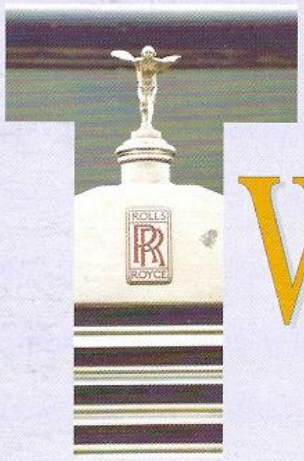

# Twenty

## Newsletter

RREC

**Number 24**

**November 2010**

**Gold mascot, detail**
**© K W Brittan**

**Used early 20 hp mascot**
**(perhaps a later replica?)**

The original ormolu process, from the French *or* (gold) and *moulu* (ground, as in *Moulin Rouge*), involved coating the object with gold amalgam and then baking off the mercury. Mercury fumes caused many deaths, so the process was banned in the 1800s.

Subsequently ormolu meant any process of coating with gold-coloured metals such as special brasses. Today, the amalgam process is sometimes used, but with expensive equipment to trap and recover the mercury fumes.

Ken has evidence that Sykes's gold mascot might indeed have been coated using the gold amalgam method.




# THE TWENTY NEWSLETTER

**No. 24** **Nov/Dec 2010**

The Twenty Newsletter is published twice-yearly, normally in May/June and November/December, for members of the 20 hp Register of the Rolls-Royce Enthusiasts' Club. Opinions expressed and advice offered in this newsletter is not necessarily that of the RREC or its officials and no responsibility can be accepted for the results of following contributors' advice.

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## Cover Photograph

You will have seen **Ken Brittan's** article in the RREC 2011 Yearbook on the history of the Spirit of Ecstasy. The article includes a description of Sykes's ormolu (see page 2) mascot which he made in 1918 as an exhibition piece. It could have been a memorial to Lady Eleanor Thornton, or perhaps made to celebrate the end of the war. It won the first prize and the gold medal at the Paris Salon in 1920. Very significantly from our point of view is that our beautiful 20 hp mascot was closely modelled on this prize-winning gold mascot, although the amount of detail had to be reduced, so it could be manufactured economically (see page 2). However Ken believes that just a few carefully detailed nickel silver reproductions were made, and used by 20 hp owners on their cars. He would like to hear from anyone who believes they have one of the rare detailed mascots. Please contact Ken on 01530 832454.

During 2011 there are several Spirit of Ecstasy lectures and exhibitions:

- The Centenary Lecture and Exhibition is at the Hunt House on 6 February
- An exhibition at the Palace House Beaulieu will run from Easter until autumn
- A lecture and exhibition is being organised by the Rolls-Royce Heritage Trust at Derby on the weekend of 11 June (weekend before the Annual Rally)

Ken is very involved in all these events, and by the way he owns a 20 hp car - 1929 GFN 40 with Hooper saloon coachwork. Many thanks are due to Ken for giving permission to use his wonderful photograph of the gold mascot, and to Jeff Booker for his assistance.

## Editorial and Events

Thank you everyone who has contributed to this Newsletter by sending information, articles and photographs etc. Jane Else's lyrical report on the Spain rally is on page 30. Clive Boorman gives an amusing account of his Rolls-Royce hobby; we have the incredible saga of Jeremy Oates' Chinn Synchronometer; and some Christmas cut-outs. Don't be shy about sending *your* contribution for the next Newsletter.

### Forthcoming Events

| | |
|---|---|
| 21-22 May | Technical seminar at the Hunt House, small hp cars |
| 17-19 June | Annual Rally; *all* 20 hp owners and friends are invited to the 20hp lunch gathering. Meet fellow enthusiasts for snacks and drinks |
| 24 June-1 July | 20 hp Normandy Rally near Caen |
| 2-3 July | **Retro Historique Festival, Caen - open to all, see below** |
| 3-6 September | Weekend rally in the West Country, see below |
| 24-25 Sept | Seminar at Hunt House, electrics for pre- and post-war cars |

**20 hp Weekend Rally in the West Country:** The person who was starting to organise this event has had to pull out, so if anyone would like to organise a rally (3-6 September, to avoid Beaulieu Autojumble on 11-12?), please do volunteer!

**20 hp Rally to Normandy,** 24 June -1 July and **Retro Historique Festival**, 2-3 July Many of the participants in our Normandy rally will be staying on an extra two or three days for a major event: the Retro Historique Festival in Caen on the weekend of 2-3 July. This is organised by RREC member Michel Leneveu, and will include a scenic tour, a rally in the Hippodrome with concours, music etc, a parade through Caen with mayoral reception, a gala dinner, and an opportunity to "race" round the Hippodrome circuit. All pre-1980 cars are eligible. If you are interested in joining the 20hp group for a weekend in Caen, please view http://www.retrofestival.fr/ for further information. English language pages and application form are available on this web site. The north coast of Normandy is easily reached by slow or fast ferry, and accommodation for the weekend should be available at that time of the year. Please plan your own travel and accommodation, and contact the 20 hp Registrar for further information, or to reserve a place on the 20 hp table at the gala dinner.

### Goshawk Society

The Goshawk Society is a recently-formed branch of the RROC (America). They plan to produce an e-newsletter and the editor is **Phil Birkeland** who owns 1935 20/25 GPG 23 Hooper sports saloon "Cedric" and also a 1950 Studebaker 2R10 ¾ Ton Pickup "TowMaster":

1041 Berkeley Ave, Tacoma WA 98466
Telephone 253.564.9109 or 253.279.9724 <philbirkeland@gmail.com>

The Society chair is **Tim Jayne** from Kirkwood, Pennsylvania:

Telephone 610.436.8668 <tim@dennisonjaynemotors.com>



Tim wrote: "I think it would be an outstanding opportunity for both of our groups to work together on matters involving our cars. I am a member of the RREC in good standing and at times notice useful ideas and advice in the publications that can really benefit enthusiasts of these models. Perhaps we could agree to exchange newsletters and perhaps share information from our newsletters with our memberships. Of course we would have to be certain to give the information provider credit. It is just a thought and I would of course welcome any further ideas and thoughts.

Recently at our national meet in Canada our group had a luncheon and Rob Webb joined us. He shared some of his experiences touring through Spain. It sounded like the trip of a lifetime."

## Feedback and Technical Items

Colin Firth's latest film, **The King's Speech** (starring the Stow's GNK 55, see Newsletter 23) has won five prizes at the British Independent Film Awards. The period drama also won best British independent film.

After the Spain rally, **Rob and Ivonne Webb** returned to their native California, and soon set off for the RROC National rally. "We flew Continental to Houston then Toronto. Great meet - 398 people at the awards banquet. Not as many automobiles as the RREC fields at their Annual, but impressive. Five days of meet with seminars, social events, etc. Ivonne went to the museums and I attended seminars. We both went on four "Dawn Patrols" ie driving at 0630 to breakfast, and back by 0900. We also went to the Bentley Extravaganza, and the Derby Bentley dinners. No 20 hp on the field; only one registered and failed to proceed to the field. Several fine looking 20/25s and more Ghosts than usual, ie 14."

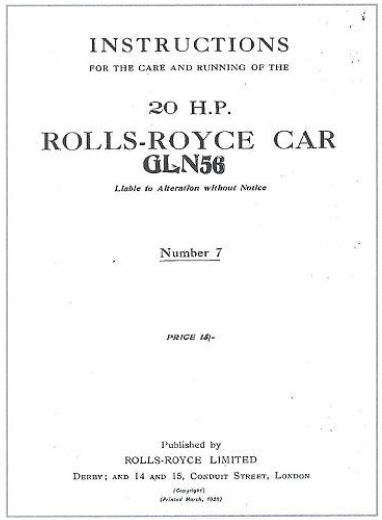
*[Ed: "Four Dawn Patrols"? "driving at 0630"? - only in America! Anyone for "les Rondes à l'Aube" in Normandy next June? Thought not.]*

**20 hp Mascots, Barry Gillings' article** (part-reproduced in Newsletter 23): Several people have contacted me with comments on Barry's article in the last Newsletter, and these are summarised below:

- Silver plating: Rolls-Royce did not silver plate their 20 hp mascots.
- Types of mascot: Ken Brittan argues in the 2011 RREC Yearbook that there were only two types of 20 hp mascot, the large cheese and the small cheese (but see page 3).
- At any rally, the chance of seeing a genuine original 20 hp mascot is low: the vast majority of 20 hp mascots now in use are later unofficial replicas. As Barry pointed out, only 40% of 20 hps were originally fitted with mascots. Since then many original mascots have been damaged, lost or stolen (especially during WW II), or consigned to private collections and museums.
- After 1929, customers buying mascots from Rolls-Royce for their 20 hp cars were supplied with the mascot type that was currently in production.

- Before old RR cars became collectible, mascots were not necessarily considered "important" and when garages had several RR cars in for service at the same time they did not always take care to reunite a mascot with its rightful car.
- Mascots are relatively easy to replicate, but the quality of replica 20hp mascots varies greatly; some are excellent, but many are not! The message is: take care when buying a 20hp mascot.

**Peter Reeves** has scanned the 20hp Instructions Book Number 7 (the 1928 edition).


INSTRUCTIONS

FOR THE CARE AND RUNNING OF THE

20 H.P.

ROLLS-ROYCE CAR

GLN56

*Liable to Alteration without Notice*

Number 7

*PRICE 1£/-*

Published by

ROLLS-ROYCE LIMITED

DERBY; AND 14 AND 15, CONDUIT STREET, LONDON

Peter writes: "you can download the book for free from the web, and print out a copy. It is in searchable PDF format; this means you can use the search box and look for key words eg Klaxon, lights etc. Once you find the first search, if it is not what you want just keep pressing enter till you find the required text, you get the idea. You can also enlarge the text as well as print off parts you may want to take into the workshop". Download the book from:
http://www.northwestlinux.co.uk/peter/

Or contact the Registrar and I can email it to you as a 5.5MB pdf file.

**Andrew Sington** can compete with David Davis, who has owned 42G1 since 1959 (see review of David's book in Newsletter 23). Andrew writes: "For the record, I've been looking after GOK 65 (aka UK-2) also since 1959 but in this case 'she' is a very original 20hp, the last remaining Thrupp & Maberly 20hp tourer with the original chassis and body. I also have a record of every petrol fill including the date, the relevant mileage and the location – and all serviced items are noted since 1959. I was 13 when I started to look after the car, making me 64 now, so I reckon I can claim the longest association with a 20hp in the UK. I don't claim to have driven the farthest in the 20hp (that's something I leave to David Else), but I have driven the car in the UK, France, Spain, Italy, Germany, Switzerland, Licehtenstein, Austria, Hungary, Serbia, Macedonia, Greece, Turkey and Israel - which I reckon takes some beating, especially for a tourer."

Some observations on **radiator polish**, also by **Andrew Sington**
I forgot to take my Peek polish with me at the Annual weekend so I bought a small plastic bottle of Metal Polish at the show - branded AIRFLOW - and it cost £10.99 for 120gms. It's a yellow paste and while it's great for base metals I found it terribly abrasive for the nickel silver radiator - even worse than Auto Sol. I suspect it would



be OK for chrome as that's a harder metal. I did a comparative test and ended up having to use Peek to get rid of the fine scratch marks left by the Airflow Metal Polish. Incidentally, I'm not involved in any way with Peek Polish. I just find it's the best for our cars if you want a high-lustre polished finish on the silverwork.

