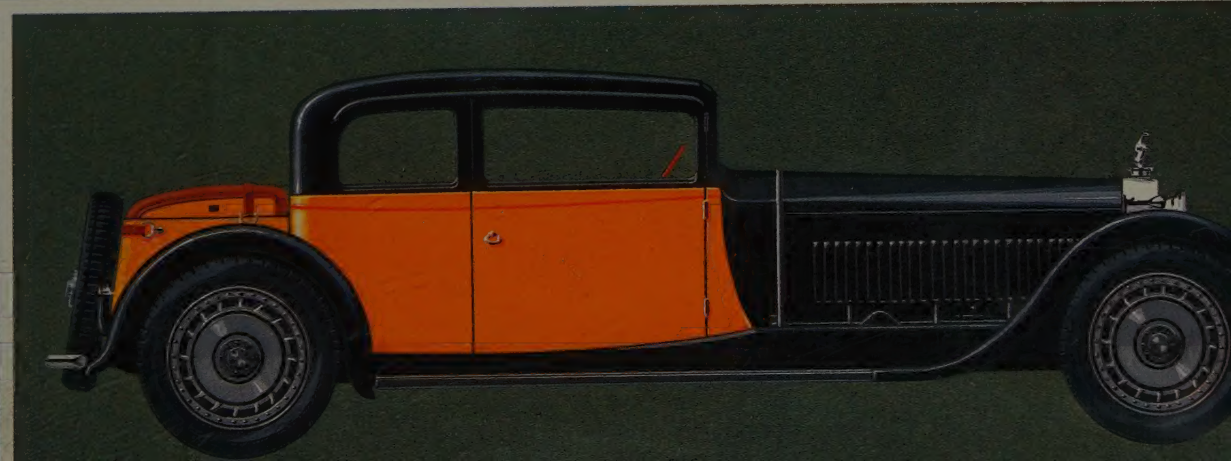
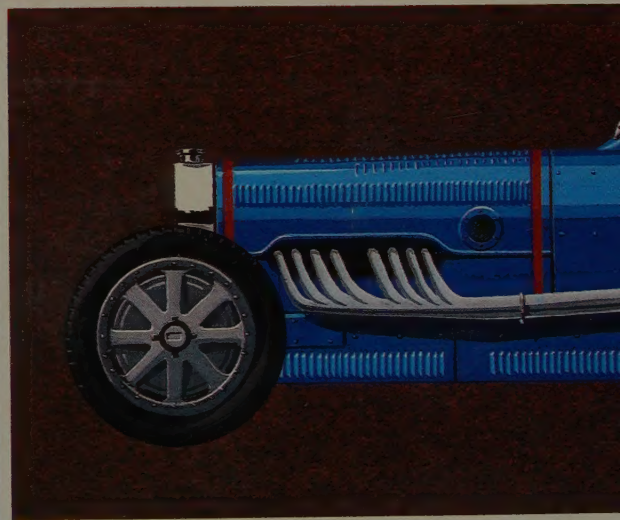
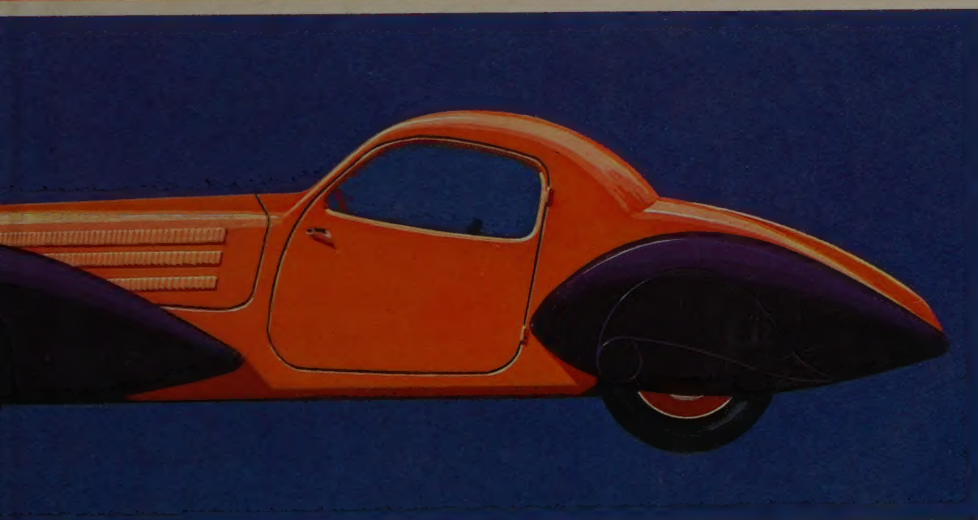


