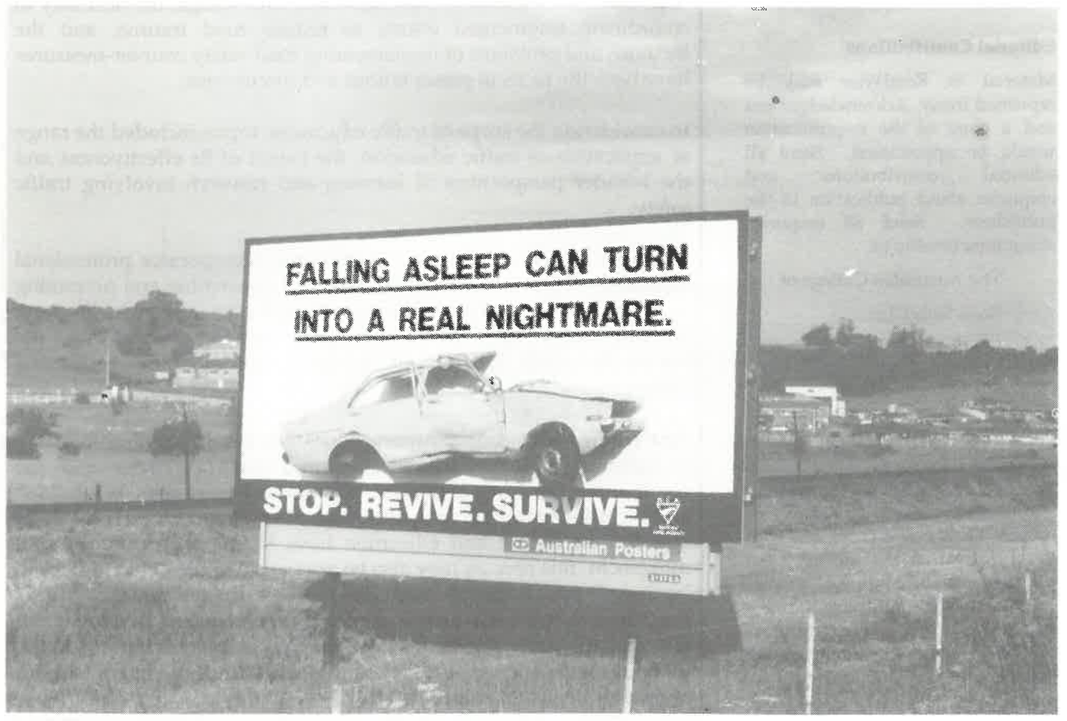
RoadWise

Australia's First Road Safety Journal

5th year of publication



Vol. 5 No. 1

ROADWISE
Autumn 1992
Vol. 5 No. 1
ISSN 1030-7168

Adopted by the
Australian College of Road
Safety Inc.
as the official journal.
Published quarterly
by
EMU PRESS
P.O. Box 1213
Armidale NSW 2350
Telephone (067) 723943
Editor:
Colin Grigg
Printing:
NRMA
151 Clarence Street
Sydney NSW 2000

Editorial Contributions

Material in RoadWise may be reprinted freely. Acknowledgement and a copy of the re-publication would be appreciated. Send all editorial contributions and enquiries about publication to the publishers. Send all enquiries about membership to:

The Australian College of

Road Safety Inc.

PO Box 1213

Armidale NSW 2350

Articles for publication in RoadWise are invited from interested persons or organisations. The publisher reserves the right to reject submissions, modify or reduce the size of articles, but with the approval of the author. No payment is offered for articles submitted. The publisher requires indemnity from contributors against damages or liabilities that may result from publication of all material.

CONTENTS

Editorial

The fourth biennial Traffic Education Conference was held in Canberra in February. The theme was "The Scope of Traffic Education". At previous conferences, the importance of attitudes of road users, in addition to their skills and knowledge; the necessity to co-ordinate fragmented efforts to reduce road trauma; and the methods and problems of implementing road safety counter-measures have been the focus of presentations and discussions.

In considering the scope of traffic education, topics included the range of application of traffic education, the extent of its effectiveness and the broader perspectives of learning and research involving traffic safety.

It is now recognised that traffic education incorporates professional education (for those involved in planning, researching and promoting road safety), community education (for all age groups in life long learning road user behaviour) and training (improving the knowledge, skills and attitudes of those who operate vehicles and cycles).

Apart from this primary aspect, education is also applicable to the background issue of awareness within political circles and the community. This will determine how seriously the issue is regarded and the priority it is given in allocation of resources for its control. In addition, as debate and education have been part of any cultural movement, this process may also be applicable to the demand for and limits of transportation and its various modes in the future. Furthermore, more research and education is required to understand the impact and interaction of mobility, transportation, urban planning, user choices, traffic, environment, lifestyle, human health and safety and economic costs.

OFFICIAL OPENING OF THE 4th BIENNIAL AUSTRALASIAN TRAFFIC EDUCATION CONFERENCE BY MR DAVID HAWKER, MP.

Australia is a vast country, sparsely populated and modern in outlook.

Is it any wonder then, that transport, and road transport in particular, plays such an important part in the Australian way of life?

The automobile has given Australians unprecedented personal mobility. Families and friends are able to keep in much closer contact because of the car. Road transport enables affordable holidays and a way of really seeing the country. Nearly 80% of our freight is carried on the roads.

The great personal freedom, however, does not come without cost. The cost is the thousands of vibrant lives that are tragically cut short each year on our roads and the many thousands more that have to live with some disability as a result of a road crash.

Last year, that cost was 2114 lives, and thousands more injured. Although the lowest in many years, that number of lives lost is unacceptable, especially when one thinks of them, not as statistics as is apt to happen, but for the real children, mothers, fathers, sisters and brothers that they were. These people are loved and sorely missed by many people. For those who were badly injured, the pain and suffering continues. Just about everyone's life has been touched by the tragedy of road crashes.

If over 2000 people had died of AIDS, or hepatitis, or some other terrible disease, or were killed in war, and if many thousands more had contracted some debilitating illness, there would be an uproar. Yet people have become so used to hearing about road deaths that they have become complacent when dealing with their own mortality and vulnerability on the road.

This is especially true of young people who have the added disadvantage of believing themselves immortal - that dying or being confined to a wheelchair is only for the old.

Not only is there the tragic human loss as a result of road crashes, but there is a very real economic cost of road deaths and injuries.

* Estimates of the average cost of a road fatality is about $480,000

* The cost of caring for someone with severe disabilities could be more than $800,000 (and this does not include the loss of earnings that occurs).

* For every person killed on the road, 30 are injured (20 seek hospital attention; 10 are admitted to hospital).

* 10% of our hospital resources are consumed by victims of road crashes. A road crash victim spends an average of 18 days in hospital compared with 7 days for those with other medical complaints.

* 70% of all people who died in road crashes suffered from head injuries.

By any measure, the human cost of road crashes is horrendous. So what can we do?

* It is widely accepted that better roads are safer roads.
  - widening traffic lanes by one metre can reduce head-on and run-off-road crashes by 20%. Passing lanes can cut crashes by 50%.
  - replacing an undivided road with a freeway can cut crashes by 90%.

* According to NSW road traffic statistics, road deaths attributable to not wearing seat-belts is about 32%.

* Over the last 5 years to 1991 in NSW, the percentage of people who were breathalysed and found to be over 0.05 was 0.4%.

This tells a vivid story. Firstly, better roads can help save lives, injuries and vehicle damage. We need to upgrade our major roads. Secondly, improvements in vehicle safety devices (such as anti-lock breaking and airbags) can help save many lives and reduce injuries. Thirdly, the authorities' concentration on speed and alcohol as the major killers is not necessarily right and has added to the negative attitude the public has of police. Finally, driver education, particularly for better skills and attitude is vastly underemphasised.

Australia has one of the highest rates of road fatalities in the developed world whatever measure you use.

Road traffic is expected to increase by 35 percent in volume over the next decade, and if we hope to save lives, we have to start now.

Better roads are obviously an important factor in increasing road safety, and there is a need to improve road conditions if we are serious about saving lives. Improving the safety standards of our vehicles will not stop crashes occurring, but will reduce deaths and severe injury.

The concentration on speed and alcohol by authorities has a two-fold effect.

1. The push for evermore lower alcohol readings (so that even one drink would be an offence) and the obsession with speed (leading to inappropriate speed limits on some sections of road) has labelled the police, at least in the public's mind, as tax gatherers rather than interested in road safety. But the fact is that carelessness causes more deaths than both alcohol and speed. In Victoria in 1990, twice as many people died from carelessness than from alcohol; twice as many died from carelessness than from speed.

2. There may be the effect that some people feel that if they don't speed or drink they will be safe. This neglects things like roadworthiness, careless and aggressive driving, impatience and seat-belts. (Cont. next page)

(continued from previous page)

The emphasis on enforcement and punishment rather than education and rewards for good drivers has led to a culture in car drivers that the "devil may care ('cause we sure don't)".

These issues must be addressed in a sensible way if the motorist is to continue to enjoy motoring in a safe environment and freight continue to be safely carried on our roads.

Most motoring organisations have a system of rewards for good drivers in that the "no claim bonus" increases with each year without a claim, and this is a first step toward instituting a reward-based system rather than a punishment system.

The issue of driver education is, to my mind, of central importance to the whole debate about road safety. An article by Angus Mackenzie, in the November 1990 *Bulletin*, points out that road crashes are caused, in the vast majority of cases, by road users. Some, he said, put the incidence of driver error at 95 percent. All the punishment and shocking advertising in the world is, of itself, not going to really solve the problem of crashes caused by carelessness. What we need is a change in attitude. Drivers have to be aware of the environment in which they are travelling.

Driving is a complex task. Every time we get into a car and drive out onto the road, we are dealing with situations and complexities not even faced by an air pilot in rough conditions. Pilots are highly trained. They operate sophisticated vehicles in sometimes treacherous conditions. They deal with highly trained individuals - whether in other aircraft or in air traffic control.

Motor car drivers get a licence after a short oral or written test (easily learnt by rote) and a jaunt around the streets. They operate increasingly sophisticated vehicles but deal with people who have as much "training" as they do. There is no requirement to show their abilities at night, in the wet, on dirt roads or towing a caravan for example.

They see a licence as a right not as the privilege it should be. This leads to an attitude that they have the right to be on the road, despite the fact that they are operating a potentially lethal weapon. The more they "escape" from potentially dangerous situations or from being caught, the more they believe they are good drivers. It is no wonder that we have so many crashes directly attributable to driver error.

Driver education has to start when children are young. It is very difficult to change the attitude of someone who has managed to "escape" death or injury for some time. It is also difficult to change the attitude of young adults, especially in a group situation. By then it often too late. That is why good sense and consideration in driving has to be instilled at a young age.

Driver education should become an essential part of the school curriculum. We teach our kids the three R's to prepare them for life in the "big world", but we do not teach them the basics of how to stay alive in a motor car. This, in my opinion, is just as important as traditional school work. All the English and Algebra is not much use if all you end up doing is pushing up daisies.

Keeping people alive, uninjured and damage free will make a better society. Prevention is always better and cheaper than cure. In other words, there is another way to just applying tougher and tougher penalties. The key lies in education and attitude.

An integrated land transport system that incorporates good roads, efficient rail and, most importantly, educated operators, is something we all have a responsibility to work for.

I acknowledge the tremendous effort this conference and the Australian College of Road Safety make to the central area of our economy and urge you to keep up the good work. I trust that this conference will abound with stimulated debate and further the cause of road safety in this country.

I have great pleasure in declaring the fourth biennial Australasian Traffic Education Conference open.

Mr David Hawker, MP, is Federal Shadow Minister for Land Transport.

This is No. 11 in the series of interesting safety signs. It is erected on Highway 1, between Port Augusta and Adelaide. The background is the Flinders Ranges.

FELLOWSHIPS OF THE AUSTRALIAN COLLEGE OF ROAD SAFETY

The inaugural fellowships of the Australian College of Road Safety, to acknowledge excellence in the field of road safety, were presented at a ceremony in Canberra on February 14, 1992. The Master of Ceremonies was Professor Terry Field and the awards were presented by the Hon. Bob Brown, Federal Minister for Land Transport.

The citations for the presentations are as follows:-

Harry Leonard Camkin

Harry Camkin, the General Manager of the Road Safety Bureau, Roads and Traffic Authority of New South Wales, an engineer by training, has been able to combine the many disciplines required of a road safety philosophy in terms of traffic management, crash research, and long - term educational strategies. The ROAD SAFETY 2000 plan is a natural outcome of Harry's approach.

His long administrative career in road safety has been acknowledged by invitations to speak at national and international road safety conferences. He has played a central role in many road safety committees and organisations including the Australian College of Road Safety. He is indeed an expert in the field.

Brian Henty Connor

Brian Connor has made an outstanding contribution to the promotion of road safety in his local region, at the state level also and is recognised for his insights and enthusiasm both nationally and internationally. He is a general practitioner in Armidale and is renowned in that setting particularly for his determination and ability to achieve changes for the enhancement of road safety. Indeed, he has worked unceasingly for over fifteen years to promote effective road safety education and research in the Armidale community and the state, and has devoted significant personal time and resources to gaining national and international experience to assist him in his on-going mission to promote road safety. Among his many achievements, with others, was the establishment of the Australian College of Road Safety of which he is the retiring President.

Fellowship award participants (from left to right) Dr Gordon Trinca, Dr Brian Connor, Mr Bob Brown MP, and Mr Harry Camkin.

Gordon Walgrave Trinca

Gordon Trinca has been a vocal advocate of road safety measures for several decades. He was a prime mover of the precedent-setting Victorian legislation requiring the compulsory use of seatbelts in 1971. He has maintained earnest and well-reasoned advocacy for scientifically demonstrable improvements to vehicle design and other road safety measures ever since. He is a specialist general surgeon who has been directly involved in the treatment of traffic accident casualties. The experience in trauma care has enabled him to make a significant contribution to road trauma prevention and the development of optimal care services in the acute phase of management. He has also played a major role in the promotion of drink driving countermeasures. Gordon Trinca represents the Royal Australasian College of Surgeons on many state and federal road safety committees, is involved in many international activities concerned with accident prevention and traffic medicine. He is a prolific author on the subject and has been honoured with many awards recognising his efforts.

NEW MEMBERS

Corporate

COMCAR, Dept. of Administrative Services (Mr Chris Gabriel)
Victorian Chauffeur Training (Mr Craig Mirkin)

Personal

Mr C Hodgson (IAM Fleet Driver Training, Qld.)
Mrs Sandy Caust (Royal Rehabilitation Centre, East Ryde)
Mr Gregory Bondar (Long Distance Road Transport Association of Australia)
Mr Lyall Gorman (NSW Independent Schools Association)
Mr Desmond Roche (Western District Community Road Safety Council, Warrnambool, Vic.)

ACRS EXECUTIVE

At the Annual General Meeting of the Australian College of Road Safety held in Canberra on February 14, 1992, the following Executive Committee was elected:-

Mr Bruce Searles (President), NRMA, NSW.
Mr John Walker (Vice President), Office of Road Safety, S. A.
Mr John Fraser (Vice President), John Fraser Fleet and Driver Consultancy, Qld.
Mr Dennis Young (Secretary), DRUG-ARM, Qld.
Dr Brian Connor (Treasurer), medical practice, NSW.
Mr Colin Grigg (Publicity), EastAus Management Unit, NSW.
Mr Cliff Johnston, Driver Education Centre of Australia, Vic.
Mr Harry Camkin, RTA Road Safety Bureau, NSW.
Dr Jim Mc Grath, Surgeon, NSW.
Dr Mary Sheehan, Queensland University Medical School, Qld.

Co-opted members
Mr Wayne Clift, Australian Advanced Driving & Control Centre, Qld.
Dr Michael Henderson, Consultant, NSW.
Mr Jim Johnstone, IAM Fleet Driver Training, Qld.
Professor Terry Field, University of New England, NSW.