Some years ago David Else gave me a bottle of 'Q2 Brass Cleaner' - I still have some left, and it's certainly great for the radiator. However I understand it's now no longer available. I am at present involved in the restoration of old clocks, and this includes their wooden cases. To that end I use a soft burnishing cream. It's very gentle on wooden surfaces as it's designed to remove blemishes from highly-polished furniture, French-polished table tops included. I've tried this on the radiator of the 20hp and, whilst it requires plenty of light elbow grease, the end result is absolutely superb - no marks or fine scratches and it's streets ahead of any of the abrasive creams I've used in the past and as good as (if not better than) than Q2. Supplied in a 250ml tin, the manufacturer is Liberon Limited, Mountfield Industrial Estate, New Romney, Kent, TN28 8XU. Tel: 01797 367555 / Fax: 01797 367575.

## THE JAGGERS

**1- Adjusting the steering cross tube**, Newsletter 23: **David Else** asked me to point out that, as-written, the instructions relate to how to do a temporary fix on a rally. The item below states how to do it properly when you arrive home:

To adjust the steering tube more accurately use a bar clamped to the cross steering tube with a hole 10" from the centre of the cross steering tube and a spring balance. For one side it should be 4.5 to 6 lbs for both sides it should be 9 to 12 lbs. If you're lucky enough to have a torque wrench in lbs inches, one side is 45/60 lbs ins and both sides are 90/120 lbs ins.

In later 20hps the cross tubes have spring loaded ball joints and it becomes more complicated as you have to maintain a small clearance (5-15 thou inch) between the ball pad and cross steering tube.

**2- Weak Springs: Chris Tween** is editor of Central Southern Section magazine and owns a 20/25. In the Aug and Nov 2010 editions he wrote interesting articles on his experiences with the jaggers and has kindly given permission to reproduce an extract here. He described the usual suspects, and how he tackled the problem:

Tyre pressures and wheel balance
Oversized and creased inner tube
Spring adjustment in cross steering tube
Spring adjustment in side steering tube (his spring was found to be broken)
Efficiency of shock dampers

Even after all this, his car was still barely driveable. Now Chris takes up the story:

"I had, as a result of driving a 20hp belonging to somebody else, realised that my steering had a curiously lively feel to it in comparison to the 20hp. Having exhausted all the options except the inner tube syndrome, I resolved to drive the car avoiding every manhole cover, every hole and rut etc - not easy bearing in mind the appalling condition of most of our roads! This did have a great influence on, if not a cure of, the problem and I suffered far fewer attacks! It was however a stressful

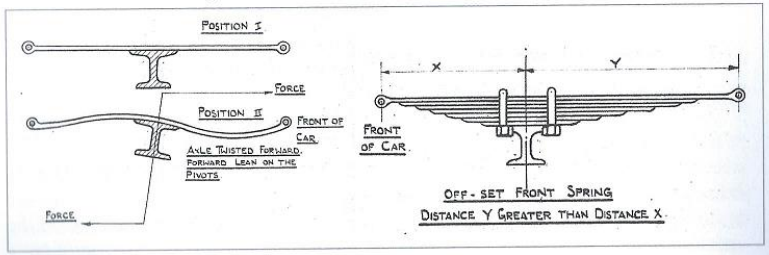
experience taking the car out, and spoilt any enjoyment, particularly on a longer run. When the decision was taken to remove the engine, another tale for the telling, the mechanic who was assisting with its removal made the casual remark: "have you ever had the jaggers"? "Once or twice," I replied, "Why?" "Well," he said, "it looks to me like the front springs have flattened!" "Flattened?" I said. "Yeh, flattened," he said. "Really?" I said, "why do you think that?" What I really meant was what are you talking about?

In a nut shell, he was suggesting that the road leaf springs required re-tensioning. He said that when the car hit a bump or ridge the weakened springs were allowing the front axle to twist. Now, I do not wish to excite any mechanical wizards among our readers and members at this point, so my understanding is that this unrequited realignment causes undesirable responses from the side steering and cross steering tube springs. The springs carefully tensioned as stated, are thrown into utter confusion by this unnatural and unexpected occurrence and in effect fight one another. This causes the wheels to judder left and right, and that movement is transmitted to the steering wheel.

The road springs were removed and sent off for re-tempering, working as closely as possible to the original build sheet specification, bearing in mind the passing of some 79 years of wear and tear. I was very surprised to see that road spring on the driver's side takes account of the driver's weight! Once refitted and now some 1500 miles of road tests further on, not a hint of the "jaggers". However, I do believe that the roads springs, in isolation, would not necessarily have cured the problem."

***

The importance of front spring tension in controlling the steering is fully described in a 1920s RR memo, reproduced in Fundamentals of Car Performance. Of critical relevance to the present discussion, this memo states: *"By far the most important item with regard to low-speed wobbles is the ... castoring angle of the pivots. A castoring angle of 2° is always liable to promote low-speed wobbles."* The memo also discusses how front wheel braking can twist the springs, thus tilting the front axle forward and resulting in an unstable negative castor: *"... if front wheel brakes are applied on a corner and the front axle is not restrained from twisting the springs and giving the pivots a forward lean, the steering will become uncontrollable ... our tests having shown that the (steering) wheel can be wrenched out of the driver's hands ...."* See the diagrams below, reproduced from the book.






This memo explains why the castor angle should always be more than zero but less than 2°, why the axle is nearer the front of the spring, and how spring tension affects castor angle and hence "steerability", especially when braking. The moral is, as Chris Tween found out, your springs might require some TLC and bringing back to strength by an overhaul that includes re-tempering. After 80+ years, they deserve it! You might also check the castor angle, and make sure the correct wedges are between the springs and axle. My front springs were re-built and re-tempered (because of a broken main leaf) soon after I bought GXL 39, and I must say I have never ever felt any steering or braking instability, even on rough or rutted roads.

## SURVIVAL OF THE FITTEST

In 20hp Newsletter No 1 (September 1994) **Ben Grew** published an analysis of the number of surviving 20hp cars, reproduced in Table 2 below. At that time 1,191 were known to exist – a survival rate of 41%.

Ben has kindly repeated this exercise, see Table 1 (the experimental cars are not included in the survival calculation). It is pleasing to note that nearly 100 20hps have been "discovered" during the last 16 years.

1,582 cars were built after late 1924 (GPK) – remarkably 57% are known to survive.

**Table 1 (2010)**

| Chassis | Total made | Survivors | % survived | Chassis | Total made | Survivors | % survived |
|---|---|---|---|---|---|---|---|
| Exp | 11 | 2 | 18.2 | GOK | 80 | 43 | 53.8 |
| **Total** | 11 | 2 | 18.2 | GZK | 80 | 38 | 47.5 |
| | | | | GUK | 80 | 41 | 51.3 |
| | | | | GYK | 91 | 47 | 51.6 |
| G | 100 | 23 | 23.0 | GMJ | 80 | 44 | 55.0 |
| S | 100 | 23 | 23.0 | GHJ | 80 | 40 | 50.0 |
| H | 99 | 26 | 26.3 | GAJ | 80 | 48 | 60.0 |
| A | 100 | 32 | 32.0 | GRJ | 80 | 48 | 60.0 |
| K | 100 | 32 | 32.0 | GUJ | 80 | 48 | 60.0 |
| GA | 78 | 25 | 32.1 | GXL | 79 | 55 | 69.6 |
| GF | 77 | 23 | 29.9 | GYL | 81 | 48 | 59.3 |
| GH | 80 | 24 | 30.0 | GWL | 40 | 19 | 47.5 |
| GAK | 80 | 16 | 20.0 | GBM | 80 | 54 | 67.5 |
| GMK | 80 | 23 | 28.8 | GKM | 81 | 44 | 54.3 |
| GRK | 83 | 19 | 22.9 | GTM | 39 | 25 | 64.1 |
| GDK | 80 | 17 | 21.3 | GFN | 81 | 53 | 65.4 |
| GLK | 80 | 24 | 30.0 | GLN | 80 | 40 | 50.0 |
| GNK | 93 | 27 | 29.0 | GEN | 81 | 54 | 66.7 |
| GPK | 80 | 40 | 50.0 | GVO | 56 | 34 | 60.7 |
| GSK | 80 | 45 | 56.3 | GXO | 4 | 4 | 100.0 |
| GCK | 80 | 43 | 53.8 | | | | |
| | | | | **Total** | **2903** | **1289** | **44.4** |

**Table 2 (1994, reproduced from Newsletter 1)**

| Chassis | No Produced | Survivors | % Survived | Chassis | No Produced | Survivors | % Survived |
|---|---|---|---|---|---|---|---|
| G | 100 | 19 | 19 | GYK | 91 | 46 | 50.5 |
| S | 100 | 22 | 22 | GMJ | 80 | 42 | 52.5 |
| H | 99 | 24 | 24.2 | GHJ | 80 | 37 | 46.2 |
| A | 100 | 30 | 30 | GAJ | 80 | 47 | 58.7 |
| K | 100 | 34 | 34 | GRJ | 80 | 45 | 56.2 |
| GA | 78 | 22 | 28.2 | GUJ | 80 | 43 | 53.7 |
| GF | 77 | 22 | 28.6 | GXL | 79 | 52 | 65.8 |
| GH | 80 | 24 | 30 | GYL | 81 | 43 | 53.1 |
| GAK | 80 | 15 | 18.7 | GWL | 40 | 18 | 45 |
| GMK | 80 | 21 | 26.2 | GBM | 80 | 47 | 58.7 |
| GRK | 83 | 15 | 18.1 | GKM | 81 | 39 | 48.1 |
| GDK | 80 | 18 | 22.5 | GTM | 39 | 22 | 56.4 |
| GLK | 80 | 17 | 21.2 | GFN | 81 | 48 | 59.3 |
| GNK | 93 | 26 | 28 | GLN | 80 | 34 | 42.5 |
| GPK | 80 | 38 | 47.5 | GEN | 81 | 50 | 61.7 |
| GSK | 80 | 45 | 56.2 | GVO | 56 | 30 | 53.6 |
| GCK | 80 | 44 | 55 | GXO | 4 | 4 | 100 |
| GOK | 80 | 38 | 47.5 | | | | |
| GZK | 80 | 33 | 41.2 | TOTAL | 2903 | 1191 | 41.00 |
| GUK | 80 | 37 | 46.2 | | | | |

**Ben Grew**

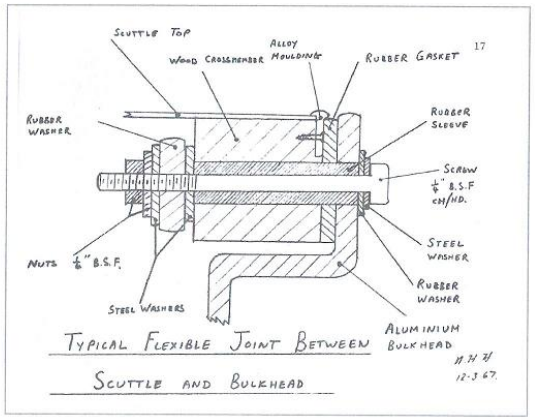
## Do Check your nuts and bolts

**A:- Nigel Tucker** wrote on 18 August: We are taking the 20hp to Picardie in October so that should give the final indication that we have overcome all the latest little problems (see page 27). Ever since we had the car there was an annoying vibration that we could not track down. The other day I noticed that a little brass nut and bolt was missing from where the shroud above the running boards connects with the chassis behind the side mounted spare wheel. Having found a replacement bolt I checked the tightness of the remaining four bolts, only to find that they were not even finger tight. On the next trip out: absolute silence. Funny how little things can give so much pleasure.

