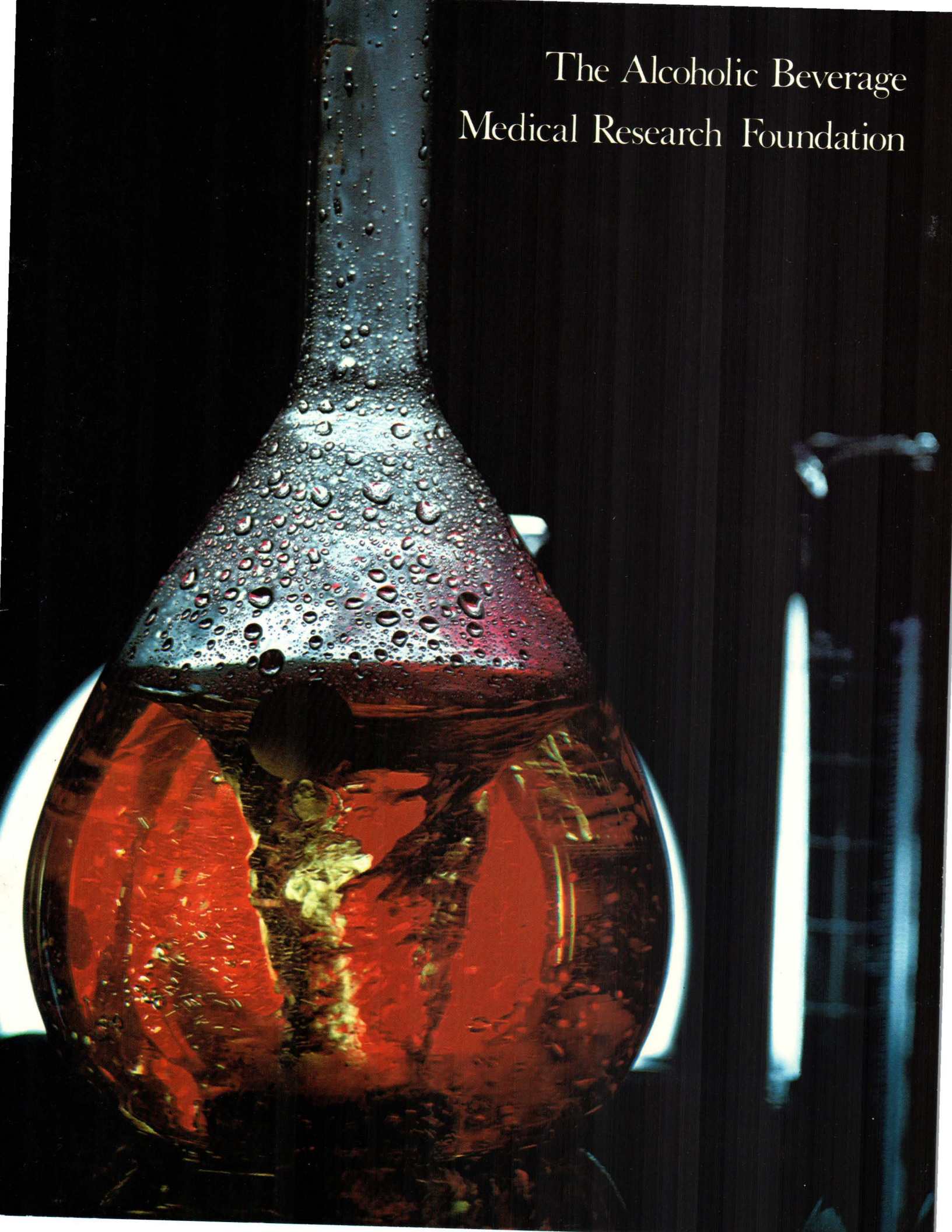
The Alcoholic Beverage Medical Research Foundation

ALCOHOLIC BEVERAGE MEDICAL RESEARCH FOUNDATION

Anheuser-Busch, through the United States Brewers Association, has provided approximately $2.5 million during the past four years to the Alcoholic Beverage Medical Research Foundation at the Johns Hopkins School of Medicine.

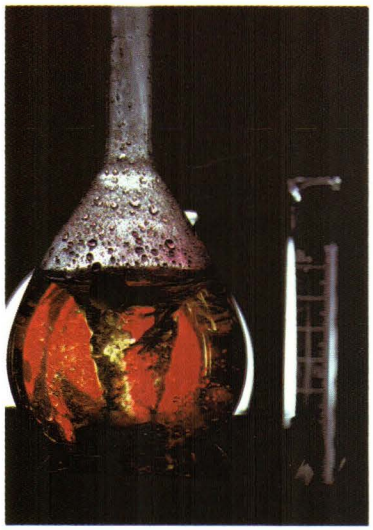
The foundation, which is supported by American and Canadian brewers, in turn supports worthy alcohol abuse research projects at institutions throughout the United States and Canada.


The Alcoholic Beverage
Medical Research Foundation

The Alcoholic Beverage Medical Research Foundation

"There is every reason to think that drinking and its effects for good and ill are here to stay for the forseeable future. The permanence of drinking and its effects as a feature of society is a necessary premise for any realistic analysis - but permanence does not necessarily mean unresponsiveness."

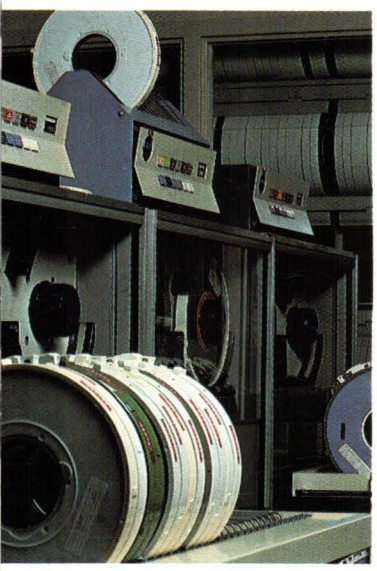
From
"Alcohol and Public Policy - Beyond the Shadow of Prohibition"
Mark H. Moore and Dean R. Gerstein
Editors

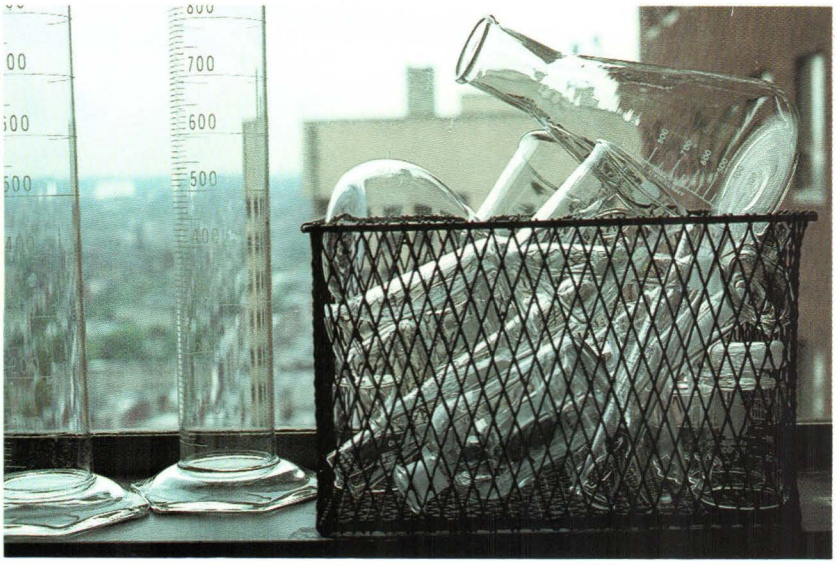


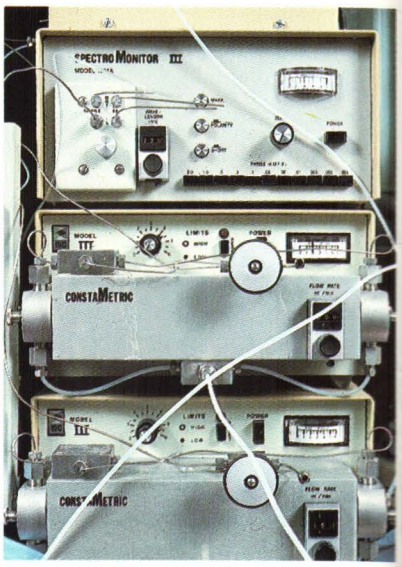
"Attempts to prevent or control misuse of alcoholic beverages have met with only limited success. Progress will come mainly through research into the physiological, behavioral and social aspects of the problem."

Thomas B. Turner, M.D.
President of the Alcoholic Beverage Medical Research Foundation
and Dean Emeritus of the Medical Faculty, The Johns Hopkins University

The prevention of disease is vital to the health of populations. The mission of the Alcoholic Beverage Medical Research Foundation is to contribute toward this goal by supporting sound research in the use, and prevention of misuse, of alcoholic beverages. It is one of the few private organizations in the United States and Canada which funds physiological, epidemiological, behavioral and social studies in this field, with expectations of publication, increased public attention, and practical application.



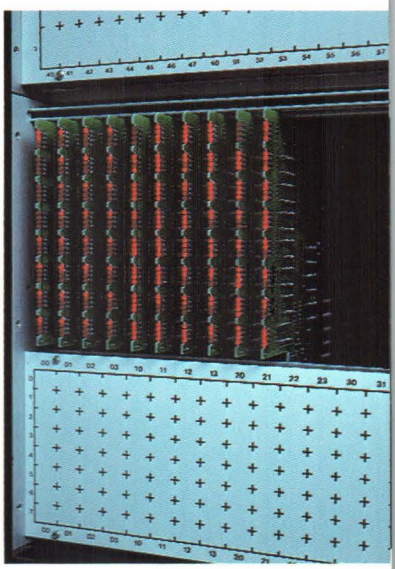




Research Priorities of the Alcoholic Beverage Medical Research Foundation include:

- Effects of moderate drinking
- Factors influencing the transition from moderate to excessive drinking
- Mechanisms of organ damage
- Drinking and driving

The ill effects of excessive drinking are well documented, yet effective means of prevention and treatment remain elusive. The development of new knowledge in the how and why of alcohol use and misuse is of great potential value. Through research, new discoveries in the field are evolving; through continued research will progress be made.



Organization of the Alcoholic Beverage Medical Research Foundation:

► The Board of Trustees, comprising 17 members from the United States and Canada; 10 from the academic and scientific community, and 7 from the brewing industry.

► Three medically trained officers, and a small technical staff.

► A research grants-in-aid program, conducted with the help of two advisory councils.

► The Johns Hopkins Alcohol Research Center, which derives strength from various departments of The Johns Hopkins Medical Institutions.

► Two consultants - toxicological and legal.

► Worldwide medical intelligence: surveillance and critical evaluation of pertinent literature by the Foundation staff.

"Alcoholism is one of the world's most important health problems and consequently should be addressed by a major medical institution such as Johns Hopkins. We are confident that research into the metabolic and behavioral aspects of alcoholism offers the best possibility of solution of this significant problem."

Richard S. Ross, M.D.
Vice-President for Medicine and Dean of the Medical Faculty,
The Johns Hopkins University; and a Trustee of the Foundation

How does the Foundation grants-in-aid program work? The Foundation funds research grants which are carried out at academic and scientific institutions in the United States and Canada. Applications on forms supplied by Foundation headquarters are considered in depth by one of two advisory councils, each made up of seven eminent physicians and scientists from the United States and Canada: the Medical Advisory Council or the Behavioral and Social Advisory Council.

Mack C. Mitchell, Jr., M.D.
Director,
Assistant Professor of Medicine,
and Deputy Executive Officer of
the Foundation

The Johns Hopkins Alcohol Research Center

The Alcohol Research Center is an organization of scientific investigators interested in the role of alcohol in health and illness. It serves both as a resource for the Foundation and as a mechanism for stimulation of new areas of research. Based within The Johns Hopkins Medical Institutions, the Alcohol Research Center provides the Foundation with expertise in biostatistics, epidemiology, psychiatry and neurosciences, pharmacology, and internal medicine. The Center also plans and directs long-term studies on the effects of alcohol consumption. The Director and his associates are engaged in research on alcohol intake and nutritional status in relationship to alcoholic liver injury and mechanisms of alcoholic liver damage.

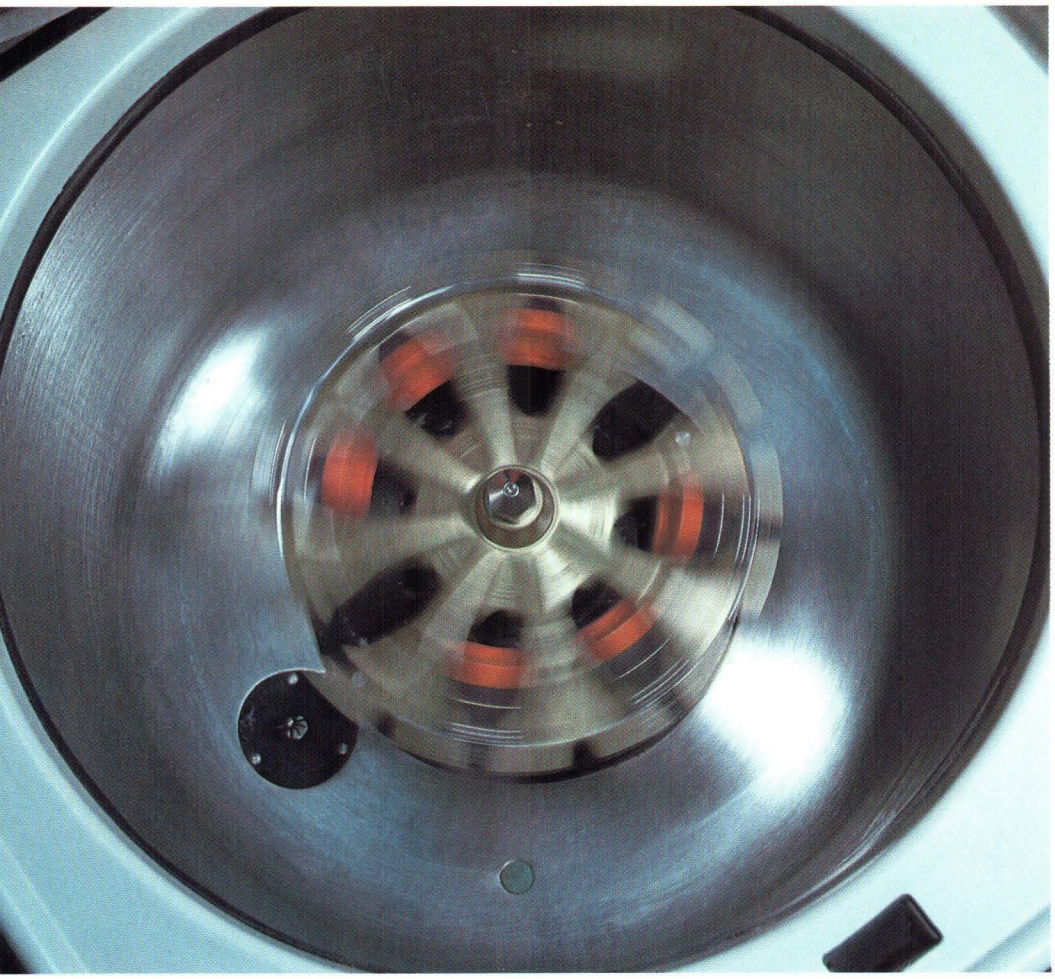
"Studies of adoptees show clearly that the incidence of alcoholism is higher among those whose biological fathers are alcoholic. These findings have led to further research into the role of genetic factors involved in alcoholism, in the hope that high risk persons can be early identified."

