapacitation does result in accidental injury. R. A. McFarland[20] provides some such case histories. He cites 46 instances of a driver losing consciousness while operating buses of the London Transport System during an 11-year period. In the calculated value of approximately 220,000 "driver years" this would amount to one such instance every 10 months. Of the 46 cases, unconsciousness resulted in accidents in 26. Myocardial infarction was found in 14 of the drivers who lost consciousness at the wheel. Two of the vehicles were stationary at the time of the attack. In another 12 cases of loss of consciousness, the driver had sufficient warning to be able to stop without accident in seven instances but was involved in accidents in the other five.

In contrast to physical impairments, conditions involving sudden incapacitation, disease, and mental and emotional conditions cannot be effectively evaluated with respect to fitness to operate a motor vehicle by means of a driving test. It is frequently the fate of a physician to be questioned as to the likelihood of an individual's condition becoming disabling during the performance of a given task. It is not uncommonly his lot to be asked to show that not only is a condition adverse to the interest of public safety present but also that as a result the applicant would indeed become involved in an accident.

This latter requirement has imposed an insupportable burden on many physicians in earlier years when they were called to appear at official hearings on medical certification of airplane pilots.

Physicians are concerned not only with disease and impairment as such but are also necessarily involved in the problems of the effect of medication on driving capability and performance.

Steps have been and are being taken by physicians to provide medical guidelines in determining fitness to drive a motor vehicle.[21] In addition, A National Conference on Medical Aspects of Driver Safety and Driver Licensing, cosponsored by the Public Health Service, the American Medical Association, and The American Association of Motor Vehicle Administrators, was held in Chicago in 1964. Activities such as these have provided general guidance with respect to medical conditions and driving.

It has been my personal observation that physicians are reluctant to render clinical judgment with respect to an individual on the basis of the existence of a condition *per se*. I have, for example, attempted to obtain judgments concerning the probable outcome of hypothetical cases of trauma and poisoning. Clinical judgment concerning a specific case is based upon a multitude of variables which the experienced physician appears to use as "inputs" to his mental "computer."

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[19] Smith, J E, "Comments on Heart Cases in Transportation," *Conference Proceedings of Second Highway Safety Research Correlation Conference*, Nat'l Acad Sci-Nat'l Res Coun Pub No 328, Sec 316, 1954

[20] McFarland, R A, "Research—Driver Capability," Presented at Nat'l Conference on Medical Aspects of Driver Safety and Driver Licensing, Chicago, 1964

[21] Committee on Medical Aspects of Automobile Injuries and Deaths of the American Medical Association, *Medical Guide for Physicians in Determining Fitness to Drive a Motor Vehicle*, J A M A, 169-1195, 1959

Thus full exploitation of professional judgments requires examination or at least reasonably comprehensive information about a real life case. This can and is being accomplished by the use of medical advisory committees to provide medical consultation to motor-vehicle administrators on the medical fitness of specific drivers.

It has been said that medical factors in accident causation "is an area—because of the very tardy recognition of its importance—in which there is very little basic information upon which to construct a specific plan of procedure." Yet, quite understandably, those responsible for licensing want and expect a specific plan of medical collaboration or participation upon which definitive action programs can be based.

It is not unreasonable to assume that insurance companies share with the physician, the legislator, and the public administrator an interest in medical conditions of drivers.

When exploring ideas for discussions at this colloquy, I asked Dr. Netherton if ineligibility for life insurance would influence eligibility for casualty insurance. After inquiries among motor-vehicle administrators and insurance people, he reported that: "There appears to be no attempt, either by casualty insurers or motor-vehicle administrators, to correlate eligibility for life insurance and eligibility for casualty insurance for driver licensing. Motor vehicle departments do not ask license applicants whether they have ever been denied life insurance, although they do ask about physical defects either in general terms or as to certain specific conditions." The insurance companies' reasoning, if it is truly representative, is: "Insurers say that 10 years ago they might have made greater effort to correlate life insurability and casualty insurability, but progress in the control of physical conditions (such as heart disease and diabetic blackouts) has reduced the risk of unforeseeable disability to the point where it can be accepted by the insurers With the risk thus minimized, the insurers are willing to pay the relatively rare claim that arises, and the motor-vehicle administrators are willing to grant licenses to drive."

The point of interest here is that insurance as well as medical standards, legislation, enforcement, and liability are all parts of the traffic safety system and as such must be considered. The fact that the decision criteria differ in different parts of the system simply makes our problem more complex. Again: "Under their very broad authority to screen and test applicants for driver licenses, motor-vehicle administrators may require various medical examinations and other tests to determine fitness. All motor-vehicle departments maintain records on licensees known to have physical conditions (such as diabetes and epilepsy) which require that the driver's license be limited. Accordingly, when the question of insurability to comply with State financial responsibility laws is raised, private insurers make use of the motor-vehicle administrator's records and powers to assist in determining what action should be taken. Where information on an application for casualty insurance reveals a known or suspected physical condition which may warrant limiting the applicant's driving license, the insurer usually requests the motor-vehicle administrator to certify the applicant's eligibility." The administrator can refer the applicant to a medical board for testing and/or review of medical files; the casualty company could then act in accordance with the board's determination.

As for the matter of availability of information concerning medical conditions, first, the American Medical Association, Committee on Medical Aspects of Automobile Injuries and Deaths, tells physicians that they should advise the patients to report any condition, which might make it inadvisable for them to drive, on their next application for renewal.

"If this information is not reported on the application and the applicant subsequently becomes involved in an accident to which the condition either directly or indirectly may be a contributing cause, in many States the insurance company may legally refuse liability."[22]

The response will then depend upon the patient; if he does report, considerable time may elapse unless his condition becomes known as the result of an accident or violation.

As a final item of interest in looking at parts of our traffic-safety systems—again reported by Netherton, "Most motor-vehicle departments are now developing systems for using computers to process and store driver license and vehicle registration data. So far, however, medical data (except routine matters such as requirements that glasses be worn while driving) have not been included in the systems of automatic-data processing. It is considered that this type of information must still be processed 'by hand' and judgments made individually, 'case by case'."

The difficulties that face a research investigator in problems of medical standards are indeed formidable.

ALERTNESS, MOTIVATION, AND INJURY CONTROL MEASURES

The success of many if not all alternative approaches to prevention and control of accidental injury depends to a large extent upon the alertness and motivation of those we are trying to protect. Lehr points out that environmental safeguards are most likely to accomplish their intended purpose if used in combination with control measures based upon education and motivation [23]

Great emphasis is placed upon safety exhortations via television, radio, the press, and posters designed to motivate individuals to adhere to safety practices. Biological factors are equally important in gaining public support for legislation and public compliance with laws and ordinances once they have been enacted.[24] Alertness and motivation are, without question, of major importance in education and for compliance to medical regimens.

As a physiologist, I look for the implications of the basic and clinical medical science research for accident prevention. In this case, I think there is material that is especially relevant. Further, I believe it will afford some satisfaction to a number of you to examine a possible biological basis for some of the concepts you hold as a result of your observations on the effectiveness or lack of effectiveness of various laws, ordinances, and enforcement measures.

In a recent review of motivation theory, Berlyne states, "To attack motiva-

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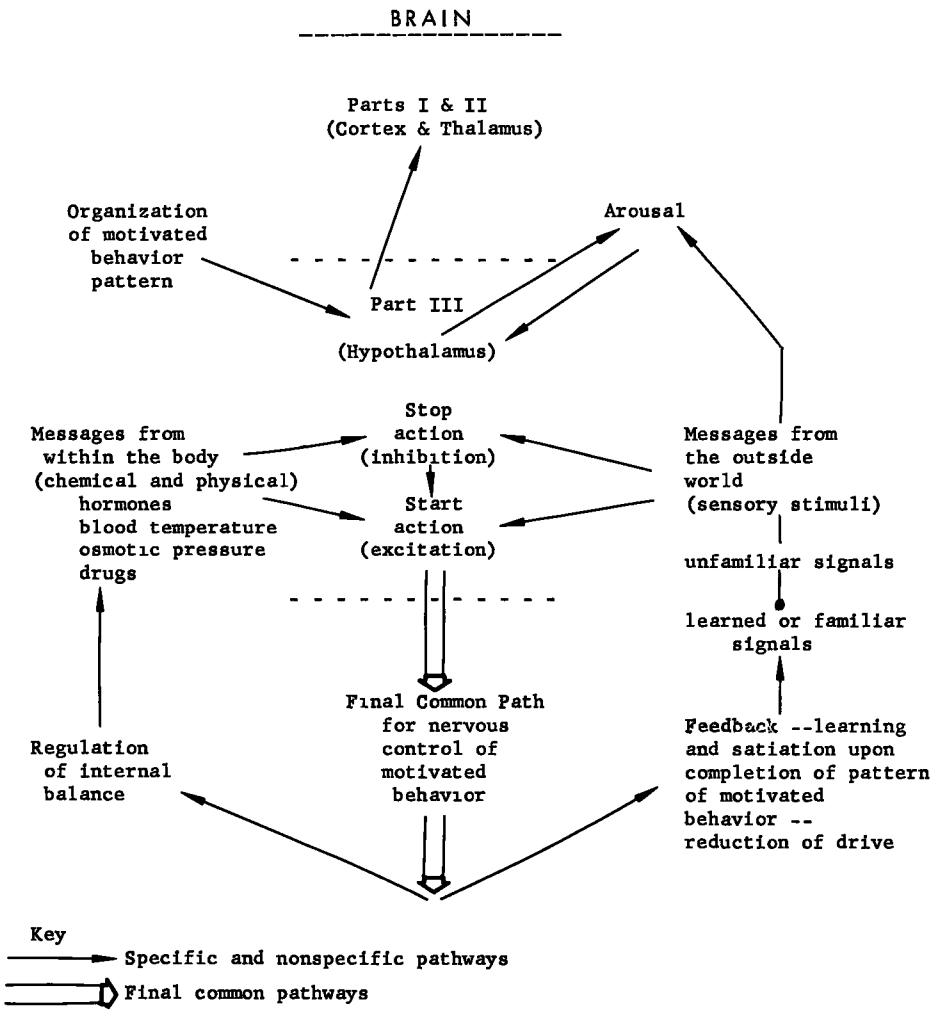
[22] Committee on Medical Aspects of Automobile Injuries and Deaths of the American Medical Association, *Medical Guide for Physicians in Determining Fitness to Drive a Motor Vehicle*, J A M A , 169-1195, 1959

[23] Lehr, E L , "Accident Prevention—An Opportunity and a Challenge," *J Environ Health*, 27 1, 1964

[24] King, B G , "National Philosophy of Safety," *The Role of Human Factors in Accident Prevention*, Freeman, F , Goshen, C E , and King, B G , prepared for the Division of Accident Prevention, (Contract SAph 73670) Public Health Service, Dept Health, Education and Welfare, 1960



Drive and arousal, organization and control factor for motivated behavior

tional problems means to seek factors that govern the organism's degree of alertness and activation, that bias the organism toward certain forms of behavior, and that determine what events will provide reinforcement for learning processes and how effectively."[25]

Advances in scientific research in recent years have yielded information on biological structures associated with alertness and motivation, further, they have helped to develop an understanding of how these structures function.[26]

In our discussion we will be concerned primarily with three parts of the brain

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[25] Berlyne, D E, "A Decade of Motivation Theory," *American Scientist*, 52 4, 1964

[26] Stellar, E, "Drive and Motivation," *Handbook of Physiology*, Section 1—Neurophysiology, Vol 3, Physiol Soc, Washington, D C, 1960

and two principal connecting systems.[27] These are the sites concerned with alerting and activating, with manifestation of certain forms of behavior, and with learning processes. Let's review a concept of how such a system works. Reference to the accompanying diagram may be helpful in understanding the system.

First, it is assumed that motivated behavior will involve an adequate degree of conscious alertness, activated or energized higher centers, and initiation of various patterns of response. This requires that stimuli or messages from the outside world and from the muscles and the various organs of the body be conveyed to the brain by both direct and indirect (nonspecific) nerve pathways acting together. There are, of course, various degrees of alerting. The return to consciousness from sleep is called arousal, a higher level of alertness, favoring perception and appropriate response, is called conscious alertness. The alerting process is associated with the activation, energizing various areas of centers and bringing about a pattern of response which we may call behavior.

Let us start with some familiar concepts involving alertness and activation as the result of messages arising from within the body. These are associated with what is called "self regulatory behavior." We know that hunger, thirst, and sex urge bring about appropriate responses in animals—we used to call this instinctive behavior. "Instinct" referred to the intensity of the behavior, i e., called for a high level of activity. Now we use the term "drive." It is important for relating all this to the subject of prevention and control of accidental injury that we recognize that these messages, traveling over the appropriate pathways, are highly significant for the condition and ultimately for the survival of the individual and the species. The messages related to important consequences "get through" to the appropriate centers—they start action. When the drives are reduced by satiation—the stop-action messages also "get through."

Let us now consider what happens to messages from the outside world, apply the concepts to man and consider another manifestation of drive. Here again, concurrent activity of both the specific and nonspecific pathways is necessary. You can demonstrate that a message can reach the highest level of the brain when a man is anesthetized and unconscious. Simply shine a light in his eye and pick up the electrical impulse on the cerebral center with suitable instrumentation. This does not result in arousal, alerting, or activation because the nonspecific pathway (at least the necessary part of it) is inactivated by anaesthesia.

This nonspecific pathway is highly selective in transmitting only messages which are unfamiliar to us, or messages which are both familiar and significant. It could be visualized as a system with filters which pass only certain frequency bands.

Consider the unfamiliar or unlearned signal. There is no basis of experience for determining whether an unfamiliar message is associated with an event that may have a beneficial or adverse effect. It "gets through" to the higher center bringing about alerting and activation involving perception, integration, decision, and perhaps action. If the message has no consequence, and hence no significance, it soon begins to be filtered out. When repeated, they are discounted and do not reach the level of consciousness. For example, we soon learn to disregard

[27] The structures referred to are the cerebral cortex, the thalamus, the hypothalamus, and the specific and nonspecific afferent pathways

familiar noises—we do not attend to the usual sounds of the city or country in which we live.

What happens if a previous experience has established that the message is associated with significant consequences? If it is, it "gets through."

There are familiar examples of the phenomenon. While we disregard customary noises at night, we are aroused by breaking glass or unexplained footsteps. A mother may be alerted by the cry of a baby.

We do not disregard the sound of a police siren behind us on the highway. Neither do we disregard a marked police car. We have learned, or have been conditioned, to associate these messages with things that are important to us. Not only does the message "get through" but it biases our pattern of behavior. Once we establish a satisfactory response or behavior pattern, this pattern is reinforced as long as it is adequately successful. The drive for motivated behavior —or if you wish "motivation"— is increased. There is also evidence that satisfactory performance of a pattern of motivated behavior reduces drive for the time being. It is like a message—"mission accomplished—relax." This involves not only the drive for specific behavior, but also the drive evoking general restlessness and nonspecific activity. The result is a comfortable feeling.

Further, we are just beginning to realize that the higher animals, including man, display many activities which are difficult to relate to familiar motives involving readily apparent rewards and punishments. The activities seem to be influenced by curiosity, novelty, and complexity of the external stimulation. These factors seem to be capable "of generating the kind of disturbance that motivates behavior and promotes acquisition of newly learned responses reconciling discordant reactions."[28]

We have also learned that there are structures in the areas of the brain with which we are concerned whose stimulation has effects which are closely similar to external rewards and punishments.

I believe that what I have attempted to explain in terms of neurophysiology and psychology is consistent with your own observations of your and other approaches to safety.

Implications for Accidental Injury Control Measures

We can summarize this concept of motivated behavior as follows:

1. In order to alert individuals and activate them for response, communications of any sort must convey information that a totally unfamiliar situation exists or that the information is familiar and is of importance.

2. The communications will bias the pattern of behavior. Where the behavior results in reward or avoidance of undesirable consequences, it is reinforced and drive is increased, and the behavior may be said to be highly motivated.

3. Some people can attribute significance to communications by learning specifics or values of certain behavioral patterns from others. We can deal with abstractions and maintain standards even when our immediate experience provides re-enforcement only occasionally, if ever.

If there are, indeed, biological principles, mechanisms, or laws, they will continue without change or relaxation. It is necessary, then, that we remain constantly aware of them, evaluate the compatibility of our accidental injury control

[28] Berlyne, D E, "A Decade of Motivation Theory," *American Scientist*, 52 4, 1964

measures with respect to them, and seek means to exploit these biological principles to their fullest extent.

Happily, we are beginning to recognize the inadequacy of many of our approaches in the past. Netherton points out the ineffectiveness of tort laws as applied for rehabilitation of the wrongdoer in motor-vehicle accidents and stresses, as a requirement for effective legislation, that its effect must be felt directly on the unsafe driver.[29]

Moynihan,[30] O'Connell,[31] and Isaacson,[32] among others, point out that there are traffic laws which fail to accomplish their intended purpose to prevent accidents as well as control movement of traffic. They do not have moral sanctity in themselves[33] or logical appeal to bring about internal drive and behavior motivated by determination to avoid accidents.

We are attempting to understand the problem of communication of safety messages. This is evidenced by the National Safety Council, Symposium on Mass Communications Research for Safety, sponsored jointly by the Council, government and industry.[34]

Earlier sections of this presentation were concerned with research relevant to driving and drinking and medical standards—to develop measures which will accomplish their intended purpose and have significance for the individual.

Some of the effective measures which will be developed will be re-enforced by obvious, immediate, and inevitable consequences.

Others will depend upon indirect re-enforcement or at best only occasional re-enforcement, but this again will depend on the extent the approach is significant with respect to logic, morals, ethics, and ultimate benefit. An especially difficult task lies before us in developing and maintaining an adequate level of drive for motivation with sound motor-vehicle operation behavior patterns. Here drive and behavior does not involve a single decision, but rather one which has to be made over and over again each time ultimate benefit is contrasted with immediate significance or importance for the individual.

An article on civil defense, in a recent edition of the *Scientific American,* includes a statement that applies equally well to all other types of messages as to safety and health in preventive medicine: "Indeed, in virtually no society is there any precedent for maintaining a large portion of a civilian population over a long time in trained readiness for a threatening event with a low probability of occurrence."[35]

Future success in accidental injury control measures will depend upon facing up to our problem as it exists and undertaking the necessary research to develop understanding, and feasible and appropriate control measures.

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[29] Netherton, R., *Highway Safety Under Differing Types of Liability Laws,* Ohio State Law J., 15 110, 1954

[30] Moynihan, D P., "Public Health and Traffic Safety," *International Road Safety and Traffic Review,* Summer, 1960

[31] O'Connell, J., "Taming the Automobile," *Northwestern University Law Review,* 58 3, July-Aug., 1963

[32] Isaacson, I., "A New Approach to Accident Prevention," Reprinted from the *Lewiston Evening Journal,* Aug 1-5, 1961

[33] Isaacson, I., "A New Approach to Accident Prevention," Reprinted from the *Lewiston Evening Journal,* Aug 1-5, 1961

[34] National Safety Council, *The Denver Symposium on Mass Communications Research for Safety,* edited by Murray Blumenthal, Chicago, 1964

[35] Waskow, A I., "The Sheltered-centered Society," *Sci Amer.*, 206 46, 1962

APPENDIX

What is the relation of physical standards to the problem of determining fault for accidents?

Can we equate scientific test results to the basic problem of formulating generally applicable rules of conduct (re alcohol)?

Social view regarding acceptability of drinking does not deal in the same precise standards used by scientific tests. For purposes of legal standards, does this suggest that the old "objective symptoms" are more reliable for determining driving impairment? If not more reliable in the scientific sense, then more realistic in the social sense?

Should we recognize effects of certain physical conditions in determining existence of negligence? Should it be cause for requiring higher level of financial responsibility for drivers with certain types of physical defects? Should there be a "physical fitness rating" for all drivers?

Does legislation tend to motivate general public acceptance of safety practices, e.g., liability insurance for taxi drivers, seat belts in government vehicles? Which comes first, public acceptance, then legislation, or vice versa? Do we accept standards more readily if it involves cost and other manner of compliance by others—not by us?

Do standards expressed in legislation affect national philosophy of safety as it develops in the minds of juries? Do standards expressed in legislation influence thinking in relating thinking or behavior to that of a "reasonable man?"

Consider the motivational aspects of our "point system" under which a motorist can watch his point standing as he drives. Does this motivate him any more successfully than a system where he is not told in advance what scale the administrator is using to determine when his license shall be suspended? How about economic incentives for safer driving which the law authorizes through the insurance rates and the security features of the financial responsibility laws? (British insurance "no claim" discounts ran from 10 percent the first year to 25 or 33 percent the fourth year.)[36]

How valid is the premise that traffic laws and enforcement practices should be designed to instill good driving habits generally rather than protect against specific, clear, and present dangers?

What about the vaguely disturbing feeling resulting from the costliness and inconvenience of settling an accident claim? The "nuisance value" of becoming involved in an accident may also represent a nonrational factor which works in opposition to our rational and logical concept of the legal procedure established for settling accident claims.

Here, again, we seem to be running parallel to the problem suggested by your concept of a "national philosophy of safety." If the national philosophy based on continued tension is not effective, where should our approach be directed? Should "habit forming" be our objective in law? If so, we need to study more closely the capabilities of the legal system to perform this function. In this regard, we should also ask whether formal legislation is the best method, or would it be better to use case law as formulated by juries reflecting the attitudes of the "reasonable man?"

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[36] Netherton, R., "Highway Safety Under Different Types of Liability Laws," Ohio State Law J., 15 110, 1954

ADDENDUM

Just after completing this presentation, I heard William G. Johnson, general manager of the National Safety Council, present a summary and a film on a newly developed Driver Improvement Course.

The course establishes as a major principle the preventable accident—one in which the driver did or did not do everything he reasonably could have done to prevent the accident. This appears to be directly relevant to the subject of this colloquy. It may be possible to find an effective method of communication which will get this "message through" and help motivate the additional vigilance and good driving practices needed. Could preventability be stressed as a tenet of a reasonable man? Some may respond on the basis of morality or social standards, others might be affected by having to share in the fault with respect to their license or perhaps at some future time in liability—perhaps this might suggest a new approach to be considered in legislation.

COMMENTARY

PROFESSOR FLEMING JAMES, JR.
Yale Law School

These studies of the human factors in causing accidents are directed primarily toward accident prevention, and I have not done any particular work in that field. But they do, nevertheless, raise some legal questions. While these are also not in my field, but in criminal law, administrative law and evidence, there are some things about them that interest me. If, for example, scientific research can isolate characteristics, physical or mental or both, which will tend to make a person an accident repeater—we used to say "accident prone"—and if tests can detect that condition, then certain questions of law arise.

The main question, I presume, would be whether to exclude from the highway those persons whom the tests show to be accident causers. This can be attempted by denying them a license to drive, or by revocation of a license after the condition is discovered. At least in the present stage of the science, one difficulty is that a course of action like that would exclude many drivers who would not in fact have accidents, and many more who would have no more accidents than chance would ordinarily allot to an individual's share. In other words, you cannot pinpoint accurately the accident causers.

Thus, serious problems are raised for the legislator or the administrator. Some of these problems are political, for it would be virtually impossible politically for either an administrator or a legislature to have licensing statutes that were so strict that they served only safety. The popular resistance to this would be too great. This certainly is a matter which should be studied, but it is not primarily the lawyer's study.

There are also constitutional difficulties, and along with the ones that already have been mentioned one other should be noted. Several speakers have already brought out the point that a license to drive is no longer regarded as a naked privilege which the sovereign can revoke by a simple action. In this respect the courts are simply reflecting what is a strong general feeling. Driving an auto-

mobile is an integral part of modern life generally, and it is bound to be treated by the courts with respect and something of a right—not an unqualified right, but *something* of that nature. If this is true, it leads to due process questions that are beyond the procedural ones previously mentioned. It certainly means that there is a right to a hearing, and so on, but it also means that the courts are probably going to strike down legislation or administrative rulings which they regard as being unreasonable and arbitrary. Certainly this is an area for lawyers to study, for this touches the lawyer's art very deeply.

In thus working out the areas of constitutionally permissible action, it will be well, also, if the other disciplines could be joined with the law in this type of study. If, for example, you have a driver licensing statute, it is always going to be a little broader than the need. The question is how much broader can it be without becoming unreasonable.

There is also the relationship that Dr. King has pointed out between the characteristics of legislation and the internal drive or motivation. Lawyers realize this, I think, in a general way. Certainly the Noble Experiment that some of us in my generation remember points this out. But I do not think that lawyers are going to be able to make any peculiarly valuable contribution as to where this line should be drawn. That matter does not pertain to the lawyer's art; it is something that we have to learn from the sciences. Lawyers ought to be very anxious to cooperate with scientific research in this process, but they probably should not try to be the leaders in this matter.