**B:- Andrew Sington on scuttle shake**:

Whilst I have always been concerned that there was some scuttle shake on GOK 65, this didn't really surprise me as it's a tourer (T&M). This has also manifested itself in the front doors not closing as they should, and some paint has been removed as the doors rub against the bodywork. I therefore looked at the way the body was connected to the firewall and was surprised to see that only two bolts had ever been used - these being to either side of the top - ie near the top hinge of the bonnet. After investigating various options, I eventually ended up looking at the attachments between the scuttle and firewall. After discussing with various sages it seems there should indeed be only two bolts attaching the body to the firewall. However on Chas Vyse's later 20/25 (another T & M tourer), it appears that T & M had solved the problem of scuttle shake by adding a cowling immediately behind the front seat and using *four* bolts to attach the body to the firewall.






Although GOK 65 only ever had two bolts, four further holes existed in the firewall - these were on both sides down the edge of the firewall, ie below the bonnet side hinges. None of these had ever been drilled through the framework under the scuttle. I used the diagram, left, drawn by Nigel Hughes and published in Bulletin 42, April '67 showing how these bolts are attached to the car. Flexibility is provided by using bolts smaller than the holes, surrounding the bolts with rubber, and using rubber washers under the heads and nuts. My bolts and washers were exactly as shown in the diagram, except that <u>all the rubber bits had perished away</u>, hence the rattling around, and loose fixing of the fire wall to the scuttle. After a trip to Homebase for a packet of bath-tap washers and a visit to my local hardware supplier, I had what was necessary and with the help of Sally, I attached *four* rubber-mounted bolts.

Great news - the doors now close beautifully and scuttle shake has gone!

**Keep Warm**

You can't hold a good man down. **Alan Murcott has now assembled a heater kit**. The heater is the current, improved, version of the circular type fitted to the '50s sports cars like TRs and Austin Healeys but now with copper tubes instead of the original steel ones (see photograph). Hot water is taken from a core plug in the head, and returns to the pipe feeding the water pump. Alan estimates the cost of a kit to be around £495, so if you are interested in discussing the project with Alan:

telephone 01213 533485
email alan@vintageaccessoriesltd.co.uk

**Watford Magneto Logo**

After November 1923 all 20hps were fitted with the Watford RO1 magneto. This was topped by an aluminium plate printed with the Watford


logo, but the painted area is easily damaged and now it is rare to find a good logo. **Tony Hunt** owns GSK 35 whose Watford logo retains much of the printed area. I scanned this damaged logo (left), electronically restored those areas where black paint was missing, and printed the "new" logo on to paper. It was then easy to glue it to the aluminium plate and protect it with a few coats of clear yacht varnish before screwing it back on to the magneto. A photograph of the final result, and a new logo to cut out, are on page 21. Thanks to Tony for lending me his precious logo plate.

## Fixing an Overdrive Problem by Alan Murcott

*[Alan Murcott's car came to a (literally) grinding halt on the way to the Argyll rally last June. Grease monkeys at the hotel pored over the car and concluded that something was wrong with the overdrive unit, but that it would be impractical to attempt repairs there and then, so the car was transported home courtesy of the AA. The following is the story of the investigation as related via emails from Alan.]*

Alan's overdrive was supplied by Ristes about 20 years ago. It was an early design in which the forward short propshaft has a flexible rubber doughnut at the front and sliding splines at the rear, see photograph on page 23. Upon dismantling, it was evident that the female splines had worn to the extent that they could slip (hence the startling grinding noise) and fail to transmit power under high load.

There seemed to be two reasons for the worn female splines:

- Because of the geometry of Alan's chassis (3-speed gearbox), there was only 30mm of spline engagement.
- The metal of the female splines was a malleable cast iron, whereas the male shaft was harder, probably forged or rolled steel.

The solution was:

- Alan bought a new, fully machined, malleable iron casting from Ristes.
- He managed to obtain another 15mm of spline engagement, thereby increasing the engagement to 45mm, which also gave a longer location in the aluminium front tube of the overdrive. He did this by shaving an angle on the spider between doughnut and front cross tube and angling the face of the bolts on the overdrive, which come adjacent to the rear tube. This allowed the overdrive unit to be moved forward.

Alan is confident that, since his original overdrive gave good service for 20 years, the newly-repaired one should last longer than that! **He is concerned there may be other owners with an early doughnut-type unit fitted in a 3-speed chassis. They should examine their splines!** As a postscript, **Stephe Boddice** also has an early Ristes overdrive on his 20/25, and he pointed out that the rubber doughnuts might



tend to tear after some years' use, and replacements are available from agricultural spares suppliers.

## Fitting a Commercial Overdrive Kit, by the Editor

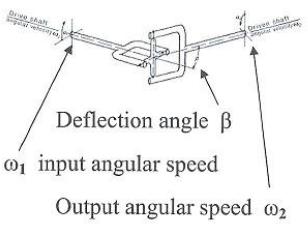
Most commercially available overdrive kits are based around reconditioned Laycock boxes, which were original equipment on many cars and vans up to the 1980s. The rear propshaft is of conventional design with two Hardy Spicer universal joints (uj) plus sliding splines. However, there are several different designs for the short front propshaft which connects the 20hp gearbox to the overdrive box; see page 23 for examples. The different designs all seem to be effective and reliable.

Some overdrive kits, including the new Ristes one, use two Hardy Spicer ujs in the front propshaft. This allows for any mis-alignment between the gearbox shaft and the overdrive box, and also allows for slight flexing of the chassis. Splines can be fitted but are not necessary, provided that the overdrive box is positioned properly; this overdrive box can be mounted using rubber bushes which gives some self-alignment.

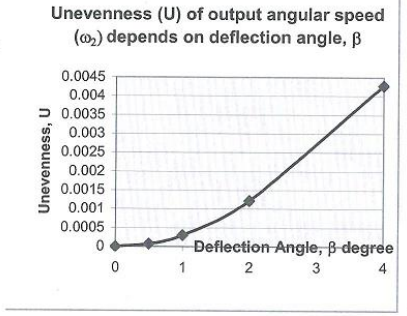
The Tim Payne overdrive has only one Hardy Spicer in the front propshaft, and no splines. The Hardy Spicer allows for slight chassis flexing, but it is essential that the output shaft of the 20hp gearbox is carefully aligned to the front propshaft, with minimum bending of the Hardy Spicer; any significant bend in the Hardy Spicer could result in vibration, as explained below. The Payne overdrive gearbox is suspended by two hangers from a crossbar, with rubber bushes to provide the required small degree of flexibility.

Fitting an overdrive kit is not usually a problem for the practical amateur enthusiast, but must be done very carefully and methodically. Adjusting the fit can take some time and effort (all chassis have their idiosyncrasies). There are reports of vibration from some newly-fitted overdrives when road tested, perhaps caused by imbalance in one of the propshafts, or a misalignment somewhere in the drive chain.

If the front propshaft does have *only one* Hardy Spicer, it should not deflect more than about 0.5-1.0 degree - in order to prevent vibrations. (When measuring uj




Unevenness, $U = (\omega_{2\,max} - \omega_{2\,min})/\ \omega_1$



deflection it must not be forgotten that the 20 hp engine slopes backwards at an angle of about 2°.) A Hardy Spicer is not a constant-velocity joint. With a bent Hardy Spicer, for each revolution of the input shaft the output shaft alternately speeds up and slows down, so there is an uneven output angular speed. Normally this would be compensated by a second Hardy Spicer at the other end of the shaft, but if there is only one Hardy Spicer the uneven output would obviously vibrate the transmission. However the graph on the previous page shows that the unevenness is exceedingly small at low deflection angles. When fitting the overdrive, the deflection angle can be adjusted (minimised) by varying the height of the overdrive gearbox.

When the overdrive is engaged, it draws a continuous 1-2 amperes to activate a solenoid which holds open a hydraulic valve. Power to the overdrive should be wired via the ignition switch, otherwise you could easily drain the battery by parking the car in gear, with the overdrive inadvertently left "on". It is preferable to use a dedicated in-line fuse for the overdrive, rather than one of the existing 20 hp fuses.

**The 90th anniversary** of the introduction of the 20 hp will be in 2012. Here is a report on how they celebrated the:

## 80th Anniversary of the Introduction of the Rolls Royce 20 hp

by **David Davis 42G1 in Australia**

A week-end Rally was held in Wagga Wagga which is roughly midway between Sydney and Melbourne in March 2003 to mark the 80th Anniversary of the introduction of the Twenty.

The event began with a cocktail party on the Friday evening. A convoy of Twentys toured the City on Saturday morning including the Charles Sturt University and concluding with lunch at the Botanical Gardens. After lunch Bob Clarke, our Registrar, conducted a technical seminar at a friend's home where a hoist was available. A photo opportunity was seized to record most of the cars attending which included one from each year of manufacture (see photograph page 20). A Dinner was held on Saturday evening at which Jim Kelso recounted many of the more amusing incidents involving Twentys and more particularly, their owners. Jim recalled that in the early days of the Australian Club the Twenty was not only an interest but also primary transport for many impecunious owners. Goshawk plaques, as fitted to French Twentys, were presented to owners during the evening.

A late start on Sunday entailed a short drive to Lake Albert where the traditional slow races were held, the drivers walking beside their car, amongst much amusement. Due to the narrowness of the road the races had to be held in heats of 2. The Ultimate winner was Ric Thege in GVO 2 which has the most unbelievably low first gear. A couple of large horsepower cars entered into the fun and positively waddled in their attempt to slow race. Following lunch at the Boat Club, prizes were presented for the slow races, popular choice and to me as Rally organizer.

Farewells were made and most departed for home. Full marks go to the Twenty owners who took part, having made the effort to drive the substantial distances



involved, and it is a tribute to the construction of the cars as well as their preparation that only a few minor technical matters arose.

The cars present were:

| | |
|---|---|
| 42G1 | 1922 Diskon & Molyneux tourer. |
| 83K5 | 1923 Smith & Waddington tourer |
| GAK 76 | 1924 Hooper open drive limousine. |
| GSK 34 | 1925 Wilkinson tourer. |
| GYK 47 | 1926 Park Ward saloon. |
| GOK 74 | 1926 Roger Fry skiff. |
| GAJ 26 | 1927 Melbourne Motor Body and Assembly Co. saloon. |
| GKM 60 | 1928 Barker limousine. |
| GXL 36 | 1928 Arthur Mulliner saloon. |
| GVO 2 | 1929 Martin & King roadster. |

Incomplete chassis 75A8 (1923) and GBM 16 (1928) were present at the technical session.

75A8 has been temporarily fitted with a Holden 6-cylinder motor and gearbox to make it mobile for body restoration and has a performance which is unbelievable.

## History of GYK 33, a 1926 20 hp Hooper Landaulette

by Nick and Claire Stow

You may have read the history of our Silver Ghost 33CE; it took many hours of dedicated research to complete. Some seven years ago we purchased from Angela Hart GYK 33, a partially dismantled 20 hp from a barn in Yarm, Yorkshire. We tried to trace the history of Miss Lilly as we called her with no success. From the chassis cards supplied by the RREC we discovered she was ordered by the Car Mart Ltd for William Johnson of Pinkneys Green, Berkshire in 1926 and from the V5 registration form we knew that Angela had purchased the car from Gerald McDunaugh of Liverpool.