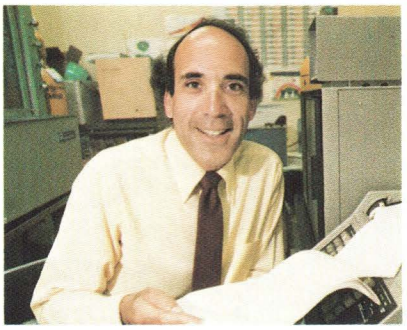
Donald W. Goodwin, M.D.
Professor of Psychiatry and Chairman of the Department, University of Kansas Medical Center;
Member of the Behavioral and Social Advisory Council of the Foundation

Examples of On-Going Research by Foundation Grantees

"The syndrome of severe and persistent alcohol problems seen in five to ten percent of our population appears to be genetically influenced. The goal of our research is to determine if an increased vulnerability towards alcoholism could relate to differences in the metabolism of alcohol, with specific reference to acetaldehyde. Methods for increasing the sensitivity of assays for acetaldehyde are being developed in association with J-P von Wartburg, of Switzerland."

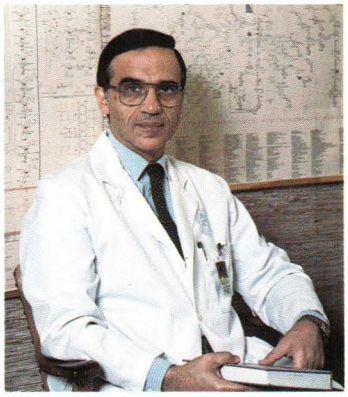
UNIVERSITY OF CALIFORNIA, SAN DIEGO





Pharmacogenetic Role
of Acetaldehyde in Alcoholism:
A Reanalysis

Marc A. Schuckit, M.D.
Principal Investigator
Professor of Psychiatry



Detection of
Precursor Lesions
of Cirrhosis

Charles S. Lieber, M.D.
Principal Investigator
Professor of Medicine
and Pathology

"It is clear that some individuals are more susceptible to liver damage from excessive alcohol use than others. Our research is aimed at developing liver function tests for early identification of these individuals, and for prevention of hepatic damage at a reversible stage."

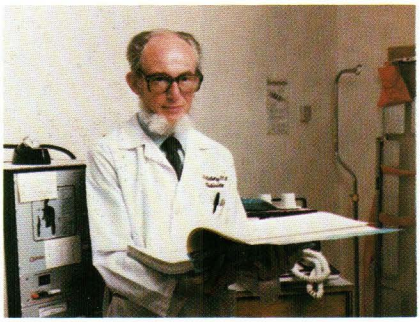
MOUNT SINAI SCHOOL OF
MEDICINE, NEW YORK,
NEW YORK
KINGSBRIDGE RESEARCH
FOUNDATION, INC.

"The most direct and reliable way to judge the effects of an exposure is to observe what actually happens to people who are exposed. Since most serious diseases are uncommon, this requires the study of large populations. They must be followed over many years, for chronic diseases often have their causes in events that occurred years before."

Brian MacMahon, M.D., Ph.D.
Henry Pickering Walcott Professor of Epidemiology, Harvard School of Public Health;
Chairman of the Medical Advisory Council, and a Trustee of the Foundation

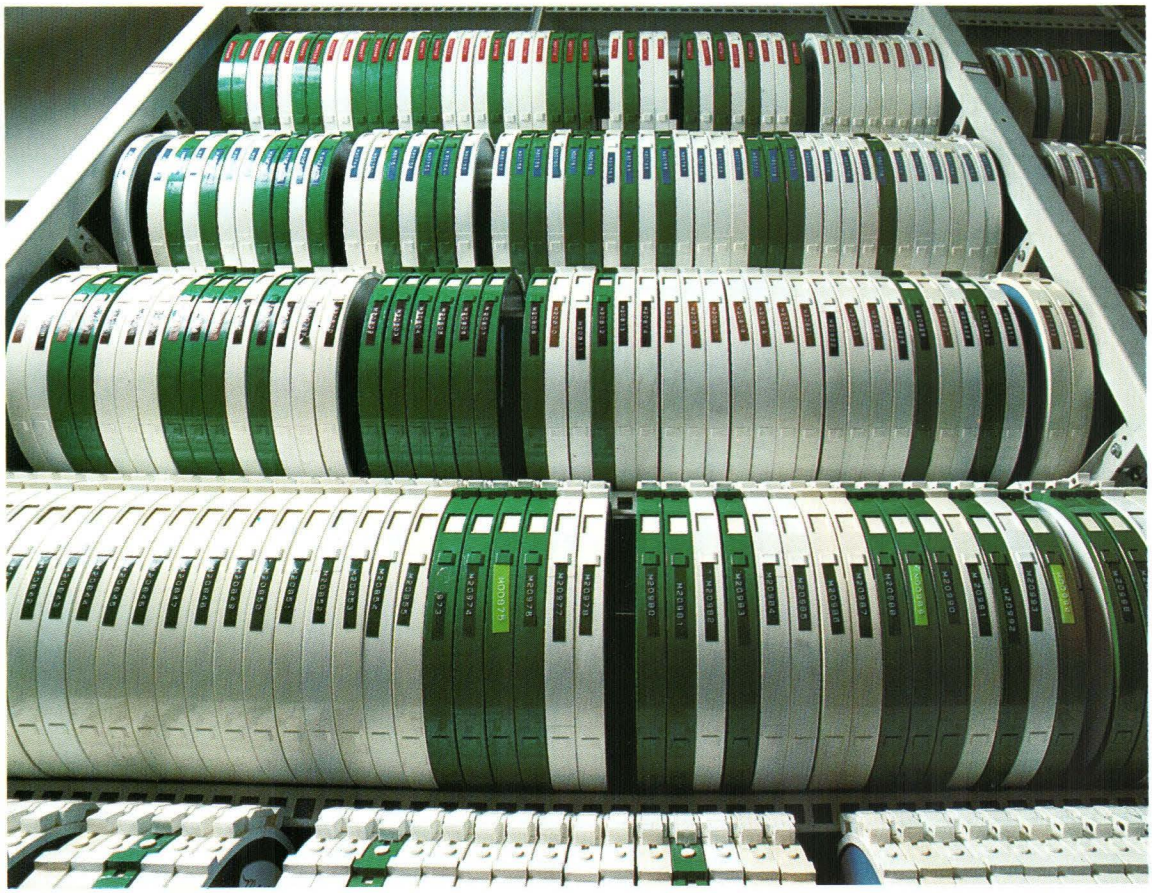
"Epidemiologic studies by our group yielded unexpected findings — later confirmed by others — of an inverse relationship between use of alcoholic beverages and myocardial infarction. Current studies, using a data base of 150,000 persons, are focusing upon the relation of wine, spirits and beer to health measurements, including a wide variety of illnesses and lifestyles in a general population."

KAISER FOUNDATION RESEARCH INSTITUTE, OAKLAND, CALIFORNIA



Alcohol Consumption and Multiphasic Health Checkup Findings

Arthur L. Klatsky, M.D.
Principal Investigator
Chief, Division of Cardiology



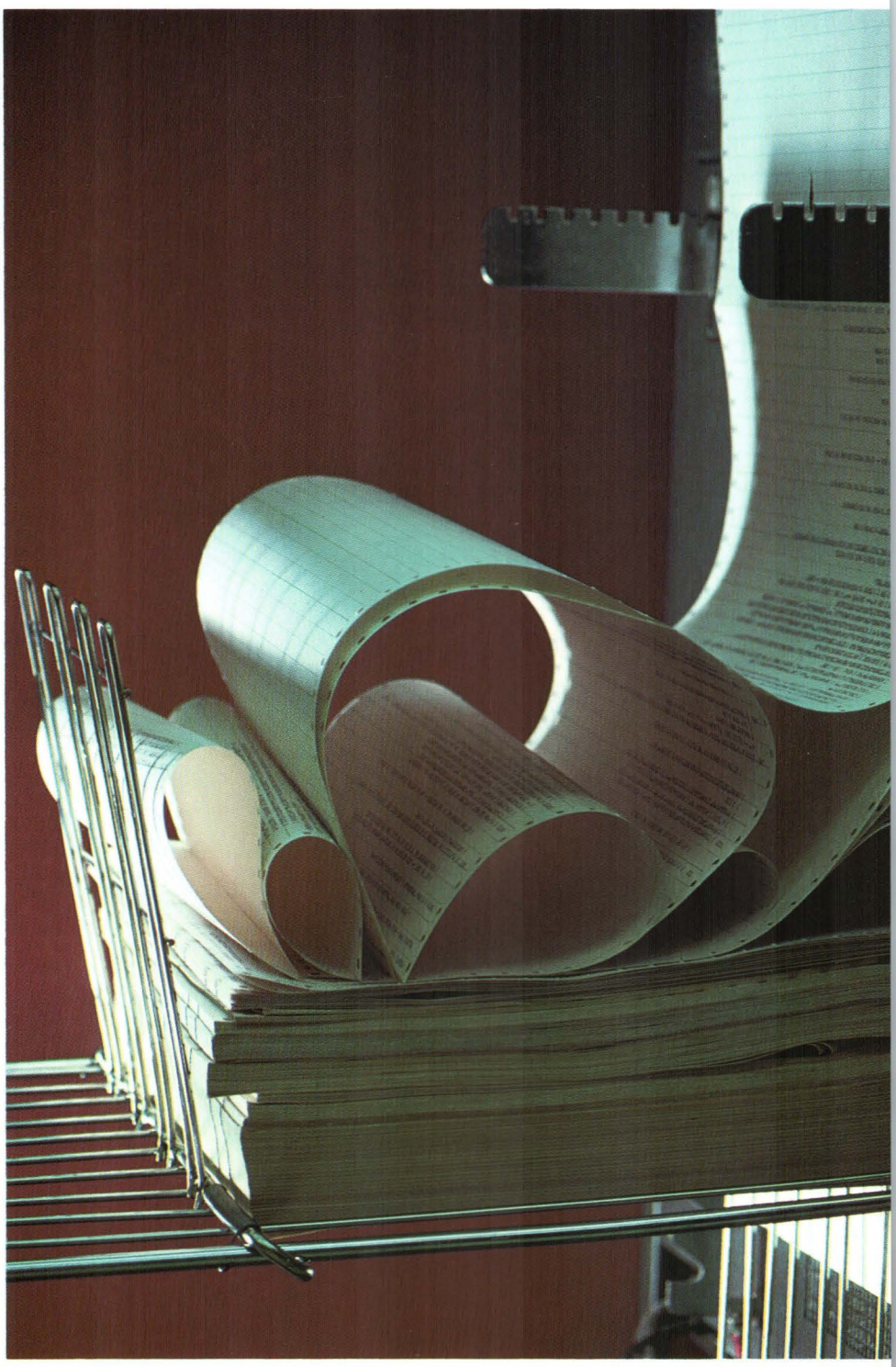
"What are the patterns of alcohol consumption within the general population? What correlations are there between alcohol consumption and health status? Do different beverages vary in their health consequences? How is drinking interrelated with other aspects of lifestyle and behavior?

I am focusing on these questions, in analysing the Canadian Health Survey, the most comprehensive survey to date of general risk factors and their consequences to the Canadian public."

DALHOUSIE UNIVERSITY,
HALIFAX, NOVA SCOTIA

Analysis of *The Health of Canadians—Report of the Canadian Health Survey*

Alex Richman, M.D., M.P.H.
Principal Investigator
Professor of Psychiatry
and Preventive Medicine;
Chairman of the Behavioral and
Social Advisory Council of the
Foundation



"Results of sound, critically designed research are basic to understanding the health, nutritional, and behavioral effects of moderate consumption of alcoholic beverages. Newer evidence of benefits underscores need for knowledge of the effects and use patterns of different beverages, as well as the consequences of differing levels of intake ranging from minimal to excess."

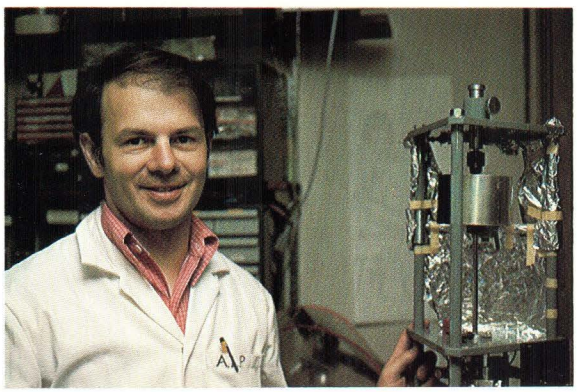
William J. Darby, M.D., Ph.D.
Emeritus Professor of Biochemistry at Vanderbilt University School of Medicine;
President of The Nutrition Foundation-1972-82; Trustee of the Alcoholic Beverage Medical Research Foundation

"A rational approach to solve clinical problems associated with acute and chronic intoxication, as well as tolerance to alcohol, should start by examining alcohol effects on neuronal functions. In spite of many efforts in these directions, a coherent picture is still lacking.

The work in this laboratory is aimed at clarifying some of the points by using a well defined neuronal system in vitro.

In particular, we hope to determine the link between the alcohol induced changes in membrane fluidity and effects of alcohol on ion transport, either active or mediated by neurotransmitter receptor activation."

