Somerset Automobile Club
Chairmans' Chat
March 2024

SAC 120th ANNIVERSARY LUNCH

SUNDAY 16th JUNE

Leigh Court, Abbots Leigh.

Ladies and Gentlemen,

After our usual early year break we now at the beginning of our activities for 2024 with the very well supported visit to the Boscombe Down Aviation Collection on Wednesday 6th March kick starting the calendar. Our 3rd April AGM and Lunch follows and, as you are aware, the Gloucestershire and Warwickshire Steam Rail Trip date has now been fixed for Wednesday 21st May.

Our important and not to be missed 120th Anniversary Lunch follows on Sunday 16th June. The lunch, to be held at Leigh Court, Abbots Leigh, will provide an opportunity to distribute some of the funds held in our accounts for the benefit of all of us. I trust that you have that date firmly in your diaries and that you will take advantage of this celebration.

The activities that complete our 2024 plans are also shown below and once again I thank Ann Budd, Trevor Postle, Roger Perrin, Jim Lott, Arnold Denman, and Andy Rigler who have volunteered to organise or assist with the organisation of our events in 2024. As I noted in February that response is exactly what I sought when reaching out for your help. Thank you very much.

Finally, if you have not yet renewed your £10 membership and intend to please make prompt payment into the SAC account without delay and certainly by 31st March.

Committee nominations for 2023 – 2024.

I am pleased to confirm that each of your current Executive Committee members has agreed to stand again at our 2024 AGM. However, Pauline, Accounts Administrator, has indicated that she will be pleased to stand down should an alternative proposal be received. Pauline monitors our Receipts and Payments on a regular basis, which is an essential role in the proper management of our club.

Once again I ask you to give serious consideration to giving your support to the SAC by standing for election. The committee, which still has a vacancy following Jim Lott's recent election, meets, by Zoom, 6 times annually.

Please forward your nominations to me by close of play on Wednesday 13th March. A Nomination form is attached but an email to me (craddyrichard@gmail.com) will suffice.

2024 Events Calendar.

Wednesday 6th March: ***Visit to the Boscombe Down Aviation Collection, Old Sarum Airfield, Salisbury.***

The opportunity to visit Boscombe Down has generated significant interest. As you will recall this is a coach trip with a guided tour for which we have hired a 33-seater coach. Cost £28 for members and £30 for guests. There are very few places still available. **Please ensure that you book your place on or before close of play on Saturday 2nd March absolute latest.**

Wednesday 3rd April: ***AGM and Lunch to be held at The Batch Country Hotel, Lympsham, BS24 0EX.***

As in recent years we will gather at 12.30pm for our Annual General meeting which will be followed by lunch, promptly served, at 1.00pm. I am delighted to confirm that **Trevor Postle** (trevor.postle@btinternet.com or 07787 171455) has already started to co-ordinate our menu choices. **Please select from the 3-course menu, shown below, and forward them to Trevor by Monday 25th March.** The cost/head is £31.00. Advance payment direct to the SAC Account please.

Starter

(A) Cream of Tomato and Basil Soup (V)
(B) Fan of Honeydew Melon with Fresh Fruit, Watermelon and Raspberry Coulis
(C) Prawn Cocktail with Paprika and Lemon twist

Main Course

(D) A Supreme of Chicken Breast topped with Lemon and Tarragon Sauce
(E) Traditional Fisherman's Pie - with Salmon, Cod, Prawns, Smoked Haddock, Eggs, Parsley and Mashed Potato Browned under the Grill.
(F) Thai Green Vegetable Curry with Basmati Rice (V)

Dessert

(G) Bread and Butter Pudding and Custard
(H) Tiramisu
(I) Fresh Fruit Salad (V)

Wednesday 21st May: *Gloucester to Warwickshire Steam Railway journey from Cheltenham to Broadway.*

As already announced in our February Bulletin, **Roger Perrin** has proposed and is organising this scenic steam powered and nostalgic event which will depart Cheltenham Racecourse Station at 10.15.am. It will pass close to the Prescott Hill Climb, via Winchcombe and Toddington to Broadway in time for lunch in the town before returning to Cheltenham. **The cost/head will be £26.50.**

Please make your booking with Roger: rogerperrin2@gmail.com /tel: 01454 415545 and make payment to the SAC Account. If you wish to join this trip, we require payment upfront to secure your seat(s).

