LEGISLATIVE RECOMMENDATIONS OF THE VIRGINIA HIGHWAY SAFETY COMMISSION TO THE 1972 VIRGINIA GENERAL ASSEMBLY

by

Steven L. Micas, Graduate Legal Assistant

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RECOMMENDATIONS OF THE
VIRGINIA HIGHWAY SAFETY COMMISSION
TO THE
1972 VIRGINIA GENERAL ASSEMBLY

* The Presumptive Level for Definition of Driving Under the Influence of Alcohol Should be Reduced from 0.15% to 0.10% By Weight of Alcohol in the Blood.

* Virginia Should Permit the Use of Breath Tests in Addition to Chemical Tests of the Blood for Presumptive Evidence of Driving Under the Influence.

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PART ONE

The Presumptive Level for Definition of Driving Under the Influence of Alcohol Should be Reduced from 0.15% to 0.10% by Weight of Alcohol in the Blood

A CONTINUING PROBLEM

The drinking driver has long been recognized as a serious threat to safety on the highways. All 50 states are consistent in making it an offense to operate a motor vehicle while under the influence of alcohol.[1]

Statistically a small percentage of drunken drivers has turned the nation's highways into a "virtual battleground", exacting a toll of 28,000 persons killed annually in 800,000 accidents. The dollar cost of the drinking driver has been conservatively estimated at between 7 and 8 billion dollars a year.[2]

In 1970 alcohol contributed to the deaths of over 340 drivers on the Commonwealth of Virginia's roads and a total of 19,000 crashes. But the Virginia Department of State Police, compilers of the statistics, are quick to point out that the figures do not indicate the true numbers since intoxication is frequently unreported when there does not exist sufficient evidence to justify prosecution.[3]

Figures, however, can illuminate only part of a multifaceted national tragedy of alcohol-related accidents. To understand the seriousness of the problem one must examine the American citizen's response to alcohol and driving. In conjunction with this reaction, an appreciation of the research evidence linking alcohol and accident causation and Virginia's current response to alcohol on its highways should

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1. Note — "A State Statute to Prevent the Operation of Motor Vehicles by Persons Under the Influence of Alcohol," Harvard Journal of Legislation 280 (1967).
2. Halverson, Guy, Stop the Drunk Driver, Christian Science Publishing Society, Boston, Massachusetts (1970) p. 1.
3. Virginia Traffic Crash Facts, Department of State Police, Richmond (1970) p. 21.

lead to the formulation of effective countermeasures in restricting the drunken driver.

Today in the United States drinking is typical behavior while complete abstinence and alcoholism are atypical. Studies have shown that 75% of the adult population uses alcohol with 33% of the adults drinking and driving together at least once a year.[4] The alcoholic population ov Virginia is estimated at 50,000 by the Virginia Department of Health with most of them having operator's licenses.[5]

Drinking varies among the different levels of society, though men and younger people drink greater amounts than do women and older people.

Evidence exists that both the prevalence and level of drinking by women are increasing. With the diffusion of customs it can be expected that the relatively higher level of drinking in urban upper social levels will be followed by an increase in the proportion of drinkers among women of lower status and persons in the smaller towns and rural areas.[6]

A person's proclivity for drinking and driving is essentially a sociological and anthropological variable rather than a psychological one.[7] By changing society's relationship to alcohol by increasing apprehension of detection or penalties elected representatives may be able to lessen any behavioral link between drinking and driving.

In examining the dimensions of the drinking driver problem, one must distinguish between the social drinker who may have had "one too many" and the chronic heavy drinker. Dr. Julian Waller was the first

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4. Kempfer, G., Fink, R., Clark, W. B., and Goffman, A. S.,"Factors Related to Amount of Drinking in an Urban Community," California Drinking Practices Study Report No. 6, Division of Alcoholic Rehabilitation, California State Department of Public Health, Berkeley (April 1963).

5. Virginia Traffic Safety News, Vol. 254 (August 1970) p. 3.

6. Cahalan, Don, Cisin, Ira H., and Crossley, Helen M., American Drinking Practices: A National Study of Drinking Behavior and Attitudes. Publications Division, Rutgers Center of Alcohol Studies, New Brunswick, New Jersey (1969) p. 199.

7. Ibid.

researcher to show that the drinking driver who has caused a highway accident is rarely just an unlucky citizen, but is rather a socially deviant person who has most likely had some contact with community organizations involved in alcohol rehabilitation.[8]

Other sources further differentiate between:

(1) The problem drinker, who is thought to cause the majority of fatal accidents.

(2) The social drinker, who has frequently had "one too many" so that his blood alcohol level, though not as high as the problem drinker's, still affects his driving.

(3) The novice drinker, whose inexperience is a contributing factor to highway mishaps.[9]

(4) The young drinker, whose driving patterns are not well enough ingrained to permit him to react properly in an emergency even with a low blood alcohol content. The ability and frequency with which minors are able to obtain hard liquor has surprised even experienced statisticians in the field.[10]

A Baylor University study summed up the current state of knowledge as to the disproportionate involvement of heavy drinkers in highway accidents.[11] Their study showed that "80% of the fatalities were maladjusted in that they were either alcoholics or had personality disorders or both." They also found that 80% of the fatalities had prior psychological stress and driving records which were indicative of pathological behavior. The Baylor researchers concluded that if alcohol is added to a driver's personality pattern, a stressful event, and the

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8. Waller, J. A., "Identification of Problem Drinking Among Drunken Drivers," Journal of American Medical Association," Vol. 200 (1967) pp. 114-120.

9. Halverson, op. cit., p. 17.

10. U. S. Department of Transportation, 1968 Alcohol and Highway Safety Report, U. S. Government Printing Office, Washington, D. C. (August 1968) p. 67.

11. Brown, S. L., et al. "Drivers Who Die," Alcohol Safety Study, Baylor University, Houston, Texas (1968).

resulting intrapsychic reaction, then a high probability of an accident results. A prominent investigator views the problem numerically by approximating 100,000,000 registered drivers with 70,000,000 of them occasionally driving while under the influence of alcohol. The alcoholic population at 6% of the adult population becomes 6,000,000; with 64,000,000 non-problem drinking drivers. Postulating an equal number of fatalities to each group, it follows that the problem drinker represents a risk 10 times greater than does the social drinker.[12]

If drinking alcohol and driving are so commonly linked with highway accidents it might be expected that the general public would be outraged at a driver who drinks so as to endanger those using the highways. But generally public opinion and the social stigma of being apprehended for driving while intoxicated are insufficient to prevent the impaired driver from using the road. His self-esteem causes a natural psychological rejection of the possibility of a crash or the possibility that a police officer will recognize his alcohol-impaired driving. Not only does he feel there is a relatively small probability of being apprehended, he feels sure that if apprehended he will not be convicted.[13]

In spite of the driver's reaction to the problem, the general public, though unsure of the scientific basis for measuring the blood alcohol level, does realize that increased levels of consumption produce an increased driving risk. The DOT study on public opinion found that the majority of people believe that a violation of a drunken driving law too frequently leads to too small a penalty and that "two drinks" leaves a person "too intoxicated to drive safely."[14] In short, the survey indicated that the public is concerned over the hazard of the alcohol-impaired driver and is willing to support strong countermeasures to remove him from the road. With this rejection of the drunken driving penalties as "too lenient," wide support was indicated for such strong specific changes as legislation "to jail individuals who drive after more than one drink."[15]

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12. Little, Joseph W., "Some New Departures in Controlling Drunk Drivers," Traffic Quarterly, Vol. 25 (January 1971) p. 131.

13. Halverson, James W., M. D., "Alcohol-Related Automobile Crash Problems," in a statement to the American Association of Automotive Medicine (October 1969).

14. U. S. Department of Transportation, op. cit., p. 88.

15. Ibid., p. 91.

The early history of the promulgation of "presumptive statutes" was marked by an intuition that the constituency of most legislators knew little about chemical tests to determine intoxication. Convincing voters of the utility of such a new tactic was deemed too difficult for the prudent politician. The statutes themselves are based upon a percent by weight of alcohol in the blood based upon milligrams of alcohol per one hundred cubic centimeters of blood. The terminology "maximum legal blood alcohol concentration" means that a presumption of intoxication is raised by higher concentrations, though this can be rebutted with evidence of sobriety. The presumptive level is thus not an actual legal limit analogous to maximum legal limits for speed.[16]

Public officials, including legislators, police administrators, prosecutors and judges all were wary of using such a new, seemingly absolute weapon against the drunken driver. So to be completely fair and in order to gain initial acceptance the most liberal figure of 0.15% was adopted by most states including Virginia.[17]

The second reason that the generous 0.15% level was adopted was because the experimentation used to arrive at that level primarily relied on laboratory psychophysical tests. More recently in an attempt to simulate the actual driving task scientists have attempted to use alcohol-impaired drivers on obstacle courses.[18] The results of the more modern studies have shown that no one is fit to drive a motor vehicle when he has a 0.10% blood alcohol level and that a 0.15% level leaves too many potential accident generators on the highway. Realizing this as early as 1960 the American Medical Association recommended the adoption of the 0.10% presumptive level and the Uniform Vehicle Code has also recommended a presumption after 0.10%.[19]

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16. 1970 Legislative Review, Insurance Institute for Highway Safety, pp. 14-17.

17. Donigan, Robert L., "Chemical Test Law in the United States," in Alcohol and Traffic Safety Proceedings of the 4th International Conference on Alcohol and Traffic Safety (1966) p. 124.

18. Ibid.

19. Watts, Poindexter L., "Some Observations on Police Administered Tests for Intoxication," 45 North Carolina Law Review 34 (1966) p. 103.

ALCOHOL AND DRIVING ABILITY

A close look at current research findings consistently shows a deterioration of driving performance at the 0.10% blood alcohol level.[20] Further, little value could be ascertained in making the artificial distinction between intoxication and mere impairment presently existing in Va. Code Ann. § 18.1-56.1. Some have justified the existence of two standards by arguing that it provides leeway in making arrests where there might be some doubt as to a conviction on the more serious charge. But according to the Va. Code Ann. "impaired driving" is a lesser offense included under driving under the influence and no person is to be initially charged with the offense of impaired driving. "Thus, in terms of detection and apprehension, the 0.15% level is applicable."[21] The relevant criteria for determining driving under the influence remains the point at which alcohol has caused such a deterioration of driving ability as to significantly increase the chances of causing an accident.

In general, the studies used have tested perception and other driving skills of drivers with both no alcohol and increased alcohol levels. The test procedures have utilized driving simulators and actual obstacle courses using specially prepared vehicles.[22] The findings have resulted in a synthesis of the effects of alcohol in the driving task.

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20. For a comprehensive review of the relevant studies see U. S. Department of Transportation, 1968 Alcohol and Highway Safety Report, U. S. Government Printing Office, Washington, D. C., August 1968; and Alcohol and the Impaired Driver, Committee on Medicological Problems, American Medical Association, Chicago, Illinois (1968).

21. Ames, A. A., A Comparison of Virginia Statutes for a First Offense of Driving Under the Influence with Those of the Other 49 States and the District of Columbia, Virginia Highway Research Council, Charlottesville, Virginia (1971) p. 8.

22. Comment, "The Drinking Driver: An Approach to Solving a Problem of Underestimated Severity," 14 Villanova Law Review 87 (1968-69) p. 89.

EFFECTS OF ALCOHOL ON THE DRIVING TASK

Physical Effects of Alcohol	Psychological Effects of Alcohol
Loss of muscular coordination	Impaired judgement and comprehension
Impaired hearing	Failure to perceive danger
Depressed central nervous system	Exaggerated sense of performance
Disruption of the motor processes	Loss of attention
Slowed reaction time (especially to sight and sound stimuli)	Emotional instability
Impaired vision	Lack of self-criticism
a. Decreased color vision	Impaired concentration
b. Decreased resistance to glare	Lowering of inhibitions
c. Double vision	
d. Sluggish reaction to light	
Sleepiness	
Dizziness	
Decrease in respiratory rate	
Loss of consciousness	

These effects will, of course, vary with different persons depending upon a number of factors including rate of consumption, body weight, amount and type of food in the stomach, age, type of liquor and alcohol content, etc.[23]

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23. The Alcohol-Impaired Driver and Highway Crashes, Minnesota Department of Public Safety, St. Paul, Minnesota (October 1970) p. 3.

The types of unusual vehicle behavior used to detect an intoxicated driver on the road include the following:

(1) Unreasonable speed — too slow or too fast.

(2) Frequent changes of lanes, coupled with excessive speed.

(3) Improper passing without sufficient clearance; weaving and zigzagging.

(4) Overshooting or disregarding traffic signs or signals.

(5) Approaching signs unreasonably fast or slow, with uneven motions of vehicle.

(6) Driving at night without lights. Delay in turning them on after starting from a parked position.

(7) Failure to dim lights upon approaching opposing traffic.

(8) Driving in low gears without apparent reasons, or clashing of gears.

(9) Driving in center of roadway, or straddling the center line.

(10) Driving with windows down in cold weather, or head partly out of window.

(11) Parking in unusual places.[24]

The physical effects of alcohol on the driving task were evaluated in an evasive maneuver test designed by General Motors.[25] The subjects, with no alcohol content, first drove through an obstacle course to establish a standard of performance. Their blood alcohol level was then raised to 0.05% and they made another test run. The final trial was performed with a blood alcohol content of 0.15%, or until the subjects became too ill to continue. Surprisingly in a group of male adults who considered themselves "good drinkers", only one-third were able to reach the 0.15% level. The results showed that most drivers experienced a loss of ability at low blood alcohol levels and all drivers suffered a "sharp drop-off in skill" at the 0.10% level. A camera inside the vehicle recorded that at the 0.05% level rhythm and timing in

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24. The New Jersey State Police, Drinking-Driving Enforcement Guide (March 1968).