The first meeting of the new executive was scheduled for Brisbane on March 27, 1992.

ABOUT PEOPLE

The Victorian Association of Traffic Safety Education Teachers Inc. (VATSET) has had the benefit of members who are committed to the organisation and to the cause of road safety.

The efforts of some can be highlighted. At the last Annual Conference, held on December 9, 1991, Julie Jones was awarded life membership of VATSET in recognition of her services over a ten year period. Her tireless contribution, in the interest of road safety, was recognised.

One important document which is the result of her efforts is "Administrative Guidelines: Traffic Safety Education". She has promoted an awareness of this document to politicians and in the Victorian education system to ensure the implementation, in schools, of the principles contained in it. Julie has worked consistently to ensure that as many students as possible, within the Victorian Ministry of Education, are exposed to some form of traffic safety education.

Julie Jones was President of VATSET during 1990-1991. She had previously served on the organisation's executive as Vice-President, and Publicity Officer.

In accepting the award, Julie graciously acknowledged the work done by others in the organisation, especially by the previous President, Graeme Hawthorne.

HANDBOOK FOR G.P.'s

A handbook has been released, to guide doctors in isolated areas, in their care for people with head and spinal injuries. Delay in diagnosis is critical.

The book has been prepared by an ACRS member organisation, the Neurosurgical Society of Australasia. The Society recommends that, apart from doctors and surgeons, staff of casuality departments, ambulance officers and state health departments should also use this reference.

Head and spinal injuries cause 70% of the total deaths from road crashes and half of other trauma deaths. Road crashes cause 50-60% of all head injuries. The highest cause of hospitalisation for under 45 year old people is trauma, mainly accident related.

ROAD SAFETY - AN INTERDISCIPLINARY PROBLEM

Road safety, as a profession, depends on a wide spectrum of skills and disciplines.

Its expertise derives from and builds upon substantive contributions from an extraordinarily wide variety of occupations including ambulance officers, driving instructors, engineers, educators, environmentalists, insurance agents, lawyers, managers, media consultants, medical practitioners, policemen/women, politicians, psychologists, social scientists, statisticians, teachers, town planners and traffic educators.

The discipline operates most effectively when it involves contributions from professionals in these fields.

There have been problems in the past, with opinion being divided over the relative contribution made in particular by engineers and educators. However, it can be argued that these contributions may complement each other, particularly as solutions to road safety problems increase in complexity. Engineering advances continue to make a major contribution to road safety in Australia and, as these developments become even more sophisticated, the role of educators, in ensuring their implementation, becomes critical. Educators may have felt marginalised in road safety debates and with the growing sophistication of their practices, engineers may be unsure of implementation practices. However, the role of both professions is critical in the promotion of a safer Australia.

There is a certain lack of understanding of professional roles in the community and the relatively low status of inter-disciplinary qualifications may heighten the concerns regarding professionalism in road safety. A relevant suggestion relates to the possibility of initially adding on road safety qualifications to existing training programmes. It is important to stress that road safety should also be part of the learning programmes not only of engineers and educators, but also other professionals e.g., ambulance officers, lawyers, medical practitioners (primary care and specialists), occupational therapists, police officers and town planners.

It is essential that road safety workers have skills in networking and collaboration. This requires a realisation that the problems which are confronted in road safety demand an understanding of human behaviour and its interaction with the environment. It has become increasingly recognised that these issues are ill-served by rigid intra-professional and territorial boundaries. It is thought that the problems of the future will only be resolved by cross-territorial consultation and planning.

The complexity of the road safety field is evidenced by the range of issues covered in these documents (referring to the series of Discussion Papers being developed by the Australian College of Road Safety) The importance of professional training as far as the Australian College of Road Safety is concerned is exemplified by its development in the following paper (a paper on "Professional Training" is included in the set of documents).
(Discussion Paper No 1) Dr Brian Connor

ACRS DISCUSSION PAPERS - an ongoing process

As part of its aim to promote road safety professionalism, the Australian College of Road Safety has been engaged in producing a series of discussion papers on various aspects of road safety in Australia. In an ongoing process, first drafts of these papers were modified, initially by the executive committee, then by discussion groups at the Australasian Traffic Education Conference. Working groups have been formed to research and amend some of these papers.

These discussion papers will be progressively published in *RoadWise*. The above paper is the first of them.

Suggestions on how to improve the papers are encouraged. The ACRS executive committee is keen to receive as many comments as possible.

It must be emphasised that, at this point in time, the papers are not being submitted as the policy of the College. It is possible that the discussion process may lead ultimately to the development of position statements. For this reason, wide participation is being sought.

AUSTRALIAN COLLEGE OF ROAD SAFETY ACTIVITIES

The 1992 executive committee, under the chairmanship of Mr Bruce Searles, has continued a wide variety of activities, on behalf of the College.

The Australian College of Road Safety has now completed arrangements for incorporation in the Australian Capital Territory.

Work is also in progress to make revisions to the strategic and tactical plan for the organisation. The activities, in the immediate future have strong direction from the previous plan. New areas of focus and priority are being incorporated into a new document, which will be presented to the next annual general meeting for approval.

The future direction for ACRS was a topic discussed at the Australasian Traffic Education Conference in Canberra on February 14, 15, 1992. Members of the executive continue to give this matter serious consideration. It is thought that, apart from its function in providing a professional association for people working for road safety, the College has an important position in the community process included in the national strategy for road safety.

Of utmost importance in deliberations is the strategy to extend membership of the College. Ways and means of achieving greater involvement from various states and territories have been considered. The long term aim for state branches has been proposed. Meanwhile, networking will be facilitated by state correspondents, to ensure that all parts of Australia have a "voice" in the College, even if there is no representation on the executive. In addition, the use of sub-committees, and contributions by co-opted members is envisaged as an important mechanism in particular projects. The matter of membership from overseas, especially New Zealand, is also being examined.

A network register for members was prepared at the National Road Safety Resource Centre (itself a previous joint initiative of the College and the University of New England) during 1991. Apart from maintaining this register, action is in progress to establish a resource directory of all agents with an interest in road safety.

Continuing programmes of the College include Fellowships, a National Award Scheme, Annual Guest Lecturer Programme, and Discussion Papers.

On the recommendation of the convenor of the Fellowship Committee, Professor Terry Field, nominations will be invited for the next fellowship awards to be presented in February 1994.

Submissions have been invited from Local Government Authorities and community groups for the Award Scheme. The ultimate goal of the College's scheme is the establishment of a "Code of Good Practice in Road Safety at a Community Level". The demonstration projects entered for the awards will provide information which will enable the code to be developed.

The guest lecturer for 1992 is Mr John Toomath. He is the Manager, Safety Standards, Land Transport, New Zealand. Various meetings will be organised during November.

The Position Paper programme was introduced in 1991. Various authors prepared drafts on a range of road safety issues. The drafts were modified by the executive committee. At that stage, the papers were published as Discussion Papers, in a document which was released for further discussion by delegates to the Australasian Traffic Education Conference in February. Various people with particular interests have volunteered to continue with the review of these papers. In addition, they will be progressively published in "RoadWise" for comment by all members. The goal is that the process will lead to the issue of position statements by the College.

Another planned activity is the participation of members in road safety discussions at the ARRB conference in Perth scheduled for November 8-12.

The College has made a submission to the National Road Trauma Advisory Council on alcohol, drugs and fatigue.

Other matters which have been discussed by the executive include the policy on the relationship and approaches of the College to Governments; publicity for the activities of the College; education for road safety professionals; and AMA statements about the increased risk for drivers who smoke.

This report is brought to members of the College to invite commments and suggestions. You may wish to write a letter to the editor or submit material to the Secretary, Mr Dennis Young.

CRASH WORTHINESS

Perhaps the automotive industry has been slow to seriously use safety as a customer benefit in sales promotion strategies in past years. Perhaps the companies perceived that the average car buyer does not include safety in decision making criteria.

But attention to safety appears to be increasing. This attention extends beyond safety features of the past and the more recent innovations such as anti-skid brakes, four wheel steering and independent rear suspension. The specifications which will determine the occupant protection which vehicles will provide, in the event of a crash, are not only being introduced to vehicle design but also to sales promotion.

Honda, Volvo and Falcon provide examples.

The 1992 Honda Prelude Si-SRS model is fitted with a supplementary restraint system (SRS) airbag on the driver's side.

The latest Volvo 960 is the first of this make to incorporate side impact protection system (SIPS). This has stronger door pillars on both sides. A survival cell has been built into the cabin. The impact of side-on collision is consequently reduced by beams across the floor and strengthened door sills and window pillars. An air bag is fitted on the driver's side. It is claimed that SIPS has the potential to reduce fatalities and serious injuries caused by side impact collisions by up to 25%.

The new Falcon GLi is being promoted as having greater cabin strength than ever before, with special reinforced roof pillars. All Falcons, Fairlanes and LTD's are claimed to have stronger cabin roofs, thicker windscreens and stronger roof pillars.

The evolution of consumerism since the 1960's has led manufacturers to expect scrutiny from consumers' Associations. In Australia, the NRMA is such a "watchdog". The publication "How Does Your Car Rate in a Crash", contains information which the Association has compiled from crash data. The survey included 70,000 drivers and some 22,000 who were injured. They were driving vehicles of the 1982-1990 period.

The publication claims that the crash worthiness of vehicles in crashes could have a significant impact upon the level of trauma on our roads.

The vehicle assessment rates them on how well they protect the driver. The measure is "the risk of driver death or hospitalisation for every 100 drivers of that model involved in reported crashes".

The matter of occupant protection is also being closely studied by the Federal Office of Road Safety. A programme, being co-ordinated by FORS, incorporates crash testing seven locally available cars. This is part of a process for reviewing Australian safety standards.

Two approaches are possible.

Firstly, standards can focus on the loadings on the femur, chest and head of drivers in a crashed vehicle - the determinates of occupant survival. The achievement of occupant protection in these terms, places the responsibility on car manufacturers. They may achieve the desired protection with soft nose design, air bags, seat belt pre-tensioners, collapsing steering column or a

(from page 9 - Crash Worthiness)

combination of these design features.

The second approach relies on specifying engineering standards for the vehicle itself, for such factors as maximum steering column intrusion and the fitting of mandatory safety equipment.

The former approach is adopted in the U.S.A.. The emphasis is placed on occupant survival. The second approach is embodied in the present Australian Design Rules and is used in European and some other countries.

Awareness of road safety may have, finally, brought vehicle crash worthiness onto the political agenda and into manufacturers' advertising copy. The extent of future development in these standards is a matter of cost and may be determined by public discernment and willingness to pay the extra cost for life protection.

LONG DISTANCE TRUCK DRIVERS

The Institute of Transport Studies, University of Sydney, completed a study for the Federal Office of Road Safety entitled "Long Distance Truck Drivers On-Road Performance and Economic Reward". The study has been released as Report CR99.

The study evolved out of a concern that there is a lack of systematic scientific evidence to prove or disprove explanations of the causes of truck crashes and the negative image of the long distance trucking industry which has been created. It was suspected that inquiry into the causes have tended to concentrate on "localised" reasons rather than the real causes. The hypothesis was that the latter can only be identified by studying the industry as a whole.

The study examined safety aspects of the long distance road freight industry, including work routines, schedules, use of stimulant drugs, speeding and exposure to risk. The survey sample involved 820 long distance truck drivers.

For the first time, scientific evidence of the underlying causes of unsafe on-road behaviour has been presented.

The study revealed that 17% of drivers had been involved in a crash in the two preceding years.

Analysis has shown that economic rewards to owner drivers and employers of drivers have a major influence on the liklihood of drivers speeding.

The survey highlighted the low level of income earned by drivers, particularly owner-drivers (36% earned less than $15,000 in 1989-90). This was payment for an average of 105 hours per week, 65% of which was driving time.

Owner drivers have heavy commitments in financing their trucks. On an average, their repayments are $2,500 per month, over an average repayment period of 4.25 years.

Drivers from small companies recorded the highest average trip speed for the sampled trip viz. 82.01 kph (compares with the average 81.06 kph).

Some 35% of all drivers were travelling to a set schedule for the sampled trip. But, 60% of drivers admitted to imposing their own deadlines, even if they were not working to schedules of freight forwarders.

The use of stimulant drugs is often something to which drivers resort, in order to maintain the long working periods. The findings were that 46% of drivers admitted to taking stimulant drugs at least on some trips.

Drivers were of the opinion that the most important factors. which contribute to crashes involving heavy vehicles were the condition of the roads, the behaviour of other vehicle drivers, truck driver fatigue and lack of truck driver skills.

Support of the need for specialised driver training courses to upgrade skills and to improve their image was given by 80% of drivers.

LINKS WITH OVERSEAS RESEARCH

A research programme, with an estimated cost of $US 150 million, is being carried out during a five year period. Its scheduled completion date is March 1993.

The research has been focussed on highway problems and it has been undertaken by the Strategic Highway Research Programme (SHRP).

The Australian Pavement Research Group (APRG) of AUSTROADS has been co-operating with SHRP in this study.

Two reports will be released. The first report (APRG Report No. 1) is available. This report is concerned with monitoring SHRP projects and identifying potential outputs which will be of benefit in Australia.

PUBLICATIONS

Western Sydney Regional Organisation of Councils, Neighbourhood Road Safety and Amenity, CR 98, September, 1990, (commissioned by the Federal Office of Road Safety, funded by FORS and RTA of NSW and prepared by Geoplan Town Planning).

Traumatic Head Injuries Network Inc. S.A., THINK-The Australian Magazine on Acquired Brain Damage, Vol. 2, No. 2, Mar./April, 1992.

Australian Road Research Board Ltd, Road and Transport Research, Vol. 1, No. 1, March, 1992.

The Roy Morgan Research Centre Pty Ltd, Community Attitudes to Road Safety - Community Attitudes Survey Wave VI, CR 101, January, 1992, prepared for the Federal Office of Road Safety.

INSTAT Australia Pty Ltd, Fatal Crash Types, Analysis of 1988 Fatality File, CR 105, March 1992, (Summary Report, CR 104), sponsored by Federal Office of Road Safety.

Australian Road Research Board Ltd, Terminal Values of Road Traffic Signs, SR 49; Optical and Photometric Standards for Variable Message Signs, ARR 216 (commissioned by Vic Roads); Average Costs for Different Types of Accidents in Urban and Rural Areas, ARR 217; Repair Costs of Vehicles Damaged in Crashes, ARR 218.

Federal Office of Road Safety, Road Fatality Statistics Australia, (published monthly).

Department of Road Transport, Road Fatalities in South Australia, (published monthly).

NATIONAL ROAD SAFETY RESOURCE CENTRE

(An initiative of the Australian College of Road Safety, in conjunction with the University of New England)

Enquiries may be directed to

the Special Projects Librarian, National Road Safety Resource Centre

University of New England, Armidale, N.S.W., 2351

Publications produced by the Australian Road Research Board include:

* Road & Transport Research (quarterly) * Research Reports (approx. 30 per year) * Roadlit (weekly)
* Briefing and Special Briefing (digest of ARRB activities) * Other publications (conference proceedings)

Lasors

(Literature Analysis System on Road Safety)
This is a database available through AUSINET, produced by the library of the Department of Transport and Communications, Canberra, A.C.T.

Back Issues of Publications

Back issues of "RoadWise" are available for members who have joined more recently. Four issues for each of the years 1988, 1989, 1990 and 1991 are available for $10 per set, including postage.
Copies of conference proceedings are also available.

