THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

ALCOHOL, DRUGS AND ROAD SAFETY

REPORT OF THE HOUSE OF REPRESENTATIVES
STANDING COMMITTEE ON ROAD SAFETY
MAY 1980

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Note

(1) Mr Mutton replaced Mr F.R. Hinkley as Clerk to the Committee on 7 January 1980.

CONTENTS

MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

MAJOR FINDINGS

The Committee has found that:

- in 1979, 3,506 people were killed in road crashes in Australia. At least one-third of all adults killed, that is about 1,000 people in 1979, would have had significant concentrations of alcohol in their blood. Furthermore, many of those unaffected by alcohol would have been killed in crashes involving a driver who was affected by alcohol. Research suggests that alcohol is a factor in 50% of crashes involving a fatality. (para. 49).

- in 1977 over 91,600 people were injured in more than 67,500 reported road crashes in Australia. In some 34% of all road crashes resulting in personal injury at least one driver, rider or pedestrian would have had a significant blood alcohol content. (para. 53).

- a survey in Adelaide has shown that, overall, 8.4% of drivers surveyed had been drinking - 2.6% of drivers had a blood alcohol content exceeding 0.05 gms/100 ml and 1.6% exceeding 0.08 gms/100 ml. In the period 9 p.m. to 3 a.m. on Thursday, Friday and Saturday nights 28.9% had been drinking - 16.1% had a blood alcohol content exceeding 0.05 gms/100 ml and 11.7% exceeded 0.08 gms/100 ml. (para. 62).

MAJOR CONCLUSIONS

The Committee concludes that:

- permissive community attitudes to drinking and driving are a fundamental impediment to other measures aimed at minimising the drink driving problem. (para. 98).

- the young driver faces many pressures to drink and drive and the need to reduce these pressures must be a high priority. (para. 102).

- increased penalties for drink driving offences in Australia are unlikely to be more effective than present penalties in deterring the 20 to 25% of convicted drivers not affected by present penalties from re-offending. (para. 110).

- on the available evidence, the effectiveness of penalties as a general deterrent is heavily reliant upon the drink driver's assessment of the likelihood of his being apprehended. Enforcement activity must therefore be aimed at raising drivers' estimations of the probability of detection, and maintaining them at a high level. (para. 117).

- random breath testing legislation, as it was used during the evaluation in Victoria (in short, intense bursts, accompanied by widespread publicity) has been shown to be most effective in reducing alcohol related crashes. It is not established that continued low level enforcement of such legislation would be effective, nor is it certain that even short intense bursts will continue to be effective. Nevertheless, the Committee concludes that the potential value of random breath testing legislation is such that all States and Territories should introduce it. (para. 125).

- legislation concerning impaired driving resulting from drugs other than alcohol is inadequate in some States and Territories. (para. 151).

- low alcohol beer offers some potential road safety benefits though the likely magnitude of those benefits cannot yet be assessed. (para. 177).

- a range of rehabilitative programs should be developed so that future assessment centres may be established for matching drink driving offenders to the most suitable rehabilitative programs. (para. 191).

- rehabilitative programs warrant continued support from Governments and additional resources should be applied to evaluation and improvement of existing programs and the establishment of new pilot programs. (para. 193).

- the level of effectiveness currently being achieved in school programs on alcohol, drugs and road safety can be raised by a concerted, broad-based effort by education authorities, teachers and parents. (para. 202).

- secondary school education on the use and abuse of alcohol, including its relationship to road safety, is desirable and educators should re-assess the priority currently given to such education in their school programs. It should be long term and low key, should attempt to integrate appropriate attitudes towards their use into a general pattern of social attitudes which impinge on personal development and should preferably tie in with education of the community at large. (para. 204).

- the need for public education is such that mass media publicity campaigns must continue to attract Government and other financial support as part of a broader effort to educate the community. (para. 220).

RECOMMENDATIONS

The Committee recommends that:

- the Departments of Transport and Health initiate and support research into whether specific drugs other than alcohol impair driving related skills, the degree of impairment at usual dosage levels, the relationship between dosage level and impairment, the mechanism of impairment, and the techniques for the detection of drugs potentially important as a hazard on the roads, especially cannabis and diazepam (Valium). (para. 48).

- the Departments of Transport and Health initiate and support research into which drugs when combined with alcohol impair driving related skills, the degree of impairment, the mechanisms of impairment, and the relationship between dosage level and impairment. (para. 48).

- further research on the magnitude of the problem of alcohol and road safety involve 'crash' based data rather than 'victim' based data, and include determination of the blood alcohol concentration in all drivers, riders and pedestrians rather than only those killed or injured. (para. 57).

- the Department of Transport monitor overseas studies of factors modifying risk of crash involvement within the alcohol affected driver population and initiate research into such factors when Australian 'crash' based data are adequate. (para. 65).

- the Departments of Transport and Health initiate and support accelerated and expanded research into the involvement of drugs, particularly in combination with alcohol, in road crashes. (para. 92).

- random breath testing legislation be introduced in all States and Territories. (See Major Conclusions) (para. 126).

- studies of the general deterrence effect of various levels of police patrol activity should be carried out in a limited area, with a view to determining the probable effect of increased resources for police patrols. (para. 135).

- the maximum time after an alleged drink driving offence in which a test can be required should be four hours. (para. 140).

- the National Road Traffic Code be amended to provide that police be empowered to require blood or urine samples when they are of the opinion that a driver's condition did not or did not wholly arise from alcohol, and that such provision be adopted in State and Territory legislation. (para. 152).

- consideration be given to the introduction of legislation to prevent insurance being made available against the possibility of a driver being disqualified from driving. (para. 158).

- all States and Territories adopt procedures whereby applicants for learner drivers' permits or for licence renewals are informed of the effects of alcohol and drugs on driving and the laws and penalties for driving while under the influence. (para. 160).

- the Department of Transport initiate and support an evaluation study of legislation requiring drivers in their first year of driving to have no alcohol in their blood with a view to the incorporation of this measure in the National Road Traffic Code if shown to be effective. (para. 165).

- restricted hardship licences should be available, at the discretion of the court, for first offenders whose livelihood would be threatened by the loss of their driver's licence. (para. 169).

- the Departments of Transport and Health initiate research into the drinking - and drink driving - patterns of subgroups of the drinking population with a view to determining the effects of changes in the price of alcoholic beverages. (para. 175).

- consideration be given to reducing the excise imposed on low alcohol beer (defined as containing not more than 2.5% of alcohol by weight). (para. 178).

- the Department of Transport initiate research to identify the drinking patterns in different kinds of licensed premises, particularly with respect to blood alcohol concentration reached, and the mode of transport used after leaving the premises, with a view to establishing how legal trading hours for licensed premises can most effectively be restricted to reduce drink driving while continuing to permit reasonable, if reduced, opportunities for responsible drinkers. (para. 181).

- the Departments of Health and Transport initiate and support studies, including pilot programs, to evaluate the effectiveness of rehabilitative programs aimed at modification of the behaviour of drink drivers. (para. 194).

- the Curriculum Development Centre and the Departments of Education, Transport and Health support the development of model curricula on alcohol, drugs and road safety and the exchange of information between States and Territories on courses, curricula, teaching methods and materials being used throughout Australia. (para. 205).

- Commonwealth, State and Territory education authorities examine the need for improved and expanded under-graduate and in-service teacher training on instruction on alcohol, drugs and road safety. (para. 205).

- if the liquor industry's voluntary code of advertising practice is not adhered to, the Government should impose mandatory regulations on the advertising of alcoholic beverages. (para. 208).

- mass media campaigns on the hazards of drink driving continue to attract the financial support of Governments and other interested organisations and that this support provide for the thorough evaluation of the impact of such campaigns. (para. 223).

- subject to thorough evaluation establishing their potential effectivenss, a series of major national publicity campaigns on the hazards of drink driving be funded by Governments and other organisations in coming years and that these campaigns be co-ordinated by the Office of Road Safety. (para. 223).

- the National Health and Medical Research Council and the National Therapeutic Goods Committee ensure that drug companies, pharmacists and medical professions be informed regarding the effects of alcohol and other drugs on road safety and inform patients. If these precautions are not taken Governments should act to control labelling of drugs by mandatory regulations. (para. 231).

- the Department of Transport and the Australian Road Research Board continue to monitor and initiate research into ways of modifying the driving environment to take account of the impairment of alcohol affected drivers. (para. 240).

- the Department of Transport and the Australian Road Research Board provide an information and advisory service on countermeasures to those bodies concerned with the driving environment and on estimates of the cost of introducing appropriate measures. (para. 240).

- Commonwealth and State Governments support the researching and development of mechanical devices to deter drink driving and, when perfected, require that they be fitted to the vehicles of recalcitrant drivers, at their own expense, as a pre-requisite to any renewal of their driving licences. (para. 247).

- the laboratories which process drivers' blood samples be required to provide the results in grams per 100 millilitres as well as in millimoles per litre. (para. 45).

ABBREVIATIONS

AFADD	Australian Foundation on Alcohol and Drug Dependence
ARRB	Australian Road Research Board
ATAC	Australian Transport Advisory Council
BAC	Blood Alcohol Concentration
CNS	Central Nervous System
NRTC	National Road Traffic Code
PACERS	Publicity Advisory Committee on Education in Road Safety
RoSTA	Road Safety and Traffic Authority
SI	Systeme International
TARU	Traffic Accident Research Unit

EXPLANATORY NOTES

Active Participant - a driver, rider, or pedestrian involved in a crash.

Additive Interaction - when two psychotropic substances are taken together, the effect is said to be additive when it is what would be expected from simple combination of the effects of each of the substances.

'Alcohol', 'ethanol', 'ethyl alcohol' are interchangeable.

Cannabis is a plant. More than 30 cannabinoids have now been isolated from the plant. The three in highest concentration are Δ^9 - tetrahydrocannabinol (THC), cannabidiol (CBD) and cannabinol (CBN). The cannabinoids are secreted in a resin. The potency of different samples or preparations of the plant depends not only on the amount of resin, but also on its content of THC and other cannabinoids. The main substance responsible for the mood altering effects of cannabis is THC. The common preparations are marihuana, cannabis resin (hash), buddha sticks and hash oil. These preparations vary considerably in their potency because of the differing concentrations of the resin contained in them, and therefore, in the amount of the THC.

Choice Reaction Time is the time to react to one of a number of stimuli that require a choice of several possible responses.

Epidemiology - the study of the causes of a disorder or disease, its distribution in the population and the measures used to deal with the problem.

Gaze-Nystagmus - an impairment of eye movements interfering with steady gaze.

Metabolism - the biological processes involved in the activity of the cells and organs of the body. In relation to alcohol, it means the normal processes involved in the breakdown of alcohol and the elimination of the end products.

Pharmacological Action - the reversible changes produced by a drug when taken by an individual.

Potentiate - increase the normal effect of a given dose of a drug.

Psychotropic Substance - a chemical substance (a drug) which alters the mood, state of consciousness or perceptions of a person.

Reportable Crash - each State and Territory requires either that all crashes or, more often, all crashes involving injury or damage above a prescribed value be reported. The specific requirements vary from State to State.

Synergistic Interaction - when two psychotropic substances are taken together, the effect is said to be synergistic when it is more than would be expected from simple combination of the effects of each of the substances.

Territories - refers to Australian Capital Territory and Northern Territory only.

Tracking - the process of using the perceptual systems (such as vision) to detect a path to be followed, and the motor system (such as the muscles controlling the movement of the arm) to follow that path.

CHAPTER 1

THE EFFECTS OF ALCOHOL AND OTHER DRUGS

Patterns of Use

1. Alcohol and other drugs are widely used for a variety of purposes, notably social and medical purposes. Whatever their benefits it is an irrefutable fact that in some cases their use can have serious side-effects which may affect many facets of life. One of these side-effects is a deterioration in driving performance.

- Alcohol

2. The pattern of alcohol usage in Australia is illustrated in Figure 1. These statistics indicate that 11% of males and 2% of females drink more than 80 grams of alcohol (that is, the equivalent of almost three bottles of beer) per day. This level of consumption puts drinkers at risk of developing alcohol related diseases, such as cirrhosis of the liver. On the other hand, 50% of males and 83% of females drink very little.

- Medical Use of Drugs

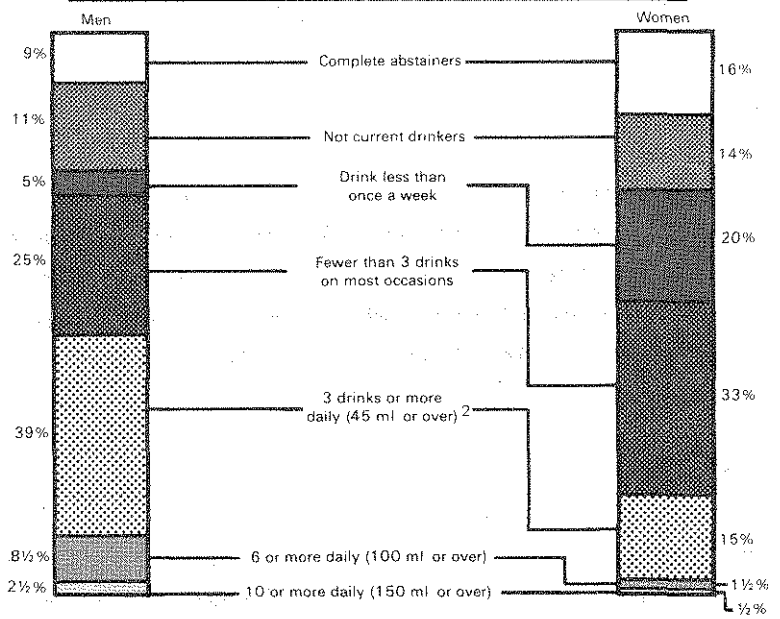
3. It is apparent that tranquillizers and anti-depressant drugs are prescribed in great quantities in Australia.[1] The number of these psychotropic drugs dispensed suggests that many drivers must be under treatment with these agents.

- Non-Medical Use of Drugs

4. Many drugs are not used for what is regarded as legitimate medical purposes but are rather used for their mood altering effects or for the symptoms produced by the development

FIGURE 1

DRINKING PATTERNS IN AUSTRALIAN ADULTS[1]



Notes:

1 Compiled taking into account the data of Encel, S., Kotowicz, K. and Resler, H.E. 'Drinking patterns in Sydney, Australia', **Quarterly Journal of Studies on Alcohol**, Supplement 6, 9-10, 1973; George, A. 'Survey of drug use in a Sydney suburb', **Medical Journal of Austalia**, 2, 207-13, 1972; George, A., 1973 **Survey of Drug Use in a Western Sydney Suburb**, Mental Health and Drug Education Programme, Division of Health Education, NSW Health Commission; Healy, P., 'Use of psychotropic drugs in Australia', **Informed Opinion** (NSW Health Commission) No. 14, 1975; Krupinski, J. and Stoller, A., **The Health of a Metropolis**, Melbourne, Heinemann, 1971; Reynolds, I., et al., 'Drinking and drug taking patterns of 8516 adults in Sydney', **Medical Journal of Austalia**, 2, 782-88, 1976.

2 100 mls of ethanol = 80 gms

Source: M. Sargent, **Drinking and Alcoholism in Australia**, Longman Cheshire, Melbourne, 1979, Figure 1.1., p. 3.

of physical dependence. The main illicit drugs of abuse are: cannabis in its various forms, narcotic agents such as heroin and morphine, the stimulant substance cocaine, and hallucinogens such as L.S.D.,[2] mescaline and psilocybin. Substances which in other circumstances are regarded as licit such as methaqualone, barbiturates and amphetamines may be obtained and used illicitly by members of the drug subculture. Many drug addicts also use alcohol, often in large doses.

5. It is not known how many people in the Australian community use illicit drugs, how many people use such drugs regularly and the number of people who are physically addicted to them.

6. Many studies have attempted to determine the epidemiology of illicit drug use in Australia. Cannabis, especially in the form known as marihuana, is probably the most widely used of the illegal drugs. Various surveys indicate that the substance is predominantly used by young adults between the ages of 15 to 25 (peaking at 20)[3] and that 30% to 50%[4] may have experimented with the drug. However, it is important to realise that such a high prevalence is not evenly distributed throughout the population, even of young people. Certain groups,[5] notably tertiary students, are particularly prone to try marihuana. It remains uncertain as to how many people use the drug on a regular weekly basis but an estimate has been made that 8% to 10% of adults may do so.[6,7]

7. There is a much lower rate of usage of hallucinating substances and stimulants. Again the data are imperfect. Only selected population groups have been studied and the current rate of usage in the general adult population is not known. The use of stimulants has declined considerably in the last decade with the exception of cocaine, while the use of hallucinogens seems to

have remained at a fairly steady level, at least in the populations that have been studied. It has been estimated that 2% to 4% of adults between the ages of 15 to 25 may be currently using these substances.[8]

8. The non-medical use of narcotics is obviously a matter of great community concern. However, it is not known what percentage of the adult population regularly use narcotic substances and much of the information has been obtained from anecdotal experiences or from various treatment agencies concerned in the management of narcotic addicts.

Physiological Effects

- Alcohol

9. The active ingredient of alcoholic beverages is ethanol.[9] It is virtually non-toxic in doses below 50 grams per day but it does have pharmacological effects which may impair driving ability even in relatively low doses.

10. Alcohol is rapidly absorbed from the upper part of the gastrointestinal tract so that a peak effect is usually reached within 30 to 45 minutes after drinking has ceased. Following absorption, alcohol diffuses freely throughout the total body water and an equilibrium is eventually reached, once drinking ceases. This equilibrium is a reflection of several processes - absorption, diffusion, metabolic breakdown and elimination. An estimation of blood alcohol concentration (BAC) is a single record at a specific point in time. It is a measure of the amount of alcohol in the bloodstream at that moment. At that same moment a dynamic exchange is occurring with surrounding tissues.

11. A small amount of alcohol is eliminated unchanged - in urine, breath, saliva and sweat - and any of these fluids may be tested for their concentration of alcohol. Over 90% of alcohol must be metabolized or broken down and this occurs almost entirely in the liver. The alcohol is finally broken down to carbon dioxide and water. This has significance because of many popular beliefs concerning the rapid elimination of alcohol and in medico-legal situations.

12. It is difficult to estimate the likely BAC of any individual given a specific consumption of alcohol in a known period. Several factors affect the rate of absorption from the bowel such as the presence or absence of food and the rate of gastric emptying. Moreover, the size of the individual determines the total volume of body water and therefore the actual concentration of a freely diffusible substance such as alcohol.

13. Attempts have been made, for public education purposes, to determine an average figure in relation to the number of standard drinks consumed. Recent studies[10] would suggest, in persons of average weight (65 to 75 kilograms) drinking in the fasting state, that a consumption of 10 grams of alcohol in one hour will cause the BAC to rise by 0.018 to 0.020 gms/100 ml. Alcohol is eliminated at a rate of 0.01 to 0.02 gms/100 mls per hour.

- Drugs other than Alcohol

14. Alcohol is of course just one of a multitude of drugs used for medical and non-medical purposes. What needs to be understood about the physiological effects of these other drugs is that they vary for each drug, they are complex and in cases where driving skills are impaired different drugs will produce a given degree of impairment at different blood concentrations.

- Interactions between Alcohol and other Drugs

15. Frequent reference was made in evidence to drug interactions, more particularly those occurring between alcohol and other psychotropic substances. Those drugs which have a sedative effect on the brain generally interact with alcohol either in an additive manner or by the phenomenon of potentiation.^11 Evidence^12 submitted and published literature^13 indicate universal agreement that alcohol interacts with certain drugs and increases the degree of impairment of driving skills. Appendix 1 details the effects of some drug interactions with alcohol.

16. Evidence^14 was also presented on the effects produced by the combined use of alcohol and cannabis preparations such as marihuana. Recent work^15 indicates that alcohol and cannabis act pharmacologically in an additive^16 way (see paragraph 26).

Effects on Behaviour

- Alcohol

17. The most important effect of alcohol seems to be its effect on the brain, particularly with respect to the processing of information. Alcohol severely restricts the amount of information that the brain can cope with at any one time. Thus, there is little effect on the ability to perform a single task, such as, signal detection or tracking or on reaction time. However, any of these tasks suffers very significant impairment if it becomes the secondary task when attention is divided. Thus if an alcohol affected driver concentrates on keeping the car positioned correctly on the road (a tracking task), he can do it reasonably well. Nevertheless, the probability that he will then notice some other event - such as a pedestrian crossing the road, or a traffic light changing - is markedly reduced.

18. If the driver's attention is distracted to some other task - such as retrieving a dropped cigarette - then the tracking task (keeping the car on the road) becomes the secondary task, and the car may well leave the road.

19. It is well known that alcohol affects temperament, usually by causing drinkers to be more at ease socially, more uninhibited in their behaviour, and less concerned with the consequences of their actions. Translated to the road, this may mean that alcohol impaired drivers drive faster, take more risks, and are less inhibited by the need to take account of road rules, traffic control devices, and other road users. The research evidence for this phenomenon is poor as many of these things can be explained by the driver's impaired perception of the various elements of the driving task. It has nevertheless been shown that alcohol plays a part in a high proportion of crashes involving irresponsible behaviour. A recent study in New Zealand of drivers involved in fatal crashes suggests that 65% of those drivers described as feeling drowsy or who had fallen asleep had taken alcohol, as had 60% of drivers travelling at excessive speeds, 44% of drivers who did not stop after the crash, 40% of drivers failing to keep to the left, and 38% of drivers who were overtaking."[17]

- Drugs other than Alcohol

20. Drugs may cause impairment or improvement in driving. Impairment may be caused by the presence of the drug, withdrawal of the drug, its interaction with another drug, or physical or mental disease due to or associated with drug use. Any impairment resulting from physical or mental disease may be further compounded if an impairing drug is also present. S o m e patients may on the other hand be improved in their driving performance by the appropriate use of psychotropic agents. For example, some individuals who suffer from psychological and psychiatric disturbances, such as depression, anxiety and

schizophrenia, would have a high risk of crash involvement if their emotional state was not improved. While there is no epidemiological evidence to confirm such a speculation, it would seem to be a reasonable proposition.

21. Drugs affect behaviour in a variety of ways: such as concentration and attention; the functioning of the eyes, ears and other senses; the passage of signals from sensory organs to the brain; the processing of information within the brain; and the translation of decisions made in the brain into appropriate action.

22. Some studies[18] have been made of the effect of drugs other than alcohol on skills thought to be important in driving. The general finding is that some but not all drugs cause impairment in such skills. Most work has been done on cannabis and diazepam (Valium) and it is clear that those two drugs do cause impairment of driving skills. The mechanism of impairment is still not clear however. The mechanism of impairment is known to be different for different drugs. For example, cannabis seems to impair concentration and attention, but not the processing of information in the brain, which is the main mechanism by which alcohol impairs performance.

23. The degree of impairment is also not well established. Available data[19] suggest that the level of impairment with usual doses of most drugs for which some evidence of impairment exists is comparable to BACs of the order of 0.07 or 0.08 gms/100 mls. This would imply that these drugs are a potential road safety problem, but alcohol remains the more serious problem.

24. These experiments have been carried out using healthy subjects. It may nevertheless be true that some patients, such as highly anxious patients, taking some medication (such as diazepam (Valium)) would be safer taking the medication than not taking it.

25. Of all the drugs used for non-medical purposes in the community, cannabis has received most attention for its possible role in traffic collisions. Cannabis is known to affect driving adversely. The impairment has been measured for periods of up to several hours after the 'high' has receded; a cannabis user may therefore be a hazard on the roads long after he has ceased to feel affected.

- Interaction between Drugs, Including Alcohol

26. It is known that many drugs have additive effects on the impairment of driving skills when taken together. Of particular concern is the combination of alcohol and diazepam (Valium) and the combination of alcohol and cannabis. The level of impairment involved in such combinations is quite high, suggesting that this problem is likely to be of more significance than the problem of diazepam (Valium) and cannabis used on their own. Little data exist on the behavioural impairment due to combinations of other drugs.

Detection and Measurement of Impairment by Alcohol

27. There are several different ways in which impairment can be measured:

- observation of driving;
- performance tests;
- blood alcohol measures;
- breath alcohol measures;
- counting drinks.

All of these techniques are appropriate for different circumstances.

- Observation of Driving

28. Alcohol affected drivers frequently drive at speeds that are too slow or too fast for the conditions, swerve, judge gaps and speeds poorly, and take risks. Most importantly, they have difficulty in performing more than one function at a time. Therefore, they frequently fail to see signs, signals, pedestrians, and other vehicles. Two problems with observation of driving as a basis for assessing alcohol impairment are that such driving could be due to factors other than alcohol, e.g. a diabetic condition, and that it is not a sensitive indicator of impairment.

- Performance Tests

29. Alcohol impairs performance on many tests such as standing-steadiness, simple and choice reaction time[20], manual dexterity, hand steadiness, and steadiness of eye movements. Tests of intellectual functions such as numerical reasoning indicate impairment and so do various tests of perceptual functions.

30. In California a study of the performance tests most predictive of BAC suggested that a battery of tests involving gaze-nystagmus[21], balance standing on one leg, and walking a straight line and turning, provided a very accurate prediction. Gaze-nystagmus was the single most important indicator of an alcohol effect on a function necessary for safe driving.

- Blood Alcohol Measures

31. Alcohol leads to impaired driving through its action on the brain and, since alcohol must be transported to the brain in the bloodstream, measuring the quantity of alcohol in the blood provides a measure of the magnitude of the effect on the brain.

32. Blood alcohol concentration (BAC) is measured in terms of the weight of alcohol in a specified volume of blood. Units used in the measurement of BAC are discussed in paragraph 42. The advantages of BAC as a measure of impairment are that it is objective, reliable, and sensitive.

33. It should be noted that, while BAC is an important indicator of impairment, it is not a perfect indicator. It nevertheless remains the single most satisfactory measure for legal purposes (see also paragraph 40). There is evidence for both acute and chronic tolerance effects.[22] Acute tolerance means that, if two people drink to the same BAC and one drinks quickly and reaches that BAC in a very short period but the other drinks slowly and takes longer to reach that same level, the one who drank quickly will be more impaired than the one who drank slowly, even though they would both be at the same BAC and the slow drinker would in fact have consumed more alcohol. Chronic tolerance means that, if two people drink to the same BAC and one has been drinking regularly to high BAC levels for a long period but the other is usually an occasional or very light drinker, the latter will be more impaired than the heavy drinker, even though the BACs are the same.

34. During the phase when BAC is rising values may be different in samples of blood taken from different parts of the body. This is of particular significance when blood samples are taken from the heart chambers during post-mortem. If the driver had only just finished his drinking before he was killed, then such a procedure would result in a higher BAC than would a BAC obtained in the normal way (from a vein).

- Measurement of Alcohol in the Breath

35. A small proportion of alcohol in the body is passed into the lungs and expelled in the breath. Measurement of the concentration of alcohol in air in the lungs is therefore an

indirect way of measuring concentration of alcohol in the blood, and hence the amount affecting the brain. The advantages of using such a measure are that analysis can be performed relatively quickly and it is feasible to train laymen to carry out the analysis. Disadvantages are that the relationship between the amount of alcohol in the breath and the amount in the blood varies from one person to another, and to avoid the contaminating effect of alcohol in the mouth, a certain period of time (usually 10 to 15 minutes after the last drink) must elapse before the measurement can be made.

36. Breath analysis results are usually expressed as the equivalent BAC, rather than in terms of actual concentration of alcohol in the breath.

- Amount of Alcohol Consumed

37. Theoretically the degree of impairment may be estimated from a knowledge of the amount of alcohol consumed but many problems arise. A drinker may not know how much alcohol he has consumed, and even if he does, may not reveal this information accurately to another person. The relationship between amount consumed and BAC also varies from person to person. Factors that have been suggested as relevant include the amount of water in the body tissues (which in turn is related to body weight and the amount of fatty tissue) whether food is consumed and if so, what sort of food, how much food, and how recently consumed; whether the drink is carbonated or not; the alcohol content of the beverage; the rate at which the contents of the stomach pass to the small intestine; and the rate at which the liver processes the alcohol. The advantage of this measure is that it needs no special apparatus, and can be used to predict in advance whether impairment is likely.

- Which Measure?

38. The appropriateness of each of these methods of measuring impairment varies according to needs and circumstances. If a breath or blood alcohol measure cannot be made, observation of impaired driving and to some extent, impaired performance on other tasks, is used by police to assess the degree of impairment.

