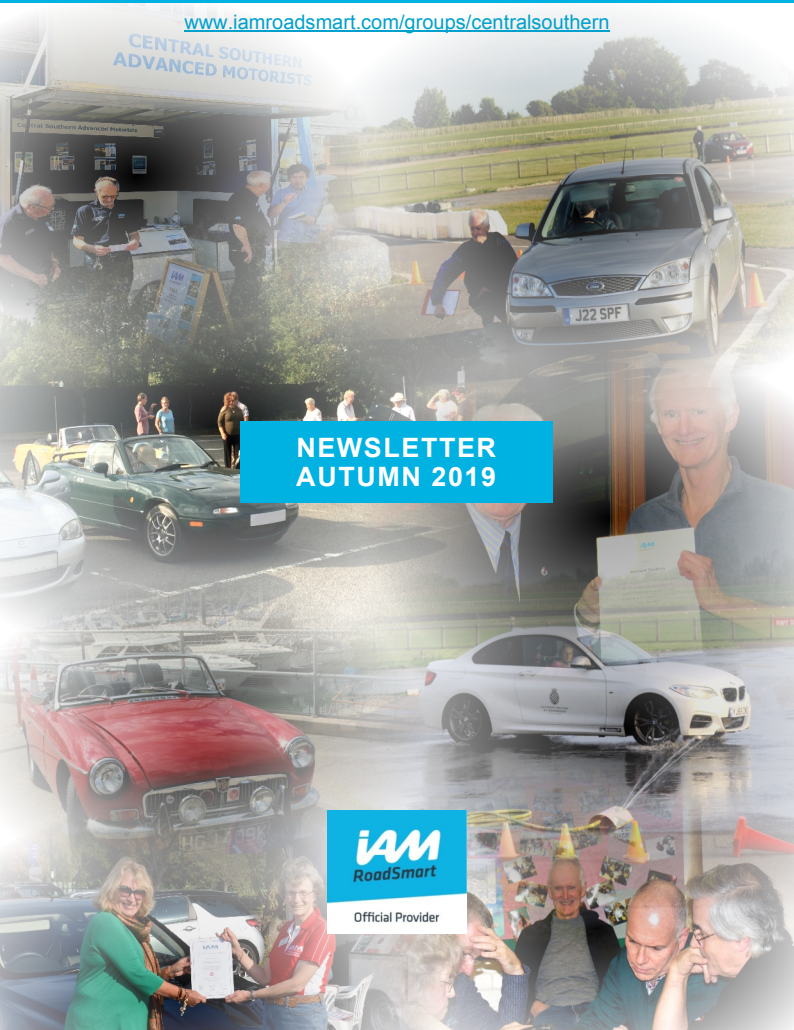
CENTRAL SOUTHERN ADVANCED MOTORISTS

www.iamroadsmart.com/groups/centralsouthern



NEWSLETTER AUTUMN 2019

iAM RoadSmart

Official Provider

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From the Editor

Well, what a strange summer this has been, weather-wise. Nevertheless, I hope you and yours have managed to enjoy the season despite its wildly varying temperatures and all-or-nothing rainfall amounts.

As usual, I am immensely grateful to all the contributors, especially to Oliver Farley (aka *Reflector*), who has submitted yet another interesting and pains-takingly researched item, this one following on neatly from Chris Skerry's informative article in the Summer edition about the charging of electric vehicles, and to Graham Feest for generously allowing me to plunder his Road Safety Network newsletters.

Normally the Autumn edition is 'looking forward' to the autumn; this time I'm not sure we're not there already. Maybe September will be the new August …

Best wishes;

Tina

PLEASE NOTE

The deadline for contributions to the next Newsletter is **Thursday 31 October 2019**

IAM RoadSmart

IN THIS ISSUE

Forthcoming CSAM Events

Members are advised to check the Events page of the CSAM website before setting out in case of last-minute changes. Please click on the links to find maps showing approximate location of venues.

Unless otherwise indicated, events and activities are open to all Members; everyone is encouraged to come along and, if they wish, to bring a guest or family member(s).

CSAM Diary

Sunday 8 September 9.30 am - noon **NCP, Chichester**	**Free Observed Runs** for Associates and members of the public with one of our highly qualified Observers. Full Members are also encouraged to book a refresher drive. See website for dates, then please contact Glenda Biggs or Phil Coleman.
Tuesday 10 September 7.45 pm **Lavant Memorial Hall, East Lavant**	A talk by **Liam Greaney**, an instructor with "driving-pro" in Portsmouth, who will talk about, among other things, smart motorways. See the website for more details.
Thursday 19 September 7.30 pm **BC, Billingshurst**	**CSAM Committee Meeting** - all Members are welcome.
Tuesday 8 October 7.30 pm **BC, Billingshurst**	**CSAM Annual General Meeting**. Guest Speaker: Mike Quinton, Chief Executive, IAM RoadSmart. Do come along - it's always an enjoyable event.
Sunday 13 October 9.30 am - noon **NCP, Chichester**	**Free Observed Runs** - see 8 September or website for details.
Saturday 19 October 9.00 am - 4.30 pm **BC, Billingshurst**	**Group Observer Training Day**.
Sunday 17 November 9.30 am - noon **NCP, Chichester**	**Free Observed Runs** - see 8 September or website for details. (Unusually, on the third Sunday this month in order to avoid a clash with Remembrance Sunday.)
Thursday 21 November 7.30 pm **BC, Billingshurst**	**CSAM Committee Meeting** - all Members are welcome.