paul kestler

edita

BUGATTI


evolution of a style



BUGATTI

evolution of a style

Written and illustrated by Paul Kestler.
Translated by D.B. Tubbs.



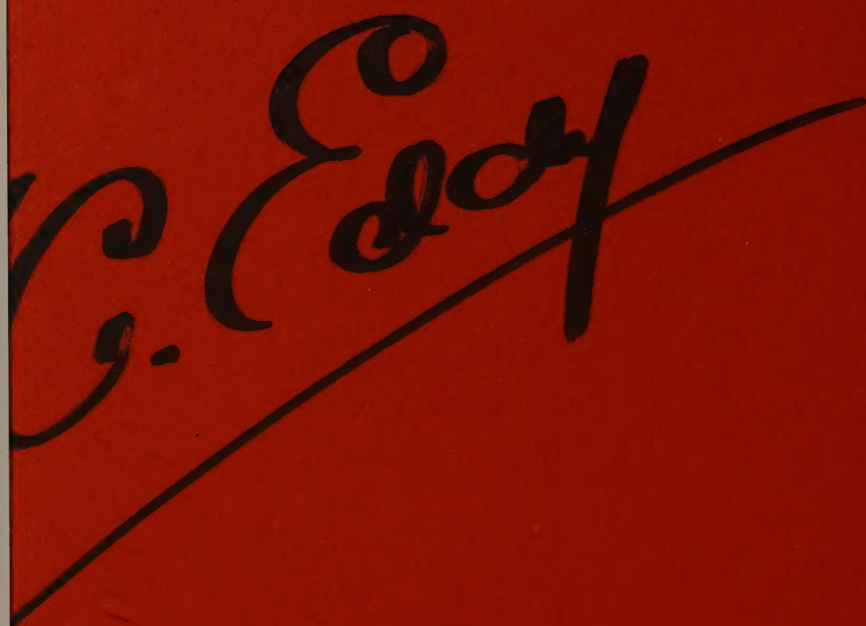
Most of the books about Bugatti and his cars attempt to describe the life of the Patron, the mechanics of his cars, or their racing careers. This book is different.

It shows, in 95 colour drawings by the author, backed up by contemporary photographs, the evolution of the coachwork designed by Ettore Bugatti, and his son Jean, between 1913 and 1947. A gallery of the most unusual Bugattis, many of which no longer exist, is gathered together in these pages. Tables show the reader the date of each type and, as for race horses, their ancestors and descendants. The expert text gives each type's history and its characteristics.

Everyone who knew the Bugattis agrees that they were first and foremost artists, and that they were determined that all their creations should be beautiful — even down to the smallest mechanical detail. Therefore it is not surprising that in coachwork — which gives design its widest scope — their talents achieved their greatest successes. For by their original, elegant and well-bred lines, Bugattis are instantly recognisable, even by the uninitiated. These cars are always striking and beautiful, no matter what changes of fashion and of taste take place.

(Continued on back flap)

EDITA • LAUSANNE



Please Keep In Your Prayers

Clayton F. Bower, Jr.