39. People killed or admitted to hospital with injuries may be subjected to a test to measure the concentration of alcohol in the blood.

40. Police generally use breath analysis[23] to obtain a BAC reading as a measure of the degree of impairment of drivers. This measure is sufficiently objective to obviate many kinds of legal challenge, and is sufficiently easy to administer to allow large numbers of suspected impaired drivers to be tested.

41. Counting the number of drinks consumed provides only a rough indication of the drinker's level of impairment. However it is currently the only practical method available to the general public. Publicity and education material therefore advises drinkers how they can use this method to regulate their drinking before driving or to decide whether they should drive after drinking.

- Units of Measurement

42. Blood alcohol concentration (BAC) is measured in terms of weight of alcohol in a specified volume of blood. Alcohol is usually measured in grams or milligrams and blood in units of one litre or 100 millilitres.[24] Units of grams per 100 ml, milligrams per 100 ml, or grams per litre are in common use in research literature[25] Legislation and publicity generally use

the units of gms/100 ml. This has sometimes been expressed as a percentage. Thus, 0.05 gms/100 ml, 50 milligrams/100 ml, 0.5 gms/litre, 0.05% and 50 mgs% all refer to the same concentration.

43. The use of such a system of units has some advantages. The most important is that the public have apparently come to recognise a number such as '.05' or '.08' as referring to a BAC[26] even in the absence of any other information. Considerable effort has been devoted to publicizing these figures.

44. Australia, as a signatory to the International Metric Convention, is committed to adopt the SI (Systeme International)[27] system of units, and the appropriate measure of BAC will then be millimoles per litre.[28] Conversion from the present system is by a mathematical formula. For example, a concentration of 0.05 gms/100 ml is 10.8696 millimoles per litre. It was suggested to the Committee that Australia should adopt the unit 'millimoles per litre' to describe BAC in research reports, legislation and publicity in the near future.[29] In the recent response to the Senate Standing Committee on Social Welfare Report on **Drug Problems in Australia**[30] the Government stated that the introduction of SI units will be supported and sponsored through the Australian Transport Advisory Council (ATAC) when this change becomes appropriate. The United States of America has decided not to accept the metric system of units and no other country has as yet decided when to adopt SI units in road safety legislation.

45. At present laboratories which process drivers' blood samples give the results in SI units, and there is possibility for confusion, particularly on the drivers' part. The Committee recommends that:

- **the laboratories which process drivers' blood samples be required to provide the results in grams per 100 millilitres as well as in millimoles per litre.**

Detection and Screening of Drugs other than Alcohol

46. The breathalyser provides a quick and accurate means of estimating BAC. There is no instrument comparable to the breathalyser for use in detecting drugs. In many cases it may be difficult to detect a drug and elaborate and expensive equipment is required. Immediate results are not readily available. The samples needed for detection and measurement of drugs are usually blood or urine and these introduce problems of collection, labelling and storage. In the foreseeable future, analyses for the detection of drugs in the body fluids will remain largely a research undertaking with limited medico-legal application.

47. There are some studies which correlate the blood concentration of a drug to the degree of driving impairment. This is particularly so with benzodiazepines and cannabis. There is however conflict in reported results.[31,32] Often the studies refer to the doses of a drug but not to blood levels so that a true quantitative relationship between drug concentration and effect cannot be determined. The Committee concludes that this area warrants further research and funding.[33]

48. The Committee recommends that:

- the Departments of Transport and Health initiate and support research into whether specific drugs other than alcohol impair driving related skills, the degree of impairment at usual dosage levels, the relationship between dosage level and impairment, the mechanism of impairment, and the techniques for the detection of drugs potentially important as a hazard on the roads, especially cannabis and diazepam (Valium); and

- the Departments of Transport and Health initiate and support research into which drugs when combined with alcohol impair driving related skills, the degree of impairment, the mechanisms of impairment, and the relationship between dosage level and impairment.

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CHAPTER 2

INVOLVEMENT IN ROAD CRASHES

Alcohol

- Fatalities

49. In 1979 3,506[34] people were killed in road crashes in Australia.[35] At least one third of all adults killed, that is about 1000 people in 1979, would have had significant concentrations of alcohol in their blood.[36] Furthermore, many of those unaffected by alcohol would have been killed in crashes involving a driver who was affected by alcohol. Research suggests that alcohol is a factor in 50% of crashes involving a fatality.[37] It is generally accepted that these statistics are a minimum estimate of the involvement of alcohol in road crash fatalities.

50. Probably the best data available in Australia on alcohol involvement in fatal crashes come from Tasmania. In Tasmania police obtain a breath or blood alcohol reading from all drivers involved in all crashes involving injury.[38] The Tasmanian statistics for 1977 show that alcohol was a factor in 48% of crashes involving a fatality and in 50% of the consequent fatalities.[39] They also indicate that in roughly half of deaths involving an alcohol affected driver, rider or pedestrian, the person affected by alcohol was himself killed; in the other half the person killed was another road user. If the same relationship holds throughout Australia, then of approximately 3,500 persons killed in Australia each year on the roads, about 25% (or 875) are persons affected by alcohol who themselves die in a road crash, and 25% (or 875) are other people killed by a drink driver.

51. The Tasmanian data have two deficiencies. Firstly, they are probably understated because a measurement of BAC at the time of the crash is unlikely to have been obtained for all seriously injured drivers who died some time after the crash. (Coroners' reports would be incomplete for the same reason.) Secondly, the Tasmanian statistics represent a relatively small sample.

52. Research studies have suggested that 40% to 55% of drivers killed have significant BACs^40 at the time of the accident. The proportions of other road users, that is, percentage of people over 14 years of age only, with such BACs when killed in road crashes have also been shown to be high, for example:^41

passengers	- 25 to 40%
motorcyclists	- 25 to 30%
pedestrians	- 25 to 30%.

- Injuries

53. In 1977 over 91,600 people were injured in more than 67,500 reported road crashes in Australia.^42 At least one active^43 participant in 34%^44 of these crashes would have had a significant BAC^45. This statistic is based on data from the Adelaide In-Depth Accident Study^46 recently completed by the Road Accident Research Unit of Adelaide University. However, since at least one study has suggested that rural crash victims are more likely to have been drinking than urban crash victims^47 it is probable that an extrapolation from crashes in Adelaide to all crashes in Australia will lead to an underestimate of the contribution of alcohol.

- Crashes with Property Damage

54. There are no Australian data on involvement of alcohol in crashes in which no one is killed or injured. The presence of alcohol in persons involved in property damage crashes can only

be established if the police who attend the crash suspect that alcohol was involved and take a breath or blood sample. Data from the United States suggest that alcohol is a factor in 10% of such crashes.[48]

- Is the Incidence of Alcohol in Road Crashes Increasing or Decreasing?

55. It is not possible to make a reliable estimate of whether alcohol is becoming more or less important as a contributor to road crashes.

- The Need for Further Research

56. Despite the many studies already undertaken, much existing information lacks quality or direct relevance to the problem. The most important problems would seem to be that, firstly, much work has been done studying the victims, that is, those killed or injured. It is not possible to draw conclusions about crashes from victim-based data. Crash-based data would facilitate estimates as to whether the contribution of alcohol to road crashes is increasing or decreasing and thereby provide a measure of the effectiveness of the total effort put into alcohol and road safety. Further, insufficient attention has generally been paid to missing data, and the possible bias that produces. For example, autopsy reports of drivers killed only provide a valid blood alcohol measure for those who die very soon after the crash. For those who live more than a few hours, the BAC obtained at autopsy will significantly underestimate the BAC at the time of the crash. Similarly, results of compulsory hospital blood testing of those injured is of limited value for research purposes, due to the relatively high proportion of injured people from whom no sample is taken.

57. The Committee recommends that:

- **further research on the magnitude of the problem of alcohol and road safety involve 'crash' based data rather than 'victim' based data, and include determination of the blood alcohol concentration in all drivers, riders and pedestrians rather than only those killed or injured.**

58. Existing data clearly establish that research and countermeasure activity in the field of alcohol and road safety should have a very high priority. Further research with the sole aim of determining the precise magnitude of the contribution of alcohol to road crashes should therefore have only a relatively low priority.

- Is Alcohol a Causal Factor in Road Crashes?

(i) Exposure

59. It is not possible to say that alcohol is a causal factor in road crashes simply because some 50% of fatal crashes involve an alcohol affected driver, rider or pedestrian. It is necessary to know how many drivers on the roads have been drinking, so that the number of crash involved drivers who had been drinking can be compared with that figure. If the percentage of drivers involved in crashes who have been drinking is higher than the percentage of drivers on the roads at the same times and places, then alcohol is said to be 'over-represented' in crashes.

60. The first study undertaken in Australia to determine the degree of over-representation of alcohol in road crashes was recently completed in Adelaide.[49] Many similar studies have been carried out overseas. Analyses of the data invariably show

that risk of crash involvement is significantly increased for all drivers at BACs of 0.05 gms/100 ml and above (see Figure 2). The data collected in Adelaide follow the same pattern evident in Figure 2. With increasing BAC crash risk increases dramatically.

61. A recent study of the risk of involvement in a crash for intoxicated pedestrians has shown that the relative risk is over three times greater for pedestrians with BACs between 0.12 gms/100 ml and 0.15 gms/100 ml and over 14 times greater for higher BACs.[50]

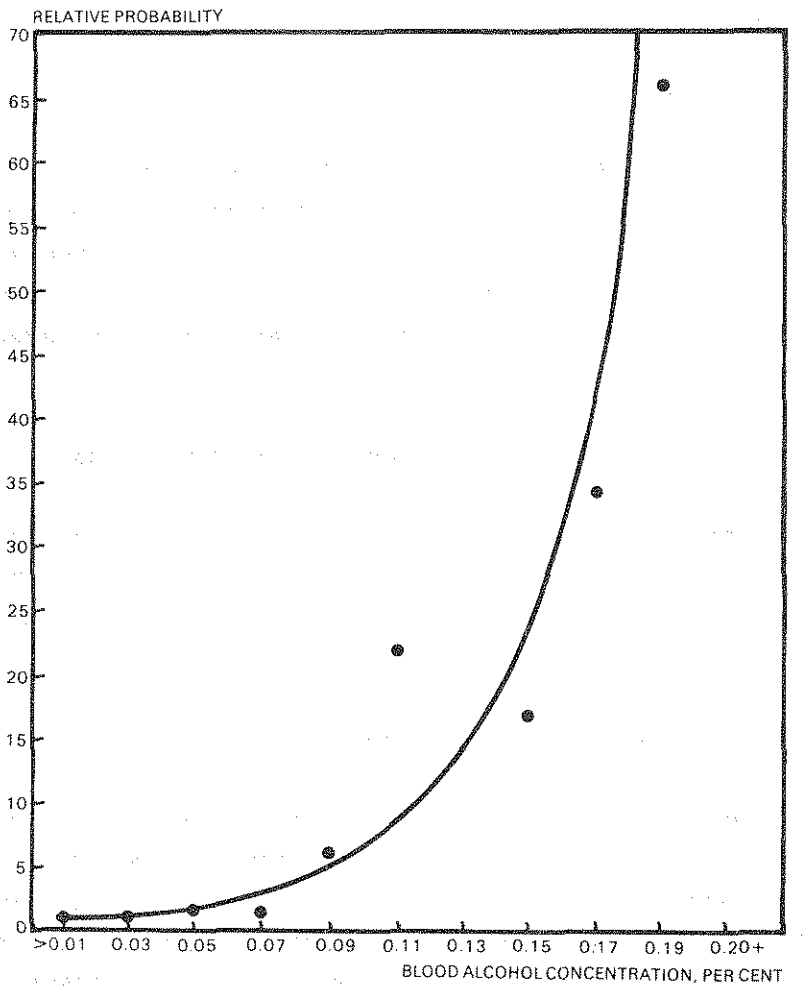
62. Of interest also are studies of the proportion of drivers affected by alcohol on the roads. A survey in Canberra in 1971 and 1972 showed that almost 5% of drivers had BACs of 0.08 gms/100 ml or more in the period 10 p.m. to 2 a.m.[51] A survey[52] completed in Adelaide in March and April 1979 showed that overall 8.4% of drivers had been drinking with 2.6% exceeding 0.05 gms/100 ml and 1.6% exceeding 0.08 gms/100 ml. In the period 9 p.m. to 3 a.m. on Thursday, Friday and Saturday nights 28.9% had been drinking with 16.1% exceeding 0.05 gms/100 ml and 11.7% exceeding 0.08 gms/100 ml.

(ii) Variables Influencing Risk of Crash Involvement

63. Research has indicated that not all drivers at a given BAC are at equal risk of crash involvement.[53] It has been demonstrated[54] that risk is affected by age and drinking habits (Figure 1, Appendix 2). The risk of crash involvement is greater for infrequent drinkers than for frequent drinkers. This greater risk applies to every age group, being especially marked for teenagers. Canadian studies have similarly shown that, at a BAC of 0.095 gms/100 ml, the level of risk for a 17 year old driver is 10 times the risk for a 30 year old driver.[55]

FIGURE 2

RELATIVE PROBABILITY OF BEING RESPONSIBLE FOR A FATAL CRASH AS A FUNCTION OF BLOOD ALCOHOL CONCENTRATION



Source: M.W. Perrine, J.A. Walker, & L.S. Harris, 'Alcohol and Highway Safety: Behavioural and Medical Aspects', NHTSA Technical Report, DOT HS-800-599, United States Department of Transportation, 1971, in OECD Road Research Group, New Research on the Role of Alcohol and Drugs in Road Accidents, September, 1978, p. 29.

64. The Committee is impressed with the potential value of research on factors that modify risk of crash involvement within the alcohol affected driver population. However, Australian data on crashes concerning the characteristics of alcohol affected drivers are not yet adequate to justify a recommendation that such research be conducted here.

65. The Committee recommends that:

- **the Department of Transport monitor overseas studies of factors modifying risk of crash involvement within the alcohol affected driver population and initiate research into such factors when Australian 'crash' based data are adequate.**

- Characteristics of Crashes Involving Alcohol

66. Alcohol related crashes are demonstrably different from others. Alcohol affected drivers are more likely to be injured in a crash. The severity of the crash and of the injury increases as the BAC rises.

(i) Single Vehicle Crashes

67. Studies in various States have found that in single vehicle crashes there is a high involvement of alcohol. This is so because single vehicle crashes are most likely to occur when the driver is driving irresponsibly, when judgement and skill are impaired and when the driver is drowsy. The road system has been so designed that a driver functioning normally is unlikely to be involved in a crash when no other vehicles are present.

68. Studies[56,57] have consistently found a high level of alcohol involvement in such crashes. The Adelaide In-Depth Accident Study[58] found that 56% of drivers in single vehicle

crashes had a BAC of more than 0.05 gms/100 ml, 50% had over 0.08 gms/100 ml and 33% over 0.15 gms/100 ml. The Study's findings on levels of alcohol involvement in specified types of crashes are shown in Table 1, Appendix 3.

(ii) Multiple Vehicle Crashes

69. Alcohol affected drivers tend to be involved less often and at lower BACs in multiple vehicle crashes than in single vehicle crashes.

70. The Adelaide In-Depth Accident Study[59] found that at least one active participant[60] exceeded 0.05 gms/100 ml BAC in 23% of multi-vehicle crashes to which an ambulance was called (see Table 1, Appendix 3). Tasmania Police data for 1977 indicate a higher level of involvement. They show that the driver or drivers had a significant BAC in 37% of 63 multiple vehicle crashes[61] (see Table 2, Appendix 2).

(iii) Urban and Rural Crashes

71. Alcohol affected drivers are more often involved in crashes in rural areas than urban areas. This is suggested by a Queensland study[62] and other evidence[63,64]. This may reflect differences in drinking and driving patterns, but it may also reflect the higher speeds generally involved in rural driving. At high speed the perceptual and decision making demands on drivers are greater in the time available to react to the unexpected and thus the effects of alcohol are more likely to result in a crash. Additionally, at high speed the probability that a crash will involve injury or a fatality is higher.

72. Country hospitals in both Victoria and South Australia have consistently shown higher proportions of road crash victims with BACs above zero than city hospitals[65] (Table 4, Appendix

3). A Victorian study[66] of more than 35,000 hospital blood samples taken from drivers found that the proportion exceeding 0.05 gms/100 ml BAC was generally higher in country areas, at 25.5%, than those in city hospitals, at 19.4%.

(iv) Time of Day and Day of Week

73. Crashes where alcohol is a factor mostly occur at night, particularly on Friday and Saturday nights. The Adelaide In-Depth Accident Study found that alcohol affected drivers were over-represented in crashes after 6 p.m. and that the percentage of alcohol affected drivers steadily increases until, in the early hours of the morning, over half of drivers involved in crashes to which an ambulance was called had BACs above 0.08 gms/100 ml. Many were single vehicle crashes.

74. Victorian statistics[67] show that over a period of two and a half years 68% of drivers killed in road crashes between the hours of 6 p.m. and 6 a.m. had been drinking. On Fridays and Saturdays during these time periods, over 75% had been drinking (Table 2, Appendix 3). Other Victorian statistics show that 82% of people treated in hospitals after a road crash where blood alcohol was positive had been involved in crashes at night (see Table 3, Appendix 3).

- Characteristics of Alcohol Affected Road Users in Crashes

(i) Introduction

75. Studies of the incidence in the population at large of physical trauma through accidents suggest that certain characteristics may be over involved in the accident group. Amongst lower socio-economic groups involving unskilled and semi-skilled workers there is a heavier incidence of accidental trauma than seems explicable by exposure to situations of high

risk alone.[68] Similarly, it is in these groups that the highest incidence of traffic crashes and traffic injuries occurs. It has been suggested that it is essential that characteristics of individuals involved in trauma-producing accidents of all kinds be studied in sufficient depth to enable identification of the groups who are most at risk, as a preliminary to devising means of reducing the degree of such risk where possible.[69]

(ii) Male Drivers

76. Drink driving crashes involve almost exclusively male drivers. Very few female drivers killed have significant BACs. A study of 96 drivers killed in single vehicle crashes in Queensland showed 65 had BACs above 0.05 gms/100 ml. Of these only four were females.[70]

(iii) Age

77. Internationally males under 40 years of age are considered most at risk of involvement in alcohol related road crashes.[71] Drivers under 30 years, particularly those under 25 years, are over-represented in data collected in Australia on fatal crashes, non-casualty crashes and drink driving arrests (Figure 1, Appendix 4). However, half of the drivers killed with a positive BAC are aged over 30 years.[72]

(iv) Occupation

78. A comparison[73] of the occupational status of drivers involved in crashes to which an ambulance was called in Melbourne showed that, of drivers who had been drinking, 75% were blue collar workers, 14% white collar workers, and 11% others, including pensioners and housewives. Of drivers in that sample who had not been drinking, 47% were blue collar workers, 36% white collar workers, and 17% others.

(v) Social Characteristics

79. There are probably several groups of drink driver: one group has been identified as generally anti-social, and for this group, drink driving is only one of the offences that bring them to official notice. Another group would seem to be basically problem drinkers. A third group combine both these attributes.[74] Social drinkers constitute the fourth and major group.

80. A substantial percentage of drink drivers involved in crashes and detected by the police are regular and heavy drinkers and are involved in other social trauma.

81. Alcohol is known to be a major factor in: several physical diseases; in mental illness; in the occurrence of crime, particularly crimes of violence; in family discord, including wife and child bashing; in industrial inefficiency; and in various kinds of occupational, recreational and domestic accidents.[75] It should be recognised therefore, that drink driving is just one of many problems associated with excessive drinkers. It may be unduly optimistic to expect to change behaviour with respect to drink driving by dealing with it in isolation from the management of the drinking problem as a whole.

82. In Brisbane an accident group of 216 was studied in two stages seven years apart. It was concluded that the accident group contained a core of individuals with criminal records, traffic violations, recurrent accident involvement, and problems with alcohol.[76] A study in 1967 by the Australian Road Research Board indicated that drivers under 25 years, with prior traffic convictions or with prior alcohol convictions, were all over-represented in accidents involving alcohol.[77]

83. Finally, it has been found in studies overseas that a history of previous crashes and convictions is closely correlated with drink driving offences and crashes. Drink drivers have had about three times more prior crashes than the average and about four times more prior convictions.[78]

- Pedestrians and Motorcyclists

(i) Pedestrians

84. A recently published landmark study[79] in Britain investigated the role of alcohol in pedestrian fatalities. By comparing BACs with a control sample, the risk associated with various levels of BAC was calculated. The data suggested that the effects of alcohol upon male pedestrian accident experience were not significant below 0.12 gms/100 ml. Between 0.12 gms/100 ml and 0.15 gms/100 ml the relative risk of accident was over three times that of a sober pedestrian, and at higher BACs, the risk was 14 times greater. For females, the relative accident risk for those over 0.12 gms/100 ml was over 36 times that of a sober female pedestrian. Impaired pedestrians (defined as those having a BAC greater than 0.12 gms/100 ml) comprised 27% of adult male pedestrian fatalities, and 7% of adult female pedestrian fatalities. If those proportions are similar in Australia, and they appear to be[80,81,82] then each year approximately 100 adult male and 10 adult female pedestrians are killed while impaired by alcohol.

85. The British study has also analysed the data for males by age and degree of impairment to calculate total impairment risk factors.[83] Impaired males aged 15 to 24 were 11 times more likely to die in a road accident than the average non-impaired male pedestrian. Impaired males aged 25 to 39 were at 1.66 times the risk, those aged 40 to 64 years at 7.5 times the risk, those aged 65 to 69 at 30 times the risk, and those aged 70 and over were at 45 times the risk.

(ii) Motorcyclists

86. Alcohol involvement appears to be an important factor in motorcycle crashes but may be marginally less significant than in car crashes.

87. Analysis of Court records, from 1975 to 1978[84], shows that 35.9% of motorcyclists killed and tested for blood alcohol had 0.05 gms/100 ml BAC or more while 20.5% had 0.15 gms/100 ml BAC. Both these percentages are lower than the corresponding figures for drivers. A Queensland study on autopsy reports (1968-1973) also suggests that about one-third of motorcyclists killed have BACs of 0.05 gms/100 ml or more.[85]

88. At the casualty level, 17% of motorcyclists taken to hospital after a road crash in Victoria have measurable blood alcohol.[86] The Adelaide In-Depth Accident Study showed that 50% of single vehicle motorcycle crashes to which an ambulance is called involved alcohol at a reading of 0.08 gms/100 ml BAC or over, with 33% over 0.15 gms/100 ml BAC. In 29% of multi-vehicle crashes involving motorcyclists one active participant had a positive BAC, with at least one participant over 0.08 gms/100 ml BAC in 18% of crashes. A noteworthy finding of this study was that, while only one of the 80 motorcyclists and pillion passengers did not wear a crash helmet, intoxicated riders often did not adequately secure the chin strap on their helmet and as a result helmets came off during the crash.[87]

Other Drugs and Road Crashes

89. Though objective data are limited there are reports of drivers obviously unfit to drive where the alcohol breath test is either negative or too low to account for their condition. It seems very likely that this condition in most cases is caused by

drugs other than alcohol. Although no statistics have been kept on these unexplained cases of impairment, feedback from traffic patrol officers indicates that the incidence has been increasing in the last few years.

90. It follows then that some drivers are under the influence of drugs to such an extent that they are incapable of properly controlling their vehicles. It is also reasonable to assume that some crashes and fatalities result primarily from this condition.

91. The range of drugs other than alcohol involved in road crashes is not known. There is no simple instrument comparable to the breathalyser to assess or screen for the presence of drugs and the involved laboratory tests required to test for all possible drugs have never been made on a representative sample of those involved in crashes in Australia. A study recently commenced in Victoria will involve testing such a sample. Some information has been obtained by responses to direct questions to individuals involved in road crashes. Information on the presence of drugs in crash involved drivers and pedestrians was collected in this way in the MIDAS[88] study in Victoria, (Table 1, Appendix 5). The Tasmania Police[89] reported that 11% to 15% of crash involved drivers had apparently taken a drug other than alcohol prior to the crash. In the Adelaide In-Depth Accident Study 9% of the 361 drivers admitted taking a prescription drug shortly before driving.[90] These figures are of limited value as there are no epidemiological data about the drug taking habits of drivers generally.

92. The Committee therefore recommends that:

- the Departments of Transport and Health initiate and support accelerated and expanded research into the involvement of drugs, particularly in combination with alcohol, in road crashes.

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38 Evidence, p. 2634 (Tasmania Police).
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71 Evidence, p. 1880 (ARRB, Victoria).
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CHAPTER 3

THE SOCIAL ENVIRONMENT

Drink Driving in a Broader Social Context

95. There are many social pressures which tend to support, even encourage, drink driving. The opposing forces, on the other hand, do not have a strong influence on a significant proportion of the community.

96. Penalties for drinking and driving are already quite severe yet the law is frequently and consistently disobeyed.[91] People gamble with both their chances of being caught and of having a crash and perceive the odds as worth the gamble.

97. Drink driving, while at high BACs involving perhaps up to a hundred times higher risk of crash involvement than comparable sober driving, is in absolute terms still not a very hazardous activity. It is possible to drive frequently after drinking for several years without involvement in a serious crash. Most regular drink drivers know this to be so, and consequently rate the risk of crash involvement as relatively unimportant, when compared to the very strong social pressures leading to drink driving. It is, apparently, not possible to persuade regular drink drivers that the risk of a crash is high. It is possible to increase the risk of apprehension for drink driving, and that can apparently tip the balance of pressure towards not driving while impaired. However, examination of the determinants of drink driving behaviour must involve consideration of the value of reducing the environmental pressures towards drink driving.

98. Alcohol has an entrenched role as a facilitator of both leisure time relaxation and social interaction with much consumption occurring in a place other than the home. Alcohol consumption is regarded by many as an activity of considerable social importance. A favourable impression can be created by demonstrating one's capacity to ingest large amounts of alcohol and a subsequent ability to remain unintoxicated and 'unimpaired' as a result. For the individual who realises that he is affected by alcohol, self-esteem usually demands that he try to conceal the effects. Peer group pressures can be a strong influence on drinking and driving practices. For example, the pressure to drink in 'shouts' in bars is strong and leads to many people drinking large quanitites of alcohol, often before driving, primarily to keep up with their mates. It is also likely that the drinking and driving problem will continue to be complicated by a general or alcohol induced ignorance of the poorer performance resulting from alcohol consumption.[92]

99. The motorist who breaks a drink driving law but is not involved in a serious crash resulting in injury is not seen as an anti-social criminal but a basically law-abiding citizen. The police have therefore been placed in the difficult position of trying to enforce road laws which are unpopular and often disregarded. Police may be reluctant to enforce such laws vigorously for fear of losing public cooperation and acceptance in investigating other crimes.[93]

100. The Committee concludes that permissive community attitudes to drinking and driving are a fundamental impediment to other measures aimed at minimising the drink driving problem. Strenuous efforts must be undertaken to minimise hazardous drink driving and they must have as their primary long term objective the modification of community attitudes.

The Special Problems of Young Drivers

101. These community attitudes which tend to support, even encourage, drinking and driving frequently bear most heavily on the young. All the attributes of the stereo-type Australian male are reflected in the ability to 'hold one's drinks'.[94] These attributes include adultness, sociability, manliness and virility. These attitudes and beliefs are most directly brought home to the older adolescent by his peer group who press him to conform. The adolescent is in a state of physical and psychological transition from childhood to adulthood, but there is tremendous pressure on him to assume an adult role quickly. Drinking helps reinforce his image of himself as an adult and his claim to adult status. He may also feel compelled to drink, even to excess, in order to ensure acceptance by his peer group.[95] There is also a tendency for the young to drive up to and beyond the limits of their driving ability in order to impress their peer group. The effects of excess drinking are, of course, aggravated in the adolescent driver because of his inexperience and because his driving ability is likely to be impaired at lower BACs than in older, more experienced drivers (see paragraph 63).

102. Drinking often begins and is initiated in many homes at about 14 to 15 years of age. The location then changes to settings outside the home, such as hotels or car parks. More adolescents are taking up the use of alcohol at an earlier age than any other drug.[96]

103. Centres of entertainment have changed in the last decade. It was once unlikely that entertainment for adolescents would be attached to a hotel or that a dance venue such as a disco would be licensed. These are now common place. Furthermore, the other alternatives appear to hold less attraction for many of the people within this age group.[97]

104. The Committee concludes that the young driver faces many pressures to drink and drive and that the need to reduce these pressures must be a high priority.

