Founded by Hugh G Conway CBE in 1987


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*11.4hp Bugatti on the Thames Embankment, 27th May 1922.*


Winter 2005/2006

## Chairman's Report

As another year draws to a close it is appropriate to take a look at what has been achieved over the past twelve months and to review our future aims and objectives.

In the fifteen years since the Trust was officially opened, it has maintained its objective to preserve and make available for study the works of Ettore Bugatti and to convey to engineers and designers the benefits of integrating art and design.

It is worth noting that the Trust's original founder members were from several different countries. If you have followed the Trust's progress recently you will also appreciate how important we believe the international link has been. The recent founding of the *American Friends of the Bugatti Trust* under the stewardship of Bill Leith is a case in point.

Browsing through the Trust's visitors' book is an interesting and enjoyable experience. We really do have visitors from all corners of the globe and greatly value their interest.

Over the past six or more years we have been fortunate to have had a willing team of volunteers who have laboriously digitised over 25,000 Bugatti factory drawings. During the last year there has been a period when the work stopped as the computer software and hardware had become worn out and had to be replaced and upgraded. That is now behind us and the task is under way again. We are beginning to see the end of this project so can now look to the future. Next in line are likely to be original parts lists but we have many other interesting documents, all of which should benefit eventually from this treatment.

It is important to emphasise that virtually all the work has been undertaken by volunteers to whom I would like to express my sincere thanks.

Whilst on the subject of interesting documents I should record my thanks to Bonhams for allowing us to display the Type 35B driven by "Williams" at Monaco in 1929. The Bugatti Owners' Club has owned the winner's trophy from that race for many years and it was put on display together with a number of letters from Mme. Williams. By all accounts the evening reception and archive film show that we put on were much appreciated by all those able to attend.

*Hugh Conway with Mrs Whitworth, whose uncle-in-law was "Williams"*

I reported in the previous newsletter that we continue to support Coventry University by making design awards to final year students – The Bugatti Prize. The Trustees have agreed that they should extend the award scheme next year to encompass engineering design and technology. In the meantime you may have seen reported in the press that several teams of Coventry University students have gone head to head with the

Art Center College of Design in Pasadena, California; the Tokyo Communication Arts and the European Institute of Design in Turin in a design competition sponsored by Ferrari. Coventry University, as I have previously reported, has a full size state of the art design and modelling facility in what has been named the Bugatti Building.

One achievement during the year has been the success with the publishing of "Grand Prix Bugatti". The print quality was first class and three quarters of the run of 1000 copies have already been sold. This has led me to consider further projects and I am now in discussion with the original publisher of "The Bugatti Video" about a new updated production as DVD. Barrie Price, it should be noted too, is currently working with J-L Arbey on a book on the Types 44 and 49, which should come out in the spring. Whilst strictly speaking it is not a Trust publication a majority of the photographs are from its collection and the Trust will benefit from the royalties on sales.

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## Michael Byström's Type 35B

Michael Byström has a Type 35B Bugatti with a well documented and interesting history. The chassis number is 4858. Michael has presented the Trust with a collection of photographs which show the car in several events, many in Hungary, in the late 1920s and early 30s. This splendid picture of the car shows Antal at the Parad Hillclimb on 10th June 1928 which is only a month later than the new car's delivery date.

## Bugatti Patents – The Tilting Train

Richard Day

The high speed steam train must have been the most ambitious of all Bugatti projects. It was an attempt to revolutionise mass transit on the largest scale. The object was to carry more passengers safely in comfort over long distances and at a higher speed than was possible with existing rolling stock on the existing tracks.

In Newsletter No. 7 we set out some of the Bugatti steam train features which were intended to reduce the dynamic loading on the track bed by an express train. The problem with conventional locomotives being the pounding created by the massive reciprocating parts tending to destroy the track, particularly the outside rail on fast bends. If Bugatti could overcome these problems and safely achieve higher speeds on curves then it showed his concern about the comfort of the passengers.

On the 9th May 1938 Jean Bugatti filed French patent No. 846050 entitled simply, Véhicule ferroriaire, Railway vehicle. It was for tilting coaches for a high speed train. It shows ways of suspending the passenger compartments so they could swing outwards on curves reducing the sideways force experienced by the passengers pressing them against the armrests of their seats.

The patent shows numerous methods of suspending the passenger cars and providing shock absorbers and movement limiters to control the tilt.

In France in the 1930s the maximum permitted speed on many main line curves was in the order of 130 to 140 kph (81 to 87 mph). These limits were due to the existing radii and superelevation (banking) of the track curves. Bugatti intended that his steam train would be able to safely exceed these speed limits and the tilting carriage idea would have been the next logical step. Sadly, as we know, the whole Bugatti steam train project came to nought. In more modern times the French railways (SNCF) have designed out the problem by creating completely new dedicated high speed tracks.