Roger writes:

Our Trip will commence at the southern station which is situated within the grounds of the Cheltenham Racecourse at GL50 4SH.

We need to arrive by 9.45 in order to get our seats and sort out any admin matters. We will be seated in the first-class coach, 'Mary', with a Rover ticket which is available for any stretch/s of the line.

The trip will leave Cheltenham at 10.15 and proceed North and end at Broadway with some intermediate stops on the way. You can have lunch at Broadway a, 15-minute walk from the station, or at the station café in Toddington. The ticket is available for any return trip.

The price will be £26.50/head – a discount for group bookings.

*Please look at the website (*https://www.gwsr.com/) *for further information about the railway and stations.*

Come and join us on this heritage railway – an attractive and enjoyable trip but one of the most thermodynamically inefficient modes of transport (it may get as high as 5%!)

Many of us will recall the excellent trip we made on the West Somerset Railway from Bishops Lydeard to Minehead in 2018.

Sunday 16th June: *120th Anniversary Celebration Lunch.*

As you are already aware, this event has been booked at Leigh Court Abbots Leigh. This will be an event not to be missed and hopefully, it is a date already fixed in your diary. If you own a classic, toy or favourite 'everyday' car they will be priority parked 'on display' in front of the magnificent country mansion. See: https://www.leighcourt.co.uk/

I look upon this special event as a significant SAC milestone which is to be held at a venue worthy of the occasion. Consequently, your support will be very much appreciated. Please remember this event will be significantly subdised for each attendee.

As noted above, **Jim Lott** has offered to co-ordinate attendees menu selections and **Phil Rumney** is to organise the display of cars in front of the imposing façade of Leigh Court.

Contact has been resumed with Leigh Court and we await menu choices from the newly appointed caterers. This event will be very substantially subdised and, as such, will provide a unique opportunity for us to enjoy this most appropriate venue in mid-summer.

Fuller details to follow in the next few weeks.

Thursday 8th August: *Annual Picnic*.

In 2024, we will make a change of scene and a reservation has been made at Wyndcliffe Court, St Arvans which is, as we know, just adjacent to Chepstow Racecourse. Wyndcliffe Court is an Edwardian Manor House with sculptured gardens which, on occasion, hosts talks and lectures by notable UK gardening experts. We will have sole occupancy and gather from noon. See: https://www.wyndcliffecourt.com/

I am very pleased to confirm that **Arnold Denman** has agreed to assist **Matt Rumney** with the organisation of this event. More details to follow,

Thursday 5th September. ***A Morning tour of Thatchers Cider, Sandford.***

Ann Budd has kindly offered to organise this visit and lunch. We will gather in the car park of the Railway Inn, Sandford (owned by Thatchers) prior to a tour of the Thatchers Cider production facility. More details to follow.

Thursday 3rd October: ***Social Run and Lunch organised by Andy Rigler***.
Once again, we will return to the Severn Vale for a substantially revised route from Andy's severely Covid interrupted run of 2021.

Sunday 24th November: *Autumn Lunch*.
A booking has been made to ensure that we will return to The Batch Country Hotel at Lympsham.

Thursday 12th and/or Thursday 17th December. A *visit to the Urbaser 'Gloucestershire Energy from Waste' facility.*

This is the strangely shaped building to the side of the M5 motorway at Moreton Valance near Gloucester, which houses an electricity generating power Station fueled by non-recyclable domestic waste. Bookings have to be made significantly in advance and these two dates were the earliest opportunity available to me. Parties are of 15 maximum and in anticipation of strong interest I have made two bookings which was necessary given an initially positive response. If you are minded to make this visit please make a 'without commitment booking with me promptly.

Is the Wankel engine 'dead'?

Far from it. In fact, Wankel rotary engines are very much alive and kicking and are currently being used in Automotive, Aerospace, and Marine applications worldwide.

A significant market for Wankel engines over the last 30 to 40 years has been unmanned Remotely Piloted Vehicles (RPV's) and Underwater Autonomous Vehicles (UAV's). The UK, in particular, has led the world in developing engines for these applications and in doing so has demonstrated the Wankel rotaries' superiority over piston reciprocating engines. Rotaries typically outperform piston reciprocating engines in endurance, performance, and simplicity of operation and maintenance and this has led to its selection for use in some of the world's most successful UAV projects including Textron's Shadow platforms and the UK's own Watchkeeper programme.