As for the rest, insofar as accident prevention goes, I can see some of these implications. In the first place, as more is learned about the kind of behavior that causes accidents, the question is how far should a court or legislature go in prohibiting it. Dr. King pointed up the question very neatly in connection with alcohol. There are two possibilities. Everywhere we have on the books statutes which make it a criminal offense to drive while under the influence of alcohol or drugs. Should we move this to a more specific standard, dealing in, for example, blood content? Or should it be left in these broader terms? Here is a problem with respect to which lawyers, physiologists, and people from social science disciplines should cooperate.

Another question which calls for cooperation among the disciplines deals with the kinds of evidence that might be received. This is pointed up by studies made in connection with alcohol tests and human capacities.

Still another question might be put in terms of civil rights. How far should the law go in subjecting persons to tests—alcohol tests, blood tests, etc.—and in putting on people some kind of pressure or compulsion to submit to these tests when they are involved in an accident or arrested for a violation? These are all problems that, as far as I can see, lawyers can help work out, but they will need a good deal of help.

This is as far as I think I had better go into a field in which I have no claim to special competence. My main concern in my professional life has been with the question of how to administer losses that have already occurred. This is not primarily a question of accident prevention, but a question of what to do about the consequences of accidents that have occurred.

The traditional method of the Common Law, which is still very much with us in this field even though it is regarded as passé, was the tort action—the civil action for damages for a tort. Originally the tort action was between neighbor

and neighbor, one user of a highway and another. Here the only solution the law offered was either to leave the loss where it fell on the injured party, or shift it entirely to the other party. These were the only two alternatives that the law then saw. But before the law would make the defendant pay for the plaintiff's loss, it came to insist on fault.

This was actually a refinement, for originally the law called for strict liability. Social Darwinism of the Nineteenth Century felt that it was both unfair and impolitic to burden affirmative activity with liability unless the actor was at fault in causing the injury. That is the tradition that came down to us in this century and the tradition which the automobile law inherited from the horse and buggy days. And the fault that would make it fair to hold a man liable was something that had the flavor, at least, of personal moral shortcoming. In accident cases this was negligence, which meant generally the failure to meet a reasonable and attainable standard of conduct, a failure to do what a reasonably prudent man would have done under the circumstances.

But it was decided fairly early in the Nineteenth Century (about 1830 or 1840) that a person would be held to an objective standard of care, that is the standard of care that the reasonably prudent man would have observed under the circumstances shown by the evidence. The defendant's own individual mental or emotional shortcomings—his personal equation, as it was popularly called—was to be disregarded, largely, perhaps, because of the impossibility of measuring those idiosyncrasies that made up the personal equation. This, in turn, meant that people who were substandard in some way might be held liable in damages for failure to meet a standard of conduct which they could not in fact attain. If one were dumber, more awkward or hasty than the reasonably prudent man and he acted to the best of own personal gifts, he still might have been held liable for not coming up to this community average. In such case, liability would not rest on ethical fault, but would be imposed for a consequence which the actor could not help, given his own emotional and physiological makeup.

As research into the human factors that cause accidents progresses, it becomes increasingly possible to measure the traits of individual actors and to tell more surely whether they have performed in any given situation as well as could be expected of them in the light of their own individual makeups. It would appear, no doubt, that much substandard conduct in accident situations does not reflect moral shortcomings, but shortcomings of some other kind—physiological, personality, physical, etc. The question will then arise whether the existing, largely objective, standards should be replaced by some geared more closely to the individual's own capacities, and thus refine the fault notion. But I wonder whether we really want to make the matter of compensation to injured parties entirely dependent on real moral fault. What it would do would be to deny compensation to the victims injured by the extra hazards of substandard groups like the learner, the young, and the old. In other words, it compels the victims to subsidize the extra hazards which society permits by allowing substandard groups to drive at all.

This raises the still further question of whether even objective fault—unreasonably dangerous conduct as objectively determined—is a sound basis for civil liability, i.e., for determining whether a motor-vehicle accident victim is to be compensated.

For example, Dr. King pointed out that licensing authorities today will give restricted licenses to people with heart conditions, diabetes, and epilepsy when these conditions are under reasonable control. Surely such people can hardly be guilty of fault in driving with official sanction based on a finding that the risk is not unreasonable. But even when such conditions are controlled, they will occasionally produce blackouts and accidents. Should the victims of these accidents be denied recovery because the driver was not at fault? Should they pay with their injuries for society's choice to allow these people to drive—a choice in which the victim may have taken no part whatever?

Another factor which makes fault somewhat artificial as a determinant of accident liability is that the people who pay for tort recoveries today are largely innocent absentees—not the participants in the accident who may have been at fault. When the faulty driver is an employee, it is his employer or his employer's insurer who will pay. If it is an individual with liability insurance, it is his insurer. If it is an uninsured individual, usually he is judgment proof and nobody pays. In the days when it was the defendant who paid a judgment out of his own pocket, it made a good deal of sense and fairness to condition liability on the defendant's personal fault. But in these days of vicarious atonement by absentees, that justification has largely disappeared.

It still remains to consider whether basing liability on fault will make a serious contribution to accident prevention. The deterrent effect of tort liability has always been assumed and has been accepted as one of the proper objectives of tort law. But I know of no studies which tend to prove that it is an effective promoter of safety in the motor-vehicle accident field, where each actor is an active participant in the risk and has his own neck at stake anyway. Here again it must be recalled that the actors—the drivers—are not the ones who actually pay. This does not necessarily remove deterrence; it may effectively be employed by the employer or the insurer who does have to pay.

One further important point should be noted. If fault should be abandoned as the basis for accident liability, the move would be not away from liability, but rather toward strict liability. And if liability is an inducement to safety at all, strict liability—which would require a perfect score to avoid payment—may well be a greater inducement than the present scheme where the actor has a chance to escape paying for an injury he causes.

DISCUSSION

MILO W. CHALFANT, *Chief*
Driver Improvement Control, Michigan Department of State

Motor-vehicle administration operates within a framework of enabling legislation which is both specific and general in direction. This administration is an essential and complex process, serving the operation of the motor-vehicle transportation system which is vital to our national economy. The continual growth of the system creates new and increasing management problems in need of research.

Dr. King pointed out such a need in his discussion of the medical conditions which impair the performance of tasks essential to driving. The laws grant

broad responsibility on the part of licensing officials to rule off the highways those persons who are unsafe to drive. Yet there is a great shortage of information upon which to make such decisions. Desirable information could be furnished by school counselors, physicians, insurance companies and others in business and industry. Licensing officials have been handicapped with inadequate storage facilities and lack of reporting of medical conditions.

The availability of electronic equipment can solve the storage problem, but a better system must be devised for the reporting of desirable medical information in making determinations of persons' capabilities of driving. Such information is generally considered as being privileged or confidential, although its disclosure is essential to public welfare.

Professor James pointed out a problem which is equally important to the prevention of accidents, namely, the compensation of accident victims. The question of administering the losses which have already occurred has been of great concern since the Columbia Study in 1930, although an ideal solution to the problem has not been formulated into legislation. This is a good example of an area in which further legal research is needed.

Motor-vehicle administrative legislation has created many problems which require remedial study, experimentation, and evaluation. Dealing with the unlicensed driver or the person driving after a license has been withdrawn is such a problem. Hopefully, an interdisciplinary approach could result in a solution.

Drafting of problem-solving legislation is of vital importance. Too often a jurisdiction "borrows" a law without discovery as to whether the law can solve the problem. Experimentation of legal administrative devices for problem solving is too often neglected. The "point system" is an example of one of the most nonuniform laws in existence. Surely, one law is better than another, but how could any administrator or legislator know the best requisites of such a law.

Our laws dealing with the ownership and use of motor vehicles must be better known and their objectives better understood if they are to serve the motorists fully. Motor-vehicle and traffic laws must be analyzed, their deficiencies identified and appropriate corrective action taken.

ANDREW HRICKO, *Attorney*
Insurance Institute for Highway Safety

I shall direct my remarks to what might be called research into practical penalties that can be adopted by the state legislatures and applied by the courts.

For example, in the case of prosecutions for driving while under the influence of intoxicants, some statistics indicate that the defendant has a better than 50-50 chance of being let off. In other cases the charge is reduced by the authorities to reckless driving or public drunkenness. It has been advanced that the main reasons for these reductions in charges and dismissal of cases is that juries assume the attitude of "There, but for the grace of God, go I."

Research may be in order to determine exactly what penalty for this type of offense a defendant's "peers" will accept. Increased fines and imprisonment, coupled with loss of operating privilege, do not appear to work as either a deterrent to the offender or a just penalty for juries to impose.

This type of research could be expanded to the entire penal provisions of motor-vehicle codes. What is a just penalty for speeding or reckless driving? In

this modern auto age what do motorists consider just punishment for an offense? What penalties will have a deterring effect on their driving habits?

Fines and imprisonment have been the time honored method of imposing penalties on errant citizens. These punishments have been carried down from the criminal law for larceny, assault and battery, etc. Changes appear to be needed to update punishment to fit the crime. What type of punishment? No one really knows; research I am sure could throw some light on this subject.

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Driver Behavior Research Project
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Motivation to comply with traffic laws and regulations may be one of the most significant human factors related to traffic accidents. Studies of the relationship between a variety of human factors and accident involvement have shown that the frequency of traffic law violations has one of the highest correlations with participation in accidents. These motivational factors may then constitute major determinants not only of the level of safe driving of particular individuals but of the level of safety of the vehicular transportation system as a whole.

For motivation to comply with the law reflects the characteristics of the driver, the enforcement system and the relationship between them. Put simply, the relationship between the driver and the legal system is a social exchange. Most drivers tend to "give" in the form of compliance as much as they "get" in the form of safety, predictability and convenience. Some drivers try to gain more than they receive. These are the habitual traffic offenders. Other drivers tend to comply with the system perhaps beyond the point of fair return. These are the compulsive compliers who never attempt to beat the system.

To understand these individual differences in attitude toward traffic law, as well as the general level of motivation to comply with traffic law, let us turn to a more formal analysis of the motivational patterns in individuals and the conditions necessary in the legal system to elicit these motivational patterns. Most of us could, and would willingly, describe the traffic laws and their enforcement in both highly colorful and emotional terms. The description that follows is much flatter, but hopefully more useful as an analytic tool for identifying the research needs in this area. Five motivational patterns, their consequences, and the conditions necessary to elicit them are examined.

1.—ROLE COMPLIANCE OR CONFORMITY TO SYSTEM NORMS

Conformity to the rules of driving is a significant motivating factor for certain types of driving behavior. Though people may conform for many different reasons, and the degree of conformity to the rules may vary, one basis for driving performance is the general desire to perform according to the norms that have been established.

1.1—*Consequences for Performance*

A great deal of driving behavior can be predicted simply from a knowledge of the rules. The major impact of compliance with the legitimate rules of driving influences is mainly the person's ability to obtain a driver's license, and perform

dependably and predictably according to rule specifications. The standards insure minimal performance of driving requirements. If the rules were to become more stringent, they would become unenforceable. Obviously, compliance does not apply to the area of behavior covering spontaneous voluntary behavior on the part of the driver, as rules cannot cover the complexity of conditions encountered.

1.2—*Conditions Influencing Rule Acceptance*

Motivation to follow the rules is influenced by two sets of conditions: (1) characteristics of the rules as they are experienced by the driver, and (2) individual differences in motivation to comply. Characteristics of the rules that influence their effectiveness are their source, credibility, clarity, fairness, and reinforcement.

Source of the Rules.—The acceptance of the rules as a basis for driver action depends upon his accepting the authority of the rule-makers and enforcers. Generally, the driver will accept rules that he sees as emanating from a source whose authority he *respects.* Since driving rules are made and enforced by a variety of sources, the relationship between rules and source is probably a matter of considerable confusion. The extent to which these rules are seen as emanating from a credible trustworthy, expert source, concerned with the driver's well being must vary considerably. The rules are usually communicated to the driver impersonally via a driver's guide to motor-vehicle law, and signs and signals. They are enforced by a variety of sources, including the police, judiciary, motor-vehicle administrators, and sometimes insurance companies, which utilize violation and accident records in assigning insurance costs.

The authoritativeness of the rules is also influenced considerably by the mode of administration. The more dignified, unhurried, thorough and serious driver examination communicates to the driver the importance of the ritual and of his knowledge and willingness to comply with the rules and regulations. Similarly the nature of the police apprehension, traffic court, and judicial proceedings, communicates to the driver the authoritativeness of the rule system and its significance to the enforcing agents.

Another way in which acceptance of the rules is modified by their enforcers is in the consistency and impersonality of their enforcement. Agreement among enforcement agencies in the import of a rule will increase its acceptance whereas disagreement will decrease its acceptance. The driver whose case is thrown out of court by the judge who "can't understand why the police bring such ridiculous cases to court" is understandably less motivated to follow such rules. Similarly, speed laws and directives not enforced by police, who may feel that "traffic engineers put up a lot of silly signs and then expect us to enforce them," contribute to weakened motivation to comply.

Another requirement for acceptance of rules is their impersonal character. The driver who feels that punishment for breaking the rules is evaded by portions of the population is less motivated.

Credibility.—A related condition for the acceptance of legal norms is the belief that the rules are in fact relevant to the objectives of traffic flow and safety. Drivers who believe that following the rules will protect them and enable traffic to move more smoothly and efficiently are more motivated to comply. The status of many of the driving rules with respect to their efficacy is suspect both from the point of view of evaluative data, and in the opinion of the driver himself. The driver who is caught in a radar speed trap often feels that enforcement is

more relevant to the economic condition of the arresting jurisdiction than it is to safety.

Clarity.—Laws can be so ambiguous and inconsistent that people may simply not know what the law is, or be amazed to find the differences that prevail as they move from one jurisdiction to another. The patchwork of variability in signs and signals, motor-vehicle regulations, and the confusion of statutes undermines the legitimacy basis of compliance.

Reinforcement.—To maintain the internalized acceptance of legitimate authority there has to be some reinforcement in the form of penalties for violations of the rules. If there is no policing of laws governing speeding, speed limits will lose their force over time for many people The concept of law as an imperative binding upon everyone in the system requires penalties for violation. Where there is no enforcement, the rule in question becomes a dead letter.

Summary, Conditions Conducive to Rule Acceptance.—Improvement in the characteristics of the rules depends largely upon the institutions responsible for their development and implementation. It seems clear that the number of separate institutions that have developed to control drivers legally are not currently capable of that task To some extent, the chaos of institutional management is reflected in driver motivation to comply.

1.3—*Individual Differences in Compliance Motivation*

In our society we build up during the course of the socialization process a generalized expectation of conforming to the recognized rules of the game. This readiness to play almost any given role according to the established norms in these systems in which we become involved obviously differs systematically. Several studies indicate that drivers who break the rules in other social areas are also rule breakers on the road, as indicated by their violation and accident records. Younger persons, who have had less socializing experience are also less likely to be motivated to follow the rules than older persons. Some other data indicate that females are more likely to be rule compliant than males. Since readiness to follow the rules is related to the benefits of having learned to follow the rules, it would be expected that socio-economic status and compliance were highly correlated.

2.—INSTRUMENTAL REWARDS OF DRIVING

Clearly the major motivations for driving are the benefits that accrue from having the use of an automobile. The benefits of using a private vehicle for driving to and from work, for shopping, for social visits and pleasure are available to all drivers. These rewards are instrumental in that they provide incentives for becoming a driver and meet some of the needs that people have.

2.1—*Instrumental Rewards and Performance*

Instrumental rewards will motivate drivers to want to become drivers who meet minimum standards of performance. The more attractive the benefits of driving, the more the person should be motivated to meet the requirements for remaining a licensed driver. The benefits of driving depend on whether driving is a means of livelihood, a necessary convenience, or simply a hobby. Companies that employ professional drivers have noted that performance on-the-job is superior to the driver's performance off-the-job. The benefits of driving are considered

so important that efforts to raise the standards of performance are unlikely to be successful if they are used to keep people from driving. Physical mobility via the private vehicle is regarded as a prerequisite to many aspects of social life.

2.2—*Conditions Conductive to Effective System Rewards*

Since the benefits of driving are so great, it might seem reasonable to raise the standards of performance on the reasonable assumption that drivers will be motivated to perform more dependably in order to maintain access to these rewards. A number of difficulties, technical and social, prevent raising standards. The fact that we want drivers to be safe and efficient seems plausible, but at present we have no effective means of determining either of these driver attributes. If we wanted to use accident-involvement as a measure of safe driving, as a means of eliminating unsafe drivers from the road, we would find that accident involvement of the driver is not a highly stable characteristic Accident status in one period of time is not highly related to accident status at another period of time. Nor do we have a measure of efficient driving.

Safe and efficient driving has proved itself elusive to measurement, and, similarly, attempts to obtain predictors of safe and reliable driving have been far from successful. Research to date indicates that tests will not enable us to eliminate the unsafe and inefficient driver from the road unless we are also willing to eliminate a great number of good drivers at the same time. Drivers in the public transportations system cannot be selected by this means at present.

Drivers seem very unwilling to accept a changed definition of their driving status. Most experienced administrators and several studies report that many drivers whose licenses have been revoked or suspended continue to drive. Attitudes of the judiciary toward the import of the driver's license are close to that of the driver. Most judges are very hesitant to revoke a driver's license. Again, the criterion measures of driving performance are so poor that it is difficult to make a legal revocation stick against the assault of the lawyer for the defense. Generally, the standards of performance for the driver would seem to be most lenient Even manslaughter on the highway rarely involves punitive consequences of as much as a one-year sentence, according to a Michigan study. In brief, the problems of developing adequate selection procedures, evaluating driver performance on the highways, and enforcing decision to remove unsafe drivers limit the effectiveness of using system rewards as a source of motivation to performance beyond minimal compliance.

It should be noted, however, that any improvement in our ability to identify safe and efficient drivers at the time of examination or at periodic examinations—to develop improved standards of performance, monitor driver performance more effectively, and enforce judicial and administrative decisions—probably would be successful in raising levels of performance. As we improve our technological capability to decide which drivers should have access to the public highways and to enforce these decisions, the motivational basis for improved performance will increase.

2.3—*Individual Differences in Responsiveness to Instrumental Rewards*

A reasonably well established principle in social psychology asserts that the power of a group to influence an individual group member depends on the attrac-

tiveness of group membership. It would seem reasonable to extrapolate this principle to the willingness of drivers to perform according to minimal standards as a function of the benefits they receive from driving. Differences in this source of motivational input, then, may be directly related to the rewards received by the person from having a driver's license

At the simplest level, a driver's license may be a prerequisite for a job. We have observed that many of the drivers whose licenses have been revoked reapply when they need the license to get a job. More generally, the benefits of driving seem to be closely associated with changes in social role behavior with age. For young males, obtaining a driver's license is a ritual indication of manhood. More males in a suburban high school apply for licenses soon after completing their driver education course than do females of the same age. For the male, the car is often necessary for dating and related activities associated with role change.

The married person who needs his license to drive to work, shop for his family and use the car for family recreation is more motivated to comply than the single person Some data we have examined in the District of Columbia on traffic violations indicate that among persons of similar age, race and sex, traffic violations are more frequent for the person who changes address more frequently, the transient We would speculate that traffic accidents differentially distributed among groups in the society on the basis of the benefits they receive from the society that are dependent on their driving, with the lower socio-economic status groups having the worst accident records and accident records improving with increases in socio-economic status.

3.—INSTRUMENTAL REWARDS GEARED TO INDIVIDUAL PERFORMANCE

The rewards or benefits of driving accrue to everyone who is able to drive. Individual rewards of an instrumental nature are attained by differential performance A number of efforts have been made to gear individual rewards, both financial and social, to the quality of driving performance Insurance companies attempt to make policy costs commensurate with driving records of violations and accidents Although the concept of letting each individual reap the fruit of his own behavior is appealing, the technology for accomplishing that task has not yet been sufficiently developed Generally, insurance companies have found it simpler to assign policy costs on the basis of risk-related characteristics of drivers, such as age, sex, place of residence, rather than characteristics of individual performance.

3.1—*Individual Instrumental Rewards and Performance*

Generally, monetary rewards and social recognition for performance contribute to the achievement of a safe and reliable level of driving performance or outstanding driving When persons are employed to drive and adequate assessment of individual performance is feasible, individual rewards can be applied most readily to obtain optimal performance. Individual rewards are difficult to apply to instances of behavior that indicate a high quality of performance, although companies do single out drivers for recognition on the basis of their response to emergencies or handling of difficult situations In the public realm, the application of individual rewards has often been suggested, but not implemented on any large scale.

3.2—*Conditions Conducive to Effective Individual Instrumental Rewards*

If individual rewards are to be effective, assessment of individual performance must be feasible; the rewards must be large enough to justify the effort required to obtain them; the rewards must be seen as directly connected to the required performance and follow directly on its accomplishment, and the rewards must be seen as equitable by the majority of drivers including those who will not receive them.

Differential performance of drivers is exceptionally difficult to assess. Records of violations and accidents suffer from a number of problems which make them difficult to use as indices of error-free driving. From an ideal point of view, reliable and valid samples of each driver's performance would be needed as the basis for a system for rewarding drivers according to their proficiency. Such a sampling procedure would also have to consider the potential variability in driver performance. An unknown factor to date is the extent to which driver performance is variable An alternative assessment procedure might be geared to a series of increasingly complex tasks, such that the rewards to the driver were increased on the basis of his ability to pass these tests. The beginning of such a testing system is represented by the driver's license and the insurance company premium rates for younger drivers who have had a driver-education course.

The success of a series of increasingly complex tests for drivers would depend on whether drivers saw the rewards as large enough to justify the additional effort to obtain them. One of the difficulties with collision insurance is the inability of repair costs to operate as a deterrent when the driver is insured against those costs regardless of personal responsibility. However, the difficulties entailed in assigning responsibility for an accident are comparable to the general problem of developing a fair method of evaluating driver performance.

In brief, a system for rewarding individual drivers on the basis of their performance has not yet been achieved. Such a system would have to be able to assess each driver's performance, providing sufficiently motivating, equitable, and timely rewards.

4.—INTRINSIC REWARDS OF DRIVING

Much of the motivation for safe, efficient and lawful driving stems from the satisfactions derived from the activity itself. The individual may enjoy his ability to drive smoothly, easily, and efficiently; to anticipate traffic events and blend with the traffic flow. The man who derives enjoyment from the task of driving has a sense of accomplishment in being able to guide and control the vehicle effectively, a sense of his own abilities and skills in solving driving problems.

A second source of driving enjoyment, much neglected in traffic safety planning, is enjoyment of the driving scene. The driver who enjoys the view from the road is more likely to be motivated to drive efficiently and safely to maintain that enjoyment. In contrast, the driver whose aesthetic sensibilities are assaulted, distracted or numbed will be motivated to get the driving task completed as soon as possible.

4.1—*Conditions Conducive to Arousal of Intrinsic Satisfaction from Driving*

If driving is to be motivated by characteristics of the driving task itself, then the job of driving a car must be sufficiently complex, variable, and challenging to engage the capabilities of the driver The relationship between task complexity

as a source of motivation and performance is generally curvilinear. As the task becomes more routine, performance that is dependent upon motivation declines. As the task increases in complexity, motivation-based performance improves. However, the improvement in performance reaches a limit depending upon the complexities of the task as they interact with the capabilities of the driver. Increasingly complex tasks result in poorer performance.

The driving task which presents no problems to the driver produces more efficient and reliable traffic flow, but at the cost of reduced driver motivation. This motivational decrement becomes apparent when the driving task suddenly becomes more complex and the driver is not prepared to meet the change in driving conditions. The rear-end collision on superhighways, which occurs when the driver sees another vehicle as he comes over the crest of a hill but is not sufficiently alerted to estimate speed differentials accurately, may illustrate an attention decrement due to low motivational arousal. At the other extreme, the driving task, which is highly unpredictable because of increased complexity, may result in motivational arousal, which interferes with efficient driving by instigating responses that are incompatible with safe driving

In sum, two characteristics of the driving task contribute to reliable and safe driving. One is the complexity or predictability. An optimum degree of uncertainty is necessary to maintain driver motivation. The second condition is perceptual enrichment of the driver's experience which serves to motivate him to focus on the driving task.

4.2—*Individual Differences in Response to Intrinsic Rewards*

The complexity of a task is relative to the skills of the driver. For some drivers the problems of anticipating traffic conditions, estimating speeds, gaps and distances, solving driving problems, is sufficiently stimulating and challenging to motivate them to stay tuned in to the driving task For other drivers this task is not sufficiently challenging and they do not remain as alert to the shifting conditions.