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91 Evidence, pp. 1860-76. Dr M.G. Lay, 'Road Accidents - A Community Problem', ARRB Internal Report AIR 000-104, April 1978.
92 Evidence, p. 2177 (C.D. Robinson, Melbourne).
93 Evidence, p. 684 (W. Clifford, Canberra).
94,95 & 96 Evidence, p. 1505 (Drug and Alcohol Education Project Team, University of N.S.W.).
97 Evidence, p. 3634 (Road Safety Council of S.A.).

CHAPTER 4

LEGISLATION AND ENFORCEMENT

Alcohol

103. The most significant form of legislation is that prescribing the level of blood alcohol at which a person is prohibited from driving. Currently the States have different legislative approaches to drink driving and different interpretation at the judicial level.[98] The position is summarised in Appendix 7 which contains details of the legislation in each State, the offences relating to vehicle use and determination of the BAC, relicensing of the disqualified drink driver, penalties for alcohol related offences, and proclamation and introduction dates for breath tests, breath analysis and blood analysis legislation.

104. All States and Territories have legislation which prohibits persons from driving or attempting to drive a motor vehicle after consuming alcohol to the point where they exceed the prescribed limit or are judged to be under the influence of alcohol. The police are authorised to require a driver to undergo a breath test if he was involved in an accident or if the police suspect that he was under the influence of alcohol. On conviction, the drink driver faces a range of penalties which are intended to act as sanctions and as deterrents to future drink driving offences. In recent years legislation regarding the compulsory taking of blood samples from road crash victims attending hospitals and random breath testing on roads has been proclaimed in some States.

105. The difference between the proscribed BAC in Victoria (exceeding 0.05 gms/100 ml), Tasmania (exceeding 0.08 gms/100 ml) and the rest of Australia (equal to or exceeding 0.08 gms/100 ml) is not considered important in itself. However, in the public mind it may detract from the credibility of the law. The difference is also an impediment to national publicity campaigns.

- Deterrence and Penalties

106. Traditionally, deterrence has been conceived as either general or specific. Specific (personal) deterrence is the impact of legal punishment on those who have suffered it, while general deterrence is the impact of the threat of punishment on the public at large.

(i) Specific Deterrence

107. It has been calculated that 20 to 25% of convicted drink drivers are eventually reconvicted for the same offence, the majority of them within five or six years.[99] Table 1 in Appendix 8 shows the proportion who are reconvicted in each year. Thus 75 to 80% of convicted drink drivers are never convicted for drink driving again. It is possible that the mere fact of being charged and convicted has had some effect on these people. There are no research studies to verify this, but it seems likely to be true in many cases.

108. It is important to know whether any specific type or severity of penalty can add to the deterrence effect of being charged and convicted for the 20 to 25% who re-offend. There are some research studies that have examined this point with specific relevance to drink driving. Research studies consistently show that no penalty has any more deterrent effect than any other on such offenders.[100]

109. This in part reflects the fact that those addicted to alcohol are not able to change their drinking patterns. For other re-offenders, it may be that the social factors leading to drink driving are too strong to be overcome, no matter how strong the desire to avoid reconviction.

110. The Committee concludes that increased penalties for drink driving offences in Australia are unlikely to be more effective than present penalties in deterring the 20 to 25% of convicted drivers not affected by present penalties from re-offending.

(ii) General Deterrence

111. General deterrence is relevant mainly to those who are normally law abiding and discourages them from developing dangerous patterns of behaviour. Legislation and enforcement need to have a general deterrent effect to be justified. That is, they should deter those who drink and drive but who have not been caught rather than aiming only at convicted offenders.[101]

112. There is some evidence that penalties which are generally regarded as too severe can be counter-productive. A study of the effects of severe penalties in a New South Wales country town suggested that there was no effect on the number of crashes, but a lower proportion of crashes were reported, and a lower proportion of drivers were charged after crashes compared to areas where penalties were less severe.[102]

113. It needs to be stressed that the chances of escaping conviction once charged with drink driving are remote but the chances of escaping detection are considerable. This is the crux of the matter. This has been cited as the reason for the failure of extremely harsh penalties to have a general deterrent effect in Sweden.[103]

114. Various organisations and researchers have commented before on the generally inadequate amount of valid research on the effectiveness of various levels of road legislation enforcement.[104] A study in the United States showed that a high level of enforcement led to a significant reduction in personal injury, but not in fatal accidents.[105]

115. In 1967, in the United Kingdom, legislation[106] was introduced to allow police to use a breathalyser as a preliminary screening device and a subsequent blood test result as evidence of driving over the prescribed BAC. It was expected that this would raise the probability of conviction and that the police would proceed with more charges. A general deterrent effect was predicted. A comprehensive evaluation was carried out and it was found that the introduction of the legislation was accompanied by a large reduction of total fatalities, most marked at peak drink driving times - early morning hours of the weekends. Moreover, the proportion of fatally injured drivers with elevated BACs dropped by almost half in the first year. This effect, however, was short-lived. The proportion with elevated BACs subsequently returned to its earlier level. It has been argued that drivers initially overestimated the chance of detection, but reverted to their more customary behaviour as their expectations settled at a more realistic level.[107]

116. An Australian study of the effectiveness of breathalyser legislation was undertaken in the Australian Capital Territory in 1971 and 1972 where roadside measurements of random samples of drivers were taken before and after the legislation was introduced.[108] The proportion of drivers on the road with elevated BACs did not decrease as a result of the legislation. The study did not, however, examine crash data.

117. The Committee concludes on the available evidence that the effectiveness of penalties as a general deterrent is heavily reliant upon the drink driver's assessment of the likelihood of

his being apprehended. Enforcement activity must therefore be aimed at raising drivers' estimations of the probability of detection, and maintaining them at a high level.

118. Recent attempts by some States to raise the level of detection and enforcement levels include hospital testing for alcohol in road crash casualties and 'random breath testing' of drivers.

- Random Breath Testing

119. In Australia, the most controversial question of law enforcement concerned with drinking and driving is the extent of powers to be conferred on police to require persons to undergo tests for BAC. The question of random breath testing in particular is a vexed one, because of the civil liberties issues involved. Victoria and the Northern Territory[109] have random breath testing and South Australia is considering its introduction.

120. Strictly speaking random breath testing permits policemen to stop cars at any time or place even in the absence of reasonable grounds for suspicion. In most cases random breath testing involves police officers being located at times and in places where drinkers are most likely to be driving so that a highly selective process of apprehension is adopted. The most suitable and widely understood definition of random breath testing is:

> '...the facility whereby police may conduct road side tests on any driver or person who has been driving or attempting to drive. No pre-condition of conduct, accident or offence on the part of a driver would be necessary. No significant interposition of reasonable cause or judgement by the police would be required.'[110]

121. Swedish experience suggests that the introduction of random breath test laws, not accompanied by an increase in police resources and not widely publicized, does not increase drivers' perceptions of the probability of detection.[111]

122. Some witnesses suggested that random breath testing would not result in an improved rate of detection of drink drivers and that it was better to have police on the road to intercept the driver who is clearly impaired.[112] While this may be true, the purpose of random breath testing is not to increase the number of people convicted for drink driving, and criticism that it is not an efficient method of doing that is irrelevant. Its main target is the drink driver who believes that his driving is not obviously affected by what he drinks (see paragraph 96). A second group who could be affected by random breath testing are those drinkers who are unsure as to whether their BAC exceeds the legal limit. If the police patrols only stop and test those obviously affected, many drink drivers believe that they have no chance of being stopped. The purpose of random breath testing is to show such people that there is a chance that they will be stopped and tested, whether their driving is obviously affected or not. It was for these reasons and because of the ineffectivness of traditional enforcement measures that the Expert Group on Road Safety recommended the introduction of random breath testing.[113,114]

123. Evaluation conducted by the Victorian Road Safety and Traffic Authority in conjunction with the Victoria Police has established that random breath testing can have a very significant deterrent effect.[115] The four principal conclusions of the study are quoted here in full:

- 'Intensified random breath testing and the associated publicity in Melbourne between October and December 1978 resulted in substantial reductions in the risk of road accident fatalities

and serious casualty accidents at night. The effect was predominantly in the areas and during the weeks of intensified operations, with residual effects during subsequent weeks.

- 'Reductions in alcohol involvement among driver casualties from single vehicle accidents closely followed the reductions in risk of fatalities and serious casualty accidents at night. These parallel reductions suggest that the reductions in risk were, at least in part, due to a reduction in the proportion of drivers on the road with elevated blood alcohol levels.

- 'The absence of an apparent effect on alcohol involvement among driver casualties from multi-vehicle accidents at night may have been an artefact of the method of analysis.'[116]

- 'The intensified random breath testing apparently operated by increasing the perceived risk of detection of a drink/driving offence (BAC exceeding 0.05 gms/100 ml) for drivers not obviously impaired.'[117]

124. Since the object of random breath testing is to raise the drinking drivers' perception or assessment of the risk of his being apprehended, it is self evident that the introduction of random breath testing must be accompanied by widespread publicity.

125. Random breath testing legislation, as it was used during the evaluation in Victoria (in short, intense bursts, accompanied by widespread publicity) has been shown to be most effective in reducing alcohol related crashes. It is not established that continued low level enforcement of such legislation would be

effective, nor is it certain that even short intense bursts will continue to be effective. Nevertheless, the Committee concludes that the potential value of random breath testing legislation is such that all States and Territories should introduce it.

126. The Committee therefore recommends that:

- **random breath testing legislation be introduced in all States and Territories.**

- Increasing the Numbers Actually Detected and Convicted

127. There are approximately 60,000 convictions for drink driving offences throughout Australia each year. In 1975 in New South Wales, 43% of appearances before courts of petty sessions were for drink driving offences. Nevertheless, the probability of detection for drink driving is still very low.[118] Three measures have been proposed for raising the numbers detected.

(i) Extra Police Patrol Activity

128. While increased patrol activity would no doubt increase drivers apprehended it is doubtful whether sufficient resources could be diverted to this activity to permit an increase of sufficient magnitude to raise significantly drivers' perceptions of the risk of apprehension.

(ii) Testing of all Drivers Involved in Reportable Crashes

129. It would be possible to detect more drink drivers if the police tested all drivers involved in crashes. At present in Tasmania[119] the policy is to alcotest all drivers involved in reportable crashes. States that do not have such a policy

probably detect only about half of the alcohol affected drivers.[120,121] The Tasmanian experience demonstrates that it is possible to have a policy of testing all drivers involved in reported crashes. One problem with such a policy may be that it would increase the pressures on alcohol affected drivers to leave the scene of a crash before police arrive.

(iii) Hospital Testing for Alcohol

130. Legislation requiring the taking of blood samples from all injured casualties (over 14 or 15 years of age) coming to hospital for treatment after a road crash was initiated because surveys showed that some believed they would avoid apprehension by going to hospital casualty departments. This legislation is in force in South Australia[122] (1973), Victoria (1974) and the Northern Territory (1980). Enabling legislation has been passed in Queensland but compulsory blood testing has not been introduced.

131. A study[123] in a major Victorian hospital showed the expected association between BACs and drinking patterns. These findings indicated that the determination of BAC in hospital casualties following road crashes can be used to detect those with drinking problems, especially males under the age of 30 years.[124] However, it has not proved possible to date to make any satisfactory use of this 'case-finding' technique. Compulsory hospital testing as it presently operates in some States has proved very costly, logistically very complex, and would seem still to have problems.

132. The Institute of Ambulance Officers (Australia), Victoria Division, indicated that:[125]

> . tow truck operators may be influential in persuading less seriously injured people to avoid transport to hospital so a blood sample cannot be taken; and

- police may not be notified due to the driver's fear of prosecution for drink driving.

(iv) Conclusions and Recommendation

133. The options for increasing the numbers convicted seem to be to increase police patrol activity or to test more of those involved in crashes. Both would involve very high cost, in terms of extra police manpower and extra court facilities. The calls for the detection of more crash involved drivers seem to be based on a retributive model of enforcement policy, that is, those causing injury to others deserve to be punished. It has been established[126] that compulsory hospital blood alcohol testing does lead to some drivers avoiding transport to hospital. It is possible that fear of what a breathalyser might show would motivate some drivers not to report a crash.

134. From the general deterrence point of view, testing crash involved drivers has little to recommend it. Drivers generally discount the likelihood of crash involvement, and a probable breath or blood test under such circumstances is unlikely to contribute significantly to a general deterrence effect.

135. The Committee recommends that:

- **studies of the general deterrence effect of various levels of police patrol activity should be carried out in a limited area, with a view to determining the probable effect of increased resources for police patrols.**

- Time Limit for Testing for Alcohol

136. All States[127,128] prescribe the time after driving within which a breath or blood measure should be obtained. This varies from two hours in some States to four hours in others.

One reason for such a restriction is to reduce the likelihood of a defendant claiming that something happened between driving and being tested that increased the BAC, which would therefore not have been above the legal limit at the time of driving.

137. In practice the only thing a defendant could do between driving and being tested that would increase the BAC would be to consume more alcohol.

138. One problem with time limits is that they result in some clearly alcohol affected drivers avoiding prosecution on a purely technical ground.

139. If time limits were to be removed, or increased, then a problem that would come to more prominance (though it exists already) would be that drivers (particularly those who had been involved in a crash) may consume alcohol afterwards and thereby invalidate the BAC measurement taken. It may be considered unreasonable to require of drivers that they abstain from drinking alcohol for an indefinite period after involvement in a crash.

140. Some compromise is necessary between the need to stop alcohol affected drivers avoiding prosecution on purely technical grounds, and the need to avoid unreasonable requirements being imposed on drivers who are involved in crashes. The Committee recommends that:

- **the maximum time after an alleged drink driving offence in which a test can be required should be four hours.**

Drugs

141. As indicated in Chapter 1 there is a threat to public safety of undefined magnitude from drivers under the influence of drugs. There is a need to assess the efficiency of legislation

as a countermeasure. The important barrier to legislation is the difficulty of enforcing it. Legislation may prescribe a ban or limit on the intake of certain drugs but it would be difficult to detect and convict offenders at present[129] because of the problems associated with the measurement of drug concentrations in the blood and relating this to the degree of driving impairment (see paragraph 91).

142. In order to carry out a comprehensive screen which embraces a wide range of drugs, it is essential to have at the chemist's disposal all the modern techniques of drug detection and, equally important, the instrumentation which will enable the application of those techniques to provide unequivocal identification. It is also very costly. An important factor in this work is that not only must a drug be detected but its identity must be established beyond doubt. Because the range of drugs which could be encountered is so wide, it may be necessary to use a comprehensive drug screen involving several highly sophisticated, time consuming and costly techniques to obtain the specificity required for drug detection and identification.[130]

143. Another problem which confronts the analyst is that some drugs are not readily detected in blood. One such drug is morphine which has eluded detection in blood even in fatal overdose cases. For detection of such drugs it is often necessary to use a sample of urine.

144. The difficulty of interpreting any level of drug concentration in the blood is a further significant barrier to effective legislation.

145. What makes the task difficult is that many drugs produce unpredictable levels of concentration in the blood and the effect of a given quantity varies widely from person to person. It is difficult therefore to provide in legislation that it shall be an offence to drive at or above prescribed blood concentrations of

particular drugs. It appears that, with present knowledge, the only way in which evidence of the presence of drugs in blood or urine could be used for obtaining a conviction is in conjunction with evidence of impairment.'[131]

146. Further questions which it would be desirable to have answered before new legislation can be adopted are: what drugs should be prohibited entirely or at specified dosage; in the latter instances, what should the dosage be; what account is to be taken of the fact that alcohol can potentiate'[132] the effects of some drugs or vice-versa?

147. Clearly the difficulties to be encountered in framing any legislation against the drug affected driver are many. McLinden'[133] suggests that these difficulties are not insurmountable and legislation could be drafted which would enable the police to operate more effectively. Any proposed legislation such as this would run into problems at first but McLinden suggests that action should be taken now, even with our limited knowledge of the effects of drugs on driving, and that time and amendments will take care of any problems which may arise. He suggests that initially legislation should be considered to:

- 'enable blood and urine samples to be taken from any driver whose preliminary breath test or subsequent Breathalyzer test shows a level of blood alcohol which in the opinion of the patrolman is not consistent with the driver's condition'.

Further McLinden suggests it should be an offence to drive a vehicle:

- with any level of a drug of addiction in the blood, and

- with any level of a drug, from a specified list, in the blood in addition to a BAC of 0.05 gms/100 ml or higher.

148. It may be possible after some research to arrive at a blood level for some drugs for which it becomes an offence to drive even without alcohol. However, McLinden[134] suggests that attention should be given to early implementation of legislation based on the above suggestions so as to enable the police to protect the public from the drug affected driver.

149. With legislation in Tasmania and Queensland the police can require blood tests when they are of the opinion that a driver's condition did not, or did not wholly, arise from alcohol. Where the presence of a drug other than alcohol is suspected, Australian Capital Territory Police can require a driver to submit to a medical examination, after arrest for driving under the influence.

150. The Queensland Police[135] stated that they screen the driver with the breathalyser and, if he does not come up to the reading indicated by external signs, they require the Government Medical Officer to take blood and urine samples for further screening tests. If the driver has been arrested, the Queensland Police introduce evidence of: external signs; BAC, if any; and drug(s), if any. An analyst is called before the court to identify the drugs and a medical practitioner to give evidence on the effects of that quantity of the drug in the defendant. If the plea is guilty the police usually give evidence only of the external signs. While Queensland police appear to be successful in convicting drivers for driving under the influence of drugs, insufficient evidence was received from the Australian Capital Territory and Tasmania for comment to be made.

151. The Committee concludes that legislation concerning impaired driving resulting from drugs other than alcohol is inadequate in some States and Territories.

152. The Committee recommends that:

- **the National Road Traffic Code be amended to provide that police be empowered to require blood or urine samples when they are of the opinion that a driver's condition did not or did not wholly arise from alcohol, and that such provision be adopted in State and Territory legislation.**

Insurance

153. Insurance companies argued that if they were permitted greater access to use blood or breath analysis results to deny liability under their policies then:[136]

- the economic threat to the driver of the cost of repairs to his own vehicle and the reimbursement of the cost of third party damages, in addition to fines and licence disqualification, would have a greater deterrent effect than fines and licence disqualification alone; and

- responsible drivers would no longer be expected to support irresponsible drivers through increased premium cost.

154. The Insurance Council of Australia pointed to some measure of the cost to the community of motor vehicle accidents, that is, the cost of insurance. In 1975-76 premiums earned for motor vehicle insurance and compulsory third party insurance

totalled $824.1m while claims incurred totalled $758.7m.[137] Chapter 2 makes it clear that a large proportion of claims would have resulted from crashes involving alcohol.

155. Most insurance companies already have a clause which negates liability if drivers have a BAC over 0.1 gms/100 ml,[138] but some companies have difficulty in obtaining the BAC information. If the insurance companies were allowed to have greater access to the BAC figure, the drink driver would have no protection so that in civil proceedings the third party would have to sue him and depend on his financial resources.[139] This could affect the innocent third party's chances of recovery.

156. Several witnesses indicated that some drivers involved in crashes were advised to leave the scene of the crash so as to avoid a blood test. Such advice could result in some drivers not attending for essential medical treatment. Some tow truck operators could have a financial interest in advising drivers to leave the scene of the crash.

157. This issue was not central to the inquiry and the Committee received insufficient evidence to justify a recommendation. The Committee nevertheless considers it important that insurance companies clearly inform their policy-holders of limitations imposed in policies on the companies' liability in cases where damage to vehicles is incurred when the driver's BAC is above a specified level. This information might be contained in a special notice to each policy-holder. Inclusion of the limitation in the contract alone does not always constitute sufficient warning for many people.

158. There have been suggestions from time to time that insurance could be provided against the costs of alternative transport if a driver loses his licence. This would certainly reduce the deterrent value of licence disqualification. This is undesirable and is a matter for concern. The Committee recommends that:

- consideration be given to the introduction of legislation to prevent insurance being made available against the possibility of a driver being disqualified from driving.

Drivers' Licences

- Licence Applicants and Licence Renewals

159. In Chapter 3 emphasis was placed on the fundamental importance of overcoming community ignorance of the effects of alcohol and drugs on driving and the laws and penalties associated with driving under the influence of alcohol and other drugs. Many witnesses supported the use of the licensing system to help reduce this ignorance. In 1977 the Senate Standing Committee on Social Welfare[140] took up this view in the following recommendation:

> 'That learner drivers be provided with information about the effects of alcohol and other drugs on driving, that questions on such effects form part of the licence test, and that literature on the interaction of alcohol and drugs with driving be sent with notices of licence renewals.'

160. All States and Territories[141] except Western Australia now include information on alcohol and driving in their material for learner drivers and test them on it. Western Australia is planning to introduce this measure. Only in Victoria[142] is information on alcohol and driving included with notices of licence renewals. The Committee recommends that:

- all States and Territories adopt procedures whereby applicants for learner drivers' permits or for licence renewals are informed of the effects of alcohol and drugs on driving and the laws and penalties for driving while under the influence.

- Age Restrictions on Licences and Drinking

161. Youth and alcohol are two of the major factors in road crashes. Too often both are involved (Appendix 4). Apart from the social problems with which they must contend young drivers face two serious practical difficulties. Firstly, they are inexperienced drivers. Secondly, their skills are usually impaired at significantly lower BACs than are their elders' (Figure 1, Appendix 2).

162. In Tasmania[143] drivers in their first year of driving are prohibited from driving after drinking. If found to have any alcohol in their blood when driving they attract the same penalties as older drivers with BACs over 0.08 gms/100 ml and are required to attend an education course.

163. The Tasmanian approach is clearly intended to ensure that drivers have at least one year to develop driving skills and judgement before having to contend with the additional hazardous factor of alcohol. This is a sensible objective but no evaluation has been undertaken to determine whether the measure is effective in achieving this objective.

164. The Committee commends the objective but would prefer to *see a controlled evaluation of its effectiveness.*

165. The Committee recommends that:

- **the Department of Transport initiate and support an evaluation study of legislation requiring drivers in their first year of driving to have no alcohol in their blood with a view to the incorporation of this measure in the National Road Traffic Code if shown to be effective.**

- Restrictive Licences

166. All States except Tasmania now have mandatory minimum licence disqualification periods for all drink driving offences. This penalty is clearly a much more severe imposition on those who need a licence to earn a living than it is on those who do not. In an effort to mitigate the effect of this penalty in such cases Western Australia, Tasmania and the Australian Capital Territory[144] allow convicted drink drivers who need a licence to earn a living to apply for special or hardship licences at the time of disqualification. Restrictions such as times of day, day of week and type of vehicle are often placed on the licence.

167. New South Wales and the Northern Territory allow application for a hardship licence after a minimum disqualification period has elapsed.

168. The Committee believes that, on grounds of equity, hardship licences should be available to those whose livelihood would be threatened by the loss of their licence. However, the granting of a hardship licence should be at the discretion of the court. The Senate Standing Committee on Social Welfare[145] supported this concept in its report **Drug Problems in Austalia - an Intoxicated Society?** in 1977.

169. The Committee recommends that:

- restricted hardship licences should be available, at the discretion of the court, for first offenders whose livelihood would be threatened by the loss of their driver's licence.

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98 Evidence, p. 1334 (R. Homel, Macquarie University).
99 Homel (1980)(b), p. 57.
100 R. Homel, letter dated 7 August 1979, and R. Homel, 'Penalties and the Drink/Driver: A Study of One Thousand Australian Offenders', School of Behavioural Sciences, Macquarie University, N.S.W., 1980,(a), p.1.
101 Evidence, p. 2194 (C.D. Robinson, Vic.).
102 Evidence, p. 453 (Department of Transport).
103 Evidence, p. 3711 (E. Sikk, Stipendiary Magistrate, Tas.).
104 Evidence, p. 703 (W. Clifford, A.C.T.). Expert Group on Road Safety, **The Road Accident Situation in Australia: A National Review**, AGPS, Canberra, 1972, and P.G. Ward (et al.), **A Review of Legislation and Enforcement in Relation to Road Safety**, Report to the Department of Transport, AGPS, Canberra, 1973.
105 Evidence, p. 703 (W. Clifford, A.C.T.). Fennessy and Joksch did the study.
106 Evidence, p. 454 (Department of Transport).
107 Evidence, p. 454 (Department of Transport).
108 Evidence, pp. 454 (Department of Transport), 4062 (Department of the Capital Territory).
109 Northern Territory started random breath testing on 1/2/80.
110 Evidence, p. 732 (W. Clifford, A.C.T.). Australia, Parliament, **Alcohol, Drugs and Driving**, The Law Reform Commission, Parl. Paper 280, Canberra, 1976, p. 104.
111 Evidence, p. 455 (Department of Transport).
112 Evidence, pp. 1651-2 (Queensland Police), 4008 (Dr J.M. Henderson, AMA, N.S.W.).
113 Expert Group on Road Safety was formed to advise the Minister for Transport on road safety matters.
114 Evidence, p. 454 (Department of Transport).
115 A.P. Vulcan, M.H. Cameron & P.M. Strang, 'Evaluation of a Period of Intensified Random Breath Testing in Victoria', presented at the **1st Pan - Pacific Conference on Drugs and Alcohol**, AFADD, Canberra, February 26 - March 5, 1980.

116 Several different types of data were analysed in several different ways in this study. All analyses except one show very clear and very strong effects from random breath testing. The one analysis that did not show such an effect could mean that random breath testing does not affect one particular type of crash, namely injury producing multi-vehicle crashes at night. The study concluded, however, that this failure to show an effect may have been due to the particular method of data analysis used being unsuitable for this particular type of crash.
117 Vulcan (1980), p. 12.
118 Evidence, p. 455 (Department of Transport).
119 Evidence, p. 2621 (Tasmania Police).
120 B.V. Howard, M.F. Young & J.P. Ellis, **Appraisal of the Existing Traffic Accident Data Collection and Recording System - South Australia**, Office of Road Safety, Commonwealth Department of Transport, Canberra, 1979.
121 Evidence, pp. 3461, 3482-3 (Dr A.J. McLean, University of Adelaide).
122 In South Australia this only applies to some hospitals.
123 Ryan and Salter (1977).
124 Evidence, p. 3011 (Dr P.A. Pocock, Public Health Department, W.A. & Dr A.A.A. Landauer, University of W.A.).
125 Evidence, p. 3786 (Institute of Ambulance Officers (Australia), Victoria Division).
126 Evidence, p. 3786 (Institute of Ambulance Officers (Australia), Victoria Division).
127 Evidence, pp. 126 (Road Trauma Committee, Royal Australasian College of Surgeons, Vic.), 1662 (Queensland Police), 4086 (Department of the Capital Territory), 4105 (N.S.W. Police), 4280 (Road Safety Council of the N.T.).
128 See Appendix 7.
129 V.J. McLinden, 'Problems Involved in Any Legislation Against the Drug-Affected Driver', presented at **Symposium on Forensic Sciences**, Adelaide, 30 March 1979, p. 2. Exhibit No. 42.
130 McLinden (1979), p. 3.
131 McLinden (1979), p. 4.
132 See Explanatory Notes.
133 McLinden (1979), p. 5.
134 McLinden (1979), p. 5.
135 Evidence, pp. 1657-9 (Queensland Police).
136 Evidence, p. 196 (Insurance Council of Australia).
137 Evidence, p. 197 (Insurance Council of Australia).
138 Evidence, p. 201 (Insurance Council of Australia).
139 Evidence, p. 214 (Insurance Council of Australia).
140 Australia, Parliament, Parl. Paper 228, 1977, p. 70.
141 Evidence, pp. 1421-3, 1448 (TARU, N.S.W. Department of Transport), 1604 (Queensland Department of Transport), 2628 (Tasmania Police), 3589 (Road Safety Committee of S.A.).
142 Evidence, p. 109 (Road Trauma Committee, Royal Australasian College of Surgeons, Vic.).
143 Evidence, p. 2617 (Tasmania Police).
144 The Committee understands that Queensland is considering similar legislation.
145 Australia, Parliament, Parl. Paper 228, 1977, p. 69.

CHAPTER 5

CHANGING THE DRINKING ENVIRONMENT

170. Historically there has been a good deal of conflict between those who see alcoholism as a disease[146] and those who see the development of drinking problems in terms of individuals reacting to pressures within their environment. Much of the debate has been due to confusion about which drinkers are being discussed. There is argument about whether those physically addicted to alcohol can be taught controlled drinking, with some evidence for[147,148] and some against.[149] There is little argument however about the premise that drinkers who are not physically addicted to alcohol can be influenced by changes in the environment.[150]

171. It follows, then, that changes in the physical, social, psychological and economic environment in which drinking takes place have the potential to influence drink driving and the alcohol related crash rate. The question is: do the gains made in reducing drink driving outweigh the losses in other respects.