25. McLellen, David R., "The Effects of Alcohol on Driving Skill," from Pre-Crash Factors in Traffic Safety, American Association for Automotive Medicine, Sacramento, California (1966).

manipulating the automobile were uneven and reaction to traffic lights was uncertain. In short their driving behavior at the 0.05% level had become "erratic and uncoordinated where it had once been smoothly controlled." Unexpectedly the experiment showed a change in the psychological risk-taking factor when drivers with high blood alcohol levels were willing to continue the test though they appeared "dazed and uncertain of their assignment."

Another study of low blood alcohol levels and physical ability to operate a motor vehicle showed serious deterioration at the test levels.[26] Two-thirds of the subjects could not reach the 0.15% level and all showed impairment of driving ability at the 0.10% level. The unfortunate scenario that this study illustrates is the all too frequent occurrence of a driver who is a serious safety hazard and yet has not reached the 0.15% legally presumed level of intoxication.

Many studies have also sought to measure the alcohol-induced psychological changes in a driver that lessen his ability to operate a vehicle safely. Probably the most famous study was conducted in England to measure the judgement of experienced bus drivers in attempting to drive a bus through a narrow opening.[27] The researchers found that judgement was adversely affected by as little as two ounces of 80 proof liquor. Drivers attempted to navigate the buses through too small openings and required a larger space than actually needed to complete the test successfully. As conclusions the scientists agreed that:

- The consequences would probably be more severe in younger, less experienced drivers.
- A driver may be a menace on the highway though his reaction times are unchanged or some other skill shows no testable regression.
- The critical factor is not just the driver's skill but his ability in relation to "what he believes he could do and what he would in fact undertake."

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26. Taylor, J. D., and Stevens, S. L., "Dose Response Relationship of Ethanol and Automobile Driving," in Alcohol and Traffic Safety, Indiana University, Bloomington, Indiana (1966) pp. 252-260.
27. Cohen, J., Deurnaley, E. J., and Hansel, C. E. M., "The Risk Taken in Driving Under the Influence of Alcohol," Brit. Med. J. (June 21, 1958) pp. 1438-1442.

More recently Lewis and Sarlanis[28] were able to show that in decision making with respect to traffic signals moderate blood alcohol levels (.065 to .08) decreased the perception of hazard. The work suggests that at lower blood alcohol concentrations where perceptual and motor effects may be minimal, changes in risk-taking are the most significant modifiers of driving behavior.

Light and Keiper studied the hazard created in a passing situation by drivers with a blood alcohol level of .09%.[29] They found that although the subjects might not appear "intoxicated" their driving behavior exhibited more frequent accidents and decreased control of the vehicle as compared to a control group with no alcohol. Decision-reaction times increased as eye-hand coordination decreased.

Though striking changes in the physical and psychological abilities of the high level alcohol-impaired driver have been recognized for some time, less well-known has been the hazard of the 0.10%, moderately impaired driver. Uncontradictory evidence is now available that physical and particularly psychological changes occur at moderate blood alcohol levels in virtually all drivers.

It remains to examine the data concerning accident causation and blood alcohol level. If the 0.10% level leads to a significantly increased probability of being in an accident then the legally presumed level of intoxication should be set at that level. To do so would be an appropriate legislative response to the problem of adjusting expectations and behavior so as to alleviate the societal costs of the alcohol-impaired driver.

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28. Lewis, E. M., and Sarlanis, K., "The Effects of Alcohol on Decision-Making with Respect to Traffic Signals," ICRL-RR-68-4, Providence, R. I. Injury Control Research Laboratory (1969).

29. Light, William O., and Keiper, Charles G., "Effects of Moderate Blood Alcohol Levels on Automobile Passing Behavior," ICRL-RR-64-4 Providence, R. I. Injury Control Research Laboratory (1971).

ALCOHOL INVOLVEMENT IN TRAFFIC ACCIDENTS

An accurate statistical method for determining the precise danger of the drinking driver has yet to be developed. But accurate data are now being obtained in studies which take a random sample of drivers involved in accidents and determine the percentage who have been drinking.[30] These investigations, using strict scientific controls including the chemical determination of the blood alcohol level, have consistently shown a serious nationwide problem for the last 35 years. The grim figures bear repeating:

28,400 alcohol related traffic deaths annually

800,000 disabled on the highways while under the influence of alcohol

300,000 arrests yearly for DWI[31]

In examining the evidence linking highway accidents and the use of alcohol two well-known facts should be kept in mind. The overwhelming majority of the users of roads have not been drinking so as to have a measurable blood alcohol content. As outlined earlier, it is the problem drinker who causes a disproportionate number of injuries and fatalities in relation to his frequency on the road. So the statistics used here most accurately should be applied to that type of driver. Secondly, police recordkeeping on DWI yields statistics notoriously low, incomplete, and generally misunderstood. The importance of the car in today's society has also made juries somewhat reluctant to convict wealthy and middle class offenders of driving while intoxicated. This alarming tendency has also discouraged police from keeping accurate and consistent data on this offense.[32]

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30. Comment, "The Drinking Driver: An Approach to Solving a Problem of Underestimated Severity," 14 Villanova Law Review 87 (1968-69) p. 98.

31. "Alcoholism and Drug Abuse," in Trial (May/June 1971) p. 13.

32. Waller, J. A., "Patterns of Traffic Accidents and Violations Related to Drinking and to Some Medical Conditions," Quart. J. Stud. ALC. Supp. No. 4 (1968) pp. 118, 137.

The continuing work of R. F. Borkenstein at Indiana University has contributed immensely to the confidence of those pushing for stronger legislation against the drinking driver.[33] His widely disseminated graph, reproduced here as Figure 1, illustrates the frightening increase in the probability of causing an accident when the blood alcohol level reaches 0.10%.

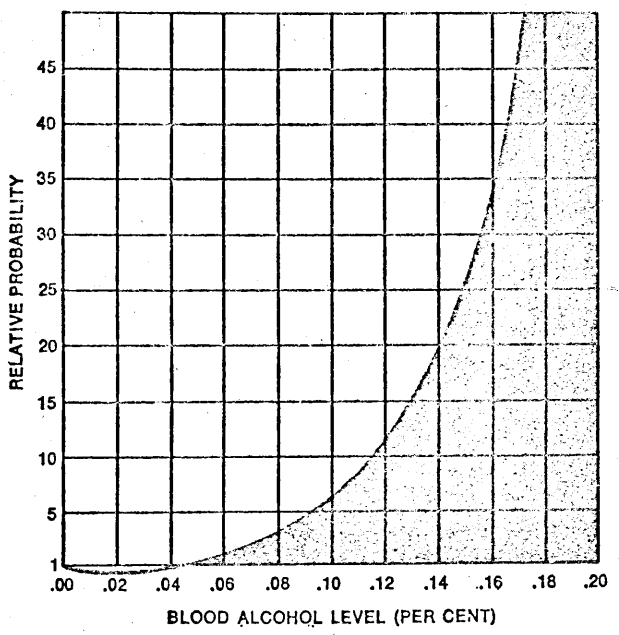

Figure 1. Relative probability of causing an accident in relation to blood alcohol level. (From Borkenstein, R. F., et al., "The Role of the Drinking Driver in Traffic Accidents," Department of Police Administration, Indiana University, 1964.)

The statistics compiled by Borkenstein showed that drivers with blood alcohol levels of 0.10% comprised less than .1% of the drivers but accounted for 10% of the accidents. The increasing chances of

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33. Borkenstein, R. F., et al., "The Role of the Drinking Driver in Traffic Accidents," Department of Police Administration, Indiana University (1964).

highly-impaired drivers (0.15%) are illustrated by the fact that they were involved in 6% of the accidents though they amounted to 0.15% of the driving population. Interestingly at very high levels of intoxication differences in the probability of being in an accident diminish and all drivers appear to be equally accident prone.[34]

Those who have focused exclusively on fatalities have obtained an even stronger indictment of the drinking driver. Wagner has found that the "problem drinker", who represents 7% of the driving population, causes about one-third of all driving fatalities.[35] In relation to accidents the driver's likelihood increases noticeably at .04%, "at .06% it is twice as great as at .00%; at .08% it is about four times as great: at .10% more than six times as great; at .15% about 25 times as great."[36]

Probably the only study concentrating on fatal collisions involving drinking drivers and trucks was conducted by Waller in 1969.[37] Waller replicated similar automobile studies in showing that over 50% of the fatal collisions were caused by drivers with blood alcohol levels of 0.10% or greater. Commenting on the reliability of police estimates of driver alcohol use, Waller reported that in less than 50% of the cases did the police officer correctly report that the person had been drinking. The police were however always correct when they stated that alcohol was not a causative factor in a fatal crash.

In the DOT's extensive investigations certain conclusions about the crash probabilities of alcohol-impaired drivers became apparent.[38] They found that the greater the blood alcohol level of the driver, the disproportionately greater will be the chance that he will initiate a crash and the greater the likelihood that the crash will be severe. (Their figures led them to believe that the increase in crash probability was 7 fold at .10% by weight and more than 25 fold at .15% by weight.)

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34. Borkenstein, et al. op. cit., p. 169.

35. Wagner, Marvin, "Alcohol Problems and Transportation Safety: The Need for Coordinated Efforts," National Highway Safety Bureau (1969) p. 28.

36. Ibid., p. 26.

37. Waller, Julian A., "The Role of Alcohol in Fatal Collisions Involving Trucks," in Proceedings of the 13th Annual Conference of the American Association for Automotive Medicine (October 1969).

38. U. S. Department of Transportation, op. cit., p. 44.

Though much of the public seems unaware, evidence also exists to show that:

- fatal and serious crashes are far more likely to involve alcohol than are smaller "fender-bumping" accidents

- many pedestrians injured or killed by automobiles are under the influence of alcohol.[39]

Any further recitation of statistics would serve little purpose in understanding how alcohol is too frequently the cause of tragedy. Numbers themselves tend to impersonalize tragedy involving real people and, in many cases, ignore the innocent victim killed or injured by one drunken driver. But the damning figures on accident causation and alcohol do tend to weaken any argument that alcohol-related crashes are not a persistent drain on the nation's and Commonwealth's resources.

It now seems pertinent to leave the scientific field and enter the political arena to examine Virginia's response to alcohol use by its drivers.

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39. Ibid., pp. 88-89.

VIRGINIA'S RESPONSE TO THE PROBLEM

Virginia has dealt with the safety problem of alcohol-related accidents legislatively in the following provisions of the Virginia Code Annotated:

§ 18.1-54. Driving automobiles, engines, etc., while intoxicated —. It shall be unlawful for any person to drive or operate any automobile or other motor vehicle, car, truck engine or train while under the influence of alcohol, brandy, rum, whisky, gin, wine, beer, lager beer, ale, porter, stout or any other liquid beverage or article containing alcohol or while under the influence of any narcotic drug or any other self-administered intoxicant or drug of whatsoever nature. (Code 1950 § 18-75; 1960, c. 358.)

§ 18.1-56.1. Driving automobile, engine, etc., while ability to drive is impaired by alcohol —. It shall be unlawful for any person to drive or operate any automobile or other motor vehicle, car, truck, engine or train while such person's ability to drive or operate such vehicle is impaired by the presence of alcohol in his blood. A person's ability to drive or operate such a vehicle shall be deemed to be impaired by the presence of alcohol in his blood within the meaning of this section when such person has so indulged in alcoholic intoxicants as to lack the clearness of intellect and control of himself which he would otherwise possess.

In every prosecution under § 18.1-54 of this Code or any similar ordinance of any county, city or town the offense with which the accused is charged shall be deemed to include the offense punishable under this section and whenever in any such prosecution it appears that the amount of alcohol in the blood of the accused at the time of the alleged offense as indicated by a chemical analysis of the accused's blood in accordance with the provisions of § 18.1-55.1 is as much as 0.10 but less than 0.15 percent by weight it shall be presumed that the ability of the accused was impaired within the meaning of this section. No person shall be arrested, prosecuted or convicted for violation of this section except as a lesser included offense of a prosecution for violation of § 18.1-54 or of any similar ordinance of any county, city, or town.

Every person violating the provisions of this section shall be guilty of a misdemeanor and punished as provided in § 18.1-9 of this Code; provided, that in addition to such punishment, upon every such first conviction the judge shall suspend the right of the accused to operate any motor vehicle upon the highways of this State for a period of six months, and upon any second or subsequent such conviction, within a period of five years, such suspension shall be for a period of twelve months. (1966, c. 636.)

§ 18.1-57. Presumptions from alcoholic content of blood — . In any prosecution for a violation of § 18.1-54, or any similar ordinance of any county, city, or town, the amount of alcohol in the blood of the accused at the time of the alleged offense as indicated by a chemical analysis of the accused's blood in accordance with the provisions of § 18.1-55.1, shall give rise to the following presumptions:

(1) If there was at that time 0.05 percent or less by weight of alcohol in the accused's blood, it shall be presumed that the accused was not under the influence of alcoholic intoxicants;

(2) If there was at that time in excess of 0.05 percent but less than 0.15 percent by weight of alcohol in the accused's blood, such facts shall not give rise to any presumption that the accused was or was not under the influence of alcoholic intoxicants, but such facts may be considered with other competent evidence in determining the guilt or innocence of the accused; provided, however, such facts shall not preclude prosecution and conviction under § 18.1-56.1;

(3) If there was at that time 0.15 percent or more by weight of alcohol in the accused's blood, it shall be presumed that the accused was under the influence of alcoholic intoxicants. (Code 1950 (Suppl.), § 18-75.3; 1956, c. 557; 1960, c. 358; 1964, c. 240; 1966, c 636.) (The reader is referred to Table 1 for the blood alcohol content — alcohol ingestion — body weight relationship.)

§ 18.1-58. Penalty; subsequent offense; prior conviction — . Any person violating any provision of § 18.1-54 shall be guilty of a misdemeanor and shall be punished, for a first offense by a fine of not less than two hundred dollars nor more than one thousand dollars or by confinement in jail for not less than one month nor more than six months, either or both in the discretion of the jury or the court trying the case without a jury.

