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Blair, Archibald William,
Gentlemen of the road

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THE ROAD

A SERIES OF BROADCAST
TALKS DELIVERED BY
Mr. JUSTICE BLAIR

REPRINTED BY THE WELLINGTON CITY
COUNCIL TRAFFIC DEPARTMENT, MAY, 1936

PLEASE READ CAREFULLY AND HAND TO YOUR FRIENDS AND SO HELP
TO REDUCE THE APPALLING WASTAGE OF HUMAN LIFE ON THE ROADS

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EPUB ISBN: 978-0-908328-40-6

PDF ISBN: 978-0-908331-36-9

The original publication details are as follows:

Title: Gentlemen of-- the road : a series of broadcast talks

Author: Blair, Archibald William, Sir

Published: Wellington City Council, Traffic Department,
Wellington. N.Z., 1935

GENTLEMEN OF THE ROAD

SOME explanation is called for as to the title of this talk. It suggests some biographical details concerning Robin Hood, Dick Turpin, Claude Duval, Jonathan Wild or Jack Shepherd, but I must disappoint you in this respect. My talk certainly concerns highwaymen, but I propose mainly to confine myself to those people, gentlemen and ladies in the true sense of those words, who use the highways for the legitimate purpose for which highways are formed, and have ever present in their minds care and consideration for other people. Such road users are to-day entitled to be called "Gentlemen of the road".

It is unfortunately true that in these modern days the roads are infested by a great many people who use them with a more or less entire disregard of the rights and safety of other users. Various terms; one might go so far as to say "strong language" has been applied to such people, but I think that the term "highwaymen" is not inappropriate to them. In the history of the English language some words which at one time bore a very sinister or distasteful meaning have gradually acquired a kindlier sense. I would suggest that if to-day anyone were to be designated a "gentleman of the road", the only meaning that those words would convey would be everything that is proper and desirable.

In the series of talks that I am undertaking, I hope to indicate certain aspects of the use of our public roads, particularly by those driving motor cars, which if duly appreciated will make for the greater safety of our roads and a reduction of the appalling number of accidents which occur. Many of the things I will say may have been already well said by others, but repetition of sound advice does

no harm, and if I am able to put some things in a new way it may help to impress on the memory the wisdom of advice already given by others.

It is unfortunately true that many road accidents are really due to want of consideration of the right of others; in other words by pure selfishness. An ordinary polite person, filled with consideration for the feelings of others in the ordinary affairs of life, sometimes becomes, when in charge of a fast moving motor vehicle, more or less deaf to the rights of others. Watch the attitude of any ordinary crowd going into or out of a theatre or football match or getting into a tram. The great majority never push or jostle old people or young children out of the way so as to get in or out first. They generally help unfortunates who are handicapped in any way. The reverse is the case with a great many motorists. "Get there first" is their motto, and curiously enough no one thinks any the worse of a motorist able to boast that he has passed everything on the road. No one would boast, having started at the tail end of a procession or queue, he had so manoeuvred that he has got in first. The speed fiend may have splashed pedestrians with mud, taken corners or intersections too fast, made several people hop out of his way, caused an attack of nerves to some nervous drivers, or disregarded the offside rule. But he got there and that is his boast.

I have frequently observed women with children or perambulators waiting to cross a road upon which motors are travelling at intervals of 40 or 50 yards between them. None of the motors slacken speed. They blow their horns and that, to their mind is an order to the woman to stand back until they have passed. The next motorist does the same, and the poor woman anxiously watches until she thinks it safe to cross. She may misjudge the speed of the car in the distance and become more or less in a dither as to whether she should or should not run back. The same sort of thing occurs when a motor car is emerging from a minor into a major street. The procession of cars in the main street gives no heed to those in the side street even if the side street car has the benefit of the offside rule.

If the car from the minor street has not the benefit of the offside rule, those on the main street, even if a quarter of a mile away when the minor street man attempts to emerge, ignore him and his signals.

The first suggestion I would with due humility make, is that if all motorists, men and women, old and young, were to adopt as their general practice in driving, the golden rule of politeness to all other users of the roads, then the lamentable catalogue of deaths and maiming that one reads of in the newspapers nearly every day would be reduced to negligible numbers.

The desire for speed is mainly due to a want of consideration for other road users; so is inconsiderate parking near corners or in narrow places; so is driving upon the wrong side of the road, or cutting corners; and so also is the practice of driving to a corner at speed and then going round on the brake. All these acts of selfishness lead to accidents. Push bicycles seem to prefer to ride two or even three abreast, and frequently neither of them take care to keep well to their proper side. Cyclists who do that show want of consideration for other road users, and, especially when indulged in at dusk or at night time, this practice is fraught also with danger to themselves. I have had more than one case of the outside of two cyclists riding abreast being killed by passing or overtaking traffic.

Many drivers of cars seem to be natural born wrong-side drivers. To them the wrong side has the better surface and they go there and stay there all the way out. On their way home they change over to the side they should have stayed on when going the other way. They go home on the wrong side which, by some system of magic, has then become changed to a better surface than it was when they came out. To these natural born wrong-side drivers it would seem that forbidden fruit is always the best. The only safe driving habit to acquire is always to drive on your proper side whether or not there be other traffic on the road, and whether or not the wrong side or the middle has the better surface. The majority of drivers drive on the middle of the road

when there is no necessity to do so. They prefer this because it permits of a higher speed—again pure selfishness and showing a want of consideration for others. If the road has depressions in it filled with water, few drivers reduce their speed so as to avoid splashing passing traffic. It is no concern of theirs if the result be that a passing driver's windscreen is splashed with muddy water and his vision obscured. At corners or intersections where other traffic is met with, the rule is never to insist on the other man passing first. The competition is to see who can make the other man give away.