While most people associate Wankel rotary engines with past vehicles such the Mazda RX7 & RX8 and Norton rotary motorcycles of the 1980s, the fact is that Wankel engines have and are still currently used in everything from snowmobiles to speedboats to aeroplanes and even space vehicle launch systems. Mazda is developing a small 'range extender' for use in Hybrid cars.

The concept of a 'rotary piston' engine potentially offers many advantages in comparison with reciprocating engines. However, successful application of the concept has proved to be challenging.

The perceived advantages of a Wankel engine are:

- Elimination of uneven reciprocating forces.
- Lower weight.
- Fewer components.
- Compact size.
- Cheaper production costs.
- Simplicity of maintenance.

The Wankel engine concept was initially devised and patented by Felix Wankel in the 1930's as a form of rotary compressor. In the early 1950's, when employed by the German NSU company, Wankel and his associates developed a small supercharger for motorcycle applications based on the rotary concept. In 1954, the NSU company authorised the development of a rotary combustion engine for motorcycle and automobile applications using the same principles.

In simple terms, a rotary engine consists of an essentially triangular, curved sided, 'piston/rotor' that rotates eccentrically in an oval 'eight shaped' or 'peanut shaped' combustion chamber. See illustration above. The tips and sides of the rotating piston are respectively sealed against the periphery and sides of the chamber with rubbing apex and surface seals respectively. A single rotation of the piston provides the 'Otto cycle' stages of 'Induction, Compression, Ignition and Exhaust' as employed in reciprocating petrol engines and 'Compression, Heating, Expansion and Cooling' of diesel engines.

Having achieved significant development progress, the initial NSU production engines, as fitted to the NSU Spider sports car of 1963, had a capacity of 1 litre and an output of 54 hp at 6.000rpm. Around 2000 examples were built.

However, the lengthy development process identified and has failed to adequately overcome the following issues when compared with 'state of the art' reciprocating engines:

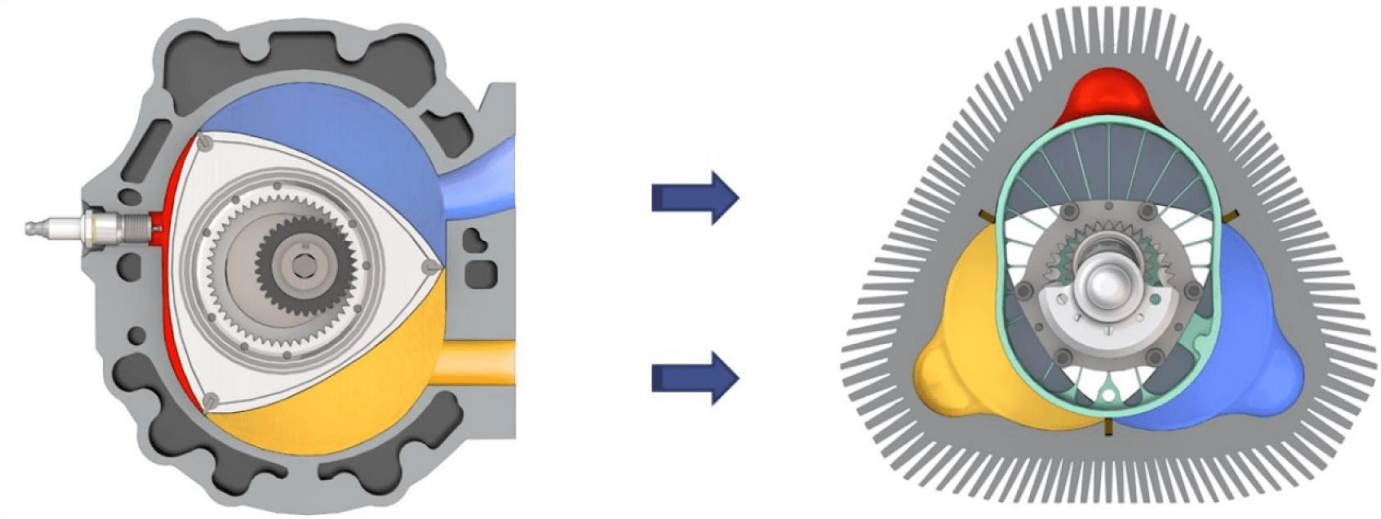
- Poor low speed torque resulting from inferior combustion characteristics.
- High emissions that result from the need to continually lubricate the rotor apex seals. Notwithstanding continual development, lubricating oil is constantly being burnt and residual carbon deposits hinder effective sealing over time.
- The resulting Rotor tip seal wear results in the leakage of unburnt fuel into exhaust gasses. This issue has not been adequately eliminated.
- Consequently, the Wankel engine cannot conform to current road vehicle exhaust emission standards.
- Poor fuel economy primarily occurs in automotive applications which require variable engine speeds. For those applications, where constant engine speeds are appropriate, the fuel economy issue significantly improves.