From the early 1960s many tilting trains have been developed for use in other countries where higher speed on old track has been achieved, particularly in Italy, Spain and the UK. Perhaps Jean Bugatti was thinking ahead of his time.

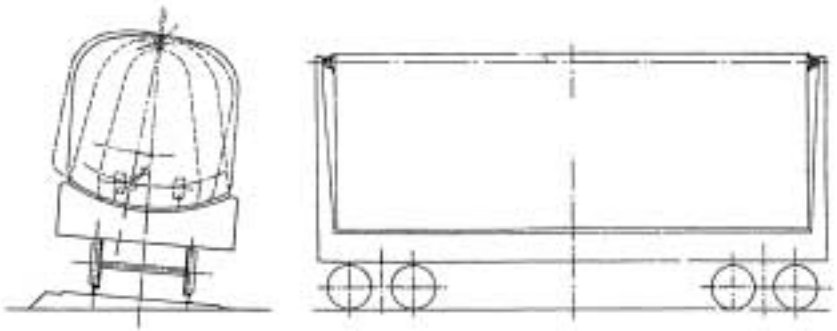


*Illustration from the Bugatti tilting train French patent number 846.050, filed on 9 May 1938*

## Notes on the Bugatti Type 50B

Richard Day

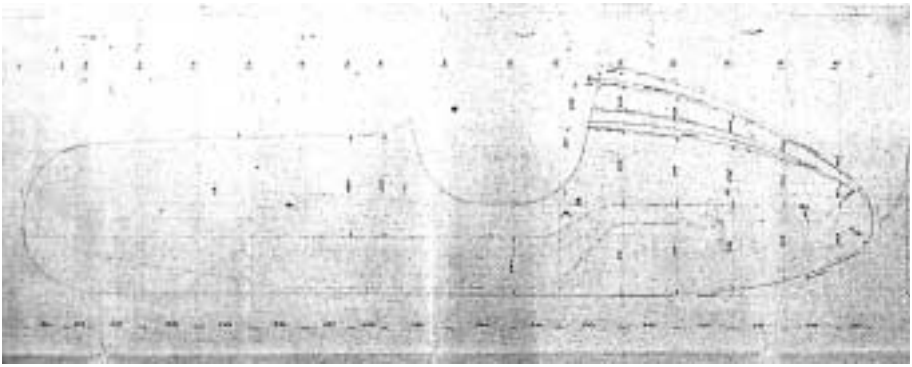
The original Bugatti documents, build sheets, parts lists and drawings show that 'Type 50B' was more than just an engine designation; it was a complete car chassis type. It was a racing development of the Type 50S of 1931 and the Type 59. The later Grand Prix Bugatti cars have often been known as Type 59/50B suggesting that they were simply Type 59 chassis fitted with T50B engines.

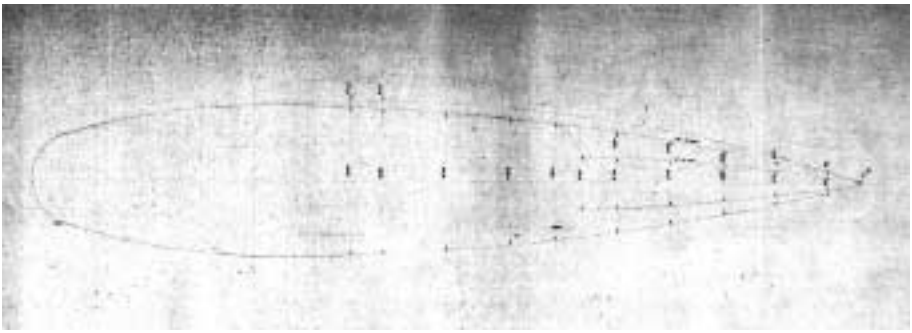
Type numbers were rarely quoted by the commentators and the press of the day, the cars were normally referred to by engine capacity, for example 'The New 4½-litre Formula Grand Prix Car' (Bugantics 6.6).

The earliest drawings at the Bugatti Trust with an unquestionable 50B appellation date from 10th August 1934 but the majority of major components such as the first aluminium cylinder block, 50B MOT 1, or the supercharger casing, 50B COMP 1, are dated July 1935 which is too late for the Benoist car at Montlhéry which was run on 23 June 1935. We presume that that car was a Type 59 fitted with an iron block Type 50S engine (and probably of 4.9 litres despite what was quoted at the time. Before the bonnet flew off and revealed the camshaft drive to be at the front of the engine it seems that Bugatti was passing it off as a 'standard' 3.3 litre car!)