That same driver, if he were going into a room for a lift, would politely wave the other man to go in first. Is there any reason why the ordinary polite and pleasant usages of domestic or social intercourse should be entirely forgotten when driving a fast moving vehicle upon a public road? Especially is this the case where the other person desiring to cross the road is a woman with a perambulator. No motorist dreams of stopping to let "his majesty the baby" cross over first.

Many of the accidents to pedestrians are due to the selfishness of motorists. A pedestrian is crossing the road and the motorist blows his horn. That, seemingly, to some motorists, constitutes a command to the pedestrian to get out of the way, and if he does not and is hurt, then the motorist says he "blew his horn". I shall, later, have something to say of the selfishness or want of consideration on the part of the pedestrian. It by no means follows that when a pedestrian is injured it is always the motorist who is to blame. I am rapidly coming to the conclusion that it would be better if no motor vehicles were allowed to have horns. When passing over intersections many motorists think that having blown their horns that constitutes a command to all traffic in intersecting streets to give them the right of way. If you took away horns from motorists like these they would have to slow down to make sure that no intersecting traffic was likely to collide with them.

I could go on multiplying indefinitely instances where the safety of other traffic is endangered by selfishness or want of consideration on the part of other users of the road. The first traffic rule that I would suggest as making greatly for the safety of the road and the reduction of accidents, is that all users of the roads should studiously observe, as the paramount rule of driving, politeness and consideration for all other road users. The politest drivers on the road—and they are on it all day and every day—are the drivers of those huge petrol waggons. I have not yet heard of any of these gentlemen of the road running into anything.

Now I will turn to another branch of my subject and say something about the constitution of a motor car; I do not need to explain to you that it is a mechanically propelled vehicle. What I do wish to make clear is how such a vehicle behaves and what it can do when you drive it along a road.

It is necessary first to make plain that it differs from a horse in that a horse has brains and will not run over anybody if it can avoid it. A horse will sometimes take its drunken driver home safely. The car has not yet been invented that will do that. A motor car has no brains. Any that it is allowed to make use of are those possessed by the driver, *if he has any*. If he has none, then his car has none. If he be bad tempered or drunk, then his car is bad tempered or drunk. If he be in a hurry then so is his car. and if he is inconsiderate for others, then so is his car. Remember, too, that a motor car has no soul or conscience. It does not worry if it kills or maims anyone, or even itself. It can roar and squeal, and it can honk and also purr, but, except when it rattles, all the sounds it emits are actually brought forth by the driver at the wheel.

A motor car, therefore, can either be an angel or a devil, a gentleman or a boor or a raging fiend depending upon the artist at the wheel.

How many of us know how hard a motor car can hit? Do you, when you have speeded-up Elizabeth, your car, to forty miles an hour, know what force you have created? I venture to say that not one in two thousand drivers know

the answer to that question. You will be indeed startled to know the answer. Would any of you be prepared to attempt to stop a ten-ton steam roller travelling at its fastest speed, which is about three miles an hour? A ten-ton steam roller I said, and I will pause so that you can visualize what I mean. You have all seen such a road giant. Now I shall give you the answer. The force, or kinetic energy, possessed by Elizabeth, your car, moving at 40 miles an hour is the same force as is required to stop *not one*, but *eighteen ten-ton rollers* travelling at three miles per hour. In case you have not grasped that I will say it again—eighteen—e-i-g-h-t-e-e-n ten-ton steam rollers travelling at 3 miles per hour. Put it another way. If the Minister for Public Works—and I have heard a rumour that he likes machinery—were to have built a steam roller weighing 180 tons, the kinetic energy possessed by such a mammoth when running at three miles per hour is the same force as you are handling when you have pushed your old car up to 40 miles per hour. Please remember that when I am talking about your old car, I am not referring to the modern eight-cylinder cars that are on the street to-day. Cars of that type can claim much higher figures. I am referring to any light car of about the same weight as the well-known and ubiquitous old model Ford. There is a popular song where the singer says that "*I am sitting on top of the world, just rolling along*"; I entertain no doubt that the fellow who composed that song was driving his car at over 40 miles per hour when he composed it, and being one of those extremely rare *know-ledgeable* motorists, he *knew* what he was sitting on. He knew that he was sitting on 180 tons of steam roller when he was "*just rolling along*" at that speed. The statement I have just made as to the force created will, I think, cause the average driver of a motor car to gasp with astonishment. If we take the case of a heavy passenger car, a seven-seater, travelling at 60 miles per hour, its kinetic energy is equivalent to that of more than 100 ten-ton steam rollers travelling at three miles per hour. 100 ten-ton steam rollers at three miles per hour is what I said and I repeat it—o-n-e h-u-n-d-r-e-d. Would you like the job of trying to stop a monster steam

roller weighing 1,000 tons moving at three miles per hour? If anybody doubts the truth of what I have just said, let him ask Mr. Tyndall, formerly Chief Engineer to the Highways Board and now Under-Secretary to the Mines Dept. I am indebted to him for suggesting that illustration and working out those figures.

