

## Featured Engine No. 43

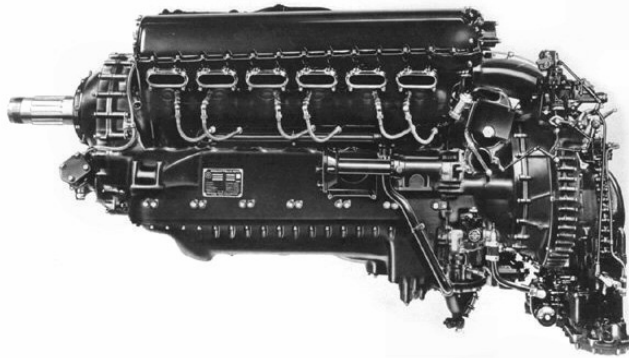
by Kim Siddorn

### Rolls-Royce "R" engine

*Several people were very kind about my presentation about Roll-Royce piston aero engines at the April club night, so I thought I'd split the text into several parts so that all our members can see it – Ed.*

The Schneider Cup seaplane races gave aircraft and aero engine manufacturers an opportunity to build aero engines of particularly high horsepower, although they only had to stay together long enough to win. A 900bhp Napier Lion W12 "broad arrow" engine powered the Supermarine S5 with which Britain won the 1927 race at 281 miles per hour. Mitchell thought the engine had reached the pinnacle of development, as it was direct drive to the prop. The delicate little seaplane needed something altogether more powerful and Mitchell approached Royce directly to see if he could use the new "R" engine then being developed as a private venture for racing. The airframe was lengthened, strengthened and modified and the 37 litre engine was fitted. It had shown 2,800 bhp on test and ran on a chemist's nightmare of some petrol and a lot of very noxious – and excruciatingly flammable – chemicals!

The S6 – referred to at the time as " ... a very large engine hotly pursued by the remnants of an aeroplane" - won the Schneider Trophy in both 1929 and 1931. It established a new world record of 400mph and was used in a succession of land, air and water record breakers in the 1930's.



Just 19 engines were built and many early engines never left the Rolls-Royce test shop. They led a short and glorious existence & went from one glory to another until they expired. A few others still exist around the world – who, after all, would scrap a Rolls-Royce racing aero engine? The one shown above is a factory photo of the engine (serial number R27) that won the Schneider Trophy in '31. It went on to be one of TWO "R's" used in Capt George Eyston's 7 ton, eight wheeled record breaking car "Thunderbolt" in '37 & '38. It was producing 2,530bhp on the record breaking run but had previously been tested at 2,783bhp on test. The other "Thunderbolt" engine is in the RAF museum at Hendon, R37 from Campbell's K4 incarnation of "Bluebird" is at Filching Manor Motor Museum & R27 can still be seen on display at the Science Museum in London.

The "R" was developed from the Buzzard but actually bore little resemblance to its venerable ancestor. It has its capacity & a few other features in common with the latter Griffon.

Rolls-Royce development policy was pretty empiric. An engine was built and run over a increasing number of hours at increasing load until something broke. This was modified – possibly several times – until it was robust enough to give no trouble. The engine would continue to be stressed for longer and longer periods until it was felt that a Type Test could be performed. A BHP figure was set and



the engine run through various evolutions of boost and then run at a sustainable output for a given number of hours. This became the Rated BHP for a production engine resulting from the development. The R caused no end of difficulties on test and the experience gained in development techniques was to prove extremely valuable in Merlin development. It pointed a clear path to the future, but it had a very short operating life and relied on costly and highly specialized fuels. Rolls-Royce now faced the challenge of building engines of similar power that could achieve long life while burning conventional aviation fuel.

By 1932 it was becoming apparent to Rolls-Royce that Kestrel was coming towards the end of its development life, although it was then their best-selling engine. A decision was made by Sir Henry Royce to develop a new engine, the PV12. (Private venture, development initially entirely funded by Rolls-Royce) It would follow the V12 configuration and geared supercharger of its predecessors, but was of 27 litres swept volume. It was anticipated initially that this engine would be able to reliably deliver around 1,000bhp and, indeed, the Mark II was easily producing 1,080bhp in early marks of Hurricanes. Steady and single-minded development brought this to 2,600bhp in the Mark 130.

When in October 1933 the Air Ministry agreed to finance the development, it was named "Merlin" in the company's birds of prey series of military engines. It was a most fortuitous name for – as things turned out – this Merlin truly was a wizard.

3 meetings at the Court Hotel have been down on the usual numbers attending, is there a reason for this? I would like to know. I would like a good entry of engines for the **Mini-Rally at Haynes Motor Museum Sparkford** on Sunday 1<sup>st</sup> August. No entry forms, just turn up on the day. Enquires ring me on 01749 342671. Other exhibits, cars, motorcycles, static displays etc also welcome.