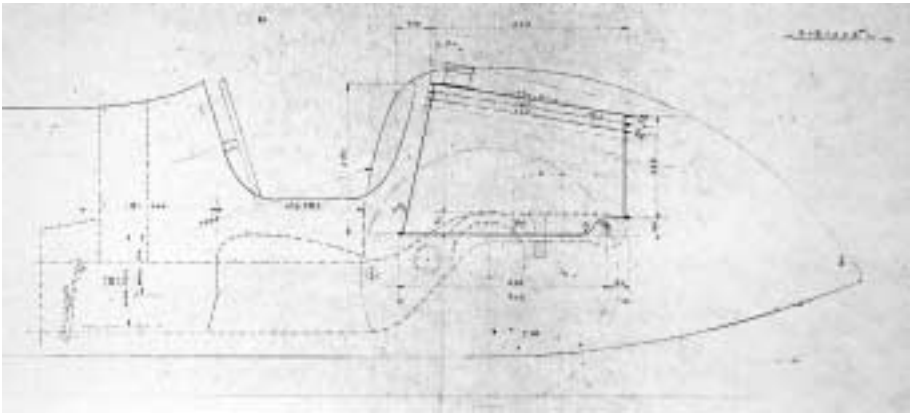
According to Anthony Blight in 'The French Sports Car Revolution' the Type 50B was originally intended as a contender for the proposed single seater, 750kg formula for 1936 and that Bugatti was supported to the tune of 100,000 francs for the "purchase of machine tools" for the project by the Fonds de Course committee.


*Type 50B Monoposto at Turin*





*The monoposto coachwork drawings*



*Molsheim drawing for a Type 50B*

In the Molsheim drawing office during 1936 and 1937 a huge amount of work was titled 'Type 50B' and thereafter very few 'Type 59' drawings were produced. The 50B series include thousands of component drawings for chassis, front axle, clutch, rear axle, steering, supercharger as well as engine and cambox parts. For all the competition cars, GP and Sports Cars, which were developed within this period there is some confusion in the Molsheim document record which is not surprising in view of the large number of projects which were undertaken. Types 57G, 59, 50B and the 57S45 are all combinations and variations of a large collection of parts and including the unrealised concepts and experimental projects, an even larger, bewildering, array of ideas.

The real Type 50B, as a single seater, made its first appearance in practice for the Monaco Grand Prix driven by Wimille in April 1936 but it was withdrawn from the race. On the 12 October, again with Wimille, it finished second to Nuvolari with an Alfa, in the Vanderbilt Cup Race.

We can not list all of the variants of the Type 50B in these notes but they include the beautiful monoposto first seen in Turin in April 1937 for which Molsheim coachwork drawings exist.

The 57S45 cars built for the 1937 GP de L'ACF at Montlhéry were, in fact, Type 50B two seater sports cars. The actual 57S45 was a sports car project based on Type 57S chassis side rails and 4.5 litre Type 50B engine and with its own purpose designed 4 speed constant mesh gearbox designed by Ettore. The Montlhéry cars had no major Type 57S components, and certainly not the chassis side rails, except that the gearbox was the 57S45 type.

Another special Type 50B two seater had been intended for the 1938 Mille Miglia. The car was to have been fitted with a 170 litre petrol tank but it was not completed.

The final Type 50B was the 4.7 litre 'Wimille single seater' which came to Prescott for the International Meeting of July 1939. The drawings for it twin rear wheel hubs and halfshafts are dated 19th June 1939 and are Type 50B rear axle drawings, not Type 59. The drawings were produced just 31 days before the meeting!