Find us on Facebook

Tuesday 26 November 7.30 pm **BC, Billingshurst**	**New Members' Celebration Evening** for the 'Class of 2018/9' (see further details on P6). An opportunity for the Committee to welcome you and for you to meet other new CSAM Members.
Sunday 8 December 9.30 am - noon **NCP, Chichester**	**Free Observed Runs** - see 8 September or website for details.
Thursday 16 January 7.30 pm **BC, Billingshurst**	**CSAM Committee Meeting** - all Members are welcome.
Sunday 8 March 9.30 am - noon **NCP, Chichester**	**Free Observed Runs** - see 8 September or website for details.
Thursday 19 March 7.30 pm **BC, Billingshurst**	**CSAM Committee Meeting** - all Members are welcome.
Tuesday 9 June 6.30 pm start **The Drill Yard, Bognor Regis Fire Station, West Meads Drive, PO21 5TB**	**Manoeuvring Event**. How well do you know your car - and your own abilities? Come along and try out your skills at this only very gently competitive event - the worst you can do is to knock over a few cones! *CSAM is very grateful to the Bognor Regis Fire Service for allowing us to meet once again at the Fire Station.*

CP: Car Park
BC: Billingshurst Centre, Roman Way, Billingshurst, RH14 9EW
NCP: Northgate Car Park, Chichester (entrance on eastern side of large roundabout)

A truck driver was driving along on the freeway and noticed a sign that read: 'Low Bridge Ahead'.

Before he knows it, the bridge is right in front of him and his truck gets wedged under it. Cars are backed up for miles.

Finally a police car comes up.

The cop gets out of his car and walks to the truck driver, puts his hands on his hips and says, "Got stuck, huh?"

The truck driver says, "No, I was delivering this bridge and I ran out of gas."

From the Chairman

What does membership of CSAM mean to you? I hope it means you are still enjoying your driving, and practising the skills you learnt during your time with your Observers. If you have been a Member for a long time, it may be that you are ready for a check drive to remind you of what you originally learnt and perhaps spot the odd bad habit! Check drives can be booked for free, by contacting Phil Coleman and coming to one of our Sunday sessions. We are looking to see if we can offer another location for Sunday drives rather than their being centred in Chichester all the time.

It is amazing how time matches on. Those who joined the IAM Fellowship at its inauguration are now coming up for retest as the first three years have passed. It gives Fellowship Members the opportunity to try to better their score from the first time around. This is exactly what Duncan Ford did, as he passed with a F1RST. Well done, Duncan - and best of luck to the other Fellows as they retake their tests. The Fellowship is a really good way of encouraging us to maintain our Advanced Standard of driving.

CSAM has been going through an experimental year in 2019 as far as events are concerned. My aim for this year has been to try and integrate the whole Group. This is proving a challenging task. I was particularly disappointed that the Film Night was not supported, and saddened that only two participants turned up to take part in the Manoeuvring Event in Crawley. Thanks to those who did come and to those who gave of their time to help organise the event. For those who do not know, this is an annual event when CSAM members compete for two trophies - the Ron Geering Salver, for the overall winner, and the Vice Presidents' Trophy, which is awarded for a particular exercise, with the winner being the person that stops closest to the obstacles. The trophies are presented at the AGM. The Manoeuvring evening is great fun and gives competitors the chance to practice their slow manoeuvring skills. Next year's event is likely to be held at Bognor Fire Station.

For 2020, the CSAM Committee has agreed to put together a programme of events for the Group because not having events does leave a void. We do not have an opportunity to welcome new Members and to meet and greet each other. We hope there will be an event each month through 2020, as long as speakers and/or activities can be found. Let me know if you know of a good speaker or an activity that you have particularly enjoyed. Once the programme has been finalised it will be posted on the website: please check there for details.

'Something new! Your Committee has decided to invite those who passed their Advanced Driving Test between September 2018 and August 2019 to a 'Celebration Evening' on 26th November 2019 at Billingshurst Community Centre. If you are in the 'Class of 2018/9' you will receive a personal invitation, but please put the date in your diary now. It will be an opportunity to meet the Committee and other new CSAM Members and to celebrate your success. I look forward to greeting you there.

A recent study found that the average Briton walks about 900 miles a year.
Another study found that Britons drink, on average, 22 gallons of alcohol a year.
That means that, on average, Britons get about 41 miles to the gallon!
Makes you proud to be British!

Our Webmaster & Newsletter Editor has informed me that she feels she has done her stint and would like to pass on the rôle to someone else. Tina has done a great job over the years. Thank you, Tina. Please let me know if you would like to take over from Tina, and I will send you the Job Description and we can have a chat.