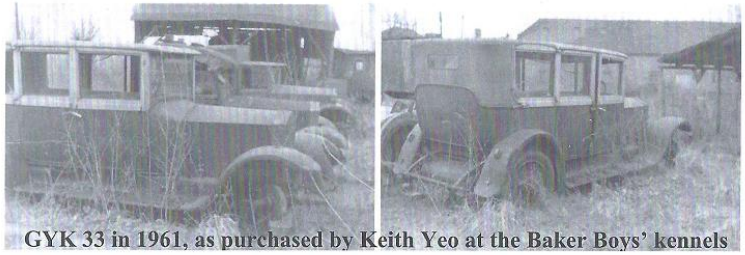
A few years ago our great friend Dr Robin Barnard died; he had been an inspiration to us, helping with the research on the Silver Ghost and advising on restoration. During the disposal of the contents of Robin's motor house, I was amazed to find hanging on the wall behind a board, a 1989 calendar with a picture of GYK 33 on the front - the first clue to add to Miss Lilly's past, see photograph page 17. While returning from a Surrey Section Italian Lakes tour, the rally called in at Mulhouse, to visit the Schlumph Automobile Museum. Looking around the museum's shop, we found a photograph of GYK 33 in a French book, see page 17, again probably taken in the '80s.

Despite several letters none of the known former owners could be traced. Then a stroke of luck - Pat Durnsfold was put in contact with us via the RREC. He had owned 'Miss Lilly' back in 1958 and is now a keen Sunbeam enthusiast. Pat invited us and GYK 33 to a Sunbeam Register 'Bring a Toy' End-of-Season Rally in Alton, Hampshire. The theme of the rally was for members to bring along an interesting item and give a short talk on its history, be it their car, model, music box, cigarette card collection, or whatever.

We were greeted well, and sat down to refreshments in a large old barn. As the members told their stories, it soon became clear what and who were going to be Pat's toy. Pat stood up and told the story of his GYK 33 parked outside, telling the 76 Sunbeam members present how he had found the car parked on a bombsite in Brentford, and paid £85 for her in 1958. At the time he was a student at the Northampton Engineering College, now the

City of London University. He used her in a parade from Regents Park to the City of London, painted with a yellow stripe, page 17. The theme was Vivian Fuchs expedition to the pole, which had just taken place. Pat then presented us with parts that he had removed from GYK 33 all those years ago: two handgrips and part of the motor dictograph for communication with the driver. He also had three wonderful photographs that he had taken during the parade; interestingly they showed Miss Lilly sporting a later radiator and wheels. He sold her for £45 to the 'Baker Boys' of Bucklesberry. Then to everybody's surprise, Pat introduced Keith Yeo, another Sunbeam Register member who had purchased GYK 33 from the Baker Boys in 1961.

Keith continued the story, explaining that the Bakers were two brothers who at the time were very keen enthusiasts; in the '60s they had some 30 Rolls-Royce cars parked in the grounds of some old kennels; see photographs below. They would buy cars, remove parts to restore the most interesting and then break the remainder. Keith paid £35 for GYK 33 with the correct wheels and radiator thrown in. The brothers were only a couple of weeks away from setting fire to the car and destroying her forever. Neville Baker and Keith towed the car to Pampers Heath, to a garage that he had rented. Restoration started, he went to London and bought door keys off a big board from Hoopers. After taking the door handles off and removing the paint with paint stripper, he fell ill with jaundice. The rent for the garage needed paying so with money short, a deal was struck with the garage owner and Keith parted with the car in lieu of rent. Within a few weeks the car was sold and all he had left were the photographs he had taken when he first found the car at the disused kennels. Keith thought he was never to see his car again; he was so pleased to be reunited with her.



**GYK 33 in 1961, as purchased by Keith Yeo at the Baker Boys' kennels**

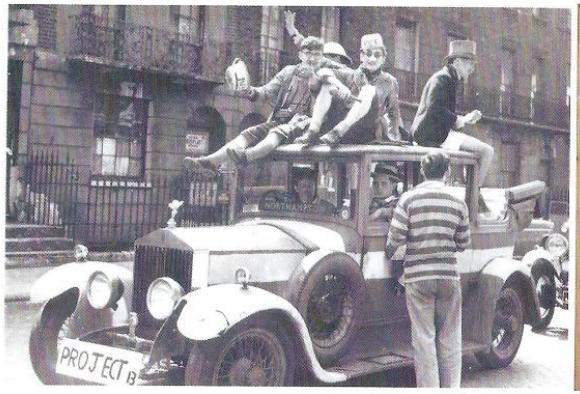
For the Sunbeam members, there was to be another surprise in store - we revealed our connection with Sunbeam. We had worked for 29 years for the late Melissa Marston, granddaughter of Sir John Marston the founder of The Sunbeam Motor Company. Nick told the members how Melissa had been so proud of her family's history, how her father Sir Charles Marston had been to America to see how the Ford Model 'T' was produced. Sir Charles had founded 'Villiers' whose engines had been used worldwide. We then presented to Pat and Keith copies of a book written by Melissa and her sister, Marjorie, called 'Man of Wolverhampton'. The book tells the story of the Marston family, making a splendid end to a wonderful day.

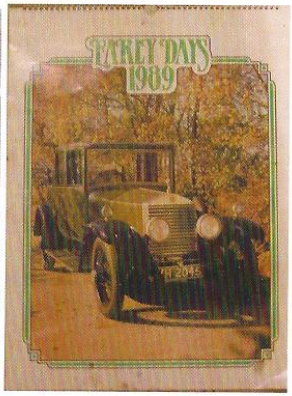
We would like to thank the Sunbeam Register's Members for their hospitality and Pat and Keith for their memories, parts and photographs. Can you help to complete GYK 33 story? Tracing the history of your car can be frustrating, but also rewarding. Especially the Holy Grail; finding those old photographs.

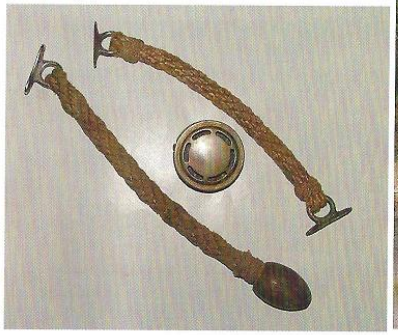


**GYK 33** - in the tender care of 1950s London students, and in the 1980s






**From left**: parts from original car, Keith Yeo, Claire Stow, Nick Stow, Pat Durnsford

## Acquisition of GTM 2, sedanca de ville by windovers

by Gareth and Angela Morgan

Stung by the negligible interest from one's savings these days, my wife Angela and I made a radical decision! Why let the bankers profit on our cash when we could use some to buy another Rolls-Royce? Having owned a Silver Dawn (SNF 63) for 38 years and enjoyed her so much, we thought she would like a stable mate. A vintage RR might be fun. I turned naturally to the website of The Real Car Company, always full of mouth watering goodies. There we found GTM 2, a pretty little car treasured by its former owner, an RREC member, for no less than 43 years. We took off to North Wales to view her with our enthusiastic son Richard. We found her irresistible, painted in attractive indigo blue, black wings, ace discs and a four way divided windscreen. She displayed the patination of age, but at the same time had been well looked after by the previous owner and was crying out for another good home.

I had never driven a car of this age before, let alone used a gearbox without synchromesh. "This will be a steep learning curve", I told myself. We went away undecided and took advantage of a long cooling off period during which I checked daily to see if someone else had snapped her up. But no, she was still there and beckoning to me. So we arranged a second visit to Bethesda to view her, but this time along came my long trusted and experienced engineer Norman Woolfenden whose expertise has kept my Dawn in apple pie order for years. He liked GTM 2 also. I had before this second visit spoken to the previous owner. He lives in the North of England. I was taken by his candour and desire to share GTM's history in every sense of the word with me. This not only gave me confidence but inspired me to buy her. A deal was finally struck and after a few agreed works by the Real Car Company I went to collect her on the 28 September 2010. I was accompanied on the journey home by our neighbour, a 93 year old American, a former KLM pilot, and once the owner of a Derby Bentley. He gave me countless driving tips, and we laughed our way home to Llanidloes, some 120 miles without a problem, in gorgeous sunshine.

Accompanying the car is a wealth of history relating to servicing, overhauls, repairs etc from 1965 to the present day. Tested in 1928, she was delivered to Hoopers the coachbuilders, on 10 September 1928. Hoopers delivered her on 3 November for the Glasgow Motor Show. How I wish I had a photograph of her in that era. Subsequently she was sold to Charles Beard of Cubbington, Leamington, the first owner. She passed through a number of hands until 1939 when she was volunteered for war duty in London and was fitted with an ambulance body. She remained in service throughout the war, but 1946 gave her a new lease of life. Off with the ambulance and on with the Windovers sedanca de ville body number 7556 she carries today. This body came from a 20/25 chassis number GX0 81. What became of the Hooper limousine body number 7094 I wonder, can anyone enlighten me?

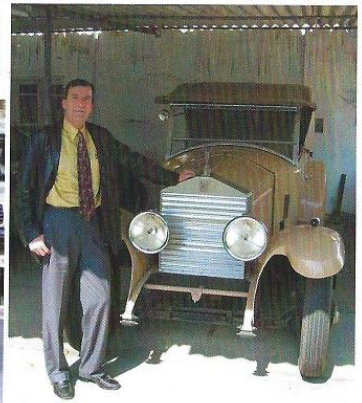
The car came with several files of useful historical information. Adams and Oliver Ltd (I bought my Dawn from them) carried out a bottom overhaul in late 1965 and recorded a mileage of 61,630 on the speedometer in their bill. Was that accurate, or was it 161,630? We shall never know. GTM 2 was then owned by Dr J H Newberry of Kings Lynn Hospital. From thenceforth mileage is meticulously recorded, as is a collection of MOT certificates from 1970 onwards, each recording the annual mileage. The mileage at this moment is a mere 79,400. GTM 2 is proving a delight to own and fun to drive. We have so many adventures planned for her. First we need to be sure that this elderly lady is up to long journeys and possibly a continental tour or two? I hope more will be revealed of her past, and if members are interested, I think there is a sequel to this account that will include some glitches revealed to date, doubtless more to follow, and more adventures we hope.