§ 18.1-59. Same; forfeiture of driver's license; suspension of sentence — . The judgement of conviction, or finding of not innocent in the case of a juvenile, if for a first offense under § 18.1-54, or for a similar offense under any county, city, or town ordinance, shall of itself operate to deprive the person so convicted or found not innocent of the right to drive or operate any such vehicle, conveyance, engine or train in this State for a period of one year from the date of such judgement.

TABLE 1. BLOOD ALCOHOL CHART

Showing Estimated % of Alcohol in the Blood
by No. of Drinks in Relation to Body Weight

BODY WEIGHT / DRINKS*	1	2	3	4	5	6	7	8	9	10	11	12
100 lb.	.038	.075	.113	.150	.188	.225	.263	.300	.338	.375	.413	.450
120 lb.	.031	.063	.094	.125	.156	.188	.219	.250	.281	.313	.344	.375
140 lb.	.027	.054	.080	.107	.134	.161	.188	.214	.241	.288	.295	.321
160 lb.	.023	.047	.070	.094	.117	.141	.164	.188	.211	.234	.258	.281
180 lb.	.021	.042	.063	.083	.104	.125	.146	.167	.188	.208	.229	.250
200 lb.	.019	.038	.056	.075	.094	.113	.131	.150	.169	.188	.206	.225
220 lb.	.017	.034	.051	.068	.085	.102	.119	.136	.153	.170	.188	.205
240 lb.	.016	.031	.047	.063	.078	.094	.109	.125	.141	.156	.172	.183

No. Hours Since 1st Drink	1	2	3	4	5	6
SUBTRACT.....	.015%	.030%	.045%	.060%	.075%	.090%

EXAMPLE — 180 lb. man — 8 drinks in 4 hours — .167% minus .060% = .107%.

THIS REMAINDER IS AN ESTIMATE of the % of alcohol in your blood.

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*1 drink equalling 1 volume oz. of 100 proof alcohol or 1 12 oz. bottle beer.

§ 18.1-9. How Misdemeanors Punished — . A misdemeanor for which no punishment or no maximum punishment is prescribed by statute shall be punished by a fine not exceeding one thousand dollars or confinement in jail not exceeding twelve months, or both, in the discretion of the court trying the case without a jury. (Code 1950, § 19-265; 1960, c. 358; 1958, c. 400).

A reading of Virginia crash facts, given in Table 2 and Figure 2, however leads one to the realization that the General Assembly needs to go further to protect the users of Virginia highways.

TABLE 2. VIRGINIA CRASH FACTS

Summary of Facts	Year 1968	1969	1970
Total number of highway fatalities	1,218	1,304	1,231
Driver fatalities	568 (47%)	583 (45%)	630 (51%)
Driver fatalities who were tested for alcohol	400 (70%)	363 (62%)	303 (48%)
Positive tests (indicating presence of alcohol) of driver fatalities	242 (61%)	209 (58%)	183 (60%)
Positive tests at or above .10% presumptive level of intoxication of driver fatalities	202 (83%)	184 (88%)	147 (80%)
Positive tests at or above .15% presumptive level of intoxication of driver fatalities	158 (65%)	123 (59%)	110 (60%)
Positive tests of male driver fatalities		197	
Positive tests of female driver fatalities		7	
Positive tests of fatalities between the ages of 16 to 24		88	
Total number of blood tests given for suspected DWI's	6,491	7,037	7,230
Number of blood tests over .10% presumptive level of intoxication	6,329 (98%)	6,840 (97%)	7,006 (97%)
Number of blood tests over .15% presumptive level of intoxication	5,604 (86%)	6,066 (86%)	6,078 (84%)
Economic loss (estimated)	$245,000,000	$265,000,000	$270,000,000

(Statistics for positive tests broken down between male and female, age groups and time periods are not readily available in Virginia for 1968 and 1970. From Virginia Department of Health, Office of the Chief Medical Examiner, September 15, 1971.)

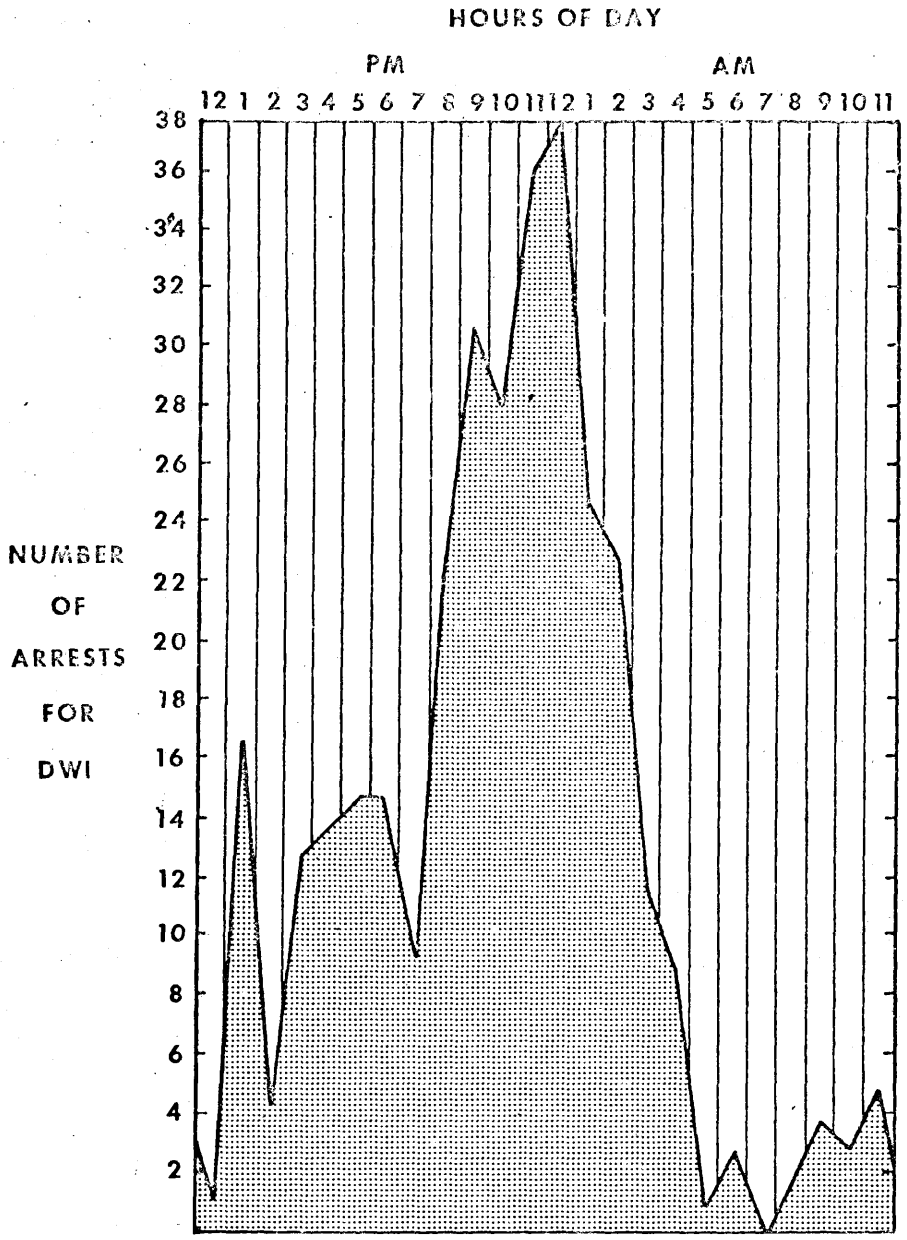

Figure 2. Driving while intoxicated arrests. (From 254 Virginia Traffic Safety News (August 1970) p. 1.

The courts of Virginia approximate the national average in convicting 95% of those charged with violations incident to accidents. But the conviction rate for driving under the influence cases (78% in 1968) was significantly below the average (88%) for all states.[40] Perhaps a comment on the utility of the present drunk driving statutes is seen in the judiciary's choosing to reduce 8% of the cases to a lesser offense and dismissing 10%. In addition a 1970 meeting of judges of courts not of record came to the conclusion that the existing drunk driving laws are too complicated and should be changed.[41]

In unconnected findings, researchers and judges reached a seemingly unanimous position that Virginia needs new drunk driving legislation to cope with the rising toll of alcohol related statistics. But the elected officials have not taken action, perhaps because of a lack of public support. Joseph Gusfield's treatise has closely examined the relationship between legislating morals and the public process.[42]

He observed that the elected officials of government are the only agents who represent the total society. For that reason their acts not only allocate available resources, but symbolically define public morality. The courtroom decisions that follow then either glorify the values of one group or demean those of another. Both these ceremonial and ritual performances control social behavior and also symbolize the public affirmation of social ideals and norms.

Many laws, e. g. Virginia's drunk driving statutes, are honored as much in the breach as in the performance. Such a phenomenon mediates conflict between the public set of norms (the Virginia Code) and the norms actually used in controlling behavior (the widespread disregard for the drunk driving laws). Even where "patterned evasion" of public norms exists, however, the acts of legislators and judges are significant in recognizing the existence of violators, quieting those who have an interest in the norm and directing the major institutions of the society to its support. So any new law becomes a public affirmation of changing determinations in public worth of one culture's norm.

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40. National Safety Council," Virginia Highway Safety Program Analysis" (1968).

41. "Judges Reaction to the Existing Laws and Problem of the Drunken Driver" from a memo from K. Collins to John Hanna, September 25, 1970, p. 2.

42. Gusfield, Joseph R., "On Legislating Morals: The Symbolic Process of Designating Deviance," 56 California Law Rev. 54 (1968).

Virginia's experience illustrates the deep conflict that arises by the mere public designation of morality. With the weight of evidence against the liberal 0.15% presumption of intoxication, Virginia continues to ignore the nationally recommended 0.10% level.

In 1970 the Commonwealth saw the Virginia Association of Insurance Agents, Governor Linwood Holton, the Highway Safety Commission, and Highway Safety Director John T. Hanna combine resources to urge passage of new legislation designed to improve Virginia's drunk driving laws. A strong public education effort was also launched to inform the public of the seriousness of the problem. The efforts proved moderately successful when 43 presidents and heads of various civic and business organizations testified in Committee in support of stronger drunk driving laws. For the first time in 15 years, a bill, sponsored by Senator Macon Long, to lower the presumptive level of intoxication was reported out of committee.[43]

The House of Delegates counterpart bill, introduced by Delegate W. M. Anderson of Roanoke, was not so fortunate and died in Committee. In the end, though reform bills were actually passed, the new countermeasures were not.

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43. Letter from John Shinholser, Virginia Association of Insurance Agents (July 1971) p. 1.

It is obvious that the 0.15% presumptive level still retained by 11 states and the District of Columbia is antiquated. The 0.08% level adopted by Utah and Idaho has the support of most medical men familiar with the problem. The 0.10% level advocated for Virginia can be viewed as a realistic compromise, protecting the marginal drinker but removing the impaired driver from the road. But whatever level is chosen, the control of the drinking driver is viewed by the public as a legal or law enforcement problem rather than a medical one.[44] Whether that particular attitude is correct or not, it seems clear that the public will readily accept legal countermeasures designed to protect them from the drinking driver.

Advantages must be apparent however in order for Virginia's General Assembly to enact a stricter presumptive level. The value of legal presumptions themselves is a well-accepted fact as illustrated in Judge Haynesworth's opinion:

> The adoption of the standards as evidentiary presumptions serves to dispense with the necessity of expert witnesses to interpret the laboratory findings, but there is nothing objectionable in the legislature's adoption of that course when the standards are reasonable and have attained wide acceptance.[45]

The courts can be predicted to give a new 0.10% level their stamp of approval because it is consistent with the courts' test of being "reasonable" and "widely accepted."

In the same opinion the possible unconstitutionality of presumptions was dismissed by Judge Haynesworth.

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44. Little, Joseph W., "Challenges to Humanitarian Legal Approaches for Eliminating the Hazards of Drunk Alcoholic Drivers," 4 Georgia Law Review 251 (Winter 1970).

45. Kay v. U. S. 255 F. 2d 476 (4th Cir. 1958) p. 481.

> Consideration by the jury of the statutory presumptions created by this section does not deprive the defendant of any protected right. The presumption created by this section is rebuttable. It neither restricts the defendant in the presentation of his defense nor deprives him of the presumptions of innocence. Since wide experience has demonstrated the close connection between the presumed fact and the alcoholic content of the blood, there is no constitutional objection to the jury's consideration with all of the other evidence, of the statutory presumption.[46]

Of course, to justify a new law which can be viewed as restricting the actions of a certain class, a gain to the larger interest in safety must be shown. The medical evidence explained earlier shows that all drivers between 0.10% and 0.15% are impaired and represent a substantial risk to the normal user of the highways. Borkenstein has estimated, as shown in Figure 3, that at least an 11% reduction in total accidents would result if all drivers with an 0.10% blood alcohol level or above were removed from the highways.

A concurrent effect of reducing the human toll of the drunken driver through lowered presumptive levels would be an anticipated increase in deterrence. Some legislators might balk at passage of such a lowered level feeling that they should not fight for more restrictive legislation when the current presumptive level is not getting the job done. They might reason that though the legislature has provided the police with a useful arrest tool convictions for DWI have not increased (this argument itself may be spurious since the conviction rate for DWI charges exceeds that for any other major criminal offense).[47] To remove the drinking driver from the road will require more stimulation, education and cooperation at the local level from all the agencies in the enforcement chain.[48]

Though there may be some value to this argument, it ignores the fact that human behavior can be influenced by the application of

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46. Ibid., p. 481.