MCGILL UNIVERSITY,
MONTREAL, CANADA



In Vitro Effects of Ethanol on Excitable Membranes and Transmitter Functions

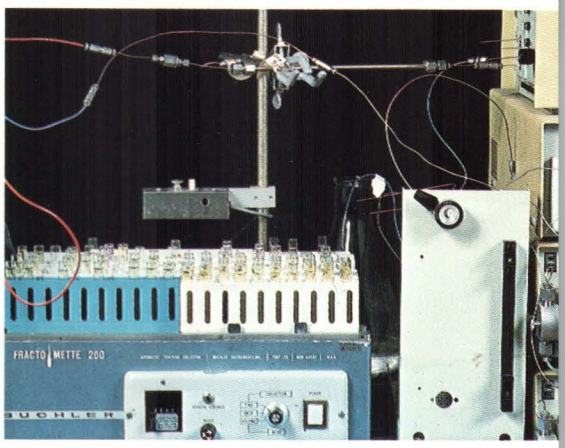
Ante L. Padjen, M.D., Ph.D.
Principal Investigator
Associate Professor of Pharmacology and Therapeutics

The Interactive Effects of Thiamine Deficiency and Ethanol Consumption on Rat Brain Cholinergic Function

Ellen D. Witt, Ph.D.
Principal Investigator
Instructor in Psychiatry

"The Wernicke-Korsakoff Syndrome, characterized by recent memory loss, has been attributed to nutritional deficiency in thiamine, chronic excessive alcohol ingestion, or a combination of both. Disruption of the cholinergic system may also be involved in the memory dysfunction.

My research is directed to the study of the synergistic effects of thiamine deficiency and alcohol abuse of the cholinergic system. An attempt will be made to relate the biochemical changes to behavior, and to explore ways to reverse or prevent the memory impairment of this condition."



WESTERN PSYCHIATRIC INSTITUTE,
UNIVERSITY OF PITTSBURGH,
PITTSBURGH, PENNSYLVANIA

"Collaboration of United States and Canadian industry in the support of medical, social, and behavioral research is a unique opportunity for the brewing industry to join with universities and research institutes in helping to ameliorate alcohol problems in our society."

Kenneth R. Lavery, B.A., R.I.A, C.M.C., F.C.A., C.A.E.
President, Brewers Association of Canada, and a Trustee of the Foundation

"Traffic accidents have been the leading cause of death and injury among young adults for the past two decades. The causes of this problem and the reasons for its persistence have been the subject of much speculation, but the empirical data needed to develop preventive measures are lacking. The current project, now in the planning stage by scientists at the Traffic Injury Research Foundation of Canada, addresses these needs. The principal goal of this ambitious effort is to identify, by means of a cohort study, the role of lifestyle factors in traffic accidents involving young adults."

TRAFFIC INJURY RESEARCH FOUNDATION OF CANADA, OTTAWA

Traffic Accidents and Youth: Alcohol and Other Factors
Herbert M. Simpson, Ph.D.,
Principal Investigator,
Executive Director

"Excessive use of alcohol is highly detrimental to the health and well-being of American society. The brewing industry, and its suppliers and distributors, are committed to seeking new knowledge concerning the prevention of alcohol misuse."

Henry B. King, M.B.A., J.D.
President, United States Brewers Association, 1962-83;
and an Honorary Trustee of the Foundation

The Alcoholic Beverage Medical Research Foundation was established in January, 1982 at The Johns Hopkins Medical Institutions, Baltimore, Maryland, under joint sponsorship of the United States Brewers Association, the Brewers Association of Canada, and The Johns Hopkins University. The brewing industries of the United States and Canada are the major contributors towards its support.

During its first year of operation (1982), the Alcoholic Beverage Medical Research Foundation received gifts adequate to initiate a modest research program. Most of the grants have been in the range of $20-40,000, although some on-going grants are larger. To achieve the goals of the Foundation and to fulfill the promise of research, continued and broader support by the brewing and related industries is essential.

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The Alcoholic Beverage Medical Research Foundation

The Johns Hopkins University School of Medicine
57 Turner Auditorium
720 Rutland Avenue
Baltimore, Maryland 21205

Abstracts & Reviews in Alcohol & Driving

ABSTRACTS & REVIEWS IN ALCOHOL & DRIVING

The Anheuser-Busch Foundation provides funds to the Alcohol Research Center at the University of California, Los Angeles, to finance a quarterly research journal, called Abstracts & Reviews in Alcohol & Driving.

This publication is sent to alcohol researchers throughout the world, and is intended to provide the latest information on research in the alcohol abuse area.

In addition, the Anheuser-Busch Companies also provided funding for a recent international conference on drunk and drugged driving at U.C.L.A. The proceedings of that conference will be published in a future issue of Abstracts and Reviews in Alcohol and Driving.

Volume 5, Number 3

July–September 1984

Abstracts & Reviews in Alcohol & Driving

Alcohol Research Center
University of California, Los Angeles

Funded by a grant from
the Anheuser-Busch Foundation

SCOPE

ABSTRACTS & REVIEWS IN ALCOHOL & DRIVING covers the recently published literature on the subject of alcohol as it affects the driving of motor vehicles. The REVIEWS section includes original papers on alcohol and driving, reviews of allied fields, and critiques of published papers. Areas covered by the ABSTRACTS section include medical and biological studies of the effects of alcohol on driving skills, the psychological and social portrait of the drinking driver, educational programs designed to prevent the occurrence of drunken driving, law enforcement programs, and statistical studies of traffic accidents attributed to alcohol.

SOURCES

Articles and critiques are solicited from professionals in the fields of alcohol and driving. For the ABSTRACTS, citations from the primary literature are identified by scanning all issues of several thousand journals in the medical and life sciences, and more than 5000 monographs per year. In addition, secondary abstracting and indexing sources are checked not only for report literature and dissertations, but also for additional journal and monograph entries. The literature of newspapers and popular magazines is not included.

DISTRIBUTION

UCLA Alcohol Research Center
The Neuropsychiatric Institute
760 Westwood Plaza
Los Angeles, CA 90024

Abstracts & Reviews in Alcohol & Driving

July–Sept. 1984 Vol. 5, No. 3

REVIEWS

ABSTRACTS

Calendar of Events

Abstracts & Reviews in Alcohol & Driving will list information on conferences, seminars and other meetings of regional, national and international interest in the field of alcohol and traffic safety. Sponsors and organizers of meetings are urged to send complete information to: Managing Editor, Abstracts & Reviews in Alcohol & Driving, Brain Information Service, 43-367 Center for the Health Sciences, University of California, Los Angeles, CA 90024.

MAY 24-JUNE 8, 1985

Scandinavian Study Tour on Drinking and Driving: Norway, Sweden, Finland. Sponsored by the University of Minnesota Office of Alcohol and Other Drug Abuse Programming, in cooperation with Professional Development and Conference Services, Continuing Education and Extension. Tour leader: Jim Schaefer, Ph.D., Director of Office of Alcohol and Other Drug Programming. Meetings and special interest group sessions in Oslo, Stockholm, and Helsinki with Scandinavian experts on many aspects of drinking and driving and alcohol policy. Reservations and final payment must be made before March 24, 1985. For information and registration form, contact: Camilla Colantonio, Program Director, Professional Development and Conference Services, 206 Nolte Center, 315 Pillsbury Drive S.E., University of Minnesota, Minneapolis, MN 55455. Tel (612) 376-7436.

Social Drinkers' Estimates of Blood Alcohol Concentration: Hypotheses and Implications for Road Safety

Douglas J. Beirness*

INTRODUCTION

The advent of chemical tests to determine the concentration of alcohol in the blood of drivers introduced a new era in legislation to deal with the alcohol-crash problem. Following the Scandinavian lead, many other countries around the world (including Canada, United Kingdom, France, Netherlands, New Zealand, Australia and some American states) have incorporated chemical tests into their drinking-driving statutes. This type of legislation--referred to as a per se rule--was a radical departure from classical laws proscribing "drunk driving" or "driving while intoxicated" in that the criterion for securing a conviction became an objective measure of the driver's blood alcohol concentration (BAC) rather than subjective descriptions of intoxicated behavior. Driving with a BAC in excess of the statutory limit became an offense in and of itself, regardless of the extent of behavioral impairment.

The introduction of per se laws undoubtedly served to facilitate both the apprehension and adjudication of offenders but does not appear to have produced lasting reductions in the magnitude of the alcohol-crash problem (5, 6, 12). Perhaps one reason for the ineffectiveness of per se statutes has been the failure to recognize that the alcohol-consuming public has limited ability to comply with the standards set forth in the law, standards that are often perceived to be arbitrary, and "clothed in a mantle of science" (12, p. 23). Mass media campaigns that advocate the complete separation of drinking and driving (e.g., "If you drink, don't drive") do nothing to remove the veil from per se laws because they fail to recognize that driving after drinking is considered neither illegal nor unsafe up to a certain point. The public is acutely aware of the fact that in most Western countries driving after drinking is not prohibited; rather, it is the presence of too much alcohol that is a violation of the law. Hence, the problem is not a qualitative, but a quantitative one (4). At issue, then, is the ability of social drinkers to determine the point at which driving after drinking becomes illegal.

The majority of drinkers are unfamiliar with the concept of BAC. In fact, most people have had little experience with the measurement of any internal bodily state. By incorporating a scientific criterion for BAC into the law, society has ignored the superficiality of the public's knowledge of such matters. Somehow, it was assumed that the public should be able to comply with a statutory limit in the absence of any

*Research Scientist, Traffic Injury Research Foundation of Canada, 171 Nepean, Ottawa, Ontario, K2P 0B4, Canada.

means to determine reliably their own BAC. In light of the persistence of the alcohol-crash problem, perhaps it is time to reconsider this assumption.

Specifying quantified limits on behavior is not without legal precedent, and an analogy can be made with statutes governing the speed of vehicles. In the interests of safety, society has imposed limits on the speed at which vehicles may travel. Speed limits are defined in terms of an easily understandable scientific metric--speed, the distance travelled per unit time. In order to facilitate compliance with speed limits, vehicles are equipped with speedometers. Although speedometers do not necessarily serve to prevent speeding by motorists, such devices provide drivers with the information necessary to compare their behavior with the standard. This allows them the opportunity to adjust their speed in order to comply with the stated limits with full knowledge that travelling at a speed in excess of the limit renders one liable to sanctions imposed by law.

Blood alcohol limits for drivers were also introduced in the interests of safety. But the public has no objective means to evaluate their BAC as they do in evaluating their vehicle's speed. Therefore, they are compelled to depend on highly unreliable judgements of "drunkenness", "impairment" or simply being "OK" to drive. In addition to being very imprecise, highly individualistic, and subject to considerable error, these subjective criteria tend to be employed as simple dichotomies which may bear little, if any, relation to the statutory per se limit.

Society has not provided drinkers with a "speedometer" for BAC. In the absence of a convenient and easily accessible means to determine BAC objectively, it is possible for most drinkers only to estimate their BAC. Errors in estimating BAC and/or the amount of alcohol-induced impairment may very well contribute to faulty judgements about one's ability to operate a motor vehicle safely after drinking. Therefore, it is instructive to examine the types of errors individuals make in estimating BAC when they have only subjective feelings of intoxication on which to base such estimates.

Self-Estimates of BAC

Studies that have examined estimates of BAC generally have subjects consume a specified amount of alcohol (according to body weight) in a given period of time. Estimates and actual measurements of BAC are taken at various intervals throughout the session. In general, the scientific literature indicates that most people are able to follow the pattern of their actual BAC as it rises and falls with absorption and elimination, respectively. But despite this correlation between actual and estimated BAC, the magnitude of the errors in estimation indicate that there is an inherent inability to evaluate BAC with any degree of consistency and accuracy (3, 8, 9, 11). Most such studies, however, have failed to recognize the importance of the direction of the estimation errors, particularly in terms of the implications for the potential of driving while legally impaired. Whereas the magnitude of the estimation error may be related to the relative certainty of the individual's decision to drive or not, it is the direction of the estimation error that determines what that decision will be.

From an examination of the BAC estimation errors made by social drinkers over the course of a three hour experimental drinking session (1), it has been possible to identify three distinct patterns of BAC estimation errors based on the direction of the errors over time. The first pattern (Figure 1) is that of the chronic overestimator. Estimates are in excess of actual BAC at almost every point, the magnitude of the errors being greater after the peak BAC is attained. Individuals displaying this pattern of estimation errors perceive

the effects of alcohol to be much greater than their BAC would suggest and hence tend to be rather conservative in judging their physical abilities. Such individuals are theoretically at lowest risk of driving with a BAC above the statutory limit.

The second pattern of BAC estimation errors (Figure 2), first described by Bois and Vogel-Sprott (3), is referred to here as the typical pattern of estimation because it is the one most often displayed by social drinkers. These individuals overestimate BAC during the absorption phase and underestimate BAC during the elimination phase. Subjects perceive the effects of alcohol to be disappearing more quickly than the rate at which alcohol is actually being eliminated. In fact, this finding mirrors a phenomenon referred to as acute recovery (or acute tolerance) in which the effects of alcohol are less pronounced when BAC is falling than they were at an equivalent BAC during absorption (e.g., 2, 15, 16). Decisions concerning the appropriateness of driving, based on estimates of BAC and/or perceptions of the degree of impairment on the falling side of the curve, may result in the unintentional commission of the offense of driving with a BAC in excess of the statutory limit. Given that driving is most likely to be considered only after the completion of drinking, this type of individual must be considered at high risk of committing a drinking-driving offense. Even the prudent individual who decides to wait a period of time before driving is still at reasonably high risk, for, if anything, the errors of underestimation get larger with time.

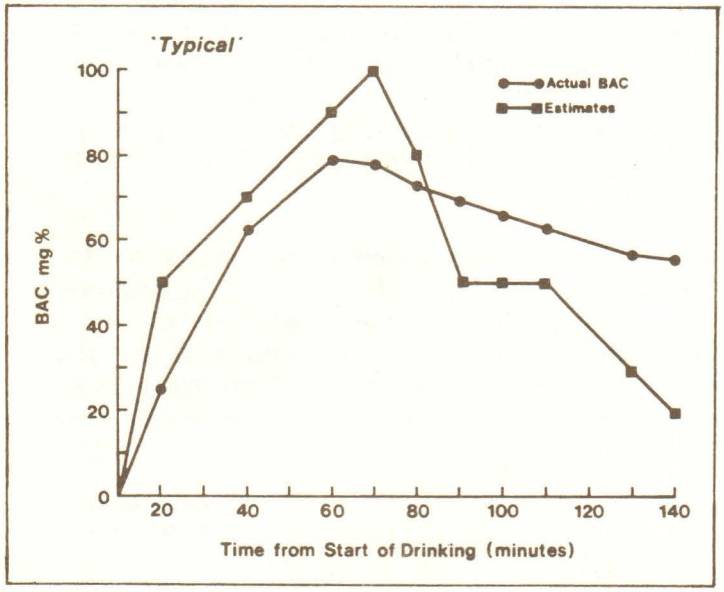

FIGURE 2: Actual and estimated blood alcohol concentration for a "typical estimator."