From a job we want to fill, to one that has been filled - our President, Dennis Clement, has been appointed an Examiner for IAM Roadsmart. Sadly it means that we lose Dennis as an Observer, but he can remain our President and a Masters Mentor. I am sure you all join with me in sending our congratulation to Dennis.

Finally, we are approaching the AGM again - this year on 8th October at Billingshurst. I hope you have put it in your diary and are coming. This year's Speaker is Mike Quinton, the CEO of IAM RoadSmart. We live in interesting times as we move to more automated cars, and IAM RoadSmart seeks to move with the times. I am sure you will find what Mike has to say of interest and look forward to seeing you at the AGM.

Tony Higgs
Chairman

NOTICE OF THE 2019 ANNUAL GENERAL MEETING

NOTICE IS HEREBY GIVEN by order of the Group Committee that the sixth Annual General Meeting of **CENTRAL SOUTHERN GROUP OF ADVANCED MOTORISTS** will be held on Tuesday 8th October 2019 at 19.30hrs at the Billingshurst Centre, Roman Way, Billingshurst, West Sussex, RH14 9QW to enable the Trustees of the Group (Registered Charity No. 1079142) to present their Annual Report and Accounts for the year ended 31 August 2019 for approval by the Group Full Members.

Secretary: David Stribling
1 Amersham Court
25 Craneswater Park
Southsea, Hampshire, PO4 0NX

Date: 20 August 2019
Group No: 2010

All Group Full Members, Associates and Friends are invited to attend but only Group Full Members (i.e. current Full Members of both the iAM and of the Group) may vote.

A Member entitled to vote at the General Meeting may appoint a proxy to vote in his or her stead. A proxy need not be a Group Full Member.

Nominations are invited from Full Members to stand as Officers or Committee Members. Nomination Papers are available from the Secretary, Dave Stribling, and must be returned to him **at least seven days before the election** either by post or by email (Rule 3.5).

Chief Observer's Corner

Since the start of the current reporting period in September 2018, we have had 45 Associates, Fellows and Members take their tests, of which 22 were F1RSTs and 22 were Passes. Getting to a figure of 50% F1RSTs and exceeding 40 tests in the year is a fantastic effort by Associates and Observers. Congratulations to all our Observers for the great work that they do, and welcome to all the people who have passed their tests. We have 35 Observers, including 3 Trainee Observers.

Congratulations to **Dennis Clement**, one of the Founder Members of CSAM, who has become an Examiner. As a result, CSAM has lost his valuable contribution as a National Observer and Local Observer Assessor. I hope that everyone from CSAM will wish Dennis success in his new rôle; we also hope that he will look favourably upon the Associates that he tests from CSAM. Dennis will retain his Master's Mentor responsibilities, and I'm sure if you go to one of the Thruxton Skills Days you will see him in action.

Gordon Egerton has passed his National Observer assessment: congratulations Gordon.

There are 54 active Associates assigned to Observers. We do have a waiting list of 12, mainly in the Brighton area; hopefully these Associates won't have to wait too long as several of Associates who are assigned to Observers are coming up to test-ready, which means that our Observers will be able to take new Associates. If you have thought about becoming an Observer - and especially if you live in the Brighton area - we would love to hear from you.

Our Northgate Sunday sessions are in full swing - please check the website for dates. If you would like to take advantage of a free run-out to check your standards are still up to scratch - or if you know anyone who might like a free taster drive - please let me know and I will book them a place: our Observer team is always keen to see old and new faces.

Phil Coleman
Chief Observer

DATA PROTECTION ACT

Members are reminded that Group records are held on computer.
Anyone who objects to their details being held in this way may request that they be held instead on a manual system by writing to the Group Secretary.

The Treasurer asks Members and Friends of CSAM who are able to Gift Aid their subscriptions or donations kindly to return the relevant form, if they have not already done so, in order to enable the Group to claim back from HMRC 25p on every £1 paid.

If you are unsure whether you are eligible to help in this way, or would like a copy of the form, please get in touch with Duncan on 07920 534475 or email treasurer.csam@gmail.com

Membership Mumblings!

Let's start with the membership figures. Central Southern Advanced Motorists has 309 Full Members, 61 Associate Members and 1 'Friends' Member, giving a total membership of 371. This is just slightly down from the summer Newsletter, but of course all the time people join, leave or allow their membership to lapse. I welcome all our Associates, all who have become new Full Members and Derek Riches, who has relocated and joined CSAM. Members, or drivers wishing to become Members, or anyone requiring more information can reach me at my new email address: membership.csam@gmail.com or by 'phone on 02392 595817. If you are transferred to voicemail, please leave a message and I will pick it up out of my working hours.

I have been very busy at work over the last few months and to maintain the work life balance I found myself leaving the house later, because in my head I know just how long it takes me - minus any hazards - to get to work. This created a fundamental problem, in that every hazard would slow me down, potentially making me late for work. The effect on the driving was immense. Realising the issue here, I decided to leave even earlier for work and enjoy a coffee before starting. This had a profound effect on the enjoyment on the journey to work, as the hazards on the journey were no longer impacting on whether I was going to make it to work on time.