47. See FBI Crime in the United States, a Uniform Crime Report 1968, p. 105.

48. Little, op. cit., p. 294.

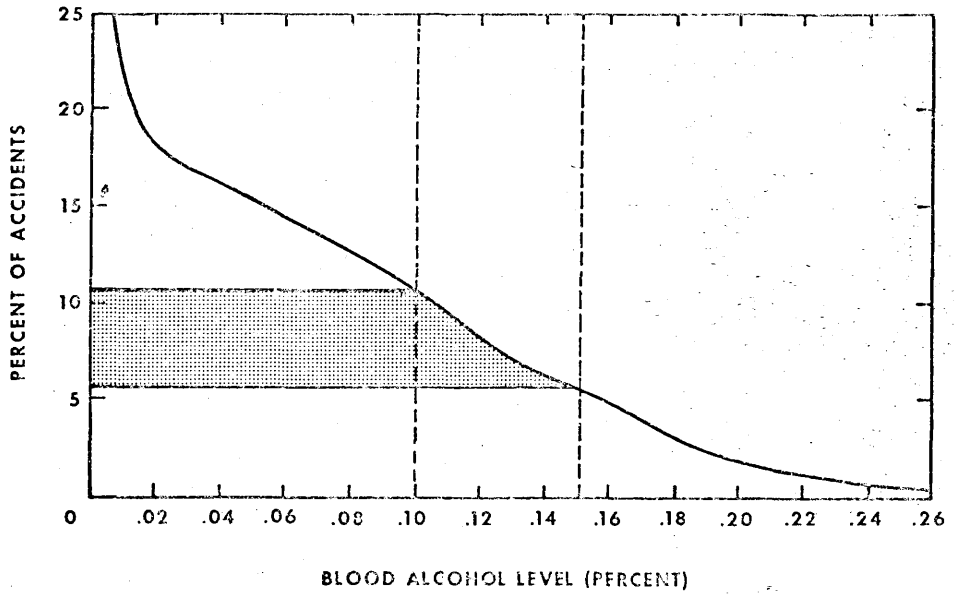

Figure 3. Estimated percent reduction in total accidents if drivers above given alcohol level were prevented from driving. (From Borkenstein, R. F., et al., "The Role of the Drinking Driver in Traffic Accidents," Department of Police Administration, Indiana University, 1964.)

legal sanctions. A difficulty in one aspect of the solution does not prevent one from attempting an improvement of a related section.

In essence then effective deterrence depends upon (1) a belief on the part of those who drive when intoxicated that violators will be detected, and (2) that if detected they will be punished.[49] Of these two variables, the perceived risk of apprehension and severity of punishment, the presumptive level of intoxication is most closely related to the first. But as with other violations, the deterrent effect of present approaches to the intoxicated driver is limited by low apprehension rates; just too many people have driven accident-free and violation-free after having had "one too many." Better detection and identification of drinking drivers by increasing the apprehension promises increased deterrence and lower accident rates.

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49. Cramton, Roger C., "Driver Behavior and Legal Sanctions: A Study of Deterrence," 67 Michigan Law Review 421 (1969).

Though better identification of drinking drivers using a stricter presumptive level will benefit the general public, opposition to passage of such legislation has existed in the past.

DWI arrests sometimes create politically sensitive situations for those involved in making laws. Some legislators may experience pressure to maintain the status quo so as to protect the social drinkers of his constituency. But the fallacy behind that logic is that the true social drinker has little to fear from a lowering of legal blood alcohol concentration thresholds. In reality, the social drinker rarely consumes enough alcohol to reach the presumed level of intoxication. By a strong educational campaign changes in attitudes along with social pressures should mount against the abusive drinker.[50] The high risk of the problem drinker on the road also seems to justify stigmatizing him by a criterion (high blood alcohol level combined with deteriorated driving ability) other than the undesirable event (an accident). In the end, as society grows in complexity and density, stricter controls over many forms of harmful activities may be needed.

The vested interest that the intoxicating beverage industry has in the American way of drinking is seen in the 70,000,000 adults who imbibe intoxicating liquor on various occasions. For that reason the liquor lobby can be expected to oppose any measure that might decrease the flow from the distilleries and breweries.[51] But politicians should be increasingly aware of the attitude of the average motorist who is unwilling to continue protecting the drunken driver. An expected widespread informational increase should lead to a strong social reaction to elect representatives willing to protect the law-abiding user of the Commonwealth's highways.

It is submitted that no longer does a valid question exist as to the substantial deterioration of driver skill at the 0.10% blood alcohol level. The startling number of accidents caused by these "moderately impaired" drivers necessitates a greater emphasis on detection, apprehension, and conviction. Any previous political risk to a reduced presumptive level countermeasure is no longer as great. Increasingly the public is aware of the danger created by the drinking driver and is

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50. Little, Joseph W., op. cit., p. 131.

51. See Little, Joseph W., "Control of the Drinking Driver: Science Challenges Legal Creativity," 54 American Bar Association Journal 555, p. 558 (June 1968), and Halverson, Guy, op. cit., pp. 37-39.

willing to support strong sanctions to remove him from the road. For these reasons it is recommended that Virginia adopt legislation conforming substantially with the following statute.

A BILL

To amend and reenact § 18.1-57, as amended, of the Code of Virginia relating to presumptions from alcoholic content of blood and to repeal § 18.1-56.1 of the Code of Virginia relating to the driving or operation of certain vehicles while the ability of the operator thereof is impaired by the presence of alcohol in his blood.

Be it enacted by the General Assembly of Virginia:

1. That § 18.1-57, as amended, of the Code of Virginia be amended and reenacted as follows:

§ 18.1-57. Presumptions from alcoholic content of blood — . In any prosecution for a violation of § 18.1-54, or any similar ordinance of any county, city, or town, the amount of alcohol in the blood of the accused at the time of the alleged offense as indicated by a chemical analysis of the accused's blood in accordance with the provisions of § 18.1-55.1 shall give rise to the following presumptions:

(1) If there was at that time 0.05 percent or less (by weight by volume) of alcohol in the accused's blood, it shall be presumed that the accused was not under the influence of alcoholic intoxicants;

(2) If there was at the time in excess of 0.05 percent but less than 0.10 percent (by weight by volume) of alcohol in the accused's blood, such fact shall not give rise to any presumption that the accused was or was not under the influence of alcoholic intoxicants, but such facts may be considered with other competent evidence in determining the guilt or innocence of the accused.

(3) If there was at that time 0.10 percent or more (by weight by volume) of alcohol in the accused's blood, it shall be presumed that the accused was under the influence of alcoholic intoxicants.

2. That § 18.1-56.1 of the Code of Virginia is repealed.

PART TWO

Virginia Should Permit the Use of the Breath Test in Addition to Chemical Tests of the Blood for Presumptive Evidence of Driving Under the Influence

IDENTIFYING THE DRINKING DRIVER

Although medical evidence shows that driving behavior deteriorates at even low blood alcohol readings (0.05% — 0.10%) many drivers can disguise outward signs of intoxication at that level. Police officers have long been aware that even though some drinking drivers appear sober their lowered ability to safely operate a vehicle warrants their removal from the road. For this reason the likelihood of identifying an unsafe drinking driver by relying on outward manifestations of intoxication are slight. Further, successful prosecution and conviction of suspected DWI's have been hampered by the reluctance of juries to convict in the absence of objective evidence of intoxication.

In response to this need for objective evidence all 50 states have provided for the use of chemical tests to determine intoxication for persons arrested for driving under the influence. Blood, breath, saliva, urine and other bodily substances are generally included in the statutes. Virginia, however, is the only state relying exclusively on the blood test to measure the alcohol level.[52] (See Figure 4.)

It must be kept in mind that what is measured by chemical tests (the level of alcohol in the body) and what is sought to be prevented (impaired driving ability) are not identical. Nevertheless, chemical tests do add objectivity and certainty to an "otherwise hopelessly subjective problem".[53] Though there is general acceptance of the value of chemical testing, it remains an evidentiary aid and is not accepted as the sole criterion in determining whether any driver is under the influence of intoxicants. The vast majority of the courts have accepted as indispensable the testimony of police officers as to the mien of the driver

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52. Ames, A. A., op. cit., p. 1.

53. Comment, "The Drinking Driver: An Approach to Solving a Problem of Underestimated Severity," 14 Villanova Law Review 87 (1968-69) p. 87.

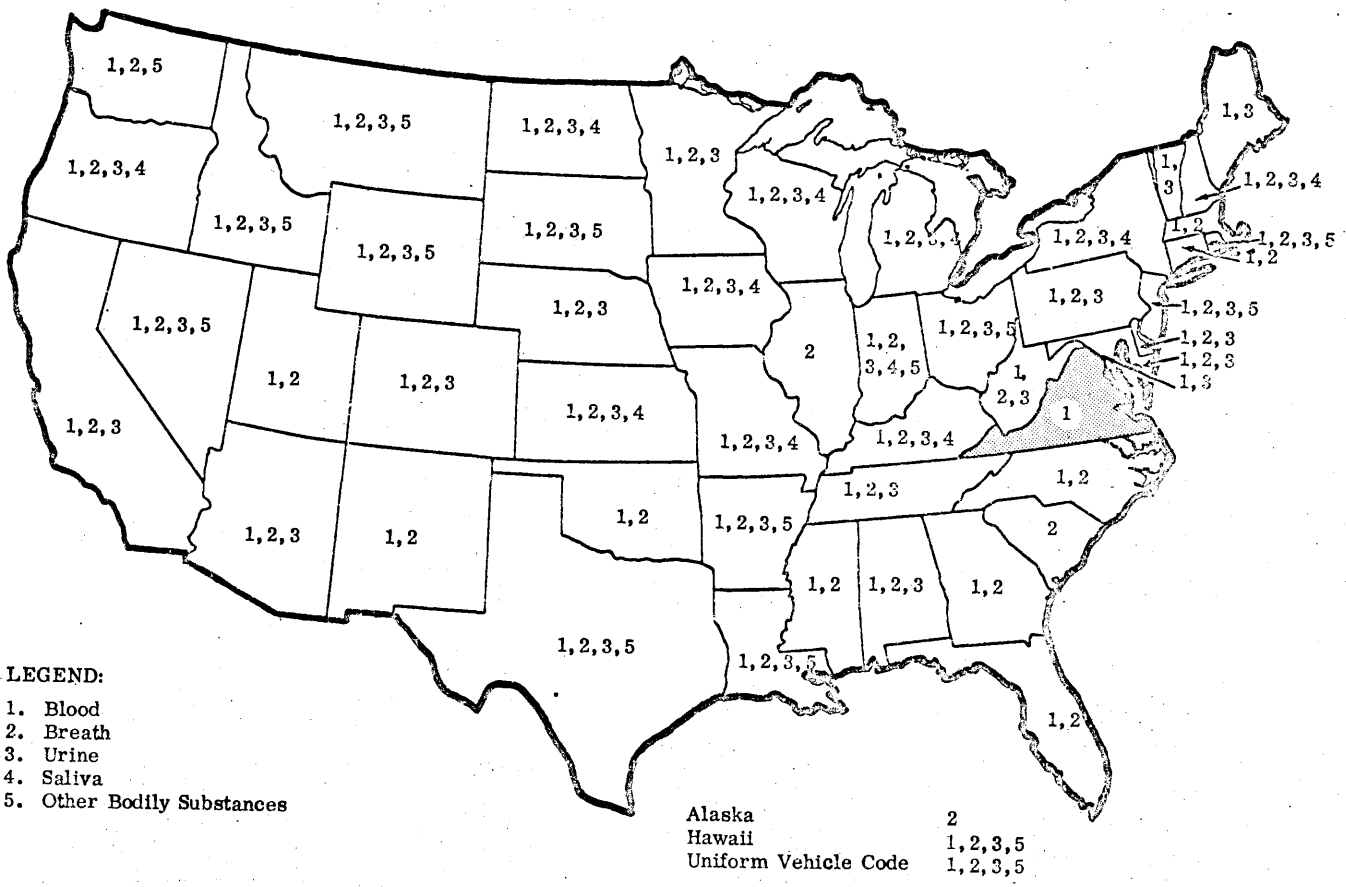

Figure 4. Use of chemical tests to determine intoxication.

upon apprehension for suspected DWI.[54] Usually the officer testifies as to the existence of such well-known indications of drinking as empty liquor bottles, a person's faulty balance, slurred speech, and foggy awareness of his surroundings. This evidence of the arresting officer coupled with chemical test evidence has proved an invaluable tool in convicting DWI's.

Certain guidelines in the procedural use of chemical tests have become apparent through continued use in the courts. The reliability of the various tests affects the weight of evidence given any reading rather than its admissibility in court. "In practice, chemical test results are admitted whenever a qualified expert witness testifies that the particular test method employed is reliable and generally accepted as such by other experts in the discipline."[55] Defense lawyers invariably point out that it is erroneous to assume that all drivers with a given blood alcohol level are adversely affected to the same degree. Individual differences in tolerance and other subjective factors are said to make this assumption false. But defense attorneys are probably wont to give this factor unjustified weight in criminal proceedings.[56] Though individual differences are a factor, all drinking drivers are adversely affected before reaching the lowest presumptive level used in this country.

After the increased conviction rate brought about with the introduction of chemical tests, drivers soon realized that it was in their best interest not to consent to a test. Various states, beginning in the 1950's, sought to curb this trend by relying on the fiction of "implied consent." The concept of the law is that a driver arrested for driving while intoxicated may be asked to submit to a chemical test. The driver may refuse, but unreasonable refusal will result in a penalty of differing severity.

Virginia's implied consent statute is embodied in its provision on blood testing.

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54. Slough, M. C., and Wilson, Paul E., "Alcohol and the Motorist: Practical Legal Problems of Chemical Testing," 44 Minn. L. R. 673 (1960) p. 684.

55. Ibid., p. 681.

56. See Hollopeter, Charles, "The Trial of a "Drunk Driving" Case," 8 Trial Lawyer's Guide 407 (1964) and Erwin, Richard E., "Defense of Persons Accused of Driving While Under the Influence of Alcohol," 11 Practical Lawyer 73 (1965).