*and the Bower Family
who donated this book.*



JOHN PAUL
the great
CATHOLIC UNIVERSITY

BUGATTI

WITHDRAWN

PAUL KESTLER

BUGATTI

evolution of a style

EDITA LAUSANNE

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PREFACE

'A technical creation cannot be perfect until it is perfect from an aesthetic point of view.'

ETTORE BUGATTI

Molsheim, a little village in the Alsace wine-growing area, is famous for its wines. But not only for wine; in the eyes of more than a generation of motorists, it was known as the birthplace of a legendary series of motor-cars: Bugattis. Enter Molsheim by the Blacksmiths' Gate, walk around the streets, and you will understand why Ettore Bugatti, *le Patron*, and his son Jean, enjoyed working in this corner of Alsace. There they found that peace and beauty so necessary to the making of a work of art. It is certainly on this level that Bugatti's creations must be placed. Bugatti was no mere manufacturer, or commercial gent, but an artist, a creator. Molsheim gave him the atmosphere he needed to live, imagine, and construct. It is not surprising, then, that over fifty years, he could dream, put down his dreams on paper, then transform his designs into prototypes that became series of cars, filing more than 1200 patents in his search for perfection.

Of course, Molsheim provided the congenial background, while Bugatti's rich and inventive character did the rest, for good motor-car design and engineering beauty and perfection knows neither ages nor frontiers. Bugatti's genius for invention, and his passion for a job well done, came to him from his father Carlo. A distant descendant in time, although close in spirit, of the Italian Renaissance, Carlo Bugatti had a fascination for technical matters such as Leonardo da Vinci's, and a love of beauty such as Michaelangelo's. His children inherited these qualities: Rembrandt, Ettore's brother, was an *animalier* whose sculptures are known worldwide. Ettore, instead of working in marble, preferred to fashion steel into engines. No university, no diplomas for him, he liked to work with his own hands, shaping from metal those forms his brain had imagined. Needless to say, he worked with all the passion and *brio* of an Italian, the son and brother of artists.

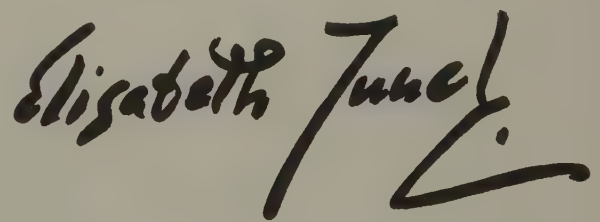
The same qualities were passed on to his son Jean. Alas, a fatal accident brought a promising career as a coachbuilder and racing-car constructor to an untimely end.

All this is well known to Bugatti connoisseurs. But Paul Kestler's book is different from the others, being made more with illustrations than with words. Paul Kestler



Elisabeth Junek.

was born in Strasbourg in 1931. He is an Alsatian, and proud of it, as a result of which he is interested in the history, the customs, and the arts of his native land. During his childhood, the Alsatian roads were the Molsheim factory testing grounds, and the name of Bugatti was on every lip. He was seven years old when he heard Bugatti spoken about at home: he had designed a car, and when he showed it to his grandmother, she asked him if it was a Bugatti. He grew up, and still the name was familiar. When he had finished his engineering training, Kestler resolved to go back to his first love, Bugatti, and learn as much as he could about it. Over the years, he collected and put together plans, facts, oral testimony, everything, to establish the life-lines and the histories of the cars built at Molsheim. Lucky Paul Kestler to be able to combine his love for Alsace with his passion for Bugattis. And lucky readers who can see the results of such intense and fruitful researches.

A handwritten signature in black ink, reading 'Elisabeth Juneke'. The script is fluid and cursive, with a large, sweeping 'Z' at the end of the last name.

ELISABETH JUNEKE

As a young man Bugatti dressed smartly and continued to seek the society of artists, maintaining a family tradition. He himself remained an artist throughout his life.