172. A wide range of measures, many of which extend beyond drink driving, were put to the Committee. Some measures would have effects on other alcohol related problems, such as the incidence of alcohol related disease, and of domestic, occupational and recreational accidents. Several potential measures would have significant commercial impact on the liquor industry and on Government revenue. The Committee recognises that some of the options canvassed in this Chapter involve important issues other than road safety. Unfortunately, the road

safety issue which is a major economic, health and social issue, is often obscured, ignored or underestimated in assessments of these environmental factors. It is emphasised that some of these measures would produce benefits outside the road safety field.

The Price and Type of Alcohol

173. Some witnesses[151] argued that increasing the price of alcohol through excise would reduce levels of consumption and therefore drink driving. However expert evidence[152,153] on the effects of price changes on the level of consumption was contradictory. It is apparent that not enough is yet known about this relationship to permit a firm conclusion even as to whether total consumption is reduced.

174. It has been suggested[154] that the way alcohol is consumed and the social characteristics of drinkers may affect the relationship between price and total consumption. Thus an increase in the price of alcohol may, for different subgroups, reduce the amount consumed per session, reduce the number of drinking sessions or, by causing a switch to another beverage, increase the total amount consumed. For those psychologically or physically addicted to alcohol, it may have no effect on consumption, and lead to less money being available for spending on other things.

175. The Committee concludes that not enough is known about the likely effects on subgroups of the drinking population of changes in the price of alcohol. No recommendation on excise levels can therefore be justified. However, the Committee does recommend that:

- the Departments of Transport and Health initiate research into the drinking - and drink driving - patterns of subgroups of the drinking population with a view to determining the effects of changes in the price of alcoholic beverages.

176. A wide range of alcoholic strengths in beverages is available.[155] Some witnesses considered it worthwhile to encourage the consumption of lower strength beverages.[156] However, the patterns of drinking, and the social environments in which different beverages are consumed, are different. Some patterns of drinking are inherently less likely to lead to high BACs than others. Drinking table wine with meals would be less likely to lead to BACs over the legal limit than drinking 'shouts' of beer in a public bar. It may be more valuable in road safety terms to try to influence the pattern of consumption rather than the beverage type.

177. The one obvious beverage type that may be substituted for beer is low alcohol beer. It was suggested to the Committee that the potential benefits of low alcohol beers for road safety may be limited, because:

- those who drink to become intoxicated will simply consume more of the low alcohol product and if given a choice would probably not choose it;
- regular and heavy drinkers, and the young, who consitute the main drink driving problem, will continue to drink normal beers;[157] and
- some people who do not normally drink may be led to drink low alcohol beers.[158]

These arguments have some validity. However, low alcohol beer has already captured a substantial share of the market. It is probably consumed by some people who drink for social reasons and who sometimes drink enough normal strength beer to affect their driving adversely.[159] Low alcohol beer has also been accepted for its lower calorie content. The Committee concludes therefore that low alcohol beer offers some potential road safety benefits though the likely magnitude of those benefits cannot yet be assessed.

178. The Committee recommends that:

- consideration be given to reducing the excise imposed on low alcohol beer (defined as containing not more than 2.5% of alcohol by weight).

Hours of Opening for Licensed Premises

179. The introduction of Sunday liquor trading in Western Australia was found to result in an increase in the number of people killed and injured in road crashes.[160] However, the impact of reducing the number of hours for which establishments are licensed to sell alcohol is not known. The Committee was told that under some circumstances such an action can lead to a reduction in the road toll[161] but it can also lead to increased drinking elsewhere. Further, to close licensed premises earlier at night can increase the number of alcohol affected drivers on the roads at peak or near peak driving times.

180. Different drinking practices probably lead to different levels of risk of being involved in crashes. Therefore it is not possible to make general recommendations on changes to licensing hours to reduce the drink driving problem. In general, there would be no significant effect on alcohol related crashes if extended licensing hours were permitted to establishments where the typical drinking patterns did not lead to BACs over 0.05 gms/100 ml. On the other hand there would probably be some benefit in further restriction of the opening times of establishments where typical drinking patterns do lead to high BAC levels, particularly if driving is likely to follow the drinking.

181. The Committee recommends that:

- the Department of Transport initiate research to identify the drinking patterns in different kinds of licensed premises, particularly with respect to blood alcohol concentration reached, and the mode of transport used after leaving the premises, with a view to establishing how legal trading hours for licensed premises can most effectively be restricted to reduce drink driving while continuing to permit reasonable, if reduced, opportunities for responsible drinkers.

Alcohol Involvement in Leisure Activities

182. Some evidence[162] was presented to the Committee that many people drink to excess due to personal and social problems. It was suggested that programs or social activities be made available to provide people with alternative coping mechanisms that do not involve alcohol.

183. Clearly the use and abuse of alcohol, and the attendant road safety problem, is related to basic individual and social problems of much wider scope than this report can attempt to cover.

Other Options

184. The Committee received suggestions on other options especially in relation to liquor licensing laws. Evidence in support of these options was insufficient to convince the Committee that they would produce significant benefits or that their advantages would outweigh their disadvantages.

146 E.M. Jellinek, **The Disease Concept of Alcoholism**, Highland Park, N.J. Hillhouse Press, 1960.

147 M.B. Sobell & L.C. Sobell, 'Individualized Behaviour Therapy for Alcoholics', **Behavioural Therapy**, 1973, pp. 49-72.

148 D.J. Armor, J.M. Polich & H.B. Stambul, **Alcoholism and Treatment**, Prepared for the U.S. National Institute on Alcohol Abuse and Alcoholism, Santa Monica California, Rand Corporation, 1976.

149 J.A. Ewing & B.A. Rouse, 'Failure of an Experimental Treatment Program to Inculcate Controlled Drinking in Alcoholics', **British Journal of Addiction**, 71, 1976, pp.123-134.

150 Maudsley Hospital, Alcohol Education Centre, 'The Ledermen Curve', Report of a Symposium held in London on 6 and 7 January 1977, London 1977.

151 Evidence, p.813 (Department of Health).

152 Evidence, pp.981 (Department of Health), 2099 (The Australian Associated Brewers).

153 P. Luey, 'Can Alcohol Taxes Reduce Consumption', **Australian Journal of Alcoholism and Drug Dependence**, Vol. 6, No. 4, November, 1979.

154 Maudsley Hospital (1977).

155 Evidence, p.2077 (The Australian Associated Brewers).

156 Evidence, p.653 (Victorian Temperance Alliance).

157 Evidence, p.2878 (Dr W. Laurie, W.A.).

158 Evidence, p.2074 (The Australian Associated Brewers).

159 Evidence, p.2239 (Rev. J.W.R. Westerman, Uniting Churches, Melbourne).

160 Evidence, pp.3095, 3153. D.I. Smith, 'Impact on Traffic Safety of the Introduction of Sunday Alcohol Sales in Perth, Western Australia', **Journal of Studies on Alcohol**, Vol. 39, No. 7, pp. 1302-1304, July 1978.

161 Evidence, p.3156 (D.I. Smith, W.A. Alcohol and Drug Authority).

162 Evidence, p.632 (Dr R.B. Montgomery, La Trobe University).

CHAPTER 6

REHABILITATION AND EDUCATION

Rehabilitation

185. There are several different rehabilitation courses for convicted drink drivers. Such courses present an opportunity for early intervention programs in relation to people developing drinking problems. The courses therefore potentially help towards overcoming problems wider than drink driving alone.

- Types of Courses

186. There are various methods by which a person may be referred to a rehabilitation course. Firstly, a client may be referred at the time of application for renewal of a driver's licence after a period of disqualification from driving for a drink driving offence. Attendance at a course may be a pre-condition to renewal of the licence. Secondly, a client may be referred by a Court at the time of the initial hearing of the case but some penalty is also imposed, such as licence cancellation and a fine. Thirdly, he may be referred as an alternative to licence cancellation, a fine or a more serious penalty - the so-called diversionary procedure (not currently available in Australia).

187. Courses differ in format and presentation,but in Australia most courses[163] consist fundamentally of an educational program extending over several sessions. They cover such subjects as the pharmacological and toxic effects of alcohol, the effects on driving ability, existing legislation in Australia and current legal procedures for renewal of licences, the concern of the community about social and medical costs of drinking drivers and the availability of services in the community to assist individuals with a drinking problem.

188. Another approach, which was adopted by the Alcohol and Drug Services Division of the Victorian Health Commission,[164] uses a technique of confrontation whereby an individual is allowed to consume different amounts of alcohol so as to raise his BAC to various levels. His behaviour and performance in a simulator are videotaped and he is confronted by a replay of this tape and the comments of other members of the group participating in the program. Some educational material is also included.

189. A third approach could be called the community approach. The participants' peer group is informed about drinking and driving and other aspects of alcohol consumption. Printed material is distributed during an educational course for court-referred convicted drivers who are then expected to distribute the information more widely to their peer group and acquaintances in the community. This program is associated with a parallel community education program designed to lift general community awareness on how alcohol consumption contributes to serious traffic problems.[165]

190. Rehabilitative programs service different sections of the community. One of these programs is aimed at drivers up to the age of 25 and operates on the theory that an educational program is more likely to be successful with this group as only a few would have a serious dependence on alcohol use. Other programs do not have an age restriction. However, some courses deal only with individuals with multiple offences or those apprehended while driving with BACs above 0.15 gms/100 ml.[166]

191. It is most likely that different kinds of courses are required for different kinds of offenders. In the long term this will necessitate the setting up of assessment centres so as to refer clients to appropriate programs.[167] The Committee concludes that a range of rehabilitative programs should be developed so that future assessment centres may be established for matching drink driving offenders to the most suitable rehabilitative programs.

- Evaluation

192. Concern was expressed about the difficulties of evaluating these programs. Some witnesses measured their effectiveness by observing the rate of reconviction. Others considered this should not be the only measure of success but that changes in attitudes and drinking behaviour should also be included. Attention needs to be given to the design of evaluation procedures. Reference was made to the lack of demonstrated success of some North American programs. This was said to be due largely to the failure to assess accurately the drink driving offenders who were improperly matched with programs of rehabilitation.[168]

- Conclusions and Recommendation

193. The Committee concludes that rehabilitative programs warrant continued support from Governments and that additional resources should be applied to evaluation and improvement of existing programs and the establishment of new pilot programs. These resources should be allocated with a view to the ultimate establishment of assessment centres and a matching of convicted drink drivers to appropriate programs of rehabilitation.

194. The Committee therefore recommends that:

. the Departments of Health and Transport initiate and support studies, including pilot programs, to evaluate the effectiveness of rehabilitative programs aimed at modification of the behaviour of drink drivers.

Education in Schools

195. The need for children to be taught about the relationship between alcohol, drugs and road safety was frequently raised during the inquiry. This proposal generally arose out of concern that this road safety problem results in part from prevalent social attitudes and customs and from lack of information. Formal education in schools was seen as a potentially effective counter-influence.

196. It was clearly demonstrated that such education is relevant not only for the children's lives after they leave school but also when they are still at school. Some children begin drinking alcohol at an early age. One recent study shows that one in two boys and one in three girls have tasted alcohol by age 11 and that regular patterns of drinking behaviour are beginning between the ages 14 and 16, especially among boys.[169] Alarmingly, a New South Wales Health Commission survey indicated that 3.6% of school children under 18 are problem drinkers.[170] Some school children are licensed to drive and many, perhaps most, obtain a driver's licence soon after leaving school. Alcohol is a factor in a high proportion of crashes involving young drivers who are still at school or have recently left. (See paragraph 77).

197. Other drugs too appear to be used in significant quantities by the young, including school children. These drugs include not only alcohol, tobacco and minor analgesics but also cannabis.[171] Indeed most users of cannabis apprehended by the police are between ages 16 and 25.[172]

198. There can be no doubt that education on alcohol, drugs and road safety is relevant for secondary school children. But is it desirable and is it potentially effective? There are significant barriers to effective road safety education.[173] The objective is to induce appropriate behaviour by imparting

knowledge, developing skills, and fostering appropriate attitudes. While schools may be successful in imparting knowledge and developing skills, evidence suggests that they face significant impediments in attempting to modify attitudes and behaviour. The most fundamental of these is the conflict between what is taught at school and what is said and done elsewhere, especially by peers and by influential adults such as parents or esteemed public figures. Attempts to modify drinking and driving behaviour and attitudes towards it face these very problems in full measure.[174]

199. There are other barriers to effectiveness. Road safety education varies in most respects from State to State and valid generalisations cannot be made. It can be said however that such education is often conducted by the police or other people from outside the school;[175] occurs at various ages within and between States; is usually at the teachers' discretion; is often superficial and is poorly supported in terms of curriculum development and teaching materials. Curricula on, or including, road safety are presently being developed in South Australia,[176] Victoria[177] and the Northern Territory.[178] Alcohol and drugs are dealt with in varying degrees, sometimes within a road safety context, sometimes within a broader context of health, personal development, social studies or science.[179] In the latter instances, the link with road safety may be tenuous and superficial.

200. Most witnesses associated with schooling agreed upon several points:

- secondary students do not see road safety as relevant until they are ready to drive;[180]
- school road safety programs are not consistent and most do not follow through year by year;[181]

- under-graduate and in-service teacher training courses are needed to improve and expand teacher education on alcohol and drugs both as a potential road safety problem and as a broader personal social problem;[182] and

- parents need to be involved in school education programs on the use of alcohol and drugs and also need to accept responsibility for such education at home.[183]

201. Teachers need to be assisted by the development of curricula and teaching materials, as is happening in some areas, and by training in appropriate methods of instruction for inducing attitudinal and behavioural change. Some evidence suggests that others, such as specialist teachers and doctors, may usefully assist in this area.

202. The Committee concludes that the level of effectiveness currently being achieved in school programs on alcohol, drugs and road safety can be raised by a concerted, broad-based effort by education authorities, teachers and parents.

203. There can be no doubt about the desirability of educating secondary school children on the use of alcohol and its relevance to road safety. Doubts have been expressed, however, about the desirability of such education on other drugs, especially illicit drugs.[184] Naturally parents are extremely concerned about their children becoming addicted to some illicit drugs. Some believe that education would arouse curiosity and encourage experimentation. Research suggests there is some cause for such concern.

204. The Committee concludes that secondary school education on the use and abuse of alcohol, including its relationship to road safety, is desirable and that educators should re-assess the priority currently given to such education in their school programs. It should be long term and low key, should attempt to integrate appropriate attitudes towards their use into a general pattern of social attitudes which impinge on personal development and should preferably tie in with education of the community at large.

205. The Committee recommends that:

- the Curriculum Development Centre and the Departments of Education, Transport and Health support the development of model curricula on alcohol, drugs and road safety and the exchange of information between States and Territories on courses, curricula, teaching methods and materials being used throughout Australia; and

- Commonwealth, State and Territory education authorities examine the need for improved and expanded under-graduate and in-service teacher training on instruction on alcohol, drugs and road safety.

Mass Media Publicity

- Advertising of Alcoholic Beverages

206. Advertising of beer was subject for some time to the Voluntary Code of Advertising Practice adopted by The Australian Associated Brewers. This Code provided that advertising should be aimed at converting people from other alcoholic beverages or from other brands of the same beverage. The Code included a

prohibition on showing people drinking before or while driving. Evidence suggests that the brewing industry adhered to the Code. Recently[185] the Alcoholic Beverages Advertising Council was formed by media and alcohol beverage industry groups (including The Australian Associated Brewers) to regulate liquor advertising standards by application of a voluntary common code, almost identical to that earlier adopted by The Australian Associated Brewers. The common code, like the earlier brewers' code, was developed in consultation with the Department of Health. Compliance is oversighted by the Alcoholic Beverages Advertising Council and is monitored regularly by the Department of Health.

207. Little research has been undertaken on the influence of advertising on the per capita consumption of alcoholic beverages. Available research findings do not support the contention that per capita consumption is influenced by the volume of advertising.[186,187] One study which investigated the effects of a ban on such advertising in British Columbia concluded that the 'data presented little support for the view that the B.C. [British Columbia] advertising ban reduced alcohol consumption'.[188] The study's findings cannot however be regarded as conclusive because of the relatively brief period of the ban, which was lifted after fourteen months following a change of government, and because the ban failed to gain community and mass media support. Nor can the research studies referred to earlier be regarded as conclusive.

208. The Committee would be favourably disposed to recommending a ban on advertising of alcoholic beverages if there were evidence to show that it would have a significant effect. That evidence does not however exist. The Committee recommends that:

- if the liquor industry's voluntary code of advertising practice is not adhered to, the Government should impose mandatory regulations on the advertising of alcoholic beverages.

209. The Committee notes that the Government recently rejected a recommendation in favour of a total ban on alcohol advertising contained in a report by the Senate Standing Committee on Social Welfare, titled **Drug Problems in Australia - An Intoxicated Society?**

- Public Education Campaigns

210. Of the few drink driving campaigns on which evaluation reports are available, none has unequivocally demonstrated an effect on driving. Unfortunately, evaluations themselves are difficult to design.

211. Several examples of drink driving publicity were shown to the Committee. Two large scale campaigns were run by the New South Wales Traffic Accident Research Unit in 1973-1974. The first was primarily designed to inform potential drink drivers how much alcohol would take them over the legal limit, and of the penalties for drink driving. Before and after measures of knowledge suggested that the campaign was successful in imparting knowledge[189] (though not necessarily in changing behaviour).

212. The second campaign, known as 'the slob campaign', provided a model of undesirable drinking behaviour and attempted to instil feelings of disapproval towards it. Before and after measures showed an increase in such feelings of disapproval following the campaign. Additionally, numbers killed on New South Wales roads decreased for a time following the campaign, but lack of a control group prevents this effect from being attributed unequivocally to the campaign.[190]

213. The Victorian Road Safety and Traffic Authority (RoSTA) has produced considerable drink driving publicity material for television. Recent material has been aimed at motivating potential drink drivers to avoid the unpleasant consequence of licence disqualification, and has been associated with random breath testing. The total road toll in Victoria has decreased dramatically over the past two years, but there is no indication of the degree to which drink driving publicity was a causal influence.

214. The Division of Road Safety, Tasmania Police, has produced many televised drink driving advertisements, which generally emphasise negative aspects. An interesting feature of these advertisements, however, is the modelling of a strategy to reduce the actual consumption by the driver (a hand is put over the glass, and he says 'No more mate, I'm driving').

215. The Queensland Road Safety Council produces a range of drink driving publicity material, again generally emphasising negative aspects. One notable exception involved a radio advertisement in which a drinker phoned his wife to drive him home.

216. It is noted that the Commonwealth Office of Road Safety currently has material on trial in Tasmania with a view to a possible national campaign. This campaign aims at the associates of drinkers in the over 30 age group, and can be seen as an attempt to change the social environment in which drink driving occurs.

217. The aim of most drink driving campaigns in Australia has been to motivate the drink driver to do something about his own drink driving and to emphasise the undesirable consequences of failing to take some action. In many cases, such an appeal would clearly be at variance with the drinker's own experience, and is likely to be rejected as unrealistic. Most drink driving

is unlikely to result in a crash, or even a conviction for drink driving. Drinkers who regularly drive after drinking would know that. It is possible however that such an approach could be effective if used in conjunction with an increase in levels of enforcement which would increase the individual's perception of the probability of detection.

218. It has been argued[191] that the drop in crashes following the introduction of the breathalyser to Britain in 1967 was attributable to drinkers altering their perception of the probability of detection. Associated publicity would have been a major factor in this. The crash rate gradually returned to a level that would have been expected on the basis of pre-breathalyser trends, however, and this is attributed to the fact that drivers' experience of the probability of detection demonstrated that the risk of being caught had in fact been overestimated. Apparently publicity alone could not permanently alter drink drivers' perception of the probability of detection in the absence of a substantial increase in the actual risk.

219. The inconclusiveness of evidence on the impact of publicity campaigns presents a dilemma. A constant thread running through this report is the observation that drink driving behaviour cannot be fundamentally changed if not accompanied by a change in social attitudes. Some change may take place through education, be it formal or informal, from person to person or through the media.

220. The Committee concludes that the need for public education is such that mass media publicity campaigns must continue to attract Government and other financial support as part of a broader effort to educate the community. The long term effectiveness of publicity campaigns must depend in great measure on the care and flair with which they are developed and implemented and the thoroughness with which each is evaluated. Careful evaluation is a necessary means of improving effectiveness.

221. Drink driving publicity campaigns are expensive and, clearly, could only be instituted with the help of Governments. All such campaigns could nevertheless be assisted by commercial and private organisations, especially media organisations.

222. In some instances, the States need to undertake publicity within their own boundaries. However, the Committee would strongly encourage co-operation between the Commonwealth and individual State and Territory authorities in the design, implementation and evaluation of publicity campaigns, through PACERS.

223. The Committee therefore recommends that:

- **mass media campaigns on the hazards of drink driving continue to attract the financial support of Governments and other interested organisations and that this support provide for the thorough evaluation of the impact of such campaigns; and**

- **subject to thorough evaluation establishing their potential effectiveness, a series of major national publicity campaigns on the hazards of drink driving be funded by Governments and other organisations in coming years and that these campaigns be co-ordinated by the Office of Road Safety.**

224. On the evidence provided to the Committee, the Victorian Road Safety and Traffic Authority (RoSTA), the New South Wales Traffic Accident Research Unit (TARU), the Queensland Road Safety Council, and the Division of Road Safety of the Tasmania Police have sufficient funds to run some statewide drink driving campaigns.

225. In Queensland some liquor licensing fee revenue is placed in a Liquor Act Trust Fund and distributed to three areas. One portion goes to the Education Department to assist educational programs discouraging the drinking of alcohol, one portion to the Health Department to assist in health programs dealing with alcohol problems, and the third portion to the Queensland Department of Transport for drink driving publicity. The amount allocated is not less than $100,000, is usually far greater, and has been growing each year.[192]

Provision of Information by Specialist Groups

- Medical Practitioners and Pharmacists

226. Many patients are not warned by their doctors or pharmacists about driving and the taking of drugs and particularly, the taking of drugs in combination with alcohol.[193] This applies particularly to the taking of prescribed drugs.[194]

227. The Department of Health indicated that education campaigns have been undertaken through the medical journals, the family medicine program and the colleges, but obviously a lot more must be done.

228. While all stated that it was important that doctors inform their patients, it was even more important, in fact a responsibility, for the drug companies and the pharmacists to inform the medical profession and the patients. Many of the drug companies do supply educational material with their drugs.

229. The Pharmacy Guild of Australia ran a public awareness campaign titled 'Medication and Alcohol Don't Mix' in April 1977. The Guild believes the campaign was successful despite time and money constraints on it. The primary objectives[195] of the campaign were to alert the pharmacists and doctors to the

responsibility they have in cautioning the public about drug/alcohol interactions and interactions which occur when alcohol is mixed with other drugs. Secondary objectives were to encourage people to seek advice from their doctor or pharmacist and to encourage pharmacists to counsel patients on medication/alcohol interactions.

230. Dr Drew, Department of Health supplied[196] the following information:

'One proposal put forward by the National Therapeutic Goods Committee was a mandatory supplementary labelling scheme whereby concisely worded cautionary and advisory labels were to be applied to relevant pharmaceuticals whether sold over-the-counter or on prescription. One such label warned against the inadvisability of driving when taking the preparations to which it applied. The scheme also included provision for more detailed patient information notes were such deemed necessary.

'Prior to the introduction of this mandatory scheme the Pharmaceutical Society of S.A. introduced a similar voluntary labelling scheme. Reports received indicated that the scheme was working satisfactorily and consequently it was agreed that rather than introduce a mandatory scheme at this stage all States would adopt a voluntary scheme along similar lines to that in South Australia.

'Under the voluntary scheme pharmacists are required to label the containers of dispensed medicines, where appropriate, with a clear statement of any major hazards that may be associated with the use of the product...

'The scheme employs self-adhesive labels pre-printed with cautionary statements. It is intended that the printed message be reinforced by verbal counselling when the medicine is handed to the patient. Two of these labels include reference to alcohol as detailed below:

1. "This medicine may cause drowsiness and may increase the effects of alcohol. If affected do not drive motor vehicles or operate machinery".

2. "Avoid taking alcohol with this medication unless advised by the prescriber".

'The disadvantages of these schemes run by the Pharmaceutical Societies are that they are not mandatory and consequently not all pharmacists participate in them and they apply only to dispensed medicines. Nevertheless they appear to be functioning satisfactorily and as a result the National Therapeutic Goods Committee considered that for the present it was not necessary to examine further the introduction of its proposed mandatory scheme.

'The situation is to be kept under review by the National Therapeutic Goods Committee particularly in regard to the necessity to extend the scheme to include over-the-counter drugs.

'Quite separately from these schemes, most, if not all, States require antihistamines, when sold over-the-counter, to carry a warning against the dangers of driving while taking these drugs. It is, of course, most regrettable if pharmacists cover the warnings with their own labels.'

231. The Committee commends the action being taken so far and recommends that:

- the National Health and Medical Research Council and the National Therapeutic Goods Committee ensure that drug companies, pharmacists and medical professions be informed regarding the effects of alcohol and other drugs on road safety, and inform patients; and further,

- if these precautions are not taken Governments should act to control labelling of drugs by mandatory regulations.

- Hoteliers

232. Little evidence was received on what information hoteliers give their patrons. Hotels in Victoria have cooperated in displaying material published by RoSTA warning of the dangers of driving over 0.05 gms/100 ml.^197 The Australian Hotels Association in Victoria and other States publishes pamphlets and brochures such as 'Drink Sensibly and Drive Safely'.^198 In Western Australia a pamphlet titled 'Don't Blow your Licence, Keep your Keys!' is published.

233. While it can be understood that hoteliers do not want to discourage their patrons from drinking alcohol, a legal drug, the Committee is convinced that hoteliers have a responsibility to encourage their patrons to control their drinking if they are going to drive and to actively discourage driving by people who have already consumed too much alcohol or who may be taking sedative drugs.

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163 For example, the St. Vincent's Hospital Course, Melbourne.
164 Also called Pleasant View Course.
165 Evidence, pp. 1499-1503, 1517-1551 (Drug and Alcohol Education Project Team, University of N.S.W.).
166 Evidence, pp. 397-431 (Dr J.N. Santamaria & Miss A.E. Raymond, St. Vincent's Hospital, Melbourne).
167 F.B. Glaser, H.M. Annis, S. Pearlman, R.L. Segal & H.A. Skimmer, 'The Differential Therapy of Alcoholism: A Systems Approach', in J. Santamaria (ed), **Proceedings of Seminars - 1979 Autumn School of Studies on Alcohol and Drugs**, Department of Community Medicine, St. Vincent's Hospital, Melbourne, May 1979, pp. 83-100.
168 Evidence, pp. 3668-9 (Alcohol and Drug Addicts Treatment Board, South Australia).
169 Evidence, p. 3214 (Department of Education, N.S.W.).
170 Evidence, p. 1437 (TARU, N.S.W. Department of Transport).
171 R.P. Irwin, **Drug Education Programs and the Adolescent in the Drug Phenomena Problem**, A.N.U Drug Education Project, Australian National University Central Printing, 1976, pp.11.1, 11.4.
172 Australia, Parliament, Parl. Paper 228, 1977, p.135.
173 Evidence, p. 2895 (Department of Education and Psychology, Mt. Lawley College of Advanced Education).
174 Evidence, pp. 2896-8 (Department of Education and Psychology, Mt. Lawley College of Advanced Education).
175 Evidence, pp. 2793 (A.C.T. Schools Authority), 2953 (Education Department, W.A.), 3215 (Department of Education, N.S.W.), 3610 (Road Safety Council of S.A.), 3989 (RoSTA, Victoria).
176 Evidence, p. 3608 (Road Safety Council of South Australia).
177 Evidence, pp. 3986-7 (RoSTA, Victoria).
178 Evidence, p. 4235 (N.T. Department of Education).
179 Evidence, pp. 2953-4 (Education Department, W.A.), 3215 (Department of Education, N.S.W.), 4226, 4237 (N.T. Department of Education).
180 Evidence, p. 2961 (Education Department, W.A.).