§ 18.1-55.1. Use of chemical test to determine alcohol in blood; procedure; qualifications and liability of person withdrawing blood; costs; evidence; suspension of license for refusal to submit to test; localities authorized to adopt parallel provisions.

(c) If a person after being arrested for a violation of § 18.1-54 or of a similar ordinance of any county, city or town and after having been advised by the arresting officer that a person who operates a motor vehicle upon a public highway in this State shall be deemed thereby, as a condition of such operation, to have consented to have a sample of his blood taken for a chemical test to determine the alcoholic content thereof, and that the unreasonable refusal to do so constitutes grounds for the revocation of the privilege of operating a motor vehicle upon the highways of this State, then refuses to permit the taking of a sample of his blood for such tests, the arresting officer shall take the person arrested before a committing magistrate and if he does again so refuse after having been further advised by such magistrate of the law requiring a blood test to be taken and the penalty for refusal, and so declares again his refusal in writing upon a form provided by the Chief Medical Examiner of Virginia (hereinafter referred to as Chief Medical Examiner), or refuses or fails to so declare in writing and such fact is certified as prescribed in paragraph (j), then no blood sample shall be taken even though he may thereafter request same.

This section has been interpreted in United States v. Gholson in conformity with the "clear-meaning" of the words. A user of Virginia's highways may be required to take a blood test after being arrested under § 18.1-54. If he unreasonably refuses to take a blood test, he will be taken before a magistrate where he is asked again his intentions as to taking the blood test. If he unreasonably refuses again no test will be given, but his license may be suspended.[57] Reasonable refusals have generally included religious prohibitions and medical reasons (hemophiliacs or heart disease patients currently taking anticoagulent drugs).

Two theories have been used to justify implied consent laws, and the courts have generally given the laws a favorable reception. A "right-privilege" theory, used by some advocates, views driving as a privilege and therefore subject to conditions the state may impose. The second theory dismisses the "right-privilege" assumption as conclusory and rests justification on due process grounds. "Because of

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57. United States v. Gholson, 319 F. Supp. 499 (E. D. Va. 1970).

the social and economic importance of an automobile and its inherently dangerous nature, a statute which limits its use will be constitutional so long as it is a reasonable exercise of the state's police power and due process of law is not violated."[58] To satisfy due process, the statute must be aimed at a legitimate end, be reasonably designed to meet that end, and protect against a danger which warrants restrictions of individual actions.

Virginia's highway safety program has been severely hampered by § 18.1-55.1 (c) of the Virginia Code Annotated, which allows only the blood test to determine intoxication of arrested DWI's.

The procedural intricacies outlined in the Code for drawing the blood sample have been a trap for the unwary for many prosecutors. The disadvantages of sole reliance on the blood test can be summarized:

(a) The blood test must be given within two hours of the alleged offense.[59] In many cases the lack of readily available doctors or clinics makes compliance with this provision extremely difficult. A police officer in a rural community on a weekend can be faced with insurmountable problems associated with the test and may be forced to charge the driver with a lesser offense.

(b) Hospitals and doctors may be wary of withdrawing blood for fear of civil liability if the blood is negligently withdrawn.[60]

(c) The procedure requiring proper sealing, labeling and mailing of the samples of blood is unduly complicated and burdensome.[61] Any variation from this procedure could result in the acquittal of an alcohol-impaired driver.

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58. McManus, Robert H., "Florida's Implied Consent Statute: Chemical Tests for Intoxicated Drivers," 22 University of Miami L.R. 698 (Spring 1968) p. 699.

59. Although Va. Code Ann. § 18.5-55.1(b) (1971) appears to require only arrest within two hours of the alleged offense, the Virginia Supreme Court in Bowman v. Commonwealth 201 Va. 656, 112 S. E. 87 has construed the provision as requiring both arrest and administration of the blood test within two hours of the offense.

60. Va. Code Ann. § 18.1-55.1 (d) (1971).

61. Va. Code Ann. § 18.1-55.1 (d1) (1971) also see 18.1-55.1 (s) as to the weight of non-compliance.

(d) Courts have delineated other loopholes to conviction of a DWI when using the blood test as presumptive evidence. An inconsistent date on the Medical Examiner's certificate,[62] improper sterilization of the test instrument,[63] and lack of proof that the blood analyzed was that of the defendant[64] have all led to acquittals.

(e) There would seem to be a large segment of the population who would for various reasons refuse a blood test, but submit to a quantitative breath test. The blood test requires a vein puncture accompanied by a strong psychological aversion sufficient in some to prompt a refusal.

(f) A part of the driver population who are injured sufficiently so that a vein puncture is contraindicated for fear of blood loss may be able to voluntarily submit to a breath test.

In summary, a percentage of drinking drivers above the presumed level of intoxication may be able to escape conviction because of the lack of alternate means to determine blood alcohol level. If the number of identifiable drinking drivers is increased by use of alternate chemical tests it might be expected that apprehension rates would increase. Such a result can be viewed as a significant step in improving highway safety in Virginia. It is the purpose of this commentary to recommend to the General Assembly a law allowing blood and breath tests for use as evidence in establishing a presumptive level of intoxication.

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62. Lutz v. City of Richmond, 205 Va. 93, 135 S. E. 2d 156 (1964).

63. Brush v. Commonwealth, 205 Va. 312, 136 S. E. 2d 264 (1964).

64. Rodgers v. Commonwealth, 197 Va. 527, 90 S. E. 2d 257 (1955).

PRINCIPLES OF BREATH ALCOHOL TESTING

In many states breath analysis has now become an indispensable part of the police officer's arsenal against the drunken driver. The laboratory analysis of breath has come to serve as the most convenient means of providing a quick and reasonable way to determine an arrested driver's blood alcohol content.[65]

There are two basic types of breath alcohol analysis, (1) quantitative breath alcohol determinations performed either in the lab or on portable apparatus, and (2) semiquantitative field breath alcohol screening tests, which yield only approximate results. The first method is most applicable for use as evidence in determining the presumptive level of intoxication.

Each device depends for its accuracy and reliability on the application of Henry's law. This accepted scientific principle states that the distribution of alcohol in the pulmonary blood and the alveolar air reaches a constant ratio at a given temperature. The ratio of the blood alcohol concentration to the alveolar air concentration at the average temperature of the air (34° C) is about 2,100 to 1. This means that 2,100 ml. of alveolar air contain the same amount of alcohol as 1 ml. of circulating pulmonary arterial blood. Actually true alveolar air is not employed in practical breath testing. But numerous studies have shown that deep-lung air or rebreathed air is identical in alcohol content with alveolar air.[66]

All the disposable pre-arrest screening devices are similar in design and operation. Each unit has an alcohol-sensitive reagent in a glass tube and a breath-volume measuring device, usually a balloon. To operate the test, the suspected DWI blows through the tube into a balloon. The reagent changes color from yellow-orange to green depending upon the concentration of alcohol in the breath. The testing officer then compares the color to a chart of corresponding blood alcohol levels.[67]

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65. Donigan, Robert L., Chemical Tests and the Law, the Traffic Institute, Northwestern University (1966) p. 292.

66. For a comprehensive review of relevant studies see Watts, Poindexter L. "Some Observations on Police-Administered Tests for Intoxication," 45 North Carolina Law Review 34 (1966) p. 97.

67. Newsletter, Insurance Institute for Highway Safety, Vol. 6, No. 11, Washington, D. C. (June 7, 1971).

The 1970 General Assembly of Virginia passed a statute compelling police officers to offer a suspected violator of the DWI statute a pre-arrest screening breath test if the equipment is available. The driver must be informed that he is under no compulsion to take the test, that no penalty will accrue if he fails to take the test, and if he does take the test the results may not be used in court against him. Pursuant to this statute the Department of Health authorized the use of both the Alcolyzer and the Alcotest. The new section of the code was expected to retard drunk driving after an extensive information program had increased public awareness of the alcohol-related accident problem.[68]

§ 18.1-54.1. Analysis of breath to determine alcoholic content of blood — .

(a) Any person who is suspected of a violation of § 18.1-54 shall be entitled if such equipment be available, to have his breath analysed to determine the probable alcoholic content of his blood. Such breath may be analyzed by any police officer of the State, or of any county, city or town, or by any member of the sheriff's department of any county, in the normal discharge of his duties.

(b) The State Board of Health shall determine the proper method and equipment to be used in analyzing breath samples taken pursuant to this section and shall advise the respective police and sheriff's departments of the same.

(c) Any person who has been stopped by a police officer of the State, or of any county, city or town, or by any member of the sheriff's department of any county and is suspected by such officer to be guilty of a violation of § 18.1-54, shall have the right to refuse to permit his breath to be so analyzed, and his failure to permit such analysis shall not be evidence in any prosecution under § 18.1-54, provided, however, that nothing in this section shall be construed as limiting in any manner the provisions of § 18.1-55.1.

(d) Whenever the breath sample so taken and analyzed indicates that there is alcohol present in the blood of the person from whom the breath was taken, the officer may charge such person for the violation of § 18.1-54 or a similar ordinance of a county, city, or town wherein the arrest is made. Any person so charged shall then be subject to the provisions of § 18.1-55.1, or of a similar ordinance of a county, city or town.

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68. Remarks of John T. Hanna at July 14, 1970 meeting concerning Breath Tests, Virginia State Police Administrative Headquarters.

(e) The results of such breath analysis shall not be admitted into evidence in any prosecution under § 18.1-54, the purpose of this section being to permit a preliminary analysis of the alcoholic content of the blood of a person suspected of having violated the provisions of § 18.1-54.

(f) Police officers or members of any sheriff's department shall, upon stopping any person suspected of having violated the provisions of § 18.1-54 advise such person of his rights under the provisions of this section. (1970 c. 511.)

Unfortunately the safety gain anticipated by the General Assembly will probably fail to materialize. The low cost pre-arrest screening breath tests are generally available throughout the state, but the accuracy of the results seems to have failed to reach expectations. When the statute was passed officials anticipated that the Alcolyzer and the Alcotest results would not be sufficiently accurate to be introduced into evidence at a trial. They assumed that the results would not be off more than ± 5%, and that the inaccuracies would generally be at the higher alcohol levels.

A recent research report has, however, cast serious doubt on the utility of any of the breath screening tests for alcohol.[69] The study tested the accuracy of eight disposable screening devices including three kinds of Alcolyzers. All of the Alcolyzers showed an unacceptably high frequency of false positive and false negative readings. False positive readings were obtained if the actual blood alcohol content (BAC) was less than 0.10%. If this type of error occurred arrests could conceivably be made below that recommended presumptive level. This would jeopardize public and judicial acceptance of the screening breath tests especially if it resulted in numerous false arrests. A greater number of false negative readings were obtained, where the actual BAC was greater than or equal to 0.10%. This is also an unacceptable alternative since seriously impaired drivers would be set free by an officer relying on the test. The authors concluded that, "the need for a breath-screening test for alcohol has been recognized for some time. However, devices producing excessive error, if widely used, will impede progress toward the development of effective countermeasures against the problem of the abusive use of alcohol as a source of road losses."[70]

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69. Proute, Richard W., and O'Neill, Brian, "An Evaluation of Some Qualitative Breath Screening Tests for Alcohol," Insurance Institute for Highway Safety, Washington, D. C. (May 1971).

70. Ibid., p. 49.

A discussion of quantitative breath alcohol testing requires an examination of its advantages in relation to other chemical tests. Some authorities have advocated exclusive reliance on the breath test in implied consent states, but it is the scope of this paper to recommend its availability along with the blood test.[71]

71. Smith, "Medical Difficulties in Blood Withdrawal Under Implied Consent Legislation," The Police Chief (Nov. 1965) pp. 10-12.

ADVANTAGES OF QUANTITATIVE BREATH TESTING TO DETERMINE BLOOD ALCOHOL CONTENT

(1) Breath tests are extremely reliable because they operate independently of such variables as line voltage, bulk intensity and chemical strength.

(2) Of course, in understanding the reliability of quantitative breath tests two important variables must be kept in mind. Both the analytical reliability of the machine and the human variables of the operator, if not kept constant, could affect the results. But studies have confirmed that both the mean absolute difference and the difference range of quantitative breath tests are within acceptable limits.[72]

(3) Breath tests can obtain accurate blood alcohol level readings within a short time. A 15-20 minute waiting period after apprehension is however necessary to clear the mouth of all possible traces of alcohol.

(4) The use of breath testing would greatly simplify the procedural problems of collection, identification, preservation, and transportation inherent in the Virginia Code on blood testing.

(5) There is no necessity for doctors and highly trained technicians to administer breath tests and interpret the results. Police officers can be trained to operate breath testing equipment with a minimum of cost and training.

(6) Cost of breath tests are generally lower than those for equivalent blood testing.

(7) Many potential subjects of a chemical test to determine blood alcohol level are reluctant to submit to body penetration, which is necessary to obtain a blood sample. The "on-the-spot" and "non-traumatic" nature of breath testing can be expected to decrease refusals under the implied consent law.

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72. Alcohol and the Impaired Driver, Committee on Medicolegal Problems, American Medical Association, Chicago, Illinois (1968) pp. 100-103.

DISADVANTAGES OF QUANTITATIVE BREATH TESTING TO DETERMINE BLOOD ALCOHOL CONTENT

(1) Some cooperation from the subject is necessary to obtain an adequate supply of exhaled air. For that reason the breath test may be contraindicated when a subject is unconscious or for other medical reasons is unable to cooperate.

(2) It is difficult to preserve breath samples for later confirmatory tests. But the alcohol content from the sample can be collected and used in later analysis.