A second attribute of drivers which relaxes to intrinsic rewards is aesthetic value Several studies have noted a relationship between high scores on aesthetic values and accident production One might speculate that the more aesthetically inclined person is likely to tune out experiences that are repugnant in the visual environment in favor of paying attention to more satisfactory aesthetic experiences.

5.—INTERNAL VALUES OF THE INDIVIDUAL CONSISTENT WITH SAFE AND EFFICIENT DRIVING

The individual may be motivated to drive well because the goals of safe driving match his own goals. There are two learned motives that are directly relevant, the desire for safety and fear of the consequences of having an accident Although these two motives are related, there is no reason to assume that they are perfectly correlated. A strong desire for achievement of safety is not necessarily accompanied by strong fear. Nor is strong fear necessarily accompanied by a high value placed on the achievement of safety. A third motive which may be hypothesized to operate is a generalized concern for other persons. This motive is based on the capacity to empathize with other persons, to be able to

predict their experiences of reward and punishment, and to desire to minimize punitive experiences for them even though it entails some cost to the individual. A basic level of social cooperation involves the exchange of these acts so that the rewards and costs are somewhat evenly distributed, as when merging lines merge alternately.

5.1—*Internal Motives and Performances*

The effect of physical fear on driving has not been studied On the basis of observation it seems that high fear keeps some people from obtaining a driver's license and from driving under conditions which they do not feel capable of handling Many people avoid driving on high-speed highways, at night, in heavy traffic, on holidays, etc. In other words, fear motivates people to avoid threatening situations. It is somewhat more difficult to speculate about the effects of fear on dependable driving and response to emergency conditions. It seems likely that fear will operate to motivate avoidance of fear arousing situations, and motivate the person to learn how to reduce the probability of encountering a fearful situation by taking the proper precautions. Under certain conditions, a high fear level may disrupt performance and lead to ineffective performance. For example, a highly fearful person who does encounter a fear producing situation is more likely to perform ineffectively.

A high value on safety is more likely to motivate behavior aimed at increasing driver safety, reliable and dependable driving, as well as a skill in handling difficult traffic situations and responding to emergencies. There is one exception to this generalization. The person who is concerned with his personal safety, but has a low degree of concern for other drivers, may be a safety hazard to the other drivers. He drives too slowly on high-speed highways, blocks single-lane traffic forcing many drivers to pass, etc

Concern for others, including other drivers, pedestrians, and passengers, is a major source of motivation for both dependable driving and handling of emergency situations.

5 2—*Conditions Conductive to the Arousal of Individual Motives*

The behavior of other drivers has a strong influence on safety motivation and concern for others Observations of the differences in headways and related indicators of safety, as well as concern for pedestrians in crosswalks and drivers emerging from side streets, indicates the possibility of differences in norms toward these two values Drivers seem to be stimulated by the examples set by other drivers to raise or lower their levels of safety and concern for others.

One of the most familiar techniques for the arousal of social concern, safety and fear is impersonal communications The use of symbols to instigate fear has been experimentally studied, and the results indicate some difficulty in effective communication. Fear-arousing communications produce emotional tension with effects which may interfere with successful delivery of the message intended by the communicator The conditions for effective arousal of these motives parallel the conditions for activating the acceptance of legal rules.

5.3—*Differences in Strength of Motives*

Fear Motivation. The strength of fear motivation differs with age and sex. Women are more likely to express fear of driving than men, and adults more than younger persons Evidently the association of fear with driving is learned

by experience as the driver personally encounters accidents or observes them among his friends and associates and on the highways. The high rate of accidents among younger males suggests that fear may not operate as a restraining counterbalance to lack of skill, since younger drivers operate under high risk conditions.

Safety Motivation. Attitude toward safety might be defined as the level of risk the person is willing to take. The subjective risk, defined as the risk the person thinks he is taking, may not correspond to the objective hazard, the risk defined objectively. In an English study bus drivers were given the task of driving an 8-ton double-decker bus between two wooden posts 6 feet high placed at various distances apart. Each subject was asked how many times out of five he thought he could drive between the posts without knocking either. On the average the more experienced drivers took less risk and were involved in less hazard, as a group they varied less than the inexperienced drivers.

Social Motivation. It seems likely that avoidance of harm to one's self will be a stronger motivation than looking after the interests of others. Authors of a survey of adults in Britain have suggested that self-esteem is another variable that influences the elicitation of social motives by communications. If the communications suggest that one should correct one's own bad behavior in the interest of others, acceptance of these messages implies a negative judgment of one's own performance. These authors conclude that road users will be moved more effectively to behave well by encouraging them to do so in self-defense against the poor performance of others than by encouraging them to correct their own bad behavior in the interests of others.

6.—SUMMARY AND CONCLUSION

Five patterns of motivation to comply with traffic laws and the conditions necessary to elicit these motivational patterns have been examined. These conditions include characteristics of both the drivers and the driving system. This presentation is intended to serve as a source of hypotheses for research designed to answer specific questions on the relationships between traffic law, traffic safety and the driver.

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I was very much interested in the comments made by Dr. King which illustrate the lack of what he terms the "interdisciplinary approach to accident prevention." For a good many years the District of Columbia, specifically, and other jurisdictions, inferentially, have attempted through the legislatures to introduce somewhat novel legislation dealing with alcohol and the driver. Many questions raised by Dr King are still unanswered.

In some jurisdictions, there are laws which can be called "prima facie under the influence" laws In other jurisdictions there are "implied consent" statutes, which when combined with a "prima facie under the influence" statute, bring about a legal form of social control of persons under or suspected of being under the influence of alcohol while operating a motor vehicle.

Having observed hearings on such legislation, having struggled with the painful process of steering proposed legislation along these lines through at least one bar association for its support, and having prepared statements for the use by legislators in the consideration of such legislation, I know only too well the lack of evidence tending toward agreement among medical scientists as to when and under what conditions the presence of alcohol in the blood constitutes a demonstrable road hazard on the part of a drinking driver.

Dr. King referred to the legal problem of adopting standards which would be applied across the board to all drivers who have ingested at least some alcohol before driving an automobile. It is here that the lawyer, administrator and legislator need critical guidance.

He asked whether a single rule should be adopted treating all drinking drivers alike, those who were under the influence as a physical fact as well as those who were not. There is another question implicit here. It is the question of whether such a standard would not open the door to a situation in which equal protection (administration of the law equally to all who have ingested a certain percentile of unoxidized alcohol regardless of effect) might not result in many cases, perhaps in most, of equal repression rather than equal protection.

With the adoption of laws based on simple statistical sampling of individuals, no two of whom are affected alike by the presence of alcohol while driving a motor vehicle, who is to say which side of blind justice most defendants are on?

In most of the discussions in which I have participated in dealing with proposed legislation concerning this subject, the facts are presumed based on a norm with which we are familiar and which has been adopted in a considerable number of jurisdictions, the effect of which is to establish a hard and fast prima facie rule. In my experience, this is not a prima facie rule at all, but an irrebuttable presumption even before juries

The point is that Dr. King's paper points out to us the possibility that a great deal of legislation dealing with alcohol and driving may well be grounded on intuitive grounds backed by some statistical evidence that there is in fact a cause and effect phenomenon in driving following drinking. But the lines on which administrators must exercise social control of drivers is simply not so clear that we may assume medical research has validated present laws.

In fact, it may well be that we could take a legally valid position in a medical sense and proscribe all driving after any drinking. At least one court has so suggested (Wall v. King, 206 F.2d 878, 1953), premised, we may presume, on the assumption by the First Circuit Court of Appeals that any drinking followed by driving could be defined constitutionally as a misdemeanor.

On the other hand, it seems to me, the legislatures have taken the other extreme and provided for a standard which, while medically certain in most cases, may not be adequate, in my judgment, even in a statistical sense in promoting safety on the highways. This is simply because the minimum alcohol blood content prescribed does not reach the majority of drivers who actually are influenced adversely by the presence of less than the statutory minimum prescribed for a prima facie case. Indeed, the higher minimum prescribed in most laws presently on the books tends, in my judgment, to relieve the jury or judge subjectively of making a finding of guilty in cases in which there is less than the prima facie minimum found in the blood, although it is their prerogative to do so. Here again, the lack of conclusive knowledge on the matter leads me to believe

that the interdisciplinary approach advocated by Dr. King must be supported by those of us who seek to apply the law equally to those who constitute road hazards. Without the firm knowledge that our criteria for safety on the highways are at least reasonably based in established facts, we are led to wonder how equal protection can be demonstrated when percentage numbers divert attention from an illegal act (degraded driving performance) to a legal act (drinking alcoholic beverages—at least in most communities).

The inevitable result, it seems to me, is that the degraded act is ignored in many, if not most, cases where the percentile cannot be established by blood testing, whereas the degraded act is demonstrably present. Convictions without a percentile finding are few in most jurisdictions, but the number of accident reports by police shows the presence of drinking by drivers of one or more vehicles or pedestrians involved in accidents in numbers greater by comparison than many major traffic offenses which contribute to serious accidents.

Dr. King also spent considerable time on the subject of physical standards, including disease and emotional conditions and the futility of attempting to discover such factors by simple driving tests now being used in all jurisdictions. In this connection, he also referred to the possibility of an all-inclusive collaboration between administrators who license drivers and the medical profession. He made an interesting observation when he stated that there is at present no attempt to correlate life insurance insurability with motor vehicle licensing procedures.

His point seems to be that insurance criteria when an individual's insurability is considered are material in determining whether that individual should be qualfied to drive a motor vehicle. Perhaps life insurance standards, being directly concerned with an unforeseeable disability, are a valid factor subject to little, if any, question of legal validity since physical ability is a prime requisite in the licensing of all drivers.

Dr. King mentioned that insurers use motor-vehicle administrators' records of an individual's physical fitness to determine whether casualty insurance will be written for him.

If we go one step further, we may wonder whose decision should control. The matter of contracts is a question of law between the insurer and the applicant. At this time at least, it is left in great measure to the two parties to enter or not to enter into an insurance contract. Dr. King adverted only to evidence of physical defects found in the administrators' records. Suppose we consider the total record and relate to it the casualty insurer's decision to insure or not to insure.

When an individual must comply with financial responsibility laws, he must do so only because he has in some manner demonstrated by his past activities that his ability to operate a motor vehicle is at least questionable. His traffic record of offenses is of such seriousness that the administrator must require him to show evidence that he is financially responsible at least to a minimum degree prescribed by law. Here we find a curious anomaly, or perhaps anomalies.

If the administrator's records show evidence of physical disability, the insurer requests the administrator to certify the applicant's eligibility to operate a motor vehicle under motor-vehicle laws. The insurer may then refuse or approve the application, even though the applicant has been certified by the administrator as eligible to drive. If the applicant has been certified and refused insurance, he

may apply under an assigned risk plan and it is here that the traffic record *per se* becomes important. Within clearly defined limits, insurers must insure persons to whom admittedly none would have otherwise issued insurance contracts. Physical disabilities are usually relegated to heart ailments or mental ailments, neither of which is really important so long as two physicians certify that the condition is not likely to interfere with safe operation of the vehicle.

The result is that, in effect, the administrator has prescribed the insurability of the applicant. A few years ago, insurers in California took the matter to the U. S. Supreme Court on the ground that this was an invalid interference with the right of contract. The Supreme Court held the assigned risk law valid on the ground, speaking broadly of the opinion, that the problem of payment for damages arising out of motor-vehicle accidents is a complex one. The solution, the Supreme Court felt, was one in which its judgment should not be substituted for that of the state, even though there might be some impairment of the contract right.

Suppose further that the administrator is ready to license the driver on condition that he obtain a certification of insurance coverage under the financial responsibility law. His record, however, is such that even under the assigned risk law or plan he is uninsurable. In effect, we now have the insurer prescribing what I have in the past referred to as the "driveability" of the applicant for a license.

The question then inevitably becomes, it seems to me, whether the criteria of both the insurer and the administrator are valid. Can we not, by some administrative arrangement, equate driveability with insurability, within the constitutional structure of the police power and the right of contract?

Here, too, the disciplines of medicine and the law must meet in order to establish one criterion in lieu of the three being used today, namely, the physical, in which the physician's opinion may vary from the administrator's; the traffic record, with which the administrator and the insurer may well disagree, and the combination of both physical and traffic record with which all the parties may be in disagreement.

Professor James made an interesting point concerning our law of negligence. He said that perhaps it is a failure on all counts in its endeavor to accomplish its two prime objectives: (a) payment of injuries "caused" by negligent drivers and (b) prevention or determent by way of the threat of legal retribution in the form of money judgments. For some years Professor James has been writing extensively on the matter which goes to the heart of negligence law, i e , the individual's blameworthiness as a criterion by which we judge whether or not his victim should recover a money judgment. He treats of the usual objective standard of negligence which, by definition, abandons any pretext of moral fault on the part of the defendant. We must, therefore, admit that individual moral fault plays little part in the administration of negligence law.

I have noted that Professor James' writings have dealt extensively with another factor which is closely related to the matter of moral fault of the individual, namely, the matter of accident proneness. This is related to moral fault because if a person can be accident prone, then moral fault in the sense that such a person has control over his activities is really irrelevant.

However, if one examines the literature on the subject, it seems that the accident repeater, or the "accident-prone" person, is really an unproved phenomenon

Most of the authorities to which Professor James and others have referred are studies made many years ago. The statistical interpolation is somewhat vague, and I was led long ago to the conclusion that at best, the concept of an accident-prone driver is a possibility, but nothing more.

In fact, I could cite from memory some of the later studies which tend to conclude otherwise. Or at best these studies show that accident proneness, whatever that turns out to be, is a condition through which every individual passes at some time during his driving life. This condition can be brought on by emotional states due to work, neighborhood irritations, and the like. I recall a serious accident, for example, in which I was involved with a driver whose only son had committed suicide the night before the accident. His first words to the police were "I shouldn't be driving a car right now." Was he not accident prone, but for the first time in his life, possibly?

This is not to disparage the concept, since I also believe there is more than just a suspected factor in motor-vehicle accidents here. What I do suggest is that the disciplines which are capable of isolating this concept have not done so, at least not to my satisfaction. And I dare say they have not proved the conclusions which would tend to corroborate Professor James' thought that moral fault has no place in either the civil or criminal action against accident-prone drivers. On the other hand, were we to have the evidence in this regard, a great deal more could be accomplished in establishing the framework for the administration of highway losses, which under the present system of negligence law, is far from satisfactory. This obviously cannot be the task of lawyers or any other single group. This situation points up the need for the concerted activities that Dr. King outlined.

THIRD SESSION

EDWARD G. WETZEL, *Highway Engineer*
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LAW, TRAFFIC AND ENGINEERING TECHNOLOGY

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General Motors Technical Center

The data on the highway traffic fatality problem in Figure 1 show the total number of automobile traffic-accident fatalities each year since records began. After a moderate start during the first two decades of the automobile era, the number rose rapidly and increased at the high rate of more than 2,000 per year between 1920 and 1930.

About 1930, a number of effects began to bear upon the problem significantly, and since then the average increase in the yearly fatalities has been a little less than 500, during the peacetime years. Among the factors which have averted the shocking increase of the 1920-1930 period are the increased efforts of all forces brought into the fray—professional safety programs, improved driver licensing, enhanced enforcement, public education and driver education, public relations, press, radio, television, the clergy, traffic and highway and automotive engineering, and others, including a depression lasting nearly 10 years. There is no thought on my part to establish an order of importance.

The sum total has provided a tremendous improvement, and without the effect of those efforts we would currently have a total of about 100,000 traffic fatalities per year. It is clear that this effort must be intensified.

However, the best of our efforts has only sufficed to almost stem the tide, and definitely not to turn it Can we expect hopefully that a continuation of more of the splendid same can really turn the curve downward as significantly as whatever did it in 1930?

The basis of this colloquy, as I understand it, is to inquire into the legal aspects of the problem, to see whether more can be done in terms of new regulations and application of existing regulations—better legal procedures, including enforcement and court actions. It may be more effective to see what the problem is fundamentally before trying more jigsaw solutions.

A passenger car traveling at legal speeds on a rural highway, where most of our fatal accidents occur, possesses high kinetic energy, as shown in Figure 2. Here the kinetic energy of a typical 4000-lb car is shown as a function of speed. At 60 mph, the car has nearly 500,000 ft-lb kinetic energy, and a 90-mm tank weapon projectile has approximately 4,000,000 ft-lb kinetic energy at the muzzle. Thus, as we drive to grandmother's house we guide a projectile with kinetic energy equivalent to 165 30-06 deer-rifle bullets, or more than one-tenth that of our best anti-tank weapon—possibly the equivalent of a 105-mm howitzer.

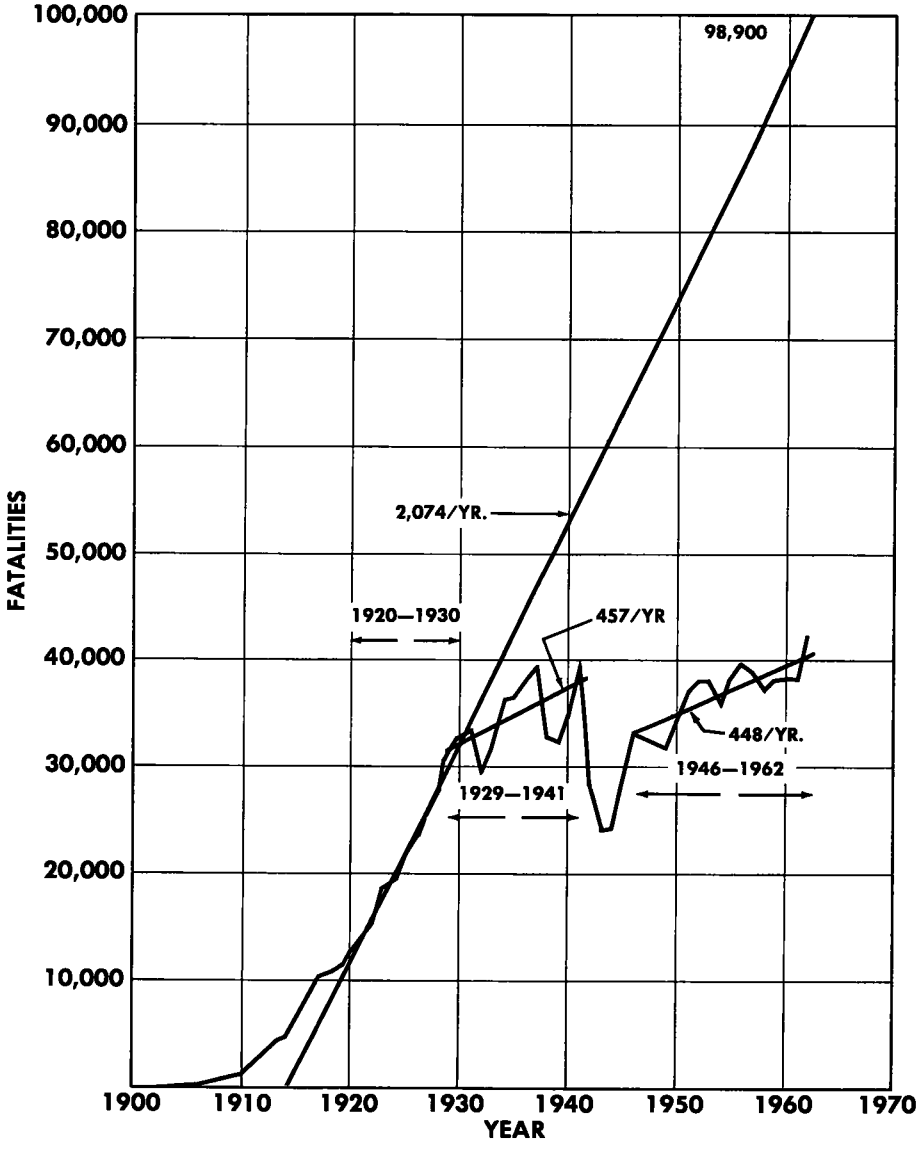

Figure 1 Highway fatalities by year.

And so we guide, happily and innocently, a projectile equivalent in energy to a medium artillery shell, along a path where we supply guidance moment by moment as it seems to be needed. This is driver skill, which we seek to impart, at the best, during a few hours of driver training.

The artillery shell is brought up to velocity very rapidly and aimed precisely along a specific path, and corrections have been made to firing-table data for air temperature, humidity, barometric pressure and wind velocity. And the outcome is predictable within a few yards laterally and several hundred yards longitudinally. Our projectile is brought up to speed gradually, with only local and

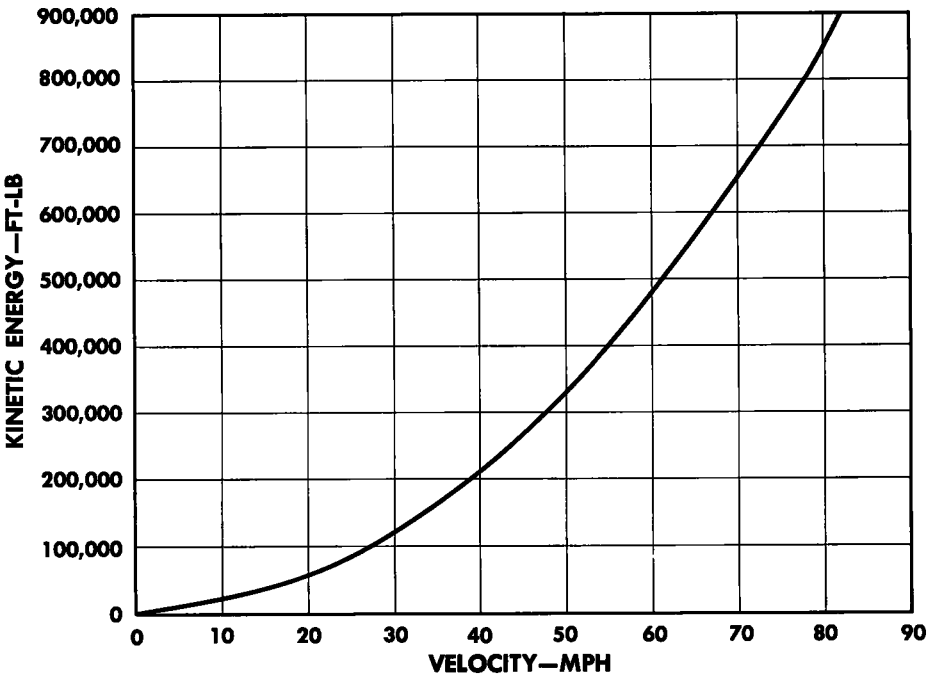

Figure 2. Kinetic energy vs. speed—4,000-lb vehicle.

incidental or casual aim or direction, and with no expectation that the path will lead directly to the objective—if, indeed, we know the objective. Ours is a guided missile, guided by the traffic lane and the driver's recognition of the traffic lane, and the only similarity is that the energy levels of our missile and the artillery missile are of the same order roughly; a sharp distinction is that our guidance must be much more accurate.

When we fire a 105-mm howitzer—or whatever piece develops the energy equivalent to that of our 4000-lb car at legal speeds—we expect to transfer a lot of energy in a short time at the strike, and blow the target up. If by mischance our passenger-car projectile hits a solid obstacle, an equivalent energy transfer occurs, and equivalent damage results.

Every day 20 or 30 or 40 million of us take these missiles out of our garages or carports, and guide them along ribbons of concrete or blacktop to the office, or shop, or school, or shopping center, or the World's Fair, or Yellowstone, or Yosemite, or the corner drugstore, or on a transcontinental vacation. The interesting thing is that, except for a small fraction of this mileage, we are face to face with similar "ballistic" missiles, with only a 6-in. traffic paint stripe separating us. We don't even fire bowling balls in alternate, opposite directions. Our guidance must always be more precise than the ballistic tables, because only a paint stripe separates opposing streams.

I propose that our highway system design and operating practice is precisely that which we would have built if our objective had been to kill as many people as possible. We have made a game of it by some qualifications such as "drive to the right," "yield to the car on the right at an intersection," "stop at stop signs,"

"keep your car under control," etc. The people play the game with astounding skill and aplomb; they kill one about every 18,000,000 miles of travel, and they don't object to these odds, generally. Only a few of us wear seat belts.

If we are to approach this problem realistically, we must accept the premise that the solution is to avoid these high-energy impacts. In trench warfare it is possible to provide structures which will provide security against 500,000 ft-lb artillery projectiles, but it is not possible in automobile traffic. Obviously, then, we must eliminate the roadside obstacles and the opposing traffic, and give us time to bring our missile back on track when guidance is lost temporarily.

