HOW TO DRIVE

THE ULTIMATE GUIDE – FROM THE MAN WHO WAS THE STIG

BEN COLLINS

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Prologue: *How Not to Drive*

1998. A twisting country lane in the middle of nowhere, travelling at 80 miles per hour.

The sound of 14 tons of metal colliding is almost deafening when you're right next to it. Imagine 100 heavy doors slamming in unison and you're not even close. It's loud enough to summon people from farmhouses half a mile away to search for plane wreckage, but inside the crash … you hardly hear a thing.

That's because your brain is moving – and as it thumps the inside of your skull it disrupts the electrical activity powering things like sight and hearing.

My Toyota Supra cornered like it was on rails. It sat on enormous wide tyres and had a whale-tail wing with enough downforce to leave a dent in the floor. At the time I was a Formula 1 hopeful and one of the fastest men in Formula 3 – even Sir Jackie Stewart said so, and boy did I know it.

I was *so* clever and knew my local roads *so* well that I had a braking plan for every conceivable scenario. One flowing section in particular had a bottleneck into a single-track lane with no passing space. I calculated my velocity precisely to be able to make it all the way through it and out the other side before an approaching car filled the gap, or if there was a car coming through I would throw the anchors to buy enough time for it to emerge.

'Inside the crash you hardly hear a thing.'

According to a recent insurance survey there are certain types of music that make you put your foot down and generally drive like a complete moron. The Black Eyed Peas topped this deadly driving chart with 'Hey Mama', a banging tune there's no doubt, but at the time I had the Beastie Boys busting decibels.

I wanged the stereo up a notch and tipped into the familiar dusty right-hander towards the mouth of the funnel at full speed. Over the course of the next second the vanishing point ran into a scene that I hadn't budgeted for.

Thick mud was spread lavishly across the road. Alarm bells were ringing, but the mud was quickly replaced by a more pressing issue. A very large, slow-moving

'Time slowed down, but the car didn't.'

truck was lumbering through the bottleneck, too slowly to clear it at my rate of closure.

Time slowed down, but the car didn't.

I braked. Wide tyres and downforce were powerless on the greasy mud, and my front tyres locked instantly. The trajectory involved a double whammy of hedge and a lethal side impact with the truck. *Think fast*.

0.25 seconds later I released the useless brakes, hoping to recover enough steering to swing across the front of the truck and punch through the gateway into a field.

Nope.

The mouth-like radiator grill and the word *VOLVO* filled the screen.

Then it was that big moment. There were no more choices, only consequences. I could have been an accountant. I could have been a yoga teacher. But there I was with no more tricks up my sleeve. It was time to take the hit, and I had no airbag.

I closed my eyes as the hood of the Supra exploded into the truck's bumper and deformed until it met with the Volvo's front axle, which didn't bend much. The Supra's engine and gearbox travelled 2 feet my way as the physics of displacement and momentum did their thing. Stopping a 12-ton truck, fully laden with turf, dead in its tracks put a force of deceleration through my body in excess of sixty times the force of gravity. I did not feel well.

The head-on impact and abrupt stop rearranged all sorts of things inside the Supra, including my kidneys, which ruptured and bled for several days. Pens, loose change and a half-eaten sandwich from the previous owner all relocated themselves to the dashboard.

Temperament has always been a problem for me, and although I've learned to control it I know that there are demons lurking. The track offers me a positive outlet for unleashing that side of my personality in very controlled bursts. But there are certain things I can't combine with driving, and loud music is one of them.

0.2

Introduction: *How to Drive*

Driving is one of the most pleasurable things that each of us does on a daily basis.

It is also the most dangerous. And it doesn't matter whether you drive on the right or the left, using an automatic gearbox or a stick – the fundamental principles and physics of driving are the same everywhere.

The world population of motor vehicles exceeded 1 billion a couple of years ago. Car crashes kill 50 per cent more people than malaria, and the World Health Organization predicts that road deaths will rise 52 per cent by 2030, overtaking HIV AIDS as a global killer within the decade.

Perhaps that isn't so surprising. Whichever country you're from, you want to go from being a learner to a driver as fast as possible. Having tackled a tough multiple-choice questionnaire, reversed round a corner and successfully navigated a supermarket car park, you tear off your L-plates or probationary stickers, and take a ton of speeding metal out onto the open road. Millions of drivers will receive their licences this year with less than eighteen hours' driving experience under their belt.