(3) The breath test should not be given for 15 or 20 minutes after arrest so that the police officer can observe to see that the suspect has not taken another drink. The time required for total elimination of alcohol from the mouth cavity depends slightly upon the alcoholic strength of the drink consumed, but 20 minutes is considered adequate for any drink.[73]

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73. Walls, H. J.,and Brownlie, Alistair, Drink, Drugs and Driving, Sweet and Maxwell Co.; London, England (1970) p. 37.

THE BREATHALYZER

The most popular quantitative breath test devices used in the United States to determine blood alcohol content include:

(a) DRUNK-O-METER —
- requires a high level of operator care and competence to produce reliable results
- depends upon the percentage of CO_2 in alveolar breath in order to determine the quantity of such breath utilized in a test

(b) ALCOMETER —
- based on direct collection of alveolar breath
- many of its steps are performed automatically

(c) PORTABLE INTOXIMETER —
- the precise reading depends solely upon use of the CO_2 percentage
- preserves the air for later laboratory analysis

(d) BREATHALYZER —
- developed by R. F. Borkenstein and advocated as the instrument to be legislatively named to perform the breath testing function in Virginia
- the alcohol-sensitive reagent loses color in direct proportion to the amount of alcohol present in the breath sample
- the instrument measures the amount of color change and automatically calculates the subject's blood alcohol percentage
- errors caused by either mechanical defect or operator fault will usually produce low rather than high readings

readings are usually slightly lower than those of the blood alcohol test[74]

Model 900, the most current revision, costs $775 a unit (see Figures 5 and 6). The disposable packages containing ampoule, bubbler tube, and mouthpiece are $.70 each in lots of 1,000. So after the initial investment, per test costs of Breathalyzer will be substantially less than that of the blood test.[75]

(e) ALCO-TECTOR — utilizes the same scientific principles as the Breathalyzer

a ruggedly built, portable instrument pre-calibrated to show percentage of blood alcohol

features push button operation with an electric pump that automatically purges all air of preceding test from sampling system

the retail cost of a unit is $745 with each ampoule costing $.85

The names used to describe various breath testing equipment above are, of course, trade names of different manufacturers. Extensive tests utilizing the Breathalyzer have necessitated a seemingly over concentration on this device. The report is not intended, however, to advocate the use of any particular instrument.

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74. Watts, op. cit., pp. 67-73.

75. Telephone conversation with Hugh Boyd, Eastern Distributor of the Breathalyzer, Stephenson Co., Eatontown, New Jersey, August 12, 1971.

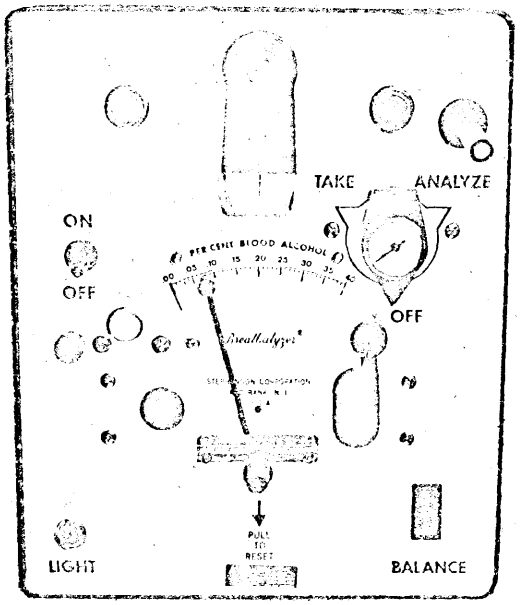

Figure 5. The Breathalyzer. (Manufacturer: Stephenson Corporation, Red Bank, New Jersey.)

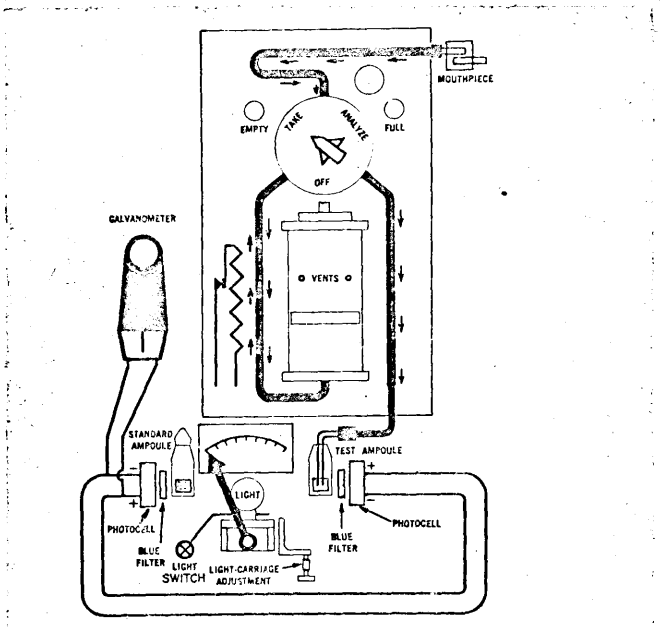

Figure 6. Operational phases of the Breathalyzer.

Under a law allowing use of the Breathalyzer the suspected DWI, after exhibiting clearly deviant driving behavior and after being arrested, will be offered the use of the breath test if the equipment is available. If he agrees to the use of the Breathalyzer, he blows into the instrument, which captures a known amount of alveolar air in a cylinder. A piston then forces the breath sample into a test ampoule containing a dichromate solution. Oxidation occurs in the solution if any alcohol is present in the breath sample. This causes a color change in the test ampoule, which is then compared to a standard ampoule. Behind each ampoule is located a photoelectric cell with a light bulb mounted on a moveable platform. As the color of the test ampoule fades, the light begins to move toward the standard ampoule. The distance the light moves is then calibrated into an accurate blood alcohol percentage reading. The operator must be careful to balance the light before each test to insure accurate results.[76]

Experimental studies of the accuracy of the Breathalyzer tend to confirm that blood alcohol readings obtained through a Breathalyzer are at least as accurate as blood alcohol testing. A "fail-safe" mechanism exists which protects the accused as any possible errors tend to be lower than blood alcohol readings.

One of the first important studies of the accuracy of the Breathalyzer was conducted by Coldwell and Grant in 1967.[77] Their experiment was conducted in a laboratory setting with highly trained technicians operating the Breathalyzer. The small mean differences and range of differences between actual alcohol concentration and the Breathalyzer readings are illustrated in Table 3.

The conditions used by the scientists involved varying the composition of the ampoule solution, varying the ampoule temperature, varying the ampoule solution volume and measuring the effect these changes had on instrument accuracy. The authors noted several important findings from their work.

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76. Gottlieb, Joel Edward, "The South Carolina Implied Consent Law: The 'Breathalyzer and the Bar'", 22 South Carolina Law Review 195 (1970) pp. 195-6.

77. Coldwell, B. B., and Grant, G. L., "A Study of Some Factors Affecting the Accuracy of the Breathalyzer," 8 Journal of Forensic Sciences 149 (April 1963).

TABLE 3

BREATHALYZER READING WITH AQUEOUS ALCOHOL SOLUTIONS OF VARIOUS CONCENTRATIONS

Concentration of Solution (mg./cc.)	Equivalent BAC* (%)	Mean-Difference Actual Experienced Readings	Range of Difference	Standard Error	No. of Readings	No. of Amperes	Temperature Range
1.12	0.050	-0.001	-0.005 to +0.005	0.004	7	7	21.0 - 22.5
3.36	0.149	-0.004	-0.015 to +0.005	0.007	30	10	24.5 - 25.5
4.51	0.200	-0.001	-0.020 to +0.005	0.010	7	4	24.8 - 25.1
5.64	0.250	-0.002	-0.015 to +0.004	0.017	7	4	23.7 - 23.9
6.76	0.300	-0.004	-0.016 to +0.008	0.012	14	14	22.8 - 24.1
7.82	0.347	-0.004	-0.024 to +0.027	0.014	16	16	23.1 - 24.2

*Blood Alcohol Concentration

Coldwell and Grant at p. 159.

(1) There is no necessity for absolute accuracy in manufacturing the potassium dichromate ampoules. Variations in concentration of ±40% did not affect the accuracy of the Breathalyzer. The sulfuric acid concentration could also vary ±10% without affecting readings.

(2) The temperature of the ampoule need not be strictly controlled either, for a range between 36°C and 55°C had no effect on the results.

(3) However, ampoules must be gauged carefully. Low menisci on the gauge resulted in erroneous high readings of up to .04 ml. weight per volume.

(4) Intoxicants other than ethanol such as acetaldehyde, paraldehyde and isopropanol produce negligible readings on the Breathalyzer.[78]

Other studies (Drew et al. in 1959 and Begg et al. in 1964) have confirmed Coldwell's findings of impressive accuracy of the Breathalyzer in laboratory situations. But what might be of greater interest to courts, police, and the general public would be an experiment designed to test the accuracy of the Breathalyzer when operated by properly trained policemen instead of scientists. Howes, Hallett, and Lucas sought to fill that need in an experiment which compared direct blood analysis with values obtained by police officers using the Breathalyzer.[79]

The Breathalyzer readings were made by police officers during a training course and were compared with results of blood tests taken within 15 minutes of the breath test. The mean difference between the breath and blood analyses was found to be only -- 0.0051% during the first hour after drinking and — 0.0103% later than the first hour after drinking. These results tend to confirm that breath analysis does yield results slightly lower than blood testing. The change in mean difference with time is explained by a lag in time before blood alcohol concentrations reach their highest level. In terms of percentage this means that 95% of all breath readings will be correct to within .01% when

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78. Ibid., p. 161.

79. Howes, J. R., Hallett, R. A., and Lucas, D. M., "A Study of the Accuracy of the Breathalyzer as Operated by Police Personnel," 12 Journal of Forensic Sciences 444 (October 1967).

compared to a blood alcohol determination taken at the same time.[80] The authors conclude that "since these tests were performed by operators who were not fully trained and who were not employing all the checks that are required for tests for court purposes, we believe that Breathalyzer tests given in the field by properly qualified police personnel following carefully prescribed procedure will be at least as accurate as the ones present here. When two Breathalyzer tests are properly made, it may be concluded that the possibility of a result prejudicial to an accused person being presented in court is virtually nonexistent."[81]

A new study using two subjects purports to cast doubt on the accuracy of Breathalyzer measurements of concentrations of alcohol with the mucous membranes of the mouth or nasal passages.[82] But the results only show that to obtain an accurate reading users of the Breathalyzer should refrain from taking a reading for 20 minutes after the last contact with alcohol, a fact well-known for some time.

Any jurisdiction deciding to use quantitative breath tests to combat the drunken driver should establish certain safeguards in operation to insure complete accuracy. These measures should include:

(a) Performance of regularly scheduled apparatus and equipment maintenance checks. The checks should include periodic calibration, optimally not less than once a week.

(b) A standard operating procedure should be formalized that includes a permanent written record of critical or sensitive test conditions and all precautionary measures in operating technique. Some states, including North and South Carolina, stipulate that the arresting officer should not give the arrested driver the breath test. This rule is designed to alleviate any conflict of interest problem inherent in an

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80. Fox, B. H., Hallett, R. A., Makowski, W., Schnall, A. M., and Pelch, A., "Refined Comparison of Blood and Breath Alcohol Measures and Variability of Breaths Around Trend of Decline," Alcohol and Traffic Safety Proceedings of the 4th International Conference on Alcohol and Traffic Safety (1966) p. 137.

81. Howes, et al., op. cit., p. 452.

82. Spector, Herbert N., "Alcohol Breath Tests: Gross Errors in Current Methods of Measuring Alveolar Gas Concentrations," 172 Science 57 (April 2, 1971).

arrest where a police officer needs evidence to justify his action.

(c) A 20 minute observation period should be observed prior to sampling. This period should be free from alcohol ingestion or vomiting to insure that all alcohol is removed from the oral cavity. Hyperventilation of stomach air which might contaminate the breath sample should be prohibited.

(d) An operator, to be absolutely fair, can run a simulated test before and after testing a defendant.

(e) The personnel operating the breath testing devices should be properly oriented, adequately trained and experienced in using and maintaining the equipment.[83]

The National Safety Council recommends a 44 hour training course for those who are to take readings on a Breathalyzer to be used as courtroom evidence. The phases of training include information on the problem of alcohol and traffic safety, the physiological basis of breath testing, the law as it applies to chemical tests and the required laboratory procedures. The most important phase of the instruction is probably the testing of human subjects to develop accuracy and skill in operation. The original training should be supplemented by refresher courses. North Carolina has found that a training course of 68 hours handled through their community college system best fits their needs. Their experience shows that one training session for 24 students involves a cost of $800. Federal funds are available to help finance the program.[84]

Presenting the results of a chemical test into evidence in a DWI case can be a complicated matter if done haphazardly. To eliminate a possible weak link in a prosecutor's case one should thoroughly understand the procedure necessary to successfully use Breathalyzer alcohol concentration readings.

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83. Dubowski, Kurt M., "Necessary Scientific Safeguards in Breath Alcohol Analysis," 5 Journal of Forensic Sciences 422 (1960).

84. Telephone conversation with William L. Spitler, Supervisor Law Enforcement Training, State of North Carolina, August 4, 1969.

No case has been found which held that quantitative breath tests are incapable of rendering accurate readings.[85] So the admissibility of quantitative breath tests results is uniformly allowed. However, the prosecution should lay some foundation before the court will admit the evidence into testimony. The standards used in most courts require fulfillment of four basic facts:

- that the machine was in proper working order and that it was properly checked before conducting the test on the defendant
- that the chemicals used in the breath testing equipment were of the proper kind and in the proper amounts and proportions
- that the test was given in the proper manner by a currently qualified operator
- that the test was not given until 15 or 20 minutes after the last ingestion of food or drink and that nothing was in the defendant's mouth at the time of the test.[86]

Expert testimony or a well-educated policeman is usually best able to resist defense attorney attempts to discredit both the accuracy of quantitative breath tests and the techniques utilized in testing the defendant.