With the latest publicity surrounding POWDERY checks, the above scenario made me reflect on the 'YOU' part, and how this can change as you progress through your journey. Specifically 'red mist', which I am fairly confident tempts people on every drive. For those not familiar with the term, this is when the attention of the driver is not on the drive itself but on some specific goal: you have become emotionally and physiologically caught up in the incident. I have tried to think of examples where I think this emotion can be tested.

- A driver that insists in overtaking you only to be stationary at the next set of lights with the lane next to them empty and the lights about to change.
- Driving behind a car that does 40mph whatever the speed limit.
- A driver close up your back in a 30mph zone and you finally reach the national speed limit zone.
- Meeting a slow moving vehicle on a county lane and the cars in front are not taking advantage of overtaking opportunities.
- Running late on your journey.
- Planning an overtake because you know the road rather than the conditions currently being experienced.
- A driver that overtakes you on the motorway, pulls back into your lane and then slows down.

I hope that you can relate to one of these, and think about a time this happened to you and whether you handled the situation appropriately. I think we are all fairly good at keeping our vehicles fit to drive, but can you think of the last time you sat in your vehicle and assessed yourself? The majority of drivers are not in cars anymore just for the enjoyment, but have to be somewhere. This already becomes the goal of the journey, and fundamentally affects the drive. The take-home message in these 'mumblings' is next time you are in a car, think about 'YOU' as the driver. Don't assume you **know** a route just because you do it daily.

Safe driving;

Matthew Pitt
Membership Secretary and Observer

DECADE OF ACTION FOR ROAD SAFETY 2011-2020

Associates' News

Advanced Driving Test results since the last Newsletter are as follows. Those marked* passed with a F1RST. Congratulations to all.

	Associate	From	Observer	Examiner
	Sally Palmer	Crawley	Sheila Girling	Richard Mansfield
*	Carl Rowbotham	Chichester	Keith Bute	Colin Thaxter
*	Sandy Hickman	Emsworth	Malk Monro & Andy Wilson	Colin Thaxter
*	Graham Baker	Liss	Peter Buckley	Tony Johnson
*	Edward Stevens	East Grinstead	Vince Clarkson	Mark Blundell
*	Alan Aldridge	Chichester	Duncan Ford	Colin Thaxter
*	Peter Fairweather	Brighton	Sheila Girling	Andrew Pike
*	Maurice Kifford	Hove	Dennis Clement	Andrew Pike
*	Geoff Osborn	Emsworth	Davd Stribling	Colin Thaxter
	Stephanus Fouche	Crawley	Oliver Farley	Mark Blundell
	Geoffrey Darling	Haywards Heath	Derek Williams	Richard Mansfield

Robert Maby from Hayling Island also passed his test on 10 June (his Examiner was Colin Thaxter); we are delighted also to welcome him as a Full Member of CSAM.

Once again, many congratulations to our hard-working Observers and Associates. I mentioned in our previous Newsletter that there would be fewer Advanced Driving Tests for the time being, but - wow! - 75% of them were F1RSTS. The standard of our quality in observing and training is great. I have received some really encouraging feedback forms over my time as Associate Liaison, which we always like to see.

This will be my last contribution to the CSAM Newsletter, and I would like to take the opportunity to thank the Observers for keeping me in the loop and Phil Coleman, our Chief Observer, for his enthusiasm to keep Associates and Observers moving forward to their goal.

I have enjoyed chatting with our Associates when they first apply for their course. Their replies have been interesting when questioned why they decided to join us 'NOW'. Mostly, though, their approach has been to update and improve their driving skills and to take stock … something we all need to do from time to time. I would like to thank our Observers for chatting with me and informing me of all the necessary details required to keep my files up together and letting me know how they 'tick'.

I shall miss my Liaison task when I step down, but know that everyone will be well taken care of by John France and his lovely wife Margaret. Thank you to everyone who has supported me. Keep up the great job you are all doing.

Best wishes;

Glenda Biggs
Associate Liaison

They should put more money in ATMs. I'm getting really irritated.
This is the sixth one I've been to this week that's said "insufficient funds".

Evening drive for Classic Cars, 13 August

We had a lovely sunny evening for a drive out in the country. There were four sports cars that came along with their drivers and passengers.

The route taken was through Arundel, Storrington, Pulborough, Fittleworth, Burdock, Wisborough Green, Kirdford, Plaistow, Ramsnest Common and stopped for a drink and a meal in The Mulberry Inn in Chiddingfold.

The route included a few A roads, lots of B roads and some very interesting smaller roads, including some single track roads - so a great mix of driving conditions. Every car survived!

From Reflector

ELECTRACK - WHERE ARE WE GOING?

Are EVs (electric vehicles) disgusting?
Only when they're re-volting!