181 Evidence, pp. 2793 (A.C.T. Schools Authority), 2930 (Department of Education and Psychology, Mt. Lawley College of Advanced Education).
182 Evidence, p. 4243 (N.T. Department of Education).
183 Evidence, pp. 3216, 3220 (Department of Education, N.S.W.).
184 Evidence, p. 3215 (Department of Education, N.S.W.).
185 Joint Press Statement by the Minister for Health, Mr Ralph Hunt, and The Australian Associated Brewers, Alcoholic Beverages Advertising Council, 9 July 1979.
186 J.G. Barnes & J.C. Bourgeois, Factors Which Influence Per Capita Consumption of Beverage Alcohol, Non-Medical Use of Drugs Directorate, Health and Welfare Canada, March 1977.
187 D.J. Pittman & M.D. Lambert, Alcohol, Alcoholism and Advertising, St Louis, Missouri, June 1978.
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CHAPTER 7

THE DRIVING ENVIRONMENT

Roads and Traffic

234. Countermeasures which could operate in the driving environment include modifications to road design, traffic engineering practices and traffic management techniques which make the driving environment more forgiving of the errors made by alcohol affected drivers. Such measures represent an acceptance that although it is likely that the role of alcohol in crashes can be reduced there will almost certainly be alcohol affected drivers on the roads for some time. The problems created by drivers impaired by illness or other influences can also be reduced.

235. Current road design and traffic management does take into account variations in driver skill and performance. For instance, design criteria for determining road curvature provide margins for error that go well beyond the physical requirements of the vehicles. As far as is known, however, no systematic attempts have been made to utilize design criteria that take into account the lower levels of performance of alcohol affected road users although there are considerable research data concerning the nature of performance decrements on many aspects of driving.[199]

236. Drivers must make multiple decisions very quickly.[200] If there is any impairment, such as from alcohol or other drugs, the interval time between decisions can spread out. It was suggested that road engineering should take account of this.

237. The Australian Road Research Board (ARRB),[201] in researching such things as traffic lights, traffic signs and road markings, has initiated a program of research on ways in which to adapt the road system more to the realities of drink driving.[202]

238. Some other aspects[203] of road design and traffic engineering practice which can be critical for alcohol affected road users are roadside hazards and intersections. Fixed objects beside roads are struck very frequently and the over-representation of alcohol affected drivers in these crashes is very high.[204] Roadside hazards such as electricity poles could be put underground or in new areas they could be positioned along back fences.

239. Because information processing is degraded by alcohol it could be expected that some information would be lost if too much information is presented, for instance on traffic signs. Some research has shown[205] that reaction times to stimuli can be reduced to those of a sober person by making signs brighter or bigger.

240. The Committee recommends that:

- the Department of Transport and the Australian Road Research Board continue to monitor and initiate research into ways of modifying the driving environment to take account of the impairment of alcohol affected drivers; and

- the Department of Transport and the Austalian Road Research Board provide an information and advisory service on countermeasures to those bodies concerned with the driving environment and on estimates of the cost of introducing appropriate measures.

Ignition Interlock Systems

241. The Senate Standing Committee on Social Welfare recommended[206] in 1977 that the Commonwealth and State Governments support research and development of mechanical devices to deter drink driving. The Senate Committee further recommended that, when such devices are perfected, recalcitrant drivers be required to fit them to their vehicles, at their own expense, as a pre-requisite to any renewal of their driving licences.

242. One such device requires the performance of a certain psychomotor task before the vehicle can be started. Another prevents ignition if a breath sensor device has not been operated, or if activation is attempted with breath having excess alcohol content.[207] The Australian Medical Association (AMA) discussed[208] a concept involving continuous monitoring of the driver's performance. If performance deteriorates below a critical level, a system could be activated which might, for instance, flash the hazard warning lights on the car.

243. These devices suffer a range of technical weaknesses. For example, some sober drivers may not be able to perform a given psychomotor task for reasons unrelated to driving ability and some drivers may learn to perform psychomotor tasks even when affected by alcohol. The breath sensor device may be circumvented by saving alcohol free air in a balloon or by having someone else, e.g. a young child, blow into the machine.[209] Divided attention tasks that would be very difficult for one alcohol affected person may be quite simple for two.

244. The fundamental problem is of course that a great number of the community do not see drink driving as irresponsible behaviour and a criminal offence.[210] The New South Wales Traffic Accident Research Unit (TARU) suggested[211] that the technical problems are probably fairly minor in comparison with

the public's attitude to drink driving. They stated that solid state circuitry would make possible a fairly simple pass-fail system attached to the car. Costs would be considerably lessened if the ignition interlock device were to be designed into the vehicle rather than added later ($20 to $50). It was suggested that if the principle was ultimately widely accepted, it could be provided for by an Australian Design Rule.[212] The devices could be available and the necessary legislation in force in six to nine months.[213] The devices could become compulsory for repeat offenders or offenders with a high BAC.

245. While there are many objections, it should be remembered that no countermeasure can provide a total solution and that, despite certain limitations, ignition interlocks may offer a viable means of preventing a sizeable proportion of people with high BACs from driving.[214]

246. The Road Safety and Traffic Authority (RoSTA), Victoria, was authorised by the Victorian Government in December 1979 to test a device designed to stop a car operating if the driver is drunk.[215] The American-designed device is attached to the dashboard of a car and contains a needle which 'floats' when the ignition is turned on. The car will not start until a motorist can balance the needle in a fixed position for at least five seconds. If the tests prove successful the Victorian Government would consider making the device a compulsory fixture in a car before re-issuing a licence to disqualified drink drivers.

247. The Committee fully supports the recommendation of the Senate Standing Committee on Social Welfare and accordingly recommends in like terms that:

. Commonwealth and State Governments support the researching and development of mechanical devices to deter drink driving and, when perfected, require that they be fitted to the vehicles of recalcitrant drivers, at their own expense, as a pre-requisite to any renewal of their driving licences.

R.C. KATTER
Chairman

May 1980

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199 Evidence, p. 450 (Department of Transport).
200 Evidence, p. 1006 (Australian Automobile Association, A.C.T.).
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203 Evidence, p. 1883 (ARRB, Victoria).
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208 Evidence, p. 4018 (Dr J.M. Henderson, Australian Medical Association, Sydney).
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210 Evidence, p. 1408 (TARU, N.S.W. Department of Transport).
211 Evidence, p. 1439 (TARU, N.S.W. Department of Transport).
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215 'Drink driving device to be evaluated', The Canberra Times, 28.12.79.

DRUG INTERACTIONS WITH ALCOHOL

Alcohol has significant potential for interaction with other drug Additive central nervous system (CNS) depression occurs when alcohol is tak concurrently with most other CNS depressants. CNS stimulants will countera some of alcohol's depressant activity but will not affect its diminution motor ability. People taking CNS depressants should be warned that it particularly dangerous to drive a car or perform any other task that requir mental and motor acuity if they take even a small amount of alcohol.

Type A Interactions: Interactions that occur frequently and that are high significant.

	Effects	Advice
Disulfiram (Antabuse)	Severe CNS toxicity following ingestion or percutaneous absorption of even small amounts of alcohol. A few drinks have caused deaths.	Alcohol must be avoide completely. Advise of danger of taking other drugs in alcohol containing solutions (cough syrups, etc) ar of topical exposure to alcohols and some alcohol containing drinks marketed as soft drinks.
Antidiabetic agents Sulphonylureas Chlorpropamide Acetohexamide	Ethanol may induce hypoglycaemia or hyperglycaemia. An 'Antabuse-like reaction'	Alcohol intake by diabetics should be severely restricted. Advice of the potenti

)lbutamide Tolazamide	may occur, particularly with Chlorpropamide. Prolonged heavy drinking induces the liver enzymes that metabolize sulphonylureas.	for an Antabuse-like reaction.
)enformin	Ethanol may contribute to drug-induced lactic acidosis.	
)nzodiazepines Diazepam (Valium) Chlordiazepoxide .ibrium) Flurazepam)almane) Clorazepate 'ranxene) Oxazepam .crepax)	Enhanced CNS depression, reported primarily with diazepam, but may occur with other benzodiazepines.	Avoid concurrent use. Advise of potential toxicity.
rbiturates	Enhanced CNS depression. Ethanol consumption impairs barbiturate metabolism. Deaths have occurred.	Avoid concurrent use. Advise of potential toxicity.
utethimide Doriden)	Enhanced CNS depression.	Same as barbiturates.
probamate Equanil)	Enhanced CNS depression. Ethanol consumption impairs meprobamate metabolism. Chronic alcohol abuse accelerates meprobamate metabolism, resulting in tolerance.	Same as barbiturates for short-term meprobamate use. Alcoholics may not respond to normal meprobamate doses.

Methotrexate	Possible additive hepatotoxicity. Manufacturer's literature cautions against concurrent use.	Restrict alcohol on possible pharmacological and definit medico-legal grounds.
Monoamine oxidase inhibitors (MAOIs) Pargyline (Eutonyl) Isocarboxazid (Marplan) Phenelzine (Nardil) Tranylcypromine (Parnate)	Many alcoholic beverages (particularly beer and wines) contain tyramine, which will interact with an MAOI to produce a hypertensive, hyperpyrexic crisis. No interactions with alcohol per se.	Alcohol itself is not contra-indicated but all tyramine-containing foods and beverages must be avoided.
Chloral hydrate (Noctec) (Somnos)	Enhanced CNS depression. Chloral hydrate inhibits ethanol metabolism. Vasodilation (flushing) also may occur with concurrent use.	Avoid concurrent use Hypotension and tachycardia due to vasodilation could exacerbate cardiovascular disease.
Salicylates	Potential for increased gastrointestinal bleeding with heavy concurrent use.	This problem is seen primarily in heavy drinkers. Advise to drink only in moderation.

ɔe B Interactions: Interactions that occur less frequently but that may be clinically significant and require appropriate management.

:icoagulants, ıl	Heavy alcohol consumptions may induce the liver enzymes that metabolize warfarin.	Heavy drinkers may require high warfarin doses. Advise orally anti-coagulated patients to drink only in moderation. Special caution is indicated in those who eat poorly or who have liver disease (low vitamin K levels may result).
idepressants, cyclic compounds rtriptyline itriptyline sipramine xepin ipramine otriptyline	Enhanced CNS depression may be seen with initial concurrent use. This effect is less probable with doxepin. Concurrent use may produce adverse gastrointestinal side effects.	Advise to drink only in moderation.
nytoin, henylhydantoin	Alcohol may induce the liver enzymes that metabolize phenytoin, thus lessening anticonvulsant control.	Advise to drink only in moderation. Those who drink heavily should be observed for loss of anticonvulsant control.

Metronidazole (Flagyl)	Metronidazole may decrease patients' desire to drink. Concurrent use may produce an Antabuse-like reaction.	Advise to avoid alcoh
Guanethidine (Ismelin)	Ethanol-induced vasodilation may enhance guanethidine-induced orthostatic hypertension.	Advise to drink only moderation and warn o potential dizziness.
Procarbazine	Enhanced depression may occur. An Antabuse-like reaction may occur but has not been documented. The manufacturer's literature warns against concurrent use.	Advise against concurrent use on medico-legal grounds.
Ethionamide	Concurrent use may predispose patients to psychotoxic reactions.	Advise against excessive alcohol use

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Other Reported Interactions of Drugs and Alcohol:

Enhanced CNS depression	Phenothiazine and butyrophenone tranquillizers Narcotic analgesics and propoxyphene Nonspecific sedative hypnotics Antihistamines

ɔssible Antabuse- ike reaction	Furazolidone Quinacrine Tolazoline Sulphonamides
ˈpotensive reactions	Nonspecific antihypertensive agents Diuretics

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Reference: Modern Medicine, June 1976.

urce: P. Healy, **Patterns of Drug Use in Australia: 1970-1977**, NSW Health Commission, June 1978, pp. 43-45, Table 32.

DEATH, INJURY AND RISK IN ROAD CRASHES - INVOLVEMENT OF ALCOHOL

TABLE 1

MAJOR CAUSES OF DEATH BY AGE GROUP - 1977

(Number)

Cause of Death	Age Group 0	1-4	5-14	15-24	25-44	45-64	65+	Not stated	Total
Heart Disease	16	10	20	47	863	9 570	28 617	6	39 149
Malignant Neoplasms	14	74	121	142	1 044	7 393	12 574	-	21 362
Cerebrovascular Disease	1	-	7	26	314	1 987	12 201	-	14 536
Bronchitis, Emphysema and Asthma	6	6	11	39	87	902	3 243	-	4 294
Motor Vehicle Accidents	10	101	253	1 427	895	653	484	2	3 825
All Other Causes	2774	440	401	1 007	2 256	5 118	13 617	11	25 624
All Causes	2 821	631	813	2 688	5 459	25 623	70 736	19	108 790
Motor Vehicle Accidents	0.4%	16.0%	31.1%	53.1%	16.4%	2.6%	0.7%		3.5%

Source: Australian Bureau of Statistics (in Department of Health - Annual Report 1978-79, Parliamentary Paper No. 319 of 1979, p. 185).

TABLE 2

ALCOHOL INVOLVEMENT - FATAL TRAFFIC CRASHES
TASMANIA
JANUARY 1ST 1977 - DECEMBER 31ST 1977

Type of Crash	Number of Crashes	NUMBERS KILLED						
		Drivers	Motor Cyclists	Pedal Cyclists	Other Drivers	Passengers	Pedestrians	Total
All Crashes								
Single Unit	36	22	6	-	-	14	-	42
Multiple Unit	63	26	5	3	-	18	18	70
	99	48	11	3	-	32	18	112
Alcohol - Any Party								
Single Unit	21(58%)	14(64%)	3(50%)	-	-	7(50%)	-	24(57%)
Multiple Unit	27(43%)	14(54%)	-	1(33%)	-	9(50%)	8(44%)	32(46%)
	48(48%)	28(58%)	3(27%)	1(33%)	-	16(50%)	8(44%)	56(50%)
Alcohol - Drivers								
Single Unit	21(58%)	14(64%)	3(50%)	-	-	7(50%)	-	24(57%)
Multiple Unit	23(37%)	14(54%)	-	1(33%)	-	9(50%)	*4(22%)	28(40%)
	44(44%)	28(58%)	3(27%)	1(33%)	-	16(50%)	*4(22%)	52(46%)

Notes

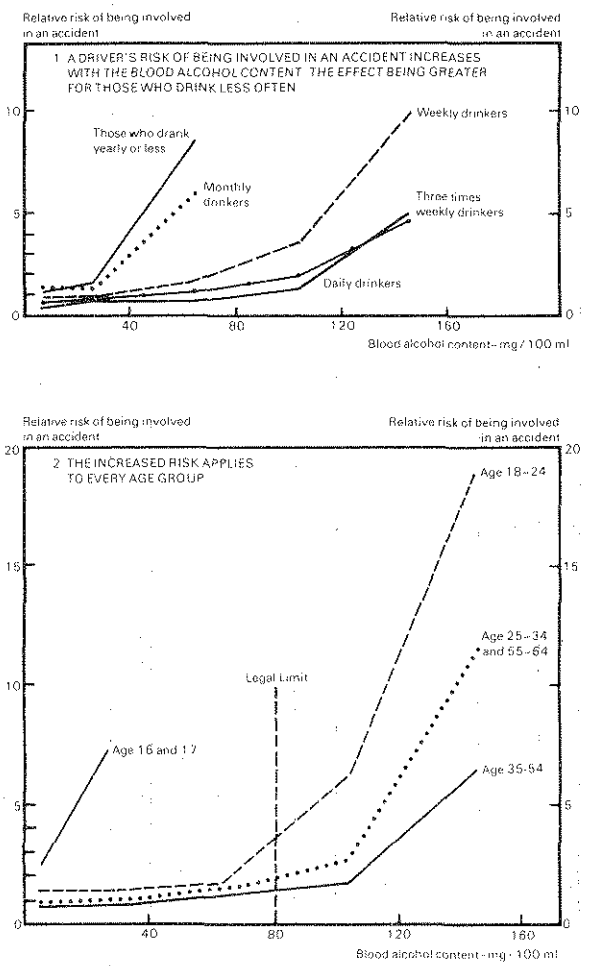
* In four separate crashes involving pedestrians, the pedestrians involved were the only persons having a significant BAC, these being 0.205, 0.204, 0.219 and 0.071 gms/100 ml.

In two other crashes involving pedestrians, both driver and pedestrian had significant BACs in each case. The pedestrians' levels were 0.148 and 0.109 gms/100 ml and the drivers were 0.08 and 0.08 gms/100ml respectively.

Source: Division of Road Safety, Tasmania Police.

FIGURE 1

ACCIDENT RISK AND DRIVERS' BLOOD ALCOHOL CONTENT



Source: OECD Road Research Group, New Research on the Role of Alcohol and Drugs in Road Accidents, September, 1978, p.28.

CHARACTERISTICS OF CRASHES INVOLVING ALCOHOL

TABLE 1

ALCOHOL INVOLVEMENT ON AN ACCIDENT BASIS

Type of Accident	Blood Alcohol Content (BAC) (gms/100 ml)						
	Zero	0.01-0.04	0.05-0.07	0.08-0.15	0.15+	Unknown[1]	Total Accidents
Pedestrian[2]	28	1	-	3	4	4	40
	78%[4]	3%	-	8%	11%		
Pedal Cycle	16	3	-	-	-	3	22
	84%	16%	-	-	-		
Motorcycle:							
Single Vehicle[3]	9	-	-	3	6	-	18
	50%	-	-	17%	33%		
Multi Vehicle	27	2	2	5	2	7	45
	71%	5%	5%	13%	5%		
Commercial Vehicle:							
Single Vehicle[3]	1	-	-	-	-	2	3
	100%	-	-	-	-		
Multi Vehicle	9	2	-	-	-	5	16
	82%	18%	-	-	-		
Car:							
Single Vehicle[3]	20	-	3	8	16	4	51
	43%	-	6%	17%	34%		
Multi Vehicle	61	3	8	9	5	23	109
	71%	3%	9%	10%	6%		
TOTAL:Single vehicle[3]	30	-	3	11	22	6	72
	45%	-	5%	17%	33%		
Multi vehicle	97	7	10	14	7	35	170
	72%	5%	7%	10%	5%		
TOTAL:All accidents	171	11	13	28	33	48	304
	67%	4%	5%	11%	13%		

Notes:

1 BAC is noted as Unknown if no reading was available for at least one active participant in the accident and no other active participant had a positive BAC level, e.g.: for an accident involving two active participants, such as a pedestrian and a car driver, the following BAC readings would be entered in this Table as shown:

Zero and Unknown; entered as Unknown.
Zero and 0.05; entered as 0.05.
0.05 and Unknown; entered as 0.05.
0.05 and 0.20; entered as 0.20.

2 The data for Pedestrian Accidents include both the pedestrian and the driver or rider of the striking vehicle. This applies in a similar way to Pedal Cycle, Motorcycle and Commercial Vehicle accidents. Car Accidents include only passenger cars.

3 Single Vehicle Accidents exclude collisions with a pedestrian or a pedal cyclist and also accidents involving a pedal cycle alone.

4 Percentages omit the BAC Unknown accidents. Subjective assessment of many of the BAC Unknown drivers, etc. suggested that the above percentages slightly underestimate the frequency of alcohol involvement in these crashes.

Source: A.J. McLean and G.K. Robinson, **Adelaide In-Depth Accident Study 1975-1979, Part 1 : An Overview**, Road Accident Research Unit, The University of Adelaide, Adelaide, 1979, p. 28.

TABLE 2

DRIVERS KILLED IN VICTORIA, 1975, 1976 AND JAN-JUNE 1977, BY TIME OF DAY AND DAY OF WEEK

Day of Week	6 a.m. - 6 p.m. Total Killed	6 a.m. - 6 p.m. No. Positive BAC	6 a.m. - 6 p.m. % Positive BAC	6 p.m. - 6 a.m. Total Killed	6 p.m. - 6 a.m. No. Positive BAC	6 p.m. - 6 a.m. % Positive BAC
Sunday	50	15	30	27	12	44
Monday	31	9	29	35	19	54
Tuesday	34	4	12	44	27	61
Wednesday	40	7	17	40	26	65
Thursday	47	11	24	60	38	63
Friday	56	10	18	73	56	76
Saturday	67	21	31	127	98	77
TOTAL	325	77	24	406	276	68

Source: Victorian Road Safety and Traffic Authority (Evidence, p. 472).

TABLE 3

TIME OF DAY AND BAC

BAC	TIME OF DAY (3 HOUR INTERVALS)								
gm %	000-	0300-	0600-	0900-	1200-	1500-	1800-	2100-	Total
Nil	60	9	78	92	98	156	152	101	746
%	8.0	1.2	10.5	12.3	13.1	20.9	20.4	13.5	
Positive	67	24	8	5	5	25	44	62	240
%	27.9	10.0	3.3	2.0	2.0	10.4	18.3	25.8	
Total	127	33	86	97	103	181	196	163	986
%	12.9	3.3	8.7	9.8	10.5	18.4	19.9	18.5	

Source: G.A. Ryan and W.E. Salter, **Blood Alcohol Levels and Drinking Behaviour of Road Crash Victims**, Department of Social and Preventive Medicine, Monash University, Melbourne, June 1977, p. 34, Table 12.

TABLE 4

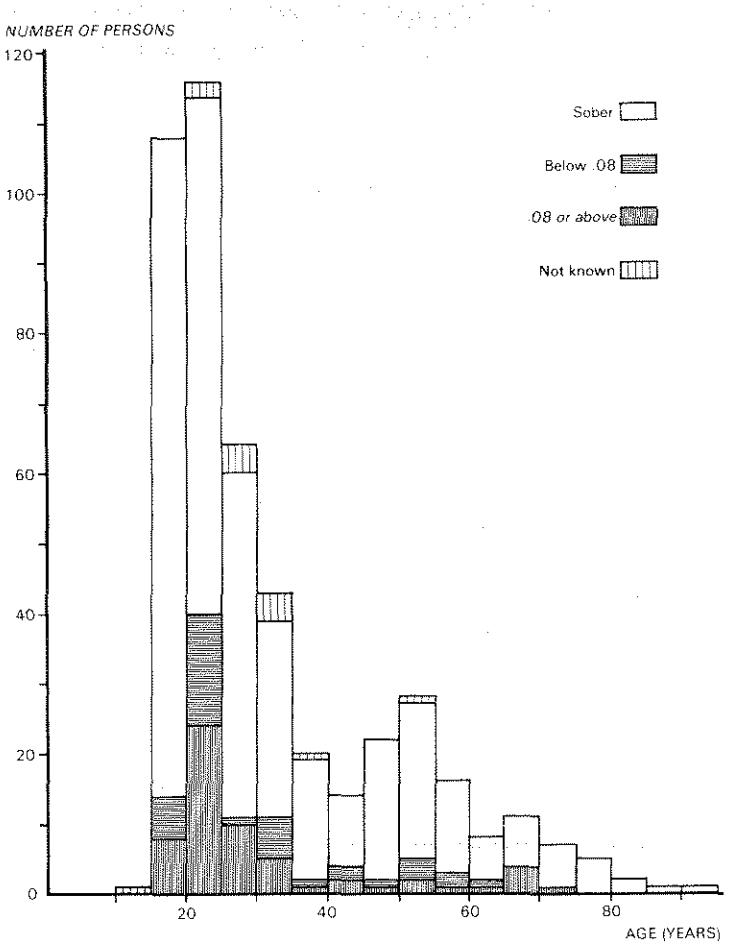
BLOOD ALCOHOL CONCENTRATIONS OF MELBOURNE AND COUNTRY DRIVER CASUALTIES TAKEN TO HOSPITAL, 1977

		Blood Alcohol Concentration (BAC) of less than -		
Area	Driver Casualties	0.05%	0.10%	0.15%
Melbourne	8661	22%	16%	11%
Country	3553	30%	24%	15%

Source: F.T. McDermott, 'The Challenge of the Drinking Driver', Road Trauma Committee, Royal Australasian College of Surgeons, Melbourne, (Evidence, p. 45).

FIGURE 1

ALCOHOL INVOVEMENT IN CRASHES BY AGE OF DRIVER
ADELAIDE IN-DEPTH STUDY



Source: A.J. McLean & G.K. Robinson, Adelaide In-Depth Accident Study 1975-79, Part I. An Overview, Road Research Accident Unit, The University of Adelaide 1979, p. 29.

TABLE 1

TYPES OF DRUGS TAKEN BY CAR DRIVERS

	TYPES OF DRUG														
SAMPLE	N.[1] No.	%	AB. No.	%	TQ. No.	%	C.P. No.	%	O.P.D. No.	%	N.P.D. No.	%	M.T.O. No.	%	TOTAL No.
Fatal[2]	100	82.6	0	-	1	0.8	3	2.5	13	10.7	2	1.7	2	1.7	121
Ambulance	143	75.3	2	1.1	5	2.6	8	4.2	17	8.9	9	4.7	6	3.2	190
Control	116	60.1	2	1.0	4	2.1	7	3.6	27	14.0	26	13.5	11	5.7	193

Notes:

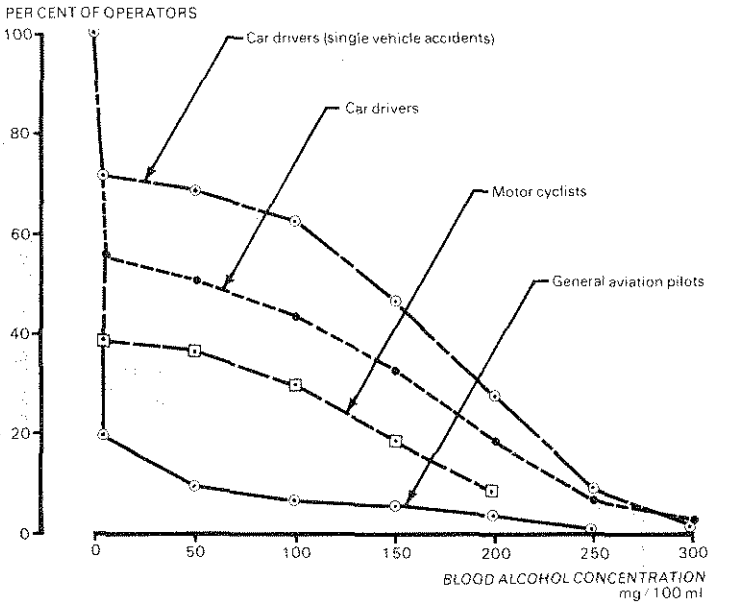
1 N. = None
AB. = Antibiotic
TQ. = Tranquillizer
C.P. = Contraceptive Pill
O.P.D. = Other Prescribed Drugs
N.P.D. = Non-prescribed Drugs
M.T.O. = More than One

2 Fatal - 50% of fatal crashes in a twelve month period.
Ambulance - 2% of road crashes to which an ambulance was called in the same twelve month period.
Control - a control group of drivers, cyclists, pedestrians and vehicles was gathered at the sites of ambulance crashes twelve months later.

Source: MIDAS Study, Report of the Road Accident Research Unit Consultative Council on Road Accident Mortality Health Commission of Victoria, December 1978, p. 128, (Table M 2.3).

FIGURE 1

BLOOD ALCOHOL CONTENT OF FATALLY INJURED DRIVERS, RIDERS (AND AVIATION PILOTS)



Source: T.C. Brown and J.C. Lane, 'Post-Mortem Blood Alcohol in General Aviation Pilots', in I.R. Johnston (ed) (1979), p. 76.

DRINK DRIVING LEGISLATION IN AUSTRALIA[1]

Contents

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1 Prepared by the Commonwealth Department of Transport, February, 1980. Exhibit No. 53.

Introduction

The six States and two Territories (henceforth referred to collectively as the States) all have specific legislation relating to the use of a motor vehicle after taking alcohol or some other drug. Legislation in all States relating to drugs other than alcohol requires evidence that the person charged was under the influence of a drug, and his behaviour was impaired, for a conviction to be recorded.

All States have similar legislation with respect to alcohol. Between 1966 and 1974 (see Table 5) all States also introduced legislation making it an offence to drive with a blood alcohol concentration (BAC) over a specified figure, ('per se' legislation).

In 1962 the Australian Transport Advisory Council (ATAC), comprising all Federal, State and Territory Ministers with responsibility for Transport matters, endorsed the National Road Traffic Code (NRTC) to serve as model legislation for States and Territories.

Currently the NRTC contains very limited provision for legislation on drink driving. Work is currently in progress to expand these provisions.