Rotary Engine Developments: The Liquid Piston Inc 'Inside out Wankel' Engine.

The Liquid Piston engine features a 'peanut' shaped rotating piston inside a stationary triangular shaped housing. The manufacturers claim that the advantages of this configuration are:

- A Stationary Combustion Chamber offering:
- Higher compression ratios than a traditional Wankel engine.
- Optimum Direct Fuel Injection nozzle positioning.
- 30% increase in thermal efficiency.

In addition, the rotary piston apex seals are now located in the stationary housing and given that they do not rotate lubrication can be metered to them in a controlled fashion. In the Wankel engine the seals are subject to dynamic rotating forces and require 'over lubricating' hence producing higher emissions.



Comparison of a Wankel (L) and Liquid Piston Rotary Engine (R)

With US Government funding of $30 million over 20 years, these small engines can produce 30hp in normally aspirated form and 70hp with forced injection. Petrol, Diesel, Hydrogen and Propane fuelled versions have been built in 4 stroke and two stroke formats.

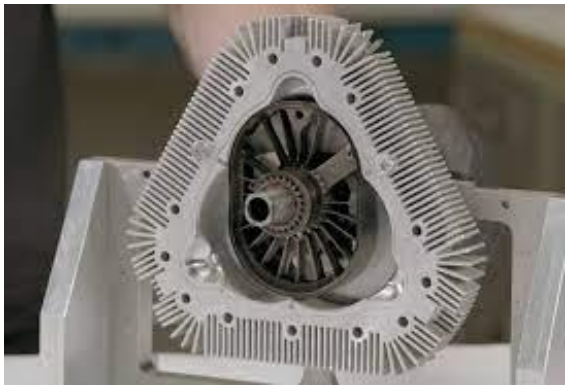
Current production engines are mainly in the 3 to 5 hp range (Go kart and Generator use) with a 40 hp version also available typically for Drone use.

The marketing target is a 25hp diesel fueled version for military, aerospace and power generation applications.

The manufacturers claim that their engines are up to 10 times smaller and will produce 5 times the power and 3 times the torque of a conventional diesel engine at 25% of the weight.

For an investment of £1000 into the Liquid Piston Inc you will be awarded a Tee Shirt!

Given that the improvement claims made by Liquid Piston it is difficult to understand why the original Wankel design studies did not select this option.



The 2 stroke 25hp liquid cooled, naturally aspirated 210cc Liquid Piston engine.

The Tata/Jaguar Land Rover UK Electric Vehicle Battery Factory.

Given the international demand for battery powered Electric Vehicles and the immaturity of hydrogen and synthetic fuel alternatives for ICE's, the July 2023 JLR announcement of a firm commitment for an Electric Vehicle Factory is very welcome news. Even more welcome is the selection of Somerset, in the environs of Bridgwater, for the location of this 616-acre factory. With the Hinkley Point 'C' development 'just down the road' it would appear that 'levelling up' has moved strongly to the South-West. The choice of the UK for this investment was not straightforward given that Tata seriously considered locating this factory in Spain.

Known as a 'giga factory', the plant will create 4000 direct jobs in the UK and more in the supply chain. The £4 billion-pound investment, supported by UK government funding, is undoubtedly a major commitment by Tata, the parent company of JLR.

A major motivation behind the UK Governments' support for this proposal is the forthcoming Brexit-related rules about vehicle production which will demand that 45 per cent of the value of an electric vehicle should come from the EU or the UK to avoid 10 per cent inter trade tariffs.

With batteries often accounting for roughly half the value of an electric vehicle, battery production in the UK is seen as crucial to avoiding these EU tariffs. Production will commence in 2026 which has to be considered to be is a very demanding timescale.

The announcement received wide support and as is inevitable in such circumstances, it was 'surrounded' by lots of 'marketing hype'.

The Tata battery production capacity, which is also expected to supply other vehicle manufacturers from Mobility Scooters upwards, is even more welcome news given the failure of the embryonic British Volt company in January 2023, having failed to attract sufficient funding. Even with the Tata investment electric vehicle production demands indicate that the UK is significantly underprovided for battery manufacturing capability.