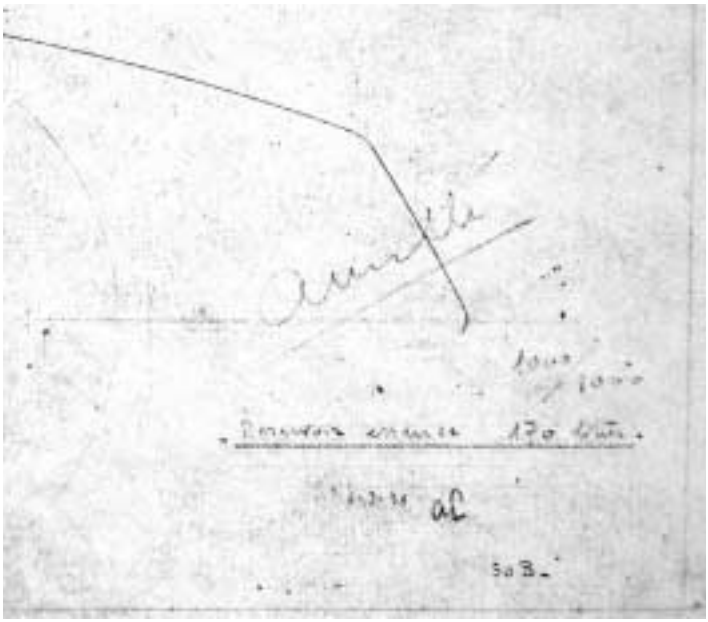
Conclusion

After 1936 most of the works competition cars other than the Type 57Gs were known, at least in the Molsheim drawing office, as 'Type 50B'. They were single or two seaters with aluminium, magnesium or other light alloy monobloc engines, new clutches and constant mesh 4 speed gearboxes.

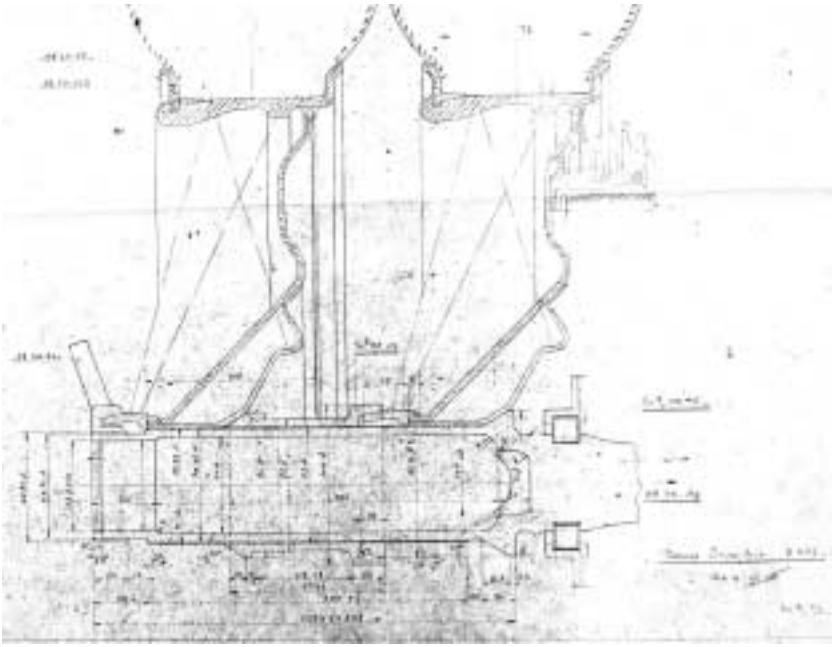
They used Type 59 chassis side rails derived from Type 45 but the new engines and the gearbox needed newly designed cross members and those and many other specifically 50B chassis components were used.

The 50B back axles were basically the Type 59 double reduction type but, according to the Parts Lists, the central casing was cast in magnesium and the ZF limited slip differential was used. The later cars had hydraulic brakes derived from the Type 64.

These notes were made with reference particularly to the Bugantics articles by Martin Dean, Robert Jarraud and Yves Kaltenbach and the books of Conway, Jarraud, Venables and Blight.



*Mille Miglia car – the drawing is marked "Anullé"*



*The Molsheim arrangement drawing for the 'Prescott' twin rear wheel setup*

*The Wimille single seater with twin rear wheels for Prescott*

## Biographical Notes from Pierre-Yves Laugier

"Bugatti 57 Sport" by Pierre-Yves Laugier, published in 2004, is an incredibly detailed work of this model. In addition to a comprehensive account of the development of the 57S, the history of each individual car is recorded in depth, accompanied by numerous illustrations. Another feature, which the Bugatti Trust has found to be interesting and informative, is the inclusion of short biographies of some of the cars' original owners.

These 'pen portraits' add colour to the history of the cars and help to explain who was in the market for a Type 57S, and why. With the agreement of Pierre-Yves Laugier we will be reproducing some of these biographies in the Newsletter. The first one we have chosen is of Lord Rothschild, owner of the first Atlantic.

### Lord Rothschild (1910-1990)

Nathaniel Mayer Victor Rothschild was born on October 31, 1910. He was the third Lord Rothschild of the Rothschild dynasty founded by Mayer Amschel Rothschild (1744-1812). Victor and his three sisters were the great great grandchildren of the dynasty's founder. Young Victor became a brilliant student at Cambridge.

In college at the beginning of the 1930s, when Europe was already subjected to strong international tensions and serious economic problems, student discussions were often political. Victor Rothschild was very open to the social ideas of his time and partisan to the politics we would now call leftist.