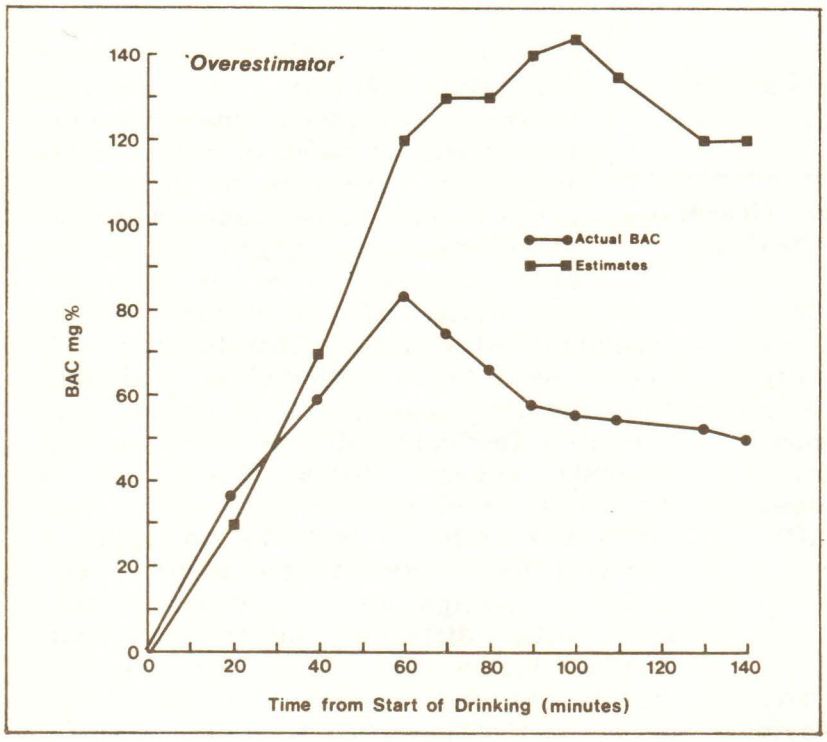

FIGURE 1: Actual and estimated blood alcohol concentration for an "overestimator."

The final pattern of estimation errors is that of the chronic underestimator (Figure 3). Estimates are below actual BAC at all points, the magnitude of the error often increasing after the peak BAC is attained. If estimates of BAC are in any way related to

judgments of ability or willingness to drive after drinking, then underestimators are at the highest risk of committing a drinking-driving offense, perhaps believing that they are acting within the law.

At present, there is no means to determine beforehand which individuals will display a given pattern of BAC estimation errors. The types of errors may, however, be related to age, sex, extent of previous alcohol use, acquired tolerance, sensitivity to alcohol or other as yet unspecified personality characteristics. Further research is necessary to clarify this issue and possibly identify the prominent characteristics of particulary high risk groups. Such work is in progress at the Traffic Injury Research Foundation.

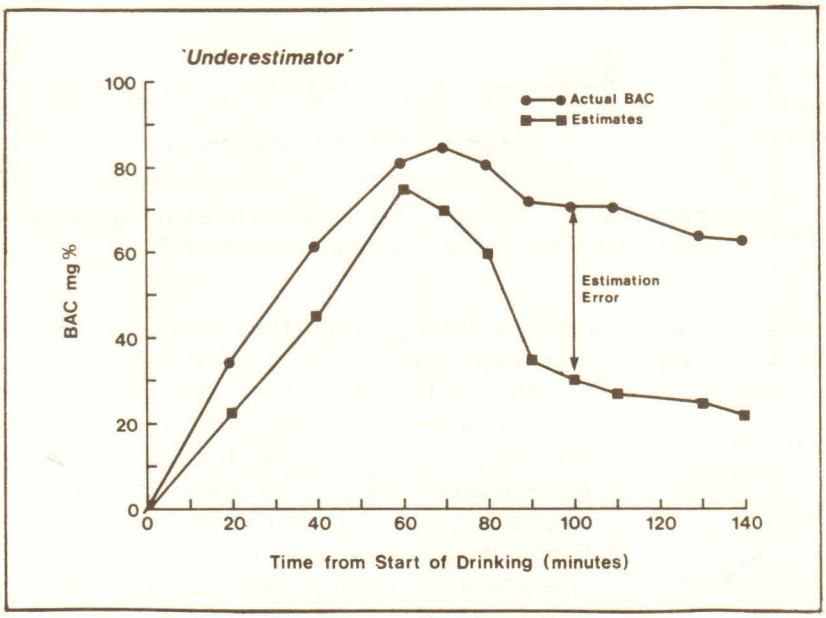

FIGURE 3: Actual and estimated blood alcohol concentration for an "underestimator."

Hypotheses for Future Action

BAC Discrimination Training: The fact that people are able to track their BAC as it rises and falls would suggest that there exists an ability to monitor internal drug states. Although some authors would argue that individuals estimate BAC primarily on the basis of external cues associated with drinking (e.g., 10), others contend that internal, subjective feelings and experiences are critical (e.g., 8). The existence of an internal mechanism constantly monitoring subjective drug states is not to be denied, for a study which examined the natural control over alcohol consumption exercised by social drinkers found that these subjects were able to recognize and replicate the same subjective drug state (as measured by BAC), even when the beverage consumed was not their customary drink; external cues about the quantity and concentration of alcohol in each drink were not available, and feedback on BAC was not provided (13). Hence, even though individuals may "know their own limit" and stop drinking at that point, the BAC at which this occurs shows considerable variation and bears no particular relationship to the statutory limit for driving after drinking.

Given this naturally-occurring ability to monitor alcohol consumption, one technique that might be used to reduce BAC estimation errors is to provide a system of calibration whereby social drinkers might be better able to relate internal, subjective drug states with a number that is associated with BAC. This technique is known as BAC discrimination training. By providing directed instructions and objective feedback of BAC from breath analysis several times throughout a drinking session, subjects easily acquire the skill by learning to apply a standard BAC metric to the internal sensations, feelings and cognitions associated with different subjective drug states. Following a single BAC discrimination training session, the magnitude of the estimation errors can be significantly reduced to an average 9-14 mg% (8, 11, 14).

Public Access to Breath Testing Instruments: The installation of breath

testing instruments in public drinking establishments is another viable means to reduce the potential dangers associated with erroneous estimates of BAC. By providing an objective measure of BAC, there is no longer a need to rely on subjective estimates. Although past efforts to introduce this tactic have been subject to considerable criticism, alternative strategies could be developed to guard against misuse and to protect the interests of tavern owners. In fact, the use of breath testing instruments could be incorporated into a more comprehensive server intervention program.

Recent technological developments have also made it possible to provide inexpensive, disposable devices for evaluating BAC. These devices provide a general indication of BAC in relation to the statutory limit. Widespread use of these instruments, given satisfactory proof of their validity and reliablity, could go a long way to reducing the incidence of impaired driving by eliminating the guesswork involved in determining BAC.

Change the Per Se Limit: In the absence of public access to instruments which provide an objective measurement of BAC, perhaps the per se limit could be changed to reflect a value that could readily be determined subjectively. The only viable alternative would be to set the statutory limit at zero. With a per se limit of zero, individuals need only discern whether or not they have been drinking. This renders it very easy to determine if driving would be a violation of the law. Any alcohol consumption would disqualify one from driving.

Despite the relative accuracy and ease with which individuals could subjectively determine their suitability to drive, there does not appear to be any group in North America strongly advocating the establishment of a per se limit of zero, although such a move is underway in some states in Australia. By transgressing customary behavior and prevailing social norms, such a law would probably find little public support. An unpopular law is unlikely to have many adherents. In addition, there is no strong evidence indicating that BACs below 80 mg% are inconsistent with the safe operation of a motor vehicle by most drivers (7). Therefore, even though a per se limit of zero would facilitate the ability to determine subjectively whether or not one should drive, it may actually have little effect in reducing the incidence of impaired driving.

Conclusion

The inherent value of per se statutes in enhancing the enforcement and sanctioning functions of the law is severely compromised by its ineffectiveness in reducing the incidence of drinking-driving or alcohol-related accidents. It would appear that the general public has great difficulty complying with the law. As illustrated in this paper and many others, social drinkers have a demonstrated inability to determine their own BAC with any degree of accuracy. The point at which alcohol consumption produces a state of intoxication that the law defines as being unsafe to operate a vehicle remains ambiguous and indefinite to most people. This is not to say that they do not know what the per se limit is; rather, they have no idea of how that limit relates to either their own individual pattern of alcohol consumption or their own personal experiences with drinking. Subjective estimates of BAC are open to considerable error, some of which (i.e., underestimates) may lead people to the erroneous conclusion that they are capable of operating a motor vehicle safely and legally when, in fact, their BAC may exceed the statutory limit. This evidence indicates a need for new, innovative programs to enhance compliance with per se statutes or, at least, to provide the mechanisms whereby compliance is possible. Simply telling the public not to drink and drive fails to recognize that both alcohol consumption and motor vehicle use patterns are highly complex phenomena, both of which are integral to

society. That one must refrain from engaging in one of these two highly desirable activities in order to prevent their joint occurrence would appear to be too large (or costly, or inconvenient) a sacrifice for most people to make. We must concede the fact that drinking and driving are inexorably linked phenomena and take measures to ensure that the alcohol consumption of drivers does not exceed the limits specified by law.

Our strategic approach to this problem must be radically altered. Until the public is ready to accept a complete ban on drinking and driving, we must undertake the very difficult task of educating the public on the pharmacology of alcohol, the relationship between consumption and BAC, and the factors that influence this relationship. Programs that allow the individual the opportunity to relate internal sensations and subjective feelings with objective measures of BAC (such as BAC discrimination training) hold a great deal of potential for reducing the incidence of impaired driving that is the result of inaccurate estimates of BAC or faulty judgments of the impairment of driving ability.

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California DUI Law: One Year Implementation

Nabila Beshai*

INTRODUCTION

The impact of driving under the influence of alcohol has been enormous. Over the years, unnumbered innocent lives have been lost and long-lasting injuries have been sustained. In California, the number of persons killed or injured in alcohol-involved accidents was 69,532 in 1977 and reached 77,522 in 1980 (3). It has been estimated that every day 7 people die and 183 are injured in an alcohol-involved traffic accident (7).

In December of 1980, the California Governor appointed a task force on alcohol, drugs, and traffic safety. Its charge was to recommend practical, economically feasible, and publicly supported reforms to reduce the number of drivers who are impaired by the abuse of alcohol and/or drugs. After six months of deliberation, the Task Force presented a report including a number of recommendations for dealing with the problem from different perspectives (7). One of the recommended courses of action was to establish an illegal per se blood alcohol content (BAC) of no higher than 0.10% (7).

Public awareness of the problem of driving under the influence increased following publication of the Task Force's report. It became clear that excessive drinking which impairs safe driving is a danger to everyone. Responding to public pressure, the California Legislature in 1981 enacted tough sanctions against driving under the influence (AB 541). The new law went into effect on January 1, 1982.

According to the new law, it is a crime to drive with 0.10% blood alcohol level. The minimum fine for any drunk driving conviction was increased to $375. Fines now range up to $500 on first conviction, and $1000 on second or third conviction if no bodily injury is involved. Sentences for first offense drunk driving may include 48 hours to six months in jail. Sentences for second and subsequent offenses include mandatory jail terms of two days to one year (2).

The law provides for treatment as a condition of probation for first offender drunk drivers. Treatment costs are paid by the defendant, in accordance with his/her ability to do so. The

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Court may grant a minimum of three years probation to defendants convicted of driving under the influence of alcohol or drugs, with other penalties required as conditions of probation. Failure to participate successfully in a treatment program, which is a condition of probation, may result in revocation of probation or a new grant of probation with thirty days in County jail as a condition.

METHODS

Design. This study assesses the impact of the new DUI law on problem driving behavior in California. Problem driving behavior is reflected by rates of arrest for driving under the influence, drunk driving conviction, and alcohol-involved traffic accidents. A quasi-experimental pre-post multiple variable design was employed. The design allows for before and after comparisons for each variable. No control groups were employed. The research hypothesis was that drinking-driving behavior has improved consequent to the implementation of the DUI law.

The units of analysis were the 58 California counties. Data for five years (1978-1982) were obtained. Data on arrests for driving under the influence were obtained from the California Department of Criminal Justice; the number of drunk driving convictions was acquired from the California Department of Motor Vehicles; the numbers of alcohol-involved accidents and of licensed drivers were obtained from the California Highway Patrol Department.

Statistical analysis. Data for the five-year period (1978-1982) were used for descriptive purposes. Statistical analyses were conducted comparing problem driving behavior data from 1981 with similar data from 1982 in order to determine what, if any, impact implementation of the DUI had had. To prepare these data for analysis, raw data were transformed into rates per 100,000 licensed drivers. Variables reflecting change consequent to the law were derived from a comparison of 1981 and 1982 rates. To test the statistical significance of these variables, paired t-tests were calculated based on differences for each of the 58 California counties. The formula employed in conducting the t-tests was: t=(mean-0)/(standard error). In other words, tests were conducted to determine whether the mean difference was 0.

In addition, Pearson Correlation Analysis was employed to investigate relationships among variables expressing change in problem driving behavior. It was of interest to determine whether an association existed between changes occurring in various aspects of drinking driving behavior.

RESULTS

Change in problem driving behavior consequent to DUI Law. Table 1 presents a comparison of 1981 and 1982 rates of problem driving behavior in California. Alcohol-involved accidents decreased in 1982 (282 per 100,000 population compared to 315 in 1981).