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85. See Omohundro v. Arlington County, 194 Va. 773, 75 SE 2d 496 (1953) which held that chemical breath tests results were admissible to confirm police officer's testimony as to sobriety.

86. State v. Baker, 56 Wash. 2d 846, 852, 355 p. 2d 806, 809 (1960).

LEGAL QUESTIONS IN UTILIZING QUANTITATIVE BREATH TESTING

Defense attorneys have not rested their attacks on breath test results to mere inaccuracy of the device or human error. Chemical tests in general have been subject to constitutional arguments that chemical tests I. violate the accused's privilege against self-incrimination,[87] II. are an unreasonable search and seizure,[88] and III. violate due process requirements.[89] Other routes have been tried against chemical tests including denial of petitioner's right to counsel, coerced confession and violation of the physician-patient privilege, but none has been successful.

Though no constitutional requirement speaks directly to chemical testing, the Supreme Court gave its apparent approval to reasonable chemical tests to determine intoxication in 1957. Earlier, in 1952, the Supreme Court had ruled that forcing a suspected narcotics user to submit to a stomach pump to retrieve evidence offended "even hardened sensibilities" so as to violate due process.[90]

In 1957 Breithaupt v. Abram[91] presented the question of whether a blood test given to a suspected DWI, who had not given his consent, and used as evidence against him violated due process requirements. The Supreme Court did not accept the defense's logic, finding that,

> ...there is nothing 'brutal' or 'offensive' in the taking of a sample of blood when done as in this case, under the protective eye of a physician. ...the absence of conscious consent, without more, does not necessarily render the taking a violation of a constitutional right...due process is not measured by the yardstick of personal reaction or the sphygmogram of the most sensitive person, but by that whole community sense of 'decency and fairness' that has been woven by common experience into the fabric of acceptable conduct.... The blood test

87. U. S. Const. amend. V.

88. U. S. Const. amend. IV.

89. U. S. Const. amend. XIV.

90. Rochin v. California, 342 U. S. 165 (1952).

91. Breithaupt v. Abram, 352 U. S. 432 (1957).

> procedure has become routine in our everyday life. It is a ritual for those going into the military service as well as those applying for marriage licenses.... As against the right of an individual that his person be held inviolable even against so slight an intrusion as is involved in applying a blood test of one kind to which millions of Americans submit as a matter of course nearly every day, must be set the interests of society in the scientific determination of intoxication, one of the great causes of the mortal hazards of the road.[92]

It seems clear that since a blood test is now considered "normal", a breath test requiring less psychological trauma will also be considered "normal."

Submitting to a chemical test after a refusal and then having the evidence used against the accused is not considered self-incriminating by the Supreme Court. In Schmerber v. California[93] the situation was presented where an accused refused to submit to taking a blood test but was compelled to do so without force and the evidence was used against him. The justices found that "the privilege against self-incrimination protects an accused only from being compelled to testify against himself or otherwise provide the state with evidence of a testimonial or communicative nature, and that the withdrawal of blood and use of the analysis in question...did not involve compulsion to these ends."[94] It follows then that Miranda warnings, because they are geared to protecting one's privilege against self-incrimination, are not a necessary prerequisite to administering quantitative breath tests.[95]

The tests used in determining whether a search and seizure is unlawful are proximity of time of search in relation to arrest and presence or absence of unreasonable, abusive physical force. It is likely then that courts will favor searches where little or no force is employed and the search is conducted by qualified personnel at or near the time

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92. Ibid.

93. Schmerber v. California 384 U. S. 757 (1966).

94. Ibid., p. 761.

95. McMamns, op. cit., p. 698.

of arrest.[96] The Supreme Court has ruled that warrants for search are not necessary if there is a greater need to protect the general public or prevent destruction of evidence connected with a crime.[97]

Specifically a likely situation is one in which a police officer has apprehended a driver exhibiting erratic driving behavior and suspects the driver to be in violation of a drunk-driving statute. After arresting the suspect the police officer asks the driver to cooperate in giving a breath sample to be analyzed by the breath testing device. Such a situation, certain to occur under a Virginia statute allowing use of quantitative breath tests, would not be violating a prohibition against unreasonable search and seizure. The officer would be conforming to constitutional prerequisites of (a) a reasonable belief that the accused is intoxicated and, (b) reasonable test procedures. An Arizona court has taken a narrower position holding that a breath test is not a search since the police were "capturing" the exhaled air.[98]

Defense attorneys failing to successfully articulate objections to chemical tests on due process, self-incrimination, and unreasonable search and seizure grounds, have fallen back on a more generalized posture. Admittedly our legal system looks askance at any procedure which forces the accused to assume the prosecutor's burden of proving him guilty. A too aggressive state may find many of its procedures objectionable if they are designed to make the defendant his own prosecutor.[99] But the decisions explained here insure that states can continue to impose reasonable chemical test requirements on its citizens who are reasonably believed to be operating a motor vehicle while under the influence of intoxicating liquor (or drugs). Weighty policy considerations in protecting the general public may some day lead to the necessity of random chemical testing of drivers without probable cause.

Virginia's General Assembly will be faced with a unique problem if the proposed new statute is enacted. Since the law would allow use of both blood and breath tests the legislators must decide who will

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96. Slough, op. cit., p. 696.

97. Chimel v. California 395 U. S. 752 (1968).

98. State v. Berg, 76 Ariz. 96, 259 P. 2d 261 (1953).

99. Note, "Implied Consent to a Chemical Test for Intoxication: Doubts about Section 6-205 of the Uniform Vehicle Code," 31 U. Chi. L.R. 603 (1964).

choose the testing method. In any case, the final decision will probably be a compromise between protection of the defendant's constitutional rights and the practical needs of law enforcement.

Those states allowing a choice of method have in the main followed four procedures. These categories are (1) an administrative agency choosing the method (in Virginia's case probably the State Police with the Board of Health's approval), (2) the accused chooses the testing method, (3) the enforcement officer making the arrest chooses the test method, and (4) the enforcement officer chooses the test method, but the defendant has the right to a breath test. Procedures used by some of the states are cited below with comments.

I. Administration Determination

— ARKANSAS —

Ark. Stat. Ann. § 75-1031.1 (c) (Supp. 1965)

"The chemical analysis referred to in the above paragraph shall be made by a method approved by the Director of Arkansas State Board of Health and/or the Director of Arkansas State Police."

— ILLINOIS —

Ill. Ann. Stat. § 95 1/2-11501 (d) (Supp. 1970)

"Chemical analysis of the person's blood or breath to be considered valid under this section must be performed according to uniform standards adopted by the State Department of Public Health in cooperation with the Superintendent of State Highway Police, and by an individual possessing a valid permit by the Department for this purpose."

— INDIANA —

Ind. Ann. Stat. § 47-2003 (d) (1970)

"The administration of chemical tests required to produce evidence for the purposes of this act shall be performed, using the breath, by persons, including law enforcement officers, who are duly certified by the state department of toxicology of the Indiana University of Medicine to perform such tests and whose certification is valid at the time

of the administration of the test or tests. The arresting law enforcement officer shall not perform the test...."

"At the time a request is made for submission to a test, the law officer shall inform the accused that refusal to submit to the test may result in revocation, suspension or denial of his driver's license or permit...."

Also § 47-2003 (e) grants the director of the Department of Toxicology the power "to adopt the necessary rules and regulations to set standards for the selection of chemical test operators...."

II. Defendant's Selection of Method

— CALIFORNIA —

Cal. Vehicle Code § 13353 (Supp. 1971)

"The person arrested shall have the choice of whether the test shall be of his blood, breath, or urine, and he shall be advised by the officer that he has such choice. If the person arrested either is incapable or states that he is incapable of completing any chosen test, he shall then have the choice of submitting to and completing any of the remaining tests or test, and he shall be advised by the officer that he has such choice."

— MARYLAND —

Md. Ann. Code § 35-100 (c) (1971)

"...defendant shall have the right to select the type of test administered, and if facilities or equipment are not available for such test then none shall be given, and this fact shall not create any influence or presumption concerning his guilt or innocence by reason of his inability to take a test, nor shall the fact of his inability to take such a test be admissible in evidence at his trial, nor shall this fact be considered a refusal to take a test under § 92 A of Article 66½."

Choosing this procedure would certainly go far in insuring compliance with any constitutional rights of the accused. He would not be forced to undergo a psychologically painful technique or risk the penalty under the implied consent statute. The defendant would still be required to undergo one form of testing.

This method does however retain loopholes inherent in the current Virginia blood testing procedure. First a well-informed suspect could choose a test method unavailable in that jurisdiction. His fouling of the gathering of evidence could force a delay in obtaining the non-available test so as to destroy any value of a reading as evidence. Law enforcement officers will also be opposed to any procedure which might "tie their hands" in investigating a criminal suspect. A police officer is not likely to look favorably at a situation which would allow a drunken driver to tell the officer which chemical test he wants.

III. Law Officer's Selection of Method

— KENTUCKY —

Ky. Rev. Stat. Ann. § 186.565 (1970)

"Any person who operates a motor vehicle in this state is deemed to have given his consent to a chemical test of his blood, breath, urine or saliva for the purpose of determining the alcoholic content of his blood, if arrested for any offense arising out of the acts alleged to have been committed while the person was driving or in actual physical control of a motor vehicle in this state while under the influence of intoxicating beverages. The test shall be administered at the direction of a law enforcement officer having reasonable grounds to believe the person to have been driving or in actual physical control of a motor vehicle.... The law enforcement agency by which the officer is employed shall designate which of the aforesaid tests shall be administered, and provide necessary equipment."

— NORTH CAROLINA —

N. C. Gen. Stat. § 20-139.1 (d) (Supp. 1969)

"The person tested may have a physician, or a qualified technician, chemist, registered nurse, or other qualified person of his own choosing administer a chemical test or tests in addition to any test administered at the direction of a law enforcement officer. The failure or inability of the person tested to obtain an additional test shall not preclude the admission of evidence relating to the test or tests taken at the direction of a law enforcement officer."

The advantages of the law officer choosing the testing method are seen in improved efficiency and simplicity. The law officer having

selection power can choose the method most likely in his jurisdiction to give accurate, usable readings. An uncooperative or incoherent suspect would no longer be allowed to choose a method most likely to disturb the officer's collection of evidence.

There is however a limited area of abuse by the police officer either in choosing the wrong method or circumventing a constitutional right of the accused. Others are concerned that a suspect may be forced to refuse a test which is psychologically repugnant to him when he would have submitted to another form of testing.

IV. Officer's Selection with Ultimate Right to Breath Test

— MICHIGAN —

Mich. Stat. Ann. § 257.625 (a) (Suppl. 1971)

" 3 A person charged with driving a vehicle while under the influence of intoxicating liquor who takes a chemical test administered at the request of a police officer as provided in paragraphs (1) and (2) hereof, shall be informed that he will be given a reasonable opportunity to have a person of his own choosing administer one of the chemical tests as provided in this section (blood, urine, breath, saliva) within a reasonable time after his detention...."

" 6 Notwithstanding any other provision of this act, a person requested to take this test shall be advised that he has the option to demand that only a breath test shall be given, in which case his refusal to submit to any other test shall not constitute a refusal for the purposes of sections 625d and 625f."

— GEORGIA —

Ga. Code Ann. § 68-1625.1 (a) (Supp. 1970)

"Any person who drives or operates a motor vehicle upon a public road or highway of this state shall be deemed to have given his consent to a chemical test...of his blood or breath for the purpose of determining the alcoholic content of his blood if lawfully arrested for any offense allegedly committed while the person was driving or operating a vehicle under the influence of intoxicating liquor. No person shall be required to take a blood test if he objects thereto, and in such case such person shall be given a breath test."

— WEST VIRGINIA —

W. Va. Code Ann. § 17C-5A-1 (1971)

"Any person who drives a motor vehicle...shall be deemed to have given his consent to a chemical test of either his blood, breath or urine for the purpose of determining the alcoholic content of his blood...."

"The law enforcement agency by which such law enforcement officer is employed shall designate which one of the aforesaid tests shall be administered: Provided, that if the test so designated is a blood test and the person so arrested refuses to submit to such blood test, then the law enforcement officer making the arrest shall designate in lieu thereof, either a breath or urine test be administered and... such refusal to submit to a blood test only shall not result in the suspension of the arrested person's...license."

A balance is probably best achieved by allowing the officer to select the method with the accused having the right to a breath test. The stake the public has in efficient enforcement of traffic laws would be met by allowing the law enforcement officer to handle the collection of evidence in the simplest, easiest way. On the other hand the accused's psychological aversions are not penalized by forcing him to submit to a disagreeable test method.

VIRGINIA'S GAIN

Bills were submitted in both Houses of the 1970 Virginia General Assembly to allow quantitative breath tests to arrested persons suspected of driving a motor vehicle under the influence of alcohol.[100] The countermeasures died in committee, however. It seems the public officials made a political decision not to increase the identifiability of drinking drivers by including a breath test in Virginia's implied consent statute.

The advantages of breath testing are shown through its rapidity, simplicity and non-traumatic sampling techniques. Breath tests are also generally fairer to the average motorist than are blood tests. The social drinker is protected as long as he avoids drinking to such a degree so as to be a danger to himself and other users of the highway. If he exceeds a reasonable level of ingestion he should refrain from driving.[101] But the primary purpose of a new law allowing use of quantitative breath tests would not be an expected increase in convictions for DWI. The purpose is instead to deter potential drunken drivers and thereby reduce the number of traffic accidents and fatalities.[102]

Great Britain's experience in using the breath test will perhaps be helpful in understanding the impact it might have if introduced to Virginia. In Great Britain the Road Safety Act of 1967 authorized the administering of the breath test to all those highway users suspected of drinking. In the United States, to be constitutionally correct, implied consent statutes apply only to those drivers who have already been arrested. Britain's experience is helpful though in understanding driver reaction to the compulsion to submit to a breath test.