Examples of the success of the engineering approach to the problem stand out magnificently. The New York Thruway and the Garden State Parkway show fatality rates below 1.0 at times, the Interstate System average is about 2.7, and the nearly ideal system at the General Motors Proving Ground has shown no personal injury off-the-road accident for the last 80,676,724 miles.

At the Proving Ground, management came to recognize in 1958 that General Motors usual industrial safety standards could be applied to road operations only by eliminating roadside obstacles, flattening the slopes, and rounding the ditch bottoms. Even drivers in this select and trained group were leaving the road about once every 240,000 miles, and the consequences depended entirely on chance. One such driver might run off into a level field, and the next might collide with a tree. It was recognized intuitively that no assurance of safety or survival could be provided in high-energy collisions, and the solution obviously was to prevent severe collisions by removing all possible targets. After this improvement, drivers have continued to leave the road about once every 240,000 miles for a variety of reasons, most involving some driver error.

Since even the well-trained and closely supervised Proving Ground drivers leave the road occasionally, it is certain that the less skillful drivers on the public highways will also leave the road occasionally, and here, too, the consequences are a matter of pure chance. Every year about 12,000 people are killed in such accidents, and the solution is as obvious as it was at the Proving Ground.

When a car hits a solid obstacle squarely, all its kinetic energy is given up in a fraction of a second. The rate of transfer of energy is power, and the conventional unit is horsepower Figure 3 shows the power developed during three crash tests reported in the literature. The first was a barrier block test at approximately 25 mph, the second a barrier block impact at 33 mph, and the third a car-to-car impact test at 45 mph. Peak values of power developed were 2900, 5500, and 6300 horsepower.

To study the effects of a more severe collision such as might occur on a rural highway, we ran a car into a large tree at 64 mph. To do this, we had to go out on a public highway, because there are no large trees conveniently close to Proving Ground roads.

Figure 4 was taken at near the peak severity of this collision This picture makes it clear that little can be done by vehicle design modification to assure occupant security.

Figure 5 shows the power developed during the impact. The peak value is about 13,500 horsepower.

Figure 6 is a comparison of several values of horsepower relevant to this consideration. The first bar represents the range of advertised horsepower in 1964 family-type cars, from 94 to 390. The second bar represents the range of

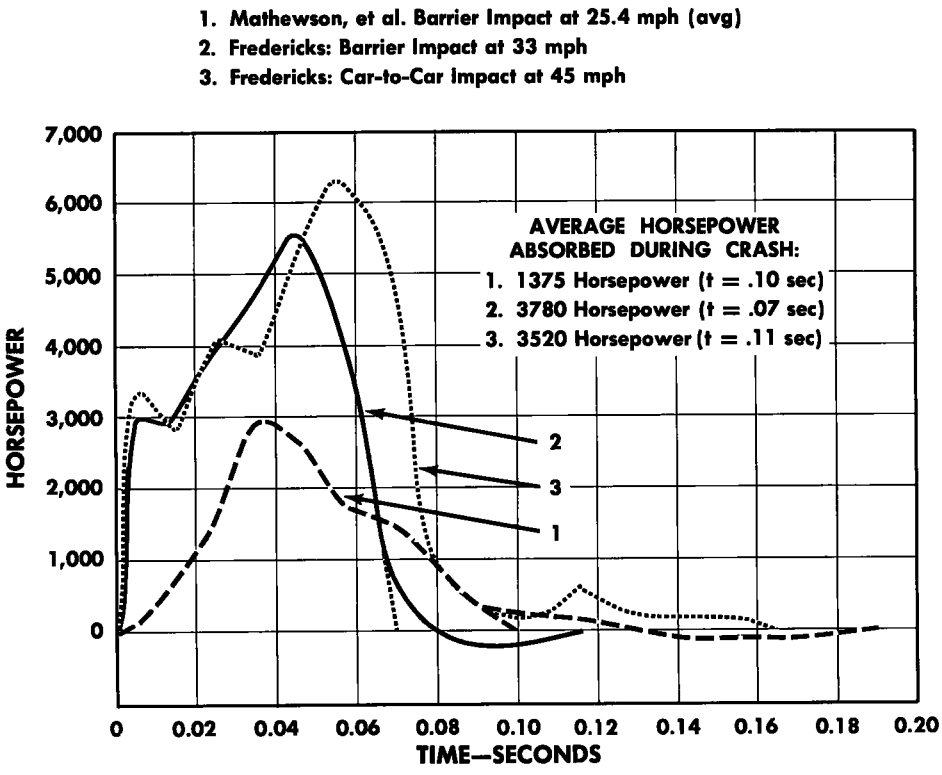

Figure 3. Comparative power absorption on impact tests.

power shown in the traces of the curves of Figure 3, after the collision is over, from -200 to 500. The third bar shows the peak power developed during a 70-mph panic brake stop, 550 horsepower. The fourth, fifth, sixth, and seventh bars are the peak powers developed during 25-mph and 33-mph barrier impacts, the 45-mph car-to-car crash, and the 64-mph tree impact, respectively.

Thus, a collision with a solid obstacle or another car is a dynamic event which can be characterized in engineering terms, and it can be prevented in most cases by application of well-known engineering technology.

HISTORICAL

Much of our existing network of roads and streets was laid out and in use before the automobile came into being. With appropriate regard for economy of time and distance, horse-drawn vehicles were operated in both directions with little or no hazard. When the first automobiles appeared, they were widely scattered and rare and of slow speed and light weight. Consequently they had low kinetic energy, and they, too, were operated in both directions on the same roads, with little hazard because of this type of operation. Conflicts with horse-drawn traffic occurred, no doubt, and there was the ever-present probability of mechanical

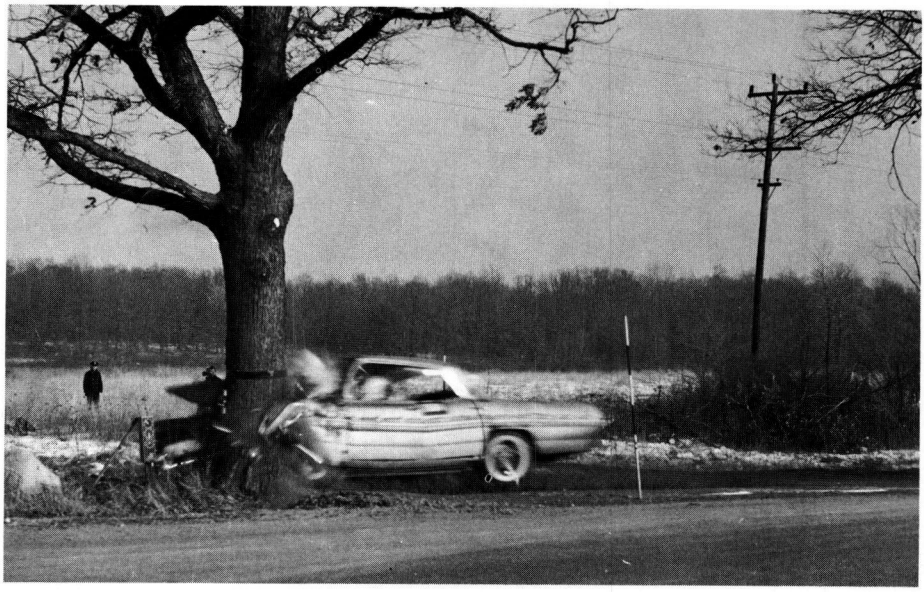

Figure 4. Car-tree impact—64 mph.

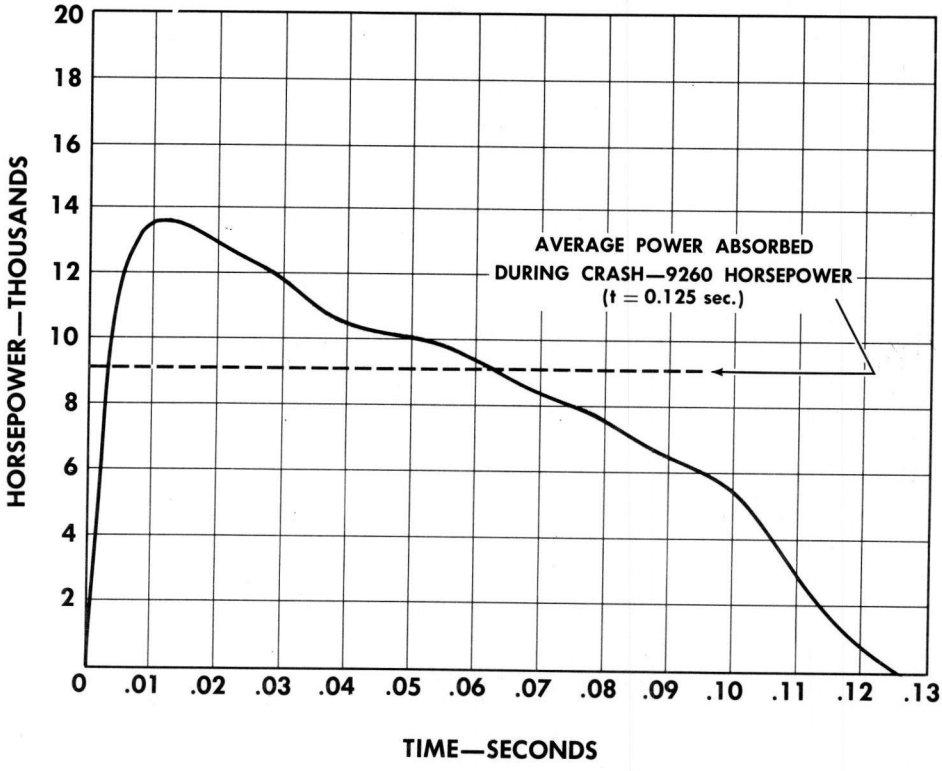

Figure 5. Power absorption vs. time, car-tree test—64 mph.

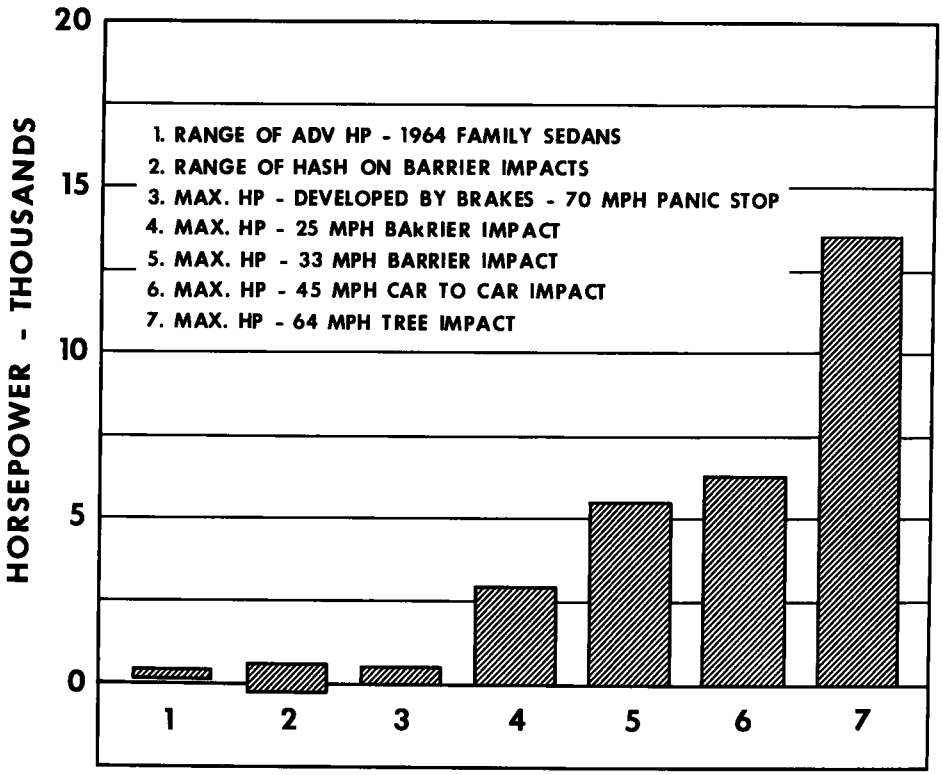

Figure 6. Relative and relevant horsepower.

failure and consequent roadside accident, but head-on collisions of two automobiles were no real problem for many years.

As the number of automobiles increased and as their reliability improved, the probability of head-on and intersection collisions increased. As the speeds and weights increased, the severity and relative importance of such accidents increased. Rules of the road were established at a relatively early date, we suppose, and regulations were imposed to restrict the speed of the early cars to that of the other traffic, in recognition of the relative hazard of differential speeds in the traffic stream. Additional regulations have been imposed from time to time to define proper conduct more precisely, both to guide the driver and provide the courts with clearer definitions in collisions where personal injury or property damage occurred. Parenthetically, it must be noted that this discussion of historical treatment is offered without benefit of counsel.

As the number of cars increased more and more, it appeared necessary to tax them and register them for identification purposes to establish proof of ownership, etc. Later it became evident that some drivers were not well qualified, and the practice of requiring driver licenses began. We aren't sure whether this was primarily to assure that only qualified drivers were on the road or to identify drivers who might have transgressed some regulation.

And so we have progressed as more cars have appeared, attempting to define the proper path and action and conduct of every driver along every foot of the road every minute of the day and night, so that no drivers who follow these definitions, or regulations, faithfully should ever be involved in an accident.

CONCLUSIONS

I think this has worked surprisingly well. Serious accidents are extremely rare and only a very small minority of drivers disregard the conventional definitions and make up their own. These people tax our enforcement people and clog court calendars. However, the number of accidents of all types is in almost direct ratio to the number of cars registered in, and the population of, the community. With our present system of complete definition of traffic practice, we still have people who are slightly unreliable. I do not believe that we can legislate human reliability.

Proving Ground drivers leave the road once every 240,000 miles because of human failure, and those of us in the public highway traffic stream must fail more frequently. These failures are not deliberate except in a small minority of cases, and in many cases they are probably unconscious. I think we are covered adequately by general definitions of proper conduct and specific instructions in locations where our traffic engineering friends deem them necessary, and I do not think we can reduce our rates significantly by additional regulations or improved enforcement or court procedures.

Reductions can be made only by recognizing that our highway network does not leave room enough for the occasional unreliability of us drivers. The missile track isn't quite wide enough, and we need a little more room to recover from our infrequent lapses. Just as on the Proving Ground, some of us leave the road or the traffic lane every once in a while, and what happens depends upon whether there is an obstacle in the way. The solution is to remove the obstacles, trees and rocks and sharp ditches and opposing traffic. Application of this technology requires reconstructing cross-section designs for a reasonable distance from the edge of the road, removing all solid obstacles or protecting them with well-designed guardrail installations, and converting the road network to one-way operation. The money to do it can be found in the $8 billion annual cost of accidents. Application of engineering technology will reduce the number and cost and severity of accidents, and work wonders on relieving the load on enforcement agencies, and clear up court dockets.

COMMENTARY

HARRY V. CHESHIRE, *General Counsel*
Automobile Club of Southern California

I would like to begin by making one or two comments about the general frame of reference within which I will approach this subject. I was told that the purpose of a discussant was to refine and elaborate along the lines of thought commenced by the opening paper. Also, I noted Mr. Morony's statement in the program regarding the purpose of the meeting.

Initially, the title suggested for this colloquy was "Research Frontiers in Motor Vehicle and Traffic Laws," but it seems to me that the scope of our discussion has been a little broader than that. So, perhaps it is more appropriate to use Mr. Morony's statement that our purpose should be to identify the contributions that research can make toward improving the law. This, it seems to me, opens up a much broader range of inquiry than is involved when we are concerned only with research in the legal field.

It is important, however, that the results of this inquiry be directed toward research in the *legal field,* particularly looking toward the future activity of this Committee on Motor Vehicle and Traffic Law. Probably one of the most beneficial results of this meeting will be to identify some of these areas for further legal research which the committee can undertake.

I was going to say that in the pursuit of these purposes I have had the advantage of reading and rereading Mr. Stonex's paper. But I'm not so sure it was an advantage, because in his oral remarks he deviated somewhat from his paper and left a few things out. I do think, however, that the paper was stimulating and interesting, both for what it did say and for what it did not say.

Turning first to refining and elaborating on what it did say, it seemed to me that one of the things it said was that in this instance maybe we do not need so much new research because a great deal can be done by the application of *known* engineering technology. His main theme appears to be that since we cannot overcome the fallability of human beings, and we know they are going to run off the road from time to time, the sensible solution would be to remove obstacles along the right-of-way so drivers would not crash into them. There would not

Third Session *(left to right): Robert Sornson, Chrysler Corporation; Dr. Leon Goldstein, U. S. Public Health Service; Carl Saal, U. S. Bureau of Public Roads; K. A. Stonex, General Motors Technical Center (representing Automobile Manufacturers Association); Edward Wetzel, Port of New York Authority; Harry Cheshire, Automobile Club of Southern California; Robert Montgomery, Jr., National Committee on Uniform Traffic Laws and Ordinances; and Arthur Freed, Westchester County, New York.*

be any barriers, poles, buildings, etc., with which to collide, and there would not be any severe ditches—they would be shallowed out.

Before commencing to search for *legal questions* which might be raised by this proposal, there are a number of preliminary questions. I would like more information about what will be necessary to work out the type of solution suggested. For example, how much land would be required if we were to remove these obstacles? Does the amount of land we need depend on the speed of the traffic? That is, if we permit faster speeds on the highway, are we going to have to acquire more land so that we can clear the land of the obstacles?

And speaking of speeds, what about the urban areas? If permissible speed does have a bearing on the amount of cleared land required, what special problems do we face in built-up urban areas? Of course, we know that along the New York State Thruway and other expressways in *rural* areas we have a separation of the traffic streams. We have a fairly wide median strip and a very wide shoulder area, perhaps.

But what about the cost of this solution in urban areas? Wilshire Boulevard in Los Angeles comes to mind. It is a rather heavily traveled traffic artery. If we were to leave space for a vehicle to go off the road without hitting obstacles, it would mean clearing the adjacent property of some very expensive buildings. You might avoid taking the Ambassador Hotel, because it has a rather large front lawn. But when you come to any number of other buildings along Wilshire Boulevard, each costing a few million dollars, you are dealing with a total value that is staggering.

Therefore the urban areas, it seems to me, would present a serious challenge in working out the "engineering solutions" that are suggested. Would we go to one-way streets to eliminate friction from opposing traffic streams? Would we rebuild our cities with wide set-back lines for building? If we did not require removal of obstacles along the sides of streets and highways, but built this open space into the street design, then it would seem that we would have to require traffic to use only the middle lane of a street, regarding the outside lanes in the same way as cleared shoulder areas. And, if so, we are in the position of having to call for almost a doubling of the capacity of the streets. All in all, I think the solution offered raises some serious economic and social problems.

The economic problems are obvious. But social problems would also appear if we ever tried to take that much land out of private control.

Intersections are another problem, and I am not sure how you would solve it from a design standpoint.

So, with regard to these nonlegal questions, we do need further research—and to this we need to add accident research. What portion of the traffic-accident problem involves rear-end collisions, where it does not make any difference whether you have opposing streams of traffic? What portion involves intersection accidents, and how would you solve that? What portion involves vehicle against vehicle as distinguished from vehicle against fixed object?

As to the points involving the law, Mr. Stonex's suggestion suggested to me in turn some problems which might be clarified by legal research. Could we legally acquire this needed additional property by purchase? If we are talking about building a highway and clearing the adjacent land of all obstacles, how far out from the roadway can we go under the law in the expenditure of public funds to

purchase this property? At some point these purchases may be challenged as a gift of public funds, and so be invalid.

Can we accomplish our objective by easements? Maybe we do not have to purchase the property, but can get along with some form of negative easement which would prevent the landowner from building anything on his property that would constitute a threat to the safety of travel on the highway. In this connection there is an interesting development now going on with regard to so-called "scenic easements." In general, the approach seems to be that, in rural areas particularly, the government might obtain a scenic easement over certain lands, under which a landowner could continue to use his land as he is now using it (which might be agricultural or grazing), but he could not build anything on it.

Condemnation, of course, raises other questions. Is acquisition of property for creation of open roadsides a "highway purpose" within the meaning of the condemnation authority of the state highway departments? Are we involved here with so-called "excess condemnation?" Can we justify the taking of this property as necessary for highways? I think, also, that the suggestion for clearing the area adjacent to the roadway—be this part of the public right-of-way or privately owned land—raises the question of whether existing laws are adequate or whether new laws must be enacted.

Of course, we do have laws relating to the freeway as a precedent, and we should see how far the existing laws relating to freeways can be utilized in the situations we may wish to visualize for this new type of roadside.

Earlier I asked whether the amount of cleared land we will need adjacent to the roadway will depend on the speed of travel permitted on the roadway. In this area I think there is a need for some coordination between those who are designing the vehicle, those who are designing the highway, and those who are designing the laws. The automobile manufacturers are developing vehicles designed to travel 100 mph or more, the highway engineers are designing highways for maximum design speed of perhaps 70 or 80 mph, and the people who design the laws are thinking in terms of 65 and 70 mph. There seems to be some inconsistency here for which we are paying a high price in efficiency and safety.

A similar inconsistency is hampering development of sensible laws regarding vehicle sizes and weights. Vehicles are being designed not only to go 100 mph, but to carry two or three times the amount of weight that is now permissible in any state. We need to examine this problem because we are designing highways for particular weight limits, and therefore, once again we need coordination between the designers of vehicles, highways, and the laws.

Going back to the suggestion about the removal of obstacles, it may be possible, both legally and practically, to work this out, but I do raise a question about our ability to pay the economic costs of such a program Perhaps we are going as far as we can when we build the kind of expressways we have today, with median strips and wide shoulders It may not be possible to accomplish on a nationwide scale what has been accomplished at the General Motors Proving Ground. It may be far too expensive if it means doubling our existing street and highway capacity.

I mentioned in the beginning that I thought the paper was interesting for what it did not say, as well as what it did say. It did not, for example, say anything about automotive design. This was a bit of a surprise to me. If we are going to

do as much as we can on highway design, maybe we ought to do as much in connection with vehicle design as well.

I think that a basis for approaching this aspect is provided by two statements in the paper. One was as follows: "If we are to approach this problem realistically we must accept the premise that the solution is to avoid these high energy impacts. In trench warfare, it is possible to provide structures which will provide security against 500,000 ft-lb artillery projectiles, but it is not possible in automobile traffic." The other statement had to do with the severity of a collision where a vehicle was driven into a tree. The paper includes a picture of such a collision, and states: "This picture makes it clear little can be done by vehicle design modifications to assure occupant security." I emphasize the choice of the word "assure." It is probably true that little can be done to raise the level of security to the point of certainty that the occupant will not suffer major injury in a collision of this sort. But I wonder if this relieves us of the obligation to keep trying to improve the situation of the occupant.

As to the legal aspects of this, I was interested to hear Dr. Schlesinger make a reference to the desirability of looking into the legal aspects of crash injury research. Recently I read an article in a law journal written primarily for attorneys representing plaintiffs in injury cases. The article expressed the idea that patent law was a prime source to secure safer auto design to reduce highway deaths. It is interesting that in this article the author says: "Robert A. Wolf, director of the Automotive Crash Injury Research program at the Cornell University Aeronautical Laboratory . . . finally felt impelled to tell a convention audience recently that there is no reason for any further delay in installing collapsible steering wheel mechanisms." The point is that this appeared in a magazine which, as I said, is directed toward plaintiffs' attorneys, and this man is telling plaintiffs' attorneys how to go about getting a judgment from automobile manufacturers as a result of defective design.

I think this is a significant legal aspect of the premises that we adopt regarding our automotive design. Since the manufacturers may be compelled to do more, by virtue of legal liability imposed on them, it is perhaps a good idea to explore what the law is in this area and what it may become. There is already some law on this subject, of course, and the article makes some further references in this connection, saying that judicial recourse against automobile designs is increasing. It specifically notes the Corvair, which it states, has a steering shaft which extends too far in front of the front wheels. The author then points out the sources of evidentiary material for making a good case against a manufacturer. All you have to do to find the proper evidence and get it into court, is to know where that evidence is and what questions to ask. He says, for example, it may be important to know that a technical paper delivered by a Ford Motor Company engineer early in 1963 touting the experimental model of the Mustang detailed several safety features which included (1) genuine bucket seats with lateral holding power, (2) strongly anchored seats, (3) bent steering shaft to ward against being driven back into the passenger compartment, (4) collapsible steering shaft to cushion any impact, (5) roll-bar structure strength, (6) fail-safe dual-brake system. All these features, this writer says, were deleted from the production model of the Mustang now on the highways. His point is that if you can show the court that some engineer said these were good safety measures,

you are on your way to getting a judgment when you say they were deleted and were not included in the vehicle.