ETTORE BUGATTI: THE FORMATIVE YEARS

Can one speak of immortality in connexion with machines? Here is a paradox indeed, for no machine has a soul and none can die except under the breaker's hammer; and yet without question Bugatti cars seem to be imbued with an ardent life of their own that other manufactured products do not possess. The explanation can only lie in the personality of their creator Ettore Bugatti, who put his heart and soul into their creation, fashioning every detail with loving care so that nothing fell short of his ideal.

This relentless pursuit of aesthetic and functional perfection is evident not only in the design of Bugatti automobiles and their engines but also in the factory at Molsheim where they were made and the methods of working which prevailed there. Everything, from the layout of the shops to the finished product bore the indelible stamp of the man always referred to as *le Patron* (the 'Gaffer', or boss) – to his own no small satisfaction, we may add. And if the term has unfashionable overtones today, it is a good description in this particular case, of the man to whom it was applied.

Bugatti and his family

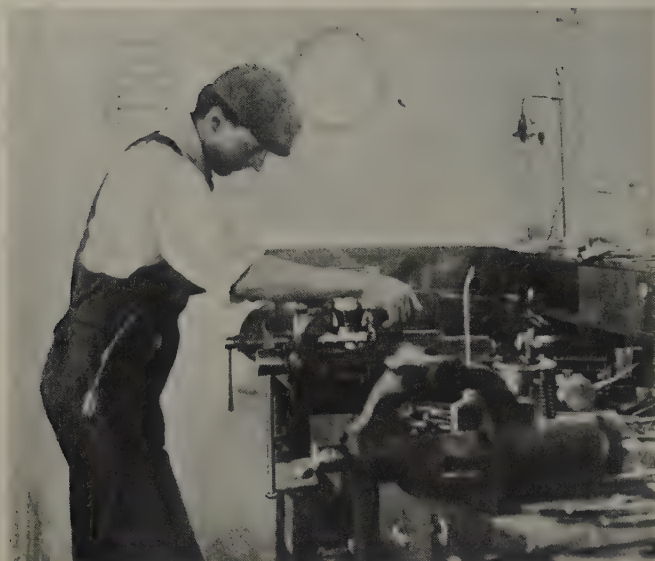
But who, it may be asked, was this Ettore Bugatti and how did he come to be a motor manufacturer whose fame was known throughout the world? Ettore was born at Milan on 15 September 1881 into a family of artists, composers, writers, sculptors and painters. His father Carlo practised almost all these crafts, showing especial talent as a

goldsmith and metal engraver. When one looks closely at his work, especially his furniture, examples of which are eagerly sought by collectors, one finds tricks of the trade that were afterwards used by his son.

Quite naturally the latter at first embarked upon an artistic career so as to follow in the footsteps of the father he passionately admired. His brother Rembrandt, on the other hand, aspired to an engineer's degree. Neither brother ran true to form: Rembrandt became a sculptor and *animalier* of renown, while Ettore took up engineering and eventually the making of cars.

It was in 1895 that young Ettore first set foot on the road he was to follow for the rest of his life, when he was lent an Italian motor tricycle made by Prinetti & Stucchi. Not the most exciting machine in the world, perhaps, and pretty primitive, but once he had examined it closely and explored the inner workings Ettore was quite impressed. He sensed that a new career lay open to him, as rich in joy and satisfaction as painting and sculpture. Stucchi, too, was impressed by the lad's interest and by his quickness in grasping technicalities. He offered him an apprenticeship on the spot.

At first the prospect of his son's abandoning art for a manual trade was not to Carlo's liking, but eventually he gave his consent. In 1898 when Ettore was 17 he joined Prinetti & Stucchi as an apprentice mechanic. He was not destined to stay there very long. Within two years Ettore Bugatti was allowed to design and build a motor tricycle of his own, a privilege not granted to his fellow



Young Bugatti was not content merely to design his first car. He worked away like a sculptor, shaping it with his own hands.

apprentices. He exploited his position further by riding the machine, successfully, in races. In so doing he anticipated his methods of later years, especially those from 1924 to 1939, the Golden Age of Bugatti racing cars.