**Rodney Bisiker's GRJ 35**, recently acquired by Franz Vonier Museum in Austria, see page 25



**20 hps from an Indian car chat website.**
Below is possibly GDK 4, sent by André Blaize



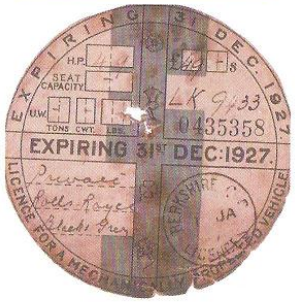
## WISHING YOU A MERRY CHRISTMAS AND SEASON'S GREETINGS

*From the Spain rally group in Bielsa*

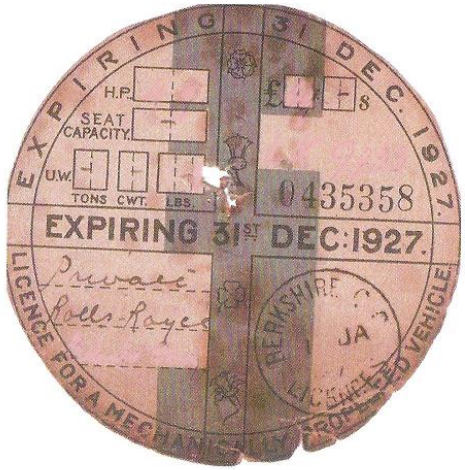
**20hps in Australia to celebrate the 80th anniversary of their introduction**
Wagga Wagga, March 2003, see page 14



## CHRISTMAS CUT OUTS

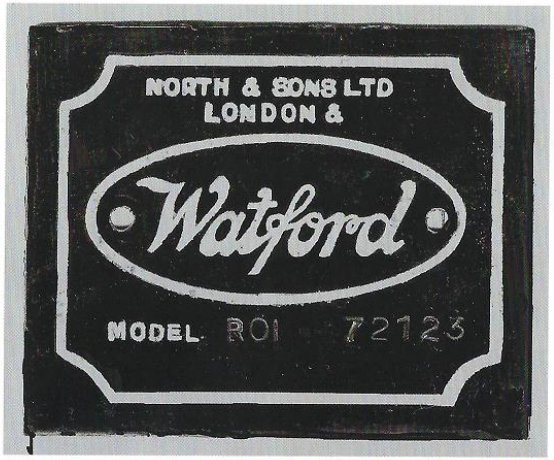


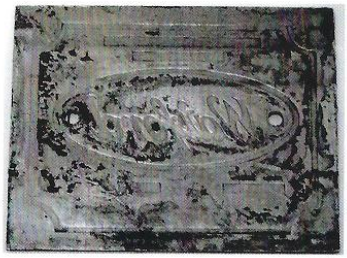

Original tax disc as published in the Bulletin




**Below left:** paper logo glued to aluminium plate and coated with yacht varnish

**Below right:** reverse of original aluminium plate showing embossed logo



**Overdrives: types of front propshafts**

Alan Murcott's 3-speed gearbox

Ristes (early)

Rubber doughnut plus sliding spline


Nigel Tucker's 4-speed gearbox

Nostalgia (later)

Single UJ, no splines

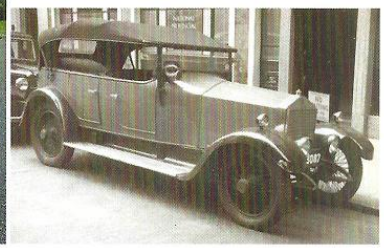
Chas Vyse's 20/25

Nostalgia (early)

Two UJs, no splines


**David Love's 87K1** in the French countryside, see page 35

**Below: GF70** with Grimshaw Leather tourer body. When new, David believes 87K1 probably had similar coachwork. Photograph from Tom Clarke, and also shown in Bulletin 288, page 49





**Rodney Bisiker's GRJ 35,** with further information from Tom Clarke

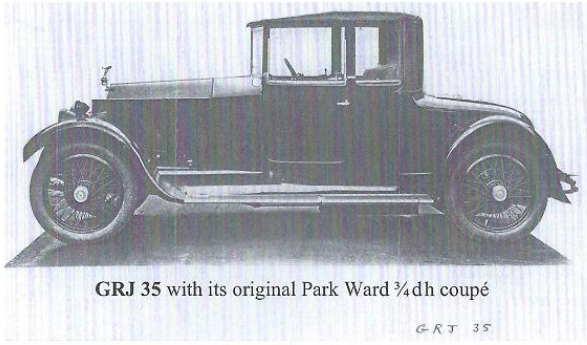
Rodney sent the following, perhaps sad, email:

"My 20hp GRJ 35 (YT 5636) has been sold *(see photograph page 19)*. Sorry to see her go, after having her for 6 months shy of 20 years. We did the Bristol-Bournemouth run a few times, used it for my partner's son's wedding and for my daughter's, as well as the usual play times. However the car was simply not being used enough and although in good all round fettle it needed an owner who would spend time and effort on it.

The new owner is an Austrian whose father started a small collection. He has carried on to now run a museum. He asserted his intention to use the car, and that it would not just be on static display. It has gone to the family Vonier and you can reveal all by going into the museum web site: www.rolls-royce-museum.at/ It was Johannes Vonier and his brother who came over to collect the car. Regrettably I was not here to meet them as I went to the USA that day, but they were apparently very charming and enthusiastic. I hope to keep in touch with them, maybe go to the museum one day. Looking at the web site, it is an eclectic selection of cars and GRJ 35 will sit well beside them!"

*[Having sold GRJ 35, it must be said that Rodney is still able to enjoy classic motoring in his Bristol 405 d/h. The Franz Vonier Rolls-Royce Museum in Austria is well known to many RR owners; in particular it has an amazing collection of Derby Phantoms. GRJ 35 has had an interesting life and Rodney sent details. It was rebodied by Southern Motor Co in 1937, and note that the extensive restoration carried out by Woodall Nicholson in 1978-80 cost £25,000. By comparison, for £50,000 you could have bought a brand new Silver Spirit or Mulsanne in 1980.]*

**Rodney writes:** "As always it is a small world: after we bought the car I started to research its history in more detail and, as I was born in Huddersfield, was intrigued by Woodall Nicholson of Halifax where I still have friends. I found they had gone out of business but tracked down an elderly gentleman who had worked for them. He remembered the car, and its arrival at the works in crates, with amazing clarity. Also he sent me a copy of the Coachcraft Ltd drawing of the bodywork for Southern Motor Co, but sadly he never got down to the West Country to see the car again after I acquired it.




**GRJ 35** with its original Park Ward ¾d h coupé

It had gone back to America to be used, he thought, for a wedding. Thereafter it hardly seems to have been used at all until coming back to the UK for Mr Bouchier who lived near Marlborough. He kept the car for hardly more than a few months until Dave Norton and I bought it. There's plenty more to tell!"

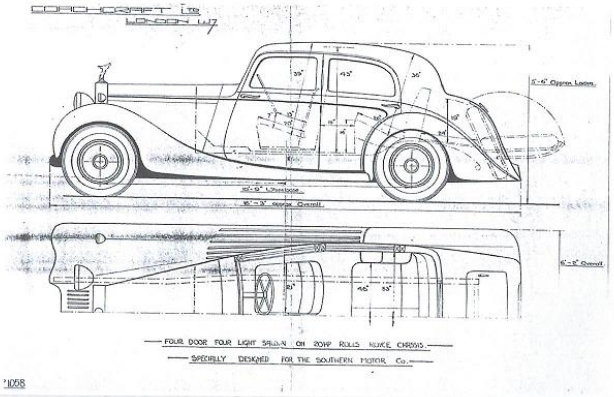
Supplied new on August 27 1927 with Park Ward Three Quarter Drop-head Coupe coachwork, and finished in scarlet orange with black wings, this 20HP's first owner was a Miss Daisy L Longstaff of Putney Hill, London. Ten years later chassis GRJ 35 was purchased by the Clapham based Southern Motor Company, a well known specialist in the fitment of new style bodywork, usually supplied by Coachcraft to updated Rolls Royce chassis. Smart and rakish and reflecting the very latest of designs, and fitted with a 20/25 model radiator in order to give it as up-to-date an appearance as possible, foursome coupe, tourer and four door saloon bodies were available, and it was the latter that was chosen for GRJ 35.

Several decades later the car had passed to an owner in America and it was from there that it returned to Great Britain for a comprehensive restoration by Woodall Nicholson between 1978 and 1980, the cost of which totalled some £25,000. The extensive renovation of the coachwork included the fitment of new sections to the ash body frame, new steel bulkheads, new aluminium panels in place of damaged or corroded sections, a new roof panel, new windscreen pillars, new steel wheel arch panels, new aluminium rear wings, repaired front wings, stripped and repolished interior wood trim, refurbished seat squabs, new grey Connolly hide trim, new headlining and rechromed bright-work. Prior to all of this, other work included renovation of the petrol tank, completely overhauled braking system and suspension, new electrical wiring and rebuilt engine with a reground crankshaft, new cylinder sleeves bored to accept standard size pistons, new valves and valve guides, a new radiator core and stainless steel exhaust system.

Finished in black over Dove Grey with black wings and a gold coach line, GRJ 35 returned to America in 1980 where it remained before returning once more to Britain in 1991 with its present owner who has continued to keep the car in top order.

**Above**; extract from the sales literature when Rodney Bisiker purchased GRJ 31

**Below**; body plan sent to Rodney (original white-on-dark, here reversed for clarity)





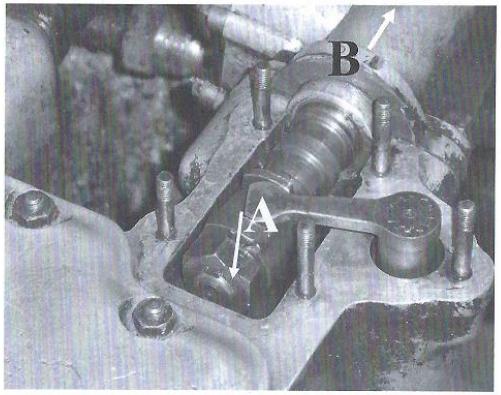

**Tom Clarke** is very interested in the information supplied by Rodney and mentioned that John Dyson is a Coachcraft historian and is writing a book about the company. Tom emailed:
"I wrote a history of Woodall Nicholson for Flying Lady in the US, and Praeclarum in Australia. A Club member who worked for Woodall was Ivor Aspinall and he was very helpful with my researches. He never told me that he had worked for Coachcraft; perhaps a different worker at Woodall once had.

Even so, I can't quite understand what is going on: GRJ 35 was a *Ranalah* re-body for Southern, not a Coachcraft re-body, although both coachbuilders did virtually identical bodies as requested by Southern. GRJ 35 went to Woodall Nicholson many years later (in crates, i.e. dismantled) for restoration, not for Woodall rebodying, obviously. It was, therefore, only 10+ years later - when Rodney was researching the history of his car - that he found the worker at Woodall Nicholson who remembered the restoration and who, by coincidence, also happened to have a Coachcraft drawing that looked like GRJ 35. Could this be a reasonable interpretation?"

## Worn Gear Shaft by Nigel Tucker

I had problems with gear engagement after the clutch was relined, and tracked it down to the remote shaft. The funny thing was I never noticed it before the clutch was done. However when the small cover on the gearbox above the selector arm was removed the problem was evident. Movement in the shaft meant I was trying to engage two gears at the same time so I had to lift the gearlever to get 3rd and 4th.

I removed the whole remote assembly once I had determined that the selector shaft, **A**, which drops vertically from the end pictured did not always line up with the selectors in the box. If, with the top removed as pictured, you pull the gear lever upwards, you can see if there is movement of the selector arm relative to the selectors.




Having removed the remote assembly, the problem was obvious. The bush at the outboard, **B**, end had worn oval in the vertical plane and there was corresponding wear on the shaft at the bottom where it passes through the bush. It was this movement which caused the selector arm to try to select two gears at the same time.

The only answer was to build up the shaft with weld, and machine and polish it back to standard. Then we made a new bronze bush at the outboard end. (It is not possible to use an undersized bush, because the shaft has to pass through it on re-assembly.) I then reassembled the whole thing with a magic lubrication paste and new gaskets which I made. The result is that at rest the lever sits squarely in the gate between the gears, so one actually has to move it to left or right to select any gear. Gear selection is now so smooth and positive that it is undoubtedly the best gear shift of any of my cars. Real Rolls-Royce standard, one might say. Total cost for welding and machining was just under £130 and well worth it from the result.

When you think about it, changing gear with a right hand gear change one tends to push down on the gear lever as you move across the gate to get third and this is where the wear takes place. I find with a central change I tend to lift the gear lever as I move it around.