A Starbucks barista receives twenty-four hours of training before being handed the keys to an espresso machine.

The robotic syllabus of the driving test itself remains painfully inadequate – not so much in what it contains as how much is left out: controlling a skid, driving on a motorway, tackling a corner, driving at night and overtaking … to name but a few. And of those who pass, less than 1 per cent receives further training.

Governments, road safety groups, even the Green lobby want to wrap us in cotton wool and then pull it over our eyes. They would have us believe that speeding, among other things, is the biggest danger facing modern drivers, but 700,000 police road accident reports gathered over the last five years tell a different story. The real killer is simply poor driving.

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'I'll show you how to drive smoother than a jazz band surfing a soap dish down a butter mountain.'

Exceeding the speed limit contributes to less than 14 per cent of fatal accidents, but driver error is a significant factor in more than 65 per cent. Poor turns, dodgy manoeuvres and failing to negotiate slippery roads contribute to four times more road deaths than mobile phones. Losing control of the car is the primary cause of driving fatalities, and failing to look properly causes the most accidents.

In the past, insurance companies only concerned themselves with information you can find on the electoral roll. Recently they started looking into driver telemetry to see if there was a link between *how you drive* and accident probability. There was. Drivers who jerk the steering or stomp the brakes and throttle like they're putting out a fire are high risk. Smooth drivers are less likely to crash, because driving smoothly requires you to control the machine properly and look further ahead.

How to Drive provides these missing chapters in your driving education. During the course of this book, I plan to share the skills developed and employed over a twenty-year career at the cutting edge of motorsport, from Le Mans racing to NASCAR, driving the Batmobile and dodging bullets with James Bond, as well as eight years' duty as The Stig for *Top Gear*.

The skills I describe were honed on racing tracks by the greatest drivers in the world. As we'll come to see, their philosophy of speed is really one of economy of motion, and with that comes greater fuel efficiency, safety and control. So this book is about driving better, not faster. Whether you've been behind the wheel for the best part of thirty years or you bought your first L-plate ten seconds ago, this is the stuff your instructor missed, your dad forgot and your mates pretend to know … but don't.

The journey begins with understanding why we drive the way we do … and how we can do better. You won't believe this, but the majority of the world's population is driving on the wrong side of the road because of a simple misunderstanding. Our system of learning has been little different.

Stage two involves getting your hands dirty as we open up the machinery that will transport you to heaven and back. And despite what Google think, the ultimate operating system riding onboard this marvel of engineering is you – not the damned computer.

Then we hit the open road, and I'll show you how to drive smoother than a

jazz band surfing a soap dish down a butter mountain. You'll be so sexy through the corners that your passengers will need a cold shower after every journey.

To avoid any slip-ups along the way, you'll learn to see the road through a racing driver's eyes: looking so far ahead that you'll know what your great grandchildren will be having for breakfast in 2114. Clear your head, light a joss stick and ease into the Zen of Driving.

Once fate is firmly in the back pocket, we'll venture into the parts of life we can't always master but can learn to control: driving on ice, handling skids, dealing with emergencies and still managing to enjoy the ride.

Finishing with some soul food: *stunt driving* …

The *Highway Code* it isn't, but in the following chapters you'll learn to read the road for the sea of tarmac, take control of the car with confidence and develop a driving style to be proud of.

Driving is about becoming the master of your fate, and, believe me, there's no better or more worthwhile journey.

01

A Very Short History of Driving

1.1

Roads Aren't Straightforward

The rules of the road inevitably shape the way we travel. Man and cart made their way along the left-hand side of Ancient Roman pathways, and this was no accident.

The vast majority of humans are right-handed and right-eye-dominant; by hanging left, they could most easily identify and wield a weapon against any oncoming threat.

'I blame Napoleon.'

The Romans were a clever bunch; they built straight roads across their burgeoning empire, from the Appian Way in Italy to the trunk roads (like the A5) that still connect Great Britain. With reins in their left hand and a whip in their right, Roman riders were as ergonomically sound as modern-day right-seated drivers whose dominant right hand never leaves the steering wheel. The entire world followed this logic – until the French got involved. I blame Napoleon.

The Frogs began hauling goods in bulk using teams of horses whose master was seated on the rearmost horse to the left, for no good reason other than to be different. In order to jostle their cumbersome wagons past oncoming traffic, they had no choice but to drive past on the right to observe the clearance. Napoleon, who was left-handed and naturally biased, was so impressed that he imposed the system everywhere he went. Wellington's armies prevented this madness spreading to Britain and her colonies, but the rot was setting in.

