

## THE ROAD ACCIDENT 'EPIDEMIC' \*

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The title of my address is 'the epidemic of 1961'—an epidemic which this year in South Africa will show a mortality of at least 3,000, and a morbidity of over 36,000.

One morning last year I was called urgently to see a boy of 7 who had been knocked down by a car. He died as I was examining him. That evening I was asked to see a friend who was badly



Dr. Mundy

bruised. His story was that 2 hours earlier he and his wife were driving down Sydenham Road to go to the Alhambra when a car, without lights, came over to his side of the road and hit him head on. His wife was flung out of the car and she died on her way to hospital.

Shortly after this tragic day, a young woman from the Transvaal came to see me. She had been in a car accident with her husband and only daughter, 3 weeks before. She was the sole survivor of that accident. Incidentally she was 6 months pregnant and had come to ask me for the name of an obstetrician.

These three cases coming in such quick succession made me realize more than ever before what a problem road accidents are becoming, and provided the

stimulus to choose this subject for my address.

*Early Days*

The first motor car ever brought into this country was a 1½ h.p. Benz. It was actually introduced into the Transvaal in December 1896 by two Pretoria men, J. P. Hess and A. E. Reno. They demonstrated it in Johannesburg and then on 5 January 1897 it was shown in Pretoria. President Kruger was present at the demonstration and expressed a favourable opinion with regard to the introduction of automobiles. He also stated that no special Act of Parliament would be necessary to render it possible for such vehicles to come into general use.

In 1898 the second motor car, a Royal Enfield Quad, arrived in Cape Town. It was offered for sale at £110 and was immediately bought by a Mr. (later Sir) Alfred Hennessy. He took delivery outside Garlicks at the bottom of St. George's Street, Cape Town. On his first run he lost control of the car and ran straight into the crowd. Fortunately, none of the injuries were serious, but this incident in 1898 must be considered to have been the first road accident in this country. In 1903 in Cape Town, at a speed contest, an Oldsmobile lost a front wheel and the driver fell out and broke his arm. This broken arm, as far as I can ascertain, was the first broken limb following a car accident in this country.

The first car seen in Durban was in 1902, a Benz owned by Mr. Geo Chapart who, incidentally, at the ripe old age of 84, is still in the motor business. He owns a garage in Krugersdorp. In 1905 he opened Durban's first garage and also introduced the first motor-bicycle and first Ford motor car to this country.

Durban's first woman driver was a Miss Hilda Poynton, now Mrs. Frank Acutt. She made her bow in 1906. The family chauffeur had left overnight to go to the Bambata rebellion, and the next morning she had no option but to drive her father to town. Later in the year driving certificates were issued to all Durban drivers and she was given certificate No. 1.

I should like to stress that, though road accidents are a national problem, we as a medical profession are particularly concerned.

I have no intention of discussing the varieties and treatment of these accidents, but I should like to draw your attention to our duty as a profession regarding the need for legislative reform to reduce road accidents.

Figures issued by the Bureau of Census and Statistics show that, in this country in 1959, 2,842 people were killed and 35,831 were injured. If infections, either viral or bacterial in nature,

are a concern of ours (and they surely are and their treatment is part of our duty to the public), then I feel that the effects of the injuries and deaths produced by motor vehicles are equally our concern.

I believe that we, as a medical profession, have an urgent duty in repeatedly bringing to the attention of the authorities and the public the need for the reduction of the appalling slaughter that is constantly occurring on our roads.

Daily we as doctors see the mutilated dead in the mortuary and have to deal with the many major and minor injuries resulting from road accidents, many of which are preventable. We realize how much greater a problem it is than most illnesses.

L. G. Norman, in his Milroy lecture of 1960, speaking on 'Medical aspects of road safety', has shown that in 1957 in Great Britain deaths from road accidents exceeded, for the first time, deaths from tuberculosis of all forms.

He has shown, too, that road accidents are now the most common cause of death in male adolescents and young adults. Between the ages of 20 - 24, one third of all male deaths are caused by road accidents.

It appears to me that, unless some well-known personality is involved or there is a spate of accidents at holiday times, accidents are so common that they are no longer news.