Considerable public attention was given to the Corvair case in Santa Barbara County, California, which was settled for about $70,000. Here again there was an allegation of defective design. Another case in Texas involved the design of the ignition switch.

There are numerous problems which I think will arise in this general area, and the liability for defective manufacture, laid down in the old case of *McPherson v. Buick,* may very well be enlarged to the point where we will be talking about liability for defective design in even more precise terms than we are now. A review of the law on this subject might well be a valuable contribution from legal research.

Another area for needed legal research concerns the statutory requirements relating to automotive equipment. Is regulation of equipment going to increase? What will be the relationship between the statutory requirements and the administrative regulations in the area of equipment? What about interstate compacts? These compacts are opening up a whole new field of motor-vehicle law. Recently attention has been focused on the interstate motor-vehicle safety equipment compact, but this brings us face to face with the question of what other types of subjects are suitable for being handled in this same way in the future. (Unfortunately, I think we are sometimes inclined to assume that a new device such as this provides the answer for everything that needs to be done; but I believe we would make a mistake to place too much reliance on compacts, and forget the Uniform Vehicle Code and the possibilities of building on it.)

With respect to the matter of liability for accident losses, we may not need a compensation system such as was previously discussed. If we continue to extend the theory of manufacturer's liability for defective design, this may be a form of recourse which will become increasingly available to the accident victim. I am not advocating this, but we cannot fully assess the possibility without more research.

By way of summary, therefore, I see needs for study in the following areas of legal research:

1. Questions raised by the use of condemnation and purchase to acquire the land, easements, or other interests in real property which would be involved if we were to undertake a program of clearing our roadways, roadsides, and adjacent areas of all obstacles contributing to the severity of vehicle-fixed object collisions.

2. Questions bearing on manufacturers' legal liability for defective design of vehicles.

3. Identification of some of the specific areas where the engineers feel there are limitations on their technological efforts because of the law. I am not referring solely to automotive engineering, but to highway engineering and traffic engineering. I would like to know where the engineers feel that because of the law they cannot now do some things they believe are sound from an engineering standpoint. Let us take a look at what can be done about the law in this regard.

4. I feel keenly that laws of the future should be looked at in terms of the engineering design of the future. Here I am thinking of speed, sizes and weights, and electronic controls of both the vehicle and the highway.

DISCUSSION

DR. ROBERT MONTGOMERY, JR., *Executive Director*
National Committee on Uniform Traffic Laws and Ordinances

The thread of the Uniform Vehicle Code has run through our previous discussions, and I consider it part of my responsibility to the colloquy to inform you briefly on what this is.

Professor McFarland mentioned the need for legal standards in this field, although his comments went somewhat beyond the legal standards. There is now a standard, and there has been a standard since 1926 for motor-vehicle and traffic law. This is in the form of the Uniform Vehicle Code. It has been kept timely over the years since it first appeared, so that now it stands as a guide for states to follow in the evolution of reasonably uniform motor-vehicle laws.

The need for this, of course, grows out of our governmental problem in the United States where 50 states present the possibility of going in fifty different directions. This standard, if you want to call it that, is maintained by the National Committee on Uniform Traffic Laws and Ordinances. The National Committee is a group of approximately 100 people whose interests and viewpoints cover the entire spectrum of transportation in this country. Inevitably the Code is a product of compromise, and in its working-out process it tries to take into consideration all of these various interests.

As to the paper of Mr Stonex—and letting some of my personal feelings into the discussion—I found the paper very reassuring and I did not find much in it with which I could join issue.

As far as law is concerned, I cannot argue much with his description of the evolution of the law. It has had a rather wild and haphazard growth in some of its parts.

I was interested in Mr. Stonex's use of ballistics to illustrate the characteristics and problems of highway traffic. Perhaps it was because of this that a point of comparison occurred to me in the proposed gun laws that are receiving so much notoriety at the present time. Recently the *Washington Post* suggested a parallel between traffic and ballistics, saying we regulate our automobile drivers very rigorously, but we do not regulate gun owners and users to anywhere near the same extent. Certainly we do have a multiplicity of laws, which, as Professor McFarland has noted, is not strange because they follow the complexities of the human mind.

It seems obvious to me that we can expect increasing complexity in our laws as society and technology become more complex. One point worthy of examination here is whether the law is trying to do too much. What is the role of law in the growth of our transportation systems?

Although it is true that we have our hands full now with problems of highway transportation and traffic safety, the real problem lies in the future. One reason that the National Committee on Uniform Traffic Laws and Ordinances and the Uniform Vehicle Code are so important is that they furnish machinery for the guidance of states in the assimilation of new ideas, legal and technological, into state legal and governmental structures.

The combination of research on existing state laws as measured against the Uniform Vehicle Code and subcommittee deliberations of the National Com-

mittee—and this will involve the compact conceptions, "delegations of authority, and governmental relationships" already mentioned—will be, we think, a valuable contribution to new thinking. It will also serve to translate research findings and new ideas into a better legal fabric for our transportation systems.

ARTHUR FREED, *Traffic Engineer*
Westchester County, New York

I would like to go over some of my thoughts on a few of the aspects of what we have been discussing. It might be of some solace to note that while we are taking up some new concepts, there are others which are not so new.

I harken back to the experience of Lycurgus, the law giver of ancient Sparta, who historians say was the first public official to recognize the problems of women driving chariots. He promulgated rules for the operation of chariots by women in the city streets But the first woman apprehended for violating these rules was Mrs. Lycurgus, and the rules disappeared overnight. So we do not appear to have progressed very far in the business of enforcing unpopular regulations once they are enacted.

I think, however, that we should start off with Mr. Stonex's concern with roadside obstacles and—as one who has had Joyce Kilmer's "Trees" quoted to him for every limb that we have tried to remove to enhance the safety of our parkways and highways—I believe that his proposal is a good one but in some cases a theoretical one, and not entirely practicable in all instances. I think we should go back a little bit further in our study of law, to look at some of the consequences of loose zoning, and the absence of official or master plans that serve to protect areas where we desire to build highways sometime in the future. If we had considered these aspects when our urban areas were being developed, we could have avoided getting into some of the after-the-fact type of action that involves such drastic steps as condemnation by having areas set aside. Nothing has such perpetuity as space.

I think, too, that we should not let ourselves get too far away from one point Mr. Stonex left out of his paper—vehicular design. In legislative halls throughout the nation we now are beginning to hear legislators talk about disc brakes and dual master cylinders with the same enthusiasm that they discuss taxes and appropriations It seems to me that unless somebody begins to set some norms for vehicular design, we are going to have legislation dictating some vehicle design features that are good and some that are totally impossible. There is no question that much can be said on both sides of the matter.

Here, too, we run into an impasse between the effort to design highways, for which we are investing hundreds of millions of dollars, and the effort to design the vehicles that will travel these highways. To illustrate this problem I would call attention to the provision in highway design predicated upon maintaining a certain minimum sight distance for the vehicle operator

Yet in recent years the automobile designers have seemed intent upon making the silhouette of the car lower and lower, and driver eye height lower and lower. In New York State we found in 1958 that the median eye height was dropped from 54 to 44 inches. Mathematically you can figure out what this does to the sight distance of the highway system. One obvious consequence is to make all the existing markings for "No Passing Zones" obsolete. Another, which is be-

ginning to stand out as having some connection to the change in design, is the predominant incidence of compact car accidents in which the compact is on the wrong side of the road, indicating that the compact car drivers feel they have adequate sight distance, when in fact they do not, because they are so much lower to the road.

Many subtleties enter the problem of the highway. If the embryo highway is not built and taken care of properly, it grows up to be a juvenile delinquent and has to be rebuilt at some future date. These subtleties vary from the gasoline station owner who shovels his snow out onto the roadway, and effectively closes one travel lane, to the homeowner who does not clear his walk at all, and so requires pedestrians to walk in the roadway.

I think we have to consider that we must take care of highways just as they begin to grow up. Enforcement is subjective to the motorist who is speeding and to the individual who has jurisdiction for maintaining a highway. Our need in the law, therefore, starts not only with the treed forest that provides the room for the future highway. It also starts with the ingot of steel that becomes today's automobile. It is the law as well that regulates yesterday's drivers to try to conform to today's needs so that perhaps we all might survive until tomorrow

DR. LEON G. GOLDSTEIN, *Chief*
Research Grants Branch, Division of Accident Prevention
Public Health Service

I find it is a little difficult to organize my thoughts around the themes and concepts that have been discussed here. Like all the rest of you, however, I suppose it is best if one starts from where he is, from his discipline and his experience I think of an experience I had several years ago at a psychiatric institute in a discussion of the mind and the motorist Someone got up and presented a point of view which started with the law and went on to describe a considered, thought-through program for traffic safety. After it was over I asked him why he started with the law. He answered that it was the natural starting point, since law was the basis of society. Now, to me this was a new point of view since I always thought that people were. This was the way I felt because I was a psychologist. This is my bias; this is the way I look at the world

In the past few years I have had occasion to talk with and listen to people from almost every conceivable discipline, including my own, and the thing that stands out in my mind is the degree to which people in various disciplines live in different worlds. So, if you ask them to define any problem for you they will do so in terms of their own discipline and the things with which they are familiar. I think this is characteristic of anybody, including me. So, if we are to address ourselves to important social problems, such as the reduction of traffic accidents, I think it will require a joint effort of many disciplines, and I am delighted that this kind of colloquy is taking place. I do not think we will understand each other fully at the end of the colloquy, but I think we will have made a good beginning.

I would like to come to grips with a couple of specific matters. Mr. Stonex in his paper used a sentence which is the kind of statement that always brings my attention to a point: "It may be more effective to see that the problem is in its fundamental terms " In this connection I return to the point of view that was raised with me several years ago when I was working with the Department of the

Army, and our problem was the selection and training of electronic maintenance people. In that context we had occasion to talk with engineers who design and operate the air defense system. It so happened that during that period I met socially one of the engineers from the Signal Corps who had recently been talking to one of our people about the potential of human engineering to the problems in the air defense system. He made what I think was a characteristic remark: "What's this jazz about human engineering? We all know that engineers are human."

I replied, "That's true. Engineers are indeed human. So tell me, how many targets can a radar operator in an air defense system track simultaneously?"

He said, "I don't know."

"Of course you don't know," I said to him, "and I don't know either. But the difference is that I know how to find out "

Perhaps this sounds like an arrogant statement, but I firmly believe that this is the core of what behavioral science has to contribute. It is a relatively new area. Law, in our society, is as old as the Mosaic Code, and in the Chinese and Indian societies it is much older. Engineering goes back at least to the Pyramids. These are very old and mature disciplines and have had great achievements. I think perhaps the behavioral sciences need to make more noise in order to be recognized and heard and listened to occasionally.

This is a point of view we encounter time and time again. Every human being feels he is a psychologist I'm a parent; I've brought up children; so I know all about how they act and why. Of course, it just isn't so.

The feasibility of the particular proposal that Mr. Stonex has made has already been discussed, but I will comment on it to this extent· He picked up one problem area in the totality of this matter—that is, the problem of off-highway accidents —and indicated where engineering solutions can be applied This is excellent when you can do it. But there are obviously many other problems involved in working out his approach. I would also point out quickly that this is certainly not the only problem, even on freeways. About 40 percent of the accidents on the Pennsylvania Turnpike are rear-end collisions at night. I think it is a fairly safe deduction that you have some human unreliability or limitation involved here that is fairly subtle, and the remedy is not at all obvious. This is where research is needed, to find out just what are the human limits that precipitate this kind of accident. You can say "Be careful!" all you want, but unless you have the information and take into account these limits you can't stop them.

A comment about the figures for freeways and their safety: I am sure that the advent of the freeway has improved transportation and has improved the accident picture. I would remind us, however, that it is not a cure-all The figures tabulated for fatal accidents per 100 million vehicle-miles are not directly comparable to those of other roads for a number of reasons You almost never get a pedestrian on a freeway. The saloons and roadhouses are not located on the freeway, so that alcohol is more difficult to obtain

In most freeway, or expressway, driving the people are on longer trips than when driving on local roads, so generally people think a little more about having their cars in good shape.

I was very much amazed when I used to travel to work on the Washington-Baltimore Parkway at the number of disabled cars along the side of the road. Apparently a great many of the people who drove this road are traveling to and

from work, and they do not pay particular attention to whether they have enough gasoline. When they run out on the turnpike they are just stuck there. And, the same was true of other normal routine maintenance needs. So I think that these factors need to be taken into account in adjusting the comparability of the fatality figures applying to the turnpikes and the figures from other roads.

Another issue has been raised recently There is a good possibility and at least a little evidence to support the notion that freeway driving may actually so alter the psychology of the driver that when he comes off the freeway, he needs a certain period of time to adjust to the type of driving he is called upon to do on the regular streets and roads. This increases the accident rates on roads adjacent to the freeways. The data now available are not compelling, but they are suggestive, and there is reason that this might be the case

Coming back to the problem of running off the highway, I think this is the type of accident that warrants a great deal of intensive study. There have been perhaps only two studies that come to my mind that really tried to find out why such accidents happened. This is unusually difficult because the people who might be able to tell you are often killed in the event. This is not always so, however, and one study by the Air Force found, for example, that among drivers who went off the road there was a much higher percentage of a high level of alcohol in the blood. This should be taken into account. Why do people drink? Why do they overdrive from their home base on leave? These are all human behavioral problems.

Recently a lawyer said to me that he was against speed limits because he was convinced they caused accidents. This was a new notion to me. I asked him how he came to this conclusion, and he said they tend to make cars bunch up on the highway. Now, again, there is a little bit of evidence to support this notion that the platooning of cars increases the probability of accidents. On a straightforward mathematical basis, if cars do not come close to each other, they cannot collide. So, again, this is something that needs reconsideration to determine whether the law, and the human behavioral sciences, and other disciplines need to join together in some additional research to find out just what this problem involves.

We presume all the time that speed limits are a good thing. I don't pretend to know whether they are or not, but I think a very interesting question has been raised here, even though it challenges one of our basic assumptions.

I would hope that out of this colloquy will come the notion that the design of a car, the design of the highway, and the development of law are all intended to serve people. I agree with an earlier observation that it is exactly the cynicism in regard to the human being and the shortcomings of human nature that initiated the law in the first place. This is something that we need to bear in mind. We should not assume that all the information we need to legislate, or regulate, or administer is readily available. It is not available, but I do believe that the techniques for finding out are largely at hand.

CARL C. SAAL, *Deputy Director for Research*
Office of Research and Development
Bureau of Public Roads

I will begin my remarks with vehicle design because I feel closer to this subject than to any other. I am disturbed by the manner in which this subject is often

discussed in connection with the Uniform Vehicle Code, the standards for Motor Vehicle Inspection, the regulations of the Interstate Commerce Commission, and practically everywhere else where vehicle design or vehicle components are mentioned.

Regulations have too often centered about detailed components: the chassis and body, electrical system, steering controls, packaging, safety accessories, etc. An important point to make here is that we are in a very "gray area" when we ask how far we can go into the regulation of vehicle design. It appears to me that there has been too little adherence to the principle that performance is the sound basis for regulation of the physical characteristics of the motor vehicle.

Many regulations of individual components, such as the braking system, attempt to specify the design of the system in great detail, without attention to what the system is expected to do. The consequence of this, it seems to me, is often to stifle progress Standardization sometimes works against progress Each time we standardize, we should be careful not to keep something better from coming along in the future. In this day and age of great technological advances, we have to think more and more of performance requirements and to include such requirements into the regulations, rather than trying to write specifications.

I do not know how to attack this as a legal research problem. It would seem, however, that the first thing needed is an inventory of the state of the art. For example, where has a regulation resulted in slowing down innovations that industry would like to have, and where has a requirement been so minimum that it did not stimulate improvements in performance? I noticed this, particularly in the hearings on the interstate compacts regarding tires, where the rubber industry's recommendation for a requirement was rather minimum. The fact apparently is that we are not prepared to write a good performance standard in this field. We need research to provide a performance standard which the regulatory agencies can use.

A problem similar to tires may exist in certain areas of braking problem; for example, the case of split systems

I would hope that we might get away from using the term "design standards," and use some term like "vehicle performance standards." Then if we specify what is wanted, the automobile manufacturers can design these performance standards into the vehicle, provided, of course, that the public is willing to pay for them.

This leads to another thought which has for years kept the problem a difficult one. It is summed up in the question: "What is the role of the Federal Government with respect to the states?" There has been a good deal of talk about this problem, but no one has really done very much about it. As a result, there is confusion at present as to who should take the lead in overhauling automotive equipment standards.

From its very beginning, the policy of the U.S. Bureau of Public Roads has been that the states should be responsible for many of the decisions relating to control of vehicle operation and performance. The birth of interstate compacts is a good example of how the states can function. The Federal Government had, at one time, no interest in regulating, but now has a very keen interest as evidenced by recent legislative action. I believe that someone, not the Federal Government, or the states, or AASHO, needs to take an objective look at this Federal-state relationship in motor-vehicle laws to determine what is the proper

and sensible division of effort. Certainly the Uniform Vehicle Code provides a mechanism for effective coordination of the states' efforts where uniformity is needed. But from what I have seen, the promotion for adopting the Uniform Vehicle Code will have to be reoriented to the growing need of using interstate compacts.

If the National Committee is going to be the group that takes the lead in guiding state legislation, it is going to have to assume positive leadership. I say this in the sincere hope that the National Committee will do so, because it is the group which was originally intended to provide the necessary leadership. And, in providing this leadership, the National Committee would benefit greatly by having the whole question of Federal-state relations clarified by an impartial group such as the Highway Research Board.

Another problem which I have noted, concerns maintaining the operational efficiency of our Interstate System. The Achilles heel of this system is the interchange There are varying laws and practices regarding marking and signing these points of conflict, and there are varying rules controlling the movement of traffic on and off the system. Perhaps the ultimate solution of these operational problems will depend upon the development of electronic controls and methods of communication with drivers. But these developments are too far in the future to help now, and we need to study these variations in the traffic and signing rules, and the legal implications that they involve.

Still another problem which I would like to emphasize is vehicle speed. This is a difficult area in which to define research needs, but more research is needed to determine the criteria to be used for governing speed, particularly if we are going to get any uniformity in their application. Local and geographic conditions present problems for uniformity, but their effects are less now than they were 20 years ago.

In the Wisconsin Avenue study a few years ago, and in several similar studies since that time in other states, an attempt was made to examine the legal problems involved in reducing congestion on urban arterial streets. It was found that one of the big problems was mid-block friction, not intersection capacity, as most of us had previously thought. In fact, the study revealed only one intersection which was loaded as we had expected it would be Mid-block friction was the important problem, and the things we recommended in the way of elimination of driveways and control of access, could not be done in the District of Columbia under existing law The District would have had to resort to condemnation or purchase of expensive property to eliminate or even reduce the causes of friction. This experience, I think, reinforces the point Mr. Cheshire made in his comments.

In the laws regulating vehicle sizes and weights, one of the big problems we have and do not really know about, is the practice with respect to special permits for oversize or overweight vehicles. The practices here are extremely irregular. People have made some inventories of the variations that exist in the various states, and these show wide variations from state to state and exceptions within a state. What rule, for example, should apply to the military when it is necessary to move a large missile over the highway? This is an extremely knotty aspect of the size and weight problem

I also want to emphasize the study of future concepts. Being Chairman of the Future Concepts Committee of the Highway Research Board's Department of Urban Transportation Planning, I know that one of the items that will plague

the committee is the legal problem. I think there is a chapter on the legal problem in the Arden House Report, but it is rather negative. It is indicated that one of the reasons we could not have automatic controls or electronic devices in highways was because of the legal problems. This is an area on which the Committee on Future Concepts is going to ask other committees of the Highway Research Board to cooperate with us as we get further along. I cannot give you anything concrete yet, because we have not had time to make evaluations of all the future concepts that have been suggested. This makes it rather difficult for even the engineer or the lawyer, or anybody else to think about specific aspects. But it is something that we will be working on because it deserves considerable attention from many viewpoints if we are ever going to harness modern technology for highway transportation.

I know, as you do, that we have a great many problems confronting us, but it seems to me that it is with respect to these future problems that the Highway Research Board, and this committee, can do a great deal.

ROBERT O. SORNSON, *Manager*
Vehicle Regulation Division
Chrysler Corporation

A number of the items have already been mentioned. Perhaps I can comment on one or two of these from a different standpoint. Part of my job at Chrysler involves working with legislation and regulation pertaining to the automobile.

Generally, our objective in dealing with such regulations is to try to get them started in the terms Mr. Saal referred to a while ago, namely in performance standards, rather than telling the automotive engineers what materials, shapes, and sizes they must use. I think that only when there is freedom for the engineers to design in terms of objectives are we going to achieve the ultimate objective of making better and safer cars. So I would like to emphasize the need for avoiding regulation which limits design and desirability for establishing objective performance standards where regulations are needed.

One of the areas lacking research which I frequently encountered in this field involves studies to prove the necessity for legislation. For example, currently there is a rash in tire legislation being introduced both at the state and the Federal level Up to this time there has been very little research to prove exactly what the problem is in the tire field We do not know whether it is used or worn-out tires that are causing the problem, how big the problem is, or what there may be about new tires that may be causing a problem. The intent of the proposed legislation seems to be to regulate the entire field of tires, without relating or limiting it to any real problem that may be involved. So I think that when motor-vehicle legislation is proposed, there should be a great deal more research to define what the law should accomplish rather than an attempt to sweep all related facets of the problem into a broad statute intended to be a complete cure-all.

Some thoughts have been expressed here about more regulation of the design and construction of the automobile itself. It appears that this might be inevitable since a great many people think they know as much about designing automobiles as the engineers themselves do. I think part of the reason for this is that, politically, the easier way out is to try to place the problem on someone else rather

than to increase taxes for better highways and to enact proper driver controls or court sanctions against errant drivers. It is easier to say that the automobile manufacturer ought to take care of the problem for us by building more nearly crash-proof cars. Unfortunately, it is not quite that easy for the manufacturer. While I'm sure we can anticipate further automotive design improvements, especially in the area of injury-reducing features, it appears obvious that we must also do a better job to improve driver performance and highways, and that all areas should progress simultaneously in a balanced program.

Mention was made of the interstate compacts. As I view the compacts, they are not inconsistent with the Uniform Vehicle Code. Rather, I think, they are an adjunct to the Uniform Vehicle Code, providing a uniform basis for regulation in areas where broad authority is delegated to an administrator. If the compacts are successfully used as intended, they could achieve greater uniformity of administrative regulation than currently exists. This is essentially similar to what the Uniform Vehicle Code is trying to do at the statutory level. Whether it will work out this way or not, I do not know, but I think it is an experiment that is worth trying.

Also, I would like to say a word about the need for more research regarding accidents, and in particular the causes of accidents. In the last few years a great deal of work has been done at Cornell University and elsewhere on the injury-producing factors of accidents. Much of this research has been sponsored by the auto industry and the facts obtained from these studies are being used by manufacturers to improve their products

In the area of accident causation, we do not have a similar level of research at the present time. If we are to develop proper legal controls, it seems to me that we will need a great deal more research to find out what the proper controls are, what alternative remedies are, and whether some of the controls we now have are in fact working to aggravate the problem. I think it is clear that our present laws produce inconsistencies which create the reaction which Dr. Schlesinger described yesterday. For example, on one freeway you may find that the state speed limit is 60 mph and in the next state it is 75 mph. Yet these two freeways are built to basically the same design standards. Why should there be this difference in speed limits? It appears to me that, unless there is a rational basis for such laws and consistency in their application, they tend to produce non-compliance and disregard for the law rather than compliance and respect that traffic laws ought to engender.

FOURTH SESSION

DUKE W. DUNBAR, *Attorney General*
State of Colorado, Presiding

LAW, TRAFFIC REGULATION AND THE ADMINISTRATION OF JUSTICE

THE HONORABLE THOMAS GALLAGHER
Associate Justice
Supreme Court of Minnesota

These remarks are intended to suggest a classification of the basic mental attitudes of traffic law violators, and to express some thoughts relative to equal and just penalties for offenders in these various classifications. This is in the belief that some program must be developed in each state which will provide a means of obtaining accurate knowledge as to the mentality and the economic status of traffic law violators—to the end that the imposition of penalties for traffic offenses, after giving proper recognition to such factors, will serve to bring about more equal justice and will serve as a more effective deterrent against future offenses.

In preparing this resumé, I have not deemed it necessary to quote statistics with reference to the great increase in motor-vehicle drivers or motor vehicles on our highways, nor to direct attention to the greater increases therein which may be expected in the future, well known to all of you. These remarks, of course, have reference to traffic violations which are inherently dangerous to person and property, such as operating a motor vehicle at excessive speed; operating without proper control; operating with faulty equipment; operating in disregard for signs or signals at intersections or crossings; operating in disregard for others using the highways; and similar acts in violation of statutes, municipal ordinances, or Common Law requirements.