Oh dear! Even the harmless world of silly puns is invaded by the ubiquitous EV. There's a lot of them about and *Car* magazine, for example, runs reviews of sixteen of them on its current website. EVs are an odd curiosity no more, and they come so close to home that we've had in July the first successful ADT in an EV - congratulations to all involved.

The timing of the arrival of EVs as practical alternatives to the conventional internal combustion engine coincides with the flowering of artificial intelligence (AI) and the spread of electronics to every aspect of life, work and play alike. EVs and AI have become intertwined, a process to be expected though probably hastened by the enthusiasm of Tesla's founder Elon Musk for all things technical. In truth the two can be considered separately and we can start with an overview of pure electric design and then consider what happens when all is combined together with AI assisted vehicles.

We all remember being told that Stephenson invented the railways. Well, he didn't, or closer to reality, better to say he combined many existing technologies into a new format, one which changed society and the world. Steam engines had been used for decades, notably for pumping water out of mines, and mines had used carts on rails to transport material long before these elements were used to build passenger railways. Like all innovative designs, Stephenson's Rocket was out of date within a few months of its initial run as design improvements launched the new steam age.

EVs to-day are in a similar state of flux. Having got off to a promising start over a century ago, the rise of cheap oil put paid to their acceptance as anything more than very modest delivery and factory vehicles. Nevertheless, the technology of electric motors and experiments in their use has gone on apace and with increasing success in developing lighter more practical batteries the time has come for more and more useful designs.

Take the origin of any EV available right now. A clear distinction can be made between those which are electric variants of internal combustion cars and those which have been designed to be electric from the start. For some manufacturers, the electric engine is simply a substitute for the existing internal combustion engine (ICE), a different means of propulsion but basically the same car. We can sympathise with this hybrid design for a very simple reason: building car factories is a very expensive business. All established manufacturers have enormous costs sunk into their present facilities, and abandoning them to start from scratch again would involve wiping out so much structural investment as to bankrupt the producer. Facing severe criticism and reduced demand for the now ill-favoured diesel motor gives quite enough financial problems without adding to them with new electric designs.

Why does the design matter? What's wrong with simply substituting an electric motor for an ICE? In a few words, the answer is battery power.

Range anxiety - ie. fear over how far the vehicle will travel before running out of fuel - remains a hindrance to purchasers' perception of EV's. Those fears are daily being overcome and ranges improve substantially year by year through more efficient, lighter batteries, but a key consideration is still how to design a light-weight vehicle to partner the better battery. If one starts from a blank drawing board, as Tesla have done, then the basic design is a flat skate-like platform to carry the batteries and then build the car body on top. The weight of the batteries is concentrated at the lowest place, at floor level, which enables extra weight to be used elsewhere in safety elements. Tesla has impact zones to absorb the forces from hitting a lamp-post head on, for example, and a glass roof, made like a windshield, which cushions both top and side pressures. Conventional vehicles have a weighty engine sitting in front which can be shoved into the passenger compartment in a collision, and the roof panels are quite light to reduce weight so far off the ground.

Further, with so much weight at the base level the vehicle is much more likely to spin in a collision rather than roll over. It's much the same as the difference in the stability of a raft compared to a dingy. Plastics and mouldings are the materials of choice for the interior, and ever lighter electric engines propel the total weight downward.

It all helps newer batteries go further, and the time is not far off when range anxiety will be a thing of the past.

Advanced as these concepts are, further developments are under active consideration. One is to put a separate engine on each wheel - perhaps even driving a solid wheel to obviate air-inflated tyres. Up to now, the main objections to this arrangement were how to protect the engines from the outside environment - especially water - and how to handle the greater unsprung weight which affects the quality of ride. Computer-controlled suspension could overcome the ride problem, and engine protection could be a lot easier with a much lower voltage battery. Most vehicles use 400 volts, but that could be reduced to the standard 48 volts used in quite a few industries, such as lighting, and such lower voltage could be weather-proofed more cheaply than current motors. Attaching them directly to the wheels dispenses with all transmission elements; steering can be simplified and braking can be purely through the regenerative forces created when the electric motors become generators when the power is removed. Nissan's *Leaf* already has a single pedal arrangement, skipping conventional brakes altogether. A 48 volt battery is faster to recharge than a 400 volt, so range anxiety reduces further.

Leaving these speculations to one side, what is the current state of play on range capacity and recharging times?

We have to consider both elements, because a satisfactory range for a topped up battery is made much less attractive if re-charging it takes an unacceptable amount of time.

I turned to a recent copy of *Which?* magazine to compare ten models and find out from an unbiased source what to expect. The range of the cars tested ran from a very disappointing 58 miles for the Peugeot *ION* to a much more comfortable 280 miles for the *Tesla X*. The Tesla at £71,000 costs four-and-a-half times more than the Peugeot: so one has to pay for dependability. The X range is near double that of the next best non-Tesla vehicle, the Renault *Zoe* at 149 miles, yet the Renault costs less than the Peugeot. All the other cars tested managed more than 100 miles per charge, and we must keep in mind that the terrain driven is important. Too many hills and the range reduces, perhaps drastically, while enough up-and-down terrain and the downhill recharges.