Soon Bugatti yearned for something with more power and speed than that first tricycle. He would build a quadricycle, a small affair but equipped with four engines, two in front and two behind – an early attempt at improving power/weight ratios, a principle which would later bring great success to the marque. In the Carlo Biscaretti motor museum at Turin there is an early four-wheeler with two engines in front which is very much in Ettore Bugatti's manner and may well be his handiwork, although this can be only surmise. The original quadricycle built in the Prinetti & Stucchi workshops no longer satisfied its creator; Ettore started designing a proper car; but he asked permission to build it in the Prinetti factory – his employers refused. Rather than abandon his project Bugatti walked out.

He was not to remain idle for long. Financial help was forthcoming from the Counts Gulinelli, well known in Milan as patrons of engineering, and Bugatti could now build the car. This he did in 1900 with his own hands.

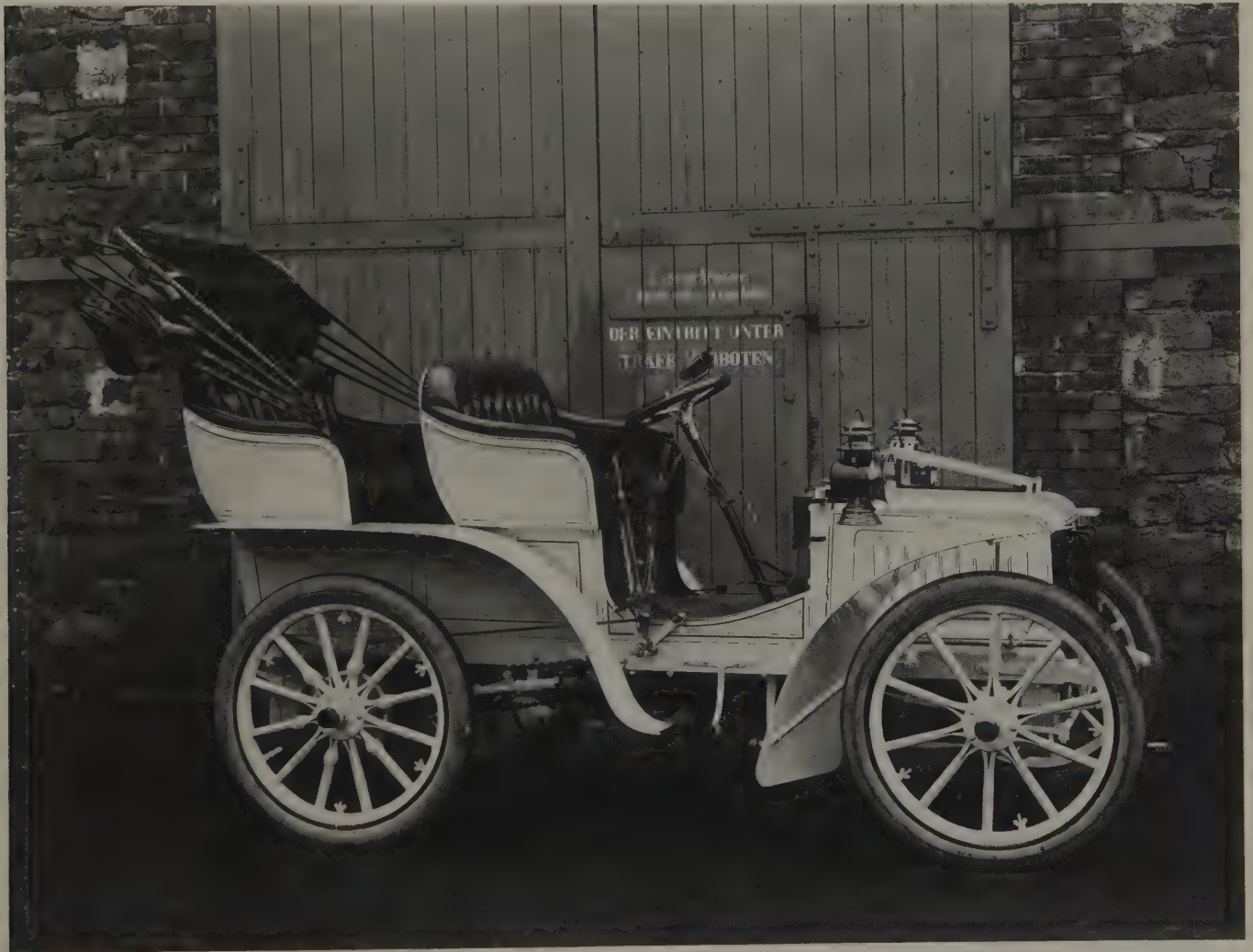
The car was quite small and looked reasonably modern compared with most 'horseless carriages'. The engine, a four-cylinder of 90 mm bore and 120 mm stroke, was just over 3 litres and mounted normally in the chassis with a gilled-tube radiator in front. It had a four-speed gearbox and final trans-