In the past, diseases such as typhus, typhoid, and malaria were responsible for disastrous epidemics, but today they are virtually non-existent and easily prevented and cured. Even if all these advances are not entirely due to the medical profession, they are in large measure due to our efforts.

Some of these advances are directly due to medical discoveries such as antibiotics, vaccination, chemotherapy, and, with the great advances being made by research workers in virus diseases, there is good reason to believe that diseases such as influenza etc. will soon be controlled. Public-health measures have eliminated disease from dirt and filth. Our colleagues of the past forced governments to improve public health in the way of water supplies, sanitation, housing conditions, etc.

We doctors are the only people who see the dreadful injuries from road accidents with the accompanying misery and pain and suffering that the victims undergo. It is our obligation to bring this matter again and again to the attention of the authorities and, as our colleagues of the past did, force them to take action.

The report of the Bureau of Census and Statistics shows that every day there are 8 deaths in this country from motor vehicle accidents, and nearly 100 people are injured. These figures must surely call for action from our legislators. The public are, I think, inclined to accept that most of the victims of accidents are the drivers and passengers of motor vehicles, whereas the vast majority of killed and maimed persons are either cyclists or pedestrians. The accidents usually do not occur on the open roads, but in built-up areas.

To quote L. G. Norman again: In Great Britain in 1957, there were 5,550 fatal accidents. Of these, cyclists (motor and pedal) and pedestrians accounted for 4,035, or 78%.

In a recent report on accident studies in the Union of South Africa by Dr. Rigden, director of Road Research, Witwatersrand University, it has been shown that for motor cyclists the risk of death is 16 times greater than for car drivers for the same distance travelled. This is a point that could be drummed into the, as yet, unfractured skulls of boys of school-leaving age.

The late Sir Hugh Cairns pointed out that 80% of deaths in motor cyclists resulted from head injury—hence his advocating the use of safety helmets. Helmets are, however, only rarely seen here. In Britain it is estimated that 50% of the cyclists are wearing safety helmets. Professor Bauer of the Surgical Clinic at Heidelberg, West Germany, stated 'It is obvious that a safety crash helmet is an indispensable necessity.'

*Causes of Road Accidents*

I believe that the causes of road accidents can be divided into 2 main groups: speed, and human behaviour. By speed I mean speed in relation to risk or safety. Speed must be accepted as the main cause of accidents since it is usually only when a vehicle is in motion that it is a danger. The able driver is aware of the lethal potentialities of his vehicle and his speed varies with the

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hazards of the road, while the accident-prone driver hurtles along with selfish unconcern. Just as scientific progress cannot be halted, so motor vehicles must continue to function. Every year motor manufacturers are turning out more efficient and speedier machines, but man's reactions are unable to keep pace.

The following figures are in direct conflict with the views of some, who state that speed is of little import in road accidents:

In West Germany the increase in road accidents in 1952 over 1951 was only 35. Then the speed limit was suspended in 1953, and in this first year after the suspension the increase in road accidents rocketed up from 35 to 3,324.

In September 1957, the compulsory speed limit was re-introduced and immediately the fatality rate dropped by over 25%. In Sweden, for the last Christmas holidays, a speed limit of 50 m.p.h. was introduced. There was only one fatal accident.

Associated with this relative speed as a cause of accidents, is the behaviour of the driver—for example, bad judgment, carelessness, or even stupidity.

The vagaries of human behaviour are complex, but when some men get into the driver's seat these vagaries are multiplied, since the personalities of the drivers seem to change. So many pleasant and polite people seem to become intolerant and selfish while driving. Factors like fatigue and the abuse of alcohol are also of importance. Often pedestrians who are victims of road accidents are under the influence of alcohol. It would probably be advisable to have the blood of all seriously injured pedestrians examined as a routine. This would be of assistance in a Court of Law when a driver has to face a charge of culpable homicide.