But his outward casual appearance hid a very committed man who entered the English government at a young age. He was a member of the Intelligence Service from 1935 to 1936. If one could see Victor Rothschild in the autumn of 1936, a young graduate at the wheel of his Atlantic going from mundane receptions to business meetings, one can imagine that the 57S transported many secrets.

Victor married Barbara Judith Hutchinson in December 1933, and they had three children. He married again, in

*Lord Rothschild's Atlantic, chassis no. 57374, at Molsheim in September 1936*

August 1946, to Thérésa Mayor and had three more children. One cannot overestimate his influence on the political future of his country. Through his professional position he had contacts in every large institution, and he was the privileged confidant of members of the Intelligence Service.

Authors such as R. Perry, in The Fifth Man, and J. Costello in Mask of Treachery, put forward the theory that at the centre of the spy network in Cambridge on the KGB in the early 1930s were Burgess, Maclean, Philby and Blunt. The fifth man was none other than Victor Rothschild.

When Rothschild travelled to Germany for his bank in 1934, he was horrified by the Nazi practices. It is possible that he was a contact with communists at this precise time, but he seemed to be more interested in the performance of his racing cars than in the Marxist theories of his university friends. One cannot deny his activities as an informant during the War for the English accounts. M.I.5 transmitted information to all the Allies, including the Russians, until 1945.

In 1942, Lord Rothschild visited the University of Birmingham to see the conditions of the scientific research and how they were protected. In 1943, he also investigated the production sequences of the "H" bomb beginning with plutonium.

When he married in 1946 he left M.I.5 after its reorganization. He continued his research in Cambridge and supported the establishment of the State of Israel. From 1958 to 1969 he was responsible for the developmental and research sector of the Shell Group, which gave him the opportunity to travel throughout the world and to renew contacts with the East.

The Rothschild family has always been extremely influential and has, since the 18th century, developed a network of information that was active until 1815. Lord Rothschild was aware, very early, of Stalin's detention camps and of his pogroms, and after 1933 he combated Hitler's camps with ferocious energy.

After leaving Shell, he retired from public life but kept his seat at the House of Lords. He never spoke much about his years with M.I.5, and he died in 1990 carrying his secrets with him.

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## Web Photographs

During the past year we have been seeking ways to improve access to our archive for overseas members. We hope we have come up with a solution and have taken the first tentative steps to digitise our photograph archive with the objective of making it progressively available over a secure internet link. The job is likely to take some considerable time to complete as we have in the region of 10,000 photographs. There are also a number of important technical details which still have to be resolved. However we have started to make progress and I am hopeful that we will be able to make the first few hundred visible early in the New Year. As they say, "Watch this space"!

## Bugatti Model 100 Aeroplane

Ettore Bugatti's involvement in aviation has been a source of interest to enthusiasts for many years. So when the American Bugatti Club announced that it was to arrange a visit the EAA Air Venture Museum in Oshkosh, Wisconsin in September it was too good an opportunity to miss.

The Bugatti model 100 has been restored and on display at the museum for several years. The story as to how it came to be constructed and later came to be in the USA is too well known to be repeated in much detail. There have been several articles in *Pur Sang* and *Bugantics* over the years. The main published description of the aircraft was in the New York journal "Air Progress", October 1973 and was reprinted in its entirety in *Bugantics (*Summer 1974, Vol. 37/2*)*.

Suffice to say it was designed by Bugatti's friend Louis de Monge around two model 50B racing engines and was intended for an assault on the world airspeed record. It had numerous novel features and was subject to several Bugatti patents. However the war intervened before it could be completed and it languished in the family's hands at Chateau Ermenonville until after the war when it passed to Serge Pozzoli. Later it was acquired by Ray Jones, who bought it for the 50B engines and disposed of the airframe to Dr. Peter Williamson. It has now been fully restored as a static exhibit minus the engines. It would seem that the museum receives more enquiries about this aircraft than any other of its exhibits.

It is perhaps as well that the aircraft never flew. One wonders whether such novel features as the automatic flap control system and automatic landing gear could possibly have worked reliably without prolonged and hazardous development. The engine arrangement was also novel. Two type 50B supercharged engines were in tandem behind the pilot. Each was connected to a reduction box from which the drive was taken through long shafts passing either side of the pilot to contra-rotating propellers.

The Bugatti Trust's collection of documents naturally includes copies of articles from a number of journals and copies of the patents, both in French and English. It also has a copy of the agreement between Bugatti and the French Ministry of Air as well as other documents. The Trust's large collection of factory drawings includes many of the type 50B engine as well as two dozen or so relating specifically to the arrangement of the two engines within the fuselage. We also have a copy of a recorded interview (in French), made by Louis de Monge in New York shortly before his death in July 1977 and in which he describes his design for the engine cooling airflow to reduce drag.