"The Proceedings of the 1986 National Traffic Education Conference"	$10. 50
"The Proceedings of the Second National Traffic Education Conference 1988"	$14. 50
"The Proceedings of the Third National Traffic Education Conference 1990"	$23. 00

Send orders to: EMU Press, PO Box 1213, Armidale, N.S.W., 2350

RoadWise

Australia's First Road Safety Journal
5th year of publication

Vol. 5 No. 2

ROADWISE
Winter 1992
Vol. 5 No. 2
ISSN 1030-7168

Adopted by the
Australian College of Road Safety Inc.
as the official journal.
Published quarterly
by
EMU PRESS
P.O. Box 1213
Armidale NSW 2350
Telephone (067) 723943
Editor:
Colin Grigg
Printing:
NRMA
151 Clarence Street
Sydney NSW 2000

Editorial Contributions
Material in RoadWise may be reprinted freely. Acknowledgement and a copy of the re-publication would be appreciated. Send all editorial contributions and enquiries about publication to the publishers. Send all enquiries about membership to:

The Australian College of
Road Safety Inc.
PO Box 1213
Armidale NSW 2350

Articles for publication in RoadWise are invited from interested persons or organisations. The publisher reserves the right to reject submissions, modify or reduce the size of articles, but with the approval of the author. No payment is offered for articles submitted. The publisher requires indemnity from contributors against damages or liabilities that may result from publication of all material.

CONTENTS

EDITORIAL

After horse drawn transport, early versions of the bicycle played a role in human mobility. In 1760 a four wheeled "travelling chaise without horses" relied on footpower for propulsion. This machine had a sewing - machine - type treadle, rod and cranked axle. In 1816, a Frenchman named Niepce made a two wheeled machine called a celeripede, which was paddled by the feet striking the ground in turn. An improved model called the "Draisienne" was used in England in 1818 and became known as the hobby-horse.

In 1839, a Scotsman named Kirkpatrick Macmillan put a drive to the rear wheel of the hobby-horse and constructed the first real bicycle. In 1861, Michaux fixed cranks directly to the front wheel hub to produce a version known as the velocipede. The Paris representative of the Coventry Sewing Machine Company brought one of these velocipedes to England and persuaded his company to go into production. Thus the bicycle industry was founded in Coventry. Because this machine had heavy wooden wheels it became known as the bone-shaker. Its disadvantge was that it travelled only one wheel's circumference with each complete turn of the pedals.To gear it up, the front wheel was made larger. Hence there was the period between 1873 and 1890 of the high bicycle or the "Penny Farthing".

At the end of the century, cyclists were riding bicycles with pneumatic tyres and a chain drive from the pedals to the rear wheel. The free wheel, improved brakes, lighting, stronger frames, saddle design and gear change devices have helped develop the bicycle of today. Unfortunately, in the modern society, the bicycle has been treated as a toy. However, care has always been required in riding a bicycle. Macmillan knocked down a child with his machine in 1842 and there were many falls over the handlebars of Penny Farthings.
This issue contains a discussion paper on "Bicycle Safety Education", an article on "Bicycle Law Enforcement", some information from Barry Collis on page 10, and the front page photograph featuring bicycle education at Tea Tree Gully Road Safety Centre in South Australia. This information highlights the need to treat the bicycle more seriously as a means of recreation and transport and the need to recognise bicycle safety.

BICYCLE SAFETY EDUCATION

Bicycling is increasingly becoming an important feature of the Australian lifestyle as people strive for mobility in a safe and healthy environment.

The aims of bicycle education initiatives should encompass the health and environmental benefits of bicycling to the individual and the community as well as primarily improving the safety of bicyclists as unprotected road users.

Bicyclists are unprotected and particularly vulnerable road users and, like pedestrians and motorcyclists, are subject to significant physical risks on the roads. Therefore, education of bicyclists and about bicycling is essential for road users to learn to share the road system safely and efficiently.

The following aspects of the bicycle safety issue are well accepted and need to be taken into account in the development of appropriate educational programmes:

* Analysis of bicycle accident statistics indicates a higher injury rate per kilometre of travel for those aged under 20 and over 60 years.
* Skills and appropriate behaviour and attitude development are fundamental to safe road use by bicyclists.
* Teenagers (particularly males) represent a problem because of their high injury rate; lower helmet wearing rates compared with the community average (particularly females) and lower compliance with road laws, the latter being a significant factor contributing to crashes.
* Children under the age of 12 are seriously disadvantaged in the traffic environment by their physical, perceptual and cognitive limitations.
* Bicyclists, in common with other unprotected road users, present a much less visible presence on the road and therefore are likely to be overlooked by motorists.

In addition to safety considerations, the following issues should be incorporated in educational initiatives:

* Bicycles are an energy efficient form of transport powered by human energy rather than by fossil fuels. They have the potential of contributing to a saving of our rapidly depleting energy reserves. Some analysis indicates that the energy consumed by a car occupied by the driver only is 30 to 50 times greater than that used when travelling by bicycle.
* In addition, bicycling is a form of exercise which contributes to the health of the individual rider by improving the function of the cardiovascular system.
* Increasingly important are the benefits of the bicycle to the whole community. Producing minimal pollutants in their production and use, bicycles contribute to the reduction in atmospheric and soil pollution. Air pollution is implicated in the recent dramatic world wide rise in the number of asthma and bronchitis sufferers as well as the suffering from other respiratory diseases.
* Bicycling, as a form of transport, has significant implications for regional and global environments. The use of the bicycle for commuter travel would contribute to a reduction in acid rain, photochemical smog, high ozone depletion and the greenhouse effect.

CURRENT BICYCLE EDUCATION PRACTICE
Bicycle education strategies aimed at improving bicycle safety have traditionally concentrated on:

* Encouraging parent involvement in supervision and the teaching process, and in ensuring that young children are discouraged from using bicycles in or near traffic.
* Encouraging schools to provide bicycle safety education - as part of general road safety education (RSE) which is integrated into a variety of curriculum areas.
* Campaigns and promotions aimed at raising the awareness of safe practices eg., helmet wearing, conspicuity, driver awareness of riders.

Delivery of current bicycle education is undertaken by schools and the general community. It should be noted that no "common agenda" exists, that jurisdictions adopt different approaches to bicycle education and that community groups and schools often work in isolation from each other in delivering similar programmes.

School Involvement in Bicycle Education

* High quality curriculum material in bicycle education has been available to schools in a few jurisdictions since the early 1980's, with original material being updated to reflect school needs and changes in education philosophy.
* In some juridictions, the curriculum material has been supported by education consultants whose role has been to train teachers/parents in the use of curriculum materials and

(continued page 4)

(continued from page 3)

to work with teachers/schools in (i) the development of policies/programmes and (ii) the practical aspects of implementing a programme.

* The level of support and background of support staff varies. Several jurisdictions employ practising teachers while others use non-teacher members of the Public Service, Police Officers or rely on service organisations for support.
* In some instances bicycle resource trailers have been provided to assist schools and community groups in the running of bicycle education programmes.
* Although education authorities generally recommmend that traffic safety education (including bicycle education) be included in curriculum, schools are autonomous in deciding whether or not such programmes are conducted.
* Many factors impact on the establishment of programmes and on the quality of a programme delivery. Some factors which could be noted are:-

- the problem seen by schools in integrating bicycle education into the curriculum.
- the ad hoc approach to bicycle education adopted by many schools.
- problems associated with legal liability for schools and community groups conducting cycling programmes on road.
- difficulties associated with lack of sufficient adult assistance to adequately cover suggested staff/student ratios for on road activities.
- varying standards/quality of programme delivery.
- problems with funding and resource levels.
- current government policy on bicycle education.

Community Involvement in Bicycle Education

* Local municipalities may include education in strategic bicycle planning. Some municipalities appoint bicycle co-ordinators. Recreation officers may also be involved in bicycle education.
* Courses in adult cycling (and associated issues such as maintenance, defensive riding, night riding) aimed at adults returning to cycling after some time or novice riders may be conducted by groups such as Council for Adult Education.
* State Bicycle Committees, bicycle user groups and bicycle organisations may have limited involvement in promoting and delivering bicycle education programmes.

FUTURE DIRECTIONS IN CYCLING EDUCATION

Currently, a nationally agreed goal for schooling is "to provide for the physical development and personal health and fitness of students, and for the creative use of leisure time".

Cycling is obviously endemic to this goal. The teaching of safe cycling should, in part, provide for programmes which focus on knowledge, attitudes and skills development that will aim to achieve it.

However, as the environmental ramifications of our motorised society become more understood, this focus should go beyond the personal benefit to the individual or group and should be broadened to include the future of humankind and the world environment. This may best be done by providing programmes that enable students and adults to investigate the link between the environment and transport, especially regarding alternative means of transport such as cycling.

Irrespective of the specific focus, cycling education should remain as an essential element within school curricula and must be consistent with the developing National Core Curriculum and National Attainment Levels. It should also be consistent with the proposed National Road Safety and National Bicycle Strategies.

In schools, an effective and efficient approach to safety teaching is advantageous to all safety issues including road safety, as attitudes and skills will compliment and reinforce each other. Bicycle education is one aspect of road safety education and should be planned accordingly. The curriculum should be organised as a helix with each content area being revisited every two years. This would allow for road safety knowledge to be built up sequentially and to be presented at relevant age levels. It should also enable positive road safety attitudes to be reaffirmed and skills to be practised and reinforced over the compulsory years of schooling.

Any such programme of cycling education should be developed within the school and be integrated within individual school curricula. Outside providers of human and material resource support, such as the traffic authorities, police, health authorities or the community should be encouraged to make those resources supportive of and consistent with the aims, rationale, teaching methology and practical nature of that curricula in schools. This can only be achieved through consultation and/or mutual intersectoral co-operation between the provider and the school. They should be discouraged from providing resources independently as that

(continued page 5)

(continued from page 4)

may well lead to confusing, inconsistent or counter-productive information transfer.

Cycling education should also not be isolated from other road safety education, nor from safety teaching. Further, the development of cycling educational guidelines and programmes should be built upon identified strengths and standards in Australian cycling educational programmes and must extend beyond school programmes. The community should be encouraged to recognise and to support the need to develop and practise cycling education. In turn, community based education programmes, particularly for adult cyclists, could be developed at the local level.

To progress, it is now important that all levels of government and relevant authorities and community groups make a practical commitment to the provision and resourcing of road safety education including both school and community based cycling education.

This should include a commitment:

- to make cycling education a community issue and focus.
- to encourage cycling as an environmentally sustainable and healthy alternative means of transport and recreation.
- to promote safe cycling through education, programme development and support and by any other relevant means available.
- to cater for the education of other road users, particularly motorists, about cyclists, to encourage equitable sharing of transport systems.

ACRS DISCUSSION PAPERS

As outlined in Vol 5 No 1, we are progressively publishing a series of Discussion Papers. In that edition Discussion Paper No 1, entitled "Road Safety - An Interdisciplinary Problem", was provided.

Discussion Paper No 2 on "Bicycle Safety Education", appears on pages 3 - 5 of this edition.

Suggestions from members on how to improve the papers are encouraged.

It is again emphasised that the papers are not necessarily the policy of the College. It is anticipated, however, that the ongoing process in developing the papers may lead to the adoption of them as position statements.

INTERNATIONAL DRIVERS' BEHAVIOUR RESEARCH ASSOCIATION

This organisation was founded in 1970 by Public Affairs executives of international automobile and petroleum companies.

Over time, original members have been replaced by government, ministries or specialised research institutions.

The organisation has goals which include acting as a catalyst and coordinator of cross-national studies on the role of human factors in normal driving, in traffic conflicts and in accidents. It also aims to assist common efforts to overcome overt and covert obstacles and inertia; promote science-based policies and propagate 'best practices'.

In 1986, a need to improve information flow was identified by British and Australian constituents. The need related especially to early warning of research initiatives, counter measure innovations and legislation passed or proposed. IDBRA, in response, has established INFONET.

The Association is supported by FORS, ARRB, RTA(NSW) & vic roads

This is No 12 in a series of interesting safety signs. It is erected on a mid-north coast section of the Pacific Highway in New South Wales.

Authors of Discussion Paper No 2, Bicycle Safety Education, are Felicia Birman (RACV), Linda Ivett (vic roads), and John Walker (Office of Road Safety, SA Dept. of Road Transport). Thanks to Ken Close (Dept. of School Education, Newcastle) for the original concept.

PROBUS CLUB CONCERNED ABOUT ROAD SAFETY

Recent action by the Probus Club of Milton-Ulladulla exemplifies the community development approach to road safety.

At one of their meetings, attended by seventy one members, they discussed the topic - In what ways can we reduce the road toll?

The most clear and positive deficiency identified was the need to develop better educational programmes leading to the issuing of licences and to somehow change community attitudes so that people would display intense respect for the high powered vehicles they drive, the rules for driving, the limitations of the road they are using, the precious lives of their passengers, themselves and other road users.

With a letter to the editor, a spokesman for the club, Mr Ray Croot, enclosed a summary of the discussions.

"The use of simulators in training appeared to be one area neglected by authorities charged with the responsibility of administering traffic safety", commented Mr Croot. On behalf of the club, he has written to the Australian Road Research Board requesting advice, including information on simulators and their use in driver training. He was directed by ARRB to the NSW Road Safety Bureau and the Federal Office of Road Safety and a similar letter was sent to each. (The three organisations are members of the Australian College of Road Safety).

Mr Ray Croot has since had correspondence with Dr Chris Horneman (Education Unit of the Road Safety Bureau, located in Armidale). He is now in possession of a summary of a report on simulators and a copy of the proposed curriculum for novice drivers being developed by the Road Safety Bureau. Mr Croot has forwarded comments on the latter to Dr Chris Horneman.

Mr Croot spent thirty seven years as a school teacher, during the last eleven of which he was a high school principal. "I have seen how eager young people are to get their licences and yet the attention paid to developing in them the right attitudes to driving has been minimal", said Mr Croot. He considers skills training, attitude development, licensing requirements and enforcement all as part of a necessary package.

The following suggestions were made by the special meeting of the Milton - Ulladulla Probus Club:-

Education
* Education in schools (after school hours) by highly trained professional instructors as part of the licensing procedure.
* Use of simulators as an integral part of that training and testing procedure.
* Compulsory re-education of offending drivers in safe driving techniques.
* Awarding grades of achievement when licensing.
* Attitude training and development i.e., responsibility to self and others.

Licences
* Strict and thorough testing.

* Provisional licences for eighteen months and graded licences.
* More frequent testing, particularly for transport drivers and heavy vehicle drivers (including buses).
* Age restrictions (maximum /minimum) for heavy vehicle drivers.
* Increase penalities for offences.
* Mental/psychological checks as a factor in licence issuing.
* Physical checks on aged drivers.
* Incentives for good driving record eg., cheaper licence.
* Power limitations for drivers under 25, or those convicted of speeding offences (identify with "P" plate).

Vehicle Registration/Safety
* Less power in vehicles.

* More speed control - governors on cars and trucks.
* More safety features in vehicles; more robust construction.
* Speed limits.
* Speed zoning.
* Air bags compulsory.
* Emergency braking in all vehicles.
* Seat belts in coaches; coach cabin design improvement.
* More stringent vehicle inspections eg., headlight testing to avoid blinding the oncoming driver.
* Minimum distances between vehicles emphasised.
* Spot checks on vehicle safety.
* Improve truck design to eliminate flying stones and water spray.
* Limit times when trucks can be on the road.

Roads
* Extend the levy 3x3 system to continue upgrading roads.

(continued page 7)

(continued from page 6)

Ensure that all funds raised are used for the purpose intended.
* Widen existing roads as a first priority.
* Provide more passing lanes.
* Move as quickly as possible to establish a safer road system.
* Provide road signs appropriate to road conditions.

Rail/Heavy Transport
* Extend rail use for efficient transport outlets.
* Heavy transport vehicles only on special roads.
* Exclude the transport of dangerous goods by road.
* Address the problem of road transport vehicle schedules putting pressure on the driver and the vehicle to maintain the schedule.

NATIONAL ROAD SAFETY RESOURCE CENTRE

The National Road Safety Resource Centre, which was established cooperatively by the Australian College of Road Safety and the University of New England, has been operating for two years.

The University Librarian, Mr Karl Schmude, has reported on the progress of the Centre's operation. "The requests for information have grown in number as well as variety", Mr Schmude said.