If you do not know Mr. Tyndall, then ask any other similarly qualified engineer. Give him the weight of your vehicle and your fancy driving speed and he will tell you how hard you hit when you collide at that speed, and when you have got it print it in plain figures on a card to hang up in your car or your motor garage. The notice, if you drive an ordinary car would then read: "This car, at 40 miles per hour, strikes the same blow as 18 ten-ton steam rollers at three miles an hour". I ask you again to think of those astounding figures. Have any of you speed lovers, moving along the roads at your 40, 50 or 60 miles an hour, any possible conception of the enormous force you are handling? You imagine that all you are doing is applying a gentle pressure to the foot accelerator of your high-powered cars.

If two passing vehicles touch each other when each is doing 30 miles per hour, the blow struck is equivalent to the kinetic energy possessed by both cars, and that explains the fearful havoc that is wrought when two moving cars collide. It explains also if two cars merely brush against each other when passing on a hill the outside one hurtles over the bank. If every motorist who indulged his predilection for speed were to keep in mind the enormous force he is handling, it would make for much safer driving, and there would be ever present to his mind the thought of the havoc he can cause "*just round the corner*". I said before that a motor car was either an angel or a devil, depending on the driver at the wheel. I want every motorist to remember when he touches anything over 50 miles per hour he has unloosed a devil capable of causing untold havoc to life, limb, and property. Do I need to offer any excuse for now repeating

what I suggested in my opening words that even to-day our roadways are still darkened by highwaymen.

Now I will turn to the topic of speed. Every motorist, and every pedestrian standing on the footpath looking at him as he drives by, considers himself a judge of speed. Almost everyone says 10 miles per hour is a safe speed anywhere. Many think 20 miles per hour is the same. Neither estimate is right, and hardly any of them can judge whether a particular speed is 10 or 20 miles per hour. The motorist driving has this advantage that he has a speedometer which tells him his speed, but that instrument can, like a motor car, be either an angel or a devil, depending on the use you make of it. If you say to yourself that 20 miles per hour is a safe speed *under all circumstances*, then you should not be allowed to drive. That speed, or even 10 miles per hour, may, in certain circumstances be a dangerous speed. The only speed that is a safe speed is such a speed that you can pull up in half the distance of clear road that you can see in front of you. That is the first rule as to speed in the motor regulations and if you comply with that particular rule, then all the other speed rules will naturally become operative and you will not be bothered much about them. But in applying that rule there is a little explanation necessary as to what is meant by clear road in front of you. If you are driving along a clear road when on the footpath alongside you there are pedestrians, any of whom may at any time suddenly make up their minds to rush across the road, then, from a driver's point of view, the road, although nominally clear ahead of you is liable at any moment *not* to be clear and you must drive accordingly.

Going back to the first and most important regulation as to speed in driving, I would remind you that it says that you must never drive at a speed greater than will permit you to pull up in half the clear road ahead of you that you can see. For brevity's sake I will call that "*the half distance rule*". That rule in New Zealand is of general application and I will first remind you of *some*—only some—of the conditions it applies to.

It applies to any corner or intersection which is ahead of you.

It applies where there is any object ahead of you which obscures your view.

It applies when you are running behind another vehicle.

It applies when you are blinded by the dazzling lights of approaching vehicles.

May I digress here for a moment from the subject of speed to explain why the half distance rule applies in the case of temporary blindness caused by approaching dazzling lights. The human eye is equipped with what is called the iris, which is the coloured part of the eye. The iris is provided with a set of sphincter muscles which automatically open or close the iris and so make the pupil of the eye larger or smaller as the case may be. In daylight or any bright light the iris makes the pupil small. In the dark the iris opens and makes the pupil of the eye large. Unless the size of the pupil of the eye is properly adjusted to the amount of light available, then vision is impaired. When at night you run into dazzling head lights, the iris immediately closes down on the pupil because of the brightness of the light. When the bright light has passed the iris commences to open out, the opening operation being very much slower than the closing operation. Until proper expansion takes place there is partial blindness. In addition to partial blindness due to dazzling lights, there are other muscles in the eye that automatically attend to focussing; the operation of which muscles are interfered with by dazzling light. If a driver maintains his speed when meeting dazzling head lights, he is driving blind and that is a grave source of danger. He should stop or at least go dead slow till full vision is restored. The half distance rule applies in all cases of temporary blinding caused by dazzling head lights.

All modern cars are equipped with dipping head lights designed to avoid the temporary blinding of other drivers. Many selfish drivers with cars equipped with glaring head lights deliberately neglect to dip their head lights when approaching other vehicles. This is an ordinary and necessary courtesy which should be extended to every other driver.

They ignore that duty so as to be able to maintain speed at the expense of blinding the other fellow. I think many accidents would be avoided if the courtesy of dipping was never omitted.

There is one district in New Zealand where the road manners are delightful and it is one place I know of where real road courtesy is observed. No doubt there are other such places, but I have not had the good fortune to come across them in the 25 years I have been driving. The place I refer to is the road between Napier and Gisborne. Especially is this true of the service car drivers there. Not only do they dip head lights to passing vehicles, but they studiously practise the charming and very proper and necessary custom of downhill traffic giving way to uphill traffic; and at night time, on the hilly portions of the road, the downhill man tucks his car well off the road so as to leave the whole width to the uphill man, and as the uphill man approaches the waiting car extinguishes all but his parking lights. I would commend those sort of manners to the downhill drivers on the Paekakariki and Rimutaka hills and on the hills near Auckland.

One of the magistrates was some time ago reported as having objected to the rule that downhill traffic should give way to uphill traffic. I look upon that rule as necessary.