As mentioned previously, variables expressing change consequent to DUI law were created by subtracting the 1982 rate from the 1981 rate. Paired t-tests were calculated based on differences for each of the 58 California counties. The t-values were 3.90 for alcohol-involved accidents, -0.62 for arrest for driving under the influence, and -5.80 for drunk driving convictions. Positive t-values reflected decrease and negative t-values indicated increase of problem driving behavior. Decrease of alcohol-involved accidents was statistically significant at the 0.01 level (one-tailed test for the hypothesis was directional anticipating decrease of alcohol-involved accidents) and increase of drunk driving conviction was statistically significant at the 0.001 level. No statistical significance was evident concerning increase of arrests for driving under the influence.

TABLE 1: Comparison of Problem Driving Behavior in 1981 and 1982

PROBLEM DRIVING BEHAVIOR	1981 RATE PER 100,000 LICENSED DRIVERS	1982 RATE PER 100,000 LICENSED DRIVERS
A-R Accident	315	282
A-R Arrests	2,083	2,159
DUI Conviction	1,435	1,690

TABLE 2: Correlation of Alcohol-Related Variables

VARIABLES	CORRELATION MAGNITUDE	PROBABILITY
Decrease of A-R Accidents and Increase of A-R Arrests	0.7280	<0.0001
Decrease of A-R Accidents and Increase of DUI Convictions	0.2859	<0.015
Increase of A-R Arrests and Increase of DUI Convictions	0.6046	<0.0001

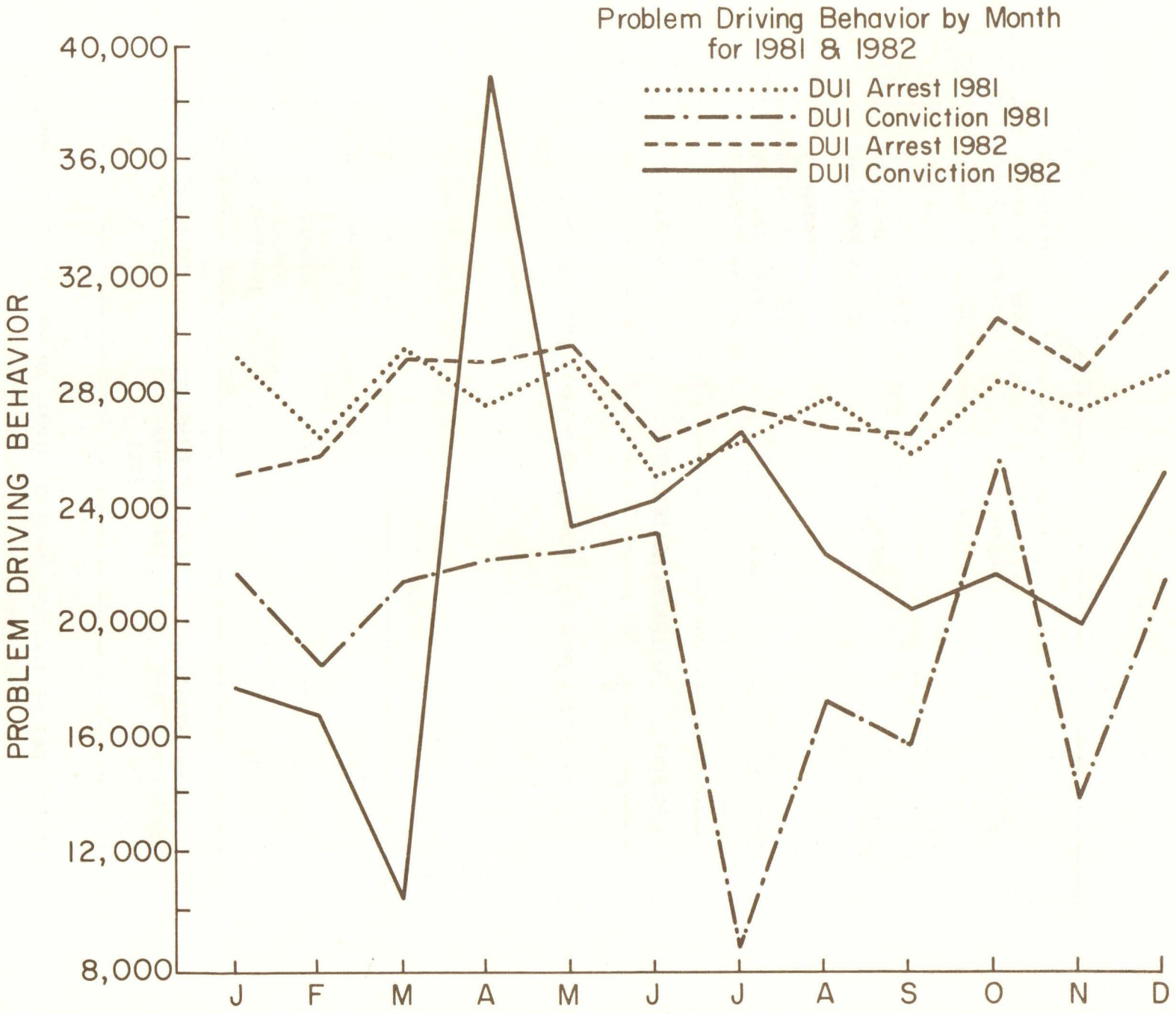
Problem Driving Behavior by Month
for 1981 & 1982
DUI Arrest 1981
DUI Conviction 1981
DUI Arrest 1982
DUI Conviction 1982
PROBLEM DRIVING BEHAVIOR
40,000
36,000
32,000
28,000
24,000
20,000
16,000
12,000
8,000
J
F
M
A
M
J
J
A
S
O
N
D

FIGURE 1

Correlation among variables reflecting change. Correlation among variables reflecting changes (increase or decrease) of alcohol involved accidents, arrests for driving under the influence, and drunk driving convictions were examined for the 58 California counties. Results are presented in Table 2.

A high degree of correlation was evident between decrease of alcohol-involved accidents and increase of arrests for driving under the influence (correlation = 0.728 and $p<0.0001$). A similar level of correlation was indicated between decrease in alcohol-involved accidents and increase in drunk driving convictions (correlation = 0.2859 and $p<0.015$).

Drunk driving conviction rate. It is possible that a person arrested for driving under the influence may be sentenced not during the year of his arrest, but during a subsequent year. However, an effort was made using available data to develop rates drunk driving convictions among individuals arrested for driving under the influence. This was done by dividing the number of drunk driving convictions, for each California county, for one year, by the number of arrests for driving under the influence (misdemeanor offense) of the same year. The mean conviction rate for each year was obtained. Raw data were used for this analysis. It should be noted that DMV figures are inflated as a result of double counting of amended abstracts (abstracts that are sent to the Department of Motor Vehicles by the court and subsequently amended or corrected are counted twice). Since the inflation is relatively constant across the year, this problem does not invalidate the trend comparison. The results are presented in Table 3.

As indicated, the mean rate of cases convicted for drunk driving increased over the five years studied, except for the slight decrease from 1980 to 1981. The mean rate of drunk driving conviction for 1982 was as high as 0.783.

Problem driving behavior and county size. Differences in population size among the fifty-eight California counties are huge. According to the 1980 Census, populations ranged between 7,477,503 in Los Angeles County and 1,097 in Alpine County. Based on population size, counties were divided into four categories. The first category included counties with populations of less than 100,000. The second category contained counties whose populations ranged between 100,000 and 499,999. The third category comprised counties with populations of 500,000 to 999,999. The fourth category included counties with populations of 1,000,000 and above. The numbers of counties that fell in each category were 28, 17, 8 and 5, respectively.

Table 4 presents mean rates of alcohol-involved accidents, arrests for driving under the influence, and drunk driving convictions for various county categories during 1978-1982. Concerning alcohol-involved accidents, mean rates for 1982 were generally lower than rates for previous years for all county categories. In addition, mean rates for larger counties appeared lower than mean rates for counties with small populations.

TABLE 3: Mean Rate of Drunk Driving Convictions

YEAR	MEAN RATE
1978	0.616
1979	0.662
1980	0.686
1981	0.689
1982	0.783

TABLE 4: Mean Rates of County Categories of 100,000 Licensed Drivers

COUNTY CATEGORIES	1978	1979	1980	1981	1982	VARIABLES
Population less than 100,000	522	531	536	517	447	A-R ACCIDENT
Population 100,000 - 499,999	334	349	364	363	317	
Population 500,000 - 999,999	298	307	315	307	284	
Population 1,000,000 and above	277	295	302	299	264	
Population less than 100,000	1,666	1,582	1,719	1,953	1,915	A-R ARREST
Population 100,000 - 499,999	1,903	1,827	2,085	2,343	2,474	
Population 500,000 - 999,999	1,567	1,620	1,708	1,856	1,981	
Population 1,000,000 and above	1,685	1,719	1,887	2,000	2,065	
Population less than 100,000	1,079	1,139	1,427	1,515	1,856	DRUNK DRIVING CONVICTION
Population 100,000 - 499,999	1,316	1,338	1,587	1,764	2,217	
Population 500,000 - 999,999	1,053	1,183	1,310	1,405	1,617	
Population 1,000,000 and above	993	1,087	1,235	1,337	1,531	

Concerning arrests for driving under the influence, mean rates for 1982 were higher than mean rates for previous years for all county categories except the smallest counties. No trend was evident concerning arrests for driving under the influence among counties of various sizes. Mean rates of drunk driving convictions continuously increased over the five-year period for counties of various magnitudes. It was also indicated that mean drunk driving conviction rates for counties with one million population or above were lower than the remaining counties for each of the five years.

Problem driving behavior by month prior and consequent to DUI Law. Arrests for driving under the influence and drunk driving conviction in California were examined by month for 1981 and 1982. The purpose was to determine what, if any, trends had been influenced by the DUI law. Results are presented in Figure 1. Arrests for driving under the influence reflected a similar pattern prior and consequent to the DUI law. Slight fluctuation was indicated over the twelve months of each year. Overall, arrests rates in 1982 were slightly higher than those in 1981.

Drunk driving convictions were lower during the second half of 1981 than the first half (except for an increase during October) with a considerable decrease during July. In 1982, sizable fluctuations occurred during the first half of the year, with a peak in April. Convictions decreased during the remaining part of the year. Conviction rates for 1982 were notably higher than for 1981 (during eight of the twelve months).

DISCUSSION

The results of this study support the hypothesis that drinking driving behavior improved consequent to the implementation of the DUI law. Alcohol-involved accidents were significantly lower in 1982 than in 1981. The enforcement of the new law appears to be a factor in this decrease. It is acknowledged that traffic fatalities in the whole country went down in 1982. This was attributed to many factors including the widespread publicity given to drunk driving and its victims by citizen groups and the media, the continuance of the 55 miles-per-hour speed limit, the systems approach to traffic safety, and the economic situation in the country (9).

Another study of the impact of California DUI law showed indications that some of the alcohol accident categories exhibited greater decline during 1982 than the non-alcohol categories. Peck (6) examined the traffic safety impact of the DUI law by conducting comparisons among various types of fatal and injury accident comparisons between 1981 and 1982 were statistically significant and that the other two approached significance ($p<0.20$). For all six accident comparisons, there were proportionately fewer alcohol-type accidents in 1982 than in 1981. The larger significance of these 1981 versus 1982 comparisons is attributable to the proportionately increasing trend for most of the alcohol-accident categories between 1977 and 1981 (6).

Another indication of the impact of the DUI law is that drunk driving convictions were significantly higher in 1982 than in 1981. The comprehensive enforcement of the law led to increased convictions as required by the new statute. A statistically significant correlation was also evident between decrease of alcohol-involved accidents and increase of both arrests for driving under the influence and drunk driving convictions. A statistically significant correlation was also indicated between increase of arrest for driving under the influence and increase of drunk driving conviction. These correlations reflect an association between improvements in various aspects of drinking driving behavior.

The intensive enforcement of the DUI law was also evidenced by the 1982 highest mean rate of cases convicted for drunk driving among persons arrested for driving under the influence (0.783). The Los Angeles District Attorney's office, which handled over 44,000 DUI cases in 1982, reported that 82.2% of the DUI trials conducted by its deputies resulted in convictions, compared to 78.4% in 1981. The conviction rate in jury trials increased from 79% in 1981 to 81.4% in 1982. A greater increase occurred in nonjury trials, 84.8% in 1982 compared to 76.3% in 1981 (5).

The enforcement of the DUI law had an impact on the Municipal Court system. A study on the Los Angeles Municipal Courts indicated that group C misdemeanor filings in the County during 1982 were 1.8% greater than in 1981 (approximately 95% of the cases in this category are DUI cases). Guilty pleas in group C misdemeanor cases decreased significantly in 1982. Many of the guilty pleas were entered at a later time, such as immediately prior to trial (1, 5).

The study further demonstrated that jury trials for group C misdemeanor cases increased by 24% in 1982. The increase was attributed to the fact that more defendants have been seeking jury trials in cases involving relatively low blood-alcohol levels (0.10% to 0.12%). Those cases were frequently reduced to lesser offenses in previous years but were prosecuted in 1982. Court congestion has intensified due to delays in the disposition time for DUI cases. There was a large backlog of DUI cases in Los Angeles County Municipal Courts even though the number of filings was only slightly greater in 1982 than in 1981.

This was attributed to several factors: (1) substantially fewer guilty pleas were entered; (2) jury trials, which take the greatest amount of court time, increased sharply; (3) continuances were increasingly sought in DUI cases; and (4) probation hearings and hearings of failures-to-appear have also increased considerably.

Continuing efforts should be made to strengthen DUI legislation. Ilich (5) cites Ross's argument that the success of DUI laws depends mainly on publicity creating the impression of effective enforcement. Publicity and sufficient enforcement of the law sustain the public's expectations regarding risk (8).

Further research is needed to assess the long term effect of the DUI law. Research results will provide valuable assistance to California as well as other states in their efforts to deal with the problem of drinking and driving.

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7. (CAL-DMV-RSS-83-87). Sacramento, California: California Department of Motor Vehicles, 1983.

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Abstracts

1. GENERAL AND REVIEW ARTICLES, BOOKS

No citations.