Our considerations don't stop there.

We give little thought to how long it takes to re-tank our cars, but for electricity users the time to re-charge is vital. A lot depends upon where you do the re-charging. If an ordinary domestic supply is used then the bad news is that it will take a day and a half to fully re-charge a Tesla *S*. Patently this is simply unpractical, so a wall box would be used instead. This is a charger which allows a much higher flow of current, similar to that required for a kitchen oven. The time for the Tesla drops by this method to between 10 and 16 hours - still a long time, though a great improvement.

The quickest re-charging can be done at public chargers, built for the purpose, and the Tesla's time falls to an acceptable 30 minutes. By this method, only one of the cars tested here took slightly more than an hour, and the average for seven of them was just over half an hour. This is getting a lot closer to real practicality for many of us: if we analysed our mileage and hours of use of our cars, we would fit into the electric profile easily. Even some motorway trips for long distance could be planned if we incorporate a half-hour stop every couple of hundred miles, or after three hours' driving.

This is quite sensible, you might say, and I'll agree with you, except for a caveat: where can we find the charging points?

The latest Tesla is programmed to show you your route on the usual satnav, and it pinpoints the re-charging points on the way. It has to, because the deployment of chargers is as yet random. To highlight the point, the new Piries Place car park in Horsham is due to open next September. It will have 519 spaces - 189 more than the old one - yet this 52% increase will have only 8 chargers, and that certainly cannot be termed a vote of confidence in the future popularity of this technology. Over the Sussex district as a whole, Eastbourne and Crawley are ranked in the top fifth for the supply of powering points as measured by chargers per 1,000 EVs registered, and those registrations are going up. At the end of 2011 Sussex had only 80 EVs registered, yet by September 2018 that total had jumped to 3,236.

These totals may yet be small compared to the total number of vehicles registered each year, which are in the millions nation-wide and hundreds of thousands in the South East. Nevertheless, the growing numbers are a proof that the old reservations about EVs are crumbling. Buyers are put off still by range anxiety, by the high initial cost and by the infrequent chargers; under each heading there are marked improvements. As we've seen above, an EV can be relied upon for a range well within the normal distance travelled every day, the chargers are becoming more frequent, and the purchase price is becoming more affordable. The ten cars tested by *Which?* range in cost from £14,000 to £30,000 after public subsidy of £4,500 at most. (The Teslas fall outside this range, costing £65,000 and £71,000.)

There is a real saving in annual running costs, which have been estimated at £1,267 for a petrol car and about half that for an EV at £676.

This is the official Newsletter of the Central Southern Group of Advanced Motorists

Opinions and ideas expressed are those of the individual correspondents
and do not necessarily represent the views of the Group nor of IAM RoadSmart

The costs here are only indicative, and we must set them within the wider considerations of environmental damage and public policy. If the electricity used is generated by a renewable source such as solar or wind then the net impact on CO2 emissions of the car's use on the road will be nil. Obviously there are emission costs incurred in making the car in the first place, but that's true of all vehicles and is probably unavoidable. Avoiding unnecessary emissions in use will appeal to many drivers, and many more will be nudged in that direction by public policies. Purchase subsidies may not be permanent but taxes on hydrocarbon fuels certainly are. And they will go up. While we haven't yet reached the point where the total all-in costs of owning and running an EV is convincingly cheaper than the fossil fuel alternative, that day can't be far away - perhaps no more than a decade or two.

Those decades will bring change at an exponential rate to the AI we use in our cars. We haven't got fully used to the idea of the dial-a-ride service from companies such as *Uber*, much less to the notion of fully automated vehicles noiselessly navigating our streets. We are in a half-way house right now, poised between degrees of automation on a spectrum from hardly any to full robotic. The stages from none to full in terms of automatic control are usually termed driver assistance, then partial automation - both dominated by the driver monitoring the environment - then conditional automation, followed by high automation, where the system monitors the environment. We all know the first stage, with little or no assisting features: think of the *Morris Minor* or *Ford Anglia* you learnt to drive in. No power brakes or steering then, probably not even a heater, and certainly much weaker tyres, brakes and window glass than now. Add power elements and cruise control and we've reached the driver assistance level of automation; add in the capability of these to be used together with steering control and we're at partial automation.

Here comes the real automation: conditional means the vehicle drives and guides itself but needs human back up. High automation needs human intervention, but only in very limited circumstance. Full automation is what it says - you're no longer needed.

The industry is generally agreed that the hardest parts of this stage-by-stage process is when to get the driver involved and how to keep him or her sufficiently alert to do so without losing the advantages of automation altogether. Most of us would like to keep some vestiges of driver control and would probably only willingly concede to a fully automated ride in busy city streets, or on regular featureless commutes. So the tricky zone of driver and machine interface will be with us for a long time yet.

That interface may persist in the form of driver warning systems with autonomous control only cutting in when the driver fails to react in time. A version of this already exists in the lane control programme fitted to some cars - Honda for example - which prevent the car drifting over the lane markings. The steering wheel automatically twirls to correct wandering, and to over-ride the system deliberate lane changing has to be preceded by using the indicators.