That is a digression and my excuse is that tribute is due to true gentlemen of the road. I return now to the matter of speed.

It is my view, and I have enunciated this doctrine for a good many years, that our method of driving and talking about speed in miles per hour is grievously wrong and constitutes a public danger. Few people really appreciate what speed in miles per hour means. The trouble is that they think they do. The method of miles per hour gives an entirely false notion of speed. If I had my way I would word all by-laws and speed limit regulations not in terms of miles per hour but in terms of feet per second. My job

as a Judge does not permit me to make laws. I have to administer laws that somebody else has made. All I can do is to point out certain weaknesses in the laws as I find them when I come to administer them. And it is because I have for many years recognized the public inability to appreciate what is meant by speed in miles per hour, that I have, in and out of season, tried to educate motorists into thinking of speed, not in miles per hour, but in feet per second.

My claim for saying what I have said is that I have heard many hundreds of witnesses who claim to be judges of speed and, because in many instances I am able almost automatically to check them on my feet per second basis I know where many go wrong. Most of the lawyers in New Zealand who come into Court can now calculate on the feet per second basis, and I have noticed in the last few years that they do not allow their witnesses to make the foolish statements about speed they used to indulge in. I have heard witnesses with due solemnity and confidence give estimates of speed that would have put two colliding cars 25 yards apart at the time they collided. Once I had an experienced jockey giving evidence before me who swore a car was, before the accident, doing 40 miles per hour. I asked him at what speed in miles per hour some of the winners he had ridden were travelling past the winning post. He had not the slightest idea, nor could he tell me in miles per hour or feet per second the speed of a racing trotter or the speed of a sprinter running a hundred yards race. Yet that jockey earned his living in speed competitions.

And it is so easy to convert miles per hour into feet per second that a child can do it. Any motorist with enough intelligence to be able to add half a number to that number can do it. The result is correct within two per cent. May I give you a few examples? Add one half to your miles per hour and you have it. 10 miles an hour is 15 feet a second. That is not a hard sum to do. All you do is add the half of 10—which is 5—to 10 and you have it. 20 miles an hour is 30 feet a second because half of 20 is 10 and

20 plus 10 is 30. 40 miles an hour is 60 feet a second, and 60 miles an hour is 90 feet a second. Practice that sort of thing for five minutes and you have it. And after you have it always drive by thinking of your speed in feet per second instead of miles per hour. I can promise you that it will make you a more careful, a more polite and a much better and safer driver.

Let us take an example of the difference in driving at feet per second as compared with driving in miles per hour. Let us assume you are driving down Queen Street, Auckland, Willis Street, Wellington, Colombo Street, Christchurch, or Princes Street, Dunedin, at 10 miles per hour according to your speedometer. Pretty slow that is, you will say. When you think of it in feet per second, notice the difference. You are moving a vehicle weighing about a ton at 15 feet per second. At 15 miles per hour you are moving at 22 feet per second. A lot of things can happen in 15 or 22 feet. A motorist who takes his eye off the road for one second can go over the bank in that fraction of time. A fatigued driver relaxing his attention for one second may find himself in the ditch.

How long is one second? It takes one second to say distinctly "one second", so that at 15 miles per hour your one-ton vehicle has moved 22 feet before you could say "Jack Robinson". When you get to 50 miles per hour you move 75 feet before you can say "Jack Robinson", and then you are in amongst the tall figures.

I would repeat that the only way to acquire a due appreciation of speed is to think of speed in feet per second and not in miles per hour, which really gives you a false idea of what you are doing. Next time when the traffic inspector stops you for speeding, you tell him you were only doing 45 feet a second, and if he does not know what this is—and he should if he knows his business—then you can take pity on him and let him into the secret that it is only 30 miles per hour. Of course you can only say that when the speed limit is 52 feet per second, which is 35

miles per hour. Actually 35 miles per hour is $52\frac{1}{2}$ feet per second, but I never bother about half a foot. It makes the sum too hard. I call 17 the half of 35. If you will only accommodate yourself to drive in feet per second it will surprise you what a lot of things you will learn about motoring that you never thought of before. Personally, I think that no one should be given a driver's licence till he or she knows by looking at the speedometer how many feet per second he or she is driving at.

May I now tell you a few things I have learnt by thinking in feet per second. The first thing is that when two cars are approaching each other they are using up the distance between them in *at least* 100 feet per second. The reason why that is so is that on ordinary country roads the average speed of each vehicle is or should be not more than a little over 50 feet a second, which is a little over 30 miles per hour. The combined speed of the two vehicles is 100 feet per second, which is a bit over 60 miles per hour. That means that if they are 300 feet or 100 yards apart, they meet in three seconds. It is easy to remember that two approaching vehicles 100 yards apart will meet in not more than three seconds, or, in other words, they will meet in less than three "Jack Robinsons" . . . *meet in less than three "Jack Robinsons"*.

Now, having got that into our heads, let us apply it in two ways. We will apply it to the approaching of a blind corner and we will apply it to the overtaking of a vehicle when a third car is coming towards us.

If you are approaching a blind corner, you do not know if there is another car round that corner. If you are 50 feet from the corner and the other car is the same distance from the corner *and you both hold your speed*, you will meet in one second, *i.e.*, less than one "Jack Robinson". If either of you cut the corner, then there will probably be a job for the coroner or the hospital—possibly both. If you are each 100 feet from the corner and you both hold your speed and one cuts the corner, then the coroner or ambulance may be required in less than two "Jack Robinsons".