The Americans started using French pack-horses and adopted the keep-right rule, in large part to defy their former British colonial masters. The Canadians eventually followed suit in 1923 to stave off carnage at their border. Hitler enforced driving on the right across the parts of Europe that Napoleon had unaccountably missed, and China took the plunge in 1946 to accommodate imported US gas-guzzlers.

So today, two-thirds of the world's population drives on the wrong side of the road, using the weaker left eye to check the nearside wing mirror and overtake, all because of a little Frenchman and a disagreement over some tea in Boston. Britain, India, Australia and Japan remain notable exceptions to the global decline in common sense – civilized, tea-drinking nations all.

Research in 1969 (by J. J. Leeming) showed that countries driving on the left have a lower collision rate than countries driving on the right. Cyclists and horse riders typically mount from the left-hand side, placing them safely on the kerb when vehicles are travelling on the left. And if you still don't believe me, then check out the military: all aircraft carriers from American, British to Chinese have their control towers on the right-hand side, so that pilots can approach for landing and take-off from the left, with their dominant eye watching out for the only building they might accidentally crash into for a hundred miles.

'So today, two-thirds of the world's population drives on the wrong side of the road.'

1.2

Burning Rubber

> ‘Modern tyres have become such normal objects of the roadside that the marvel of their existence ceases to excite wonder. Yet it is something of a miracle that a column of compressed air can be bound round a wheel, endowing it with a life and luxuriousness absolutely unknown to a former generation, whose carriage wheels were shod with iron, and whose use of horse power was strictly limited to the equine meaning of that phrase.’
>
> *The Dunlop Book: The Motorist’s Guide, Counsellor and Friend, 1920*

The first self-propelled ‘automobile’ was probably the steam-powered three-wheeler built in 1769 by a Frenchman called Nicolas-Joseph Cugnot. Nic demonstrated the shortcomings of three wheels by crashing into a wall on his first display … at 2 miles per hour. I did so too when I barrel-rolled a Reliant Robin at our Dunsfold test track on *Top Gear* in 2010.

Early vehicles were cumbersome and tricky to control; stopping them on their skinny wagon wheels was an act of faith. Thanks to a little divine intervention in 1839, a bankrupt American inventor by the name of Charles Goodyear was displaying a ball of sulphur-treated gum he had concocted, when it flew out of his hands onto a stove, scorching the surface and creating the world’s first weatherproof rubber compound. The air-filled tyre was subsequently invented in 1846 by Scotsman Robert Thomson, a self-taught genius who also invented a

machine for drying his mother's laundry. Another Scot – John Dunlop – brought tyres into the mainstream by creating his first factory in 1889.

The 'pneumatic' tyre behaved more like a living organism than the rigid, clunking load-bearers of the previous age. The cushioned ride spared ladies the displeasure of having their rumps tenderized on every journey. The capacity of inflated rubber to absorb energy from multiple directions was the key to its success. It would transform motoring. Even the cream of tyre anecdotes still won't get you invited to dinner parties, but on the racing circuit it's all we talk about. Tyre dynamics is what sticks the car to the road, not the metal bit sitting on top of them. Above all else, the chassis and suspension settings of a racing car are tuned to maximize the performance of the tyres. Some cars are better communicators than others, but every sensation the driver feels, every experience you will ever have on the road, travels along the hotline that connects the tyre to your backside.

'Every experience you will ever have on the road, travels along the hotline that connects the tyre to your backside.'

The Michelin Company mascot earned his name, Bibendum (Latin for 'let's drink'), in 1903 by literally swallowing the debris littering the course to win the Paris Road Race. Their durability over nails and broken glass was such that Michelin runners occupied eight of the top ten finishing positions, taking the fight to the drawbridge of Fort Dunlop.

The recipe for creating a good tyre is even more complex than the culinary delights promoted in the Michelin Guide. Research and development departments push the physical boundaries by constantly testing new materials to add to the 200 existing ingredients.

The tread pattern we find ourselves studying as we queue for our latest MOT is the bit that works on a wet road. At 50 mph it displaces around 30 litres of water per second – enough to fill fifteen bathtubs every minute.