Various classifications of traffic law violators have been suggested by experts in this field. One such classification which has received wide recognition is that of James P. Economos, director of the Traffic Court Program of the American Bar Association, which was submitted in the October 1964 issue of *Traffic Quarterly*. There Mr. Economos states:

". . . Considered from the standpoint of driver-improvement methods, there are three types of delinquent drivers—the Can'ts, the Don'ts, and the Won'ts.

"The *Can'ts* are those who because of physical or mental defect are unable to operate motor vehicles properly . . .

"Neither a jail sentence nor a money fine will correct any defective physical or mental condition. It will be necessary for the court to require re-examination

Fourth Session *(left to right). John Reese, Texas Technological College, Richard Arens, Catholic University School of Law, Victor Perini, Jr., Automotive Safety Foundation, Justice Thomas Gallagher, Minnesota Supreme Court, Duke W. Dunbar, Attorney General of Colorado, Charles Bowman, University of Illinois College of Law, Yale Fisher, National Highway Users Conference, and Louis Lauer, Columbia University Law School*

of the operator to determine the exact extent of the disability. If his defect is not correctable, the judge and driver licensing authority should undertake to bar the driver from the use of the highways."

* * *

"The *Don'ts* are those deficient in one of three respects they don't understand the rules of the road, they display less than ordinary skill because of lack of experience in its operation, and they lack judgment in the operation particularly with reference to the laws of motion . . .

"Driver-improvement schools . . . and additional driver's safety education may be suggested . . .

"The *Won'ts* are those who lack respect for traffic laws or because of a faulty attitude refuse to accept personal responsibility for obeying traffic laws . . .

". . . The repeaters will most often be found in this group, and here the traditional fines, jail sentences, and license suspensions and revocations can be effective."

While the foregoing is excellent in my opinion, it is my belief that perhaps a more detailed classification would be of additional help in the imposition of traffic violation penalties, so as to meet the requirements of equal justice. At the outset I suggest that traffic law violations fall into two general classificaions, as follows:

1. Intentional or reckless violations, and
2. Non-intentional, careless, or thoughtless violations.

Under these two general headings, offenders may be further and more definitely classified

INTENTIONAL VIOLATORS

1. The conscious violator who intends to act in violation of the law with the knowledge that his wrongful acts may lead to injury or damage, but who feels confident that they will not do so because of his feeling of superiority

2. The conscious violator who acts unlawfully with the full realization that his acts are unlawful but believes them essential because of some personal requirements or emergency such as reporting for work on time or making some other required deadline. His driving is almost constantly in violation of traffic laws because he believes he has no other choice.

3. The conscious violator or the "show-off" type, usually a juvenile, who is trying to impress others with his skill or daring, or otherwise with the superiority of his prized motor vehicle, by driving it at excessive speeds or otherwise recklessly with little comprehension of the disasterous results which might follow.

4. The conscious violator with motor vehicle equipment which he knows to be defective and dangerous, but which, because of his limited resources, he cannot afford to have repaired, and which he must drive to reach employment, prospective customers, etc.

5. The conscious violator who, because of physical and mental exhaustion, is not capable of driving, but who continues to drive in order to maintain a schedule or to arrive at a destination on time.

6 The conscious violator who intentionally consumes intoxicants to the point where he is no longer capable of operating his motor vehicle with judgment or accuracy, and who thereafter drives it in violation of statutory or ordinance requirements.

As to intentional offenders, the penalties should be relatively drastic, since their unlawful acts are performed with full knowledge of the dangers to which they subject others.

NON-INTENTIONAL VIOLATORS

1. The non-intentional violator who, because of mental limitations, is so lacking in coordination that his driving is often in violation of traffic laws.

2. The non-intentional violator whose mental capacity may be normal on most occasions, but whose reactions under stress or sudden emergency are often illogical if not absent completely, with resulting violations of traffic regulations.

3. The non-intentional violator who seldom drives or who is otherwise inexperienced and who in consequence usually drives so slowly and cautiously that other drivers on the highway or at crossings become enmeshed in traffic tie-ups and must take risks to extricate themselves from such situations.

4. The non-intentional violator whose total lack of mental capacity is such that he is incapable of either understanding or observing traffic regulations.

5. The non-intentional violator, physically handicapped, because of defects in sight or hearing, or otherwise, or because of diabetic condition, who does not realize that his handicaps are such that his operation of his motor vehicle is often in violation of traffic regulations and dangerous.

6. The non-intentional violator whose violations arise from an unconscious lack of consideration for others due to his social environment or to limitations in education and training, and who drives totally unaware that he ever imposes upon the rights of others

While the non-intentional violators do not merit the same condemnation as do the deliberate violators, since the danger caused by them often exceeds that caused by the intentional violators, obviously some severe penalty for their violations is required.

It may be well at this point to list the customary penalties which the traffic courts throughout the nation are presently imposing. These include the following:

1. Monetary fines,
2. Imprisonment for short or long terms,
3. Revocation of driver's license,
4. Impounding of automobile license plates,
5. Removal of defective automobiles from highways,
6. Required attendance at police traffic schools, and
7. Required attendance for psychiatric treatment.

It may be noted that these penalties which are effective in most cases involve personal punishment (1 and 2); temporary or permanent removal of dangerous drivers and motor vehicles from the highways (3, 4, and 5), and the re-education or rehabilitation of drivers where such factors would be effective (6 and 7).

The basic objective of penalties in traffic violation cases is to punish the offender, to deter him and others from future violations, where necessary to change his mental attitude so as to create within him a respect for traffic regulations, to effectuate the removal of improperly equipped motor vehicles from the highways, and to terminate driving privileges of incompetent drivers. In a number of jurisdictions the courts also endeavor to insure payment of damages by the offender to those who have suffered losses by reason of his violations.

I believe that more and more consideration should be given to this aspect of the problem. Certainly when substantial financial burdens become attached to automobile accidents, unlawful conduct on the highway will diminish. In all cases it must be recognized that in imposing monetary fines or in depriving an offender of the use of his automobile, consideration must be given to the economic status of the offender, as well as to the possibility that the penalty imposed upon him may injure innocent persons dependent upon his income.

With the foregoing principles in mind, I would suggest that, to achieve equal justice in the imposition of penalties with respect to the above classification of intentional and non-intentional violators, the following penalties would be required:

INTENTIONAL VIOLATORS[1]

CLASSIFICATION	OBJECTIVES	RECOMMENDED PENALTY
1. a. First Offense	Punishment of offender	Substantial monetary fine.
b. Second Offense	Punishment of offender	Increased monetary fine.
c. Third Offense	Removal of driver from highway	Increased monetary fine, suspension of driver's license, possible imprisonment for short term
2. a First Offense	Punishment and re-education of offender	Monetary fine and required attendance at police traffic school.

INTENTIONAL VIOLATORS[1]—Continued

CLASSIFICATION	OBJECTIVES	RECOMMENDED PENALTY
b. Second Offense	Punishment and re-education of offender	Increased fine, required attendance at police traffic school
c Third Offense	Punishment and re-education of offender	Increased fine and sentence to imprisonment, with possible probation.
3. a. First Offense	Punishment of offender	Substantial monetary fine.
b. Second Offense	Punishment of offender	Increased fine, required attendance at police traffic school.
c. Third Offense	Removal of driver from highway	Increased fine, suspension of license.
4. a. First Offense	Punishment of offender	Fine with requirement that vehicle be repaired.
b. Second Offense	Removal of driver from highway	Increased fine and surrender of license plates.
5. a. First Offense	Punishment of offender	Monetary fine.
b Second Offense	Punishment of offender	Increased monetary fine, required attendance at police traffic school
c. Third Offense	Removal of driver from highway	Increased fine and suspension of license plates
6. a First Offense	Punishment of offender	Imprisonment for short term, with possible probation; suspension of driver's license for 90-day period.
b Second Offense	Punishment and removal of driver from highway	Imprisonment for 90 days and revocation of license for one year.
c Third Offense	Punishment and removal of driver from highway	Revocation of license for 5 years.

NON-INTENTIONAL VIOLATORS

CLASSIFICATION	OBJECTIVES	RECOMMENDED PENALTY
1. a First Offense	Retraining and re-education	Monetary fine, required attendance at police traffic school.
b. Second Offense	Retraining and re-education	Increased fine and required attendance at police traffic school
c. Third Offense	Removal of driver from highway	Increased fine, suspension of driver's license for 90-day period.
2. a First Offense	Retraining and re-education	Monetary fine, required attendance at police traffic school
b. Second Offense	Retraining and re-education	Increased fine and required attendance at police traffic school
c Third Offense	Removal of driver from highway	Increased fine and suspension of driver's license for 90-day period with required treatment by psychiatrist.
3. a. First Offense	Retraining and re-education	Fine and required attendance at police traffic school.

NON-INTENTIONAL VIOLATORS—Continued

	CLASSIFICATION	OBJECTIVES	RECOMMENDED PENALTY
b	Second Offense	Retraining and re-education	Increased fine and required additional attendance at police traffic school.
c.	Third Offense	Removal of driver from highway	Suspension of license for 90-day period or longer.
4. a	First Offense	Re-education if possible	Fine and required attendance at police traffic school.
b.	Second Offense	Removal of driver from highway	Suspension of license.
5. a	First Offense	Physical rehabilitation of driver	Fine with requirement for sight or hearing aids; control of diabetic condition while driving
b.	Second Offense	Physical rehabilitation of driver	Increased fine with strict requirements as to cure of physical handicaps.
c	Third Offense	Removal of driver from highway	Permanent suspension of driver's license.
6 a	First Offense	Retraining and re-education	Substantial fine, required attendance at police traffic school
b	Second Offense	Retraining and re-education	Increased fine
c	Third Offense	Removal of driver from highway	Required treatment by psychiatrist, suspension of license.

[1] In all cases where there has been property damage, the court should require suspension of license until such property damage has been paid for or secured by bond All fines should bear a relationship to the economic status of the offender All imprisonment penalties should provide for release during daytime and confinement after 6 P M where offender's dependents look to his salary for necessities

To make any traffic program effective, there must be adequate personnel to handle the various problems which arise from traffic violations. In most states, departments with judicial powers have been created to administer laws in various areas. Thus, such departments have been established to handle cases relating to industrial accidents under workmen's compensation laws; to regulate and control highway and rail transportation under railroad and warehouse commissions; and to govern the assessment and collection of income, estate, and other taxes under commissioners of taxation.

Today we must recognize the need for establishing such a department with judicial powers for the regulation and control of highway traffic. Possibly the functions of this department should commence with the importation of the motor vehicles into the state, and thereafter extend to their registration and license; the imposition of annual taxes thereon; the issuance and regulation of their operators' driving licenses; and finally their removal from the highways when no longer safe. I believe it should be separated from state departments functioning in the construction and maintenance of state highways systems.

I visualize the divisions of this department as follows

1. A division handling registration of motor vehicles, the issuance of license plates therefor, and the assessment and collection of annual taxes thereon.

2. A division controlling the issuance, suspension, and revocation of driver's licenses and establishing necessary standards of qualification therefor. It would also function in the training and education of drivers and their examination to determine whether required qualifications for the issuance of driver's license are met.

3. A division for the enforcement of highway traffic regulations, with highway patrols and personnel qualified to handle the issuance of arrests, summons, complaints, warrants, etc.

4. A division for pretrial procedures with trained personnel to advise offenders as to their legal and constitutional rights and responsible for ascertaining the previous driving records of the accused.

5. A judicial division for the trial of traffic offenses and perhaps with jurisdiction in civil matters relating to damages arising out of highway accidents, and staffed with judges selected for fixed terms on an elective basis.

6. A division for postconviction matters with personnel staffed to conduct investigations and to compile records of traffic offenders. Its functions would also be to ascertain the mental and economic status of such offenders, their family responsibilities, and their mental attitudes. Reports on all matter should be submitted to the court prior to the imposition of sentence upon the offender.

7 A division to insure enforcement of penalties imposed by the court, including those involving the suspension or revocation of drivers' licenses, requiring motor vehicle repairs and replacements or removal of vehicles from the highways, requiring attendance at police traffic schools, and requiring psychiatric treatment where this is part of the sentence imposed and facilities for it have been provided for.

These suggestions, of course, are general. I do not imply that they are the best that can be offered on this subject. Many of them would require modification and some might require constitutional amendments. Certainly many new laws would be needed to effectuate them. However, if we are to meet the future prepared to solve the colossal traffic problems which will then present themselves, certainly changes along the lines suggested must be seriously considered.

COMMENTARY

PROFESSOR CHARLES H. BOWMAN
College of Law
University of Illinois

I was very much intrigued when I saw the title of this session. The combination of the administration of justice and traffic regulation immediately raised in my mind the question of a possible inconsistency of terms, at least as traffic is being regulated and justice is being administered at the present time.

I am going to discuss Justice Gallagher's classifications and make some comments on them, but first I would like to lay a foundation in terms as to what it is we are discussing. Is it regulatory provisions, which are not crimes, or are we discussing crimes as such? If we are discussing regulatory provisions, as

opposed to crimes *per se,* then we have much more leeway in dealing with these regulatory provisions and those who violate them than we do if we are dealing with criminal law and crimes. The minute we designate an act as a crime, we trigger a vast amount of constitutional safeguards and procedures which must be followed.

I am not concerned with tort law—private wrongs—although perhaps today they do occupy most of the time of the courts. In Chicago alone jury trial cases are now 57 months behind schedule. This is almost five years. And approximately 85 percent of the cases on the docket are personal injury, including traffic accident, damage cases. Now, five years waiting for trial is a long time, and it is said that justice delayed is justice denied. So I would suggest that unless the legal profession clears up the morass of tort law in these personal injury cases, perhaps the Supreme Court of the United States will say that justice is being denied and tell the courts to correct it. Certainly if the Supreme Court of the United States can tell a state to reapportion itself for legislative representation it can tell the courts to render justice promptly.

We do not have this delay in criminal law, but we do have such a volume of traffic cases coming through the courts as criminal cases that justice is not being done. It is creating tremendous resentment on the part of the citizens, and even, you might say, a contempt for the law. What is it we can do? What is possible to correct this situation?

First of all, I would suggest we re-examine the specific type of conduct involved in traffic violations and determine which violations should be classified as crimes and which violations should be classified as breaches of regulatory provisions of the law. Regulatory provisions are, of course, not new in the law. As you all know, we have regulatory provisions in regard to corporations, various types of business activity, sales and commercial transactions. Violations of these statutes carry fines, withdrawal of licenses to do business, and various penalties other than imprisonment. The label we put on a violation is not important; it is either a crime or it is not a crime according to the constitution. If it carries a penalty which provides for possible imprisonment, the courts probably will say it is a crime regardless of what we label it.

We have run into this in the family courts, and we say that acts which constitute juvenile delinquency are not crimes. Therefore, the proceedings of the family court are not criminal in nature, and a juvenile is not entitled to the constitutional protections accorded one who is accused of crime. He is not being accused of a crime but a delinquent act. For that reason we have said he is not entitled to counsel unless the courts want to provide it, and he is not entitled to bail, or speedy public trial, or all the other constitutional safeguards. On the other hand, some courts—I think that the District of Columbia, Montana, and probably one or two others are the only jurisdictions that have gone so far to date—say that regardless of what you call these proceedings, a person may be deprived of his liberty for many years as a result of them. He may be sent to reform school or otherwise remain in the custody of the law, and since this is all possible, the courts have said it does not care what you call these proceedings, the person involved is entitled to all the constitutional safeguards of one who is accused of a crime.

I think that in classifying traffic violations and regulating conduct involved in traffic situations, we have to keep in mind the question of whether we want to

provide for imprisonment for a particular act or conduct. If we do, then we are making a crime of it with all the consequences that follow in regard to processing it through the criminal courts, and the accused must be accorded all of the constitutional protections.

There are other problems that arise in designating certain types of conduct as criminal. Some of these pertain to drafting the law itself, because a criminal statute must be specific in describing the acts that are prohibited. If it is too vague, the Supreme Court will say it is unconstitutional. So immediately we run into the problem of drafting language that meets constitutional standards in defining criminal conduct. I was interested in a film which showed a driver rolling back down a hill, trying to get his car started, until finally he backed into a truck. With what would you charge him? Surely he wasn't "following too closely," and we do not have an offense for "leading" to closely. Regulatory provisions do not have to meet such constitutional standards, but they have to be reasonable because they affect property rights and they affect privileges.

Let us consider the conduct which we decide warrants imprisonment and justifies being designated as criminal—reckless homicide, for example. How do we classify it in order to arrive at reasonable penalties? This is the problem that Justice Gallagher met head-on in his paper. Basically, as he has suggested, you have the intentional violator and non-intentional violator. However, as he suggested, there are degrees of criminality and responsibility, and this depends to a great extent upon the mental state. While we say that crimes are intentional, which indicates an affirmative or positive state of mind, and we assume that the term "non-intentional" indicates just the opposite, these latter types of conduct are a little more difficult to deal with in drafting legislation which makes sense to the people who have to comply with them.

We have many offenses which are criminal (they have increased strikingly in this century) which we call absolute liability offenses. Sometimes they are designated as "public welfare crimes," because it is in the public welfare that they be punished without regard to mental state. Possession of narcotics is an example of this type of crime. The Pure Food and Drug Laws furnish other examples of absolute liability crimes. Here the act alone is sufficient to warrant punishment. This type of crime has bothered a lot of us because of the increasing number that have been put on the statute books in this century It is easy for the prosecutor, of course, because he just proves the act was committed. He does not have to prove the mental state. Many of our traffic violations are absolute liability offenses, and perhaps they should remain so, but it would be my suggestion that the absolute liability offenses be confined to the very petty offenses —parking, for example—which do not involve reckless conduct of any type.

When we consider the affirmative mental states that are possible in defining crimes and different offenses, we have another set of problems. In connection with the revision of the Illinois criminal code, we found that we had no less than 164 different words to describe mental state—malice aforethought, deliberately, knowingly, willfully, wantonly, etc. Obviously there was much overlapping in the use of these terms, and yet we were asking the courts to determine what each one meant and when it applied to the vast variety of factual situations that arose. Each, in theory, described a different mental state, which had distinguishing features, and had been selected deliberately by the legislature in enacting the law.

We studied these terms in revising the Illinois criminal code, and compared it with the American Law Institute's Model Criminal Code, and the reasoning it contained. The drafters of the Model Criminal Code came to the conclusion that all mental states worthy of being designated as criminal could be reduced to four, and these were "intentional" (or "intentionally"), "knowingly," "recklessly," and "negligently." Intentionally meant having a conscious awareness of circumstances or that a particular result would follow from the conduct. Recklessness was a conscious disregard of a substantial risk, and constitutes a gross deviation from the ordinary standard of care required. Criminal negligence was defined as a failure to be aware of—not a conscious disregard, but a failure to be aware of—a substantial risk which constitutes a substantial deviation from the ordinary standard of care.

Notice that this type of negligence constitutes a *substantial* deviation from the ordinary standard of care, and does not arise on slight negligence only, which is sufficient for a tort action when there is *any* deviation from the normal standard of care. The courts generally have said that *slight* negligence is not criminal negligence, and there must be *gross* negligence in order to ascribe criminality to the conduct. What is gross negligence? The Model Penal Code says it means merely a substantial deviation.

With this in mind I studied Justice Gallagher's classifications very carefully, and I am convinced that his 12 distinguishable mental states could be formulated within the four different terms of intentional, knowing, reckless, or negligent. I think that in revising our criminal laws we should look at conduct in the traffic field particularly and ask whether we want to make specific conduct a crime, and if so, what mental state are we going to require, or whether we want to make it an absolute liability offense. Perhaps the decision as to whether it should be an absolute liability offense should come first.

These are some of the problems of classification. I think we should take another look at the types of conduct involved in our whole system of traffic regulation and the objectives we hope to accomplish by punishment. And I think we have to make a decision as to whether we are going to clean up the regulatory morass in which we now find ourselves If so, these are some of the substantive provisions which we have to consider in the drafting of traffic laws.

There are others in the procedural field where we have much more difficulty in dealing with traffic cases when they are handled as crimes, because our law enforcement and judicial system must accord the accused certain constitutional safeguards. Consider first of all the problem of arrest. Most traffic violations should not involve an arrest at all A ticket could be given notifying the motorist when and where to appear. In the Illinois Code we made this point specific by saying that the policeman, when authorized to make an arrest, could instead issue a notice to appear; and a court or magistrate, when authorized to issue an arrest warrant, could instead issue a summons.

Most of the people who are arrested for traffic violations are local residents. If they do not appear in response to their notice or summons, they can easily be arrested and brought before the court. There is not, to my way of thinking, any particular need to arrest every traffic violator. We do, of course, have a different problem with the transient motorist. What do we do with him? Do we give him a notice to appear? Do we fine him on the spot? Or what? Certainly he does not want to come back three days later, across several states, to answer

a traffic violation. He may disagree with the policeman that he has actually violated any law, yet we coerce pleas of guilty from transients because of the inconvenience of returning to answer the charge. I think a study should be made of this system, and an attempt made to work out some reasonable way of handling the transients without putting them through the criminal court process and coercing pleas of guilty.

Bail itself has turned out to be one of the greatest injustices ever foisted upon the public. It has become a racket, controlled by professional bail bondsmen. The lawyers and courts have abandoned their responsibility in this area, and bail bondsmen and the insurance companies collect millions of dollars each year. It contributes to corruption through kickbacks and other unsavory practices.

The bail system as presently administered creates hardships and inconveniences particularly for traffic violators. The system in Illinois disturbs me very much. We tried to ameliorate it in the new Code but the Illinois Supreme Court issued a rule which made it even worse.

Under the rule, a motorist who was arrested for a traffic violation could do one of two things. He could give up his driver's license—and if he was a transient he did not want to do that—or he could go with the policeman to the nearest police station and there deposit in an envelope addressed to the Clerk of the Court $25 in cash as bail. If he wanted to plead guilty and not appear, it provided that his fine and costs would be exactly $25 He could, therefore, merely deposit his money and go on his way without further trouble. But he had to do this in every case, or go to the inconvenience of going before a magistrate, or to jail.

Under this rule as originally promulgated there was not provision for issuing notices to appear, although it ultimately was amended to provide that the police might issue a notice to appear instead of going through the procedure of deposit. Since this option has been provided, the police have begun to use the notice to appear, and it seems to be working very well.

I am convinced in my own mind that most traffic cases can be handled without the necessity of putting up bail. I see no reason why we cannot work out some practical administrative system for handling traffic violators without subjecting them to the traditional bail system for criminals If we do not, we may expect that our citizens will continue to resent and regard our traffic law system with contempt

Aside from bail, we have the problem of speedy trial Should a motorist have to come back three days or a week later? Should he have to appear in court at all for minor traffic violations? How should they be handled? Of course, I am not speaking of the serious cases such as reckless homicide, but of the great mass of lesser offenses which could be handled differently from the way they are now. If we are going to administer true justice in the traffic regulatory field, I think it is absolutely necessary that we restudy these problems involved in designating conduct as criminal

It is not enough to discuss academically whether driving is a right or a privilege, or whether a given act is a crime or not a crime. I think we have to examine the specific conduct and make a determination as to whether we want it to be a crime, and, if so specify it as such and the penalty that shall apply.

If we do not want a certain act to be a crime, then we should make it clear that the law states a *regulatory* provision, and we should not put in an alternative

provision for imprisonment. I asked Mr. Montgomery how many sections of the Uniform Vehicle Code carry provisions for imprisonment, even as little as 10 days. He said that a substantial number provide for imprisonment because they are in the alternative—either a fine or up to a certain period of imprisonment. This simple phrase triggers the whole criminal law process, and I am not convinced that we need it to regulate the orderly flow of traffic on our highways and city streets.

DISCUSSION

PROFESSOR RICHARD ARENS
School of Law
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The preceding discussion highlights the need for intensified research in the area of accident prevention and the sanctioning designed to serve that end. Driver personalities conducive to care or recklessness in traffic situations have but recently attracted the attention of medical and behavioral scientists. It does not seem bizarre to suggest that, given adequate scientific information, personality proclivities might be considered among other factors in such situations as driver's license revocation proceedings.

The attachment of medical and behavioral specialists to traffic courts does not seem unwarranted as a contribution to enlightened judgment. Perhaps such specialists can function initially as part of a research project addressed to the elucidation of personality variables which contribute to the traffic accidents.