The only other UK battery vehicle manufacturing plant is owned by Nissan in Sunderland. Tata already owns battery factories in India.

Nostalgia: Remember this?

The Bristol Flyover.

Opened in September 1967, as a 7 or 8-year temporary traffic easing scheme, the Bristol Flyover was eventually demolished in June 1998. For those of us familiar with the traffic schemes in the Temple Meads area, this one-way high-level structure linked Temple Way (from Market Street) to Redcliffe roundabout adjacent to St Mary Redcliffe. The Flyover ensured a straightforward traffic flow at the intersection with the Bristol Bridge/Victoria Street to Temple Meads road adjacent to the Infamous Grosvenor Hotel.

Having been removed, the road layout was replaced in 1998 with the 'Gyratory' scheme that has subsequently been further revised (and complicated!).

Given that the Flyover was a fabricated steel structure it is reported that having been removed it was sold and reinstalled elsewhere.

Illustrating the Victoria Street to Temple Meads traffic passing underneath.

Traffic flow on Flyover from Old Market Sterr (left) to St Mary Redcliffe. roundabout

From the Bookshelf:

Lost Cars of the 1940's and '50's.

Author: Giles Chapman

'Sixty diverse cars, sixty fascinating stories, sixty contrasting specifications, just one uniting factor: there're all forgotten, neglected or misunderstood classics - Author's notes.

While the authors choice includes cars from around the world it is, from the UK selection, a pictorial guide reminiscent of our visit to the Coventry Museum of Transport. As with any such 'journalistic' book, it is easy to challenge the authors selection but the supporting text scores with excellent, brief background descriptions for each car and, where appropriate the manufacturer. It is an 'easy' read'.

'One off' design exercises and individual cars built to 'special order' feature throughout the book and it is easy to understand why they were selected for inclusion. Regrettably my understanding of cars built in the USA in the period is sketchy and therefore I will not comment, but with respect to UK designs I was surprised to see the selection of:

- MGA Twin Cam
- Standard Ensign
- Singer Gazelle
- Turner 803/950
- MG Y type
- Late model versions of the Austin Princess, Armstrong Siddeley 234/6 and Lanchester.
- Jensen Interceptor
- NSU Prinz (a very small car pictured with 4 corpulent males smiling before taking their seats!).

But that, of course, is my selection as are the following little-known designs:

While a few design exercise cars cannot be judged to be attractively styled and others simply 'mundane', a few certainly attract attention such as the 1959 Skoda 1100 OHC type 968 and the low volume production 1956 BMW 503 Convertible.

Only two of the **1959 ŠKODA 1100 OHC Coupé** Endurance racing cars were made and neither survived in their complete original condition. Restored to running order by the ŠKODA prototype construction Centre it is on display at the ŠKODA Museum.

The **BMW 503** was a pioneer in terms of technology. The bodywork incorporated aluminium components and the 3.168 litre lightweight V8 engine accelerated the coupe to 190 km/h. A total of 412 of the BMW 503 (273 Coupes and 139 Convertibles) were built.

And two 'design exercises'.

The **1956 Citroen C10 'Coccinelle'** (Ladybird) was designed to create a car in size between the 2CV and the DS saloon. Using lightweight aircraft based construction techniques it was powered by a 425 cc twin cylinder engine.

1952 Alfa Romeo Disco Volante Coupe by Carrozzria Touring. Three open 2 litre 'Spiders' were manufactured as aerodynamic test vehicles and one was converted into this Coupe model. Two further 3.5 litre cars were subsequently built.

And two cancelled projects:

1959 Daimler DP 250. Based on the SP 25 Dart sports, this single example was designed and built in 8 weeks, during demise of Daimler prior to the take-over by Jaguar. It was cancelled immediately.

1942 Peugeot VLV Voiture Legere de Ville 12 Volt Light City Car designed during WW2 to overcome fuel rationing. Upon occupation the Nazi's cancelled the project. Around 400 were made.

This book is a nostalgic 'read' and pleasingly, it does not contain any reference to Bristol Cars obviously not considered to be a 'Lost Make'. It is the companion to Lost Cars of the 70's by the same author.

Electric Cars and alternative fuels.

Firstly, there are many factors to consider when contemplating the purchase of an electric or hybrid car. In that context 'Range anxiety' is a major factor.