(1) The greater operational efficiency of the breath test was evidenced through a 90% increase in the number of proceedings against motorists for drunk driving offenses. The greatest increases occurred in less urbanized rural areas

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100. H B 466 Bryan 18.1-55.1 and 55.2 (1970) S B 15 Burruss 18.1-55.1 (1970).

101. Williams, G. Prys, 1968 — The First Full Year of the Breathalyzer, Christian Economic and Social Research Foundation (December 1969) p. 13.

102. Gottlieb, Joel Edward, "The South Carolina Implied Consent Law: The 'Breathalyzer' and the Bar," 22 South Carolina Law Review 195 (1970).

where an officer formerly relying solely on the blood test was stymied by insurmountable practical problems.

(2) British authorities were convinced that the conviction figures actually understate the number of proceedings that might have been instigated. The reasoning was based on "what would seem to be the demonstrated greater efficiency of the Breathalyzer as a basis for proceedings whether these end in convictions or not."[103]

(3) Finally, English police officials reported that a low 8.4% failed to provide a breath sample for quantitative breath alcohol determination. (North Carolina, providing for post-arrest use of quantitative breath tests, has reported a 25% refusal rate.)[104] The English were most concerned, however, by a surprisingly large variation of refusal rate from 0% to 16.8%.[105] This can probably be explained by a greater refusal rate corresponding to the better-informed urban driver. Most drivers will realize that it is better to take the certainty of a small penalty for "implied consent" refusal than risk the efficiency of quantitative breath test results in convicting for DWI.

Experience has shown that the use of quantitative breath tests effectively strengthens the statutes designed to improve traffic safety. The advantages of breath tests in determining the level of intoxication have been enumerated previously. In terms of reliability and efficiency the breath test far outshines the blood test as a safety aid. But complete reliance on the breath test is not advocated here. Many jurisdictions have become used to the intracacies involved in using the blood tests. To require a complete retraining of these localities' police officers could have an undesirable effect of decreasing the number of arrested DWI's. The bureaucratic upheaval could cause in the short run an unofficial police rejection of widespread quantitative breath test use. But generally a policeman will appreciate the simplified techniques involved in a device designed to strengthen evidence against the arrested driver. His willingness to charge a drunken driver with the correct offense will be increased when he is confident breath test results will hold up in court.

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103. Williams, op. cit., p. 12.

104. Spitler, loc. cit.

105. Williams, op. cit., pp. 6-7.

Blood tests have also been shown to be of utility in identifying a driver who is suspected of being under the influence of intoxicating drugs. Planning for the future suggests a retention of the blood test to cope with an expected increase in the use of drugs by drivers.

The Commonwealth is under an obligation to its citizens to design strong laws to protect the safety of its highway users. The use of the blood and the breath test in identifying the drinking driver is a significant response to a traffic safety problem. For that reason it is recommended that Virginia enact a statute similar to the following bill.

A BILL

To amend and reenact § 18.1-55.1, as amended, of the Code of Virginia, relating to chemical tests to determine alcohol in blood or breath

Be it enacted by the General Assembly of Virginia:

1. That § 18.1-55.1, as amended, of the Code of Virginia be amended and reenacted as follows:

§ 18.1-55.1. — (a) As used in this section "license" means any operator's, chauffeur's or learner's permit or license authorizing the operation of a motor vehicle upon the highways.

(b) Any person, whether licensed by Virginia or not, who operates a motor vehicle upon a public highway in this State on and after July one, nineteen hundred sixty-four, shall be deemed thereby, as a condition of such operation, to have consented to have a sample of his blood or breath taken for a chemical test to determine the alcoholic content thereof, if such person is arrested for a violation of § 18.1-54 or of a similar ordinance of any county, city or town within two hours of the alleged offense. The law enforcement agency by which the arresting officer is employed shall designate which test shall be administered: Provided, that if the test so designated is a blood test and the person so arrested refuses to submit to such blood test, then the law enforcement officer making the arrest shall designate that the breath test be administered and such refusal to submit to a blood test only shall not result in a violation of this section — § 18.1-55.1 (b).

(c) If a person after being arrested for a violation of § 18.1-54 or of a similar ordinance of any county, city or town and after having

been advised by the arresting officer that a person who operates a motor vehicle upon a public highway in this State shall be deemed thereby, as a condition of such operation, to have consented to have a sample of his blood or breath to be taken and the penalty for refusal, and so declares again his refusal in writing upon a form provided by the Chief Medical Examiner of Virginia (hereinafter referred to as Chief Medical Examiner) or refuses or fails to so declare in writing and such fact is certified as prescribed in paragraph (j), then no blood or breath sample shall be taken even though he may thereafter request same.

(c1) Chemical analysis of the person's breath, to be considered valid under the provisions of this section, shall have been performed according to methods approved by the State Health Commissioner and by the Law Enforcement Officer's Training Standards Commission.

(d) Only a physician, registered professional nurse, graduate laboratory technician or a technician or nurse designated by order of a court of record acting upon the recommendation of a licensed physician, using soap and water to cleanse the part of the body from which the blood is taken and using instruments sterilized by the accepted steam sterilizer or some other sterilizer which will not affect the accuracy of the test, or using chemically clean sterile disposable syringes, shall withdraw blood for the purpose of determining the alcoholic content thereof. No civil liability shall attach to any person authorized to withdraw blood as provided herein as a result of the act of withdrawing blood from any person submitting thereto, provided the blood was withdrawn according to recognized medical procedures; and provided further that the foregoing shall not relieve any such person from liability for negligence in the withdrawing of any blood sample.

(d1) Portions of the blood sample so withdrawn shall be placed in each of two vials provided by the Chief Medical Examiner, which vials shall be sealed and labeled by the person taking the sample or at his direction, showing on each the name of the accused, the name of the person taking the blood sample, and the date and time the blood sample was taken. The vials shall be placed in two containers provided by the Chief Medical Examiner, which containers shall be sealed so as not to allow tampering with the contents. The arresting or accompanying officer shall take possession of the two containers holding the vials as soon as the vials are placed in such containers and sealed, and shall transport or mail one of the vials forthwith to the Chief Medical Examiner. The officer taking possession of the other container (hereinafter referred to as the second container) shall immediately after taking possession of said second container give to the accused a form provided by the Chief Medical Examiner which shall set forth the procedure

to obtain an independent analysis of the blood in the second container, and a list of those laboratories and their addresses, approved by the State Health Commissioner; such form shall contain a space for the accused or his counsel to direct the officer possessing such second container to forward that container to such approved laboratory for analysis, if desired. The officer having the second container, after delivery of the form referred to in the preceding sentence (unless at that time directed by the accused in writing on such form to forward the second container to an approved laboratory of the accused's choice, in which event the officer shall do so) shall deliver said second container to the chief police officer of the county, city or town in which the case will be heard, and the chief police officer who receives the same shall keep it in his possession for a period of seventy-two (72) hours, during which time the accused or his counsel may, in writing, on the form provided hereinabove, direct the chief police officer having possession of the second container to mail it to the laboratory of the accused's choice chosen from the approved list. As used in this section, the term "chief police officer" shall mean the sheriff in any county not having a chief of police, the chief of police of any county having a chief of police, the chief of police of the city or the sergeant or chief of police of the town in which the charge will be heard.

(d2) The testing of the contents of the second container shall be made in the same manner as hereafter set forth concerning the procedure to be followed by the Chief Medical Examiner, and all procedures established herein for transmittal, testing and admission of the result in the trial of the case shall be the same as for the sample sent to the Chief Medical Examiner.

(d3) A fee not to exceed $15.00 shall be allowed the approved laboratory for making the analysis of the second blood sample which fee shall be paid out of the appropriation for criminal charges. If the person whose blood sample was withdrawn is subsequently convicted for violation of § 18.1-54, or of a similar ordinance of any county, city or town, the fee charged by the laboratory for testing the blood sample shall be taxed as part of the costs of the criminal case and shall be paid into the general fund of the State treasury.

(d4) If the chief police officer having possession of the second container is not directed as herein provided to mail it within seventy-two (72) hours after receiving said container then said officer shall destroy same.

(e) Upon receipt of the blood sample forwarded to his office for analysis, the Chief Medical Examiner shall cause it to be examined for

alcoholic content and he or an Assistant Chief Medical Examiner shall execute a certificate which shall indicate the name of the accused, the date, time and by whom the blood sample was received and examined, a statement that the container seal had not been broken or otherwise tampered with, a statement that the container was one provided by the Chief Medical Examiner and a statement of the alcoholic content of the sample. The certificate attached to the vial from which the blood sample examined was taken shall be returned to the clerk of the court in which the charge will be heard. The certificate attached to the container forwarded on behalf of the accused shall also be returned to the clerk of the court in which the charge will be heard, and such certificate shall be admissible in evidence when attested by the pathologist or by the supervisor of the laboratory approved by the State Health Commissioner.

(f) When any blood sample taken in accordance with the provisions of this section is forwarded for analysis to the office of the Chief Medical Examiner, a report of the results of such analysis shall be made and filed in that office. Upon proper identification of the vial into which the blood sample was placed, the certificate as provided for in this section shall, when duly attested by the Chief Medical Examiner, or any Assistant Chief Medical Examiner, be admissible in any court in any criminal proceeding, as evidence of the facts therein stated and of the results of such analysis.

(g) Upon the request of the person whose blood or breath sample was taken for a chemical test to determine the alcoholic content thereof, the results of such test or tests shall be made available to him.

(h) A fee not exceeding five dollars shall be allowed the person withdrawing a blood sample in accordance with this section, which fee shall be paid out of the appropriation for criminal charges. If the person whose blood sample was withdrawn is subsequently convicted for violation of § 18.1-54 or of a similar ordinance of any county, city or town, the amount charged by the person withdrawing the sample shall be taxed as part of the costs of the criminal case and shall be paid into the general fund of the State treasury.

(i) In any trial for a violation of § 18.1-54 of the Code or of a similar ordinance of any county, city or town, this section shall not otherwise limit the introduction of any relevant evidence bearing upon any question at issue before the court, and the court shall, regardless of the result of the blood or breath test or tests, if any, consider such other relevant evidence of the condition of the accused as shall be admissible in evidence. The failure of an accused to permit a sample

of his blood or breath to be withdrawn for a chemical test to determine the alcoholic content thereof is not evidence and shall not be subject to comment at the trial of the case; nor shall the fact that a blood or breath test had been offered the accused be evidence or the subject of comment.

(j) The form referred to in paragraph (c) shall contain a brief statement of the law requiring the taking of a blood or breath sample and the penalty for refusal, a declaration of refusal and lines for the signature of the person from whom the blood or breath sample is sought, the date and the signature of a witness to the signing. If such person refuses or fails to execute such declaration, the committing justice, clerk or assistant clerk shall certify such fact, and that the committing justice, clerk or assistant clerk advised the person arrested that such refusal or failure, if found to be unreasonable, constitutes grounds for the revocation of such person's license to drive. The committing or issuing justice, clerk or assistant clerk shall forthwith issue a warrant charging the person refusing to take the test to determine the alcoholic content of his blood or breath with violation of this section. The warrant shall be executed in the same manner as criminal warrants.

(k) The executed declaration of refusal or the certificate of the committing justice, as the case may be, shall be attached to the warrant and shall be forwarded by the committing justice, clerk or assistant clerk to the court in which the offense of driving under the influence of intoxicants shall be tried.

(l) When the court receives the declaration of refusal or certificate referred to in paragraph (k) together with the warrant charging the defendant with refusing to submit to having a sample of his blood or breath taken for the determination of the alcoholic content thereof, the court shall fix a date for the trial of said warrant, at such time as the court shall designate, but subsequent to the defendant's criminal trial for driving under the influence of intoxicants.

(m) The declaration of refusal or certificate under paragraph (k), as the case may be, shall be prima facie evidence that the defendant refused to submit to the taking of a sample of his blood or breath to determine the alcoholic content thereof as provided hereinabove. However, this shall not be deemed to prohibit the defendant from introducing on his behalf evidence of the basis for his refusal to submit to the taking of a sample of his blood or breath to determine the alcoholic content thereof. The court shall determine the reasonableness of such refusal.

(n) If the court shall find the defendant guilty as charged in the warrant, the court shall suspend the defendant's license for a period of 90 days for a first offense and for six months for a second or subsequent offense or refusal within one year of the first or other such refusals; the time shall be computed as follows: The date of the first offense and the date of the second or subsequent offense.

(o) The court shall forward the defendant's license to the Commissioner of the Division of Motor Vehicles of Virginia as in other cases of similar nature for suspension of license unless, however, the defendant shall appeal his conviction, in which case the court shall return the license to the defendant upon his appeal being perfected.

(p) The procedure for appeal and trial shall be the same as provided by law for misdemeanors.

(q) No person arrested for a violation of § 18.1-54 or a similar ordinance of any county, city, or town shall be required to execute in favor of any person or corporation a waiver or release of liability in connection with the withdrawal of blood or breath and as a condition precedent to the withdrawal of blood or breath as provided for herein.

(r) The court or the jury trying the case shall determine the innocence or the guilt of the defendant from all the evidence concerning his condition at the time of the alleged offense.

(s) The steps herein set forth relating to the taking, handling, identification, and disposition of blood samples are procedural in nature and not substantive. Substantial compliance therewith shall be deemed to be sufficient. Failure to comply with any one or more of such steps or portions thereof, or a variance in the results of the two blood tests, shall not of itself be grounds for finding the defendant not guilty, but shall go to the weight of the evidence and shall be considered as set forth above with all the evidence in the case, provided that the defendant shall have the right to introduce evidence on his own behalf to show noncompliance with the aforesaid procedure or any part thereof, and that as a result his rights were prejudiced.

(t) The governing bodies of the several counties, cities and towns are authorized to adopt ordinances paralleling the provisions of (a) through (s) of this section.