Thus far at least, available medical and psychological data have not tended to provide our judges with an opportunity to make the most enlightened decision possible under the circumstances. To make such data available would not appear to be too high a price to pay to reduce the toll of highway fatalities which, as we know, is very substantial indeed.

We speak of penalties We must study the effectiveness of these particular penalties, and it has been pointed out by some of the participants that we must look further afield than our own borders to determine to what extent the penalties imposed in Switzerland or Germany, Scandinavia or Ireland, or for that matter, Indonesia, have had a significant effect in reducing the very thing which we are all agreed must be reduced.

At this stage I would merely like to add that enforcement is a two-edged sword. It consists of penalties on the one hand, and it consists of indulgences or rewards on the other.

I would respectfully differ with Justice Gallagher in one of his classifications. He speaks of driver re-education under police supervision, or the requirements of psychiatric treatment of drivers who are ordered to subject themselves to such treatment as a penalty. I would be inclined to view it as an indulgence, or a reward, meted out by a body politic concerned with the continued preservation of the health and welfare not only of the drivers, but of all those affected by his activity on the highway.

We might give some thought to the enlargement of the category of indulgences as distinct from deprivations, to put a premium on good driving.

Professor Lasswell, in one of his recent writings, has suggested that a driver who avoids accidents may be given a banquet and a badge by all his grateful neighbors who have survived the perils of traffic long enough to attend. Of course, this constitutes a highly informal sanction, but is it far-fetched to suggest that the legislature establish a positive honorific citation for individuals who have maintained unblemished and safe driving records over a period of years?

Or is it far-fetched to suggest that the courts themselves convene a ceremonial session honoring all those whose driving records entitle them to such honors? This would provide a reward in addition to the many other penalties which are unavoidable.

I am in no position at this particular stage of research to state whether the amount of monetary fines imposed for certain penalties are or are not effective in given instances. It is obvious that intensive research is needed in this area. I am in no position to speak of the effectiveness of imprisonment upon the reckless driver, though the studies of imprisonment carried out by the Federal Bureau of Prisons do tend to suggest that the rate of recidivism of those who have been held within a system which puts them in proximity with professional criminals, as is inevitable, has been an unfortunate one.

Perhaps the results have not been as happy as we might hope for. All these matters require the most careful study, and certainly a major grant is more than in order, in the light of the current cost of highway accidents, to determine what reward and what deprivation are most directly and rationally calculated to achieve the end in view.

PROFESSOR JOHN H. REESE, *Assistant Dean*
School of Business Administration
Texas Technological College

The thing that impressed me about Professor Bowman's remarks in discussing Justice Gallagher's paper, was his use of the word "unrealistic." If I followed Professor Bowman correctly, he was calling for a basic reassessment of traffic law. In reading Justice Gallagher's paper, I felt I was hearing from a man who has to deal with people, and who was striving to predict the effect of a judicial decision on people. He seemed to be trying to devise a more effective means of doing justice with the tools he has been given, and in this respect he often had to use words such as "violator," and "sanctions." It is on this problem that I would like to make some comments.

Justice Gallagher's paper was a fine description of the problem courts have to face and what judges have to do to try to achieve justice as they see it. But let me suggest another viewpoint chiefly concerned with the philosophy which underlies the methods we are using to attempt to achieve our goals in traffic law. I think we might all agree on the goal, which is getting the traffic over the road safely. But the thing that interests me about this colloquy is that we have talked about "law" and "regulation" as if we all agree as to what these are and agree that we can proceed from there. Yet I wonder if we really are in agreement as to what we mean when we use the words "law" or "regulation."

I have noted some specific points which I have heard in these sessions and have tried to find in them the philosophy of traffic law which they express. I would like to mention some of the elements of this philosophy as I understand it.

We have heard expressed the philosophy that traffic law is a command. This follows from what both Justice Gallagher and Professor Bowman have said. It is a command from the legislature. It is authoritarian by nature and is to be obeyed. It is an exercise of the police power, and we couch it in terms of the criminal law, because in this form we think it is more likely to be obeyed. The more important the rule, the stronger the sanction is likely to be.

Motor-vehicle and traffic law depends not only on its commanding nature to make people obey, but also on internal consistency and predictability. We thus try to develop a set of statutes and case decisions which constitute rules and principles by reference to which people may determine in advance how they must behave. But in so doing we run the risk that precedent, logic, and symmetry may become our goal instead of moving the traffic safely.

They may become the objectives of legislatures instead of practical rules for dealing with the problems of the people that make up society. What I am saying is that our usual approach to motor-vehicle and traffic lawmaking is not so much concerned with the *effect* that the rules have on people as upon the rules themselves. The *command* rather than the *result* is what is emphasized. Those who write the statutes and regulations seem to have lost sight of the fact that people form society, and they allow their individual concepts of the traffic problem to serve as the basis for the statutes they enact.

Part of this attitude seems to follow from the fact that in law school most of us were trained in the deductive logic method of thinking—through the case method. But there is more to the law than logic, as Justice Holmes reminded us in his classic comment that the life of the law has not been logic but experience. Here is where we must face the question Dr. Goldstein raised with his illustration that people and not rules form the basis of society.

What is meant by "experience" in the law? It seems to me that, for the law, "experience" is expressed in the customs, interests, and outlook of the people. These do not always have the symmetry and consistency of deductive logic, and so the lawyer's training may color his thinking—and may even close his mind to the practical effectiveness of the experiential approach.

When this happens, the result may be what has often been described as slot-machine justice or mechanical jurisprudence where you simply plug the people into the situation and crank out the decision. This contributes to rigidity in the law, while the society to which the law is expected to apply may have changed greatly.

I am not saying that the need for logic and consistency in the law should be entirely ignored; I am saying that we have two different viewpoints which must be kept in balance. People who are asked to obey laws and regulations care little about logic—they simply want to know how that law will affect them.

It has been noted that we have a rather cynical attitude toward human nature It seems to me that this observation is an accurate description of what we in fact have in our current approach to traffic law. We seem to emphasize the command at the expense of the effect of that command on the individual. Maybe this grew out of the nuisance background of the automobile that Mr. Hennessee mentioned

And, as Mr. Morony said, possibly we should look at the law as a way of doing something for people instead of doing something to people.

I think we need to take this command of the legislative philosophy of traffic control and examine it in the context of contemporary society. Mr. Rockwell mentioned that a study showed 50 percent of the suspended drivers in Michigan continued to drive thereafter. It was also mentioned that the prosecutor has only a 50-50 chance even in a good case, because jurors look at traffic cases a great deal differently from the way prosecutors do. They apparently consider the effect of the decision instead of its logic, and visualize themselves in the shoes of the accused

We have heard that one study showed there were 3,500 actual violations for every single arrest that occurred. We need to know more about why this great disparity exists. Is it because our current approach is unrealistic in the context of a highly mobile society? Perhaps it should be studied in relation to the using of conditional licenses to regulate behavior Persons who have demonstrated that they have not met the standards set out for driving, through whatever process has been set up by that state, are put back on the road conditionally to avoid a hardship where an economic necessity is concerned Is this not inconsistent with the command philosophy?

One gentleman reminded me yesterday that someone with political pressure may have gone to the legislature and opened this device up to a great many undeserving drivers merely in order to get one other individual back on the road. This, of course, is a risk which must be assumed under the political process we have in our state governments.

A final point on the questionable practicality of this command of the legislative thinking is in its relation to the idea of the automobile as a nuisance. It would seem to me that we have come full circle. Can you imagine a man driving a wagon and team across Key Bridge during a rush hour? Can you imagine his attempting successfully to persuade a policeman that the automobiles on the bridge were the real nuisances, that the horse and wagon are the natural mode of transportation, just as they had always been in this country before the motor vehicle was developed? This is obviously ridiculous, but it is no more ridiculous than the philosophical premises on which many of our traffic and motor-vehicle laws are based.

The point of these examples is, of course, that we should try to become more realistic in our system of traffic control. It is obviously unrealistic to expect traffic courts to be effective if they have to deal with people who don't obey and don't see any sense in this system that we have now.

On the other hand, I would mention another view of the law. This is the philosophy that law primarily gives effect to our social interests instead of issuing commands to us. This is what Dr. Nutting seemed to be suggesting when he spoke of a "right" as an interest protected by society. There are public interests and private interests, and these sometimes conflict. Through law we balance conflicting interests and give effect to that interest which does the least amount of harm to the total scheme of social interests.

This philosophy visualizes law as a device for reflecting what the community wants it to reflect. As Professor Goldstein said, people and not law are the basis of society, and so the law reflects the interests—public and private—of people!

Why can't we give effect to the interests of society by approaching the function of law in this way rather than as something more than a series of legislative commands? Legislatures say they do this, but it has become extremely difficult. What groups are most vocal when the legislature meets, and what social interests are recognized? I doubt whether the individual interest in motor-vehicle operation is as clearly articulated as most special interests articulate theirs.

In short, this approach to law is most concerned with the effect of applying the law and not only its logic and symmetry. It does not unduly emphasize the enforcement of compliance, for it is an attempt at realistic recognition of what is actually occurring in society. Therefore, sanctions are not so important to this philosophy. There is more flexibility in it, for it does not concern itself solely or primarily with deductive methods of logic for determining the propriety of a particular statute.

For the future, we should recognize that we have seen demonstrated two widely differing philosophies of law. Recognition of these polarities should aid our understanding as to why there is not complete unanimity in our approach to traffic control through law.

LOUIS LAUER, *Director*
Project for Effective Justice
Columbia University Law School

I would like to begin by reading a quotation I found in a monthly letter from the Royal Bank of Canada. Actually I have been interested in the experience of other countries and was really surprised to find that the Royal Bank is now concerned with our highways and our traffic. The quotation deals with a boast made by the Roman Emperor Hadrian, almost 2,000 years ago:

> . . the infamous crowd of carriages which come to our streets for this luxury of speed destroys its own aim A pedestrian makes more headway than a hundred conveyances jammed end to end along the twists and turns of the Sacred Way.

So the problems which we have been discussing are not unique. They really have a long history and, I suspect, will continue to call for solutions for many years to come.

In another part of this letter some sage was quoted as having said that there were just as many careless drivers 40 years ago, but the horses had more sense. All of which, I suppose, provides a sort of footnote to the paper on the difficulties of regulating individual drivers.

To turn to my more general comments, the first thing I would like to deal with are the limitations on the formulation of any kind of program. These, in my opinion, are limitations which are not going to be resolved by research; they will limit the effectiveness of any research. The first one has to do with the cost of implementing any program. A program to modify highways and enlarge the area of safety, to increase the administrative personnel available for implementing a program, and to eliminate delays in the judicial processing of cases will cost money. This money, which is obtained largely by taxes, will have to be appropriated by legislative bodies which are made up of people who have to run for re-election and have to make many hard decisions. These decisions are not between something good and bad, but between conflicting good objectives, such

as more schools or more highways, more personnel for administrative jobs or more policemen for the enforcement processes. So, as a practical proposition, even the most ideal program, based on faultless research in the world of affairs, is going to be limited by the amount of available money. Many governors who held office four years ago and do not hold office now know quite well that the job of raising this money is a thankless one.

The second limitation has to do with the legislative awareness of the impact of motor-vehicle laws and amendments to the laws. The legislators who run for re-election every two years, or possibly in some states a longer period than that, are acutely sensitive to the impact of the statutes they enact to people in their day-to-day activities. I do not think that these legislators act as thinking machines or that they are terribly concerned about the possible inner consistency of the statutory provisions they enact. Perhaps they should be more concerned about it, but in any event we can be sure that a program will have to pass the two tests of financial practicality and political acceptability. And I think this is proper in a democracy.

The third limitation has to do with the nature of the choices that are made, and as I mentioned before, these are choices not between something that is obviously good and obviously bad, but between two good things. When the officials of, say, Westchester County think about putting up a safety light, they must decide whether to protect children who run into the street, or to accommodate businessmen who want people to stop as they drive by so they can see the store windows, or promote the public interest in having traffic move freely off the expressway. There are other instances of this sort of conflict between several "goods" that present hard questions of judgment. Research people such as myself are not so impertinent as to suggest how to resolve them, although as citizens we have our ideas as to what is desirable and what is not.

All of which leads me to read the last quotation in this letter from the Royal Bank of Canada. This is a quotation from a planning report for the rebuilding of down town Los Angeles: "The pedestrian remains as the largest single obstacle to free traffic movement." Obviously he does, but there is the conflicting good of having pedestrians using the streets and motor vehicles depending upon these same arteries for circulation of traffic.

Finally—if I may list what is to me the fourth and last unavoidable limitation on any program which involves the use of legislation—it is the ignorance of the law and the effect this has on the shaping of legislation and its implementation. I do not believe this is simply a matter of the law books containing highfalutin phrases, or the technical language of lawyers. I wrote a law a few years ago called the New York State Family Court Act, and it was written in that language. The various social workers who were not lawyers but who had need to understand the law told me that they could sit down with this law and read it, find what they wanted in the index, and had no problem at all in using it. To them the statute was understandable, and had been deliberately written in every-day language. But if you were to speak to the thousands of juveniles who pass through the Family Court, and the more thousands of adults who have contact with some part of the court's processes, they have never once opened up the Family Court Act of the State of New York, and they couldn't tell you what it says there, even though after you show it to them and ask them what it means they would be perfectly able to do so.

I think this problem applies even more in the motor vehicle field. It is not solely a matter of technical language, or elaborate classifications, or many rules. I confess that I have never opened up the motor-vehicle code of my state and looked at the statute. I did study a booklet on the subject in order to pass the test to get my license. But I am not familiar with that statute and I am a lawyer. I don't believe you are going to persuade the millions of drivers in this country to open up a statute book cast even in the simplest of language to find out whether they have the right-of-way or the other car has the right-of-way at an intersection. I think it is an unrealistic expectation.

But what this means—and most if not all legislators recognize this—is that legislators in casting the law try to reflect the ordinary behavior of drivers. So they write the law in the way they think most drivers will act, and everyone knows that if they behave as most drivers behave, or should behave, their behavior will conform to what the statute says. If it doesn't, then there is presented a problem that is often met by the discretion of the police officer enforcing the law or by the prosecuting attorney's or court's flexibility in determining what the facts of the case are or imposing only the very minimum punishment.

When you begin with these built-in limitations—money, political pressure, the necessity to choose between competing goals, and the ignorance of the law—then the question is how can you work out a plausible program for not simply moving the flow of traffic, but fitting that into a whole complex operating society which doesn't exclude pedestrians. Of course, I do not know the answer, but I want to suggest a perspective that I think makes sense in terms of the sort of research that I think lawyers are equipped to do and probably should do in consultation with sociologists and sometimes people from other branches of the behavioral sciences, as my organization at Columbia University does in all of its studies.

As I understand it, Justice Gallagher's scheme was not designed to serve as a legislative program. That is, he was not proposing that the penal law and motor-vehicle law be recast in terms of these 12 classifications, but perhaps ultimately this should be done. I think his focus was on the exercise of judgment and the adjudicatory choice. That is, when the matter in all of its detail is before a judge or administrator, these would be guides for the exercise of their discretion under the broad range of powers that currently are granted.

My purpose is somewhat different from Justice Gallagher's. It is more abstract and designed to suggest a method of viewing the whole proposition. The first thing I would note is that there are three bodies of law that have something to do with the movement of traffic. One is the civil law, basically the tort law, that deals with the question of when a driver may recover damages in the form of money for property injury or personal injury arising out of an automobile accident. Some have said that the current system for determining who should pay whom for the damage to my car and personal injuries arising out of an automobile accident requires that we first decide who was at fault and who wasn't, and thus the amount of damages awarded is largely in the discretion of the decider of fact, typically the jury.

Others have said that the threat of having to reach into one's pocket and pay the bill serves as a deterrent which supplements the deterrents provided by the criminal law and administrative regulations relating to faulty driving. I am very doubtful about using the civil law for this purpose. Most drivers today, I am

sure, do not pay the money from their own pocket; their insurance company pays, ar·1 this means that the deterrent effect of this device consists of the fear that one s premium rate may go up slightly. I think this is all that is left of the possible deterrent under a system of almost universal insurance coverage.

I thir :, in short, that the body of laws dealing with the allocation of risk or the payı ent of compensation should be shaped in terms of who should pay when, where, ; ıd how, rather than in terms attempting by that means to regulate the flow of affic. If I am right in that conclusion, we have two possibilities which I woulc like to mention. One is a system of administrative regulations; the second a system of judicial regulations.

The ı ason we have been speaking about regulations is precisely because the automol le is generally a tool of pleasure that we think of as being subject to restraini and because there ıs a need for some restraint to avoid these unpleasant consequ ıces of unrestrained driving. Thus the law is stuck with the ugly job of talkir , about limitations, penalties, sanctions, and similar things. I think the basic jo' of the legislature is to decide on the allocation of functions between the adminis ator and the court

As fa as the administrative agency is concerned, I don't think anyone has any dou t that it should be charged with responsibility and given the authority for testi g the qualifications of applicants for licenses to drive automobiles. Whethei ·ou call a license a property right or a privilege, everyone is agreed that when it ɔmes to testıng the qualifications to drive there must be a practical test of physi ıl and mental condition and knowledge and driving skill. Once you pass the ualifications test, it is a matter of assurıng compliance with a reasonable body of ıles. I am not competent to say whether the body of rules in my state is reasoı ble, but assumıng that it is, it becomes a question of enforcement. The administ ıtive agency generally is given two powers to assure enforcement.

One i the power to suspend a license; the second is the power to revoke a license. Normally there is a statutory requirement, whether or not it is also mandate by the constitution, that these sanctions of suspension or revocation of a lice .e should not be imposed except after a hearing with due notice and an opportuı ty to contest the controversial charges.

The t rd possible method of regulating this matter by administration is in the train g of those who have been in trouble before. This may also involve the retrainin or possibly as a preventive measure, undertaking some sort of more systemat and formal schooling, and making this a requirement for making applicati ı for a license. When programs of this type become involved, as I think th· do when it comes to the matter of psychıatric rehabilitation, we open up the ı ole question of costs and whether the money spent on costs is more beneficia y spent there rather than on something else the legislature has in mind.

We sl uld not, of course, overlook the fact that there is a fair possibility of improvir judicial regulation of motor-vehicle use. This raises the whole question of the u ıty of the criminal process to achieve not simply the goal of moving traffic, b the other goals of public policy associated with motor-vehicle owner-ship and ıse. At present the courts are authorized under the law to deal with certain t ɔes of driver behavior, and I am speaking now only about moving offenses.

I thin that parking offenses and non-moving offenses raise a completely different et of problems, which are largely the same as many others which a

government of a metropolitan area deals with in handling a large mass of cases on a limited budget and under tremendous pressure. But as far as the moving offenses are concerned, they are dealt with either as a motor-vehicle offense which is not a crime, or they are dealt with under the criminal law. It is at this point that Justice Gallagher's paper really has its full force, for he has pointed out the difficulties with which our traffic courts must work in sorting out and deciding how to deal with the extremely heterogeneous mass of acknowledged traffic law offenders who annually are apprehended. His proposal to have a pre-sentence investigation report submitted to the judge, and then to use a set of categories as guides in making a decision as to what should be done in any given case, deserves serious study by legal and sociological researchers.

VICTOR J. PERINI, JR., *Staff Associate*
Laws Division
Automotive Safety Foundation

I would like to make a preliminary comment on Professor Arens' remark about rewards for good driving conduct. There are instances where the accumulation of points against a driving record for violations of motor-vehicle laws are weighed in a framework of the driver's conduct within a certain period just passed, and if within that recent time interval, the driver has had a good record, points accumulated prior to that period are in a sense forgotten when the administrator under the point system law is called upon to look at the record of a particular individual.

This is a form of reward for violation-free driving for at least a specified period of time. I must admit, however, that if given a choice between the several types of rewards suggested by Professor Arens, I might be tempted to subscribe to the banquet idea.

Referring to Justice Gallagher's paper, I was extremely interested in his distinction between the causes and consequences of intentional and non-intentional violations. I think they are valid distinctions. However, I am troubled by the non-intentional violator who appears before a court of law because of a driver failure resulting from inexperience, emotional instability, mental and physical handicaps, and similar causes. I feel strongly that determinations in these areas are more properly within the jurisdiction, so to speak, of other disciplines, such as education, medical sciences, social sciences, or perhaps the licensing authorities working together with these disciplines in resolving these vexing problems.

We tend to breed confusion in the public mind when we require a court to decide that a driver is guilty of violating the law—when perhaps he never should have been placed in the circumstances—because of incompetence, which enabled him to commit such a violation. It is somewhat akin to spanking a child and *then* telling him he shouldn't use crayons on the wallpaper. Perhaps we should consider this type of non-intentional violator in a context of prevention rather than punishment.

When we turn to the intentional and reckless type of violation, I agree with Professor Bowman, who pointed out that certain of these offenses are criminal by their very nature, and this violator should be subject to the full impact of the law. I would like to see the research done to determine whether we reasonably

can make distinctions between such serious offenses and those which can be considered minor offenses. As a rule of thumb, however, those offenses which constitute grounds for mandatory revocation by statute can be classified as serious offenses.

These serious offenses can remain subject to court consideration, whereas the minor offenses could be dealt with by some other means, possibly in the nature of an administrative procedure. However, we must always be aware of the dangers inherent in any procedure that does not grant the full protection of the court. Utmost caution would be necessary in the development of any such policy, which would permit this type of treatment for violations, because public misunderstanding or resentment create potent voices which soon are heard in legislative halls.

I take issue with Justice Gallagher on one thing, or perhaps I am saying the same thing he says—in a slightly different way. He indicated that there should be some financial penalty or impact on the violator whose action results in injury or damages to another. He suggests that this financial hurt would have a salutary, or deterrent effect on the violator. Philosophically, I cannot fully agree with his position.

Are we concerned as a society with the innocent victim being made whole, or are we more concerned with punishing the guilty violator? The principal justification for inflicting greater fiscal retribution on the violator would seem to lie in its value as a deterrent against future violations. What then is the impact of this concept on the financially irresponsible offender? On the other hand, the financially responsible violator maintains this socially desirable status at substantial expense to himself by means of insurance of some sort. Would this man question the purpose of his expenditure if in fact it didn't give him the protection he thought that he was buying? And in turn, how would this thinking on his part affect our general concern for the innocent victim of an accident? Furthermore, we invite a certain amount of confusion when we attempt to assess civil damages within the context of a criminal proceeding. I would approach this issue with the greatest caution.

Many other provocative questions have been raised here today. Professor Arens suggests that punishment in general practice does not accomplish what it is supposed to accomplish. This concerns me as I look at Justice Gallagher's presentation, and Professor Bowman's comments. Is the punishment approach to traffic violations really using the wrong means to achieve a desirable result? Having established our objectives, can we reach them by inflicting more severe penalties on those who do not conform? Or should we perhaps look to a system which employs less severe penalties, but couples them with some form of reorientation or rehabilitation of the offender? If there is merit in the latter approach, substantial research would have to precede any decisions, and this research should involve not only the legal profession, but professions dealing with motivation and behavioral sciences.

Another basic question is raised. Where does the law fit into the total context of a motorized society? We assume, and we hear it said often enough, that the citizen of a state has the legal obligation to pay his taxes. Some of these moneys are used in building the highway system. If so, it would seem to follow that this same citizen has at least a qualified right to utilize these highways, or otherwise benefit from their use. Therefore it seems to me that the direction of the law

should be to assist this citizen in obtaining these uses and benefits. Is this today's direction?

Here we come back, in a way, to Mr Morony's question in his opening remarks: Is the law designed to do something to people or for people. In this context I wonder if perhaps we should give some very serious thought to the entire question of sanctions Is our system of enforcement aimed at putting people back on the road or is it aimed at taking them off the road? What should be our direction in this respect? If it is to put them back on the road, perhaps our criminal law procedures are insufficiently flexible to achieve this, as they are presently set up. I don't pretend to have any answers to this question, but ultimately, I think we will have to come to grips with it.

Another problem (which I believe was mentioned only once) is the problem of communication. It seems to me that the law has a duty to tell people what to do, and how to do it. It must help them to help themselves. Why then should these laws be written in such a way as to require the services of a Philadelphia lawyer to interpret them?

Perhaps in drafting legislation in this area of such immediate concern in our daily lives, thought should be given to drafting laws in terms similar to those used on Madison Avenue, rather than from a law dictionary. I cannot say that this can or should be done, but it seems to make sense that law should be placed on the books which can be read and understood by the average citizen, at least in the area of rules of the road. We seem to be condoning our present approach when the licensing authorities are compelled to prepare relatively simple manuals, which are designed to inform the driver of pertinent laws which will affect his future conduct, for his use in preparing for a written examination on the subject. If he can understand the principle of law as set forth in simple terms in a manual, why shouldn't he be able to do the same thing by reading the law itself? The mere existence of such manuals seems to suggest that something is wrong.