The black rubber stuff comes in a variety of compounds that determine how sticky the tyre is. But grip is nothing without the strength of the underlying construction: a vulcanized blend of steel cords, polyester and Kevlar tailored to the size, stiffness and performance demanded by each particular vehicle.

There have been a few hiccups along the way. American car manufacturers at first dismissed the innovation of steel-belted radials after World War II. They preferred blancmange for suspension. Radials eventually won out because they were so much more fuel-efficient. The tyre, quite simply, was more important than the car.

1.3

Road Rage

Back in 1865 the Red Flag Act still restricted national speeds to a dizzying 4 mph and

required that a man walk in front of vehicles at all times, brandishing the said ensign (until it was finally put to one side in 1878). The world's first road fatality came in 1896 when Mrs Bridget Driscoll stepped into the path of a Roger-Benz 'horseless carriage' and stood 'bewildered' by the machine as it zigzagged towards her at a 'tremendous pace' (no more than 8 mph). Frozen with fear, she was run over and later died in what was judged to be an accidental death.

Cars were feared because they were different – but there was nothing new about the way people drove them. In 1720 traffic fatalities from 'furiously driven' carts and coaches were claimed to be the leading cause of death in London. In the New York of 1867, horses were killing an average of four pedestrians a week – roughly the same number as are killed by cars today, with denser traffic and a significantly larger population.

In 1817 Lord Byron wrote thus to Thomas Moore:

Last week I had a row on the road … with a fellow in a carriage, who was impudent to my horse … I wheeled round, rode up to the window, and asked him what he meant. He grinned, and said some foolery, which produced him an immediate slap in the face, to his utter discomfiture. Much blasphemy ensued, and some menace, which I stopped by dismounting and opening the carriage door, and intimating an intention of mending the road with his immediate remains, if he did not hold his tongue. He held it.

A Texas City Grand Jury recently heard the case of a truck driver tailgating a man's daughter and waving his arms at her, prompting her father to give chase in his Mercedes. 'There was evidentially some swerving between the two vehicles, and the two exchanged words and were cussing at each other,' explained Captain Goetschius of the Texas police force. The men pulled over and faced down. The Merc driver pulled out his pistol, but the truckie was faster on the draw. He floored Merc Man by planting a bowl of oatmeal in his face. Proof, if any was needed, of the perils of regression when in possession of the keys to something shiny. And the benefit of a healthy diet.

'Much blasphemy ensued, and some menace, which I stopped by dismounting and opening the carriage door.'

We become as stubborn as mules inside our tin cans, even when confronted with the threat of losing more than our licence. On the edge of an otherwise serene Cotswold village one enraged woman rammed another from behind with her Vauxhall Nova. She was so angry that she sat there gunning the engine until the front wheels shredded through to the steel cords. The resulting sparks ignited her engine's fluids and the whole vehicle lit up with her inside it. She threatened would-be rescuers with a clenched fist, preferring to perish in the flames.

The machines we use these days have been through a time warp, but the human psyche hasn't always kept up. It's a jungle out there.

Motor Racing

In Victorian times health and safety was regarded with a disdainful curl of the stiff upper lip, so there was little serious driving regulation. 'Motor racing' took place on long stretches of dusty country road and so gripped the pioneers and engineers of the age that technology, once triggered, advanced rapidly. By 1900 the world speed record (set by an electric car, no less) topped 65 mph.

In 1903, 2 million enthusiasts lined the route from Paris to Madrid as 274 cars of all shapes and sizes battled for supremacy. British racing ace Charlie Jarrott set the scene:

> *Long avenues of trees, top-heavy with foliage and gaunt in their very nakedness of trunk; a long, never-ending white ribbon, stretching away to the horizon; the holding of a bullet directed to that spot on the sky-line where earth and heaven met; fleeting glimpses of towns and dense masses of people – mad people, insane and reckless, holding themselves in front of the bullet to be ploughed and cut and maimed to extinction, evading the inevitable at the last moment in frantic haste; overpowering relief, as each mass was passed and each chance of catastrophe escaped; and beyond all, the horrible feeling of being hunted.*

The first day saw eight fatalities and twenty injured – perhaps unsurprising in an environment where drivers achieved *average* speeds of 65 mph on narrow lanes packed with spectators. The French authorities shut the contest down before it left Bordeaux. Road racing was abandoned, and the pioneers moved to closed circuits at places like Le Mans and Brooklands.