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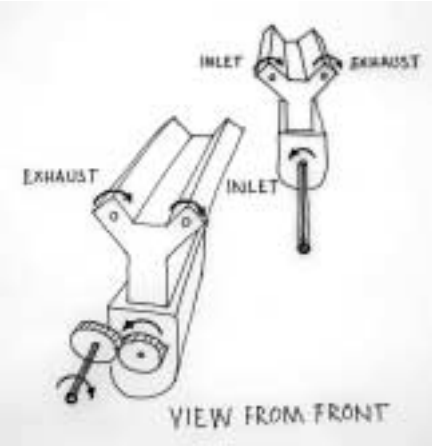
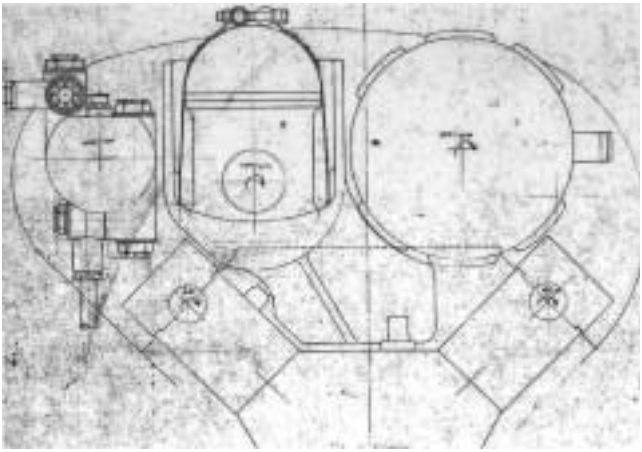
## Engine Rotation

A point of Bugatti aeroplane lore, often confusing, is the direction of rotation of the engines. The Trust's drawings clearly show that, viewed from the rear of the aeroplane, the crankshafts of both engines rotate clockwise and all camshafts rotate anticlockwise. The front engine has left side inlet and right side exhaust and the gas flow through the rear engine is the other way.

The front engine's prop shaft turns anticlockwise because it has an off set gear drive whereas the rear engine drives its prop shaft directly.



*One of the Molsheim drawings showing the direction of rotation of the 50B engines*

**Model Aeroplane**

John Moxham built the model of the Bugatti aeroplane that we have had on display at the Bugatti Trust. He took it away last year in order to make improvements as a flying model. It is powered by an electric motor and by changing to the latest lithium batteries he has increased the power and reduced the weight. It now flies beautifully.

## Aerolithe and Torpedo

Richard Day

We have been researching the early Type 57S drawings at the Trust which point to some definite conclusions about the Aerolithe and the Torpedo shown in Paris in October 1935.

The first Type 57S chassis drawings were numbered in the range from 57S CH 1 to 57S CH 58 – about 50 drawings mostly produced in August and September 1935.

The frame was built up from parts numbered 57S CH 1, 2, 4, 5, 6, 7, 8, 9, 10, 18 and 19 plus the Type 57 front cross member. The frame had curved side rails, waisted in at the rear. All of these parts drawings are dated in the period July to early September 1935.

From about 29th November 1935 the design was revised to use the 'straight' side rails shown on drawing 57S CH 66/67. Apart from the front cross member none of the parts listed above for the 'waisted' version were used. The new frame consisted of parts numbered 57S CH 66/67, 68, 69, 94, 157, 192 and 193 with 57 CH 15, 17, 18 and 41 CH 125. The new layout is shown on a chassis frame general arrangement drawing dated 14th December 1935.

At the time of the Paris show in October the T57S straight sided chassis design did not exist.

The bonnet line of the two 'show cars' was too low to be standard T57 and too high to be the later production T57S and the wheelbase was shorter than standard T57.

It seems clear that the two cars presented in October 1935 – the Torpédo Compétition and the Coupé Spécial – would have been built to the drawings 57S CH 1 to 19 with the early flat, lowered radiator 57S CH 13. They were neither straight sided Type 57 frames nor the later production Type 57S frames. The drawings and photographs prove the point.

It seems a very short period from the production of drawings to the Paris Show but that is the way the Bugatti factory frequently worked. The design always existed on paper before work started in the metal.

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## Bugatti Trust Design Challenge

Winchcombe School is 4 miles away from the Bugatti Trust and is our nearest comprehensive school. There are 478 pupils.