2. LAW ENFORCEMENT STUDIES

5-139
(ANONYMOUS)
Federal law links states funds to 21 purchase age.
Hwy Loss Reduction Status Rep 1984; 19(12): 1-2.
Congress has approved a measure that will cut federal highway aid to states which fail to enact statutes setting 21 as the minimum age for the purchase and public possession of alcoholic beverages. The withholding provision, to become effective Oct. 5, 1985, would withhold 5% of a state's federal highway aid starting in fiscal 1986 and 10% the following year. Highway safety funds will not be affected. One provision of the bill sets aside funding for states that enact mandatory sentencing provisions for drivers convicted of driving under the influence of alcohol. To be eligible, states would have to sentence first-time offenders to either 48 hours in jail or 100 hours of community service, plus a license suspension of at least 90 days, with second and third offenders receiving longer jail terms and suspensions.
(Insurance Institute for Highway Safety, Watergate 600, Washington, DC 20037)

5-140
BENDER JF
Ohio's new alcohol impaired driving law - a judicial perspective.
U Toledo Law Rev 1983; 15(1): 117-132.
"Recently Ohio enacted comprehensive legislation concerning the alcohol impaired driving problem. The legislation significantly changes prior Ohio law. Judge Bender discusses the new statutory provisions from a judicial perspective with emphasis on the policy consideration underlying the new legislation and how the legislation may impact on the processing of driving under the influence cases through the court system."
(Judge, Crawford County Municipal Court, OH)

5-141
BLANSFIELD HN
Drinking and/or driving.
Conn Med 1984; 48(3): 205.
"Restructuring of statutes concerning driving while intoxicated (DWI) is discussed. A plan is proposed for the legal handling of impaired drivers that bears in mind that alcoholism is a treatable disease and that driving under the influence is one symptom of it." (NCALI)

5-142
COHEN J
The legal control of drunken driving: a comment on methodological concerns in assessing deterrent effectiveness.
J Crim Justice 1984; 12(2): 149-154
Papers by Votey and by Phillips, Ray and Votey (see Abstracts 5-163 and 5-159) raise questions about the effectiveness of efforts to reduce drunken driving through legal controls implemented in the judicial system. This paper discusses methodological problems in demonstrating the deterrent effectiveness of criminal sanctions on drunken driving.
(School of Urban and Public Affairs, Urban Systems Inst., Carnegie-Mellon Univ., Pittsburgh, PA 15213)

5-143
GIFFORD DG, FRIEDMAN HM
A constitutional analysis of Ohio's new drunk driving law.
U Toledo Law Rev 1983; 15(1): 133-170.
"Ohio's recently revised DUI law faces a wide variety of challenges on constitutional grounds. Professors Gifford and Friedman describe these constitutional arguments and evaluate their merit by considering both broader constitutional principles and persuasive precedents in jurisdictions with similar statutes. In addition to their analysis of the statute's constitutionality, Professors Gifford and Friedman explore other constitutional issues likely to arise from the enforcement of the statute including ones concerning the implied consent provision, breath tests and the use of motions in limine by defendants in drunk driving prosecutions."
(Univ. of Toledo Law Practice Program, Toledo, OH)

5-144
JOYE RI Jr
Drunk driving: recommendations for safer highways.
Trial 1983; 19(6): 60-66, 102.
The subjectivity involved in arrests for driving under the influence is addressed. It is pointed out that there are problems with field sobriety testing procedures; that alcohol affects different people differently; and that there is an unfounded degree of confidence in the Breathalyzer. Discussed are laws establishing statutory presumptions of guilt based upon chemical tests given drunk-driving suspects; the refusal to submit to testing; and due process. Alternatives to stiffer penalties are suggested.
(5861 Rivers Ave., Charleston, SC 29405)

5-145
MOSES J
To submit or not to submit - where is my attorney?: the right to counsel before submission to chemical testing in a DWI proceeding.
Nebr Law Rev 1984; 63(2): 373-387.
Analyzes the scope of the right to counsel afforded under the fifth and sixth amendments to the Constitution, and the policy reasons for granting such a right in particular cases. Practical administrative concerns relative to affording such a right to counsel before forcing him to respond to a request for his submission to chemical testing are addressed. The common threshold requirement - that the proceeding must be criminal in nature - is discussed.

5-146
O'BRIEN RJ
Driving under the influence of alcohol in Ohio after Senate Bill 432 - the prosecutor's viewpoint.
U Toledo Law Rev 1983; 15(1): 171-201.
"In reponse to a nationwide concern, a new drunk driving law was enacted in the State of Ohio. That law, with its mandatory incarceration, license suspensions, and fines upon conviction, with escalating penalties for repeat offenders, and pretrial license suspension provision, generated much interest and debate in the legislative process. A principal goal of that legislation was to make it easier for the prosecution to obtain a conviction for drunk driving, which was accomplished by enacting a 'per se' prohibition of operating a motor vehicle when the blood alcohol content exceeds .10%. From the prosecution viewpoint, Mr. O'Brien discusses the history of the new law, [and] the legal and practical issues or problems, together with the short term and long term impact of the new law."
(City Prosecutor, Columbus, OH)

5-147
ROSS HL
Comment [on Snortum JR, Alcohol-impaired driving in Norway and Sweden: another look at 'the Scandinavian myth.']
Law & Policy 1984; 6(1): 37-44.
Ross responds to Snortum's critique of his (1975) paper (see Abstract 5-150). Agreeing with Snortum on the relevant facts to be weighed in appraising Scandinavian claims to have controlled the problem of the alcohol-impaired driver, Ross differs with regard to the evaluation of the evidence. Ross finds that the evidence concerning the achievement of both short-run simple deterrence and long-run general prevention is unsatisfactory in important ways, and believes that perpetuation of the "Scandinavian Myth" has resulted in diverting attention from very promising non-deterrent policies which may be far more efficient with regard to injury and death prevention.
(Dept. of Sociology, Univ. of New Mexico, Albuquerque, NM 87131)

5-148
ROSS HL
Social control through deterrence: drinking-and-driving laws. In: Ann Rev Sociol. Palo Alto, CA: Annual Reviews, Inc.
1984: 21-35.
"The anti-drunk-driving movement has resulted in a profusion of deterrence-based legislation, providing the opportunity to test the deterrence proposition via quasi-experiments employing high-quality data series. Considerable evidence bearing on this proposition has accumulated to date. Efforts directed mainly at increasing potential drunk drivers' perceived certainty of punishment frequently have a deterrent effect in the short run. In the long run, however, i.e. over several months or a few years, indexes of drunk driving return to prior levels. This phenomenon may be explained by the very low actual probability of punishment. Efforts directed principally at increasing the perceived severity of punishment have not had the desired deterrent effects, perhaps because of the low levels of certainty that these punishments will be applied. The utility of deterrence-based laws appears to be limited owing to the cost of raising the actual likelihood of punishment to a point that would support a perception of reasonable certainty. Alternative policies based on changing institutions in the fields of recreation and transportation are more promising, though politically problematical. Most promising, in terms of feasibility and effectiveness, are technological measures that prevent driver errors from resulting in crashes or that reduce the forces experienced in those crashes that do occur."
(Dept. of Sociology, Univ. of New Mexico, Albuquerque, NM 87131)

5-149
SCHNEBLE H
(Blame in alcohol offenses from a judicial point of view)
Blutalkohol 1984; 21(4): 282-299. (GER)
The establishment of guilt in drunk driving cases is discussed. The author opposes the opinion expressed by Teyssen (Blutalkohol 1984; 21[2]: 175-185; see Abstract 5-100). English summary.
(Kammerweg 5, 2409 Scharbeutz, W. Germany)

5-150
SNORTUM JR
Alcohol-impaired driving in Norway and Sweden: another look at 'the Scandinavian Myth.'
Law & Policy 1984; 6(1): 5-37.
"Ross's (1975) assessment of the Scandinavian drinking-and-driving laws was a pivotal paper in the international literature because, in many ways, Norway and Sweden offer a critical test of the 'tough approach' to deterring alcohol-impaired drivers. The present review raises some methodological and philosophical questions about Ross's approach to the Scandinavian data and examines four types of indirect evidence for deterrence in Norway and Sweden....Present findings suggest a pattern of effective implementation of drinking-and-driving policies in Norway and Sweden. This effectiveness is based upon an inextricable network of factors involving social consensus, stringent laws, vigorous enforcement, and the consistent application of unambiguous sanctions. If there is any factor which is fundamental among these four, it is the first." (See also Ross, Abstract 5-147.)
(Claremont McKenna College, Claremont, CA 91711)

5-151
SYKES GW
Saturated enforcement: the efficacy of deterrence and drunk driving.
J Crim Justice 1984; 12(2): 185-197.
"Deterrence theory generally finds support among studies focusing on changes in apprehension certainty, or in punishment severity. However, scientific evidence establishing a clear deterrent effect of criminal justice institutions on criminal behavior remains problematic partly because of measurement, design and/or experimental control difficulties. This study attempts to overcome some of these methodological difficulties by measuring deterrence in a drunk driving enforcement program in a small Wisconsin city. It demonstrates a statistically significant relationship between a carefully designed enforcement program and driver response measured by accident rates. This finding is contrary to some recent studies challenging the efficacy of enforcement efforts aimed at traffic accident reductions."
(School of Justice Administration, Univ. of Louisville, Louisville, KY 40292)

5-152
VINGILIS ER, DE GENOVA K
Youth and the forbidden fruit: experiences with changes in legal drinking age in North America.
J Crim Justice 1984; 12(2): 161-172.
"The effects of changes in the minimum drinking ages in various North American jurisdictions are reviewed. The research suggests that although most teenagers have experimented with alcohol, the rates of alcohol consumption and alcohol-related traffic collisions can be increased and decreased with the drinking age control legislation."
(Addiction Research Foundation, 33 Russell St., Toronto, Ontario M5S 251, Canada)

5-153
WILLIAMS AF, LUND AK
Deterrent Effects of Roadblocks on Drinking and Driving. Washington, DC: Insurance Institute for Highway Safety.
1984: 16 pp.
"The study was designed to determine the extent to which roadblocks ...change public perceptions of the enforcement of drunk driving laws and behavior related to drinking and driving. Two areas with active roadblock programs were studied: Montgomery County in Maryland, and Kent and Sussex counties in Delaware. Montgomery was also compared to adjacent Fairfax County, Virginia, which has had a few unpublicized roadblocks, but has a much higher drunk driving arrest rate than Montgomery. The Delaware counties were compared to seven counties on the nearby Maryland Eastern Shore, where roadblocks have not been held. The data were collected via a telephone survey. Results indicated that roadblocks are highly visible. They were the most frequently mentioned activity when respondents in the four areas were asked if they knew about any nearby activities designed to deal with the problem of drunk driving....[R]espondents tended to identify the area with roadblocks as the place where drunk drivers would be more likely to be arrested. The limited evidence...does not indicate that the roadblocks have changed the drinking and driving behavior of the respondents."
(Insurance Institute for Highway Safety, 600 Watergate, Washington, DC 20037)

5-154
(ANONYMOUS)
CB radio to report drunk driving.
J Traffic Safety Educ 1984; 31(3): 19.
In a national survey in January 1984 by the Opinion Research Corp. for the Alliance of American Insurers, more than eight out of ten persons agreed that a program using Citizen Band (CB) radio to notify police of drunk drivers would work effectively to reduce drunk driving. Programs already in existence which use telephone and CB radio are noted. Wider use of CB radio could help implement recommendations of the Presidential Commission on Drunk Driving, Alliance representative LC Christopher suggests.

5-155
(VARIOUS AUTHORS)
Symposium on Alcohol and Traffic Safety.
Unfall- und Sicherheitsforschung Strassenverkehr 1982; 39: 1-99.
(GER, ENG)
"On October 20, 1982, an international Symposium on Alcohol and Traffic Safety was held in Cologne which had been jointly organized by the Federal Highway Research Institute (BASt) and the 'Union against Alcohol in Traffic.' Sponsored by the Federal Ministry of Transport papers were delivered by experts from Japan, Austria, Scandinavia, Great Britain, France and the Federal Republic of Germany describing the data collected and programs established in their respective countries. This was followed by a panel discussion on the measures taken and envisaged to combat the problem of drinking and driving. This issue comprises all the papers delivered in both English and German." Authors include: M Klebel, E Klette, H Sabey, BE Blanchard, C Kroj. (HRIS)

3. EDUCATION AND PREVENTION

5-156
MAKI M
(Drunken Driving Information in Restaurants) Helsinki, Finland: Central Organization for Traffic Safety in Finland.
1982: 18 pp. (FIN)
"Drunken driving information was produced to be used in restaurants... [T]he information consisted of announcements, information slips and posters. It was found that most of the drivers, 61%, did not notice the message. The number of drunken drivers was less than 1% of the total number in test and control restaurant. The number did not differ from that of a normal roadside raid in Finland." (TRIS)
(Iso-Roobertinkatu 20 00120, Helsinki 12, Finland)

5-157
MALFETTI JL, YAKSICH S Jr
DWI reeducation and rehabilitation programs - successful results and the future.
J Traffic Safety Educ 1984; 31(4): 7-8.
Summarizes the conclusions of a DWI Colloquium held in San Diego, CA, on August 15-16, 1983, co-sponsored by the AAA Foundation for Traffic Safety, the Safety Research and Education Project at Teachers College of Columbia University, and the Naval Alcohol Rehabilitation Center. Papers by DWI researchers and program developers and researchers were used as the basis for recommending guidelines for effective program conduct; these are presented.
(Proceedings available from the AAA Foundation for Traffic Safety, 8111 Gatehouse Road, Falls Church, VA 22047)

5-158
PALMER JW
J Traffic Safety Educ 1984; 31(3): 19.
The Control Factor update: Minnesota's peer-to-peer drinking/driving program.
The Control Factor program, as reported on by the author in J Traffic Safety 1983; 30(2) (see Abstract 4-149), has been funded for 1984 based upon the success achieved by the program during the 1982-83 school year. Changes made in the program for the 1983-84 school year include elimination of pre-/post testing to allow more time for learning activities, expansion of time for small group discussion, and expansion in the number of peer leadership seminar conveners. As of March 15, 1984, twenty-eight local programs were scheduled for 7,200 students.
(Center for Driver Education and Safety, Whitney House, St. Cloud State Univ., St. Cloud, MN 56301)

5-159
PHILLIPS L, RAY S, VOTEY HL Jr
A comment on methodological concerns: a rejoinder.
J Crim Justice 1984; 12(2): 155-160.
"This rejoinder to Professor Cohen's Comment (see Cohen, Abstract 5-142) is intended to elaborate on approaches we utilized in our original paper. Some of our specification was necessitated by data availability (e.g., the specification of the sanction process). We attempt to clarify our approach in regard to the intervention process. We provide an explanation of the modeling that could underlie a test of the hypothesis that the control effect is a product of the arrest process - a test that we had regarded as informative but peripheral to our main points. As noted, a significant part of that test utilizes the full range of control variables available to us. Finally, we enumerate what we felt to be the main points of our paper - points we are afraid might otherwise be lost in this discussion of methodology."
(Dept. of Economics, Univ. of California, Santa Barbara, CA 93106)

5-160
SARRIS MM
Kevin's Story: a new film about teen-age drinking and driving.
J Traffic Safety Educ 1984; 31(3): 20.
A nineteen-minute 16mm film, "Kevin's Story," based upon the idea that peer pressure can persuade teens to stop drinking, is reviewed and highly recommended for use in driver education courses and school assemblies. Kevin Tunnell, an eighteen-year-old, was convicted in 1982 of drunk driving and manslaughter of an eighteen-year-old girl. He was sentenced to lecture against drunk driving 40 hours per week for a year, and his presentations had great impact. "Kevin's Story" was filmed during a presentation to 400 teen-agers.
(For information on the film, contact New Day Films, 1748 Kalorama Rd., N.W., Washington, DC 20009.)