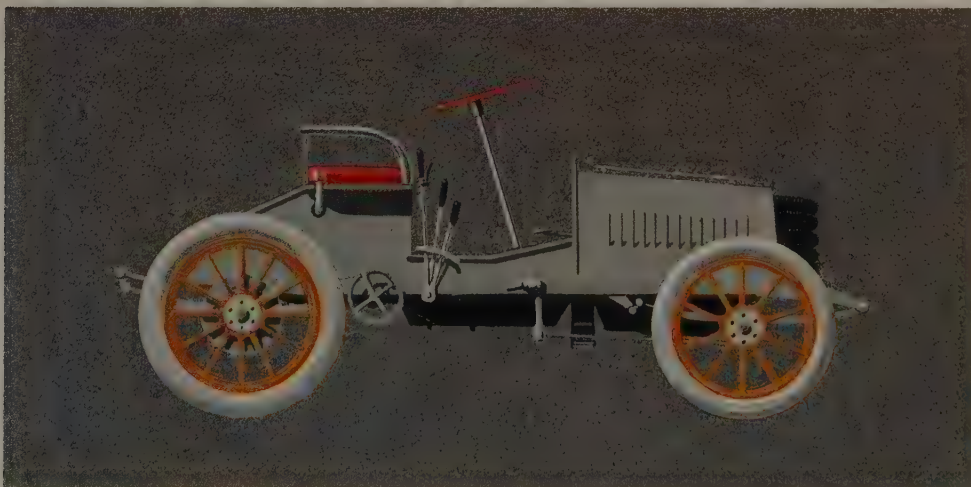
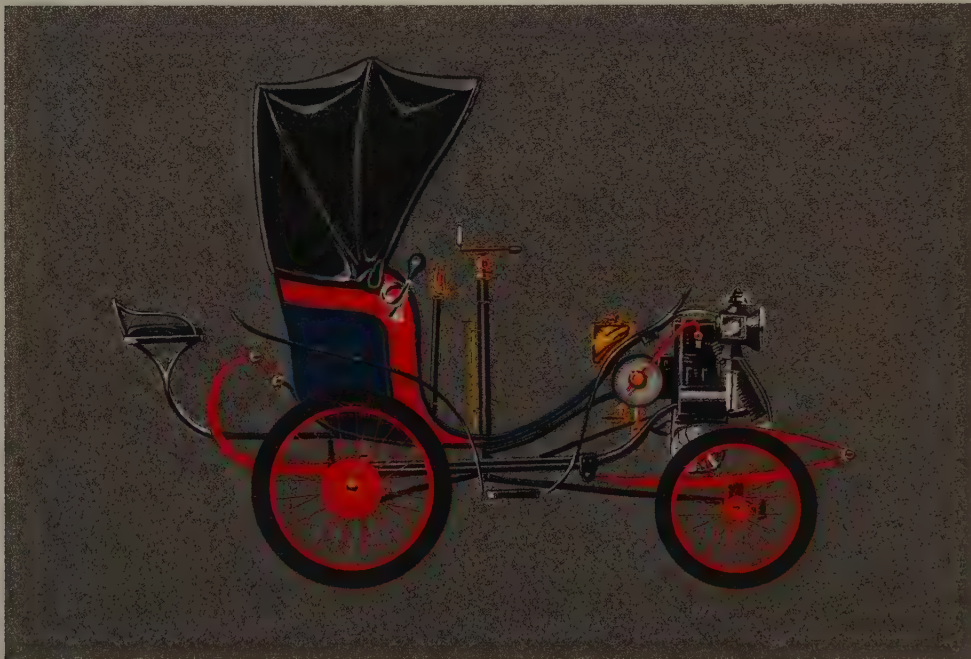
mission by chain, and ran on wooden artillery wheels like the big cars of the period. Large it certainly was not, although it embodied a principle perennially applied by Bugatti: being a small car with an engine powerful enough to out-perform larger machines. This particular vehicle weighed only 650 kg (13 cwt) but its top speed was 60 k.p.h. (37 m.p.h.). The body, if one can call it that, looked nothing much, but it was light and its angular lines made it simple to build. Despite its homely exterior the car made a good impression when Ettore exhibited it at the first international motor show in Milan. It was even awarded the Grand Prix presented by the municipality for the best car manufactured by an Italian concern.