The Offences Relating to Vehicle Use and Alcohol or Other Drugs

- Driving with the Prescribed Blood Alcohol Concentration (PCA)

In Victoria it is illegal to drive with a BAC exceeding 0.05 gms/100 ml. In Tasmania it is illegal to drive with a BAC exceeding 0.08 gms/100 ml. In all other States it is illegal to drive with a BAC equal to or exceeding 0.08 gms/100 ml.

In Queensland a driver is only charged with the PCA offence if his BAC did not exceed 0.14 gms/100 ml. At levels of 0.14 gms/100 ml and above a charge of driving under the influence is laid. In Western Australia a reading exceeding 0.15 gms/100 ml would usually result in a charge of driving under the influence.

All States make provision for a screening test, which is non-evidential, using the Alcotest or other prescribed testing devices. The Breathalyser Model 900 or Model 1000 is universally used as an evidential recording device and there are specified conditions for its correct use. Tests are also carried out by the analysis of blood samples.

(i) Refusal to Allow Determination of Blood Alcohol Concentration (BAC)

It is an offence in each State for a driver to refuse to undergo breath analysis unless the refusal is based on genuine medical grounds. In some States it is not an offence to refuse to blow if more than the prescribed time has elapsed since the alleged offence. It is also an offence to refuse to provide or allow analysis of a blood specimen, except on medical grounds, in

all States except New South Wales. In Victoria and South Australia, it is only an offence to refuse to provide a blood sample if the person is treated at a hospital. Under other circumstances the provision of a blood sample is optional to the person being tested.

(ii) Attempting to Alter BAC before Determination

New South Wales and Tasmania provide for an offence where a person attempts to alter the BAC before a test has been carried out.

- The Driving Under the Influence Group

(i) Driving Under the Influence (DUI)

New South Wales and Queensland have the offence 'driving under the influence' but vary in the evidence required to support the charge. In New South Wales the arresting officer must have reason to believe that the driver is affected by intoxicating liquor. The charge would normally be laid only when the breathalyser is unavailable but cannot be laid once the driver has undergone analysis. In Queensland a driver whose BAC exceeds 0.14 gms/100 ml is deemed to be DUI. In both jurisdictions this offence can be used where a person attempts to drive, or is responsible for the control of the vehicle, e.g. a driving instructor.

(ii) Driving while Under the Influence to such an Extent as to be Incapable of Having Proper Control of the Motor Vehicle ('Vehicle' in South Australia)

This offence is listed for Victoria, South Australia, Western Australia, Tasmania, Northern Territory and the Australian Capital Territory. This is usually a more serious offence than the PCA offence. It would normally require evidence of impairment to the degree that the person would be 'incapable' of driving. In South Australia, what is normally required is proof of impairment of faculties to the degree that the driver would be incapable of exercising effective control over the vehicle. In Western Australia a BAC reading exceeding 0.15 is considered conclusive evidence of being 'incapable'. In South Australia, Western Australia, the Northern Territory and the Australian Capital Territory a person who attempts to drive, or who is responsible for the control of a motor vehicle, can be charged with this offence.

(iii) Being Under the Influence whilst In and In Charge of a Motor Vehicle

In all States except Victoria and Tasmania being 'in and in charge of' is covered within the DUI offence. Victoria has specific penalties for this offence.

- Other Offences

There are a number of charges relating to driving which would often accompany the offences relating to use of alcohol, such as negligent driving, driving without due care or attention, dangerous driving. In many cases these would relate to the initial reason for apprehension of the driver.

The offence of Culpable Driving can be used where someone has been killed. Evidence of driving impaired by alcohol is one of the factors that can establish driving as 'culpable' under such circumstances.

Determination of the BAC (See Table 5)

Legislation identifies three methods of determining the BAC. The first is a non-evidential 'screening' breath test and the remaining two are evidential breath analysis and blood analysis.

- Screening Breath Test

A breath testing device named Alcotest is generally used. This is a plastic balloon and glass phial containing crystal which provides an indication of whether the alcohol in a breath sample exceeds the prescribed concentration. Although not sufficiently accurate to serve as evidence the device is used as a screen prior to breath analysis. In the Australian Capital Territory the Alcometer is used by the Accident Investigation Squad. This instrument is more accurate, and gives a direct reading. In Western Australia the Alcometer is also used. A police officer may require a person who has been driving or attempting to drive a motor vehicle to undergo a screening test under certain circumstances:

(a) In Victoria and the Northern Territory, designated police may require any driver at any time to undergo a breath test at a designated breath testing station (the so called 'random' breath tests).

(b) In all States, a breath test can be required of a person who was the driver of a motor vehicle which was involved in an accident. The Australian Capital Territory Ordinance covers all persons involved in an accident involving a motor vehicle where it is not known who were the drivers, and the Northern Territory police can require a breath test of any person involved in an accident.

(c) In New South Wales, Queensland, Western Australia and Tasmania, a breath test can be required if any offence against the Act/Ordinance involving a motor vehicle had been committed. In South Australia a breath test can be required of a driver who commits certain specified offences. In the Australian Capital Territory and the Northern Territory the offence of culpable driving is itself sufficient reason to require a breath test.

(d) In all States a breath test can be required if a police officer has reason to believe that the person has alcohol in his body and is/was the driver of a motor vehicle. In New South Wales and Queensland the person must indicate by the manner in which he drives or attempts to drive that he has consumed alcohol. In Victoria and South Australia the provision is restricted to persons whose ability to drive is impaired as indicated by the manner in which the vehicle is driven. The screening test can not be required after a period of two hours from the event for which the test would be conducted, except in Tasmania (three hours) and Western Australia (four hours). In the

Australian Capital Territory, where an accident has occurred, and the police cannot establish the time of the accident, but the driver is found in the near vicinity, the two hour period commences from the time the police locate the driver. Provisions exist in most States that a person physically incapable of providing a sample need not be required to, nor is the provision of a sample required if its provision endangers the person's medical condition.

- Breath Analysis

The instrument known as the Breathalyser has been accepted in all States as providing admissible evidence of BAC.

The police in each State may require a person to submit a breath specimen for analysis where the results of a screening test indicate that the percentage of breath alcohol exceeds (or, in some cases, equals) the prescribed limit. It may also be required if a person refuses or fails to provide a breath sample for a screening test.

Many States have provision for police to request breath analysis on other grounds, with or without a prior screening test. In New South Wales the police must require a screening test before the breathalyser test. Tasmania, South Australia, the Australian Capital Territory and the Northern Territory have provision for a breath analysis to be requested on the grounds applicable to the Alcotest. In Victoria, the police must suspect that the person's ability to drive is impaired by alcohol while in Queensland breath analysis can be required if police arrest a driver for drink driving, careless driving or another indictable offence involving a motor vehicle.

In Western Australia breath analysis may be requested where the police officer has reasonable grounds to believe that the driver is under the influence.

The same restrictions of time limit and physical capability apply to both breath analysis and preliminary screening test. A further provision that the breath analysis should be conducted under the greatest practicable privacy applies in Victoria, and the Australian Capital Territory.

- Blood Analysis

In each State except New South Wales, Victoria, South Australia and the Northern Territory the police may require a person to provide a specimen of blood on the same grounds as breath analysis. In most jurisdictions there is provision that blood tests shall not be taken if the medical practitioner is of the opinion that it would be detrimental to the person's physical condition to do so.

In Tasmania, and the Australian Capital Territory, the police may require a blood sample to be taken where the police were not able to perform a breath analysis. A blood test may be required instead of a breath analysis where the breathalyser is defective (Queensland, Western Australia and the Australian Capital Territory) the person refused to undergo breath analysis (Queensland) or the person was incapable of providing a breath specimen (Western Australia specifically and, by implication, in the other States).

In the Northern Territory and Western Australia the police may require a blood sample to be taken if they have some doubt that to submit to the breath test or breath analysis would be detrimental to a driver's medical condition. The driver has

the option of blood analysis instead of breath analysis in Western Australia and Tasmania. The driver may request a blood test in addition to breath analysis in New South Wales, Victoria, South Australia, Western Australia and the Northern Territory.

In Tasmania and Queensland the police may require blood tests where the police are of the opinion that a person's condition did not (or did not wholly) arise from alcohol. Where the presence of a drug other than alcohol is suspected, the Australian Capital Territory police may require that person to submit to a medical examination, after arrest for DUI.

- Compulsory Blood Analysis of Persons Admitted to Hospital

In Victoria, the Northern Territory and certain hospitals in South Australia where a person apparently or over the age of 15, 14 and 15 respectively, is admitted to hospital after a motor vehicle accident, the attending medical practitioner is required by law to take a blood sample for alcohol analysis, unless it would be injurious to the medical condition of the patient. Enabling legislation has been passed in Queensland but compulsory blood testing has not been introduced.

- The Problem of the Difference Between Time of Offence and Time of Test

It is clearly possible that a BAC may have been different at the time of offence, particularly if a lengthy period elapsed before the breath or blood sample was taken. All States make some attempt to prevent this fact resulting in large numbers of convictions failing.

In New South Wales, the BAC in a sample taken within two hours of the alleged offence is deemed to be the same as the level at that time, unless it can be proved otherwise. It is an offence to attempt to alter the BAC during this time.

In Victoria it is presumed that the level is not less than the level at the time of the alleged offence, provided tha sample is taken within two hours, and unless it can be proved otherwise.

In Queensland a reading within two hours is conclusive evidence of the BAC at the time of the alleged offence.

In South Australia it is presumed that the concentration shown by a breath analysis within two hours is the same as that at the time of the alleged offence, unless the contrary is proved. There is provision, however, that the only evidence that can be adduced to prove the contrary is evidence of the concentration of alcohol shown by a blood test taken in addition to the breath analysis.

In Western Australia a driver must be over the prescribed limit at the time of the offence. A formula is provided for calculating this level, from a reading taken within four hours. It is assumed BAC rises at the rate of 0.016 gms/100 ml per hour for two hours after cessation of drinking, and thereafter falls at the rate of 0.016 gms/100 ml per hour. Although the accuracy of this calculation is conclusively presumed, there is room for dispute as to the time of cessation of drinking.

In Tasmania, a sample taken within four hours is presumed to contain not less than the BAC at the time of the alleged offence, unless the contrary is proved. It is an offence to try to alter the BAC during this time.

In the Northern Territory the concentration determined by a breath analysis within two hours, or a blood analysis within four hours, is deemed to be equal to the concentration at the itme of the alleged offence. It is not reasonable grounds for refusing or failing to submit to a breath analysis or give a blood sample, that the defendant had consumed liquor after he ceased to drive a motor vehicle.

In the Australian Capital Territory, it is an offence for a driver to exceed the prescribed level at the time the sample is taken, provided it is within two hours of driving.

Relicensing of Drivers Disqualified from Driving on a Drink Driving Conviction

- Issue of Special (Conditional) Licence During Disqualification Period

New South Wales, Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory have provision for the Court to issue a special licence during the disqualification period of persons disqualified on a drink driving conviction. The driver is granted the special licence on the undertaking that he will obey the conditions which the court has imposed, for example, driving only during specified hours. Tasmania does not allow courts to issue special licences to persons convicted of either driving under the influence or with greater than prescribed BAC for a second offence within three years. In the Northern Territory and New South Wales convicted drinking drivers must serve a minimum period of licence disqualification before they can be considered for a special licence.

No provision is made for the issue of special licences in Victoria, Queensland and South Australia.

- Relicensing of Drivers Disqualified on a Drink Driving Conviction

In Victoria, South Australia, and the Australian Capital Territory, some convicted drinking drivers must apply to a court for restitution of licence. In Victoria persons convicted for PCA exceeding 0.10 gms/100 ml or repeated offences must apply to a magistrate for restoration of licence. Recurrent drink driving offenders in South Australia must attend an assessment clinic to determine that they are not alcohol dependent before disqualification is revoked. The Australian Capital Territory Courts require all recurrent drink driving offenders and some first offenders (where the Court decided that the circumstances warranted cancellation rather than suspension of licence) to apply to a court for restitution of licence.

Penalties Imposed for Conviction of Alcohol Related Offenders

- Introduction

Penalties may take the form of disqualification from holding a driver's licence, fines or imprisonment. Generally the charge 'driving under the influence' carries the more substantial penalty, and second or subsequent offenders usually receive heavier penalties. Another form of differential penalty occurs in some States where a conviction for a particularly high BAC will lead to a more severe penalty.

A summary of penalties for each State is provided in Tables 1-4. It should be noted however that a person may be convicted and penalised on another charge arising from the same event either additional to or as an alternative to the alcohol related offence (e.g. dangerous driving).

- Driving with the Prescribed Blood Alcohol Concentration (PCA)

(i) Disqualification

All States prescribe mandatory licence disqualification. The disqualification period for a first offence is a range of 1-9 months in Queensland, a maximum of 3 years in Tasmania, and a minimum period in New South Wales (3 months), Victoria (6 months, 12 months or 2 years depending on BAC), South Australia (1 month or 6 months depending on BAC), Western Australia (3 months), Northern Territory (3 months or 6 months depending on BAC) and the Australian Capital Territory (3 months). All States require a longer minimum disqualification period for subsequent PCA offences (including previous DUI offences) except Tasmania (which does not have a minimum period). In Queensland a previous DUI offence results in a longer period of disqualification on subsequent PCA convictions than would apply if all previous convictions had been for PCA offences.

(ii) Fines

All States have provision for a pecuniary penalty to be applied as part-penalty on conviction for a PCA offence. South Australia, and Western Australia have minimum fines, and Tasmania has a set figure. Other States prescribe maximum fines. The fine does not change with subsequent convictions in New South Wales. In the other States provision is made for a higher fine to be levied on subsequent offenders.

(iii) Imprisonment

New South Wales, Queensland, South Australia, Tasmania, Northern Territory and the Australian Capital Territory provide for gaol sentences for first offenders, but in no case are they mandatory. All States except Western Australia provide for gaol sentences for second offenders, and in South Australia a mandatory imprisonment of from 2-6 months is prescribed for those over 0.15 gms/100 ml. Subsequent offences follow a similar pattern, with South Australia introducing a mandatory gaol term of 1-6 months for those 0.08-0.14 gms/100 ml, and a mandatory 4-12 months imprisonment for those 0.15 and over.

- Driving Under the Influence (DUI) Group (see Table 1)

(i) Disqualification

Other than the Northern Territory all States specify a mandatory period of disqualification from holding a driver's licence. However in the Northern Territory, a DUI charge is laid only when a PCA charge is not available. Normally the charge would arise out of another charge which may have a disqualification penalty attached e.g. reckless driving (mandatory disqualification) or negligent driving (discretionary disqualification).

For the first offence New South Wales, Victoria, Queensland, South Australia, Western Australia and the Australian Capital Territory specify a minimum period, with no maximum, Tasmania specifies only a maximum period.

For the second offence Queensland provides for disqualification for a set period of 9 months where the previous charge was PCA, or 12 months where the previous charge was DUI.

The minimum period of disqualification for a second offence is longer than for the first offence in South Australia and Western Australia. The period of disqualification in New South Wales is higher for a second offence, and in Tasmania the maximum is higher. The minimum disqualification period in Victoria does not change. New South Wales, Queensland and South Australia specifically provide for offences within 5 years of a previous offence to be designated as second offences. The Australian Capital Territory provides for cancellation of the licence for a period at the court's discretion for a second offence, which is designated as an offence occurring within five years of conviction for a PCA or DUI charge in any jurisdiction within Australia.

Subsequent offences in New South Wales, Victoria, Tasmania and the Australian Capital Territory are treated as for a second offence. South Australia extends the period of disqualification. Western Australia provides for permanent cancellation of the licence for the third and subsequent offences. Queensland again applies a differential treatment, dependent on whether the previous convictions were PCA or DUI ('Previous DUI offence' includes previous serious or indictable traffic offences).

(ii) Fines

For the first offence New South Wales, Victoria, Queensland, the Northern Territory and the Australian Capital Territory set a maximum fine whereas South Australia and Western Australia set a range, and Tasmania sets a fixed amount.

For the second offence neither Victoria nor South Australia provide for fines, New South Wales and the Northern Territory remain unaltered whilst Western Australia, Tasmania and

the Australian Capital Territory provide for increases. In Queensland a second offence attracts a higher maximum penalty with an additional increase if the previous offence is DUI. For a subsequent offence New South Wales and the Australian Capital Territory provide as for the second offence, whereas the Northern Territory fines are as for the first and second offence. Queensland increases the fine where previous offences were PCA (or PCA plus one DUI) but does not provide for a fine where two or more previous offences were DUI. The fine in Tasmania does not change and Western Australia provides an increased range of fines for the third offence and again for subsequent offences.

In all cases the fine is in addition to disqualification or cancellation, but imprisonment may be specified as an alternative.

(iii) Imprisonment

For the first offence a maximum term of imprisonment is specified in all States except Tasmania where a statutory period is provided. In all States the term of imprisonment is provided for as either an addition to other penalties or an alternative to imposition of a fine.

For the second offence New South Wales and the Northern Territory terms remain unaltered. Victoria, Queensland, Western Australia, Tasmania, and the Australian Capital Territory increase the term. In South Australia a mandatory term of imprisonment of 2-6 months is provided for second offenders.

For subsequent offences New South Wales, Victoria, Tasmania, the Australian Capital Territory and the Northern Territory remain unaltered. South Australia provides for mandatory imprisonment for an increased term, Western Australia

provides for an increased period for the third offence, and again for subsequent offences. Queensland provides for an increased term where previous offences were PCA and introduces mandatory imprisonment for an unspecified term where previous offences were DUI.

(iv) 'In and In Charge Of' Offence (see Table 2)

In all States, except Victoria and Tasmania, being 'in and in charge of' forms part of the definition of 'driving'. Victoria provides separate penalties and, for subsequent offences within 2 years, the severity of the penalties increases. Tasmania does not have this offence.

- Refusal to Allow Determination of BAC (see Table 4)

(i) Preliminary Breath Test

Provision for preliminary breath testing is made in all States and it is an offence to refuse to allow such a test in New South Wales, Victoria, South Australia and Western Australia. Apart from South Australia, however, provision is made that a person who refuses the preliminary test must submit to breath analysis (breathalyser) and hence the offence of refusal to undergo breath analysis may be used. New South Wales, Victoria, South Australia and Western Australia make provision for separate penalties. The New South Wales penalties are less severe than those for the breath analysis charge, but are additional to any charge arising from the breath analysis provisions.

(ii) Breath Analysis

In all States it is an offence for a person to refuse to provide a sample of breath for analysis. New South Wales, South Australia, Queensland, the Australian Capital Territory and the Northern Territory assign the same penalty as for driving under the influence. In Victoria the penalty, which is the same as that for refusing a breath test, is the same as a PCA offence with a BAC of 0.15 gms/100 ml. In Tasmania and Western Australia a person may elect to submit to blood analysis as an alternative provided that the means of conducting such analysis are readily available.

(iii) Blood Analysis

In New South Wales a blood sample can only be taken on request of the driver and hence it is not an offence to refuse to provide a blood sample. There is such an offence in all other States. In Victoria and South Australia a blood sample can only be taken if the driver requests it or if he is treated at a hospital. In Victoria a blood test can also be required if a medical practitioner is of the opinion that to furnish a breath sample would be prejudicial to proper care and treatment. A number of States assign the same penalty for refusing to provide a blood sample as for driving under the influence.

Refusal on medical grounds is an allowable defence in each case in all States.

(iv) Alteration of BAC Before Analysis

Only Tasmania and New South Wales provide penalties for this offence. In New South Wales the penalty is the same as for driving under the influence whilst Tasmania assigns the same penalty as for a PCA offence.

- Special Penalties Applicable to First Year Drivers

A number of States have more stringent conditions relating to first year (provisional licence) drivers. In Tasmania it is an offence for a first year driver to drive with any detectable BAC. The penalty is a fine and licence disqualification. Additionally, convicted first year drivers in Tasmania are required to attend a short rehabilitation course conducted by the Division of Road Safety.

Reference: J. McDermott, **A Comparison of Breathalyser Laws Operating in Australia in 1971.** Int. Rep. Proj. No. 97161/1, Australian Road Research Board, 1975.

TABLE 1 : PENALTIES APPLICABLE FOR A DRIVING UNDER THE INFLUENCE CONVICTION

STATE	FIRST OFFENCE	SECOND OFFENCE	SUBSEQUENT OFFENCE(S)
New South Wales	3 mths min disq plus max of $1000 fine and/ or max 6 mths gaol	3 mths min disq plus max of $1000 fine and/ or max 6 mths gaol	as second offence
Victoria	2 yr min disq plus $1000 max fine or 6 mths max gaol	2 yr min disq plus 2 yr max gaol	as second offence
Queensland	6 mths min licence disq plus $800 max fine and/or 9 mths max gaol	1st off. P.C.A. 9 mths disq plus $900 max fine and/or 12 mths max gaol 1st off. DUI 1 yr disq plus $100 max fine and/or 18 mths max gaol	previous P.C.A. 1 yr disq plus $1000 max fine and/or 18 mths max gaol previous DUI 2 yr disq plus mandatory gaol
South Australia	6 mths min disq plus $300-$600 fine or 3 mths max gaol	1 yr min disq plus 2-6 mths gaol	3 yr min disq plus 4-12 mths gaol
Western Australia	6 mths min disq plus $200-$400 fine or 3 mths max gaol	2 yr min disq plus $400-$600 fine or 6 mths max gaol	third offence: permanent disq plus $600-$800 fine or 1 yr max gaol subsequent offence: permanent disq plus $1000-$2000 fine or 18 mths max gaol
Tasmania	3 yr max disq plus $500 fine and/or 6 mths gaol	6 yr max disq plus $1000 fine and/or 1 yr gaol	as second offence
Northern Territory	$1000 fine and/or 1 yr gaol	as first offence	as first offence
Australian Capital Territory	3 mths min disq plus $1000 max fine and/or 6 mths max gaol	cancellation for period at discretion of court plus $2000 fine and/or 1 yr max gaol	as second offence

TABLE 2 : PENALTY APPLICABLE TO 'IN AND IN CHARGE OF' WHILE UNDER THE INFLUENCE CONVICTION

STATE	FIRST CONVICTION	SUBSEQUENT CONVICTION(S)
New South Wales	As BAC or DUI penalty	As BAC or DUI penalty
Victoria	$500 max fine	$2000 max fine 6 mths max imprisonment 12 mths min disqualification
Queensland	As BAC or DUI penalty	As BAC or DUI penalty
South Australia	As BAC or DUI penalty	As BAC or DUI penalty
Western Australia	As BAC or DUI penalty	As BAC or DUI penalty
Tasmania	Not Applicable	
Northern Territory	As BAC or DUI penalty	As BAC or DUI penalty
Australian Capital Territory	As BAC or DUI penalty	As BAC or DUI penalty

TABLE 3 : PENALTIES FOR THE OFFENCE DRIVING WITH THE PRESCRIBED BAC

STATE	FIRST OFFENCE	SECOND OFFENCE	SUBSEQUENT OFFENCE(S)
New South Wales	3-12 mths disq plus max of $1000 fine and/or max of 6 mths gaol	3-36 mths disq plus max of $1000 fine and/or max of 6 mths gaol	as second offence
Victoria	$500 max fine plus where: BAC 0.05>0.10 6 mths min disq BAC 0.10>0.15 12 months disq BAC >0.15 2 yr min disq	$1000 max fine or 6 mth gaol plus where: BAC 0.05>0.15 2 yr min disq BAC >0.15 4 yr min disq	same as for second offence
Queensland	BAC <0.15 gms/100ml: 1-9 mths disq plus $400 max fine and/or 3 mths gaol BAC >0.15 gms/100ml: DUI charge	prev BAC: 3-18 mths disq plus $600 max fine and/or 6 mths gaol prev DUI: 9 mths disq plus $900 max and/or 1 yr gaol	prev BAC offences: 6 mths disq plus $800 max fine and/or 9 mths max gaol a prev DUI offence: 1 yr disq plus $1000 fine and/or 18 mths max gaol
South Australia	BAC <0.15 gms/100 ml: 1 mths min disq plus $200-$500 fine BAC >0.15 gms/100 ml: 6 mths min disq plus $300-$600 fine or 3 mths max goal	6 mths min disq plus $400-$600 fine or 3 mths max gaol 1 yr min disq plus mandatory 2-6 mths gaol	18 mths min disq plus 1-6 mths gaol 3 yr min disq plus 4-12 mths gaol
Western Australia	3 mths min disq plus $100-$300 fine	6 mths min disq plus $200-$500 fine	as second offence
Tasmania	3 yr max disq plus $500 fine and/or 6 mths gaol	6 yr max disq plus $1000 fine and/or 1 yr gaol	as second offence
Northern Territory	BAC <0.15 gms/100 ml: 3 mths min disq plus $500 max fine and/or 6 mths max gaol BAC >0.15 gms/100 ml: 6 mths min disq plus $1000 max fine and/or 1 yr max gaol	6-12 mths min disq plus $200-$500 max fine and/or 6-12 mths max gaol 1 yr disq plus $500 max fine and/or 1 yr max gaol	as for second offence as for second offence
Australian Capital Territory	3 mths min disq plus $1000 max fine and/or 6 mths max goal	licence cancelled plus $2000 max fine and/or 1 yr max gaol	as for second offence

TABLE 4 : PENALTY IMPOSED FOR REFUSAL TO UNDERGO BAC ANALYSIS*

STATE	BREATH TEST	BREATH ANALYSIS	BLOOD ANALYSIS
New South Wales	$500 max fine	as DUI penalty	Not applicable
Victoria	1st offence: 2 yr min disq plus $500 max fine subsequent offence: 4 yr min disq plus $1000 max fine or 6 mths max gaol	as refusal of breath test	$180 fine for any person attempting to prevent MD from taking sample $180 fine for any MD who refuses, except on medical grounds to take sample $36 fine for a MD who fails to complete a declaration as to why a blood sample was not taken
Queensland	required to undergo breath analysis	as DUI penalty plus immed 24hr susp	as DUI penalty plus immed 24hr susp
South Australia	1st offence: 6 mth min disq plus $300-600 fine or 3 mth max gaol 2nd offence: 1 yr min disq plus 2-6 mth gaol subsequent offence: 3 yr min disq plus 4-12 mth gaol	as refusal to undergo preliminary breath test	Driver - 1st offence: 6 mth min disq (one mth if charge considered trifling) $300-$600 fine or 3 mth max gaol 2nd offence: 1yr min disq plus 2-6 mth max gaol subsequent offence: 3 yr min disq 4-12 mth goal Other person: $300 fine
Western Australia	3-12 mth disq plus $100-500 fine	3-12 mth disq plus $100-500 fine	3-12 mth disq plus $100-500 fine
Tasmania	as for DUI/BAC	as for DUI/BAC	as for DUI/BAC
Northern Territory	required to undergo breath analysis	$1000 fine and/or 1 yr gaol	$1000 fine and/or 1 yr gaol
Australian Capital Territory	required to under go breath analysis	as DUI penalty	as DUI penalty

* Unless on acceptable grounds such as medical or physical inability.

TABLE 5 : PROCLAMATION AND INTRODUCTION DATES FOR BREATH TEST, BREATH ANALYSIS AND BLOOD ANALYSIS

STATE	PRELIMINARY BREATH SCREENING TEST		BREATH ANALYSIS		BLOOD ANALYSIS		
	PROCLAIMED	INTRODUCED[1]	PROCLAIMED	INTRODUCED[1]	PROCLAIMED	INTRODUCED[1]	COMPULSORY ON HOSPITALISATION
New South Wales	18/12/1968	19/12/1968	18/12/1968	19/12/1968	18/12/1968	19/12/1968[3]	No
Victoria	1/8/1971	1/8/1971	20/12/1962	20/12/1966	13/12/1955	13/12/1955	Yes
Queensland	1/8/1968	1/8/1968	1/8/1968	1/8/1968	1/8/1968	1/8/1968	Yes[4]
South Australia	9/8/1973	9/8/1973	23/11/1967	23/11/1967	23/11/1967	23/11/1967[3]	Yes
Western Australia	19/12/1968	19/12/1968	29/9/1966	29/9/1966	12/9/1958	12/9/1958	No
Tasmania	1/2/1971	1/2/1971	8/3/1967	8/3/1967	1/2/1971	1/2/1971	No
Northern Territory	2/12/1974	2/12/1974	2/12/1974	2/12/1974	2/12/1974	2/12/1974	Yes
Australian Capital Territory	21/6/1977	1/12/1977	10/6/1971	10/6/1971	10/6/1971	10/6/1971	No

Notes:

1 Date the procedure was introduced as a routine police procedure.

2 In Victoria the breathalyser was used on a trial basis in 1960 and extensively from March 1961 as complementary evidence of 'driving under the influence'. On 20 December 1966 it was proclaimed an offence to drive above the prescribed BAC limit.