Robert F. Borkenstein of the USA, in opening his symposium on Breath Alcohol Tests, stated that whenever alcohol and transportation meet, there is friction. He went on to say that Biblical literature describes the difficulties that Noah had in managing his Ark while saving a pair of each living species at the time of the great flood. His navigational problems were aggravated by one single mischievous microscopic hitch-hiker. This little fellow, a yeast germ, fell among Noah's grapes, resulting in wine that he found particularly inviting.

Coming to more recent times, George Stephenson, who, as you know, invented the locomotive, had something to say on this subject. He complained that the personnel operating his steam engines were being 'tanked up' on something besides the steam in their boilers. He stressed, for the first time, the accident hazard caused by engine drivers who drank.

A great deal has been written on the subject of drinking drivers, and numerous committees have reported their opinions. Criticism of the conclusions and findings of these bodies and individuals has varied, not on the effect of alcohol on driving performances, but on the methods of determining whether the driver is under the influence of alcohol.

Expert opinion is in complete agreement that alcohol is a depressant—that it has in fact an anaesthetic effect on the central nervous system. It is hardly necessary to add that the popular idea that alcohol is a stimulant is erroneous. As you know, alcohol acts by depressing normal responses and replacing them by a false sense of confidence. Its maximum effect is reached in 30 - 60 min. Even in small doses alcohol can lead to an underestimation of mental and physical errors and an overestimation of physical and mental ability.

A Committee of the British Medical Association has recently completed its report on the relation of alcohol to road accidents. Some of their findings are well worth repeating. They state that the official returns of accidents by drivers who have taken alcohol underestimate, very considerably, the number of accidents due to this cause. The report further states that in the case of a driver, a concentration of 50 mg. of alcohol in 100 ml. of blood is the highest that can be accepted as consistent with the safety of other road users. Incidentally, 50 mg. per 100 ml. is equivalent to 2 tots of whisky or 2 pints of beer. The Committee was of the opinion that they could not conceive of any circumstances in which it could be considered safe for a person to drive a motor vehicle on the public roads, if the level of alcohol in his blood was greater than 150 mg. per 100 ml.

In Sweden, as you are all well aware, imprisonment is virtually mandatory for those drivers whose blood alcohol is over 150 mg. per 100 ml.

Yet, in this Province, over a period of 21 months, there were 658 cases of people driving under the influence of alcohol, and in

89% of the drivers the blood-alcohol level was higher than 150 mg. per 100 ml.

The Committee also felt that clinical examination in the absence of biochemical tests is neither sufficiently sensitive nor reliable enough to detect deterioration in driving performance. They believe that a substantial reduction in the number of accidents caused by alcohol has been achieved where it has been made an offence to drive a motor vehicle when the concentration of alcohol in the tissues was in excess of a certain level. These conclusions are most important coming from such an authoritative and unprejudiced body. Incidentally, this committee numbered 17 and consisted of 5 laymen and 12 doctors. Of the 12 doctors, 7 were general practitioners.

The findings of the Committee can be accepted without question; they prove beyond doubt that alcohol, carelessly taken, is the cause of a high proportion of road accidents, many of which are fatal.

I am reminded of an old Spanish proverb which is not inappropriate. It is this: 'Wine has two defects: if you add water to it you ruin it, if you don't add water it will ruin you'.

While discussing the subject of depressants, it would be as well to refer to a possible iatrogenic cause of accidents, namely, the use of certain drugs. Dr. Dickson Wright, who was with us recently, stated that one in five patients who visit the doctor in the UK is emotionally or mentally disturbed. They are given tranquilizers or barbiturates in one form or another. Do we always think of the element of danger in prescribing these drugs to a car driver?

It is the general impression that motorists are usually the victims of road accidents. The fact of the matter is that they suffer least of all. There are of course three groups of people involved in accidents, e.g. motorists, cyclists, and the pedestrians. As I have shown, it is the latter two groups that have the highest casualties. For every 100 motorists involved in an accident, only 20 suffer injury; but for every 100 cyclists or pedestrians, 60 suffer some degree of injury. Even more illuminating is the fact that for every motor car driver that is killed, nine cyclists or pedestrians are killed.

The majority of pedestrian deaths occur in the very young and very old. The children have not really reached the age of thought and reason, whereas the very old are not nimble enough to jump out of the way of the juggernauts. In regard to cyclists, the highest death rate is in the 10 - 15 year age group, that is the school-going age.