The requests have involved subjects such as driver training, sleep apnea, skid pans, traffic calming, safety striping on rear bumper bars, etc.

The Centre has also been responsible for compiling a National Register of ACRS members.

A DAY TO REMEMBER

In *RoadWise* Vol 2 No 3, there was a report on the inaugural "Day to Remember".

This was held on December 3, 1988. The date was chosen to remind people, prior to Christmas holidays, of the need for care as they travel.

This event has been continued as an annual activity, in remembrance of victims of road trauma.

April 15, 1992 was the day to remember for the fifth year. This year, the date preceded Easter, which is usually a time when people attempt to travel long distances within four days, on congested roads.

Queensland Transport Minister Mr David Hamill, during an address, said that "Easter was statistically the most dangerous time to be on the road compared with any other period".

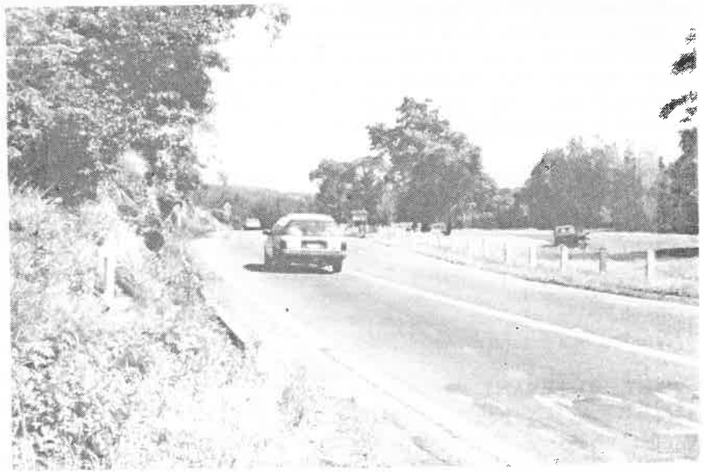
This awareness campaign is organised by DRUG ARM in association with PADD (People Against Drunk Drivers).

From 11am, a vigil was kept in King George Square, in the heart of Brisbane, where a memorial cross was erected to honour the thousands of men, women and children who have died needlessly on Australian roads. At 12 noon, a piper's lament was followed by the placing of floral tributes on the cross by prominent community leaders.

ROADSIDE MEMORIALS

The conventional churchyards, crypts, public places for interment and crematories are being supplemented. There are now symbols of remembrance for victims of road trauma.

Memorials for victims can be found in locations of occurrence of bus crashes and other road mishaps. Hopefully, these memorials will also be reminders for all to drive carefully.



BICYCLE LAW ENFORCEMENT

INTRODUCTION
Cyclists are over represented in road trauma. They have a much higher hospitalisation rate than other road users and there is concern that educational programmes and legislative measures are not adequately enforced.

Bicycle law enforcement is not a high priority activity for police. There are a number of reasons for this, including the fact that the true extent of bicycle trauma is not clearly defined in road casualty information. Cycling fatalities are not great in number and bicycle crashes are grossly under reported, at a conservative figure of 1 in 30.

ENFORCEMENT IS TO ROAD SAFETY AS CEMENT IS TO CONCRETE
Whilst it may be important to spend large amounts of money on road engineering and community education, these measures alone cannot guarantee reductions in road trauma. Appropriate enforcement and the threat or risk of being caught are major factors contributing to the success of campaigns - one good example is the anti drink driving programme. In a number of ways enforcement is the binding element.

BICYCLE LAW ENFORCEMENT
Police generally regard the enforcement of traffic laws on most road users as relatively important, but bicycle laws receive low priority. Therefore, in the context of bicycle safety programmes, the term enforcement needs some discussion. A simple comparison of data from Victoria Police Annual Reports shows that the average annual rate of reported traffic offences per 1,000 population between 1985 and 1990, was 117 for motor vehicles and 1.5 for bicycles. Whilst it is acknowledged that bicycle trips total 5% of all trips, it is also noted that general law compliance by cyclists is quite low.

A NSW study on cyclist behaviour and helmet wearing (Walker,1990) indicates that amongst cyclists only 8% give hand signals, 28% use lights at night and 56% obey traffic signals. An earlier study in Newcastle by the Newcastle Cycleways Movement (NCM) supports this information and observes that motorists' law compliance rates are above 99.5%. These facts indicate that cyclists do not attract an equitable level of enforcement.

The concerns regarding cyclists' failure to comply with road laws are primarily related to trauma. "The great majority of serious non fatal bicycle injuries involve cyclist error-" and "Lack of law compliance by cyclists is the dominant factor in bicycle/motor vehicle collisions" (Mathieson,1991). Other concerns include the development of poor attitudes to road use and the breeding of a general disregard for laws and authority.

WHY DO ERRANT CYCLISTS FAIL TO ATTRACT POLICE ATTENTION?
The indication, gleaned from enforcement data, of police disinterest in cycling offences is supported by a recent survey in Victoria on "Police Attitudes to Traffic Law Enforcement" (Gunn, McLean, 1990). The study reveals that the low priority is influenced by a perceived lack of community support and problems of enforcing penalities on children. These are just two of a number of reasons given by police for their lack of interest in this issue. However, these may be convenient arguments based on messroom folklore. The real reason may be that police are not fully informed on the extent and cost of cyclist trauma.

Experience in Victoria and NSW has shown that most police attending in-service training on bicycle safety issues are not aware that cyclists are over represented in road trauma and that bicycle casualties are grossly unreported. Faced with these facts, police apathy is most often replaced by concern in the short term. However, returning to regular duties after these training sessions, police succumb to pressures of other commitments and to the traditional pressure from less informed peers.

If improvements are to be gained in the standard of bicycle law enforcement, police need to be exposed to bicycle safety issues and be informed on the problems. A commitment is required from senior management to ensure that directions are given at the supervisory level. The commitment needs to be Department wide and should be included in operational objectives. These "requireds, needs and shoulds" can be achieved through appropriate education of senior personnel. New South Wales Traffic Authority led the way with the "Bicycle Users and Police Seminar" at Penrith in November, 1990. Victoria followed with a similar seminar at Geelong in April, 1991. Subsequent action by police participants attending these seminars has justified this approach in gaining Departmental commitment.

WHOSE RESPONSIBILITY?
Bicycle law enforcement is the responsibility of all police patrolling the road system. It is not a specialist task and it is not just about issuing "tickets" and making "bookings". Not every road user is booked when spoken to by police and not every offence is threatening to life and limb. An effective approach to enforcing laws on cyclists includes a strong emphasis on education and reinforcement rather than on punishment alone.

It is not suggested that police should drop everything else to concentrate on bicycle laws. A small improvement from a large number of police has the potential to improve cycling behaviours and reduce trauma.

If cyclists believe that they do not have to comply with road laws, the police will be contributing to bicycle crashes by neglect.

CONCLUSIONS
Studies show that when compared with motorists, cyclists' law compliance is low, particularly so for basic laws such

(continued page 9)

LETTERS TO THE EDITOR

Dear Editor,

I note in RoadWise Autumn 1992 a lot on traffic education. There is a great need for the education of professionals in the field on the applied science of safety that is so well developed in occupational safety. When it gets to community safety and training to change behaviours and skills there is little evidence that this alone is as yet effective.

I do not know of evidence that confirms that traffic safety education alone has ever produced significant outcomes in substantial reductions in traffic deaths and injuries. There is plenty of evidence that it does not.

Those supporting the anxiety-provoking shock tactics used in Victoria have provided no direct evidence that they are actually reducing traffic accident deaths or injuries. These reductions accord well with Partyka's Model.

All educational programmes, especially traffic safety education programmes, need very careful evaluation. They need to be justified. They are very expensive and can be misleading or even counter-productive.

It is time for an urgent review of these educational programmes which are often run by politicians and others with vested interests. They tend to build empires. Those who produce them need to justify their existence.

Creating and maintaining a safer traffic environment could well be a better way to achieve results in injury reductions. After all, this is the preferred approach in occupational safety where there is a greater emphasis on the applied science of safety.

(Dr) Ric Bouvier

Dear Mr Grigg

Please find attached copies of recently published general reports entitled "Traffic Safety Education in Victoria - 1990" vols. 1,2,3.

The reports describe the results of self-administered questionnaires received from 92 Early Childhood Centres, 156 Primary Schools and 97 Secondary Schools. The respondent from each school or centre was asked to document the method of teaching and usage rates for all pupils in 1990, for various components of the education material published by vic roads.

The level of awareness of the vic roads Consultancy Service and the level of penetration of Traffic Safety Education Consultants into the schools and early childhood centres in Victoria is also estimated.

Previous surveys have been conducted in 1986 and 1988, but whereas the 1990 survey is similar to the earlier valuations, information was requested in a slightly different manner in 1990 to try and identify the strengths and weaknesses of various programmes and elicit suggestions for future improvement.

Yours sincerely,
Mrs Pat Rogerson (Research & Investigations); Ms Linda Ivett (Education Programmes), vic roads.

BICYCLE LAW ENFORCEMENT (continued from page 8)

as use of lights at night, hand signals and those laws which regulate traffic movements at intersections.

Enforcement data indicates that the level of bicycle law enforcement is out of balance with the enforcement applied to motorists. Low levels of bicycle law enforcement are attributed to the listing of priorities by police.

There is a connection between poor cyclist behaviour and trauma. This link implies that effective bicycle law enforcement has the potential to reduce the incidence and costs of bicycle related casualities.

More realistic levels of bicycle law enforcement can be achieved by providing police with appropriate information on the real extent, causes and costs of trauma; firstly, to senior police to gain Departmental commitment and direction; secondly, to the "troops" whose task it is to provide the reinforcement.

REFERENCES

Gunn,K & MacLean, S, (1990), Survey Report on Police Attitudes to Traffic Law Enforcement, AGB, McNair Report for vic roads.

Mathieson, V G, (1991), Bicyclist Trauma : Causes, Costs and Countermeasures and Why Bother about Bikes, Cyclists and Law Compliance Seminar, Geelong.

Road Traffic Authority, NSW, (1990), Proceedings of Bicycle Users and Police Seminar, Penrith.

Victoria Police, Annual Reports 1985-1990.

Walker M B, (1990),"Law Compliance and Helmet Use Among Cyclists in New South Wales", in Proceedings of Bicycle Users and Police Seminar, Penrith

This article was contributed by Sgt.Ted Wilson, Victoria Police, to stimulate discussion on bicycle safety

NEWS FROM MEMBERS

Mr Barry Collis, Co-ordinator of Road Safety Education, Queensland Department of Education, has forwarded copies of the monthly publication "*Road Safety Education News*". This newsletter contains many case studies and reports from schools scattered across the state. There is a heavy emphasis in the articles on safety for bicyclists, bicyclist education and safety helmet wearing.

From January 1992, it is mandatory to wear bicycle safety helmets in all Australian states and territories. The burden of the messages in these publications is to convince children that it is important to obey this law.

The helmets wearing rate has reportedly increased from 16% in 1990 to 52% in 1991 (81.5% primary school children; 32.8% secondary school students). While this shows that, subsequent to the introduction of the legislation in Queensland in July 1991, there has been a substantial increase in helmet wearing, it still represents a picture of high risk for young people.

One interesting programme described in the April 1992 issue of "*Road Safety Education News*" is the introduction of a "Bicycle Licence" (copy above). This was introduced in the Lockyer Valley Youth Club and details are available from Constable Chris Nelson of Gatton Police.

Bicycle Licence
The bearer of this licence is an approved Safety Cyclist for the state of Queensland.

NAME: .....

ADDRESS: .....

..... PHONE: .....

1. Don't ride on the footpath
2. Always keep your cycle road worthy
3. Obey all traffic regulations
4. Wear a helmet
5. Always use reflectors

Authorised by
L.V.Y.C.
Constable C. Nelson
Manager

Dr Amarjit Singh, Director of the Centre for Alcohol and Road Safety Education at the Universaity of Reading, England, forwarded a copy of the Newsletter published at his centre.

The newsletter provides current news, report titles, information on resources, videos and software and dates for courses and events.

Although there has been a reduction of 56% in the number of children killed in road accidents in the last 20 years, in the U.K., there were 417 killed and 8,900 seriously injured in 1990.

Details are provided of the "Traffic Education in the National Curriculum". In each of seven sections, one for each school year (junior), there are objectives, resources, suggested activities and linkage with attainment targets of English, Mathematics, Science, Technology, History and Geography.

The Australian College of Road Safety Inc. is the only organisation which has been set up specifically to link, on a personal and professional level, road safety workers and community organisations across the nation.

Corporate and personal membership of the Australian College of Road Safety Inc. is invited. Membership includes receipt of the quarterly journal *RoadWise* ; other circulars; participation in conferences, forums and lectures; and links with other professionals.

Annual subscription:

Corporate	**$40**
Personal	**$20**

New Members

Corporate

Road Safety Bureau, RTA NSW, (Mr P Croft)
Du Pont (Aust) Ltd, (Mr Leo Murphy)
Bob Jane Driveskill International, (Mrs Jennie Hill)
Jamieson Foley & Associates, (Mr John Jamieson)

Personal

Mr Rajah Kannah (Transportation Planner, City of Melbourne)
Mrs Fae Robinson (Transport Department,Tasmania)
Mr Robert Hodges (Pacific Waste Management, Qld)
Mr Keith Rigby (RTA, Blacktown, NSW)

PUBLICATIONS

Roads and Traffic Authority of NSW, Road Safety, Issue No 6, 1992.

Road Transport Forum, RTF Newsletter, June, 1992

[Richards, Jim] Your Guide to Safe Motoring, AMP General Insurance Limited, 1991.

Federal Office of Road Safety, 1991 Road Fatality Statistics Australia.

Federal Office of Road Safety, Years of Potential Life Lost Through Road Crashes : 1990 - A Comparison with Other Causes of Death, 1992.

vic roads, Traffic Safety Education in Victoria, Vol 1,2 & 3, 1990.

Victorian Association of Traffic Education Teachers Inc., VATSET Magazine, May 1992, No 2.

Traumatic Head Injuries Network Inc. S.A., THINK-The Australian Magazine on Acquired Brain Damage, Vol 2 No 3, June/July, 1992.

National Road Trauma Advisory Council, Annual Report 1991, (initial report by the Council, issued April 1992).

Federal Office of Road Safety, Roundabout, No 3, June, 1992.

vic roads; Victoria Police, Road Safety-Challenges and Strategies for the Next Decade : Progress Report, April 1992.

Roads and Traffic Authority of NSW, Road Traffic Accidents in NSW - 1991, June 1992.

[Chester G, Fox A, Greeley J, Lemon J, Nabke C], Investigation of the "Hangover" Effects of an Acute Dose of Alcohol on Psychomotor Performance, FORS, CR 103.

NATIONAL ROAD SAFETY RESOURCE CENTRE

(An initiative of the Australian College of Road Safety, in conjunction with the University of New England)

Enquiries may be directed to
Robyn Warwick, National Road Safety Resource Centre
University of New England, Armidale, N.S.W., 2351
Telephone (067) 732458; Facsimile (067) 711602

Publications produced by the Australian Road Research Board include:

* Road & Transport Research (quarterly) * Research Reports (approx. 30 per year) * Roadlit (weekly)
* Briefing and Special Briefing (digest of ARRB activities) * Other publications (conference proceedings)

Lasors
(Literature Analysis System on Road Safety)
This is a database available through AUSINET, produced by the library of the Department of Transport and Communications, Canberra, A.C.T.

Back Issues of Publications
Back issues of "RoadWise" are available for members who have joined more recently. Four issues for each of the years 1988, 1989, 1990 and 1991 are available for $10 per set, including postage.
Copies of conference proceedings are also available.