A great many selfish motorists drive up to blind corners at speed and trust to the brakes to ease them on the corners. If they meet anything there is grave risk of trouble. Speed should be slackened at all corners and then you have all the brake power in hand in case you meet trouble. The only way to take blind corners is to go round as close to the very edge of your proper side as is possible. The speed at corners should always be such that you can stop in half the distance you can see.

The application of the formula that two approaching cars 300 feet, or 100 yards, will meet in three seconds or under three "Jack Robinsons", needs a little more explanation when one applies it to the operation of overtaking another vehicle. One must first find out how long the operation of overtaking another vehicle takes. A safe allowance to make is six seconds and the reason why I say that is this. To overtake another vehicle you must commence at least $1\frac{1}{2}$ lengths—say 25 feet behind it. You travel its length, say 15 feet, and then there remains another two lengths ahead of it before you can be back in your proper position on your proper side of the road. All that means you have to travel about 75 feet before you can complete the passing of another vehicle. If you speed up to 15 feet per second (that is 10 miles per hour) faster than the vehicle you are overtaking, it will take a fraction over five seconds to pass him. I always assume six seconds. Get it well into your head that the operation of passing another car takes six seconds if your speed is 10 miles an hour faster than his. In six seconds two vehicles 600 feet (that is 200 yards) apart will meet. The net result of all that figuring is that no one should attempt any overtaking operation, or cutting in, if there is another vehicle approaching within 250 yards.

It also means that you must never attempt to overtake a vehicle approaching a blind corner unless you are at least 125 yards from the corner.

I do not expect anyone to carry all those figures in their heads, but once you grasp the fact that two vehicles approaching each other lap up the distance between them in at least

100 feet per second, you can work out all sorts of things for yourself.

If the vehicles approaching each other are two of these high powered modern cars, the touring speed of which exceeds fifty miles per hour, then, to be safe, you must assume that they will use up the distance separating them at 200 feet per second and no overtaking operation can safely be attempted unless you start when the two approaching vehicles are at least a quarter of a mile apart.

I could give you many more illustrations as to the effect of high speeds, but I cannot spend all the time allotted to me to this one branch of a very large and important subject, and must content myself by repeating that every motorist should accustom himself to think of speed in terms of feet per second and not in miles per hour. And when it comes to the matter of speed, always remember the golden rule of safe motoring—the first one of the Regulations as to speed—never drive a car at a greater speed than such as will allow you to stop in half the distance of clear road you can see ahead of you.

It is a good thing also to remember that it is better to be five minutes late in this world than 25 years too early in the next. It is incomparably better too to remember that it is better to be five minutes late in this world than to be the means of some unfortunate victim of your driving arriving 25 years too early in the next world.

The next thing I will say a word or two about is the subject of brakes. Many of us have a lot to learn about brakes and their functions. It is true that the efficiency of brakes has been greatly increased, but there is one thing that should be burnt into the memory of every motorist and that is that no matter how efficient a brake is, the most it can do is to stop the wheels going round. That's all. No brake has yet been invented that will get out of the car and push it backwards. Some people suffer from the grave misconception that because the makers make a feature of the brakes on their particular car, that justifies the drivers

of those cars in taking risks they would not otherwise take. So long as a brake is efficient enough to lock the wheels, that is the utmost a brake can do. Brakes are designed to overcome the kinetic energy possessed by a moving vehicle; and once the brakes lock the wheels they have done everything they can do to bring the car to a standstill. The ability to stop then depends on the grip of the tyres and the road surface they are gripping on. I have already shown you in a previous broadcast that the kinetic energy that has to be overcome when a one-ton car is travelling at 40 miles an hour is the equivalent of the kinetic energy of 18 10-ton steam rollers travelling at three miles an hour. That is the terrific force which the unfortunate brakes of a motor car have to cope with to bring to rest a car travelling at that high speed. I often think that it is a pity that we have not a society for the prevention of cruelty to machinery when I see the brutal way in which some drivers use their brakes. They drive at high speed to a corner, then put on their brakes to take the corner and, once round, push down the accelerator to attain speed again. The poor brakes sometimes squeal in protest. Drivers of this type rapidly wear down their brake linings and then they become a greater source of danger.

Tables are procurable showing the distance within which cars travelling at various speeds can be brought to a standstill. These tables are somewhat elaborate because of the different types of brakes and tyres and different road surfaces. Taking average four-wheel brakes with hard surfaced roads, the distance it takes to stop a car after the brakes have been applied varies from five feet at 10 miles per hour to 130 feet at 50 miles per hour. At 20 miles per hour it takes about 30 feet to stop a car after the brakes are applied. And please remember that when you have to brake in a hurry it is not always your luck to be on a bitumen road. A road covered with loose metal acts as a sort of ball bearing for the tyres to skid on.

But from a practical point of view, one must allow double these braking distances, because it takes nearly a

second for a human brain to appreciate danger and get the brakes on sufficiently hard to lock the wheels. It is highly dangerous to assume that because at 20 miles per hour (30 feet per second) you can stop a car in 30 feet after the wheels are locked, you can pull up in time to avoid danger only 30 feet ahead. You must allow up to one second necessary for mental reaction during which time you have travelled about 22 to 30 feet before the brakes are on. I will give an illustration of what I mean by this. A pedestrian rushes in front of you forty feet away from you when you are travelling at 20 miles per hour—that is 30 feet per second. Your brakes will pull you up in 30 feet after they have locked the wheels. At the inquest next day it will be proved that you ran clean over him and pulled up showing a skid mark of 30 feet. Assuming you possess a mental reaction of three-quarters of a second, that skid, if made by the front wheels, will be about 22 feet past the point of impact. If made by the back wheels it will be about seven feet past the point of impact. Those figures will be hard to carry in your mind, but you work them out for yourself. It is a good practice for motor drivers occasionally to do a little figuring like that so as to make them more cautious and considerate for other road users.