The gruelling, high-speed epics that followed would eventually spawn every piece of technology on the modern car, from disc brakes to power steering. And what's more, it created a set of driving principles that continues to be developed inside the cauldron of competition in Formula 1 and across the spectrum of the sport. These principles involve looking ahead, as well as within – a mental game that requires you to tie up emotional loose ends that might lead to mistakes or influence your ability to make calculated decisions. It is a cold and methodical approach to addressing a fast-developing situation.

'The gruelling,high-speed epics that followed would eventually spawn every piece of technology on the modern car.'

1.4

The Driving Test

The transition from horse to horseless carriage took the authorities by surprise.

In America the first driving exams were set up by high schools, arguably the best model, before state legislature intervened in order to regulate traffic with a licensing scheme for vehicles and their operators, starting with Chicago in 1899. The red tape started flowing in Europe with authorities looking to everyone from steam boiler associations to car salesmen for guidance and training in how to drive, a test finally materializing in Britain as late as 1934.

The coveted flaps of paper providing motorists their ticket to ride still amount to dubious currency when you take them overseas, with the Germans refusing to recognize American driving licences granted in California or Georgia.

The modern driving test allegedly teaches safe driving for life, but the newly passed are four times more likely to crash than the rest of us. And the majority of 'us' believe we would fail the test if we had to retake it. QED: being 'good' at the test does not equal being a good driver.

'Being "good" at the test does not equal being a good driver.'

The skills we learn to pass the test come from the highest possible authorities – the government and the police. So we might expect to find some answers about our evolution here. The UK's most revered driving credential, the advanced driving licence, is based on the Police System of Car Control and presided over by instructors who hold Police Advanced Driving Certificates. The Police System has been described as the Holy Grail of driving: followers of the system believe that questioning its teachings is tantamount to heresy. But it is not just obsolete – it can be dangerous. In Britain the first words a student hears from his police instructor on the open road are: 'GOLF, LIMA, FOXTROT', or 'Go Like F***.'

Lord Trenchard (1873–1956) was a visionary with a taste for speed. Having lost a lung and been paralysed from the waist down after being shot during the Boer War, he took up bobsleighing during his recuperation in Switzerland. When the impact of a hefty crash on the Cresta Run miraculously cured him, he returned to active duty, became a pilot and laid the foundations for the Royal Air Force with Winston Churchill. He was appointed police commissioner in 1931.

The number of cars in the UK grew from a few thousand at the turn of the century to over 2 million by the mid '30s. People with no formal training and no idea how to operate heavy machinery were discovering new ways to kill themselves – and others – on the roads. They notched up 7,305 fatalities in 1930 alone, and the average police driver had a crunch every 8,000 miles. The new commissioner decided to do something about it.

He picked up the telephone to a man who had been busy writing the history of motoring with his right foot. A Grand Prix winner in the early days of the sport, Sir Malcolm Campbell would take the world speed record to beyond 300 mph by 1935. Having evaluated the fleet, Campbell concluded that the lack of training and experience was the root cause of their attrition rate.

'A Ford Fiesta has ten times the power of a 1930s cop car.'

Trenchard recruited Lord Cottenham, the Stig of his time – aka racing driver and MI5 agent Mark Pepys – to oversee the creation of a police driving course. Cottenham set out the Ten Commandments of Motoring in his book *Steering Wheel Papers*, a manual on maintaining control of the cumbersome vehicles of the day. He taught the police:

- since power steering hadn't been invented, to pull the desperately large, heavy wheel with one hand and push it with the other;
- to apply their 10 horsepower gently and continuously through the corner so as not to upset their delicate suspension and hard, skinny tyres;
- to use the brakes independently of changing down gears so that both feet were free to 'double de-clutch': pumping the clutch several times to swing the gears whilst right-footing the accelerator to match the revs.

The results spoke for themselves. His training saw the police accident rate improve to one in 27,000 miles. Cottenham's work was done. He left the Met after just three years, but his gospel of Police Roadcraft was canonized and passed through the generations *unchanged*. Roadcraft's system of car control continues to form the backbone of police driver training and is at the root of the physical skills we learn to pass the driving test. The fundamentals of car control, however, have changed a bit since the 1930s …

Some eighty years on, the number of registered vehicles on UK roads has grown from 2 million to more than 34 million. A Ford Fiesta has ten times the power of a 1930s cop car; it could leave Sir Malcolm's Grand Prix racer dead at

the traffic lights and hit corners on tyres with twice as much grip. Synchromesh gearboxes don't require double de-clutching. Power steering points the vehicle in whichever direction you want it to go, and braking distances are up to 40 per cent shorter than yesteryear.