Perhaps the most pressing current debate is whether to use laser beam guidance (Lidar) or multi-camera memory building programming. In essence, Lidar imitates a human every time - the cameras monitor the surroundings and cross-compares what it records with what was seen there before. Both are of course electronic, and don't underestimate the speed of electronic data collection. It's far quicker than a human brain, it never gets tired and can work just as efficiently at 100mph as at 10.

To see what's involved, turn to studies done in the 1990s about the degree of concentration needed by the human brain while driving. Approximately two-thirds of the brain's attention capacity was used in motorway driving, a quarter each on reading the road and anticipating problems, 10% on controlling the car and the remaining six per cent evenly divided between navigating and time-keeping. We can say that a third of the attention span was in reserve, unused on most M journeys.

Look what happens when we use an A road. Controlling the car stays at 10%, time-keeping goes from 3% to 5%, while navigating lurches up the scale to take 15% of our abilities; anticipating problems shoots up to 30%, and reading the road takes up 40% - or nearly half our capacity. Add it all together and there's nothing left over.

This isn't surprising for those of us in the IAM, who know how to read our roads and are well aware that A roads are inherently far more demanding than miles of dreary motorway.

This sets the parameters of the problem for the makers of automatic navigation systems. *Lidar* attempts to use the vast speed of laser beams to read and guide, whereas a camera system compiles endless pictures and cross-compares them with past drives. Cameras are linked into the *Cloud* and use data mining to highlight what's different now from the average of thousands of other drives by thousands of other drivers, along the same streets. The power of this computing well outstrips a human's ability and the stored memories can reconcile quickly the variations in the scene from journey to journey. *Lidar*, on the other hand, is making new assessments per trip, relying on its programme to avoid obstacles in its path.

If you watch a video of what the camera version is doing, the experience is uncannily like our mental processes for IPSGA. Information, position, speed are all constantly monitored and the use of steering and speed adjusted accordingly. The version I saw had red outlines drawn around everything in the scene which was close enough to be a danger, and green lines to show the intended path. The old adage came back to mind, of far, near, here and rear. The camera swept the view and the car silently followed the clear path to its programmed destination.

Is our destination programmed? Will we end up the tools of our own inventions? Will AI control us, rather than us mastering it?

Our editor reminds me that we've now strayed from the region of good driving to the thorny fields of ethics, which we should rightly leave for another occasion.

Oliver Farley
Reflector

References

West Sussex County Times, 11 April, 2019 and 1 August 2019
"The Truth about Self-driving Cars", by Shladover, p.44 *Scientific American*, June 2016
"Back to the Future", *The Economist*, page 71, 13 July 2019
"Test Drive: Electric Cars", *Which?*, November 2018
AA Members' Magazine, Andrew Howard: "Let your brain take the strain…"

PS

Since completing this article, a good friend of mine kindly read it through and his comments alerted me to the fact that I too am out of date, just as Stephenson was! My friend is about to take delivery of a Tesla Model 3 and I hope to persuade him to share his driving experiences with us for a later Newsletter.

Here are a few points to think about:

Chargers: The fastest of the new chargers now operating in Las Vegas are 250 kW, compared to the 50kW public charger at Billingshurst Library, 7kW at Horsham Station and 3kW at Waitrose. I don't yet know the capacity of the chargers at Piries Place but it looks as if they too will be well out of date even before they're installed.

Speed of charge: With 250kW chargers, charging will be in minutes, not hours. About a 50-mile range is added in 12 minutes with the latest technology, compared to 10-15 miles for 30 minutes on a 7kW charger. On these numbers the 250kW charger is eight to ten times faster to charge than the conventional 7kW.

OF

iAM RoadSmart

- *If you had purchased £1,000 of shares in Delta Airlines two years ago, you would have £49.00 today.*
- *If you had purchased £1,000 of shares in AIG Insurance Company two years ago, you would have £33.00 today.*
- *If you had purchased £1,000 of shares in Lehman Brothers six years ago, you would have nothing today.*
- *If you had purchased £1,000 of shares in Northern Rock five years ago, you would have nothing today*
- *But if you had purchased £1,000 worth of beer one year ago at Tesco's, drunk all the beer, then taken the aluminium cans to the scrap metal dealer, you would have received £214.00.*
- *Based on the above, the best current investment plan is to drink heavily & recycle.*

iAM RoadSmart

The editor's mother-in-law used to do pretty well all the driving, while her husband acted as navigator.

When they arrived in a village in the West Country, she said, "Where are we now?", to which he replied, "Hang on ...".

There are Hang Ons in Bedfordshire, County Durham, Kent ...

*The editor is very grateful to **Graham Feest**, who has given CSAM permission to reproduce the following two items from his monthly publication 'Traffic Safety Roads'. Members can learn more about Graham's Consultancy here, and can register at www.grahamfeest.com/uk-road-safety-network/newsletter-subscription/ to receive his monthly Newsletter by email.*

Drivers dazzled by headlights causing concern

Drivers say they are suffering more from the effect of dazzling headlights according to research conducted by the RAC.