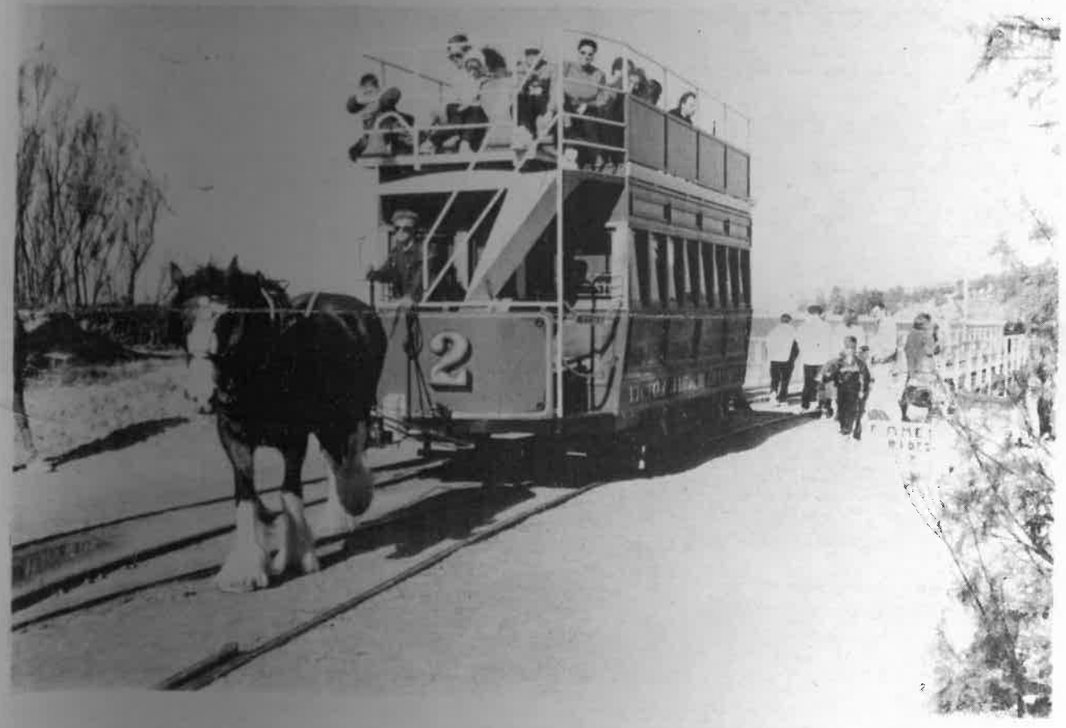
"The Proceedings of the 1986 National Traffic Education Conference"	$10. 50
"The Proceedings of the Second National Traffic Education Conference 1988"	$14. 50
"The Proceedings of the Third National Traffic Education Conference 1990"	$23. 00

Send orders to: EMU Press, PO Box 1213, Armidale, N.S.W., 2350

RoadWise

Australia's First Road Safety Journal

5th year of publication



Vol. 5 No. 3

ROADWISE
Spring 1992
Vol. 5 No.3
ISSN 1030-7168

Adopted by the
Australian College of Road
Safety Inc.
as the official journal.
Published quarterly
by
EMU PRESS
P.O. Box 1213
Armidale NSW 2350
Telephone (067) 723943
Editor:
Colin Grigg
Printing:
NRMA
151 Clarence Street
Sydney NSW 2000

FRONT COVER : Safer transport of a former era can be experienced at Victor Harbor, South Australia.

CONTENTS

EDITORIAL

The generation of new training programmes is often easy. There has been a proliferation, in Australia, of training programmes for a wide range of subjects, following the introduction of the Training Guarantee Act. However, it cannot be assumed that any training is satisfactory without subjecting it to an evaluation process. Evaluation should entail more than subjective opinion; substantive data are required.

The evaluation process takes account of four factors *needs, training programme, trainees* and *training costs*.

It is essential to evaluate the design of a training programme in terms of the *needs* that it is intended to satisfy and its acceptability to the people involved.

The *training programme* itself should be evaluated and monitored as it is being used. This includes the content of the curricula, the method in which it is being delivered and the learning aids being employed.

Evaluation should also extend to the *trainees*. Has the training improved the skills, knowledge, attitudes, behaviour, and performance of the trainees? In terms of traffic education, this improvement relates to the total ability of people to drive, ride, walk or be transported safely in traffic.

There must also be an evaluation of the societal benefits of training in terms of *training costs*. To avoid uncontrolled expansion of training costs and to ensure that training costs are providing meaningful returns, a thorough cost/benefit evaluation is required. In traffic safety, the benefits are assessed as savings, economic and human, by the reduction in road trauma, achieved by the training.

TOWING CARAVANS AND TRAILERS SAFELY

The New South Wales Parliament's Joint Standing Committee on Road Safety, or STAYSAFE, has published a report on the safety of towing caravans and trailers. The *STAYSAFE 22* report found that road crashes involving motor vehicles towing caravans or trailers comprise a small but persistent aspect of the overall road crash situation in New South Wales. In any given year, at least 1-2% of crashes where a person is killed involved a vehicle towing a caravan or trailer.

The STAYSAFE Committee found that there had not been a systematic approach to minimising the road safety risks associated with these vehicle combinations in New South Wales.

The Committee argued that action is required in two broad areas affecting the correct and safe use of caravans and trailers:
- there is a need to better define the engineering standards affecting caravans and trailers; and
- there is a need to compile what is known about the safe operation of caravans and trailers and to make this information available to the drivers.

STAYSAFE Committee also made a number of specific recommendations regarding the safe use of caravans and trailers.

A National approach
Disparate rules and regulations governing the use of caravans and trailers across Australian States was noted and the need to develop a National approach to the regulation of trailer and caravan safety was acknowledged.

Crash statistics
The Committee saw a need to better identify crashes involving vehicles towing caravans or trailers, finding that the available statistics on this matter under-represent the true crash incidence. STAYSAFE was particularly concerned that the accident reporting system in New South Wales did not make general provision for recording information about the presence of a trailer or caravan in a crash. This concern extended beyond caravans and trailers, for example, the trailer component of a semi-trailer is registered separately but only the prime mover registration is identified in crash reports. Little data is therefore available about aspects of the crash involvement and the road safety risk of the trailers behind semi-trailers.

Engineering
The Committee had a number of concerns with the engineering of caravans and trailers.

In particular, it was concerned at the standard of tow bar systems.

The Committee questioned the adequacy and strength of the points of attachment of the tow bar frame to the vehicle, following the development of new vehicle construction techniques. It noted that the information about the towing capacity of a tow bar is not preserved after the initial purchase. The Committee recommended that the towing capacity of the tow bar should be marked permanently on a visible surface of the tow bar and that this information should also be displayed in the vehicle and on the registration papers. STAYSAFE proposed that it may be appropriate to require a tow bar fitted to a vehicle to be rated to the maximum permissible gross trailer mass able to be towed by the vehicle, or the vehicle manufacturers' recommended maximum towing capacity, whichever is the lower figure.

It was also recommended that the use of the screw-down coupling, or star coupling, should be prohibited on all trailers registered in New South Wales.

The Committee welcomed the release of *Vehicle Standards Bulletin No 1*, incorporating the standards for the construction of light trailers. However, it recommended that the Australian Design Rules for motor vehicle construction be reviewed. Specific standards and performance criteria should be incorporated for light trailer design, construction, maintenance and use, as appropriate.

Education of drivers about towing caravans and trailers
STAYSAFE found that many drivers do not ensure the effective maintenance of their caravans or trailers, particularly maintenance of brakes, electrical systems, tyres and axles. The Committee believes that many drivers are not aware of their responsibilities.

Similarly, many drivers are not aware of the correct and safe use of caravans and trailers, particularly load placement within the caravan or trailer and overloading.

It was determined that the publication of a basic information pamphlet and a detailed information booklet on safe towing would provide the most efficient means of communicating correct towing principles and practices to the community. STAYSAFE identified the recent vic roads pamphlet on towing as a good approach and argued that the towing booklets produced by the NRMA (in NSW), NHTSA (in the USA) and the Road Safety Centre (in SA) provided good models for the development of a booklet containing detailed information on safe towing.

In the longer term, STAYSAFE wants appropriate advertising and publicity on correct and safe towing practices to be developed.

The Committee accepted that many drivers had not developed, or did not practice regularly, the skills required to effectively drive a vehicle towing a caravan or trailer.

(continued from page 3)

The Committee did not find that a towing licence or endorsement was called for, despite receiving many submissions that advocated a special licence or licence endorsement for drivers wishing to tow caravans or trailers. But the Committee did not dismiss the concerns expressed by so many of its contributors for better education and the provision of some form of testing.

STAYSAFE called for the development of training programmes demonstrating correct and safe practices for drivers who wish to tow caravans or trailers (similar to programmes offered in Victoria).

In a compromise move, the Committee called for the development of materials that would allow drivers to assess their knowledge and skill in towing a caravan or trailer. That is, it called for the development of testing programmes that were not institutionally based, but rather allowed drivers to make their own self-assessments of their knowledge and abilities.

Maintenance and use of caravans and trailers

In a notable move, the Committee recommended that the speed restriction of a vehicle towing a trailer with a laden weight of more than 750 kg should be lifted from 80 km/hr to 90 km/hr. It was noted that few motorists observe the law, many motorists appeared not to know of the restriction anyway, and police did not appear to be enforcing the law in a vigorous manner.

STAYSAFE rejects calls for the change to the New South Wales regulation for light vehicles requiring the laden mass of a caravan or trailer not to exceed the unladen mass of the towing vehicle (i.e., a vehicle : trailer mass ratio of 1:1) should be maintained. The Committee was very critical of the recent Victorian move to allow a mass ratio limit of 1:1.5 for many vehicles towing a caravan or trailer.

The Committee called for the Roads and Traffic Authority to specifically target drivers towing a caravan or trailer for roadside inspections that include assessment of the gross trailer mass. This could well see an adaptation of the current truckalyser technology for use on light vehicles. The introduction of a system of roadside testing for light vehicles would have ramifications beyond STAYSAFE's specific concern with towing caravans and trailers safely.

Interested readers may obtain a copy of STAYSAFE 22 by writing to the author, Mr Ian Faulks, Director STAYSAFE Committee, Parliament House, Macquarie Street, Sydney, NSW, 2000, or by facsimile on (02)2302928.

One of the first pedestrian malls in Australia was opened in Armidale, NSW, in 1974. This facility added great amenity and safety for pedestrians. The photograph above shows construction in 1992 of East Mall, with limited vehicle access, extending the original mall by one CBD block.

NATIONAL ROAD TRAUMA ADVISORY COUNCIL

Mr Colin Freeland has been appointed chairman of the National Road Trauma Advisory Council following the resignation of Sir Nicholas Shehadie.

Mr Freeland has a distinguished record in transport and transport safety activities. He is a former chief executive of the Civil Aviation Authority, former Departmental Head of the Commonwealth Department of Transport and is currently chairman of the Australian Maritime Safety Authority.

The first Annual Report (1991) of the NRTAC, directed to the Prime Minister, has been released. It provides information on what have been categorised as short term issues and long term issues, as well as reports from three sub-committees viz.,Alcohol, Drugs and Fatigue; Trauma Treatment and Intervention; Passenger Car Occupant Protection.

The short term issues are:-

- Protective helmets
- Child restraints
- Advertising and road safety
- National road traffic code
- Sales tax
- Anti-lock brakes
- Safety standards for light commercials, four wheel drives, etc
- Bull bars

The long term issues are:-

- National injury database
- National road safety strategy
- Pedestrian safety
- Education
- Alcohol, drugs and fatigue
- Passenger car occupant protection
- Post crash trauma management

"The Council supports the development of a National Road Safety Strategy by the Australian Transport Advisory Council. The implementation of the national strategy, together with individual federal, state and territory strategies, will enable more effective countermeasures to be developed in the future. The NRTAC will play an important role in its overview and monitoring of the national strategy."

DRIVER TRAINING

The complex nature of driver training with all its perceptions, connotations and variables, requires that the main thrust of this paper is generally one of policy rather than curriculum.

The College believes that driver training and education have a major role to play in traffic safety and the reduction of road trauma. The goal of such programmes must be based on:

Sound educational principles.
Qualitative and quantitative research and not on beliefs and personal experience.

There are four main areas of concern for this paper:

Pre-school and primary school.
Secondary school.
Learner drivers.
Post-licence drivers.

The four areas should be addressed simultaneously although the methods used may differ.

1. PRE-SCHOOL & PRIMARY SCHOOL

Road safety programmes which have already been independently evaluated as appropriate eg., "pedestrian" and "bike education" type programmes should be implemented. These programmes should be integrated with the existing school curricula. A special driver training curriculum is not required at this level. The introduction of these programmes will assist in the acceptance of programmes at other levels. Ongoing research and development of programmes at this level remains critical.

2. SECONDARY SCHOOL

(a) Ideally an independent road safety subject should be provided in secondary school curricula from year 7 to year 12. The programme should include a driver training component which would address behaviour as well as attitudes and combining accepted safety practices eg., seat belt usage and anti drink-driving, with the social consequences of road trauma.

(b) Road safety curricula used in secondary schools should be critically and independently evaluated in terms of their contribution to long term safe road user behaviour.

(c) School programmes should be designed to educate both parents and their children.

3. LEARNER DRIVERS

In order to improve the short term and long term safety of learner drivers, the methods used by professional instructors should be critically and independently evaluated. Similarly, driver licence tests should be evaluated critically and independently and a curriculum based test should be the goal.

The following tasks should be undertaken:

(a) Develop uniform national traffic rules.

(b) Establish a curriculum based licence testing process which takes into account psychological as well as physical components of the driving ability of a licence applicant. A combination of the following subjects appear to be successful to date in some recognised studies:

1. Law "Right of Way".
2. Alcohol and road usage.
3. Seat belt usage.
4. Defensive driving (theory).
5. Practical tuition to licence standard.
6. Defensive driving on road (practical).
7. Defensive driving off road, but specifically researched to illustrate characteristics of fatal crash types.

(c) Upgrade testing facilities and personnel appropriately.

(d) Develop a uniform methodology of application by professional driving instructors, ensuring that this methodology becomes the basis for instructor training. In keeping with the practices of other professions, ensure that a system of peer review operates to ensure continued standards of excellence.

(e) As the previous tasks develop, to encourage some compulsory professional driver training for all new drivers.

4. POST LICENCE DRIVER TRAINING

The major concern must be to demonstrate that post licence training produces a road safety benefit. The following components will assist in meeting this concern.

(continued on page 6)

(continued from page 5)

(a) Critical and independent qualitative and quantitative research should be applied to existing programmes to establish what types of training are effective. It should be noted that some existing programmes already provide such evidence.

(b) Research guidelines should be developed so that new programmes developed by commercial operators can be readily evaluated.

(c) Counselling and testing procedures, designed to address the natural atrophy of skills associated with the older driver, should be implemented to assist this group to recognise symptoms of faculty decline and such procedures should be associated with objective and compassionate medical evaluation.

(d) As the previous tasks develop, post licence driver trainer accreditation should be addressed and government and business should be encouraged to use and promote such programmes.

Driver training requires a multi-faceted approach, covering many disciplines. Open minded interactions between these disciplines, combined with qualitative and quantitative research, will go a long way to establishing effective training methods for drivers of all ages and degrees of experience.

Effectiveness should not be assumed and must be addressed in terms of changes in road trauma.

This Discussion Paper No 3 was prepared, using the original as a basis for further discussions and input from Alex Jerrim (NSW Traffic Education Centre), Mike Hull (Vicroads), Soames Job (Sydney University), John Fraser (John Fraser Fleet and Driver Consultancy) and Wayne Clift (Australian Advanced Driving and Control Centre).

We are progressively publishing a series of Discussion Papers as part of a project of the Australian College of Road Safety. It is emphasised that the papers are not necessarily the policy of the College. It is anticipated, however, that the ongoing process in developing the papers may lead to the adoption of them as position statements. Your comments are invited.

Previous papers are "Road Safety - An Interdisciplinary Problem" (Vol. 5 No. 1) and "Bicycle Safety Education" (Vol. 5 No. 2).