*[Ed: when I was learning to drive in the early 1960s, my father taught me to grip the gear knob with finger tips only - not to wrap my fingers round it and certainly not push down with the palm! The 20hp gear lever is easily operated by the finger tip method, and this might prevent the wear pattern seen by Nigel.]*

## Renewing the petrol gauge float on my Rolls-Royce 20hp, GCK 40

by Malcolm Crump (a non-engineer!)

*Malcolm used to own Baden Powell's GVO 40 'Jam Roll' which went to Ben Grew, and is now back with the scout movement who formed a charity, B-P Jamroll Ltd, currently working with the Rolls-Royce Heritage Trust to restore and preserve it.* http://jamroll.org/

I found that the original wooden float on my petrol gauge would not work with today's petrol. I made a replacement from a "Cava" bubbly cork but, despite my best attempts to seal it, after two years it became saturated and sank so I resolved to do a proper job. The following notes assume that the gauge is the type that operates on the same "crown-wheel and pinion" principle as a hand drill and bit, whereby the float corresponds to the turning handle and the spindle operating the needle rotates like the bit. The float is located on the end of a thin wire swinging arm which is bent through 90°.

**Removing the gauge from the petrol tank**

Unscrew the cover and remove the glass and gaskets. Carefully remove the circlip holding the enamelled dial in place. Gently pull the needle and shaft outwards to create the necessary clearance to tease the dial out from under the needle. (The needle should move out by about 1/8th inch and you may have to wiggle it to and fro sideways in order to free the pinion on the crown wheel.) Hold the needle in this position and slide the dial, and then the thin brass plate underneath, over the needle. Unscrew the three cheese headed screws and store all these bits in a safe place.

You are now ready to remove the gauge and there are two obstacles to negotiate. The first is to guide the float through a hole in one of the baffles in the tank.

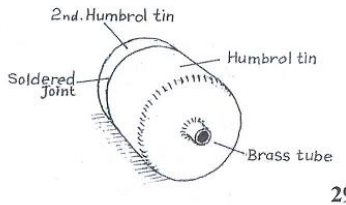


Remember, you are now in the company of dangerous petrol fumes! You will probably have to move the float into a suitable position by turning the needle to operate the gauge mechanism. If you then pull the needle outwards as before, this will lock the arm holding the float in position. (I wonder who at RR thought that one up?) Once the float has passed through the baffle plate the whole gauge mechanism can be drawn upwards towards the exit. The second obstacle is caused because the cylindrical float sits at right angles to the swinging arm and is longer than the diameter of the exit hole. It cannot be extracted until the whole mechanism is turned through 90° and the diameter of the cylinder is concentric with the exit hole. With the mechanism removed you can now concentrate on replacing the float. (Don't forget to remove the torch from the petrol filler.)

**Making and replacing the float**

Undo the tiny screw and washer and remove the old float. Replace the screw and don't lose it! Measure the length of the right angled wire in order to determine the length of your new float. Mine needed to be 30mm overall which meant making a 29mm float leaving ½ mm overlap for each end of the tube that runs through the middle. In order to make the biggest float possible I dispensed with the washer and even filed the shoulder off the inside of the nut. This gave me an extra 2mm (7.5%) and believe me you need all the volume you can get for buoyancy. And now for the bonus discovery suggested by my wife to my eternal embarrassment!

A small "Humbrol" enamel paint tin is the perfect diameter and two will make your float. First remove the plastic label around the tins and then soak them in hot water to remove the paper label on the base. Empty and clean out the tins with white spirit and replace the lids to give them strength. Gently nip the body of the first tin horizontally in a vice with the rim protruding beyond the edge of the jaws by the width of a junior hacksaw blade. Make a cut until the saw has entered fresh air in the tin. Rotate the tin in the vice and make another cut leaving some metal in place between the cuts to retain the tin's strength. Repeat this process until you have 4 or 5 cuts around the rim. Carefully join up the cuts and remove the rim. Hold the can upside down and smooth off the cut edge by rubbing it with a circular motion on some coarse emery paper on a flat surface. You now have one "half" of your float which should be 25mm long. You now need to make a second "half" of sufficient length to make up the desired size of your float plus 3mm. The extra 3mm is because you are going to force the shorter half inside the longer half and squeeze them together until the correct overall length is achieved. Use the same cutting technique as before but make a guide for your saw cuts by wrapping a piece of electrical insulating tape around the tin.




In order to fit two identical tins together in this way you will need to "bell" slightly the end of the larger half and file down slightly the outer edge of the smaller half. The filing is easy but the "belling" needs more care. Using the consummate skills of an arts graduate, I chanced upon a Whitworth

socket with a T-bar end that fitted snugly inside my longer tin. (It has to be the longer tin to accommodate the socket during the next operation). Using the vice, gently squeeze the longer tin along the T-bar end of the socket until it rides up the progressively wider diameter of the convex curved shoulder leading to the "nut" end. Do this very carefully, alternatively tightening and releasing the vice until sufficient widening of the end of the tin has been achieved. Carefully coax the filed end of the smaller tin into its larger mate and then squeeze them together using a hand held B&Q "Kwik-Grip" with rubber jaws until a 2mm overlap is achieved. Once you have mated them securely, transfer the unit to the vice and squeeze it to the required length. (If your vice jaws are narrower than the diameter of the end of your float, insert suitable pieces of wood to spread the load, otherwise you might damage the float ends.) Do not solder them together yet.

You now need to obtain a length of small diameter brass tube. An o/d of 3mm is ideal but the smallest I could find was 4mm o/d from B&Q. You want the smallest (lightest) tubing that will do the job. Drill a 1.5-2mm hole in the exact centre of each end of the float. At this stage the holes are merely to relieve the air expansion inside the float caused by the heat of the soldering iron. Thoroughly clean the exterior of the float around the join of the two halves and around the two holes. Apply flux to these areas and then solder the joint and "tin" the ends of the can around the holes. Measure the o/d of the brass tube and enlarge the holes using progressively bigger drill bits (or a round needle file) until the tube can be inserted though the float with a tight fit. Make the tube 75mm longer than required at this stage to facilitate handling the assembly (with a glove!). Before finally inserting the tube, clean the surface thoroughly with wire wool. When it is in place smear flux around the points of contact with the float ends and "sweat" solder the tube to the float to make the unit airtight. Now cut off the excess brass tube and gently file the ends until they are just proud of the float.

Finally, check the float for leaks in a bowl of water and reassemble it on the gauge arm using Loctite on the tiny nut. Replacing the gauge in the tank is a reverse of the procedure used for its removal.

I hope that the above proves useful. Good luck!

## **A Rewarding Experience** by Jane Else

### 20hp Register Rally to the Spanish Pyrenees, May 2010

Tom Jones' expedition to the Spanish Pyrenees was for those who like a challenge. The reward was an action packed journey along remote roads with little traffic, through an outstanding landscape of infinite variety with interesting stopovers en route to our final destination, the Parador Bielsa, at 1,000m in the Spanish Pyrenees. Twelve 20hps, five 20/25s, a Phantom I, a 3½ litre Bentley, a Mark VI Bentley, a Silver Shadow II, a Silver Spirit II and a Silver Seraph rallied to the call and assembled at Plymouth for a very pleasant crossing to Santander.

Having disembarked from the 'Pont Aven' we had an approximate two hour drive to our first night's stop at Limpias, a fishing village on the River Asón. We approached the 19th C Parador de Limpias, an impressive palace set in woodland on the Eguilior Palace estate, through a monumental gateway to be met by Spanish Section Secretary Mario



Hernáez. During the reign of King Alfonso XIII (1886 - 1931) it was the most important building in the area, some of his ministers' councils being held here. At dinner Tom welcomed us all mentioning in particular the Webbs from California and the Middletons from South Africa who presented him with a vuvuzela which would have been more reliable than a mobile phone in some places!

The following morning we set off on the 115 mile drive to Laguardia through the forested Cantabrian landscape of rocky limestone outcrops and lush green river valleys. Having reached the summit of the Alto de los Tornos with its panoramic views across the Valle de Carranza we travelled on through countless little villages to Briviesca where we turned in an easterly direction along very straight roads to Haro and the vineyards of the Rioja region following the course of the Ebro, Spain's longest river. Just before Logroño, we crossed the Ebro at Lapueblo de Labarca and after a few miles Laguardia, perched high on a hill, came into view.

Once we had checked in at the Villa de Laguardia situated below the walls of the 13th C town, we went up to explore. A walk along the Calle Mayor brought us to the Plaza Mayor with its arcades and musical clock attached to the wall of the Town Hall. At five o'clock it burst into life with little figures dancing the 'passacalla,' the traditional dance of Laguardia's festivals. This medieval town cannot have changed much since the Middle Ages retaining its historic walls with five entrance gates, narrow streets bordered by old houses with family shields and balconies, the 14th C church of Santa Maria de los Reyes and the 13th C tower to defend the town. During that time residents dug deep into the rock below their homes to create places for food storage and refuge during a siege. When wine production became prominent in the region these underground passages were found to be ideal for the fermenting of wine. It isn't surprising that owing to the undermining of the town, cars are not allowed within its walls. Returning to the hotel we found the Press had arrived and in no time Chas Vyse was giving a lengthy interview, a young lady reporter was in the passenger seat beside Graham Moore, and David Else was demonstrating the smoothness of the engine with a coin balanced on the radiator. No visit to the Rioja region is complete without a wine tasting so before dinner that evening we went down to the well-stocked cellar for an informative talk and to sample their wines.

Two nights at Laguardia allowed us to explore the Rioja region and drive over the Sierra de Camero Nueva. While some took the route over the Peña Hincada (1,412m), others with an insatiable appetite for going that bit further and higher took the route over the Puerto de Montenegro (1,580m) with snow and rocks brought down by the melting snow along the road. We returned to Laguardia via the Iregua valley. Light was fading and torrential rain came down adding not only to the fast flowing river on our right but also to the awesome atmosphere created by the massive reddish coloured boulders and great rock faces fashioned by the elements and rising to 500m.

Next day we set off on the 130 mile drive to Jaca, where we spent four nights. The Real Hotel was close to the town centre so ideal for having a guided tour of its well preserved pentagonal 16th C citadel and visiting Spain's oldest Romanesque 11th C cathedral with its Episcopal Museum containing Romanesque and Gothic wall paintings from village churches in the area. Being based at this gateway to the Pyrenees, we had the opportunity to drive through some stunning scenery and visit places of interest in the surrounding area. Our first tour took us across the Sierra de San Juan de la Peña, along an uneven road where the pine forests revealed the large cocoons of the dreaded hairy processionary caterpillar to be avoided at all times on account of its lethal capabilities. Having followed the stunning blue-green Gállego river and crossed the Peña reservoir we came to a narrow valley with massive cliffs of puddingstone, red ochre in colour. Standing like the ruins of an imaginary city, they are called Mallos. To our left the small village of Riglos was

dominated by these large sugar loaf formations carved out by erosion. An even more spectacular sight came into view as we diverted from the main road and approached Agüero with its background of Mallos.

From Agüero we returned to the A132 and drove up the steep winding road to the Castillo de Loarre. Built as an impenetrable fortress in the 11th C by Sancho Ramirez, King of Aragón and Navarra at an altitude of 1,100m, it commands a vast panoramic view of the Ebro depression. Our route back to Jaca took us to another amazing edifice – the Monasterio de San Juan de la Peña nestled in a hollow beneath an immense overhanging rock. The monastery, one of the most important in Aragón in the Middle Ages, was chosen by the Kings of Aragón-Navarra as their burial place for 500 years.