5-161
SCHADLER W
(The Frankfurt experiment: a group project with DWI drivers during probation under conditional discharge)
Blutalkohol 1984; 21(4): 319-331. (GER)
"The author describes the intention of the Frankfurt experiment as an attempt to fill a gap in the conventional traffic sanctions, concerning DWI-drivers. The judge now for the first time has the possibility to impose a pedagogical treatment as a part of a sanction within conditional discharge. A group project, conducted by probation officers, shall make dispensible a sentence of imprisonment." English summary. (See also Kunkel, Abstract 5-167)
(Hessischen Ministerium der Justiz, Luisenstrasse 13, 6200 Wiesbaden, W. Germany)

5-162
SCHMIDT DB, PETERS JE, eds.
Proceedings. The First Northeast Conference on Alcohol-Server Liability. Held at the Boston Park Place Plaza Hotel, Boston, January 12-13, 1984. Northampton, MA: Intermission, Ltd.
1984: 200 pp.
Proceedings of a conference on dram shop liability. Forty-five speakers addressed the following topics: (1) scope of the problem: social, industry, legal, insurance; (2) the legal perspective: plaintiff vs. drinking establishment; (3) the insurance perspective: what is the role of the insurance industry?; (4) government regulation: how much is enough?; (5) law enforcement: will ABC laws be more strictly reinforced?; (6) determining intoxication; (7) supply side prevention and server intervention programs; (8) legislative change; and (9) self-policing vs. regulation.
(Intermission, Ltd. 56 Main St., Northampton, MA 01060)

5-163
VOTEY HL Jr
The deterioration of deterrence effects of driving legislation: have we been giving the wrong signals to policy makers?
J Crim Justice 1984; 12(2): 115-130.
"This paper suggests that the apparently observed initial success of legislation to control drunken driving accidents by law enforcement and sanctions, followed by a return of accident levels to initial trends may be an artifact of failure to properly model the accident process. The point is illustrated by simulating a model of accidents in which drunken driving is controllable with a change in laws. It shows that this control effect can easily be swamped by other plausible accident inducing forces. Finally, it is argued that the costs of failing to maintain efforts to control drunken driving may be greater than the social costs of maintaining high enforcement levels and stiff penalties."
(Dept. of Economics, Univ. Of California, Santa Barbara, CA 93106)

4. PSYCHOLOGICAL AND SOCIOLOGICAL STUDIES

5-164
BEHRENS C, BERGER R, BERGER F
Identification of DWI Behavior Patterns and Methods for Change. Santa Monica, CA: Psychometrics, Inc. Report to the National Highway Traffic Safety Administration. Final Report HS-806 406.
1982: v.p.
"The purpose of this study was to identify patterns of behavior leading to driving while intoxicated (DWI), and to propose countermeasures for altering these patterns before they result in DWI. Two samples were studied: Los Angeles high school students representing the population of principal interest in this report, 16 to 18 year olds, and convicted DWIs, a comparison group. The study began with a literature review to find other research that dealt with DWI behavior patterns. The behavioral and situational variables, identified in the literature as being associated with DWI, were discussed with 12 focus group meetings of high school students and 11 meetings of convicted DWIs. The final report presents the predominant behavior patterns that emerged from the focus group discussions in both samples. The convergent views of both groups underlie the recommendation for DWI countermeasures given in this report. Both groups strongly urged countermeasures that would emphasize the teaching of planning methods, enabling individuals to avoid driving after drinking." (Safety Sci Abstr)
(Psychometrics, Inc., 2800 Olympic Blvd., Santa Monica, CA. Available from National Technical Information Service, Springfield, VA 22161)

5-165
GLENCROSS DJ, HANSEN JA, REYNOLDS NJ, PHILLIPS J
The effects of alcohol on cognitive skill: an information processing approach. In: Ergonomics and the Disabled Person. Proceedings of the 18th Annual Conference of the Ergonomics Society of Australia and New Zealand, Canberra, 1981.
1981: pp. 295-318.
"A series of experiments investigating the effects of alcohol on dual-task performance is introduced. The primary task in the experiments consisted of an aimed arm movement varying in complexity and precision. Different forms of secondary task (or probes) were inserted at various stages during the movement with disruption or delay to these probes taken to indicate changing capacity demands of the main task. From the different patterns of interference to the different forms of probes, inferences could be made as to which particular processes or structures were involved in the control of movement and which most sensitive to the effects of alcohol. Only the first experiment is reported which involved an aiming movement to a small on large target with auditory probe signals, requiring a simple finger lift response, inserted at different intervals of the movement. Focussed and divided attention experimental conditions were used with alcohol doses administered in a before and after double blind design. Placebo, 0.05 percent and 0.10 percent BAC's were employed for each subject. The results showed complex effects of alcohol on dual-task performance. A highly significant effect for alcohol dosage on probe R7 for the small target condition was found with an interaction between dosage and probe position indicating that movement probe R7 delays are greatest during the latency phase of the primary movement. Group results as well as individual strategies are discussed." (ARRD)
(Ergonomics Society of Australia and New Zealand, 35-43 Clarence St. 2000 Sydney, New South Wales, Australia 0726-7029)

5-166
HOLLINGER RC
Race, occupational status, and pro-active police arrest for drinking and driving.
J Crim Justice 1984; 12(2): 173-183.
"The issue of pro-active police arrest bias by race, occupational status, and police patrol intensity is examined using the offense of DUI (Driving Under the Influence of alcohol). Intoxicated drivers from a 10-weekend roadside survey of vehicles randomly selected from the streets of a medium-sized southeastern metropolitan area are compared to officially arrested drivers apprehended during a corresponding time period. Upon examination, no statistically significant arrest bias was detected by the driver's race. However, compared to the roadside survey population, lower occupational status drivers (i.e., blue collar) were significantly more likely to appear in the arrested population than an upper status (white collar) driver - especially in the lightly patrolled middle and upper class residential sections of town. The significance of occupational status, when combined with the finding that race was not a significant indicator of difference between the arrested and roadside survey populations, suggests that pro-active arrest bias is more a function of institutionally determined police patrol practices rather than overt racial prejudice on the part of individual officers."
(Dept. of Sociology, Univ. of Florida, Gainesville, FL 32611)

5-167
KUNKEL E
(The Frankfurt experiment: a group project with DWI drivers during probation: psychological aspects).
Blutalkohol 1984; 21(4): 332-337. (GER)
"In the Frankfurt experiment instead of receiving a sentence of imprisonment DWI drivers are sent to a socio-pedagogical group project conducted by probation officers. The author discusses psychological aspects of the experiment: the experimental group, motivation of the participants, contents of group project and main objectives of the experiment." English summary. (See also Schadler, Abstract 5-161.)
(Technischer Uberwachungs-Verein Rhineland e. V., Postfach 3950, D-6500 Mainz, W. Germany)

5-168
MOSKOWITZ H, BURNS MM, WILLIAMS AF
Skills Performance at Low Blood Alcohol Concentrations. Washington, DC: Insurance Institute for Highway Safety.
1984: 16 pp.
"The effect of low blood alcohol concentrations (BAC's) on driving skills performance was examined experimentally. Ten moderate drinkers were tested on divided-attention and information processing tasks at BAC's of 0.000%, 0.015%, 0.030%, 0.045%, and 0.060%. All response measures showed evidence of impairment beginning at 0.015% and increasing impairment with increasing BAC's. Thus, there is no evidence that low or very low BAC's improve performance on driving-related skills, as has sometimes been suggested."
(Southern California Research Institute, 11912 W. Washington Blvd., Los Angeles, CA 90066)

5-169
NUOTTO E, PALVA ES, SEPPALA T
Naloxone-ethanol interaction in experimental and clinical situations.
Acta Pharmacol Toxicol (Copenh) 1984; 54(4): 278-284.
"The effect of naloxone on ethanol-induced impairment of psychomotor performance was studied in a series of three placebo-controlled, double-blind trials. In all trials, two successive intravenous injections of naloxone (0.4 and 2.0 mg) were given at an interval of 0.5-1.5 hours. Cross-over trials with healthy volunteers (n = 17) were performed in laboratory. In these conditions, naloxone alone had no effect on performance. Ethanol alone (1.0 and 1.5 g/kg) dose-dependently induced nystagmus and impaired coordination, reactions, hand cooperation, body balance, flicker discrimination and extraocular muscle balance. When naloxone was given after ethanol, the first injection reduced slightly but significantly ethanol-induced (1.5 g/kg) nystagmus....Our results suggest that naloxone has no clinical significance in antagonizing ethanol intoxication. The inebriating effects of ethanol are not importantly mediated via central opioid mechanisms."
(Dept. of Pharmacology, Univ. of Helsinki, Finland)

5-170
SNORTUM JR
Controlling the alcohol-impaired driver in Scandinavia and the United States: simple deterrence and beyond.
J Crim Justice 1984; 12(2): 131-148.
"Three papers on simple deterrence of alcohol-impaired driving (Ross, 1982; Votey, 1984; and Phillips, Ray, and Votey, 1984) were reviewed within a broad framework of control variables, including: legal, technical, psychological, moral, and cultural influences. In applying this framework to a comparison of Norway and Sweden versus the United States, it was apparent that Scandinavian drivers are subjected to a considerably greater range and intensity of control influences than American drivers. It was recommended that a causal analysis of simple deterrence should be supplemented by a contextual analysis of general prevention for a fuller appreciation of the complex, interactive network of influences upon alcohol-impaired driving."
(Claremont McKenna College, Claremont, CA 91711)

5. MEDICAL AND BIOLOGICAL STUDIES

5-171
BARRUCAND D
(Benzodiazepines, alcohol and effects on vigilance)
Encephale 1983; 9(4 Suppl 2): 117B-122B. (FRE)
"It is evident, and has been confirmed by epidemiological and experimental data, that ingestion of alcohol can reduce alertness and disturb the concentration of drivers. However, there is still some confusion on this question, since it is impossible to predict what will be the exact level of alcoholemia following ingestion of a given quantity of alcohol, and because disturbances in alertness vary greatly from one individual to another for the same level of alcoholemia. The essential distinction between acute alcoholisation and chronic alcoholisation (due to notions of alcohol tolerance and dependance) must also be taken into account. Similar difficulties exist in interpreting the relation between ingestion of benzodiazepines and vehicle driving, but they are further complicated by other factors, notably the large number of drugs. Of course, it is possible to show by laboratory experiments, that some benzodiazepines (dipotassium clorazepate, for example) do not disturb the concentration of drivers when given alone, in normal doses and for the recommended indications. But in reality, epidemiological data show that, statistically speaking, drivers taking benzodiazepines have a higher risk of accident than the average drivers. It would appear from this that, for a driver ingesting both alcohol and benzodiazepines, the risk of accident is greatly enhanced. It is also clear that the difficulties in interpreting this risk are multiplied....[I]t appears that there is potentiation when the two substances are ingested together in cases of acute alcoholisation (with an increase in benzodiazepine blood levels), and attenuation in cases of chronic alcoholisation (due to acceleration in clearance provoked by hepatic microsomial induction)."
(Service de Medecine Interne Oriente vers l'Alcoologie, Hopital Fournier, Nancy, France)

5-172
BEEVERS DG
The problem of hypertension in aviators.
Eur Heart J 1984; 5(Suppl A): 29-32.
"Any pilot who is found to have a diastolic blood pressure greater than 100 mmHg should be investigated and grounded or restricted to multi-crew operation pending control of the blood pressure....High alcohol consumption is clearly hazardous and is a cause of hypertension. Useful biochemical markers of alcohol abuse include mean cell volume and gamma glutamyl transferase. There are abundant reasons for a conservative approach to new antihypertensive drugs in professional aircrew."
(Univ. Dept. of Medicine, Dudley Road Hosp., Birmingham, England)

5-173
COLLINS DWK, BLACK JL, MASTAGLIA FL
Acute effects of alcohol on saccadic reaction time and saccadic velocity in humans.
Aust Phys Eng Sci Med 1982; 5(1): 18-22.
"The effects of alcohol on eye movements may be of considerable social importance, particularly in relation to the driving of motor vehicles when blood alcohol levels are elevated. This paper describes a study carried out on a small group of normal subjects in which saccadic reaction times and saccadic velocity indices were recorded during periods of increasing blood alcohol levels and then as the blood alcohol level of the subjects decreased. Other studies on the relationship between blood alcohol level and eye movements have been carried out in recent years but none has followed the period after alcohol intake has ceased." (Safety Sci Abstr)

5-174
DOUMA JH, MULDER JAG, WAMMES LJA
(Aspects of Breath Analysis and Blood Alcohol Content) Leidschendam, Netherlands: Institute for Road Safety Research SWOV. Report No. R-81-43. 1981: 84 pp. (DUT)
"A quantitative physical model for the transport of alcohol in the bronchial tubes is developed. In the model a number of physiological aspects of the breath analysis are classed, from which it is expected that they influence the breath analysis. The meaning of the model is demonstrated by means of several examples. It is shown how this model can be expanded and eventually transposed in a computer model. For the experimental research a special set up for the measurement was constructed. A number of experiments are described and the results and conclusions are given. The physiological aspects of the breath analysis can influence the measured alcohol concentration. The results obtained correspond in general with the formulated model." (TRIS)
(Institute for Road Safety Research SWOV, P.O. Box 170 2260, AD Leischendam, Netherlands)