3 At option of the person tested.

4 Not yet introduced.

State and Territory Legislation

New South Wales	Motor Traffic Act (1909) Section 4E and 5(2).
Victoria	Motor Car Act 1958, Act 6325 as amended by Acts 8792, 8865 and 9015 Sections 80B-82 inclusive. Motor Car regulations 1966 as amended by Regulations 169/1971; 271/1973; 112/1974 and 197/1974, 385/1976; 29/1977; 45/1977 Regulations 219-229 inclusive.
Queensland	Traffic Act 1949-1975 Sections 9; 16-16B inclusive; 20-22 inclusive. Regulations 173-181 inclusive.
South Australia	Road Traffic Act 1961-1979 as amended by 103/76 and 42/79.
Western Australia	Road Traffic Act 1974, Sections 63/72 inclusive. Road Traffic (Breath Analysis) Regulations 1975. Road Traffic (Blood Sampling and Analysis) Regulations 1975 as amended by Gazettes 75/1975; 82/1975 and 4/1976. Road Traffic Code 1975 - Regulation 1306A.
Tasmania	Road Safety (Alcohol and Drugs) Act 1970 as amended by Acts 5/1971; 6/1971; 18/1974; 110/1974; 16/1975; 94/1975; 33/1976; 96/1976; 51/1977; Road Safety (Alcohol and Drugs) Regulations 1971 as amended by Statutory Rules 11/1971; 97/1971; 111/1972; 271/1975; 330/1975 and 71/1976. Statute Law Revision Order 1976.
Northern Territory	Traffic Act (1979) Sections 5; 8-9B inclusive; 55 and 55A.
Australian Capital Territory	Motor Traffic (Alcohol and Drugs) Ordinance 1977.

APPENDIX 8

TABLE 1

ESTIMATED RATES OF RECONVICTION FOR DRINKING AND DRIVING IN DRINK/DRIVER POPULATION IN N.S.W. (ACTUAL RECONVICTION RATES SHOWN IN BRACKETS)

Years	Estimated percentage reconvicted	Proportion of total reconvicted who were reconvicted within 1, 2, 3 years, etc.
1	6.5 (4.5)	0.28 (0.19)
2	11.2 (9.1)	0.48 (0.39)
3	14.6 (13.0)	0.62 (0.56)
4	17.0	0.73
5	18.8	0.80
6	20.1	0.86
Ever	23.4	1.00

Source: R. Homel, **Penalties and the Drink Driver, A Study of One Thousand Offenders, Volume 1 - Main Report**, School of Behavioural Sciences, Macquarie University, 1980, (b), p.57, Table 5.8.

LIST OF WITNESSES

AHERN, K.B.	State Coroner, Coroner's Court, Adelaide.
BANCZEWSKA, Rachelle	Assistant Mental Health Education Officer, 4 Alfriston Street, Elwood, Melbourne.
BATT, R.E.	President, Tasmanian High School Principals' Association.
BEARD, Dr T.C.	Senior Medical Officer, Community Health Branch, Commonwealth Department of Health, Canberra.
BENSON, Superintendent C.	Traffic Branch, South Australian Police Department.
BERGEN, Margaret A.	Member of Executive Council, Woman's Christian Temperance Union of Victoria Inc.
BINGHAM, H.S.	Public Affairs Manager, The Australian Associated Brewers, Melbourne.
BISHOP, R.M.	Executive Engineer, Road Safety Committee of South Australia.
BLEVIN, Doreen	Secretary, Northern District Group, Australian Federation of University Women, Sydney.
BOULTON, J.B.	Executive Director, National Safety Council of Western Australia Inc.
BOUVIER, Dr F.N.	Director, Accident and Emergency Services, Royal Children's Hospital and Member, Association of Casualty Supervisors of Victorian Hospitals.
BRENNAN, J.J.C.	Public Relations Consultant, Australian Hotels Association, Sydney.
BRENTNALL, Dr E.W.	Director of Casualty Services, Casualty Supervisor, Accident and Emergency Department, Box Hill and District Hospital and President, Association of Casualty Supervisors of Victorian Hospitals.
BROWN, J.S.	54 Buttaba Road, Bright Waters, via Morisset, New South Wales.
BURGESS, W.M.	Chairman, Road Safety Council of the Northern Territory.

BURRAGE, W.M.	Technical Director, Accident Insurance Council of Australia, Melbourne.
CAMERON, Dr I.E.	Police Medical Officer, New South Wales Police Force.
CARRIER, J.V.	Secretary, Road Safety Council of the Northern Territory.
CASHION, Detective Inspector T.W.	Officer-In-Charge, Police Drug Bureau Tasmania Police.
CHAMBERS, T.F.	Chief Field Officer, Road Safety Council of South Australia.
CHESHER, Dr G.B.	Reader, Department of Pharmacology, University of Sydney.
CLAPHAM, N.F.	Manager, Corporate Affairs, Tooth and Co. Ltd., Sydney.
CLIFFORD, W.	Director, Australian Institute of Criminology, Australian Capital Territory.
COLLINS, J.E.	Executive Director, Victorian Automobile Chamber of Commerce, on behalf of the Australian Automobile Chamber of Commerce.
COX, D.	Chief Executive, Australian Hotel's Association, Sydney.
CROMBIE, Sergeant A.N.	Officer-In-Charge, Breath Analysis Unit, Australian Capital Territory Police.
CULLEN, Sergeant G.T.	Officer-In-Charge, Breath Analysis Section, Police Department, Brisbane.
DAWSON, J.P.	Assistant Executive Director and Director, Technical Division, Insurance Council of Australia, Melbourne.
DIBDEN, Dr W.A.	Deputy Chairman, Alcohol and Drug Addicts Treatment Board, Adelaide.
DOIG, Barbara A.	Guidance Officer, New South Wales Department of Education.
DREW, Dr L.R.H.	Senior Medical Adviser, Alcohol and Drugs, Commonwealth Department of Health, Canberra.

DUNCAN, J.A.	Director, Transport Co-ordination and Road Safety, Department of the Capital Territory, Canberra.
ENGELBERG, Dr S.	Drug and Alcohol Education Project Team, School of Psychology, University of New South Wales.
EVANS, Dr R.P.	Director of Casualty Services, Alfred Hospital, Prahran, Victoria.
FLAHERTY, B.J.	Research Psychologist, New South Wales Drug and Alcohol Authority.
FLEMING, Lt Col W.G.R.	Staff Officer, Routine Movements to the Director General of Movements and Transport, Department of Defence, Canberra.
FOWLER, J.C.	Senior Planning Officer, Carlton and United Breweries, Melbourne.
FROYLAND, Irene D.	Senior Lecturer in Education and Psychology, Department of Education and Psychology, Mount Lawley College of Advanced Education, Western Australia.
GABRYNOWICZ, Dr J.W.	Medical Director, Alcohol and Drug Addicts Treatment Board, Adelaide.
GALLOWAY, J.J.	Pharmicist, Alcohol and Drug Dependency Board, Hobart.
GEDDES, G.	Member, Liquor Industry Road Safety Committee of Western Australia.
GIDLEY, Dr T.H.	Director, Alcohol and Drug Dependant Persons Services, Alfred Hospital, Prahran, Victoria.
GOUDIE, W.H.	Deputy Chairman and Executive Director, Law Reform Commission, Tasmania.
GRAHAM, Dr D.S.M.	Assistant Director, General Environmental Health, Commonwealth Department of Health, Canberra.
GRANT, Dr J.M.	Director (Curriculum), Australian Capital Territory Schools Authority.
GREEN, A.W.	Acting Senior Education Adviser, Aboriginal Adult Education, Northern Territory Division, Department of Education.

GROVE, Joy M.	Council Member and Chairman, Education and Promotion Sub-committee, Road Safety Council of the Northern Territory.
GYORY, Dr A.N.	Director of Rehabilitation Medicine, Rehabilitation Hospital, Concord, Sydney.
HALFORD, Dr M.H.	Technical Secretary, The Australian Associated Brewers, Melbourne.
HAMMOND, Sergeant A.S.	Officer-In-Charge, Breath Analysis Section, New South Wales Police Department.
HELM, M.H.	Teacher, Education Department of Western Australia.
HENDER, E.W.	Chairman, Road Safety Council of South Australia.
HENDERSON, Dr J.M.	Deputy Secretary General, Australian Medical Association, Sydney.
HERBERT, D.C.	Superintendent, Traffic Accident Research Unit, Department of Motor Transport, New South Wales.
HETZEL, Dr B.S.	12 Barnard Street, North Adelaide.
HEWITT, T.V.	Deputy Chairman, Road Safety Council of the Northern Territory.
HIRSCHFELD, B.E.E.	Convenor of Sub-committee in Community Problems, Australian Diabetes Society, Brisbane.
HOMEL, R.	Lecturer in Social Statistics, School of Behavioural Sciences, Macquarie University, Sydney.
HUGHES, R.H.	Education Adviser, Student Driver Education, Northern Territory Division, Department of Education.
JADHAV, Dr P.M.	Medical Officer, Alcohol and Drug Addicts Treatment Board, Adelaide.
JOHNSTON, I.R.	Assistant Secretary, Road Safety Branch, Commonwealth Department of Transport, Melbourne.
JONES, Mary E.G.	National Treasurer, Woman's Christian Temperance Union of Australia, Melbourne.

KELLY, T.O.	Director of Road Safety, Tasmania Police.
KENT, N.F.	Acting Assistant Secretary, Department of Transport, Queensland.
KORTUM, J.W.	National President, Australian Hotels Association, Sydney.
LANDAUER, Dr A.A.A.	Senior Lecturer in Psychology, Department of Psychology, University of Western Australia.
LANDER, H.G.	Member, Road Trauma Committee, Royal Australasian College of Surgeons, Victoria.
LANE, D.E.A.	Chairman, Institute of Advanced Motorists (Queensland).
LAURIE, Dr W.	17A Ardross Street, Applecross, Western Australia.
LAY, Dr M.G.	Executive Director, Australian Road Research Board, Melbourne.
LEE, Dr M.	Head, Department of Education and Psychology, Mount Lawley College of Advanced Education, Western Australia.
LE MARNE, Elna J.	Consultant in Personal Development, New South Wales Department of Education.
LEVINGSTON, B.D.	Committee Member, Darwin and District Alcohol and Drug Dependence Foundation.
LINKLATER, Dr Dawn R.	Senior Behavioural Scientist, Traffic Accident Research Unit, Department of Motor Transport, New South Wales.
LOVIBOND, Professor S.H.	15 Balfour Road, Kensington, Sydney.
LUGG, Dr R.S.W.	Medical Officer, Public Health Department, Western Australia.
McDERMOTT, F.T.	Member, Road Trauma Committee, Royal Australasian College of Surgeons and Senior Lecturer, Department of Surgery, Alfred Hospital, Prahran, Victoria.
McINERNEY, J.B.	New South Wales President, Australian Hotels Association.
McKAY, A.E.	Director, Amog Pty. Ltd., Melbourne.

McLEAN, Dr A.J.	Director, Road Accident Research Unit, University of Adelaide.
McLINDEN, V.J.	Chief, Forensic Chemistry Division, Government Chemical Laboratories, Department of Mines, Western Australia.
McNAMARA, G.P.	Driver Education Officer, Education Department of Western Australia.
McNEILL, Superintendent B.A.	Director of Traffic Services, Northern Territory Police.
MANGIORI, P.V.	Drug and Alcohol Education Project Team, School of Psychology, University of New South Wales.
MANION, Shirley M.	Convenor, Northern District Research Committee, Northern District Group, Australian Federation of University Women, New South Wales.
MARJORAM, J.D.	Research Assistant to Director, Australian Institute of Criminology, Canberra.
MAXFIELD, Betty F.	Secretary, Alcohol and Drug Dependency Board, Hobart.
MILLS, Inspector A.J.	Officer-In-Charge, Belconnen Police Division, Australian Capital Territory Police.
MONTGOMERY, E.J.	Director, Goulburn Valley Driver Training Complex, Shepparton, Department of Education, Victoria.
MONTGOMERY, Dr R.B.	Psychology Clinic, La Trobe University, Melbourne.
MORAITIS, Dr S.	President, Australian Greek Welfare Society, Melbourne.
MORAN, A.	Manager, Wayback Committee, Sydney.
MOXON, Rev B.J.	General Secretary, Victorian Temperance Alliance and National Liaison Officer, Australian and South Pacific Temperance Council, Melbourne.
PERRY, Dr D.R.	Research Scientist, Australian Road Research Board, Melbourne.

PLUECKHAHN, Dr V.D.	15 Culzean Crescent, Highton, Victoria.
POCOCK, Dr P.A.	Forensic Pathologist, Public Health Department, Queen Elizabeth II Medical Centre, Western Australia.
POTTS, F.D.	*Director, Pharmaceutical Services, Alcohol* and Drug Dependency Board, Hobart.
PRATT, H.C.	President, Victorian Temperance Alliance and Executive Member, Australian and South Pacific Temperance Council, Melbourne.
PRIEST, Detective Sergeant T.L.	Tasmania Police.
RANKIN, Dr J.G.D.	Director, Division of Drug and Alcohol Services, Health Commission of New South Wales.
RAYMOND, Anne E.	Research Officer, Department of Community Medicine, St Vincent's Hospital, Melbourne.
ROBINSON, C.D.	Flat 1, 325 Dandenong Road, Armadale, Victoria.
ROBINSON, Superintendent E.	District Superintendent of Traffic, Police Department, Queensland.
RYAN Dr G.A.	40 Osborne Street, Williamstown, Victoria.
SANTAMARIA, Dr J.N.	Director, Department of Community Medicine, St Vincent's Hospital, Melbourne.
SATTLER, A.	Foundation Chairman, Community Action for *Road Education, Melbourne.*
SCOTT, J.G.	Deputy Director General, Education Department, Tasmania.
SETH, Dr Roybn S.	Research Officer, New South Wales Drink/Driver Rehabilitation Program, Bureau of Crime Statistics and Research.
SETTERFIELD, C.K.	Vice-President and Treasurer, Victorian Temperance Alliance and Member, Australian and South Pacific Temperance Council, Melbourne.

SEYMOUR, J.A.	C/- Electronic Telephone Systems, Commonwealth Bank Building, Cnr Foveaux and Elizabeth Streets, Sydney.
SHUGG, D.M.	Associate Member, Institute of Ambulance Officers (Australia), Victoria Division.
SIKK, E.	Stipendiary Magistrate, Magistrate's Courts, Hobart.
SIMPSON, Dr H.M.	Research Director, Traffic Injury Research Foundation of Canada, 1765 St Laurent Boulevard, Ottawa, Canada.
SMITH, D.I.	Research Psychologist, Western Australian Alcohol and Drug Authority.
SMITHURST, Dr B.A.	Chairman, Research Committee, Queensland Road Safety Council.
SODERSTROM, Lynette R.J.	Honorary General Secretary, Woman's Christian Temperance Union of Victoria Inc.
SOUTH, D.R.	Psychologist Class 3, Office of Road Safety, Commonwealth Department of Transport, Melbourne.
SPURLING, Inspector W.J.	Traffic Division, Australian Capital Territory Police.
STARMER, Associate Professor G.A.	Department of Pharmacology, University of Sydney.
STEED, B.H.	Education Adviser, Social Service, Family, Life and Health, Northern Territory Division, Department of Education.
STREMPEL, B.P.	Secretary, Liquor Industry Road Safety Committee of Western Australia.
SUTTON, T.A.	6 Lukin Place, Watson, Canberra.
TABOR, R.	Senior Education Officer, Australian Capital Territory Schools Authority.
TRACEY, Beverley J.	Health Education Curriculum Officer, Education Department, Tasmania.
TRAVERS, D.J.	Chief Executive Officer, Victorian Foundation on Alcoholism and Drug Dependence.

TRINCA, Dr G.W.	Chairman, Road Trauma Committee, Royal Australasian College of Surgeons, Victoria.
TYRRELL, M. St.C.	Senior Regional Psychologist, Health Commission of New South Wales, New England Region, Tamworth.
VANDERAA, Hilde	Committee Member, Institute of Advanced Motorists (Queensland).
VULCAN, Dr A.P.	Chairman, Road Safety and Traffic Authority, Victoria.
WALKER, C.R.	National Secretary, Australian Hotels Association, Sydney.
WALPOLE, Dr B.G.	Casualty Supervisor, Western General Hospital and Member, Association of Casualty Supervisors of Victorian Hospitals.
WATT, Dr Emy	Chairman, Northern District Group, Australian Federation of University Women, New South Wales.
WELLS, B.R.	Engineer-Executive, Australian Automobile Association, Canberra.
WESTERMAN, Rev J.W.R.	Executive Officer, Division of Social Justice of the Uniting Church in Victoria, Member of the Executive Council of Churches and representing the Executive of the Commission on Social Responsibility of the Uniting Church in Australia.
WIGGLESWORTH, E.C.	Director, Injury Research Project, Royal Australasian College of Surgeons, Victoria.
WICKS, N.F.	Acting Director of Road Safety, Commonwealth Department of Transport, Melbourne.
WILLIAMS, I.C.	General Manager, ANSVAR Australia Insurance Ltd., Melbourne.
WILLIAMS, J.	Executive Officer, Temperance Alliance of South Australia Inc.
WILSON, Dr D.G.	Government Medical Officer, Department of Health, Queensland.
WILSON, M.K.	Public Relations Officer, Australian Automobile Association, Canberra.

WILSON, R.C.	Director of Secondary Education, Education Department, Tasmania.
YOUNG, S.W.	Lecturer in Psychology (Child Development), Department of Education and Psychology, Mount Lawley College of Advanced Education, Western Australia.
YUEN, Dr A.	Director, Casualty Services, Prince Henry's Hospital and Member, Association of Casualty Supervisors of Victorian Hospitals.

EXHIBITS AND SUBMISSIONS

(a) Exhibits

The following is an Index of Exhibits:

EXHIBIT NO.

1. Road Trauma Committee, Royal Australasian College of Surgeons, Vic

   Drinking and Driving, Betty Gorrie.

2. Miss R. Banczewska, Assistant Mental Health Education Officer, Melbourne

   Traffic Safety Questionnaire.

3. Dr G.A. Ryan, Melbourne

   Blood Alcohol Levels and Drinking Behaviour of Road Crash Victims, G. Anthony Ryan and Wendy E. Salter, Department of Social and Preventive Medicine, Monash University, June 1977.

4. Alfred Hospital, Melbourne

   APPENDIX 1 - **Compulsory Blood Alcohol Testing of Road Crash Casualties in Victoria; The First Three Years**, F. McDermott and P. Strang.

   APPENDIX 2 - **Blood Alcohol and Road Trauma Survey**, G.A. Ryan et al.

   APPENDIX 4 - *The Challenge of the Drinking Driver*, F. McDermott.

   APPENDIX 5 - Letter sent by Casualty to Treating Clinician indicating B.A.L. over 0.05%.

   APPENDIX 6 - Application to the Australian Associated Brewers for an Investigation into the Social, Educational and Psychological Factors Relating to Alcohol Consumption in Driver Casualties.

5. Australian and South Pacific Temperance Council, Melbourne

   Campaigner, July 1978.

EXHIBIT NO.

6. Commonwealth Department of Health, Canberra

APPENDIX 1 - **Tavern Breath-Testing: Toy or Countermeasure.**

APPENDIX 2 - **Medlars Search on 'Drugs and Driving'**, June 1978, Traffic Injury Committee, National Health and Medical Research Council.

7. Health Commission of N.S.W.

A transcript of the tape recording entitled, **Drink--Driving Countermeasure Programs**, Dr Pamela Ennis, Addiction Research Foundation, An Agency of the Province of Ontario (AT-015).

8. Mr J.A. Seymour, Sydney

Letters to the Editor, **The Open Road**, June 1978.

Letter by A.J. Tester, Ingleburn, N.S.W., dated 20 April 1978.

Letter by L.J. Abrahams, Grafton, dated 25 August 1975.

Letter by S. McNeill, Harbord, N.S.W.

Letter by L.H. Brown, Wollongong, N.S.W., dated 22 April 1978.

Letter by H. Bell, Kahibah, N.S.W., dated 25 April 1978.

Letter by M. Wise, Strathfield, N.S.W., dated 27 April 1978.

Letter by A. Thornton, Waratah, N.S.W., dated 4 May 1978.

Anonymous letter dated 20 April 1978.

Letter by M. Hearney, Redfern, N.S.W., dated 1 May 1978.

Letter by E. Packer, Sans Souci, N.S.W., dated 27 April 1978.

EXHIBIT NO. 8. cont.

Letter by B. Goldberg, Woollahra, N.S.W., dated 26 April 1978.

Letter by R.R. Reeves, Wiley Park, N.S.W., dated 1 May 1978.

Letter by B. O'Keefe, Belmont North, N.S.W., dated 8 May 1978.

Letter by S. Kaske, Lismore, N.S.W., dated 5 May 1978.

Letter by J. Gay, Riverwood, N.S.W., dated 20 April 1978.

9. Mr A. Sattler, Melbourne

The Cost of Road Traffic Crashes, Australia 1977-78, Albert Sattler, October 1978.

10. Department of Transport, Queensland

The Qld Traffic Code, and
A Guide for New Drivers in Queensland.

11. Institute of Advanced Motorists (Queensland)

Institute of Advanced Motorists (Queensland)
. Adept Course.
. Handout Material.

12. Department of Health, Queensland

Blood Alcohol Levels in Patients Attending Hospital After Involvement in Traffic Accidents, J.I. Tonge, Laboratory of Microbiology and Pathology, Brisbane as reprinted from **Journal of Forensic Medicine Volume,** 15, Number 4, October to December 1968.

A Paper as presented to the National Road Safety Symposium by J.I. Tonge, Director, Laboratory of Microbiology and Pathology, Brisbane on **Post-Mortem Blood Alcohol Levels in Road Accident Victims.**

EXHIBIT NO. 12. cont.

Traffic-Crash Fatalities (1968 to 1973): Injury Patterns and Other Factors, J.I. Tonge, M.J.J. O'Reilly, A. Davison, N.G. Johnston, and I.S. Wilkey, Laboratory of Microbiology and Pathology, Brisbane, as reprinted from Medicine, Science and the Law, 1977, Volume 17, Number 1, January.

13. Commonwealth Department of Health, Canberra

Wine, Beer, Whisky and Blood Alcohol Level: Some Definitive Information.

Extracts from the Medical Journal of Australia.

S. Martin, R.J. Diewold and K.E. Cooper, Alcohol, respiration, skin and body temperature during cold water immersion.

H.E. Utne, F.V. Hansen et al, Alcohol Elimination Rates In Adoptees With and Without Alcoholic Parents.

14. Australian Road Research Board, Victoria

'The Implications of Alcohol Impairment for Research, into Road and Traffic System Design and Management', Dr I.R. Johnston, Office of Road Safety, Department of Transport, Journal of the Australian Road Research Board, December 1978.

15. Dr V.D. Plueckhahn, Victoria

Dr V.D. Plueckhahn, Lectures on Forensic Medicine and Pathology, 2nd Ed., University of Melbourne, 1978.

16. The Australian Associated Brewers, Victoria

APPENDIX A - Submissions to the Senate Standing Committee on Social Welfare, the Australian Associated Brewers, 25 February 1977.

APPENDIX B - Drug Problems in Australia - an intoxicated society?, Report from the Senate Standing Committee on Social Welfare, 1977.

EXHIBIT NO. 16. cont.

APPENDIX C - Further Submission to Board of Inquiry into the Operation of the Liquor Control Act 1968, Carlton and United Breweries Limited.

APPENDIX D - 1978 Report of the Board of Inquiry into The Operation of the Liquor Control Act 1968, Volume 1 Part 1 and Part 2.
1978 Report of the Board of Inquiry into The Operation of the Liquor Control Act 1968, Volume 2 Part 3 and Part 4.

APPENDIX E - Submission on the Economic Effects of Excise on the Beer Industry, The Australian Associated Brewers, June 1976.

APPENDIX F - Medical Research Grants from The Australian Associated Brewers (Information Pamphlet).

APPENDIX I - Factors which Influence Per Capita Consumption of Beverage Alcohol, J.G. Barnes and J.C. Bourgeois, Research Bureau, Non-Medical Use of Drugs Directorate, Health and Welfare Canada, March 1977.

APPENDIX J - Alcohol, Alcoholism and Advertising, A Preliminary Investigation of Asserted Associations, Dr D.J. Pittman and Dr M.D. Lambert, St. Louis, Missouri, June 1978.

17. CONFIDENTIAL
The Australian Associated Brewers, Victoria

18. Victorian Temperance Alliance

Alcohol Contents By Weight-Volume-Proof Spirit, Victorian Temperance Alliance.

Submission to Senate Standing Committee on Social Welfare, A.K. Harcourt, December 1976.

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EXHIBIT NO. 18. cont.

Royalauto, Royal Automobile Club of Victoria, February 1979.

Traffic and Crime, distributed by the Victorian Temperance Alliance.

Ourselves and Alcohol, H.C. Pratt for the Victorian District, Independent Order of Rechabites.

19. Australian Greek Welfare Society, Melbourne

Report of the Board of Inquiry into Motor Vehicle Accident Compensation in Victoria, Victoria, 1978, No. 24 - 4390/78.

'Knights in Armour. A Follow-up Study of Injuries after Legal Settlement', J.I. Balla and S. Moraitis, **The Medical Journal of Australia**, 1970, 2: 355 (August 22).

Alcohol and Road Crashes, Notes on the Use of Alcohol, Supplement to the Australian Medical Association (Victorian Branch) Monthly Paper No. 173, Vol. 1, No. 2, March 1978.

The Medical Journal of Australia, Journal of the Australian Medical Association, Vol. 2, No. 14, 1978.

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20. Mr R.K. McKelvey, Senior Research Fellow, Department of Psychology, Monash University, Melbourne

Journal of Safety Research, September 1974, Volume 6, Number 3.

K. Sarlanis, E.M. Lewis, Jr, & E.E. Pazera, **Target Detection as a Function of Brightness Contrast, Initial Position in the Visual Field and Alcohol**, U.S. Department Health, Education, & Welfare, Public Health Service Injury Control Research Laboratory, 1970, ICRL-RR-69-2.

W.O. Light, & C.G. Keiper, **Effects of Moderate Levels of Blood Alcohol Levels on Automobile Passing Behaviour**, U.S. DHEW, Public Health Service, Injury Control Research Laboratory, 1971, ICRL-RR-69-4.

E.M. Lewis, Jr, & K. Sarlanis, **The Effects of Varying Levles of Alcohol on Dark Adaptation Time**, US DHEW, Public Health Service, Injury Control Research Laboratory, 1970, ICRL-RR-69-5.

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K. Sarlanis, & E.M. Lewis, Jr, **Eye Illumination and Contrast Requirements of Visual Signals : A Literature Review**, US DHEW, Public Health Service, Injury Control Research Laboratory, 1972, ICRL-RR-70-1.

C.G. Keiper, **Effects of Moderate Blood Alcohol Levels on Driver Alertness**, US DHEW, Public Health Service, Injury Control Research Laboratory, 1972, ICRL-RR-70-5.

S. Salvatore, **The Influence of Sensory Pattern and Alcohol on Vehicular Velocity Sensing**, US DHEW, Public Health Service, Injury Control Research Laboratory, 1972, ICRL-RR-70-8.

E.M. Lewis, Jr, **Interaction of Age and Alcohol on Dark Adaptation Time**, US DHEW, Public Health Service, Injury Control Research Laboratory, 1973, ICRL-RR-70-9.

R.K. McKelvey, 'The Injury Control Research Laboratory', **A Facility for Experimental Analysis of Environmental and Human Factors Associated with Injury Control**, US DHEW, Public Health Service, 1972, ICRL-RR-71-5.

T. Engen, R.A. Kilduff, & N.J. Rummo, 'The Influence of Alcohol on Odor Detection', **Chemical Senses and Flavor**, 1975, 1, 323-329.

A.B. Dott, & R.K. McKelvey, 'Influence of Ethyl Alcohol in Moderate Levels on Visual Stimulus Tracking', **Human Factors**, 1977, 19 (2), 191-199.

A.B. Dott, & R.K. McKelvey, 'Influence of Ethyl Alcohol in Moderate Levels on the Ability to Steer a Fixed-Base Shadowgraph Driving Simulator', **Human Factors**, 1977, 19 (3), 295-300.