We are setting up a technical design award scheme open to the School's Year 9 and 10 pupils. This is a joint project between the school and the Bugatti Trust and is still in the early stages of planning.

The proposal is to invite pupils to design some simple practical object to meet the requirements of a set brief. The School's design and technology department will

specially open its workshops out of school hours so that the participants can work on their project ideas and build a working model. The judging and Bugatti Trust award presentation will take place in the Summer of 2006.

We hope that this initiative will encourage some 14 and 15 year old pupils to develop their design skills and should also provide them with an introduction to some examples of the works of a design genius.

Of course, we hope that this project will provide some good local publicity for both Winchcombe School and the Bugatti Trust and will be something the pupils can add to their 'record of achievement'.

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## Sketch Drawings and Ettore Bugatti's Thinking

Richard Day

We have set up a small exhibition of 14 original Ettore Bugatti engineering sketches which beautifully illustrate Bugatti thinking at the early stages of a wide range of his projects. Throughout his life he produced many thousands of such sketches – they were part of his thinking process carried out with economy and style. Sometimes just a few lines and a scribbled note can represent an ingenious detail. A small sheet may have several sketches covering different aspects of a single idea perhaps showing stages of its development; sometimes with the different parts of the drawing separately dated. The different dates on one drawing might span several years.

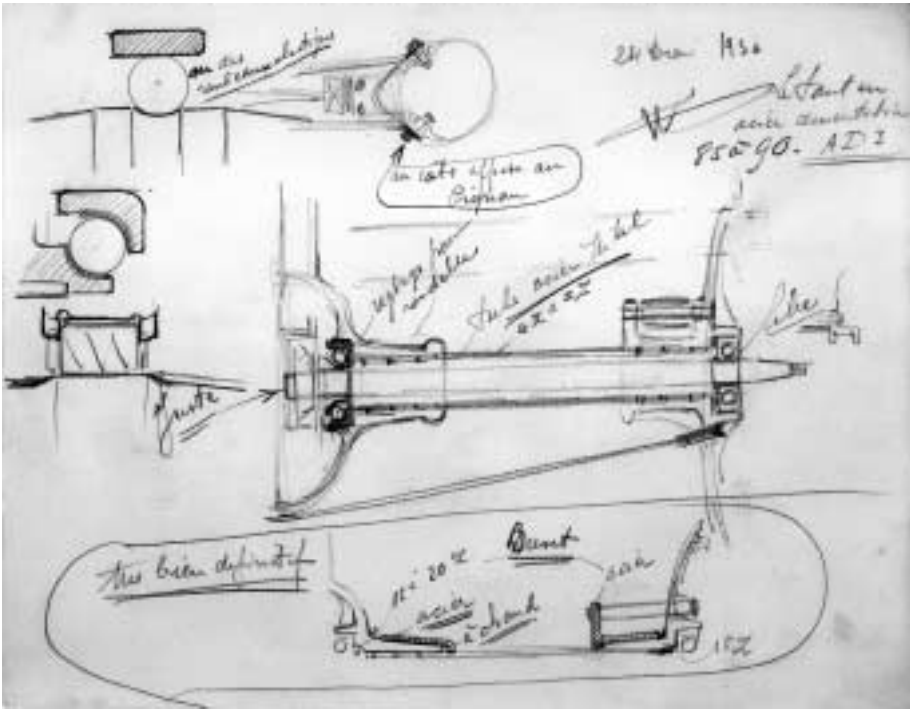
The handwritten notes were obviously quickly written in French with many grammatical and spelling errors. He used a variety of types of paper – exercise books, notepaper and cartridge paper of all sizes.

In her recent biography of Alec Issigonis, Gillian Bardsley says that his sketch drawings transform "the flat page into a window on his mind." This certainly holds true for Ettore – it almost seems as if he is talking to us – the sketches are worth careful examination.

Our understanding and interpretation of the details shown form the basis of the explanatory notes and even subject titles used in our small exhibition. It may well be, when you visit the Trust that you might not agree with some of our conclusions. If so, please let us know. We would be delighted to see you and hear your comments.

The great majority of this original material was donated by the late Uwe Hucke and represents one of the most important parts of the Trust's archive.