It appears from these figures that the motorist kills himself by travelling at an unduly high speed on open roads, while in the built-up areas his speed is sufficiently reduced for his own safety, but not for the safety of other road users. The majority of collision accidents occur in built-up areas, while non-collision accidents occur on the open road due to excessive speed and irresponsible behaviour.

I must quote Robert Bendiner here: 'The traffic engineers who plan the motorized or major part of our lives are worried and with good cause. For years they have been busy designing great highways with no bends, cross-roads, or traffic lights. And now that they have just about perfected the dream highway—what do we humans use it for? None else but to dream. With all natural hazards removed and mile after mile of beautiful road stretched out before him, a man can and often does have his foot on the gas and his head in the clouds. And if he suddenly hears a horn close to his ears, as likely as not it is Gabriel's!'

Authorities, motoring associations, and other bodies have done and are doing a great deal towards road safety. We are all aware of the time and thought that has been given and the money that has been spent on these safety measures. It is beyond question that these measures have contributed a great deal to the reduction of accidents; however, to accident-prone drivers these measures mean little.

Apart from all other causes, ignorance of the lethal qualities of the modern motor vehicle is a contributory factor in road accidents. If avoidable accidents are to be prevented, a driver must be made aware of the physical and mental reactions that come into play when confronted with an emergency. His reaction time depends on his physical and mental state. Under the best of road conditions it takes a car travelling at 50 m.p.h. about 50 yards to stop, and at 30 m.p.h. about 15 yards.

There is an ever-increasing number of motor vehicles on the

roads. The increase in registrations from 1950 to 1960 has been estimated to be more than 60%, but on examining road traffic accidents over the same period, we find that accidents causing serious injury have increased by more than 150% and fatal accidents by more than 180%. The percentage increase in fatal accidents alone is therefore three times the percentage increase in registrations.

#### Control

If control of the two factors I have mentioned is not adequate, the accident rate will continue to increase. Improvements in vehicles and roads, etc. are part and parcel of the march of progress, and we cannot go back to the days of the ox wagon. Neither can economic advances be stopped from spreading, so that increasing density of traffic in more built-up areas will continue.

A body called the Institute of Advanced Motorists has been formed. Its aim and purpose is to improve the standard of driving by instilling the ideas of courtesy, tolerance, and patience in drivers. It is a voluntary non-profit making organization. There is no doubt that an organization of this kind has a definite value for many of us, but the sad truth is that those who have the greatest need are those who are least likely to take advantage of this offer.

I think that control could greatly reduce the accident toll. Our own reactions at the sight of a traffic policeman are immediate—first a glance at the speedometer and then ensuring that the correct signals are given, etc.

It is our duty to the state to *advise*—we are not legislators who lay down laws. However, due to our efforts the state realized the necessity for taking preventive measures against outbreaks and

epidemics of certain infectious diseases. We informed the state how and why these diseases flourished, where they come from and what measures were necessary for their control. We should do the same with regard to road accidents.

Numerous suggestions for the reduction of accidents are published in the press from time to time, but the problem requires much more scientific consideration than comes from these suggestions.

If any real attempt is to be made to reduce road accidents, a very careful investigation into the speed limits that are compatible with road safety will need to be made. The limits should then be strictly imposed and enforced by an adequate controlling force, and if they are infringed, a sufficiently deterrent penalty should be imposed, without fear or favour.

#### CONCLUSION

I have made a broad survey of some of the causes that I think are responsible for the number of deaths and injuries that occur daily on our South African roads.

There are nearly 8,000 registered medical practitioners in South Africa. We, as persons having a particular knowledge, should keep up a campaign of propaganda against this epidemic. Our newly-formed College of General Practitioners might seriously consider giving their attention to road accidents.

In addition, it is our duty as individuals to rouse the conscience of the authorities to this holocaust. I suggest that we have no better representatives to carry out this duty than those doctors who are members of parliament. It is our sincere hope that they will present a unified front for this special and important service to the people of South Africa.