A drive into France was a second suggested tour. We left in sunshine but once at the summit of the pass between Hecho and Ansó we could see ominous clouds sweeping across the Pyrenees. Undeterred we pressed on through the wooded Ansó valley, between tall cliffs to join the Valle de Roncal. The weather was deteriorating and the first signs of snow apparent. In no time we were in a full blown blizzard and turning back was not an option until within a stone's throw of France we were met by a sizeable amount of snow being pushed along by a snow plough. Police advised us that the road ahead was blocked. We managed to squeeze past the obstacle, miraculously do a three point turn and head back to the Roncal valley warning others on their way to turn back when they could.

We set off in glorious weather on the final stage of our journey to Bielsa. Our route took us over the winding Cotefablo Pass (1,423m), through tunnels carved in the rock and past abandoned villages along the Ara river. From a lay-by on the road we looked down on the remains of the medieval village Jánovas. A dam project begun in 1951 enforced the inhabitants to leave by dynamiting empty houses. Many refused to go and were cruelly treated by the company which wasn't sure that it would be profitable anyway. By the sixties the project was abandoned. In 2001 as a result of European Legislation the project was dismissed and finally cancelled in 2005. We skirted the hill on which the old town of Ainsa was built and followed the Cinca river. After Lafortunada, the hydroelectric town, we came to the Congosto de los Devotas (Gorge of the Devout), a narrow gorge with stunning high rock walls and caves, a place which goes down in history as a spot where the Republicans ambushed the Nationalists in the Spanish Civil War, an incident which led to the bombing of Bielsa in 1938. Having reached Bielsa we climbed up above the town to take the road along the glacial Pineta Valley.

The drive along this valley with its snow clad mountains, woodland, sparkling Pineta reservoir and Cinca river was breathtaking. At the end of the road stood the Bielsa Parador with its views of the great Monte Perdido (3,355m), the third highest mountain in the Pyrenees. We spent five nights at this haven of peace and tranquillity where red squirrels and marmots foraged for food and where the silence was broken only by the sound of cowbells, birds and the rushing river. The energetic walked the trail behind the tiny chapel of Our Lady de Pineta through a wide variety of trees up the steep path to the meadow. We were given suggested tours of the area which presented even more exciting driving. The steep road with sharp hairpins to Tella and Revilla really took our breath away. A shot of caffeine was required before we drove any further. The dolmen which we saw to the left of the road as we approached Tella was evidence of the area's prehistoric links.

Bielsa is just four miles from the French border but our plans to visit our neighbour were thwarted again. It is necessary to make the journey via the 1.9 mile long tunnel which was closed to traffic owing to maintenance work. As an alternative tour some of us took the route from Ainsa to Benasque. This involved the drive through the Esero valley and the Congosto de Ventamillo, an awe inspiring narrow gorge about two miles long with sheer



limestone rock walls. The road has not changed since its original layout in the early 19th C. Being a main road it is used by buses and huge articulated lorries which come round corners on the wrong side owing to protruding rocks. It was not as pleasant an experience as the fantastic drive through the Desfiladero de Vellos which had a one way system in operation and prohibits large vehicles owing to the huge overhanging rocks. This drive was indescribably beautiful with the emerald green water of the river in the gorge below and stalagmites in a cave at the roadside. We drove along this wonder of nature on our way to the old village of Torla, gateway to the Parque Nacional de Ordesa y Monte Perdido. The park is one of outstanding natural beauty, the Ordesa canyon cutting through vast layered limestone folds.

A visit to 11th C Ainsa was not to be missed. Its citadel affords splendid views of the Pyrenees. The arcaded Plaza Mayor is dominated by the tower of the Romanesque church. One euro in the slot illuminated the interior and started a recording of monks singing a Gregorian chant. From the town walls were stunning aerial views of the Cinca and Ara rivers as they joined forces to flow into the brilliant blue Mediano reservoir.

Our time at the Parador was drawing to a close when the 'Decorate the Mascot' competition took place. We all did our bit but Linda Jones, bearing in mind we were in a ski resort, gave her lady some skis and a backdrop of snowy mountains – a worthy winner. A separate prize was given to the best among other cars. This went to Carol Hardman. On the subject of prizes there was no shortage of candidates for the 'Twen T' Cup for good deeds but for the first time in its history, the 'Le Mon Trophy' for a senior moment was not awarded by Ted Kelly, as no one was caught doing something silly that day. At the final dinner in Bielsa, Tina Pascoe read out her humorous ditty to celebrate the rally.

The journey back to Santander began the following morning with a stopover at Olite. The route took us along the A138 from Ainsa south along the bright blue waters of the Mediano and Grado reservoirs, then in a westerly direction across the plain with little hillocks providing bases for isolated monasteries. Scarlet poppies, yellow broom, brown earth and golden stubble added colour to the scenery around us.

Not far from Olite we came to the Monasterio de La Oliva, one of the first Cistercian monasteries to be built by French monks outside France. We arrived at Olite mid afternoon, entering the walled medieval town through one of its gateways. We proceeded along a narrow street to the Plaza Teobaldus where our Parador turned out to be the old part of the Palace, the former residence of the Kings of Navarre. Its beautiful interior and furnishings maintained its medieval atmosphere. A quick walk in the town revealed its interesting sights; the façade of the 13th C Gothic church of Santa Maria with its beautiful Navarra Gothic sculpture, recesses housing the twelve Apostles, the massive stone walls and round towers with slate roofs of the Palace, the Plaza de Carlos III with its houses and the medieval galleries beneath the square.

We took various routes back to Limpias. Some stopped at Pamplona and others visited the Guggenheim Museum at Bilbao where Mario had arranged parking at the Port Authority Headquarters. Our last night in Spain was spent at the same Parador de Limpias. We then departed for Santander arriving at the ferry all present and correct having covered close to 1,500 miles of superb driving in one of the most beautiful parts of the Iberian Peninsular.

There were a few hiccups: punctures, ignition timing and fuel related problems. All were solved. When the Webbs failed to proceed not far along the road from the Bielsa Parador, Graham Moore set off in his 'Twenty' with David to investigate. They discovered his Autovac float was porous and had sunk allowing petrol to be drawn into the inlet manifold. The float was brought back to the hotel where a maintenance man produced a drill and a hole to drain it was made. It was coated with 'Leak-fix' kindly supplied by Graham Bennett. Rob's car could then return to the hotel but he had to do an oil and filter

change, petrol having contaminated the oil. When Simon's bulkhead fuel filter gasket was leaking, David found a pair of shoes, albeit near a bin, and in no time a new gasket was cut from the leather tongue! That's a lesson for the girls. Do not leave anything lying around because 20hp boys are very resourceful.

## Clive Boorman and his Hobby

I bought my first Rolls-Royce in May 1990, this being the year I decided I needed a **Hobby**. I bought a beautiful white Silver Shadow 2 with surf blue interior; the car belonged to a London car dealer named Eric Day and was kept at his home in Lilliput, just outside Poole Dorset. I had 4.5 years with this car - never any problems. I part exchanged this car for a Chinese-Eye Silver Cloud 3 Continental that was owned by Britt Ekland who had lavished money on the car. I had this car for 4 years but during this period I bought a white Silver Spirit. This car was also superb and I kept it for 3-4 years, and during that time I part exchanged the Chinese Eye Continental for a Carmargue of the 5000 series – another great car with no problems.

At this point I had owned 4 different models and ten years had gone by, with me joining the RREC during August of 1992. But during 1999-2000 I asked myself the question "what is it that I wanted from my **Hobby**?" And whilst pondering this question I exchanged the Carmargue for a Bentley Brooklands. I disliked this car intensely but kept it for 2 years and during this time, came to the conclusion that my **Hobby** would be to attempt to own as many types of Rolls-Royce-produced cars in my life time as possible, so I exchanged my Silver Spirit for a Bentley S2, in which I attended the Windsor Golden Anniversary in 2002.

Between then and 2004 I owned three other cars. Then, during April 2004, I bought my first pre war car, a 25/30 GUL 29, a Barker 6-light limousine with division. I was only the third owner of this car - a great car. Then, shortly after, I bought a 20/25 Barker sedanca de ville, white over black. At this time I only had two cars, both pre-war, but then I bought a Bentley Turbo, this made three cars, and then I bought a Rolls-Royce Corniche, making it four cars.

I then exchanged GUL 29 and the Turbo for the 20hp GYK 4 on 22 September 2007, but prior to owning it Ghost Motors mentioned that they had a replacement engine, but that I could purchase the original engine, separately from the owner. Which, as you know (see 20hp Newsletter 21), I did. It resides in the bay window of my lounge.

I ended 2007 owning the Thrupp & Maberly 20hp; a Barker 20/25 sedanca, and a Bentley Turbo. During March 2008 I sold the Turbo and bought an S3, so by Christmas 2008 I owned four cars. By March 2009 I had owned the Barker 20/25 nearly 3 years and decided it was time to change this car for a model that I had not yet enjoyed. At this point **chaos was to ensue**.

I exchanged the 20/25 for a Derby Bentley 4¼. Disaster followed this action, with the purchase of 11 cars and the sale of 11 cars during 2009. By Christmas 2009, I had to reconsider the principle of exchanging a car every 2 years. The aims of my



**Hobby** had to end - I was going into 2010 with 4 cars: a Park Ward 20/25; a Hooper Phantom 2; a Cockshoot Silver Ghost; and a Silver Spirit. Now was a time for reflection.

The dealer I had sold my 20hp to was receiving offers for it, so I made an offer of my 20/25 plus the Silver Spirit for the return of GYK 4 which was accepted. This was during April 2010. Then in July of this year I decided to buy myself a 70th birthday present, a Bentley Turbo RT.

How is that for a balanced set of Rolls-Royce Ltd manufactured cars: a Silver Ghost 1924; a 20hp 1926; a Phantom II 1934; and a Bentley Turbo RT 1997? Having owned models as follows, I do not recommend trying to achieve owning all the chassis types in the short space of 20 years:

| | |
|---|---|
| 1x Silver Ghost | 1x Silver Cloud 3 |
| 1x 20hp, twice | 1x Shadow 1 |
| 1x Phantom 2 | 1x Shadow 2 |
| 3x 20/25 | 1x Camargue |
| 1 25/30 | 2x Silver Spirit |
| 3x 25/30 Wraith | 1x Silver Spirit 2 |
| 1x Derby Bentley 4.25 | 1x Bentley Brooklands |
| 1x Derby Bentley 3.5 | 2x Turbo R |
| 1x Silver Dawn | 1x Turbo RT |
| 1x Bentley S2 | 2x Bentley S3 |
| 2x Bentley S2 | 1x Corniche |
| 1x Silver Cloud 2 | **This totals 31 cars** |

*However, there is yet a postscript:* on 20 November Clive wrote:
I have bought myself the 1923 tourer GA 28. I once mentioned to you I would own an early chassis without front brakes, plus centre gear change. I expect you know the car - I still own GYK 4. *[GA 28 was previously owned by Fred and Joy Kilpatrick in Guernsey, see back cover of 20hp Newsletter 15.]*

## David Love's 1923 Rolls-Royce 20hp Tourer 87K1

*[David has lived in Normandy for 25 years, and will be participating in our Normandy rally next June, see photographs page 24]*

**David writes**: The chassis was delivered to Grimshaw Leather Co Ltd of Union Street, Sunderland, to be fitted with a 4/5 seater open tourer body before being delivered to Mr Featherstone Fenwick of Newcastle-upon-Tyne in September 1923. I believe the original body would have been very similar to (GF70) as shown in Bulletin 288, 2008 *(see photograph on page 24 of this Newsletter)*.