Range Anxiety.

This is the term used to describe a drivers' concern that there may not be adequate fuel or battery duration on board (or the opportunity to refuel/charge) to ensure that the remaining journey distance be achieved. As we know the term is currently primarily linked to electric vehicle usage.

In 2010 General Motors sought to register the term 'Range Anxiety' to support the sales of their 'conventionally' powered vehicles.

Fossil Fuel alternatives

Rapidly increasing awareness of the adverse ecological/climate change downsides resulting from the use of fossil fuels and the increasingly availability of electric cars has forced vehicle manufacturers to seek alternative 'zero emission' fuels for internal combustion engines. Two of the options are:

- **eFuels:** Pioneered by Porsche, in conjunction with Siemens and ExxonMobil, this consortium has created a pilot plant in Chile where the climatic conditions of consistent sun and high winds create the ideal conditions for wind turbine powered production plant. eFuels, which provide nearly CO_2-neutral operation of petrol engines, are made from water and carbon dioxide using wind energy. The product is synthetic methanol being a hydrocarbon.

and

- **Hydrogen** which is discussed in more detail here:

Hydrogen Gas Production.

The overriding objective of both electric and hydrogen powered vehicles is the opportunity to eliminate the production of Carbon Dioxide (CO2) emissions. Hydrogen is the most abundant element in the universe but, regrettably, extracting it is not straightforward if CO2 is not to be released into the atmosphere. There are three methods of hydrogen production of which only that defined as Green Hydrogen achieves the objective and then only if Renewable Energy is used in its production.

The three production processes are:

Grey Hydrogen: Hydrogen is extracted from fossil gas by splitting carbon from methane (CH4) thereby releasing CO2 emissions into the atmosphere.

Blue Hydrogen: Hydrogen is also extracted from fossil gas before CO2 emissions are trapped and stored permanently underground.

Green Hydrogen: Hydrogen is extracted from water using renewable electricity and releasing oxygen into the air. If renewable electricity or nuclear power is not used then the process fails.

To use hydrogen as a fuel it can either be burned directly in an internal combustion engine (JCB), or it can be used in a fuel cell (Toyota, BMW etc) where the hydrogen reacts with a platinum catalyst (which is extracted using an energy consuming refining process). Toyota is planning a Hydrogen manufacturing plant in Europe.

Hydrogen powered vehicles.

No doubt we have all read the increasing publicity surrounding the development of hydrogen powered vehicles.
Here is an outline of differing configurations, how they work and the benefits that the use of hydrogen provides.

There are two basic configurations of vehicles that employ hydrogen.

Hydrogen Fuel Cell Electric powered vehicles (FCEV's).

In simple terms, a fuel cell chemically creates electricity by combining hydrogen, stored in an onboard tank, with atmospheric air. Given that water is the output from a fuel cell the vehicle produces zero toxic emissions.

Vehicle manufacturers are pursuing two configurations of FCEV's

1) Where the prime mover is Electric power.

Typically adopted for cars and delivery vans whereby the 'conventional' electric vehicle battery installation (that is charged from the grid) is supplemented by an additional installation of a hydrogen fuel cell system. The benefit of this system is that the range of an electric vehicle is increased given that the fuel cell provides supplementary charge to the Lithium battery pack.

An informative, text which has been prepared by Renault, provides further detail and is recommended reading: See: https://www.renaultgroup.com/en/news-on-air/news/how-does-a-hydrogen-vehicle-work/

2) Where a Hydrogen Fuel Cell system is the prime mover.

Alternatively, however, Honda has announced that it is to introduce a Hydrogen Fuel Cell version of its CR-V range whereby fuel cells will be the primary power source. Honda will combine the power of hydrogen fuel cells, providing a 300-mile range, with a 'home charge' plug-in battery backup giving just 30–40-mile additional duration.

Economic practicality of Hydrogen vehicles.

Firstly: Hydrogen availability at filling stations in the UK and worldwide is very limited. Currently in the UK only 6 hydrogen filling stations exist, one being planned in Newport, Gwent.

Secondly: The economic industrial scale production of hydrogen currently requires the use of fossil fuel albeit production using renewable energy is possible but significantly more expensive.

Thirdly: more fossil fuel energy is required to produce a unit quantity of hydrogen than that unit quantity of hydrogen provides.

Fourthly: While refueling a hydrogen car is both swift and straightforward (typically 4 minutes), on-board storage, in liquid form, requires the installation of cylinders that are designed to withstand 350psi/25 bar.