This award did not pass unnoticed in European manufacturing circles. As a direct result Bugatti was approached by the Baron de Dietrich. De Dietrich owned a large engineering works at Niederbronn, in Alsace which was then a province of Germany. The Baron offered to build Bugatti cars under licence, and make Ettore works manager. It was a fine opportunity. Bugatti would be working in a well-equipped factory and gaining experience; he would also be free from financial anxiety. He accepted, and several models appeared under the name De Dietrich-Bugatti. The association lasted until 1904, when De Dietrich gave up car manufacture.

However, twelve months before the separation, in 1903, Bugatti designed and built a very powerful racing car for Paris-Madrid, the year's most important event. The car was an enlarged and improved

While he was works manager at the De Dietrich factory, Bugatti made friends with another future motor manufacturer, Emile Mathis, from Alsace, seen here as his passenger. Below is a Dietrich with double phaeton body of the same period.





While serving his apprenticeship with Prinetti and Stucchi Ettore Bugatti is thought to have worked on this motor tricycle with tandem trailer, now in the Carlo Biscaretti di Ruffia motor museum at Turin. The more advanced red and blue quadricycle may be seen in the same museum. Below is Bugatti's first car, built by him in 1899, which earned him the municipal trophy at the first Milan automobile show (page 15).

The Milan prize-winning car.



version of his original 1900 machine. The distribution of masses was similar, as may be seen from the illustrations on pages 16 and 23; but there was one alteration which was to have grave consequences. The driver's seat was low, attached direct to the chassis. A scrutineer from the Ministry of Mines ruled that forward visibility was insufficient and forbade the car to take part. Later the seat was raised, see picture on page 17.

After leaving De Dietrich Bugatti went into partnership with another great motoring enthusiast, Emile Mathis, whom he had met in Strasbourg in 1903. He designed a car which was built by the Société Alsacienne de Constructions Mécaniques at Graffenstaden; but the Mathis association was short-lived and by 1907 Bugatti had left.