I can find no more record of the car until Mr J A Seccombe of Cirencester acquired the car in 1967 and in the same year the car was mentioned in the RREC magazine as being at that time a 'shooting brake', and Mr Seccombe expressed his intention converting the car back to its original type body; it seems that this work was done by Tony Robinson of North Stables and I would imagine he refurbished the original

Grimshaw Leather body. It appears that Mr Seccombe sold the car in 1974 to Mr Scott Tomlinson; and after that I have record of three other owners up to when I bought the car in 2007.

Since having the car I had to change the Autovac, repair the starter (very costly) and I am currently putting new linings on the clutch; 87K1 still has the original 3-speed centre change gear box and I have to say that we experienced very little problem with taking out the gear box through the front door without even having to jack up the car ... I hope things progress as easily when we put it back in! If any member has any further in formation on 87K1, I would be very pleased to hear from them.

## The Chinn Synchronometer, or "Like a No. 27 Bus" by Jeremy Oates

We purchased GOK 53 many years ago in poor condition. She was a 1926 20hp with no particularly outstanding features. The original owner was reputed to be a Manchester electrical engineer with no interest in bodywork, but very keen on mechanical perfection. On receipt of the chassis, with the instruments still attached to a plank supplied by the factory, he went to the local breakers yard and found a crashed Lanchester 20hp body which was duly fitted (well, fitted in parts) and, with some gas piping added, made a useful, but inelegant, hood frame.

The build sheet, however, mentioned a special feature - a Chinn Synchronometer. The car had had two extra instruments fitted at one time or another - an Autovac petrol meter to measure the flow of fuel, and a gauge showing the vacuum at the Autovac - but no sign of the Chinn and little clue as to what it actually did. Over the years I kept my eyes open, finally finding a W O Bentley owner in America who had one, but who was not interested in discussing its function. I also contacted John Marks of Vintage Restorations, who was rumoured to have one, but he did not return my calls.

The Chinn, before you ask, is a wonderful concept. The first patent application that I can find is 13 October 1919 - see page 37. It combines on one dial a tachometer and speedometer with one "master indicator" pointer, plus three other pointers marked 1, 2 and 3 being "speed indicators".

The tachometer is driven via gearboxes from the engine, in this case from the dynamo shaft. The speedometer is driven from the car's gearbox. With the engine started, first gear engaged and clutch let in, the pointers 1, 2 and 3 should move around the dial. The speed indicator also moves from zero. It creeps up until it completely masks pointer 1 whereupon one can change gear silently with complete confidence into second gear. To reach third gear, the gear lever is brought back to neutral and as the engine de-accelerates the second speed indicator comes directly below the master indicator and - Hey Presto! -you have another silent change.

So far so good, but I still could not find a suitable instrument until John Marks called out of the blue and said that he had two Chinns in very poor condition which he would sell, but only on condition that I saw them first. They were very poorly, but on the basis that any overcoat fits a naked man, the purchase was made - the first two of the No. 27 buses. As each Chinn had to be individually made for the car, to

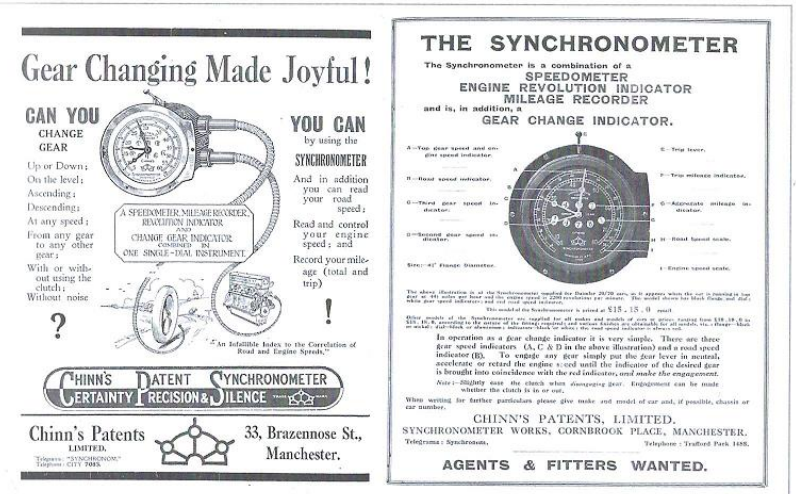


get the ratios right, these were marked "GALLOWAY 11HP" and "Bentley 15hp" respectively (see photographs page 39). A very short time later an advertisement for an automobile auction mentioned a Chinn instrument as one of the lots - the third No. 27 omnibus. This was purchased unseen and with it came a letter. The dial was marked "ROLLS ROYCE 20HP", and the letter indicates that this instrument must have been the one originally fitted to GOK 53, as all the clues - Manchester, electrical engineer etc tie in with the little history we originally had. So, after 50 odd years the original instrument will shortly be re-united with the car it was specifically ordered for, back in 1926.

William Chinn's claims for his invention include "Gear change becomes simple to the veriest amateur, while repair bills for renewal of gears and bearing in the gearbox is considerably reduced." You may wonder why this device did not reach universal approval and I can only conclude that in practice, whilst watching the very small needles hypnotically moving around the dial, the driver would lose any perception of the world outside and would crash the car into the nearest wall.

****

### Contemporary Advertisements and the Chinn Patent




Thanks are due to Tom Clarke who sent three adverts, two of which are shown above. They were published in a Manchester motoring magazine, The Motorist, in October 1926 and November 1927 respectively. He wrote: "Jeremy's article is amazing for showing that the actual original Chinn was recovered. Amazing coincidence!"

Tom also sent a link to the first patent with a 1919 application date (see extracts on the next page) and also sent a list of later Chinn patents. If you want to download the whole 1919 patent, the Editor can send the link, or email you the patent as a pdf file.

[Second Edition.]

# PATENT SPECIFICATION


158,935

*Application Date : Oct. 13, 1919. No. 24,976/19.*

*,, ,, Jan. 22, 1920. No. 2027/20.*

*One Complete Specification Left : June 11, 1920.*

*Complete Accepted : Feb. 14, 1921.*


PROVISIONAL SPECIFICATION.

No. 24,976, A.D. 1919.

## A Synchronized Change Gear Indicator.

I, WILLIAM CHINN, of 22, North Gardner Street, Hyndland, Glasgow, Scotland, Automobile Engineer, do hereby declare the nature of this invention to be as follows :—

This invention relates to a synchronized change gear indicator and has for its object to provide a visible means of ascertaining when the periphery speeds of engaging gears or clutches in an automobile gearbox, synchronize, so that such gears or clutches can be engaged quietly and without shock or stress to the engine and transmission gear.

In carrying out my invention, I provide an apparatus which depends upon and works in conjunction with the relative speeds of the cardan or propeller shaft or other revolving part dependent upon the cars momentum and the layshaft or constant running shaft.

The apparatus consists of an instrument containing a number of indicators or pointers, one of which travels, according to the cars momentum irrespective of the engine speed. This indicator is called the master pointer. The other indicators are dependent for their movement upon the lay-shaft speed, and their travel varies according to the periphery speeds of the engaging gears attached thereto.

The indicators can be operated by magnectic, electrical, mechanical or other means.

To engage any gears therefor without noise or shock, the pointer corresponding to the gear to be engaged must be brought directly beneath the master pointer, when the gears will be running at a synchronized periphery speed.

Dated this 11th day of October, 1919.

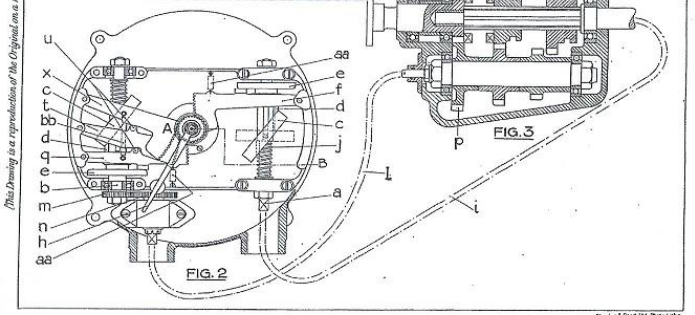
JOHN LIDDLE,
154, St. Vincent Street, Glasgow,
Chartered Patent Agent.

158,935 COMPLETE SPECIFICATION

3rd Edition

Figure 2, Sheet 1, is a plan view with dial removed showing the general arrangement of governors and indicators, the left half showing a section of the ball bearing housings for the governor spindle.

Figure 3, Sheet 1, is a section of a three speed selective type gear box, showing the flexible drives from the layshaft and the final drive shaft.



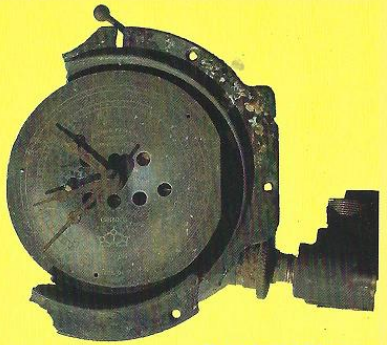

[This Drawing is a reproduction of the Original on a reduced scale]

Charles & Read Ltd. Photo Litho.



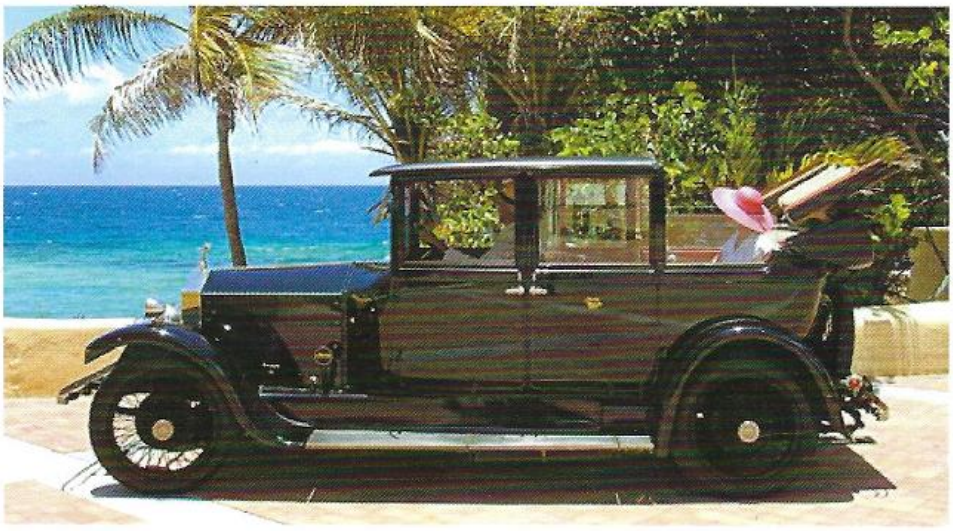
## Chinn! Chinn! Chinn! Three Rare Synchronometers

GALLOWAY 11 HP



Bentley 15 hp


ROLLS-ROYCE 20 HP



GUK 44 Hooper Landaulette

# Caribbean Adventure
# Year-Round Summer

Experience the historic setting of the Avila Hotel. Going back in history was never easier. Relax and unwind in this elegant beach property with timeless hospitality and a Caribbean smile.

The Avila Hotel incorporates luxurious accommodations, attentive service and fine cuisine in an exotic atmosphere.

A warm welcome is extended to the members of the 20 hp Register of the RREC.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