That said, a hydrogen fueled vehicle does not suffer from the range anxiety associated with electric/battery powered vehicles.

JCB Hydrogen Powered Vehicles. A practical application of Hydrogen power.

Currently JCB is poised to be the market leader with conventionally configured engines that are powered by solely by hydrogen. The reasoning is straightforward. Construction site and farm vehicles are traditionally fueled by diesel bowsers or tanks installed on site, farm (red diesel) or by travelling bowsers. Given the usage demands and location it is impractical to power and charge vehicles in use on those sites by electric/battery power.

In the last 2 years, JCB has developed hydrogen powered engines to the prototype stage. These engines perform with typical diesel characteristics, torque and power curves etc and consequently provide a seamless transition for drivers and users. See: https://www.youtube.com/watch?v=H6_qAta3Gk8

The current JCB Hydrogen powered range with the Fuel Bowser shown centre

In addition, Toyota is pursuing the development of hydrogen powered engines for passenger car use including a 7 litre V8!

Comparative efficiency of Electric and Hydrogen powered vehicles.

Please note that significantly contradictory information has been published. It could be concluded that 'on-line' sources are biased towards either battery or hydrogen power without stating their preference. The following is my 'best estimate'.

In comparative terms, using 'traditional terminology' as widely used by industry.

- From 'well to tank' being the energy available in the fuel tank or battery as a percentage of that available at the 'well', being the primary source. For an electric car that is the power station.
- From 'tank to wheel' being the energy available at the road wheels after deducting transmission losses.

Regrettably, as noted above, there is less available energy in a unit quantity of hydrogen than that required to manufacture it. Consequently, it should also be noted that it takes three times more electricity to make Green hydrogen to power a car than it does to charge a battery. The following comparative percentage efficiencies reflect that.

	Well to tank	**Tank to wheel**	**Example manufacturers**
Direct Charging Battery Electric Car	94%	77%	Tesla, Land Rover, BYD etc
Hydrogen Fuel Cell Car	68%	33%	Toyota/BMW etc
Direct hydrogen fueled 'petrol' Car	55%	16%	Porsche development
Direct hydrogen fueled 'diesel' Car	55%	20%	JCB

For comparison, the typical energy efficiency of a conventional internal combustion engine is:

- A conventional petrol (cycle) engine, before transmission losses, is 40% max.
- A conventional diesel (cycle) engine, before transmission losses, is 43% max.
- Additionally transmission losses can be a further 10% to 20%.

In Conclusion:

We can conclude that until 'Range anxiety' and higher initial purchase costs associated with electric cars can be significantly overcome, that diesel and petrol powered cars will continue to be the practical choice for many users. Electric car use will be minimal in countries with little or no electric power charging facilities thereby distorting the ecological benefit of the alternatives.

In comparison, the wider adoption of hydrogen powered vehicles will be limited and delayed due to hydrogen gas unavailability, even in more developed countries. (Hence the reason why the JCB hydrogen refueling bowser will be required in order to provide mobile refueling support necessary for the convenient use of its Hydrogen vehicle range).

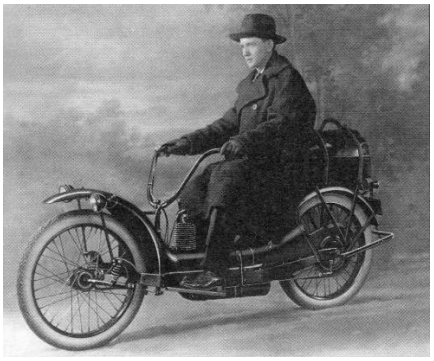
Vehicle manufacturers are 'placing their bets' where the balance of usage will fall. We wait with interest to see the consumers choice!

And 'odd ball solutions':

- The Aston Martin DB6 owned by King Charles has been adapted to run on surplus UK wine and Cheese whey.
- Toyota is also pursuing the development of internal combustion engines powered by Ammonia.

The Ner-A-Car.