Mr. Lauer made some interesting comments on the futility of such an approach when he discussed his drafting of the New York State Family Court Act in simple, every-day language. He suggested that even though these laws were easily read and understood, the thousands of persons coming under the effect of this act took no interest to even bother with reading it. He did, however, indicate that the social workers who were required to know this law in their work needed to know what it meant, and they were very appreciative of Mr. Lauer's efforts in making the law an understandable document.

It seems that this same "need" justifies a proposed simplification of the statutes. The driver needs to know the law because, among other things, he has to pass an examination concerning it before he is licensed. There is no evidence to the effect that the people subject to the New York act "need" a similar working knowledge of its contents in order to qualify for its benefits.

One thing that was not mentioned, and which concerns me, is the lack of young people present at this colloquy. Most of us can recall the so-called good old days when automobiles were not so common, and I wonder if we do not all carry some unconscious attitudes about automobiles which stem from those early years? Certainly the youngster who lives in our present society, with a television in his bedroom and a car or two in the family garage, and a jet flying overhead, is likely to have a different viewpoint about these things than we do. And when

we speak of planning for the future and setting the pace for tomorrow, maybe we should know what our youngsters think about things.

Our grandfathers and great grandfathers were not very different in the way they looked at life. We differed somewhat, because of the impact of modern life on our attitudes Our children are growing up in a far different environment. I can recall the Depression days when a nickel was a substantial sum of money. My six-year-old son doesn't know what to do with a nickel, because everything in his world seems to cost a dime or more. He "needs" things which weren't even known in my day. And we sit here planning his world, in a sense. Are we being realistic in drawing blueprints for his future with our pencils?

Perhaps the law should recognize these facts of contemporary life. Perhaps in creating and teaching law we should project ourselves to some extent into his frame of reference, try to look at tomorrow through his bright young eyes. I think it would be an attractive and profitable avenue for research in determining how this can be done.

I have often heard a number of terms that are familiar to lawyers: "regulate," "restrict," "punish," "fine," "control," "enforce " We have been applying these terms to the ownership and use of motor vehicles. Yet, to the young person of today the motor vehicle represents anything but these things. He is growing up with a feeling that the motor vehicle is an indispensable part of his life and his means of mobility in a society and economy which is based on mobility and movement If we are talking about motor-vehicle law for the generations that are to come, maybe we should start talking about the types of functions which that generation will want the law to perform. If so, perhaps we should be thinking in terms of guidance, assistance, service, and helping to make possible the full and safe use of cars Personally, I hope this colloquy may be the starting point from which we will view the field of motor-vehicle law in this context.

YULE FISHER, *Research Counsel*
National Highway Users Conference

Justice Gallagher has made a real contribution with his carefully structured presentation on penalties I associate myself with previous commentators as to the need for additional research in this area.

The policy statement of the National Highway Users Conference is that the users of American highways are entitled to use those highways with safety, efficiency, and convenience. This is a guiding thought throughout our work.

My comments are rather general on the future of research and the relationship of this particular colloquy to needed research on motor-vehicle and traffic law.

The timing of this meeting is very fortunate in view of another event. This morning Carl Saal raised the question of the Uniform Vehicle Code, which is, of course, the chosen instrument by which we attempt to move forward in bringing the law as a standard before the several states I think that one of the first influences of this colloquy may be in the future meetings of the National Committee on Uniform Traffic Laws and Ordinances.

The National Committee has recently restructured its subcommittees to meet more efficiently and expeditiously many of the problems that are being discussed here. Within a short time these subcommittees will meet to consider proposed changes in the Uniform Vehicle Code and Model Traffic Ordinance. It is our

hope that in these meetings not only will the wisdom of the committee members be brought to bear on these very problems we are discussing now, but also that the wisdom and insight of disciplines other than that of the law will be brought in. So, as Chairman of the National Committee on Uniform Traffic Laws and Ordinances, I would at this time extend an open invitation to any and all of you who have a contribution to make in the development of the Uniform Vehicle Code to bring your insight and experience to the benefit of the National Committee.

There has been a great deal of intellectual pollen cast on the wind these past two days. To use a metaphor of the biological sciences, the question of how fruitful this meeting will be depends upon how much of this pollen reaches its objective. I have mentioned one great opportunity in the Uniform Vehicle Code. I think a research program dedicated to this end should start by finding out what our existing law is and how effectively it is working. As has been pointed out here, it is a major job merely to say what the law is in 52 jurisdictions.

There is also the problem of eliminating gaps and conflicts. Some have suggested that this problem might be solved by the Draconian solution of Federal intervention. This, of course, is a possibility which, like Damocles' sword, is hanging over us and may fall at any time. I suggest that the discussions we have had thus far show it is not wise, from the standpoint of our knowledge of what is needed, for the Federal Government to take any action which will stop or paralyze the progress we are making in the solution of these problems in the states, and so make the ultimate solution more difficult. A very important reason is the point made by Justice Holmes when he said that it is desirable to have states serve as laboratories for the solution of these problems. Certainly in the development of motor-vehicle law it is desirable to have just as many laboratories as we need.

A second point about legal research in this field is the need for study of the experience of the law on the books. Even more importantly, laws about to be enacted and which are being considered by the legislatures should be evaluated carefully. In many respects, we still use very primitive ways to evaluate the experiential basis of motor-vehicle law.

In pointing out work for the Highway Research Board's new Committee on Motor Vehicle and Traffic Law, I think that with all this intellectual pollen going around we have a question of establishing priorities in research. Certainly some of the questions we have taken up are life-and-death matters which deserve attention as quickly as possible. There is also a question of the availability of research resources.

It has been pointed out that the lifeblood of research in many cases is the money available. The Federal Government has in the past financed a good deal of useful research through the so-called "One and One-Half Percent Funds" of the Federal-aid highway laws. The initiative in use of these funds is in the hands of the highway departments, whose orientation and outlook is primarily in the direction of solving highway rather than motor-vehicle and traffic problems. State motor-vehicle departments do not have this type of resource or resources for their research needs. I can understand how this situation arose, but I believe that with the available research funds it should be possible to achieve a better balance in the allocation of financial backing between the highway and the traffic on the highway.

Personally, I believe this colloquy has provided the opportunity for a very effective cross-fertilization of the various disciplines that are concerned with motor-vehicle and traffic laws. I would like to pay tribute to the Automotive Safety Foundation and the Highway Research Board for making this gathering possible, and I believe that we have at least accomplished a happy mating if not a happy marriage.

GENERAL DISCUSSION

Professor Bowman.—Mr. Lauer has expressed some of the things I had in mind. When I suggested that many violations could be described as regulatory offenses, I was not restricting it to petty offenses only. I had in mind that an administrative agency would have as one of its most effective sanctions the power to revoke licenses. Thus it would be possible to transfer to the regulatory category some of the more serious offenses that now have to be administered in the criminal courts. My objective would be to get them out of the criminal court process by describing them as something other than crimes. Once they are out of the criminal courts, they could be handled by an administrative tribunal, such as we have in workman's compensation and labor fields, and the criminal courts would be freed of the great volume of cases which are now clogging their dockets.

Mr. Perini made one comment which involves this same point. In regard to our use of the words "control" and "regulate," criminal law traditionally has been defined as an instrument of social control. So when we designate these violations as crimes by definition, we mean that we are controlling social behavior. My point is that I do not think they should be so designated. I think a large area of conduct in the traffic field could be transferred over into these regulatory categories, and not come within this concept of control, which involves us in the criminal process whenever we include something in the criminal code.

Professor Arens.—Mr. Justice Gallagher, do you feel, as a result of your judicial experience, the need for more clearly formulated rules governing traffic regulations, and do you feel that there might be a diminution of traffic violations if the rules of traffic were more clearly formulated in language readily comprehensible by the layman?

My second question is, do you feel the need for periodic instruction in such rules as distinct from merely the haphazard instruction which precedes the taking of the driver's license test, followed by other periodic semiannual or biannual physical or mental checkups of drivers to make sure that they are truly fit?

Justice Gallagher.—As to the first part of your question, regarding the coverage of present traffic regulations, the field is covered by municipal ordinances and statutes, and where the statutes are silent possibly our Common Law requirements might come in. As far as the statutes' language is concerned, I believe most of them are quite clear. It is not a complex matter to understand the usual rules governing the flow of traffic, and most people really do know this even though they have not systematically read the statute book. I don't think that the courts have any great difficulty construing these statutes because of ambiguities.

As to whether I believe there should be periodic physical checkups, I assume you are asking whether every holder of a license, regardless of his age, should periodically go in to be examined I recognize that quite possibly this is an extremely desirable idea as far as driving is concerned, but I am afraid that you would have a hard time getting that enacted by any legislature. Each legislator would think of himself as required to pass these tests, and perhaps in his own mind there is a shadow of doubt as to how long he can do so. Theoretically, it would be a fine thing if we could do that, but practically, it presents a major political problem. In my home state, the Minnesota Safety Council has recommended that after either age 60 or 65 drivers must go in and take certain physical tests, particularly with respect to eyesight, and I think this has a better chance of becoming enacted than a more general periodic examination program.

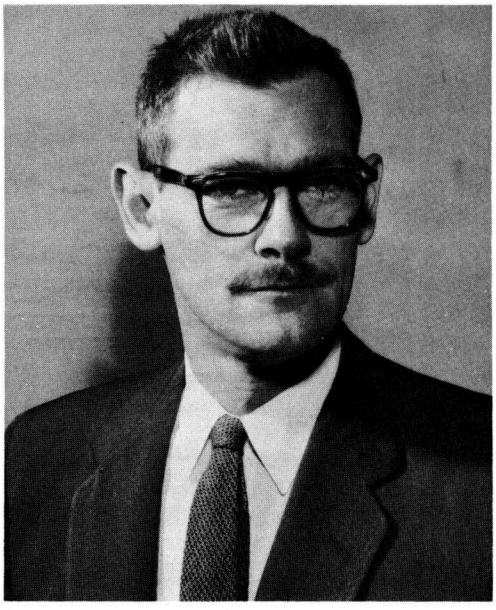
Mr. Lauer.—I think the function of the law books is not only to instruct those who are to be regulated as to what the regulations are, but also to limit the authority of other government officials. In some ways, the regulation of authority of the department of motor vehicles by the courts on judicial review serves a very useful function in limiting arbitrary behavior even though the man in the street does not know what the statute says

As far as avoiding accidents is concerned, I have been engaged in a study of arbitration as it is applied to settlement of personal injuries arising from automobile accidents, and I have watched a great many hearings to get a sense of how the arbitrators deal with the issues, what the rules of evidence are, and what the recurring questions are. In the course of this, I have been getting a sense of what happens in the settlement of these automobile accident cases I believe it is not always a general lack of intellectual capacity, or even lack of some physical ability, such as sight, that is the accident cause. Sometimes what happens is that a driver, fully aware of the rules and perfectly able to drive in terms of his coordination, gets distracted by something, or is thinking about something else at the instant when the accident could have been avoided. I can't think of any body of rules or regulations or car design or highway design that is going to eliminate that sort of situation. This is a fact which I think needs to be kept in mind when we consider what can be accomplished by the criminal law, or even the law generally, in connection with traffic accidents.

SUMMATION

DR. ROSS D. NETHERTON, *Counsel for Legal Research*
Highway Research Board

It obviously is not possible for me to sum up what has been said during this colloquy by enumerating all the ideas that have been expressed, or even by suggesting a selection of those ideas regarding which there has been general agreement. If I were to try, I expect I would be tempted to yield to the common failing of summarizers, which is to mention those points which appealed to me personally and omit those which I either disapproved of or did not understand. More important and to the point, however, I strongly believe that the task of summarizing this exchange of ideas needs time for reflection—time to arrange ideas in relation to each other and according to some system of classification.



Dr. Netherton

I would, therefore, like to offer a summation in the form of some comments on the problem of classifying ideas, for this is certainly *one way* that we can help those researchers whom we are inviting to pick up the threads of thought which we have uncovered and unravel them. I suggest that it is possible to look at these ideas in terms of clusters around various themes or phenomena which characterize our involvement with the automobile and our reliance on legal concepts and processes to effectuate the public's interest in our automotive society.

We have suggested an initial step in organizing the total mass of motor-vehicle and traffic law by dividing our conference into four parts, each dealing respectively with four functions which we call on the legal system to perform. The fact that in each of our sessions the discussion has ranged into several of the traditional chapters or subjects of the typical state motor vehicle code is, I think, significant. Perhaps by focusing attention on *functions* rather than the *subject matter with which these functions are concerned* we can give research a new perspective which will aid in explaining why the law is as it is, and where it should be directed in its growth.

But more than this will be needed to dig as deeply as I suspect we must in order to find these explanations. We shall not be able to understand fully *why* the law is as it is until we fully understand the forces that are being exerted on the law.

At the beginning of this conference it was suggested that, in broadest terms, we were dealing with the impact of science and technology on our legal system. Thinking back over the discussions, I would agree that this is one of the major sets of forces—perhaps the largest of all the forces—which is putting pressure on our legal processes in motor-vehicle and traffic law. How can we begin organizing our thinking about this factor?

In his recent lectures entitled, "Law in a Scientific Age," Professor Edwin Patterson has suggested two ways in which science and technology have influenced law and its administration:

> First, scientific inventions, such as the motor vehicle, produce or threaten material societal changes (e.g., urban traffic congestion, the highway toll of death and injuries, the flight to the suburbs) which in turn give rise to the need for new laws. Second, a great deal of substantive scientific or technical knowledge, such as improved medical knowledge, is being used in legal procedures, in the trial of judicial and administrative litigation, and in the formulation of new legal norms.

These observations seem to me to give us a start by presenting two avenues along which researchers may begin to look for explanations of the growth of the law.

I think that when we look back over what we have discussed and think about the significance of the problems which have been noted, we will be able to pick out the aspects of motor-vehicle ownership and use with respect to which there are gaps in the law.

In a re-examination of the law to discover its gaps, I would not expect that the *need for new laws* will arise solely in places where there are *new needs*. It is true that Americans in the Twentieth Century have developed a way of life which was undreamed of in the Nineteenth Century, and that Nineteenth Century laws and governmental processes simply did not have some of the problems we have today. But I have in mind the observation attributed to Aldous Huxley, who said that "modern man has discovered only one truly new vice—speed." I am not even sure that speed is entirely a vice, but I think his remark serves to remind us that probably many of the needs which we say are new really amount to old familiar ones that have been magnified by the explosion of our motor-vehicle population and the construction of a highway system designed for an automotive society and economy.

The point that impresses me—and I would hope that future researchers might help in this respect—is that we need to take a hard and deep look at motor vehicle and traffic law in the light of what we, as a community, expect it to do.

There is a great American tradition that calls for reacting to almost every matter of public concern by raising the cry that "there ought to be a law" to deal with it. The size of our state motor-vehicle codes and the volume of new and amendatory bills considered by every state legislature attest to the strength of that inclination in the field we have been discussing. But, like the commandments of the fabled King Canute on the seashore, they have not prevented the tide from rolling in against us. With 20/20 hindsight we can now say that King Canute might have avoided his predicament if he had asked for and heeded competent scientific and engineering judgment before proclaiming his royal will. I believe there is a parallel here for us as we contemplate the rising tide of problems which will come when, in the 1970's more than 125 million drivers will drive more than 100 million automobiles more than a trillion miles per year.

The plea for "craftsmanship" instead of "draftsmanship" is a challenge for researchers as well as legislative reference bureaus. Certainly it will take more "craftsmanship" than we have had in the past to write laws that will make sense to the problem drivers who, Dr. Schlesinger discovered, thought that the law ought to justify itself to them, instead of they having to justify their behavior to the law.

Turning next to the increasing capability of research to extend our knowledge of the sciences and technology, these discussions have revealed a great many points of impact which significantly influence legal processes. Examples could be cited from all four sessions, but perhaps the discussion by Dr. King and Professor James posed the problem most dramatically. Research in science and technology is steadily extending our ability to measure, analyze, and explain phenomena of the physical world and the behavior patterns of the human body more and more precisely. In the process of all this, the law has been helped—at least in one sense—because the fact-finding phases of law making and litigation have been able to do a more complete job.

But this has not been an unmixed blessing. If I interpret the substance of our discussion correctly, it is that we must recognize that in some respects the cutting edge of our legal concepts is not nearly as sharp as that of scientific concepts, and hence the law is not able to deal in distinctions of the same degree of fineness that is found in science and technology. Or, perhaps it is that we need to recognize that the kind of distinctions that are used in legal processes differ from the kind of distinctions used in scientific thinking, and the *two are not* comparable in all respects.

This, I suggest, is the import of Professor McFarland's remark that our administrative process is at its best when it is dealing with the regulation of traffic by the physical features of the highway, and least well off when it is dealing with control of the driver through licensing or law enforcement. It is also the stumbling block which Professor James found in the way of progress toward better handling of the economic- and accident-prevention problem through tort law.

Thus the gift of knowledge which a highly refined scientific research technique has given to the law carries with it a serious challenge for both the producer and the consumer of this new and greater knowledge.

This leads to the suggestion that there is probably a third impact which science has had on the law—one which is not concerned with the material aspects of life, but with the way we think. And surely this, too, should attract the attention of future researchers as a point around which many problems cluster.

The material achievements of science and engineering technology have quite naturally enhanced the reputation enjoyed by the scientist's methodology. And, in accordance with Mark Twain's observation that there is nothing quite so difficult to endure as someone else's good example, those who work in the social sciences and the law have wished that they, too, might reduce their working principles to a set of reliable formulas But in the law we have always thought that legal principles cannot be worked out under strict laboratory conditions, nor can issues be completely purged of their variables before they are decided.

Yet, the attraction of the scientific analogy remains strong, and we need to have someone think it through and show us just how far it is a useful approach to handling the various types of problems we expect the law to deal with.

Time and again in these past two days—starting with the problem of a passing score for examining driver license applicants and continuing through to the problem of a uniform table of penalties in traffic court—we have touched this unresolved dilemma of trying to develop the means for applying the scientific analogy to legal processes. Whether we take the biological and psychological principles that Dr. King's medical research developed for dealing with human beings, or the engineering principles that Dr. Stonex's engineering research develops for dealing with cars, we still cannot find in the law *as it now exists* a set of legal principles which will produce equations that are effective in legal processes and acceptable to the discipline of the scientific method. This may be because the law must deal with morality, and morality (as expressed by the conscience of the community) is too complex and changing to be pinned down in the manner that the scientist constructs his table of atomic weights and measures.

But it remains a problem that will not go away until we decide what purpose we want the law to serve. To what extent should we ask legal institutions and processes to perform the job of instilling good driving habits in people solely for the purpose of general improvement of the breed? Science, with the aid of Pavlov's dog, proved that patterns of behavior could be established by repeated applications of a stimulus under controlled conditions. To many people, not recruited solely from the patients in Dr Schlesinger's driver clinic, a law calling for a mandatory step at the intersection of rural roads in the wilds of Wyoming seems to have no purpose except to develop their reflex action in driving It has neither moral nor rational force in its contact with them, and its survival in the law merely widens the breach between the law on the books and the law in action. The more this form of legislative crabgrass spreads, the more we are in danger of it stifling the growth of laws which are well-conceived and drawn.

So perhaps there is something ironic about meeting as we have in the rarified atmosphere of the National Academy of Sciences to discuss a reconciliation of law and science on National Groundhog Day. It is tempting to contemplate the world of the groundhog and the simplicity and ease with which he can make his decision Either his shadow is there, or it isn't. He never heard of scientific methods, and he will probably go on that way, simply consulting the black and white world of shadows on the second day of February each year.

On the other hand, the groundhog may never get to the point where he realizes that all shadows are not the same, and that it's possible to see your shadow on a very dark and cloudy day *if* you stand in the way of an artificial light—say, for example, the headlights of an oncoming automobile.

CLOSING REMARKS

LOUIS R. MORONY
Director, Laws Division, Automotive Safety Foundation
Chairman, Committee on Motor Vehicle and Traffic Law, Highway Research Board

In closing these proceedings I think it is appropriate to emphasize the point, made by Ross Netherton in his summation, that the exchange of ideas we have had these past two days needs time for reflection—time to classify, rearrange, and evaluate. In closing this two-day colloquy, therefore, we are at the beginning rather than the end of our work.

The brunt of this work, in the next steps that have to be taken, will fall on the Highway Research Board's Committee on Motor Vehicle and Traffic Law. As soon as the material from this colloquy is compiled and published, this Committee will meet to study this record for the purpose of identifying areas where research is needed, reducing these needs to researchable dimensions, describing them to give researchers a focus which will make their research applicable to the problems of lawmakers, judges and administrators, and suggesting priorities of importance.

This is appropriately a task for our committee, but in a larger sense, the brunt of the work to be done will fall on the research community as a whole. I visualize the results of this colloquy and the work of the Highway Research Board's Committee as a major challenge to our national research effort. As a nation we are well into the second half of the first century of our automotive era. As George Kettering prophesied thirty years ago, automobiles truly have become "the fourth necessity." But in these past two days, we have come to realize with unusual keenness how ill-prepared we are in many respects to provide society with this necessity with safety, efficiency, economy, and convenience.

We will not improve this situation by waiting for trial-and-error methods to reveal the path of progress. And even if we, as a nation, could afford the time, we could not afford the cost. We have to find the right way to better laws and better administration in a surer fashion—by deeper analysis of the problems, reevaluation of our traditional concepts, and imaginative development of new approaches to our problems.

My experience with law and public administration encourages me to think that we are not setting up a goal that is beyond our reach. I believe that the legal framework for regulating and administering the ownership and use of motor vehicles can be improved. I believe the legislator, the judge, the administrator and the policeman can ally themselves with the scientist, the engineer, the economist, the sociologist, and the behavioral researcher to find the basis for this

improvement. And, I believe that what we have done together is a step toward creating such a working alliance.

So, I wish to express sincere thanks to the National Academy of Sciences for the hospitality extended to us during these meetings, and to all of the participants who, by their papers or discussions, have contributed so much of value to our sessions. This colloquy has been a significant and fruitful beginning for the work of the Board's new Committee on Motor Vehicle and Traffic Law.

THE NATIONAL ACADEMY OF SCIENCES is a private, honorary organization of more than 700 scientists and engineers elected on the basis of outstanding contributions to knowledge. Established by a Congressional Act of Incorporation signed by Abraham Lincoln on March 3, 1863, and supported by private and public funds, the Academy works to further science and its use for the general welfare by bringing together the most qualified individuals to deal with scientific and technological problems of broad significance.

Under the terms of its Congressional charter, the Academy is also called upon to act as an official—yet independent—adviser to the Federal Government in any matter of science and technology. This provision accounts for the close ties that have always existed between the Academy and the Government, although the Academy is not a governmental agency and its activities are not limited to those on behalf of the Government.

The NATIONAL ACADEMY OF ENGINEERING was established on December 5, 1964. On that date the Council of the National Academy of Sciences, under the authority of its Act of Incorporation, adopted Articles of Organization bringing the National Academy of Engineering into being, independent and autonomous in its organization and the election of its members, and closely coordinated with the National Academy of Sciences in its advisory activities. The two Academies join in the furtherance of science and engineering and share the responsibility of advising the Federal Government, upon request, on any subject of science or technology.

The NATIONAL RESEARCH COUNCIL was organized as an agency of the National Academy of Sciences in 1916, at the request of President Wilson, to enable the broad community of U.S. scientists and engineers to associate their efforts with the limited membership of the Academy in service to science and the nation. Its members, who receive their appointments from the President of the National Academy of Sciences, are drawn from academic, industrial and government organizations throughout the country. The National Research Council serves both Academies in the discharge of their responsibilities.

Supported by private and public contributions, grants, and contracts, and voluntary contributions of time and effort by several thousand of the nation's leading scientists and engineers, the Academies and their Research Council thus work to serve the national interest, to foster the sound development of science and engineering, and to promote their effective application for the benefit of society.

The DIVISION OF ENGINEERING AND INDUSTRIAL RESEARCH is one of the eight major Divisions into which the National Research Council is organized for the conduct of its work. Its membership includes representatives of the nation's leading technical societies as well as a number of members-at-large. Its Chairman is appointed by the Council of the Academy of Sciences upon nomination by the Council of the Academy of Engineering.

The HIGHWAY RESEARCH BOARD, organized November 11, 1920, as an agency of the Division of Engineering and Industrial Research, is a cooperative organization of the highway technologists of America operating under the auspices of the Academy-Council and with the support of the several highway departments, the Bureau of Public Roads, and many other organizations interested in the development of highway transportation. The purposes of the Board are to encourage research and to provide a national clearinghouse and correlation service for research activities and information on highway administration and technology.

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