The following is an example of one of the sketches:



**Back Axle**

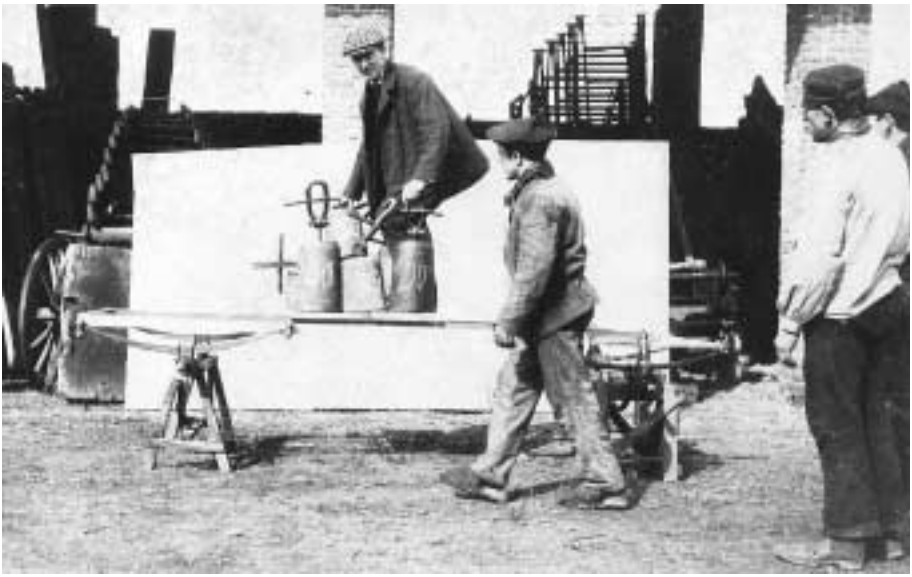
The normal Grand Prix Bugatti rear axle trumpets with flanged ends and spring support lugs were machined out of solid steel, costly in material and machining time.

This is an Ettore Bugatti sketch, signed and dated 24th December 1930, showing a new lower cost back axle.

The right side trumpet shown is a plain AD3 steel tube, 85 to 90mm diameter and 4 to 5mm wall thickness, spigotted into aluminium castings at each end. At the outer end the aluminium collar is an extension of the brake back plate and at the inner end it is an extension of the central differential casing.

The lower part of the sketch shows an improvement to the basic idea. The assembly is secured with conical steel collars shrunk onto the aluminium so that it grips the tube … *"trés bien difinitif"*

*Bill Leith, President and Treasurer of the American Friends of the Bugatti Trust, Inc. Oshkosh, September 2005'*



*Ettore Bugatti testing the Type 2 in 1900. This photograph, along with thousands of others, will soon be viewable at www.bugatti-trust.co.uk*

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## MEMBERSHIP APPLICATION/RENEWAL FORM

I hereby apply to become a member of the Bugatti Trust, formally known as Bugatti Molsheim Limited. I acknowledge that as a member I will be liable to contribute to such a company a sum of not exceeding UKP £1 (One pound sterling) in the event that the company is wound up and cannot meet its liabilities.

Membership: **a. Annual** **b. Life**

**a. Annual rate for UK residents £25**
**Annual rate for Overseas residents £27**
**[Due to high bank charges the Bugatti Trust does not accept foreign cheques or currency]**

**UK tax payers only: GIFT AID your subscription which will benefit the Bugatti Trust. Fill in the Gift Aid Form.**

**Credit cards accepted subject to 3% charge for use of card. Visa/Mastercard**

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Card Number: ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

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[Reverse of card]

**b. Life Membership I enclose a cheque in favour of "The Bugatti Trust" to the sum of:**

**£…….. (Minimum donation £1,000) Note:** UK Tax payers only: The Directors have agreed that persons who pay UK Income Tax at standard or higher rate will satisfy the requirements for Life Membership by completion of a Single Gift Aid charitable gift of at least £600 (Six hundred pounds). Please fill in Gift Aid Form.

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Please return this form to The Secretary. Address above.

# Items for sale at the Bugatti Trust

## BOOKS

| | | |
|---|---|---|
| ***Grand Prix Bugatti, 3rd Edition by H G Conway*** | £45 plus post and packing | |
| | UK | £7 |
| | Europe | £8 |
| | Rest of World | £15 |
| ***Bugatti T57S by Bernhard Simon & Julius Kruta*** | £85 plus post and packing | |
| | UK | £10 |
| | Europe | £15 |
| | Rest of World | £25 |
| ***Rembrandt Bugatti by Edward Horswell (Life in Sculpture)*** | £45 plus post and packing | |
| | UK | £10 |
| | Europe | £15 |
| | Rest of World | £20 |
| ***The Race Bugatti Missed by Michael Ulrich*** | £72 plus post and packing | |
| | UK | £10 |
| | Europe | £25 |

For other items available from the Trust including a few back issues of the Bugatti Trust Newsletters - these at £7 each plus post and packing, please refer to our web site:- www.bugatti-trust.co.uk Any of the above can be obtained direct from the Bugatti Trust by telephoning +(0)1242 677201 during office hours.