I spent some time at my last broadcast trying to explain how to convert speed in miles per hour into feet per second. To those of you who found the mental arithmetic involved in that too hard to do, I would, if some of you prefer yards to feet, say that to convert your speed from miles per hour into *yards* per second, all you have to do is to halve the miles per hour as shown by your speedometer.

At my last broadcast I gave some rough ideas of the distances necessary to bring a car to a standstill at various speeds, and I have no doubt you were somewhat surprised at the great distances required when allowance is made—as it must be made—for the interval necessary for the brain and body muscles to bring the brakes into action. The figures I gave were for average four-wheel brakes on hard surfaced roads. I should, I think, mention that cars equipped

with only two-wheel brakes take considerably longer to pull up, the reason being that there is less friction on the road when only two wheels are locked. Many hundreds of cars are still equipped with high pressure tyres, and such have considerably less braking effect than balloon tyres. When a car is equipped with only two-wheel brakes and high pressure tyres, then for speeds up to 25 miles per hour you should assume that it will take double the figures of your speed in feet per second to pull up. For any speeds from 30 miles per hour upwards you should assume that three times the figure of your speed in feet per second will be required to pull up. Both those estimates allow for mental reaction. That means an allowance of 135 feet to pull up when you are doing 30 miles per hour with a car having only two-wheel brakes and high pressure tyres, and proportionately greater distances for higher speeds.

In the last year or two a great many new cars capable of very high road speed have come upon the road. Many of them possess an ordinary touring speed of 50 miles per hour. It has never been made plain to the motoring public that cars so designed are really designed for American roadways or high grade roadways in other countries where high speeds are provided for by having very flat curves banked so as to permit of cornering at speed. There are thousands of curves in New Zealand which do not permit of a greater speed than 10 miles per hour. To make the present roads fit for a uniform speed of even 30 miles per hour is well beyond the financial resources of New Zealand for many years to come. The American standard of visibility at curves is 500 feet. Such curves are virtually unknown in New Zealand. Motorists fortunate enough to own these late model high speed vehicles should remember that the cars they drive are not designed for or intended for roads such as we in New Zealand have so far been able to afford, and it behoves them to remember the limitations of the roads they have to use.

The allowance for the delay due to mental reaction is very important. The average period necessary is about

three-quarters of a second. Some people are able to think and act faster than others. No one should attempt to drive at any speed until he has become automatic in his actions. The older we get the slower our reactions become. If a driver learns to drive late in life he may never become a really automatic driver. Even if you are—or think you are—by practice and temperament a perfect driver you must remember that most other drivers are not so well endowed and gifted as you are, and you should accordingly have compassion on them and do not risk “bustling” them by driving too close to them or cutting across them or “beating” them at corners. The attitude you should take is that being an expert, as you are—or as you think you are—you should be sporting enough and polite enough to make allowances for the great majority of drivers who will never attain the giddy eminence in driving that you have attained.

If one looks at the accident statistics for last year, there is one pleasing feature of them that may not be noticed unless attention be called to it. 174 unfortunates lost their lives in motor accidents last year, but when we look at the table showing the kind of vehicle concerned it will be observed that there was not a single service car involved in any of those fatal accidents. That shows that the service car drivers are not only good drivers, but that they are considerate drivers and real gentlemen of the road. Their daily experience on the roads teaches them not to omit any precaution touching the safety of their passengers or the safety of other users of the road. They have had drilled into them by daily experience the foolish things that less experienced and less considerate drivers do, and it has become second nature to them to drive safely, to be on the look out for foolishness on the part of other road users and to practise the best road manners. I look upon it as very significant that service car drivers who are virtually never off the roads are able to show such a pleasing and satisfactory result. It shows that with proper understanding of the instrument they are handling and care and consideration for other road users accidents can and are avoided and the

lesson that teaches should be taken to heart. I have noticed also on the part of service car drivers that they still adopt the charming practice—now, alas! more or less obsolete on the part of the private car drivers—of stopping to offer help to any one seemingly in trouble on the road.

Another thing that the accident statistics show is that more accidents occur between five o'clock and seven in the evening than at any other time. That is the period when twilight turns to dark, and I would revert to what I have already said as to the limitations of the human eye. During that dangerous period of the day, road courtesy is more and more demanded. "Sun down, slow down" is the wise motorist's motto.

As part of their training in scout work, Boy Scouts are taught that to enable them at night time to see whether there is anyone standing in an open paddock, they must get down close to the ground so as to get anyone else standing up silhouetted against the horizon. This simple piece of knowledge has an application to driving. If one be driving at night upon a roadway with an upward slope or on a roadway with a dark background, any pedestrian or cyclist on the roadway in front is liable to be absorbed by the background due to the elevation of the road or the dark background. This makes objects on the roadway hard to see. Especially is this the case in the half light between twilight and dark. Especially also is this the case at that time when the bitumen streets of a city have a good many pedestrians about on their way home from work. In cities the background of dark unlighted buildings has a tendency to absorb the outline of people or bicycles on the roadway and special care is necessary when going from a well-lighted part of a city into a darker portion. Time should be allowed for the iris of the eye to accommodate itself to the reduced lighting.