BUS SAFETY

Bus crashes are guaranteed to make the news. Bus safety is therefore a headline issue. But making buses and bus travel safer means that we have to balance the crying need for increased protection against the different kinds of bus travel and the capacity of us all to pay for it.

Let's first look at the various kinds of bus travel that might concern us.

Most public interest is centred on long-distance coach travel, often on roads that are far from ideal for the high speed movement of large and powerful vehicles. For every kilometre travelled, there is no safer way to go than in a bus. But the high level of exposure, coupled with the risk of disaster when a crash occurs, confirms the need for as high a level of safety as practical.

There is another issue affecting long distance coaches. They travel throughout the country. Thus, they must be covered by national requirements. This means that safety measures must be administered by the Federal Government or by the States in harmony. New Australian Design Rules for bus safety, including requirements for seat belts and seat mountings, are being introduced in this way.

At the next level of bus operation are the inter-urban buses that transport people from place to place. They generally operate within States and not over long distances at high speed. The level of crash protection required for these operations is lower than for long-distance, high-speed coaches. But because of heavy traffic on many of their routes, expenditure on special safety measures can readily be justified.

At the next level, buses operating entirely within urban areas are mostly used to transport large numbers of people over short distances. Speeds of operation are low, and when accidents occur they are generally minor ones. The capacity to add significant crash protection to vehicles in which a large proportion of passengers will be standing or moving in and out of the vehicle at frequent intervals is very low. Heavy expenditure on crash protection is hard to justify.

However, there is a special category of urban vehicles for which special attention is required. These are buses used to transport children to and from school. In the United States of America, almost unlimited resources have been placed on

(continued on page 7)

(continued from page 6)

the safety of school bus operations. In the USA, as here, the use of seat belts in school buses is a matter of hot debate. But old school buses are the hardest of all in which to fit decent safety equipment.

There is more to safety than crash prevention, of course. Having just returned from the USA, where I spent a considerable time following a school bus because it is illegal to pass one during its operation, and having observed children merrily dash across the road after alighting from the bus without looking in either direction, I came to doubt whether correct use of the road is being stressed to these children.

But back to passive safety, as the motoring writers say. Against the above categories of bus operation can be scaled the requirements for crash protection, including seat belts and secure seat mountings. Buses generally have a long life, and some safety is difficult to fit after the buses have been constructed. Designing and building crash protection into new buses is much easier than retrofitting old ones.

Thus, the following priorities emerge. For new buses intended for use in long distance transport, a high priority can be placed on the fitting of mounting points for comprehensive seat belts, including lap and sash portions. Firm mounting of the seats ensures that the seat belts can do their job.

Among other buses, retrofitting of seats belts may be easy with the design of the bus being inherently suitable. However, for apparently similar buses, retrofitting can be very difficult, particularly in the case of older vehicles. Considerable strengthening of the structure might be needed, adding weight and cost. If, however, these older vehicles are to be used for long-distance, high-speed transport, there will be stiffer pressure placed on their operators to adapt them to take seat belts and stronger seat mountings, although this will necessarily be both difficult and expensive.

This brings us to the old question of who is to pay. The outcry raised by a bus crash shows that the community is, as a whole, rightly disturbed by these events. In addition to bus operators, and bus passengers therefore, the community as a whole is a group that can justifiably be asked to contribute to the cost of bus safety.

Fitting and retrofitting crash protective devices will cost bus manufacturers and operators a significant sum. This cost will be passed on to passengers by way of higher fares. It is reasonable to suggest that those who benefit from increased protection should pay a surcharge for it.

However, there are other ways in which the community can contribute to increased bus protection. For example, adding crash protection adds weight. Because the weights of laden buses are limited by permitted axle loadings, the number of passengers that a bus can carry is reduced if weight is added through crash protective equipment. Axle loads are restricted because, if they are high, they damage road surfaces, which then cost us all more to repair. If buses are retrofitted with safety equipment, it would seem reasonable to relax the limits on axle loading to permit this without reducing the number of passengers. Bus operators would thus lose less revenue in the long term, and bus passengers would pay less for the trip. In return, we would all pay a little more for reparing the roads more often.

Another way that the community could bear some of the cost of adding crash protection to buses would be through the registration systems of the various States. Registering a bus is very expensive. However, it is at least conceivable that the State administrative bodies could reduce registration costs for the operators by way of subsidy to those who are willing to add to the safety of their passengers.

Adding safety to any part of the road system is never free. Someone always has to pay. However, improvements are shared throughout the community rather than being concentrated on small groups who, in many cases, cannot afford them.

At the Australasian Traffic Education Conference held in Canberra in February, 1992, when the complete set of Discussion Papers was discussed by delegates, it was suggested that a paper on "Bus Safety" should be produced, in addition to the one on "Heavy Vehicle Safety". This Discussion Paper No. 4 has been written by Dr Michael Henderson, formerly Director, Traffic Accident Research Unit and Director of Traffic Safety, (then) NSW Department of Transport. He is now an independent consultant in road safety.

GUEST LECTURER

In its programme of presenting a Guest Lecturer Tour each year, the Australian College of Road Safety arranged meetings for 1992.

Mr John Toomath, who is currently Manager Safety Standards for the Land Transport Division of the New Zealand Ministry of Transport, was invited as lecturer.

He is a traffic engineer by profession, having completed University degrees in New Zealand and New South Wales. He has specialised in road safety for a number of years, after having held a number of traffic engineering and traffic research posts with the Ministry.

John Toomath has had a major role in most of the recent road safety initiatives in New Zealand and led the team which produced the country's first National Road Safety Plan.

He has visited a number of overseas countries to study their road transport systems and has presented many papers at local and overseas conferences.

In 1990, he became the first New Zealander to be awarded the Graeme Grove Medal by the Royal Australasian College of Surgeons for his contribution to road safety. He is also a previous winner of the NZ Automobile Association Award for best transportation paper.

The 1992 tour was arranged to include the ARRB conference in Perth, concluding on November 12 (at which the Australian College of Road Safety has participation). Meetings in Adelaide, Sydney (including a special meeting on November 17 and participation in the RTA Road Safety 2000 Review on November 18) and Brisbane were also included.

[The Executive Committee invites your suggestions concerning the 1993 Guest Speaker].

CIGARETTE SMOKING AND ROAD TRAUMA

In January 1992, the Australian Medical Association alerted the Australian College of Road Safety to the reported association between cigarette smoking and road trauma. The concern was expressed that cigarette smoking was condoned in motor vehicles available in Australia and that this behaviour could be discouraged by alteration of the Australian Design Rules to ensure that cigarette lighters and ashtrays be no longer routinely fitted to motor vehicles sold in Australia.

The matter was discussed by the Executive Committee of ACRS and literature searches were conducted via the Australian Road Safety Resource Centre, the Australian Road Research Board, the Transport and Road Research Laboratory (Berks.) and the Insurance Institute for Highway Safety (U.S.A.). The most recent and relevant article about the issue is by Christie, R., entitled: *Smoking and Traffic Accident Involvement: A Review of the Literature*, VICROADS, GR/91-3, March, 1991.

From the literature, it would appear that there is a link between an increase in road crash likelihood and cigarette smoking, possibly of the order of 40%, with an even higher rate amongst those who have been stopped for traffic violations. Although this association is strong, the reasons for it are unclear. Suggested reasons are that smokers are more likely to engage in risk-taking behaviour and that smoking is correlated with heavy alcohol consumption. Smoking can cause distractions and smokers have an elevated level of carboxyhaemoglobin which can impair vision. This will be of particular importance at night and should alert attending staff to the fact that crash victims are more likely to have respiratory disease.

While it is probable that heavier alcohol use is not the entire explanation for the increased risk of road trauma amongst cigarette smokers, further research is indicated to clarify this issue.

Of greater concern is the fact that smokers will probably continue to smoke even in the absence of lighters and ash trays and so cause damage to themselves, their passengers and possibly start roadside fires when disposing unextinguished cigarettes.

How to resolve the issue practically is of concern and there are obvious parallels between the problems experienced by smokers who fly aeroplanes at night and those who drive motor vehicles.

The Australian Medical Association continues to pursue the matter in the interests of the nation's public health and discussions continue about the issue between the A..M.A.'s Health Services Division and the Australian College of Road Safety.

The College is particularly keen to review a possible relationship between cigarette smoking and road trauma within the Australian context. The possibility of a research initiative in this area is being investigated.

Dr Brian Connor

As is the case with all information in *RoadWise*, comments and additional references on this issue are invited from readers, for the consideration of the Executive Committee of ACRS.

Editor

POLICY ON PROGRAMME EVALUATION

Introduction

The Australian College of Road Safety has a vital role in encouraging communication and co-operation amongst people working in the area of road safety and traffic education. This includes the dissemination of information on initiatives and programmes that have been introduced in Australia and overseas.

The College is committed to promoting those activities and programmes that are most effective and therefore is committed to encouraging professional assessment, evaluation and monitoring of road safety and traffic education programmes.

The changing economic circumstances place greater pressure on all organisations to be accountable and place greater emphasis on the need to achieve goals in the most cost effective way. This requires that programmes and activities are properly evaluated and monitored and that only those demonstrated to be effective be conducted.

Programme Evaluation

Programme evaluation has been defined as the process of making judgements about an activity or programme - its objectives, client needs, procedures, activities and resources. Programme evaluation should assess a programme in terms of its:

* **appropriateness** - the extent to which the objectives address identified needs and community expectations.
* **efficiency** - the extent to which the programme outcomes (particularly as they relate to safety) are achieved at reasonable cost and within reasonable time.
* **effectiveness** - the extent to which the programme achieves its stated objectives.

Programme evaluation is of vital importance because it can aid in decision-making, programme design, implementation, in resource allocation and in the process of making choices about priorities.

Programme evaluation should provide answers to basic questions about an activity or programme, eg. :-

* Is the programme acceptable to the public?
* Did the programme work?
* Did it work as it was intended?
* What factors influenced the outcomes?
* Was the benefit commensurate with the cost?
* How did the programme compare with other options or other programmes?
* Can cause and effect be validly inferred?

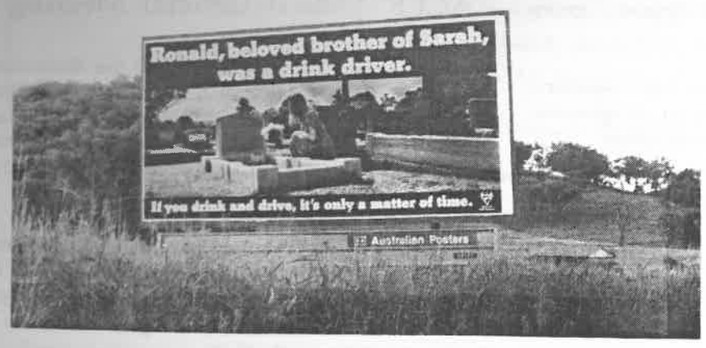
Issues in Programme Evaluation

Evaluation of road safety programmes and activities presents practical difficulties in certain areas eg., evaluation design; common standards; and programme comparisons.

Design

The overall objectives of road safety activities are very general and long

(continued page 10)



This is No 13 in a series of interesting safety signs. It is one of a set of roadside signs being used by the NSW Roads and Traffic Authority across the state.

term and frequently beyond what can be validly attributed to a single programme. Such objectives generally relate to the reduction of road trauma and reduction in costs associated with road related accidents. Therefore, the design of an evaluation appropriate to a particular programme will need to:

(a) establish a hierarchy of outcomes, both long term and short term.
(b) develop performance indicators that relate to each level of outcome.
(c) give some indication of the extent to which the programme contributes to the overall objectives.
(d) include in the evaluation procedure, a comparison group, where possible.

Standards

There is a need for clear, common standards related to assessing indicators of performance for a programme, particularly in determining cost/benefits. This requires that standard data be collected across Australia to facilitate comparison of programmes and that common costing formulae be developed.

Programme Comparisons

There is a need for an agreed and common approach to the evaluation of similar programmes conducted by different bodies so that outcomes can be readily compared.

Policy

The Australian College of Road Safety supports programme evaluation as a matter of policy and is committed to:

* encouraging the establishment of working groups to develop performance indicators, performance standards and evaluation procedures appropriate to each programme area so that outcomes can be readily compared across programmes.

* fostering the development of standard measures that can be used in programme evaluation in determining cost/ benefit ratios.

* encouraging the routine collection by relevant bodies of data that are needed to adequately assess programmes.

* encouraging debate, development and assessment of evaluation methodologies related to road safety activities.

* fostering the development of skills amongst members in evaluating programmes.

* keeping its members informed on trends in programme evaluation.

* ensuring that all new programmes conducted by its members are evaluated and that the evaluation is designed at the planning stage.

* ensuring that only programmes that are evaluated and demonstrated to be efficient, effective and appropriate are continued.

* disseminating findings of evaluations amongst members and to organisations that have a role in the promotion of road safety.

* keeping the membership informed about programmes that have been conducted and evaluated overseas and assessing the applicability of such programmes to local circumstances.

This is Discussion Paper No 5. The author is Mr Harry Camkin, General Manager, Road Safety Bureau, NSW Roads and Traffic Authority. Some minor amendments were made to the original version following its discussion at the Australasian Traffic Education Conference in February, 1992.

NEW MEMBERS

Corporate

ACT Government, Roads and Transport
Regency College of TAFE, S.A.

Personal

Dr David Crocker

ACRS Annual General Meeting

The next Annual General Meeting of the Australian College of Road Safety will be held in conjunction with the conference organised by the Australian Institute of Traffic Planning and Management. This will be held at the Gold Coast on June 10 and 11, 1993.

Discussions are occurring between the two organisations concerning participation by ACRS in sessions of the conference and in mounting displays, in addition to the AGM, tentatively scheduled as a breakfast meeting.

PUBLICATIONS

Office of Road Safety, S.A. Department of Road Transport, Road Accidents in South Australia 1990, July, 1992.

[Williamson, Ann M, Feyer, Anne-Marie, Coumarelos, Christine, Jenkins, Tony], National Health and Safety Commission, Strategies to Combat Fatigue in the Long Distance Road Transport Industry - Stage 1 : The Industry Perspective, FORS Report CR 108, May, 1992.

[Pettitt, AN, Haynes, MA, Low Choy, SJ], Queensland University of Technology, Factors Affecting Fatal Road Crash Trends, FORS Report CR109, June, 1992.

Legislative Assembly of Queensland, Report on Achieving High Levels of Compliance with Road Safety Laws - a Review of Road User Behaviour Modification, Report No 6, March, 1992.

Legislative Assembly of Queensland, Report on the Road Environment and Traffic Engineering, Report No 7, April, 1992.

[Haworth, Narelle L, Heffernan, Colleen J, Horne, Eric JJ], Fatigue in Truck Accidents, Monash University Accident Research Centre, February, 1989.

Roads and Traffic Authority of NSW, Road Safety, Issue No 7, 1992.

[Haworth, Narelle L, Heffernan, Colleen J], Information for Development of an Educational Program to Reduce Fatigue-Related Truck Accidents, Monash University Accident Research Centre, February, 1989.

Traumatic Head Injuries Network Inc. S.A., THINK - The Auustralian Magazine on Acquired Brain Damage, Vol. 2 No. 4, September/October, 1992.

Parliament of New South Wales Joint Standing Committee on Road Safety, STAYSAFE 22 - Towing Caravans and Trailers Safely, July, 1992.

Road Safety Council of Northern Territory, Aboriginal Road Safety, September, 1990.

Legislative Assembly of Queensland Travelsafe Committee, Annual Report 1991-1992, Report No 8, August, 1992.

[Evans, Leonard], Traffic Safety and the Driver, Van Nostrand Reinhold ($US 54 . 95).

[Hawthorne, Graeme], Getting Around - Issues of Mobility and Safety in Personal Transport, TAC Insurance & Victorian Association of Traffic Safety Education Teachers, 1992.