5-175
GATT JA
The effect of temperature and blood:breath ratio on the interpretation of breath alcohol results.
New Law J 1984; 134(6146): 249-251.
In England, breath tests have largely replaced blood analysis for detection of excessive levels of alcohol in suspected drunk drivers. Two factors which have considerable influence on the comparison of these results, temperature and blood/breath ratio, are discussed. Several studies are reviewed and it is concluded that, although the measurement of breath alcohol has been legally established in England, the interpretation of results may not be straightforward: "The temperature of the breath has a profound effect on the concentration of alcohol measured and wide variation in possible blood:breath ratios precludes meaningful conversion to blood concentrations." The author asks, "Is the technology available to measure precisely and accurately breath alcohol levels that closely correlate to blood and brain level?"
(Address not indicated)

5-176
GRUHN K-M, PRIBILLA O
(Blood alcohol concentrations after consumption of brandy chocolates)
Blutalkohol 1984; 21(4): 363-365. (GER)
The influence of taking brandy chocolates on blood alcohol concentration was investigated. The ingestion of 25 to 40 brandy chocolates resulted in blood alcohol concentrations less than 0.01 per thousandths and breath alcohol concentrations less than 0.1 per thousandths. English summary.
(Pribilla: Instituts fur Rechtsmedizin der Medizinschen Hochschule Lubeck, Lubeck Kahlhorstrasse 31-35, D-2400 Lubeck, W. Germany)

5-177
WELLER RA, PRESKORN SH
Psychotropic drugs and alcohol: pharmacokinetic and pharmacodynamic interactions.
Psychosomatics 1984; 25(4): 301-309.
"This article examines clinically significant interactions between alcohol and psychotropic drugs in occasional and chronic users of alcohol. Enzyme induction by alcohol alters the metabolism of many drugs. In alcoholics, cirrhosis may result in decreased first-pass metabolism, with more drug reaching tissue compartments to exert greater effect than expected. Direct and indirect additive, synergistic, or antagonistic interactions are reviewed in relation to the major categories of psychotropic drugs."
(Univ. of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, KS 66103)

5-178
WILLUMEIT HP, OTT H, NEUBERT W, HEMMERLING KG, SCHRATZER M, FICHTE K
Alcohol interaction of lormetazepam, mepindolol sulphate and diazepam measured by performance on the driving simulator.
Pharmacopsychiatry 1984; 17(2): 36-43.
"Sixteen healthy volunteers of a mean age of means = 26.4 years took part in a driving simulator test in an eightfold crossover study under double-blind conditions. The additional influence of alcohol was tested acutely after a single administration of 2 mg lormetazepam, a new, highly effective derivative from the benzodiazepine class, 10 mg mepindolol sulphate, a new betablocker without sedating properties, and 10 mg diazepam. All drugs were compared with placebo and the test was performed 1, 2 and 3 hours after oral intake. The aim was to investigate particularly the risks relevant in road traffic caused by simultaneous intake of these substances with alcohol. For this purpose, besides the driving simulator, an accurate reaction test (WDG) and self-rating scales were used, the latter in order to assess subjective stress and anxiety levels. Lormetazepam, due to its strong sedating property, showed a reduction in driving performance and an increase in reaction time and pulse rate as compared with placebo, and these effects were highly potentiated by alcohol. Mepindolol sulphate expectedly reduced pulse rate when compared with placebo....Diazepam, when compared with placebo, like lormetazepam caused a reduction in driving performance and reaction capacity and an increase in pulse rate, but intensity and duration of this effect were less than with lormetazepam and did not reach statistical significance."
(Schering, Research Laboratories, Section Electrophysiology/ Psychometrics, Berlin, West Germany)

6. STATISTICAL STUDIES

5-179
FOSSEUS CGH
Motorcycle accidents and alcohol: a survey of fatalities in the Cape Peninsula.
S Afr Med J 1983; 64(5): 159-160.
Autopsy was performed on a total of 48 motorcycle accident victims in Cape Town during 1982. Of the riders tested, 61.3% were found to have alcohol in their blood; 42% had a blood alcohol level of more than 0.10 g/dl. Thirty-nine were under 30 years of age.
(State Pathologist, Cape Town, South Africa)

5-180
MALIN H, VERDUGO N
Epidemiologic Bulletin 3: Differences in alcohol involvement in fatal motor vehicle accidents related to age of drivers.
Alcohol Health Res World 1984; 8(3): 56-57.
In a recent Alcohol Epidemiology Data System (AEDS) study of the Fatal Accident Reporting System (FARS) data for each year from 1977 through 1981, limitations and trends were examined in BAC levels, testing, and reporting. A major finding was that BAC distributions were distinctive in each of the five age groups considered. The peak BAC level of drivers involved in fatal crashes increased with age. Age-specific BAC distributions were similar for all 5 years studied. Several possible explanations are offered for the consistency in BAC patterns within age groups over time. Limitations on the use of FARS data are noted.

5-181
NEUTEBOOM W, ZWEIPFENNING PG
Driving and the combined use of drugs and alcohol in the Netherlands.
Forensic Sci Int 1984; 25(2): 93-104.
"The extent and nature of the use of medicinal drugs by drivers who had undergone a blood test on suspicion of driving under the influence of alcohol was ascertained by analysing some 40,000 case records in which the suspect had been questioned about the use of drugs. No chemical analyses were performed. 9.7% of the road users indicated that they used drugs in combination with alcohol, and more than 50% of the drugs used must be considered to have a negative impact on driving performance. The influence of the combined use of benzodiazepines and alcohol on behaviour was also investigated. The finding here was that drivers using these drugs should be warned against the consumption of alcohol."
(Forensic Science Laboratory, Rijswijk, Netherlands)

5-182
PHILLIPS L, RAY S, VOTEY HL Jr
Forecasting highway casualties: the British Road Safety Act and a sense of deja vu.
J Crim Justice 1984; 12(2): 101-114.
"This paper reexamines the effect of the introduction of the British Road Safety Act of 1967. We construct a dynamic model relating monthly road casualties to road traffic, rainfall, and alcohol consumption, standardizing for the seasonality in the data. An intervention variable captures the effect of the Road Safety Act. The findings confirm Ross's earlier conclusion that the Road Safety Act significantly reduces casualties. However, we find that the Road Safety Act only accounts for 2.7 percent of the variance in road casualties, while miles-driven and rainfall account for 48.8 percent, and alcohol consumption explains 4.2 percent. Our model forecasts accurately for 24 months beyond December, 1972, the last month used for estimation."
(Dept. of Economics, Univ. of California, Santa Barbara, CA 93106)

5-183
PIETERSE SH
(The Alcohol Safety School) Pretoria, South Africa: National Institute for Transport and Road Research.
1980: 23 pp. (AFR)
"This final report presents tabled information gained from questionnaires on alcohol consumption, safety, school, [and] blood alcohol content of drivers. The most important aspects of the replies are discussed, and a few recommendations are given." (TRIS)
(National Institute for Transport and Road Research, P.O. Box 395, Pretoria 0001, Transvaal, South Africa)

5-184

SODERSTROM CA, ARIAS JD, CARSON SL, COWLEY RA

Alcohol consumption among vehicular occupants injured in crashes.

Alcoholism (NY) 1984; 8(3): 269-271.

"Admission blood alcohol levels (BAL) were obtained in 111 adult passenger/driver pairs injured in vehicular crashes. Drinking patterns were studied, including the influence of the sex of the occupants on alcohol consumption. Alcohol was not a factor in 44 of the crashes. In 48 of 62 crashes (77%), the driver was either the sole drinker or had a higher BAL than the passenger. In five crashes, the passenger was the only drinker. Female drivers were drinking 40% of the time, compared to 60% of male drivers. Overall, 77.4% of the drinking drivers had a BAL of greater than or equal to 100 mg/100 ml. When vehicular occupants were of the same sex, as opposed to both sexes, the drivers drank more frequently (62.9% vs. 43.9%). In 13 of 14 cases of a drinking male driver transporting a female passenger, the female passenger had not been drinking or had done so to a lesser degree. The data indicate that educational efforts should be directed at discouraging passengers from riding with drinking drivers."

(Dept. of Surgery and Traumatology, Maryland Inst. for Emergency Medical Services Systems, Baltimore,MD)

5-185

VOTEY HL Jr

Control of drunken driving accidents in Norway: an econometric evaluation of behavior under uncertainty.

J Crim Justice 1983; 11: 153-166.

"This article makes use of a very simple choice-theoretic model and econometric analysis to evaluate the control of motoring accidents in Norway. The model attempts to take account of the impact of driving levels, traffic density, and road quality as well as alcohol consumption, the probability of convictions, and sanctions on the generation of accidents. Five alternative logit formulations, estimated within a simultaneous systems framework, provide insights on the impact of law enforcement on the levels of fatal and serious accidents. Results of this pooled cross-section-time-series analysis compare favorably with earlier time-series estimates of the strength of control effects."

(Community and Organization Research Inst., Univ. of California, Santa Barbara, CA 93106)

5-186
WECHSLER H, ROHMAN M, KOTCH JB, IDELSON RK
Alcohol and other drug use and automobile safety: a survey of Boston-area teen-agers.
J Sch Health 1984; 54(5): 201-203.
"[T]he authors surveyed a stratified random sample of approximately 2,000 7th and 10th graders in the Boston area in the spring of 1982 ....[T]he analysis presented here is limited to 623 students who were 16 years of age or older at the time of the survey. About half of the students in this age group used alcohol (63%) or marijuana (44%) and as many as 18% had used other illicit drugs during the 1982 school year....A substantial proportion of students combined drug and/or alcohol use with driving. Between 43% and 50% had been a passenger with a driver who was under the influence of alcohol or marijuana at least once since the beginning of the school year. Many students did not appear to be aware of the dangers involved in driving under the influence of alcohol or marijuana and about one out of four believed they could use alcohol and other drugs responsibly. Both students' behaviors and beliefs regarding drinking, drug use and driving were significantly related to the extent of their involvement with alcohol and other drugs. Frequent marijuana users, heavier drinkers and students who used drugs other than alcohol or marijuana were more likely than other students to combine drug use and driving and believe that these activities could be combined safely. The data suggest that the entire constellation of risk-taking and drug-using behaviors should be addressed in educational programs and that information on the effects of other drugs (both alone and in combination with alcohol) on driving ability should be emphasized."
(Medical Foundation, Inc., Boston, MA)

7. MISCELLANEOUS

5-187
FELDMAN J, COHEN H
The questionable accuracy of Breathalyzer® tests.
Trial 1983; 19(6): 54-59, 102.
The recall by Smith & Wesson of Breathalyzer models 1000, 900, and 900A, based upon possible sensitivity to radio-frequency interference (RFI) is addressed. The authors conducted a brief experimental examination of the sensitivity of several Breathalyzers, model 900 and 900A, to RFI. Three model 900s tested were "quite resistant to RFI." The one model 900A tested was very sensitive to RFI. Results of the tests are presented.
(Electrical and Computer Engineering Dept., Northeastern Univ., Boston, MA)

5-188
JOYE RI Jr
Breathalyzer recall.
Trial 1983: 19(6): 62-65.
The recall by Smith & Wesson on Sept. 10, 1982, of its Breathalyzer models 900 and 900A is discussed.
(5861 Rivers Ave., Charleston, SC 29405)

5-189

MACDONALD S, WHITEHEAD PC

Availability of outlets and consumption of alcoholic beverages.

J Drug Issues 1983; 13(4): 477-486.

"A literature review was conducted on the relationship between the frequency of outlets for alcoholic beverages and consumption. The studies that are most sound methodologically, as well as the majority of other studies, suggest that an increase in the frequency of off-premise outlets is accompanied by an increase in consumption. The impact of on-premise outlets on consumption, however, has generally not shown to be a good predictor of rates of consumption. Suggestions are offered as to why other authors have not arrived at similar conclusions."

(Whitehead: Addiction Research Foundation, 33 Russell St., Toronto, Ontario M5S 251, Canada)

NOTE:
Neither the Alcohol Research Center nor the Brain Information Service is able to supply the papers cited in this bulletin. Whenever possible, addresses are given from which reprints may be requested.

KWIC Index

In the Key-Word-In-Context (KWIC) Index, each significant word of an English title or translated title is listed alphabetically, within the context of its title. (Each listing includes a portion of the title preceding and just following the key word.) To conduct a search for all citations on a topic, the searcher should check alternate terms: for example, "teenage," "youth," and so on, in addition to "adolescents." The number following the KWIC entry corresponds to the number of the citation and abstract in the Abstracts section of this issue.

Author Index

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Abstracts & Reviews in Alcohol & Driving accepts original empirical, theoretical and review articles germane to the study of alcohol as it affects traffic safety. The overall goal of the publication is to encourage and develop a body of information which will aid in the alleviation of this serious problem. Articles considered may cover medical and biological research studies of alcohol vis-a-vis the operation of motorized vehicles; psychological and social profiles of the drunken driver; devices or programs designed to prevent drunken driving or its recurrence; legislative measures and law enforcement programs directed against drunken driving; and statistical studies of traffic accidents or driver characteristics.

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Manuscripts must be submitted in quadruplicate, with double spacing through-out. Manuscripts should not exceed 15 typewritten pages, including references. Manuscripts should be mailed to the Managing Editor, Abstracts & Reviews in Alcohol & Driving, Brain Information Service, Center for the Health Sciences, University of California, Los Angeles, CA 90024. In the case of a manuscript written by more than one author, the covering letter should indicate the name and address of the author with whom the editor should correspond.

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Reference Style. References should be listed in alphabetical order at the end of the manuscript, and numbered consecutively. All references must be cited in the text by their number in the list of references. Index Medicus should be used as the format for journal abbreviations. Please follow this sample style:

1. Ross HL. Deterring the Drinking Driver: Legal Policy and Social Control. Lexington, MA: Lexington Books, 1982.

2. Vingilis E, Smart RG. Effects of raising the legal drinking age in Ontario. Br J Addict 1981; 76(4): 415-424.

3. Voas RB, Moulden J. Historical trends in alcohol use and driving by young Americans. In: Wechsler H, ed. Minimum-Drinking-Age Laws. Lexington, MA: Lexington Books, 1980: 59-72.

Tables and Figures must be in camera-ready condition in sizes which accommodate bulletin column arrangements.

REVIEW OF MANUSCRIPTS

Articles received for publication will be sent for review to experts in the field of alcohol and traffic safety.

The Anheuser-Busch Foundation is concerned about any abuse of alcoholic beverage products and is dedicated to the support of research projects conducted in order to provide a better understanding of the problem and the basis for more extensive programs to combat alcoholism and the abuse of alcohol.

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