I referred a moment ago to the difficulty of seeing bicycles and pedestrians, especially in a half light. No means has yet been suggested for attaching lights to pedes-

trians who walk on roadways frequented by motor cars. They trust to being picked up by the car lights. The habit of pedestrians of walking on country roads on the near or left hand side of the road means that they have their backs to the traffic approaching behind them. If pedestrians could be educated to change this habit when, owing to absence of footpaths, it is necessary to walk on the roadway by walking on the wrong side of the road so that they are facing approaching traffic on the side of the road the pedestrians are walking on, it would be much safer for them.

Bicycles at night time are required to have a light on the front of their machines. This is to save them from traffic coming towards them. But the number of bicycles that are on the road at night without lights is lamentable. They are a source of danger to themselves and also to other traffic. The law does not require bicycles to have tail lights, but I cannot understand why for their own protection they do not equip their bicycles with tail lights. If they did a good many of them would live longer than they do. I am surprised that bicycle clubs do not educate their members to adopt tail lights and would like to see firms that employ errand boys on bicycles equip their bicycles with tail lights for use in half light or dark. Twenty-two bicycles were involved in fatal accidents last year. A few of the more cautious bicyclists have powerful lights on their machines which throw a beam on the road, thus enabling them to be picked up. Most of them, however, have poor lights, so weak as to be invisible from the rear. The white painted mudguard on bicycles is helpful if adopted, but it is not comparable with a tail light. The red reflecting disc that bicycles are supposed to have are of very little use because of the wrong way they are affixed. The bicyclist himself puts great faith in them and assumes they show him up well to overtaking traffic. Unfortunately that faith is often misplaced. The grave trouble with pedal bicyclists is that most of them seem to be quite ignorant of the principles of reflection of light. If a child of seven wishes to see

itself in a looking glass it will turn the glass till it is parallel with itself. Most bicyclists seem to be unaware of that which any child knows instinctively. They fix their reflectors so as to have them pointing up into the air, in which position they may reflect the moon, but their reflectors do not do, what the bicyclist deludes himself into thinking they are doing, which is to reflect the lights of motor cars coming behind him. A reflector, to reflect motor car lights, must be set at *right angles to the road*. Many bicyclists fix their reflectors under the saddle they sit on and they would be better to leave them off altogether than to do that. They would then know they have no reflectors. Their coats frequently obscure reflectors; and on wet nights—the most dangerous time for cyclists—their overcoats cover them up altogether.

Bicyclists have a right to be upon the roads, but some of them appear to believe that means they have the right to occupy any part of the road they fancy. It is their plain duty, as it is the plain duty of all other traffic, to travel as near as practicable to the edge of their proper side of the road.

Every vehicle on the road, whether motor vehicle, horse vehicle or bicycle or horse-riders should be meticulous in giving road signals if they contemplate any change of direction. On country roads I have never seen a horse driver give any road signals. He will turn suddenly without notice into a gateway on his wrong side of the road, regardless of the possibility or probability of fast moving traffic behind him. I think it is fairly accurate to say that the majority of pedal bicyclists entirely neglect to give road signals and many accidents are caused by this neglect. Besides being unsafe to themselves it is dangerous to other traffic and constitutes, to my mind, a want of courtesy to other users of the road. A motor car overtaking a bicycle which suddenly and without warning shoots across to the wrong side, or executes some sudden swerve, causes the motor car behind him to do the same, if the car has time

to do so. Sometimes the bicyclist is hit, but, even if he is not, that sudden swerve, if made on a street crowded with traffic, may cause one or even two vehicles behind him to get out on to the wrong side of the road. Quite outside the danger to themselves, bicyclists who do that are inconsiderate to the rights of other road users.

The habit of pedal bicyclists riding two or even three abreast is not only an inconsiderate habit, but it is dangerous to the bicyclists themselves. The outside of two bicyclists riding abreast is on his wrong place on the road. It is the duty of all traffic to travel as near as practicable to the edge of the proper side of the road. School boys and school girls are very fond of riding two or even three abreast, and it is worth considering whether schoolmasters should not warn their bicycle-riding pupils of this danger. In flat places, like Chirstchurch, Palmerston North, Wanganui, and Gisborne, this two-abreast or three-abreast riding by school pupils is very common.

I look upon it as important that the study of road manners cannot begin too early. The pedal cyclist of to-day becomes the motor-cyclist of to-morrow and becomes the motorist of the day after to-morrow. If he neglects the cultivation of the best road manners, the pedal cyclist when he attains the dignity of possessing a motor car may and probably will still suffer from his lack of early training. The important thing is to cultivate good road manners so that they become a matter of habit.