The Ner-A-Car was a type of motorcycle designed in 1918 by the New York based Carl Neracher. It incorporated a, then, unusual chassis somewhat like that of a car with 'feet front' seating. Having steering at the front made it 'near a car' in its design layout. It is claimed to have been the most successful hub-centre steering motorcycle ever produced given that 10,000 were manufactured, over a 10-year period in the USA, and, between 1921 and 1926, around 6,500 in the UK by the Sheffield Simplex company (UK car and motorcycle manufacturer, founded in 1907) under the Ner-A-Car name. The 'modern' Yamaha GTS (1993-1999) and Bimota Tesi motorcycles employ(ed) hub-centre steering with significantly less success. A hub-centre design substitutes the conventional twin fork front suspension with a yoke and single hydraulic damper akin to that of a motor car's 'independent' suspension.



The Ner-a-Car with Carl Nercher astride a 1918 example

- The US version was powered by a 285cc, 2¾ hp engine, while in the UK a 221cc two-stroke of Sheffield Simplex design was installed. The engine was mounted on a low frame thereby ensuring good handling stability. Alternative transmission systems were available being either a 3-speed gearbox or 5 position friction 'constant velocity' drive type which was the most popular. The wheels were clad with 26 diameter inch solid tyres.
- It was marketed as a low-cost alternative to a motorcar. The fully enclosed engine and front footstep was promoted as providing protection from road grime and engine fluids thereby allowing riders to wear ordinary clothes, including skirts, cassocks and skirts!
- A 1922 Ner-A-Car was recently sold by the 'Classic Motor Hub' in Bibury, (featured in the December 2023 Chairman's Chat) and a single example is on display at the National Motor Museum, Beaulieu.

The December Mystery Car.

Austin A40 Sports.

Having admired the Jensen Interceptor, when it was initially displayed at the 1948 Earls Court Motor Show, Leonard Lord, then Managing Director of BMC, concluded that a convertible style body based on the extant Austin A40 chassis and running gear would satisfy a market need especially in the USA. Subsequent negotiations with Jensen Motors resulted in an agreement whereby Jensen would design and build an aluminium bodied 4 seat touring car based on a strengthened A40 chassis, (a necessary modification given that the lost body stiffness provided by the saloon roof had to be recovered). At that time there was a close liaison between the two companies given that the Interceptor was based on the Austin Sheerline, being a large luxury car produced between 1949 and 1954. The BMC 4.0 litre inline 6-cylinder engine was installed in the Interceptor.

The body of the A40 sports was designed by Eric Neale, Jensens' stylist and the similarity between the design of both cars can be clearly seen. Further enhancements to the saloon were the incorporation of all round hydraulic brakes and an uprated 1200cc 4-cylinder OHV engine, fitted with twin SU carburettors, now producing 46 hp (40hp in the saloon).

Production of the A40 Sports was undertaken jointly by Jensen, who manufactured the bodies in a newly specially constructed factory, which were then transported to BMC at Longbridge for final assembly. Production, in two series, started in November 1950 and finished in April 1953. In total 4,011 were manufactured. Being essentially a coachbuilt car, high production quantities were not to be expected.

Rigorous pre-production testing was undertaken in Europe and Africa with the full knowledge of the press. Would that occur today? As a publicity 'stunt' one example set out to be 'driven around the world in one month'. In fact, that was achieved in 21 days at an average of 475 miles per day for the 10,000-mile journey. In addition, Leonard Lords daughter won the Ladies Prize in the 1956 RAC Rally driving an A40 Sports being 3 years after production ended.

The car was well received by European journalists but it did not achieve the success predicted in the USA where the then current MG Midget was selling in strong quantities. Claimed performance was: 0-60 mph in 25.6 seconds with a top speed of 78 mph. It returned an average fuel consumption of 29 mpg. The cost when introduced was £818 compared with £500 for the Saloon version.

Was it a success? In the USA while sales were a disappointment to an extent the A40 Sports admirable supported the strong sales of the A40 saloon in that market.

Here is the Jensen Interceptor Mk 1 shown as a 'styling' comparison.

March Mystery Car

This small batch British six-cylinder sports car was produced between 1952 and 1958. Only 80 were constructed.

Answers to me please: craddyrichard@gmail.com

SAC Shop

Our popular Navy-Blue baseball hats are currently in stock. They cost £10.20 plus P&P if required. Sweatshirts, in a multiplicity of colours, are also available for individual order. Please contact me. An ideal Christmas present.

And finally,

Once again I trust that you have found items of interest in this edition. Please don't forget that I welcome your contributions and with the prospect of holidays in view you may have some interesting stories and photos to share.

Dick Email: craddyrichard@gmail.com

SAC Bank Account: Bank: Lloyds, Account number: 00577513, Sort code: 30.00.01.