And Cottenham wouldn't have expected his 1935 methods to remain unchanged any more than an RAF pilot would expect a Spitfire manual to help him fly a Harrier Jump Jet. Yet with the creaking gospel according to the *Highway Code* in one hand and gear knob in the other, we duly line up to receive the wisdom of these authorities like disciples at the temple. Somewhere during the grinding of gear ratios, burning clutch plates and jarring emergency stops, we stop thinking about what we are doing and sometimes even sacrifice good sense on the altar of *just passing the damn test*.

'Cottenham wouldn't have expected his 1935 methods to remain unchanged any more than an RAF pilot would expect a Spitfire manual to help him fly a Harrier Jump Jet.'

1.5

King of the Road

Not long after obtaining my road licence, after just three lessons, I enrolled at Silverstone's racing academy to apply for a competition licence.

I had to learn the different flags and display proficiency in late braking, tackling a corner at speed and controlling the twitching rocket that was a Peugeot 306 around the Grand Prix circuit. Before I knew it I was flying around the track less than an inch off the ground in a single-seater that was the closest thing to a Formula 1 car, and heaven, that I had ever experienced.

That took me all of a single day, fuelling my conviction that I was Carlos Fandango reincarnated behind the wheel.

My dad decided to take out an insurance policy by having me attend a specialized skid-control course at Silverstone. The course took place using a normal car fitted to a frame that lifted the front or rear tyres off the tarmac to induce a skid. And skid we did. I learned to pulse the brake pedal to unlock a stopped wheel, throw the steering into opposite lock to catch the car as it fishtailed and to perfect the recovery of a 360-degree spin at 70 mph by spotting the desired direction and fixing on it like a ballerina.

Armed with knowledge spanning not just how to execute a three-point turn but also how to nail a chicane and stop the world from turning, I was primed to become an insurance statistic.

I set off on a long trip with a mate to test a single-seater racing car at some far-flung airfield. I returned at the end of the session to discover that my buddy, who was never renowned for his common sense, had locked my keys in the boot. So began the kind of journey of self-discovery they don't teach in classrooms.

The AA had to hotwire the ignition, and the delay meant I was running late to get to Brands Hatch for a season-opening Formula First race. With a gut full of nerves and my friend jabbering in my ear, I ventured onto the M25 for the first time just as it started to rain.

'I was primed to become an insurance statistic.'

My front tyres were on the bald side, due to the extra air pressure I'd cleverly pumped into them for the five minutes of extra grip this afforded on a dry road … until the tread wore away. With the rain lashing at the windscreen and some fascinating radio stations to choose from, I failed to notice the traffic slowing in front.

They stopped.

I didn't.

Crunch: a five-car concertina.

I arrived at Brands late, with what remained of my Honda on the back of a flat-bed truck. Fortunately I was already wearing my racing suit, since my normal clothes were still locked inside the boot with my keys. I qualified on the front row. Then it started to pelt down with rain, and through further ignorance I opted for brand-new, and therefore greasy, tyres for the race.

Having survived the first lap, I took the lead. Then I braked so late for Paddock Hill bend I could see the incredulous look on the flag marshal's face as I shot past him. For the second time in twenty-four hours I locked up my front wheels, and no amount of pulse braking could prevent me firing off the track at 80 mph to an ignominious finish in the gravel trap.

Gutted.

Understanding how my choices had set this disastrous chain of events in motion took me longer than it should have done. In the words of my race team manager, I needed to 'break the cycle before you kick the bucket'.

If only I had paid more attention to that bucket. I destroyed a further three Formula First cars that season, to be awarded the championship's inglorious Bent Wishbone trophy for the hardest hit of the season.

But it finally sank in: I'd been ambushed by sheer ignorance of the real world at the very moment my mind and body were most eager to explore every nuance of it. The desire to tinker with machinery, push personal boundaries and ignore the advice of crusty old men with too much time on their hands is a trap that most of us have fallen into somewhere along the line.

The process that began, very slowly, was a painful one. I desperately needed to understand *why* I was failing on so many levels. Over time, I set about picking apart the patterns that led to my mistakes and began conditioning my responses.

To this day I'm still learning, and because there's so much to discover I'll never claim to be an expert. But that's what makes driving such an art.