[Ginpil, S, Young, L, Attewell, RG], Intstat Australia Pty Ltd, Vehicle Point of Impact Patterns: adult occupant fatalities in passenger cars, Sept., 1992.

Back Issues of Publications

Back issues of "RoadWise" are available for members who have joined more recently. Four issues for each of the years 1988, 1989, 1990 and 1991 are available for $10 per set, including postage.
Copies of conference proceedings are also available.

"The Proceedings of the 1986 National Traffic Education Conference"	$10. 50
"The Proceedings of the Second National Traffic Education Conference 1988"	$14. 50
"The Proceedings of the Third National Traffic Education Conference 1990"	$23. 00

Send orders to: EMU Press, PO Box 1213, Armidale, N.S.W., 2350

RoadWise

Australia's First Road Safety Journal
5th year of publication

Vol. 5 No. 4

ROADWISE
Summer 1992/3
Vol. 5 No. 4
ISSN 1030-7168

Adopted by the
Australian College of Road
Safety Inc.
as the official journal.
Published quarterly
by
EMU PRESS
P.O. Box 1213
Armidale NSW 2350
Telephone (067) 723943
Editor:
Colin Grigg
Printing:
NRMA
151 Clarence Street
Sydney NSW 2000

Editorial Contributions
Material in RoadWise may be reprinted freely. Acknowledgement and a copy of the re-publication would be appreciated. Send all editorial contributions and enquiries about publication to the publishers. Send all enquiries about membership to:

The Australian College of
Road Safety Inc.
PO Box 1213
Armidale NSW 2350

Articles for publication in RoadWise are invited from interested persons or organisations. The publisher reserves the right to reject submissions, modify or reduce the size of articles, but with the approval of the author. No payment is offered for articles submitted. The publisher requires indemnity from contributors against damages or liabilities that may result from publication of all material.

FRONT COVER: The original building of the University of New England, about to offer tertiary courses in Traffic Safety and providing the National Road Safety Resource Centre.

CONTENTS

EDITORIAL

The Australian College of Road Safety approaches its fifth anniversary in February 1993. It was established as a professional organisation for individuals and organisations (government, industry and community).

Another project is proceeding to provide the second important mechanism for achievement of professional status for people working in traffic safety pursuits, technically and administratively. This is the development of tertiary courses in Traffic Safety. The courses will be delivered by distance education from the University of New England. The studies will include articulated Certificate, Graduate Diploma and Masters components.

The aim is to integrate components of educational curricula previously developed for engineering, behavioural sciences, urban and environmental planning, management, legal and health disciplines in a multidisciplinary approach to traffic safety. Concomitant with this unification is the need to expand the principles of road engineering and traffic planning with the knowledge and resources of social, behavioural and environmental sciences.

The co-ordination of the project is being funded by the Federal Office of Road Safety. The Certificate course will be offered during 1993, with the other course to follow at a later stage.

HEAVY TRUCK SAFETY

INTRODUCTION

In Australia there are over 2,000 serious crashes involving rigid and articulated trucks every year. In these crashes about 400 people are killed and 1700 seriously injured. Improvements in fatal accident rates involving trucks which were shown in the early eighties are now not being shown year by year. Over recent years improvements in accident rates have only just kept pace with increases in truck travel.

More than half of those killed or injured in crashes involving trucks are occupants of passenger cars. Just over a quarter are occupants of trucks.

Australia appears to have about twice as many truck crashes in terms of kilometers travelled as that in other developed countries.

The average cost of a truck crash in Australia resulting in casualities is about $130,000 (1991). This is double the cost of a casuality accident not involving a truck. Overall, a conservative estimate of the cost of truck crashes in Australia is about $500 million every year.

This paper reviews factors shown to be associated with the occurrence and consequences of truck crashes. It then outlines countermeasures and research issues that have been applied or suggested. The emphasis is on heavy trucks and passenger-carrying buses and coaches are not included.

THE MOVEMENT OF GOODS AND SERVICES

A vast amount of freight is carried by road. About two-thirds of all vehicle movement is related to the carriage of freight in commercial vehicles. Most freight carriage is in urban surroundings, about two-thirds of light commercial and rigid truck movements being in urban conditions and about one-third being articulated truck movements.

Because of the nature of cargo, its source and its destination, a large proportion of the freight in urban areas can not be carried efficiently by rail. Where road and rail compete on similar routes, the efficiency of the door to door service for perishable commodities offered by road transport is perceived to be higher than transport by rail. Because a proportion of all freight will always be carried by road, the task is to minimise the risk of such carriage to the general population.

THE TRUCK DRIVER AND HIS TASK

Driver behaviour resulting from **fatigue** is a major cause of truck crashes. The estimates provided by research range from 5% to 41%. There is strong circumstantial evidence that the longer the hours of driving, the greater the risk of fatigue. Medical literature establishes a link between fatigue and a capacity to react to emergencies. Prolonged hours at the wheel can lead to fatigue. More information is required on the relationship between acceptable driving hours and fatigue and the extent to which legislation on driving hours can reduce the incidence of fatigue.

There is a clear link between the use of **alcohol** and a reduction in the ability to drive safely. There is no research specifically aimed at truck driving, but it may be reasonably concluded that alcohol affects the ability of a truck driver adversely. Skilled performance decreases as a result of very small amounts of alcohol. Research indicates that small amounts of alcohol can combine adversely with other influences such as fatigue.

Most research indicates an increased risk of crashes for **younger drivers.** Studies point to the relatively high percentage of young drivers involved in truck crashes, ranging from 12% over long distances to 25% in all crashes. However, the relationship of factors such as the type of driving task, experience and distance travelled is not well established.

Factors whose association with safe performance have not been clearly established include driver training and selection, monitoring and control. Also, the evidence on the relationship of compliance with the law with accident rates is not clear.

The balance of "fault" in truck to car collisions tends more heavily towards car drivers than truck drivers. Car drivers have been found to be the controllers more at fault in 70-75% of such collisions.

ROADS AND TRAFFIC

The **standard of road** has a major effect on crash rates. In particular, freeways with full access control, grade separated interchanges, high design speeds and safe roadsides are very much safer than other forms of road. Freeways are at least four times as safe as other roads and may be twenty times as safe as other arterial roads. For trucks, freeways are at least two to three times as safe as other roads and this advantage may be particularly evident in rural areas. Newer freeways are safer than older freeways.

One of the safety advantages of freeways is **control of access.** Controlling access on existing roads through the use of service roads can be an effective safety device.

Another characteristic of the freeway is the provision of **median and other barriers** between opposing traffic lanes. To replace a two-lane highway by a four-lane divided highway will reduce crashes by 30% to 80%.

Lane widths of less than 3 metres contribute to multi-vehicle crashes. Also, to a more limited extent, the width

(continued on page 4)

(continued from page 3)

of the road shoulder is related to crash rates. However, a more important feature of shoulders is whether they are sealed or unsealed. The greatest gains come from a combination of main and shoulder improvements.

Poor **sight distance** is associated with crashes. There is some evidence that existing road design guidelines do not give adequate emphasis to the needs of truck drivers in this regard, particularly on vertical curves. Although, to some extent, the greater eye height of a truck driver compensates for the generally poorer braking ability of trucks, there is still considerable hazard when features such as bends in the road closely follow after steep crests.

The **alignment of roads** has a greater effect on trucks than on cars. Trucks have real difficulty on some horizontal curves because of their relative lack of stability, high centre of gravity and poor torsional rigidity.

Safety **guard fences** do not protect truck drivers as well as drivers of small vehicles, mainly because of the greater tendency of a heavy vehicle to roll over.

Trucks are in much more danger than cars from **narrow bridges and culverts** and from collisions with substandard **overhead bridges**. Trucks are over-represented in crashes at such sites.

Overtaking is associated with crashes on rural roads. A particular overtaking problem for trucks is that of overtaking a caravan.

TRAFFIC MANAGEMENT AND DESIGN

Good **delineation** has safety benefits and is at least as important for trucks as for cars.

Establishing and maintaining a clear zone free of **roadside obstacles** has safety benefits, including benefits for trucks. For roads with heavy volumes of truck traffic the slopes of the roadsides should be minimised in order to reduce truck roll-overs.

Sealed shoulders reduce crashes. Drops between the pavement and the shoulder are a particular problem for trucks and may lead to loss of control.

Street lighting contributes to road safety for trucks, especially in urban areas and at isolated intersections in rural areas. The location and type of lighting poles can represent a hazard.

Direction and warning signs convey significant safety benefits at least as high for trucks as for cars.

Rumble strips reduce run-off-road crashes but their effectiveness for trucks is not known.

Truck **escape ramps,** when properly designed are effective in stopping runaway trucks that use them. However, the scope of application is limited.

Road construction and maintenance

Trucks face hazards on slippery or rough pavements. The probability of jackknifing before a crash is about ten times greater on a wet pavement than on a dry one. The problem is particularly critical for lightly loaded trucks.

Trucks face problems when they approach and travel through work zones because of their lower level of controllability under emergency conditions.

Speeds and speed limits

To the extent that speed limits affect travel speed, speed limits should affect crash rates. Crash rates are related to the variance of speed of vehicles in the traffic stream. While this supports the argument that there should be no difference between the speed limits for cars and trucks, car drivers may still attempt to overtake trucks travelling at the speed limit. Also, trucks generally have poorer maximum braking capabilities than cars.

VEHICLE FACTORS

The risk of crashing

Even the best **braking systems** do not have the capacity to decelerate trucks as effectively as cars. The brakes on truck prime movers and trailers may be poorly matched. In addition to straight line braking ability, trucks are liable to instability in braking due to jackknifing, swinging of the trailer and roll-over.

The **conspicuity** of trucks has been related to crash rates, although data are poor. Water splash and spray have been associated with an increased risk of crashing.

Excessive truck **speed** for the circumstances has been related to nearly 30% of crashes investigated in research studies, and in many cases the crashes could have been prevented or their severity reduced by limitation of top speed.

The consequences of crashing

The **instability** of trucks affects the consequences of a crash because of the increased liklihood of roll-over and the loss of hazardous goods.

In crashes where cars run into the rear of trucks, **truck trays** account for many fatal head injuries. In addition, many injuries result from impact with the side of truck trays.

Truck drivers tend not to wear **seat belts** although research shows that seat belts provide protection for the occupants of truck cabins.

Many trucks on Australian roads have lightweight cabins which have poor crashworthiness and would not meet European requirements for cabin strength. The resistance of cabins to intrusion and shifting loads is poor.

(continued on page 5)

(continued from page 4)

Vehicle maintenance

Vehicle maintenance issues tend not to affect the exposure to crashes or their consequences. They do have a significant effect on the crash risk. Mechanical failures, including brake defects, appear to be involved in between 2% and 12% of truck crashes.

COUNTERMEASURES AND RESEARCH

Driver and organisational measures

Many countermeasures suggested in this category are not well supported by research evidence. Those employed on the basis of informed opinion should be subject to rigorous evaluation.

The extent to which **freight** can be transferred to **rail** directly affects the risk of truck transport.

The **National Road Safety Initiative** includes the following features:

* a national computerised database for heavy vehicle licences;
* a national uniform points demerit ssheme;
* introduction of a national logbook system;
* introduction of speeed limiters on all new vehicles, with selective retrofitting to pre-1991 vehicles

Alcohol and drug use could be countered by pre-employment and in-service tests for drivers, and medical examinations could include screening for alcohol and drug use problems. Drivers with such problems could be counselled.

Truck driver education could be improved. Issues to be addressed include fatigue, alcohol and drugs and their effects. Education on the use of seat belts could be included.

Truck driver training could also be reviewed and improved. Research to identify the best methods of training could be intensified.

Employers could have access to drivers' driving records. Schedules and work practices could be reviewed with a view to greater accord between industry demands and human capacity and performance.

Research is needed into driver exposure, risk related to drug use, driver education and training, driver selection, licence graduation and accident/offence histories.

The industry is contributing to road safety efforts on a national basis through the **Road Transport Industry Forum**. The Forum supports national commercial driver licensing and measures to strengthen testing requirements and standards associated with driver licences. It has recommmended prequalification training for drivers and regular revalidation through training programmes. It strongly supports a national single set of rules on hours of driving.

Road and traffic measures

There is a wide disparity in expense among the several measures to be considered in this category. There is therefore a particular need to consider cost-effectiveness as a factor in decisions on those to be employed.

"Safety audits", with an emphasis on truck use, could help to identify problems along particular routes and in particular locations.

Weight-specific advisory speed signs could be introduced, at least on an experimental basis.

While **divided roads** can not always be justified on safety grounds alone, they do provide substantial safety benefits. These could be added to potential benefits for efficiency and the environment. **Overtaking lanes** are of special importance where trucks are limited to the same top speeds as cars.

Existing Austroads standards for **lane and shoulder widths** could be applied as quickly as possible throughout the road network. Programmes for **shoulder sealing** could be accelerated.

Research needs include access control in development corridors, cost-effectiveness of geometric design standards and their relationship to accidents, truck stability, delineation and speed differentials.

Vehicle design and maintenance

For long-distance transport, the use of **double combination vehicles (B-doubles)** allows more freight to be carried without increasing crash rates. However, the potential diversion from rail needs to be monitored.

Daytime running lights increase conspicuity.

Speed limiters reduce the risk and severity of a proportion of crashes.

The use of **seat belts** reduces the risk of truck occupant injury, especially in rollovers.

With careful regard for cost-effectiveness, and supported by necessary **research**, the following measures could also reduce risk to truck users and other road vehicles:

* new braking technology, including antilock braking systems (ABS);
* better design and fitment of occupant restraint systems;
* increased cabin strength and crashworthiness;

(continued on page 6)

(continued from page 5)

* better under-run protection for the rear and sides of trucks;
* more compliant truck fronts;
* rollover and fatigue warning devices.

SELECTED AUSTRALIAN BIBLIOGRAPHY

Australian Road Research Board, Australian Truck Safety Study, ARRB, Vermont South, Victoria, 1991.

Austroads, Management of Heavy Vehicle Driver Safety, Austroads, Haymarket, NSW, 1992.

[Sweatman P F et al], NSW Heavy Vehicle Crash Study: Final Technical Report, Monash University Accident Research Centre, for the Federal Office of Road Safety and the NSW Road Safety Bureau, Report CR90 (FORS) and CR 5/90 (RSB), Department of Transport and Communications, Canberra, ACT, 1990.

The revision of Discussion Paper No 6 Heavy Vehicle Safety was written by Dr Michael Henderson. Appreciation is expressed to those who have participated in the development of this paper.

Discussion Papers

1. *Road Safety - An Interdisciplinary Problem* ,Vol 5 No 1
2. *Bicycle Safety Education* , Vol 5 No 2
3. *Driver Training* ,Vol 5 No 3
4. *Bus Safety* , Vol 5 No 3
5. *Policy on Programme Evaluation* , Vol 5 No 3
6. *Heavy Vehicle Safety* , this issue

The Executive Committe of ACRS encourages members to submit suggestions and criticisms about any of these papers. It is anticipated that the ongoing modification may lead to the College being able to issue a set of position statements.

NATIONAL ROAD TRANSPORT COMMISSION

The National Road Transport Commission was set up following a decision by a Premiers' Conference. It was part of a resolve to improve road safety and transport efficiency by adopting nationally uniform or consistent transport legislation.

Three Commissioners were appointed to the NRTC. They were Mr Gordon Amedee (former Chairman and Managing Director of Borg Warner), Dr John Taplin (former Director General of Transport in Western Australia) and Mr John Stanley (economist and transport consultant). The Commissioners are supported by a team of transport economists, planners and transport operators headed by the Chief Executive, Mr Neil Aplin (former Deputy Head of the Tasmanian Department of Roads and Transport).

The Commission's responsiibilities and functions include:

* Developing policy for road transport
* Preparing and issuing guidelines on the administration of road transport legislation and overseeing that legislation
* Providing information on road tranport legislation
* Making recommendations to a Council of federal, state and territory Transport Ministers on road transport legislation, heavy vehicle charges and charging principles

The three major areas on which the Commision is concentrating are:

* Technical standards for heavy vehicles and vehicle operation
* Registration of heavy vehicles and licensing of drivers
* Charges for heavy vehicles

Industry and the whole community have been invited to make some input into the work of the Commission.