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S. Salvatore, 'Response Speed as a Function of Sensory Pattern and Alcohol in a Velocity Judgement Task', **Ergonomics**, 1975, 18 (5), 491-502.

21. Australian General Services Committee, Al-Anon Family Groups

A Guide For the Family of the Alcoholic, Al-Anon Family Groups.

22. Woman's Christian Temperance Union of Victoria Inc.

Newspaper articles.

EXHIBIT NO. 22. cont

Impact on Traffic Safety of the Introduction of Sunday Alcohol Sales in Perth, Western Australia, D. Ian Smith, Research and Statistics Division, Road Traffic Authority, 22 Mount Street, Perth.

23. Road Trauma Committee, Royal Australasian College of Surgeons, Victoria

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A Schedule from the Victorian Motor Car Act, 1978, amended, setting out offences, existing penalties and proposed penalties under Section 80B, 80E and 80F, 81A and 82.

Newspaper articles.

24. Dr H.M. Simpson, Canada

Smashed, The magazine on drinking-and-driving.

Characteristics of Collisions Involving Non-impact Drivers, H.M. Simpson, R.A. Warren, Louise Page-Valin, Traffic Injury Research Foundation of Canada, Ottawa, Ontario.

The Impaired-Driver Problem vs the Impaired Problem--Driver, H.M. Simpson, Research Director, Traffic Injury Research Foundation of Canada, Ottawa, Ontario.

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Impaired Driving, Reprint from CMA Journal, January 22 1977, Vol (16) pages 121-122.

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Barbiturates and Alcohol in B.C. Traffic Fatalities, H.M. Simpson, R.A. Warren, D. Collard, and L. Page-Valin, Traffic Injury Research Foundation of Canada.

The Young Driver Paradox, R.A. Warren, H.M. Simpson, Issues in Road Safety, September 1976, Traffic Injury Research Foundation of Canada.

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- **Total Impairment Risk Factors**, R.A. Warren, July, 1976.
- **Point Zero Eight and the Change in Drinking Age: One Step Forward and Two Steps Backward?**, R.A. Warren, H.M. Simpson, L. Page-Valin, D. Collard, March 1977.
- **Analysis of Fatal Traffic Crashes in Canada, 1976 Focus: The Impaired Driver**, H.M. Simpson, R.A. Warren, L. Page-Valin, D. Collard, January 1976.

25. Tasmania Police

Samples of printed publicity attached to the submission.

26. Tasmania Police

Covering letter from Mr Kelly, dated 14 March 1979 to the House of Representatives Standing Committee on Road Safety, Alcohol, Drugs and Road Safety Inquiry, together with a copy of the Road Safety (Alcohol and Drugs) Act Tasmania, No. 83 1978.

Traffic Code, Tasmania Police, Division of Road Safety.

27. Dr A.A.A. Landauer and Dr P.A. Pocock, Perth

Alcohol and Amitriptyline Effects on Skills Related to Driving Behaviour.

Breathalyser, Faults: Principles and Pracice.

Desipramine and Imipramine, Alone and Together with Alcohol in Relation to Driving Safety.

The Breathalyzer Test and True Blood Alcohol Level.

EXHIBIT NO. 27. cont.

Antihistamines, Alone and Together with Alcohol in Relation to Driving Safety.

The Accuracy, Reliability, and Validity of the Breathalyzer.

The Effects of Doxepin, Alone and Together with Alcohol in Relation to Driving Safety.

The Effect of Benzoctamine and Alcohol on Motor-Skills Used in Car Driving.

The Effect of Medazepam and Alcohol on Cognitive and Motor-Skills Used in Car Driving.

The Effect of Oxprenolol and Alcohol on Skills Similar to those Used in Car Driving.

Propranolol and Skilled Human Performance.

Effects of Atenolol and Propranolol on Human Performance and Subjective Feelings.

'How Serious is the Offence of Drunken Driving', D.A. Pocock and A.A. Landauer.

28. The National Safety Council of Western Australia Inc.

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29. The Wayback Committee

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30. Road Safety Committee of South Australia

Appendices B, C and D of the submission from the Road Safety Committee of South Australia.

EXHIBIT NO.

31. Road Safety Committee of South Australia

Road Traffic Accidents 1977, Road Traffic Board of South Australia.

32. Road Safety Council of South Australia

Alcohol Abuse - A Summary for Parents and Students, *Washtenaw Council on Alcoholism, Ann Arbor Civitan Club.*

33. Alcohol and Drug Addicts Treatment Board, Adelaide

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34. Mr E. Sikk, Hobart

Letter to Mr Sikk from Mr R. Homel, dated 2 May 1979.

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The South Australian Office of Crime Statistics, P.N. Grabosky, Director.

35. Goulburn Valley Driver Training Complex, Shepparton, Department of Education, Victoria

Goulburn Valley Driver Training Complex, General background and development.

The New Truck and Bus Division, Goulburn Valley Driver Training Complex, The philosophy behind its development.

Defensive Driving and the Goulburn Valley Driver Training Complex, paper presented at the 1979 Petroleum Marketing and Safety Conference.

EXHIBIT NO. 35. cont. Pre-Driver Education, Syllabus for units of work at Goulburn Valley Driver Training Complex.

36. Department of the Capital Territory, Canberra

APPENDIX 1 - **Motor Trafffic (Alcohol and Drugs) Ordinance 1977.**

APPENDIX 3 - **Drinking driving by Canberra motorists,** Report on a survey of the effect of the introduction of the Breathalyzer legislation, John A. Duncan.

APPENDIX 4 - **Alcohol, Drugs and Driving,** The Law Reform Commission, Report No. 4.

37. Professor G.A. Starmer and Dr G.B. Chesher, University of Sydney

'The Relationship Between Alcohol Dosage and Performance Decrement in Humans', H.M. Franks, V.R. Hensley, W.J. Hensley, G.A. Starmer and R.K.C. Teo, **Journal of Studies on Alcohol,** Vol. 37, No. 3, pp. 284-297, March 1976.

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'The Interaction Between Ethanol and Antihistamines, 2: Clemastine', H.M. Franks, V.R. Hensley, W.J. Hensley, G.A. Starmer and R.K.C. Teo, **The Medical Journal of Australia,** 1979, 1: 185-186.

EXHIBIT NO. 37. cont.

'The Effect of Disodium Cromoglycate on Human Performance, Alone and in Combination with Ethanol', W.A. Crawford, H.M. Franks, V.R. Hensley, W.J. Hensley, G.A. Starmer and R.K.C. Teo, **The Medical Journal of Australia**, 1976, 1: 997-999.

'The Interaction of Ethanol and Δ^9-Tetrahydrocannabinol in Man', G.B. Chesher, H.M. Franks, V.R. Hensley, W.J. Hensley, D.M. Jackson, G.A. Starmer and R.K.C. Teo, **The Medical Journal of Australia**, 1976, 2: 159-163.

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'The Effect of (-) Trans-Δ^9-Tetrahydrocannabinol, Alone and in Combination with Ethanol, on Human Performance', B.E. Belgrave, K.D. Bird, G.B. Chesher, D.M. Jackson, K.E. Lubbe, G.A. Starmer and R.K.C. Teo, **Psychopharmacology**, 1979.

'The Effect of Cannabidiol, Alone and in Combination With Ethanol, on Human Performance', B.E. Belgrave, K.D. Bird, G.B. Chesher, D.M. Jackson, K.E. Lubbe, G.A. Starmer and R.K.C. Teo. *Psychopharmacology*, 1979.

Alcohol, Drugs and Accident Risk, Traffic Accident Research Unit, Department of Motor Transport, New South Wales, 4/75.

38. Pharmacy Guild of Australia, Canberra

APPENDIX 3 - Letter to Mr R.W. Manning from John D. Hatch, dated 3 June 1979.

APPENDIX 4 - Press Clippings, April - May 1977.

39. Northern Territory Division, Department of Education

People's Health, Aboriginal Health Worker Training Program Post Basic Health Course, Northern Territory Department of Health.

The New Liquor Legislation, What It Means To You And Your Community.

EXHIBIT NO. 39. cont.

The Northern Territory of Australia, Liquor Act 1978.

Bunk About Booze.

40. CONFIDENTIAL
Darwin and District Alcohol and Drug Dependence Foundation

41. Dr D.G. Wilson, Government Medical Officer, Brisbane

D. Teale and V. Marks, **A Fatal Motor-Car Accident and Cannabis Use - Investigation by Radioimmunoassay**, Division of Clinical Biochemistry, Department of Biochemistry, University of Surrey, Guildford, Surry GU2 5XH, 1975.

S. Casswell, 'Driving Behaviour of Cannabis Users and Non-Users in Closed-Course and Normal Traffic Situations', Department of Community Health, School of Medicine, University of Auckland, Auckland, New Zealand.

42. Mr V.J. McLinden, Government Chemical Laboratories, Perth

V.J. McLinden, 'Problems Involved in Any Legislation Against the Drug-Affected Driver', read at the Symposium on Forensic Sciences, Adelaide, 30 March 1979.

43. Miss R. Banchevska, Mental Health Authority, Melbourne

'Effects of Alcohol on Vision' - An Annotated Bibliography.

44. Dr G.W. Trinca, Chairman, Road Trauma Committee, Royal Australasian College of Surgeons, Melbourne

Dr G.W. Trinca, 'Before, During and After', presented at the National Road Safety Council Symposium - Alcohol, Drugs and Road Traffic, Pretoria, South Africa, 6-7 November 1978.

Dr G.W. Trinca, 'Getting the Evidence and Using it to the Best Advantage', presented at the National Road Safety Council Symposium - Alcohol, Drugs and Road Traffic, Durban, 8 November 1978, and Cape Town, 9 November 1978.

EXHIBIT NO 44. cont.

Dr G.W. Trinca, 'Road Trauma - Today and the Future', January 1979.

45. ANSVAR Australia Insurance Limited, Melbourne

'Drinking and Driving in Scandinavia', **Scandinavian Studies in Criminology**, Volume 6, Universitetsforlaget, 1978.

46. Insurance Council of Australia, Melbourne

APPENDIX 1 - The specific questions and replies from Sweden.

APPENDIX 2 - Summary of the report and recommendation of the Traffic Damage Committee.

APPENDIX 3 - Road Accidents Act 1975, Sweden.

APPENDIX 4 - The Swedish Traffic Damage Act 1975.

APPENDIX 5 - 'Alcohol and Drug Abuse in Sweden', Fact Sheets on Sweden, 1977.

47. Mr T. Sutton, Canberra

J.D. Swisher, J. Crawford, R. Goldstein and M. Yura, 'Drug Education: Pushing or Preventing?' **Peabody Journal of Education**, October 1971, No. 55, pp. 68-75.

Dr J.A. Ewing and B.A. Rouse, 'Failure of an *Experimental Treatment Program to Inculcate Countrol* Drinking in Alcoholics', **Br. J. Addict.**, 1975, Vol. 71, pp. 123-34.

48. The Australian Associated Brewers, Melbourne

Letter from Mr H.S. Bingham, Public Affairs Manager, dated 9 October 1979.

Ms M.M. Brown, 'Alcohol Taxation and Control Policies', International Survey, Brewers Association of Canada, Vol. 1, 3rd edition, March 1978, pp. 225-41 on Sweden.

EXHIBIT NO.

49. Dr W. Laurie, State Health Laboratory Services, Western Australia.

Letter from Dr W. Laurie dated 19 April 1979, with the following attachments:

Draft paper from a Sub-committee formed to look at 'Back-Calculation Rule in Respect of Blood Alcohol Levels' to the Committee for Medical Fitness in Relation to the Driving of Motor Vehicles, dated 23 March 1979.

APPENDIX 1 - Paper from Professor Paterson and Dr Madsen, re 'The Back-Calculation Rule in Respect to Blood Alcohol Concentration'.

APPENDIX 2 - Letter and attachment from Dr W. Laurie, State Health Laboratory Services, Western Australia, re 'Drink Driving Legislation: Back-Calculation', dated 8 March 1979.

APPENDIX 3 - Letter and attachment from R.C. Gorman, Director, Government Chemical Laboratories, Western Australia, re 'Road Traffic Act - Blood Alcohol Back-Calculation', dated 28 Februrary 1979.

APPENDIX 4 - Letter from Dr W. Laurie, State Health Laboratory Services Western Australia, re 'Drink-Driving Legislation', dated 7 March 1979.

APPENDIX 5 - Letter from Inspector F.A. Phillips, Road Traffic Authority, Western Australia, re 'Traffic Act, - Blood Alcohol Back-Calculation', dated 20 March 1979.

50. Department of Education and Psychology, Mt Lawley College of Advanced Education

W.H. Yeaton and J.S. Bailey, 'Teaching Pedestrian Safety Skills to Young Children: An Analysis and One-Year Followup', J. of App. Behaviour Analysis, Vol. 11, No. 3, 1978, pp. 315-29.

EXHIBIT NO.

51. Alcohol and Drug Addicts Treatment Board, Adelaide

Dr A. Crancer, Jr., Dr J.M. Dille, Dr J.C. Delay, Dr J.E. Wallace and Dr M.D. Haykin, 'Comparison of the Effects of Marijuana and Alcohol on Simulated Driving Performance', **Science**, Vol. 164, May 16, 1969, pp. 851-4.

52. Mr R. Homel, Lecturer in Social Statistics, School of Behavioural Sciences, Macquarie University, Sydney

R. Homel, 'Penalties and the Drink/Driver: A Study of One Thousand Australian Offenders', dated 30 January 1980, (a).

R. Homel, **Penalties and the Drink/Driver, A Study of One Thousand Offenders, Volume 1 - Main Report**, School of Behavioural Sciences, Macquarie University, 1980, (b).

53. Commonwealth Department of Transport, Melbourne

'A Comparison of Drink Driving Legislation Operating in Australia', February 1980.

54. Division of Road Safety, Tasmania Police

Fatal Traffic Crashes - Alcohol Involvement, January 1st 1977 - December 31st 1977.

55. Commonwealth Department of Transport, Melbourne
Letter from Professor H. Moskowitz to Mr D. South, dated 10 April 1980.

(b) Submissions

The following submissions were incorporated into the transcript of evidence:

Submission by Mr R.K. McKelvey, Senior Research Fellow, Department of Psychology, Monash University, Clayton, Victoria, dated 24 July 1978.

Submission by Al-Anon Family Groups, Australian General Services, G.P.O. Box 1002 H, Melbourne, Victoria, dated 2 August 1978.

Submission by Mr T.M. Beck, Lot 278, Bickley Road, Kenwick, Western Australia, dated 4 August 1978.

Submission by Mr D.D. Beard, Chairman, S.A. State Committee, Royal Australasian College of Surgeons, State Secretary's Office, Level 5, East Wing, Royal Adelaide Hospital, Adelaide, South Australia, dated 2 August 1978.

Submission by Mr K.C. Naisbitt, Box 263, Port Augusta, South Australia, dated 23 August 1978.

Submission by the Pharmacy Guild of Australia, National Secretariat, Canberra, 14 Thesiger Court, Deakin, Australian Capital Territory, dated 23 April 1979.

The Committee has authorised publication of the following submissions and letters received as evidence:

Submission by Mr R. Tomasic, Senior Research Officer, The Law Foundation of New South Wales, Northside Gardens, 168 Walker Street, North Sydney, dated 6 July 1978.

Submission by Mr S. Prasser, 21 Boundary Street, Tivoli, Ipswich, Queensland, dated 27 June 1978.

Submission by Ms M. Griffiths, 15 View Street, Croydon, Victoria, dated 28 June 1978.

Submission by Mr N. Mayes, P.O. Box 15, Woollahra, New South Wales, dated 30 June 1978.

Submission by Mr C. Hamer, Headmaster, Wesley College, South Perth, Western Australia, dated 28 June 1978.

Submission by Mr G. Head, C/- 263 River Street, Ballina, New South Wales, dated 3 July 1978.

Submission by Mr R.M. Connell, C/- John Matthies Kennedy & Co., Barristers and Solicitors, 4 Bank Place, Melbourne, Victoria, dated 13 July 1978.

Submission by Dr C.H. Selby, 8 Bennett Street, Cremorne, New South Wales, dated 18 July 1978.

Submission by Atlas Autofarm Products, P.O. Box 340, Broadway, New South Wales, dated 4 August 1978.

Submission by Dr S. Lamont, Director of Anaesthesia, Royal Hobart Hospital, G.P.O. Box 1061L, Hobart, Tasmania, dated 7 August 1978.

Submission by The Mothers' Union, Diocese of Sydney, St Andrew's House, Sydney Square, Sydney, New South Wales, dated 4 August 1978.

Submission by Helicopter Rescue Service, The Surf Life Saving Association of Australia, 62 Buckingham Street, Sydney, New South Wales, dated 3 August 1978.

Submission by Mrs G. Sutherland, J.P., 7 Cunningham Place, Inverell, New South Wales, dated 14 August 1978.

Submission by Mr D.N. Veron, 35 Treatts Road, Lindfield, New South Wales, dated 28 July 1978, not including attachments.

Submission by Dr J.D. Yeo, Director of the Spinal Unit, Royal North Shore Hospital, St Leonards, New South Wales, dated 10 August 1978.

Submission by Dr J. Otton, 2/10A Russell Street, Vaucluse, New South Wales, dated 3 August 1978.

Submission by Woman's Christian Temperance Union, Bundaberg Branch, 33 Lamb street, Bundaberg, Queensland, dated 21 August 1978.

Submission by Dr D.G Angus, 12 Myrtle Street, Normanhurst, New South Wales, dated 21 August 1978.

Submission by Woman's Christian Temperance Union of Queensland (Redcliffe Branch), G.P.O. Box 170, Brisbane, Queensland, dated 23 August 1978.

Submission by Mr G.M. Webb, 162 McCarrs Creek Road, Church Point, New South Wales, dated 9 August 1978.

Submission by Mrs F.E. King and Mrs F.E. Pitts, 29 Paradise Street, Mackay, Queensland, dated 5 September 1978.

Submission by DUPA Foundation, Hampton Court, 350 Hampton Street, Hampton, Victoria, received 6 December 1978.

Submission by The Council of the City of Armidale, P.O. Box 75A, Armidale, New South Wales, dated 26 January 1979.

Submission by Mrs J. Kirkpatrick, 26 Henslowes Road, Ulverstone, Tasmania, Jean Adams, 607 Riversdale Road, Hawthorn, Victoria, Naomi Gross, 13 Russell Street, Toorak, Victoria and Joan Hossack, 1 Shakespeare Grove, Hawthorn, Victoria, dated 1 March 1979.

Submission by Mr R.J. Carvolth, 121 Jerrang Street, Indooroopilly, Queensland, dated 2 August 1979.

Submission by Professor F.A. Whitlock, Professor of Psychiatry, University of Queensland, Clinical Sciences Building, Royal Brisbane Hospital, Brisbane, dated 10 August 1979.

Submission by Mrs D. Bronwasser, 86 Edgecumbe Street, Como, Western Australia, dated 17 July 1978.

APPENDIX 10

Submission by Mr D. Roebuck, Orthopaedic Surgeon, 3 Mugga Way, Forrest, Australian Capital Territory, dated 18 July 1978.

Submissions by Mr H.T. McCrea, 5 Chatsworth Gardens, 393 Barkers Road, Kew, Victoria, dated 7 July 1978, 6 September 1978 and 18 September 1978.

Submission by Mr K. Lovett for The ROW (The Residents of Woolloomooloo) Group, C/- 47 Crown Street, Woolloomooloo, New South Wales, dated 25 July 1978.

Submission by Mr P. Halsall, 3/403 Nepean Highway, Mordialloc, Victoria, dated 24 July 1978.

Submission by Mr N.R.M. Mackerras, Suite 8, Faulkner House, 93 Faulkner Street, Armidale, New South Wales, dated 25 June 1978.

Submission by Mrs J. Hutchinson, 265 Fig Tree Pocket Road, Fig Tree Pocket, Queensland, dated 26 July 1978.

Submission by Woman's Christian Temperance Union of Tasmania, 'Cloverlea', Branxholm, Tasmania, dated 7 August 1978.

Submission by Mr R.L. Haebich, 807 Frankston-Flinders Road, Hastings, Victoria, received 7 August 1978.

Submission by Woman's Christian Temperance Union of New South Wales Inc., Lower Ground Floor, 363 Pitt Street, Sydney, dated 4 August 1978.

Submission by Queensland Temperance League, G.P.O. Box 590, Brisbane, Queensland, dated 3 August 1978.

Submission by Mr D.V. Huntley, P.O. Box 10, Latham, Australian Capital Territory, dated 3 August 1978.

Submission by Mr L.A. Anderson, 28 Mt View Terrace, Mt Pleasant, Western Australia, dated 3 August 1978.

Submissions by Mr B.H. Connor, 145 Faulkner Street, Armidale, New South Wales, dated 1 August 1978 and 8 December 1978.

Submission by National Woman's Christian Temperance Union of Australia, 14 North Street, Collinswood, South Australia, dated 1 August 1978.

Submission by Reverand T. Neuhaus, 17 Crawford Street, Berala, New South Wales, dated 3 August 1978.

Submission by Mr T.J. Waters, 194 Nelson Road, Mt Nelson, Tasmania, dated 20 July 1978.

Submission by Woman's Christian Temperance Union of Queensland, Box 170, G.P.O., Brisbane, dated 1 August 1978.

Submission by Dr F. Slater, 4 Astley Place, Garran, Australian Capital Territory, dated 27 July 1978.

Submission by Action for Public Transport, P.O. Box K606, Haymarket, New South Wales, dated 3 August 1978.

Submission by Mr R. Homel, Lecturer in Social Statistics, Macquarie University, North Ryde, New South Wales, dated 16 August 1979.

Letters from Mr R. Homel, Lecturer in Social Statistics, Macquarie University, North Ryde, New South Wales, dated 30 January and 24 March 1980.

Submission by ANSVAR Australia Insurance Limited, 18 Collins Street, Melbourne, Victoria, dated 16 October 1978.

Letter from Insurance Council of Australia, 31 Queen Street, Melbourne, Victoria, dated 22 January 1979.

Letter from Dr G.W. Trinca, Chairman, Road Trauma Committee, Royal Australasian College of Surgeons, Spring Street, Melbourne, Victoria, dated 13 March 1979.

Letter from Mr F.T. McDermott, Senior Lecturer, Department of Surgery, Alfred Hospital, Monash University, Prahran, Victoria, dated 19 April 1979.

Press Cutting, in Melbourne Herald, by Dr Peter Vulcan, Chairman, Road Safety Traffic Authority, Melbourne, Victoria, dated 10 October 1978. ('Draw the Line at 899').

Letter and submission from Commonwealth Department of Transport, 35 Elizabeth Street, Melbourne, Victoria, dated 6 December 1978.

Letter and submission from Australian Capital Territory Police, P.O. Box 401, Canberra, received 19 December 1978.

Letters and submission from Australian Capital Territory Police, P.O. Box 401, Canberra, dated 22 November 1978.

Letters from Dr L.R.H. Drew and Dr T.C. Beard, Commonwealth Department of Health, P.O. Box 100, Woden, Australian Capital Territory, dated 28 December 1978.

Letter and attachments from Dr L.R.H. Drew, Commonwealth Department of Health, P.O. Box 100, Woden, Australian Capital Territory, dated 19 January 1979.

Letter and attachments from Dr T.C. Beard, Commonwealth Department of Health, P.O. Box 100, Woden, Australian Capital Territory, dated 25 January 1979.

Letters from Dr J.G. Rankin, Director, Division of Drug and Alcohol Services, Health Commission of New South Wales, Winchcombe House, 9-13 Young Street, Sydney, dated 5 December 1978, 22 January and 2 February 1979.

Letter from Australian Hotels Association, AHA House, 60 Clarence Street, Sydney, New South Wales, dated 29 May 1979.

Letter and attachment from the Bureau of Crime Statistics and Research, New South Wales Government, Goodsell Building, 8-12 Chifley Square, Sydney, dated 24 November 1978.

Letter and attachments from The Wayback Committee, 2 Central Avenue, Westmead, New South Wales, dated 22 June 1979.

Letter and 'Report on Television Survey No. 3' from Northern District Group, Australian Federation of University Women - New South Wales, 5 Norma Crescent, Cheltenham, dated 14 April 1979.

Letter from Queensland Department of Transport, Transport House, The Valley Centre, Brunswick Street, Fortitude Valley, dated 14 February 1979.

Letter and attachments from Queensland Department of Transport, Transport House, The Valley Centre, Brunswick Street, Fortitude Valley, dated 12 April 1979.

Submission by Dr D.G. Wilson, Government Medical Officer, Brisbane, Queensland, dated 13 November 1978.

Letter and attachments from Queensland Police Department, Traffic Branch, Breath Analysis Section, 2 Herschel Street, Brisbane, dated 17 November 1978.

Letter and attachments from The Australian Associated Brewers, 16 Bouverie Street, Carlton, Victoria, dated 27 February 1979.

Letter and attachment from Mr T.M. Beck, Lot 278, Bickley Road, Kenwick, Western Australia, dated 21 June 1979.

Letter from Mr R.M. Porter, Director, Western Australian Alcohol and Drug Authority, 25 Richardson Street, West Perth, dated 7 May 1979.

Letter from Dr R.M. Jadhav, Alcohol and Drug Addicts Treatment Board, 3/161 Greenhill Road, Parkside, South Australia, dated 30 July 1979.

Letter and attachments from Superintendant A. McNeil, Traffic Services Directorate, Northern Territory Police, P.O. Box 63, Darwin, dated 28 June 1979.

Letter from Mr V.J. McLinden, Chief, Forensic Chemistry Division, Government Chemical Laboratories, 30 Plain Street, Perth, Western Australia, dated 23 April 1979.

CONDUCT OF THE INQUIRY

The Reference

The House of Representatives Standing Committee on Road Safety was appointed by resolution of the House of Representatives on 2 March 1978 to inquire into and report on:

(a) the main causes of the present high level of the road toll in Australia;
(b) the most effective means of achieving greater road safety in Australia;
(c) the particular aspects of the problem to which those concerned with road safety could most advantageously direct their efforts; and
(d) the economic cost to the community of road accidents in Australia in terms of -
    (i) material damage;
    (ii) loss of man hours and earning capacity; and
    (iii) cost of treatment of accident victims.

These terms of reference are identical with those of the Standing Committee on Road Safety established in the Twenty-ninth and Thirtieth Parliaments and with the terms of reference of the Select Committees on Road Safety in the Twenty-seventh and Twenty-eighth Parliaments.

In July 1974 the Committee of the Twenty-ninth Parliament began an inquiry into safety aspects of vehicles using public roads, but due to the complexity and size of the subject, it subsequently decided to restrict its investigations to matters

concerning passenger motor vehicle safety. The Committee's report entitled **Passenger Motor Vehicle Safety** was tabled in the House of Representatives on 2 June 1976. On 5 May 1976 the Committee resolved that it inquire into a further section of the original vehicle inquiry, namely heavy vehicles, or more specifically, trucks and buses. This report entitled Heavy Vehicle Safety was tabled in the House of Representatives on 31 May 1977. The Committee resolved to inquire into the final section of the original vehicle inquiry, namely motorcycles and bicycles, on 19 August 1976. The report entitled **Motorcycle and Bicycle Safety** was tabled in the House of Representatives on 1 June 1978.

With the completion of these inquiries into vehicle safety, the Committee has turned its attention to road user behaviour aspects of the road safety problem. Due to the complexity and size of the subject, the Committee resolved on 29 May 1978 that the first of a series of inquiries into road user behaviour would be into alcohol, drugs and road safety.

The Inquiry

On 23 June 1978 the Committee placed advertisements in major metropolitan newspapers inviting interested individuals and organisations to make submissions on the inquiry into alcohol, drugs and road safety. In addition alcohol producing and distributing organisations , Commonwealth and State road safety and regulatory authorities, research bodies, hospitals, teaching organisations and numerous other organisations were approached directly and invited to make submissions.

One hundred and thirty-nine submissions were received and 133 witnesses appeared before the Committee. A list of witnesses who appeared before the Committee is given at Appendix 9.

Commencing on 25 September 1978 one in camera and 22 public hearings were held at which 4329 pages of evidence and 40 exhibits were taken. A list of exhibits is given at Appendix 10. Evidence given at public hearings is available for inspection in Hansard form at the Committee Office of the House of Representatives and the National Library of Australia in Canberra.

In October 1978 the Committee attended some sessions of the Drinking-Drivers Rehabilitation Program conducted by St. Vincent's Hospital, Melbourne.