The problem of glare - caused by a headlight's beam having a dazzling effect for oncoming traffic - is experienced by an estimated 16.1m UK drivers, based on 91% of drivers who were surveyed saying 'some' or 'most' car headlights are too bright and 54% of these saying they are dazzled more regularly now than a year ago.

When asked how they are affected by glare, six-in-10 of those affected said they regularly get dazzled by oncoming headlights even though they are dipped, with a similar proportion (60%) being unable to tell if headlights are either dipped or on full beam. Forty-five per cent complained they get dazzled by headlights in their rear-view mirror, while a huge 70% believe some lights are so bright they represent risk of collision. In fact official government data shows there are around 300 collisions every year where dazzling headlights are a factor.

Drivers were less clear on the likely causes of glare however. Half (51%) blamed vehicles that sit higher on the road, such as increasingly popular sports utility vehicles (SUVs), for dazzling them although 41% said the problem was not caused by any particular type of vehicle. Similarly, when it comes to lighting technologies, 55% believe 'bluer' xenon or the most modern LED headlights are to blame, but a similar number (51%) are not sure or can't tell the difference between the types of lights.

The research also found that in some cases drivers themselves might be inadvertently causing glare - either by not adjusting their lights correctly, or by having badly-aligned lights. Forty-seven per cent of drivers either never adjust their car headlights up or down when carrying different loads, or don't do it regularly enough - something that is important in avoiding causing other people to suffer from glare as the aim of the headlight beam is affected by the load in the vehicle. A quarter of drivers (26%) meanwhile have suspected problems with a misaligned headlight, with 9% of this group either trying to sort the problem out themselves or ignoring it altogether - all of these scenarios are likely to lead to a dazzling effect that could cause other road users discomfort.

Headlamp aim forms part of a vehicle's MOT, and the requirements on garages to conduct this part of the test thoroughly were strengthened in 2016. Nonetheless, figures obtained by the RAC from the Driving and Vehicle Standards Agency (DVSA) show that of the 26.5m MOT tests completed in 2018 for Class 4 vehicles (which includes cars) over three years of age, 6% still failed as result of problems with headlamp aim, the equivalent of nearly 1.6m vehicles. In 2016 the agency also stated that 'headlamp aim consistently tops the MOT compliance survey as one of the most likely items to be assessed incorrectly by testers'.

HGV Supercabs keeping roads safe

The three Highways England supercabs patrol motorways and major A roads across England, and have been used by 29 police forces over the past year in a safety initiative known as *Operation Tramline*. They allow police officers to film evidence of unsafe driving behaviour by pulling up alongside vehicles and drivers are then pulled over by police cars following a short distance behind. The supercabs have a de-restricted speed limiter which means they can travel at speeds up to the national speed limit, and flashing lights have been installed for use by police forces in an emergency.

In one incident they recorded an HGV driver using a mobile phone to make a credit card payment as he travelled along a motorway. The driver, who was seen holding his credit card and phone in each hand, was among over 3,000 drivers undertaking 'dangerous acts' filmed by the three unmarked HGV 'supercabs' in the past year to improve safety on England's high-speed roads.

Other footage captured using the cabs in their first year included a van driver who was spotted with no hands on the wheel as he used one hand to change gear and the other to hold his mobile phone. The driver of a pick-up truck was also filmed without his hands on the wheel as he wrote a text message.

It was mealtime on the flight.
"Would you like dinner?" the flight attendant asked John.
"What are my choices?" John asked.
"Yes or no", she replied.

Two recent Presentations

Brian Dean being presented with his certificate by John France, his Observer

Claire Mowl-Seegobin receiving her certificate by Tony Higgs, CSAM Chairman

USEFUL RESOURCES AND LINKS

CSAM website Homepage:
https://www.iamroadsmart.com/groups/centralsouthern

CSAM Newsletter page:
https://www.iamroadsmart.com/groups/centralsouthern/about-us/our-community/newsletters

IAM website homepage:
https://www.iamroadsmart.com/

IAM RoadSmart's "**Advice and insights**" pages

Driver & Vehicle Standards Agency: sign up for
Highway Code email alerts

Operation Crackdown, operated by **Sussex Police**, where drivers can report illegal/unsafe driving. Some pdf readers will try to block access to this site, but if you type 'www.operationcrackdown.org' into your search engine this should bring up the website

Online Highway Code:
http://www.highwaycodeuk.co.uk/
(There are some other interesting links here, too)

Online pdf of Highway Code to download:
http://www.highwaycodeuk.co.uk/download-pdf.html
Searching depends on the device and the pdf reader in use

Hard copies of the **Highway Code** may be purchased here:
https://www.amazon.co.uk/DVSA-Official-2015-Highway-Code/dp/0115533427/ref=sr_1_1?ie=UTF8&qid=1513299425&sr=8-1&keywords=highway+code
but this is printed on dead trees and has no search facility

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