This is No 14 in a series of interesting road safety signs. It was prepared by school children in response to many truck crashes which have occurred in the Moonbi-Kootingal area. It has been erected beside the New Englan Highway.

Road Trauma - A Rural Public Health Problem

The following is an extract from a paper presented by Dr Brian Connor at a recent Rural Nurse Conference.

Road trauma discriminates against the young, the old and the rural members of our community. Approximately half of all road deaths come from rural Australia and rural crashes differ in character from urban crashes. They are more severe and more costly than those occurring on metropolitan roads and more likely to be a single vehicle losing directional control on a straight stretch of road. The cost of road crashes in rural areas in some situations is almost twice that of equivalent crashes in urban settings.

Much more research is needed into the specifics of rural road trauma and especially the medical implications of road crash injuries. A particular sinister problem is that of head injuries with 200-300 people admitted every year because of head injury from every 100,000 people in the community. The long term effects on families in these situations is horrendous and is compounded in rural Australia by distance from specialist treatment centres.

Rural Australians are also disadvantaged by a serious lack of public transport, the concentration on road transport for moving heavy freight, the distances required for travel by young people when playing competitive sport and the amount of time spent on car travel by country-based professionals, especially members of the nursing profession.

The reasons for this epidemic of modern society are complex and involve many sections of our society. Attempts to solve the problem of road trauma tend to be fragmented and the Australian College of Road Safety has been formed in an attempt to overcome this problem by networking road safety individuals and groups with the aim of increasing their professionalism.

An important factor in the past has been the domination of the road safety debate by engineers who have had greater access to funds through Departments of Transport because of their ability to produce more cost-effective and visible solutions than those propounded by educators. Thus we have a major public health problem where funds for its research and prevention do not come from the budget of the Department of Health. Any attempts to generate funds for much needed private research have been thwarted by the fact that the Commonwealth Government has consistently refused taxation deductibility for funds donated for this purpose. This has helped maintain the present monopolies of public sector power over research and public utility construction while the private sector has built the vehicles.

This extraordinary set of circumstances, in relation to a major public health issue, has meant that implementation problems, in particular as they relate to road safety initiatives, tend to be poorly monitored and community funds wasted as road safety professionals "reinvent the wheel"!

We know that we could make a major impact on road trauma just by adequately implementing those solutions which we already know are effective.

This is a situation which most health care workers, and in particular, members of the nursing profession, would find quite bizarre.

While admitting that our attitude to the role and use of the motor car needs to change, there seem to be three major reasons why road trauma continues at its present level.

Firstly, there are institutional problems in relationship to ownership of the problem. The Government - at Commonwealth and State levels - is promoting greater community ownership of the problem and this is to be encouraged. The Australian College of Road Safety is working across institutional boundaries and needs more support from health care professionals. Medical practitioners - surgeons and family doctors - are involved and it now seems an appropriate time for greater input from the nursing profession, particularly the Association for Australian Rural Nurses who have a vested interest in ensuring the safety of their members.

Secondly, the road safety debate must become more closely linked with the health care agenda in Australia. The issue must always be included when better health programmes are initiated, especially when so many factors of road safety in the broadest sense can be part of a healthy communities concept. It is essential also that some introduction to these challenging issues be included in the training of nurses, doctors and other health care professionals.

Thirdly, there are problems with the implementation of solutions which already have been found to be effective. Encouragement and monitoring of these measures can be handled most effectively at community level in rural Australia. This complements Government attitudes to road safety and the "Local Government Good Practice in Road Safety at Community Level" Awards Scheme which was launched nationally by the Australian College of Road Safety in 1991.

Health professionals are ideally placed in rural communities to act sensitively towards the environment and, by their personal example, demonstrate safer ways of dealing with the transport system. They can encourage community initiatives to improve road safety and be well informed advocates on behalf of those who are disadvantaged by road trauma and inadequate public transport. []

DRIVER EDUCATION

This is a review of a paper entitled "*Driver Education; Does It Need To Change; Can It Change?*", October 1992, written by Alex Jerim, Chief Driver Instructor, New South Wales Traffic Education Centre, Armidale, NSW.

The paper identifies various items of literature, published over the last decade, which are critical of driver education "with a view to challenging conventional thinking in this area". The introduction begins with the claim that "there is overwhelming evidence to suggest that driver education is not effective as a countermeasure to road trauma.. While it is apparent that fleet running costs may be reduced through training coupled to incentives, in terms of motivating crash-free behaviours, the evidence would suggest driver educators have not been successful".

It is suggested that the current status is that the average practitioner measures success in terms of observed course behaviour rather than by accurate assessment of post-course behaviour.

The background to existing driver education is discussed. "The two main stream approaches to driver training can be generalised as defensive driving courses and evasive driving courses. The former focusses on averting harm; the latter evading it."

It is claimed that the majority of defensive driver training programmes used in Australia are some form of a 1934 British Police model commonly referred to as *Roadcraft*. These are described as having evidence of "a rote, passive, relatively inflexible, draconian in some cases, approach to learning". "Roadcraft is, in fact, a particularly good theoretical model of driving. However, it breaks down when used as a model for teaching drivers to behave".

In terms of evasion - the learning skills which evade harm, reference is made to the techniques of car racing participants, viz., brake-evade skills, based on psychomotor skills. The author points out that the latest entrant to this area is the skid car. This is a device which can be fitted to a car to teach skid control at low speed in restricted areas. "While this device has a number of attractive advantages, used in isolation it would be nothing short of irresponsible". The scepticism expressed about methods solely relying upon these devices is based on the potential for a learner driver to develop optimism bias as a result of experiencing improved car control.

The relative importance of attitudes and the relationship of attitudes and behaviour are discussed. "It would be difficult to accept that attitudes do not play a significant part in influencing driver behaviour. (However), we don't know what part, how they integrate with a driver's motivations and cognitive world, or what the appropriate strategies are for positively creating change".

The author states that it is misleading to claim that a driver training course aims to "give" drivers correct attitudes. The difficulty lies in the identification of the attitudes needed to motivate crash-free behavour and the ability of the average trainer to impart them.

In addressing a possible answer to this overall problem of driver education, the author draws attention to several attempts, at an academic level, to define the driving task and present it in the form of driver behaviour models. "In very general terms, driver behaviour models fall into two categories: those of the information processing kind and those of the motivational persuasion. Each share common ingredients but the latter, as the name suggests, have varying degrees of motivational and affect-driven bias". It is suggested that traditional driver training methods tend towards the information processing type which have deficiencies in a number of aspects.

"Models for driving based on motivation are considered to be more useful in defining the driving task and, more importantly, driver behaviour. What motivates exposure to risk? Why don't people choose to protect themselves?" The selection of motivation models reflects the recognition that a driver is not a passive responder but an active participant, operating within a social context.
"In combination with motivational and affective issues, the role of cognition must also be clearly defined. Many of the elements , both central and peripheral to low risk driving, involve the need to know and understand. This understanding can be described in terms of a person's "world view". Research would suggest a person's "world view"

(continued on page 9)

(continued from page 8)

will affect their perceptions and their behaviour".

The paper focuses on one cognitive theory which approaches human behaviour from the perspective of a person's "world view". This is the causal attribution theory. The essence of this theory is that an individual's behaviour corresponds with their interpretation of the cause of events in their experience. The causes are classified as internal (personal) external (environmental), stable or unstable. "Understanding the relative importance of each dimension in a person's " world view" permits an understanding of why that person responds to a particular situation in the way they do. In particular, a person's response to their failure in a skilled task will reflect the extent to which they place emphasis upon each of the four possible types of attribution [Martin, D.S., Price, I.R., and Fisher, B.G., The Impact of a Driver Training Course on the Causal Attributions of Young Provisional Licence-Holders, University of New England, 1991]".

An example is given of a person who does not consider themself as a cause of the event such as another driver failing to give way. The tendency of this person is to not display protective behaviour.

"In learning experiences based around the theory, students reflect on their "world view" (in this case in relation to the cause of road crashes). This "world view" is then challenged in a non-threatening way, and finally an alternative view is presented. Critical to the success of the learning experiences is the way in which students allocate crash causes and analyse the driver's objective level of risk in any particular crash scenario".

"There are two extremely interesting things about this approach. One is that the behaviours themselves do not have to be taught as such - the change in the "world view" guides the students towards the appropriate behaviours. The other is maintenance of these behaviours does not rely on the student being highly motivated and self-disciplined".

It is pointed out that practical applications must be derived from theoretical elements of driver behaviour. Time and direction are required to identify both learning objectives and teaching strategies. "As teachers, we need a better understanding of the mechanisms which underlie human behaviour. We are skilled at improving driver performance but we have no evidence to suggest we can improve driver behaviour".

New Members

Corporate

NRMA (Ms Michelle Booth), Sydney, NSW.
Moorong Spinal Unit, Royal Rehabilitation Centre, (Ms Donna Ritchie), Ryde, NSW.

Personal

Snr. Sgt. Michael White, Albury, NSW.
Mr David Piper, Sydney, NSW.
Mr Barry Watson, Sydney, NSW.
Mr Kenneth Hall, Sydney, NSW.
Ms Lianne Donovan, Sydney, NSW
Mr Craig Coleman, Sydney, NSW.
Mr Dick van den Dool, Sydney, NSW.
Mr Russell Walsh, Sydney, NSW.
Mr Andrew Macky, Sydney, NSW.
Mr Dirren Suivi, Sydney, NSW.
Ms Heidi McKeown, Sydney, NSW.
Mr Colin Johnston, Sydney, NSW.
Mr Grant Johnston, Sydney, NSW.
Mr Peter Steele, Sydney, NSW.
Mr Malcolm Daff, East Bentleigh, Vic..
Mrs Deneva Bamber, Cambewarra, NSW.

The Australian College of Road Safety Inc. is the only organisation which has been set up specifically to link, on a personal and professional level, individual road safety workers and community organisations across the nation.

Corporate and personal membership of the Australian College of Road Safety Inc. is invited. Members are entitled to receipt of the quarterly journal *RoadWise*; other circulars; participation in conferences, forums and lectures; and links with other professionals.

The next Annual General Meeting will be held, in conjunction with the Australian Institute of Traffic Planning and Management, at the Gold Coast on June 10-11, 1993.

Annual subscription:

Corporate	**$40**
Personal	**$20**

TOMORROW"S DRIVERS

The NRMA has provided a $80,000 sponsorship for an interactive, state-of-the-art, pre-driver education programme. It has been titled "Tomorrow's Drivers". The National Science and Technology Centre, Questacon, was commissioned to prepare the exhibition. It is being claimed as a world first.

It aims to capture the imaginations of primary and secondary school students aged between nine and fifteen. It is considered that this is an appropriate age group which is before children develop fixed images of themselves as road users, but when they are old enough to grasp the basic principles in using our roads safely.

The NRMA President, Mr Don Mackay said that "the NRMA believes that it is essential to foster safe attitudes and behaviour before young people actually get behind a steering wheel". The initiative is seen as important because it is based on the recognition that life-long habits are formed by impressionable minds.

"Practical skills will be ineffective unless they are matched by a responsible approach to driving and to road safety in general", he said.

The hands-on exhibits are designed to stimulate young people to be aware of the sensory interaction, concentration and co-ordination required to use the roads safely. There are tests involving eyesight and hearing which enable each child to individually check their own reactions and anticipation which are so important for road user behaviour.

Some of the things which participants learn are reasons for road rules, how to recognise hazards, how to respond to hazards, and how alcohol affects a person's senses and safety.

The exhibition was launched at the Newcastle Regional Museum in October 1992. Apart from its access to museum visitors, the Regional Department of School Education is supporting visits by school groups.

The set of exhibits lends itself to fitting into a mobile van. The NRMA has indicated that depending on the trial at Newcastle, decisions will be made about the future availability of the resource to children in other parts of New South Wales and the ACT.

ROAD TO REALITY
-A CRASH COURSE

This multidisciplinary education kit was reviewed at the Australasian Traffic Education Conference in Canberra, in February, 1992. Since then it has been endorsed as an important road trauma film by Victoria Police, Ambulance Service Victoria, VATSET, DECA, Australasian College of Surgeons and Shepparton Search and Rescue.

It is multidisciplinary in that it is applicable to health education, drama, English and media studies. It can be used in senior and junior secondary curricula.

The kit is a nationally consistent preventative tool comprising of a drink/driving video of 18 minutes duration and written support material, which reinforces the film's content. It deals with the issues of peer pressure, drink/driving, road misbehaviour, social responsibility, death and bereavement and road trauma prevention.

The plot involves a teenager who celebrates the gaining of his driver's licence at a hotel with friends. After some reluctance he is persuaded to take them for a "spin" around the block. A tragic accident occurs. The driver, friends and relatives have to cope with the loss.

The film has been given extensive trials with success and it has made a tremendous impact on students. The reason for the impact appears to be that there is realistic role portrayals by student-actors (actresses) whose ages are close to those in the audiences.

Details are obtainable and orders may be placed ($95) with **Pronesti Productions**, 221 Archer Street, Shepparton, 3630, telephone (058) 218929.

PUBLICATIONS

Monash University Accident Research Centre, Feasibility of Occupant Protection Measures, Report No CR 100, Federal Office of Road Safety, Canberra, June, 1992.

Federal Office of Road Safety, The FORS Report, No. 4, October, 1992.

Road Safety Division, Road Safety Update, No. 7, Queensland Department of Transport, December, 1992.

Co-ordinator, Road Safety Education, Road Safety Education News, Queensland Department of Education, 12/92.

Road Safety Division, Newsletter, Vol. 2 No. 7, Queensland Department of Transport, Nov., 1992.

[Maddison, Charles Ed.], TODAY, Edition 6, NRMA, Sydney, December, 1992.

Traumatic Head Injuries Network Inc. S.A., THINK-The Australian Magazine on Acquired Brain Damage, Vol. 3 No. 1, December, 1992.

Seyer, K.A., Makeham, P.M., McLennan, D.J., Review of Passenger Car Occupant Protection-Main Report, OR12, Federal Office of Road Safety, Canberra, June, 1992.

Seyer, K.A., Review of Passenger Car Occupant Protection-Crash Test Report, OR11, Federal Office of Road Safety, Canberra, June, 1992.

[Calder, Alan, Ed.] The VATSET Magazine, No. 4, Victorian Assoociation of Traffic Safety Education Teachers Inc., December, 1992.

Road Safety Division, Road Safety Revolution, Qld. Department of Transport, December, 1992.

NATIONAL ROAD SAFETY RESOURCE CENTRE

(An initiative of the Australian College of Road Safety, in conjunction with the University of New England)

Enquiries may be directed to
Robyn Warwick, National Road Safety Resource Centre
University of New England, Armidale, N.S.W., 2351
Telephone (067) 732458; Facsimile (067) 711602

Publications produced by the Australian Road Research Board include:

* Road & Transport Research (quarterly) * Research Reports (approx. 30 per year) * Roadlit (weekly)
* Briefing and Special Briefing (digest of ARRB activities) * Other publications (conference proceedings)

Lasors
(Literature Analysis System on Road Safety)
This is a database available through AUSINET, produced by the library of the Department of Transport and Communications, Canberra, A.C.T.

Back Issues of Publications

Back issues of "RoadWise" are available for members who have joined more recently. Four issues for each of the years 1988, 1989, 1990 and 1991 are available for $10 per set, including postage.
Copies of conference proceedings are also available.

"The Proceedings of the 1986 National Traffic Education Conference"	$10. 50
"The Proceedings of the Second National Traffic Education Conference 1988"	$14. 50
"The Proceedings of the Third National Traffic Education Conference 1990"	$23. 00

Send orders to: EMU Press, PO Box 1213, Armidale, N.S.W., 2350