### Calendar of Events

Key. Event – E. Club night - CN

Sat 4<sup>th</sup> (only) Carnival Country Fair in Trowbridge Park, Contact Eric on 01225 754374

Sept. 18<sup>th</sup>. **E. Camerton Village Day.**

Sept 27<sup>th</sup> **CN Quiz Night**

Oct 9<sup>th</sup> **CN. Skittles & Supper Evening**, South Parade Club, Frome. Phone Diane Davis 01373 464982

Oct 17<sup>th</sup> **E. Robert's Open Day.**

Oct 16<sup>th</sup> **E. Vintage Sort Out** at Cranmore station yard.

Oct 25<sup>th</sup> **CN.** Guest Speaker, Roger Fowler.

**The Burnham-On-Sea rescue hover craft**

Nov 13<sup>th</sup> **E. Enstone Sort Out**, Oxfordshire

Nov 29<sup>th</sup>. **CN.** Guest Speaker:- Martin Phippard.

**Carara Marble Extraction**, Italy. Illustrated

Dec 5<sup>th</sup> **E. Crank up** at Nunney Catch

Dec 27<sup>th</sup> **E. Mince Pie Crankup**:- Court Hotel

**Dates and venues may change. Check before driving!**

### Chairman's report (*printed as received*)

By Brian Baker

The annual rally at Semmington this year on June 20<sup>th</sup>/21<sup>st</sup> was a credit to Eric and the rally committee who worked really hard to plan it and put it on. All the sections were up on numbers compared to last year, the trade stands were doubled as were the number of paying visitors through the gate. This resulted in a nice profit for club funds; I won't go into lengthy details as a full report by Eric will be published in the newsletter. The monthly meeting at the Court Hotel on the 28<sup>th</sup> June had a "Hobbies Evening and a Guess the Object" theme as the nights entertainment. There were five members in the hobbies contest, Eric Gay brought along a very nice model steam engine, Kim our editor had items from his Viking display including how the Vikings made silver coins, Michael Jennings had a couple of model boats he had made, Henry Baker had a display of 75 model ice-cream vans, and his brother Oliver had a very impressive display of his musical instruments including several guitars, a banjo, keyboard, ukulele, amplifiers etc. He then gave us a demonstration how he can play the guitar and the ukulele. I asked Diane and Tony Davis if they would judge the entries as there was a £10 prize for the winner. After studying all five of the entries the judges picked Henry and his ice-cream vans as the winner, well done Henry. The guess the object competition had thirty two items laid out on the table, many of which were tools I use in car bodywork and painting. After quite a time examining and looking at all these objects the members sat down to write out there lists. The highest score of correct answers was 18 out of the thirty two displayed; this was won by Tony Davis who had a bottle of wine for his effort. The last two

### Social news

Happy birthday to Robin Lambert on 8<sup>th</sup> Sept.  
Welcome to new club members

### Shapwick School Art Day –July 7<sup>th</sup>

By Tony Davis

We were invited to a special school in Shapwick village, which is about halfway between Street and Bridgewater just off the A39, turning off the road and into the school grounds. I felt very apprehensive about this event, but was totally unprepared for what we ran into.

The main part of the school is a very large old manor house complete with stable blocks and all the old staff accommodation now converted into school rooms. We were told to set up our engines and machines on the well-looked-after lawns under the trees.

Now the part that I was not prepared for. During the day small groups of students came to us, after going around the collection of motorbikes and cars, and this after going into and around the displays and workshops within the school buildings. They would be in groups of 6 or 7, some accompanied by an adult or on their own. When I found the right person to ask, I found out what this special school was all about. A teacher explained that these young people were all dyslexic.

I have to say I have never met such well-behaved children, all were very well-mannered, polite and it was a great pleasure to deal with them. All were very interested in what we had on display. I had my Kibbler running off Diana's Norman and spent most of the day letting the children come behind the ropes" one at a time" to pop Weetabix in the hopper.

Robin Lambert had a large fence post and a collection of Augers with wooden tee handles. This proved to be the most popular display as the boys "and girls" took a great delight in drilling large holes in the post, each one going red in the face during the operation, but they would not take off their coats. The post took on the appearance of having been pulled out of "No Man's Land" during some gun battle!

All who were owners of the outside displays were treated to an excellent roast dinner and sweet at 12.30. At 4.30 we were all ready to go home when we were asked back into the school for a buffet tea and hot drinks, plus a short thank-you speech from a school representative.

All in all we had a grand day out and felt honoured to have been invited to a very different

crank-up. Many thanks to Ed and Gloria. We hope to be invited back again next year.