I hope I am not guilty of injustice when I say that I think, that generally speaking, motor-cyclists, of all road users, are the least observant of the ordinary courtesies of the road. It is not unknown for them to ride two or even three abreast—a bad habit which may have been acquired in the days when they were pedal cyclists. To their credit it must be said that they all possess lights both front and rear. Some motor cyclists ride silent machines, but many of them—too many of them, most people think—ride noisy machines with loud exhausts. The motor-cyclists of that

type, besides their share of the road, appropriate, at the cost of the public at large, an undue share of the air surrounding the road. They pay licences for the use they make of the road, but so far no licence fee has been levied upon them for their usurpation of an undue share of the surrounding atmosphere, and I do not see why some charge should not be made for what, apparently, is a privilege they demand at the expense of the comfort of the public at large. It appears to me quite possible, and in fact quite probable, that if an increased licence fee were imposed upon the owners of motor cycles equipped with exhausts capable of emitting the fearsome sounds some of them can emit, means would be speedily adopted by them to minimise, if not entirely cure, this craze for noise upon the roads. The deprivation of the capacity to create the noises many motor cycles make would probably mean a diminution of speed, but, as I shall presently show, such a diminution would by no means be an undesirable result.

The statistics of fatal road accidents relating to motor cycles make the reverse of good reading. The registrations for the year ending March, 1935, show that out of approximately **210,000** motor vehicles registered, only **15,000** were motor cycles. That means that there is only one motor cycle for every 14 other motor vehicles. The latest fatal accident returns show that of the types of vehicles involved in fatal road accidents, 60 were motor cycles and 152 were other types of motor vehicles. This is a regrettable position so far as motor cycles are concerned. Had the motor cycles involved in fatal accidents been proportionate to the registrations—as they should at least have been—then instead of 60 motor cycles being involved in fatal accidents there should have been only 15. If there had been only 15 it would be too many, anyhow. In other words, the proportion of fatal accidents in which motor cycles were involved was four times greater than it should have been. There were 56 persons killed on motor cycles and precisely the same number (56) killed on motor cars. This again

shows a most lamentable result when it is remembered that there are 14 other motor vehicles to each motor cycle.

On those figures I cannot escape the conclusion that the riders of motor cycles do not seem to possess the same road manners and appreciation of the dangers of the road as the drivers of other motor vehicles. The figures show a degree of recklessness which is disquieting. The cure, I would suggest, is the earnest cultivation of better road manners. Excessive speed is no doubt the main factor. No statistics are available for accidents unless someone is killed. There are thousands of non-fatal accidents one never hears about.

At my first talk I promised to say a word or two about the road manners of pedestrians. Where there are footpaths pedestrians should, except at intersections or where otherwise necessary to cross the road, keep to the footpaths. Vehicles are not allowed on the footpaths and it follows that pedestrians should not resort to the road unless necessary. What I have said about speed in feet per second applies also to pedestrians. At three miles per hour a pedestrian moves nine feet in two seconds, and that is enough to put him right into the track of approaching traffic. When he or she rushes across a road to join a friend on the other side, he is well in the track of approaching traffic in less than one second—one "Jack Robinson". A motor car 30 feet away at that moment could easily, and often does, hit him. If, as he often does, the pedestrian rushes from the shelter of a parked car—then a tragedy frequently happens. Last year there were 14 accidents where pedestrians were killed by cars, but the pedestrians were at fault. Four drunken pedestrians were killed and 11 small children. In 12 fatal pedestrian cases, the motorist was at fault. At intersections, where there are traffic lights, the pedestrians should obey the lights as the cars must do. The car has only a limited time within which he must cross and if pedestrians block his path, that means that the car may be in a position on the road where he is a danger to other

traffic moving as the lights change. The habits of pedestrians at corners, standing on the roadway waiting to cross, forces wheeled traffic turning the corner to get on to their wrong side.

One would think it not necessary to say that pedestrians should never read newspapers when crossing any street, but some of them do, and it must be gratifying to them to see how successful they are in holding up the traffic while they find out whether their horse has won.

Road courtesy is every bit as important to pedestrians as to motorists.

Now, before I close, I think I should touch upon the question of the unwisdom of drivers of motor vehicles imbibing alcoholic liquor when driving. It has been my misfortune to try many cases where it was alleged that indulgence in liquor has been a material factor in a road fatality. Police officers called to the scene of an accident do not seem ever to neglect to smell the driver's breath. Should it happen that he detects the smell of liquor, further and sometimes very searching enquiries are quite properly made to see whether liquor is a material factor. I know of one very sure and absolutely certain way of keeping the breath free of the smell of liquor. I have some doubts whether I should broadcast such a secret. On second thoughts I will risk doing so. The sure and certain way of avoiding any risk of the smell of liquor on a driver's breath is not to touch liquor either before or during driving—and not before you get home. In a great many cases that I have tried where the driver admitted that he had had drink, the particular tippie indulged in has always been "one pony beer". That was all he had taken. He was certain of that. But its effect on driving was such that some very extraordinary things were done. It would seem, therefore, that this particular drink known as "a pony beer" is a liquor of outstanding potency and with marked effect on driving capacity.

As long ago as 1922, Sir Frederick Chapman, that eminent Judge, now retired, when discussing responsibility for a motor accident as part of his judgment in a case he had tried, said: "The evidence confirms that of witnesses who say that they noticed the smell of drink. I consider it impossible now to say positively that the amount of liquor taken in no way contributed to the occurrence. Long before it produces intoxication it is liable to produce a want of caution in a person taking it. I am entitled to take notice of known physiological effects produced by common reagents, and I have not failed to trace this effect in some of the many motor collision cases I have tried or heard on appeal".

The time allotted to me for these talks has not permitted me to touch upon many other branches of a subject which, you will agree with me, concerns the sanctity of human life, and I have received numerous letters suggesting other phases of the subject that I should refer to. I believe I have actually over-stepped my time limit more than once.

May I conclude these talks by saying that if it be true that manners maketh the man, then it is equally true that manners maketh the motorist.

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