Once more his own master, Bugatti designed a new car and sold the licence to the Gasmotoren-fabrik Deutz, of Cologne, who, once the prototype proved satisfactory, offered Bugatti a post as works manager. He accepted provided they would allow him to pursue his freelance activities. Deutz models were all of high horsepower. This suited Bugatti. He liked small cars, and set to work on a light 1100 cc weighing only 300 kg (6 cwt), which he built in his spare time in the basement at home. Judged purely on size – 8 ft 8 in over all – it was a cyclecar; but its general lines, road-holding and top speed of nearly 50 m.p.h. were those of a pukka car. The layout followed that of the car built for Paris–Madrid, including a driver's seat down on the chassis, over the back axle. The body panels rose up and round, to form a backrest so that the driver and

passenger, ensconced on a bench seat, were well supported and held in. In those days comfort was little considered; the scuttle was very short, and gave little protection to the legs. The radiator was a scaled-down Deutz. Mudguards were 'sporting' to say the least: mere metal strips at the front shaped to the wheels, and horizontal boards behind, as protection from stones thrown up by the wheels. 'Wind-cheating' cowls on the acetylene headlamps provided an unusual touch.

It can well be imagined that the driver, snugly wedged into the cockpit of a machine hardly longer than himself, would feel part of his car. This was probably why Bugatti christened it *Pur-Sang* – the Thoroughbred. Built in 1908 it was ancestor to a long line of models from the factory at Molsheim.

In 1909 Bugatti, now a very experienced engineer, determined to set up for himself in premises of his own. Motoring had progressed beyond the experimental 'mad inventor' stage, and almost unlimited possibilities of research and development lay ahead. Bugatti had foreseen this from the start and was now completely convinced. And he was anxious to play a part in these developments and leave his mark upon them.

His sojourn with De Dietrich at Niederbronn had left Bugatti with a soft spot for the province of Alsace which, although at that time annexed to the German empire, remained staunchly French in sympathy. He had made many friends there and it was natural that he should choose this region when looking for a factory site. Friends told him of a disused dyeworks at Molsheim which might well be



Bugatti was interested in racing from his very early days. The facilities available at De Dietrich enabled him to build a car for the famous Paris-Madrid race in 1903. Objections raised by a Ministry of Mines engineer obliged him to increase the height of the seat mounting. The lower picture on page 17 shows the car after this transformation.

what he was looking for; he viewed and decided on the spot. He liked both the buildings and the setting, which were all that an artist could wish.

Molsheim is a small town about 15 miles west of Strasbourg delightfully situated in the valley of the Bruche, just where flat farm land gives way to foothills and vineyards. Beyond stand the Vosges, their summits veiled in mist. Just beyond the mediaeval gateway called the Porte des Forgerons, stands the Metzigg, a fine gabled building erected during the Renaissance as Hall for the butchers' guild. Just as attractive is the approach from the north, where the road winds down from the hills, affording a view of picturesque ramparts and rooftops. The harmony and serenity of the landscape are reflected in the character of the inhabitants, who inherit their forefathers' delight in work properly done. Bugatti was right in thinking that he would here find a workforce apt and indeed eager to transform his perfectionist dreams into reality. Perhaps, too, he found good omens in the Molsheim coat of arms. On a blue ground they show St. George's martyrdom on the wheel: wheels would make Molsheim famous throughout the world, blue, the racing colour of France . . .

At Christmas 1909 Ettore Bugatti, now 28, became *Le Patron*, commanding a force of hand-picked workmen whose respect and loyalty he quickly captured through his personality, character and unorthodox methods. He could do almost any of the jobs himself. He had built a car with his own hands and could do so again. The men knew it. If, for any reason, he was ignorant of a process, he

would invent a way round it, often more rational than the original. He was also very demanding. He was not content with mass-produced nuts and bolts, for instance. The best was not good enough for him; he felt safe only when every part and component had been designed and made to his standards. The search for perfection drove him to design and make machine-tools for the works because these satisfied his demands for quality and profitability better than anything he could buy outside. He even proposed at one point, after a spell of trouble with tyres, to build a tyre-factory of his own . . .

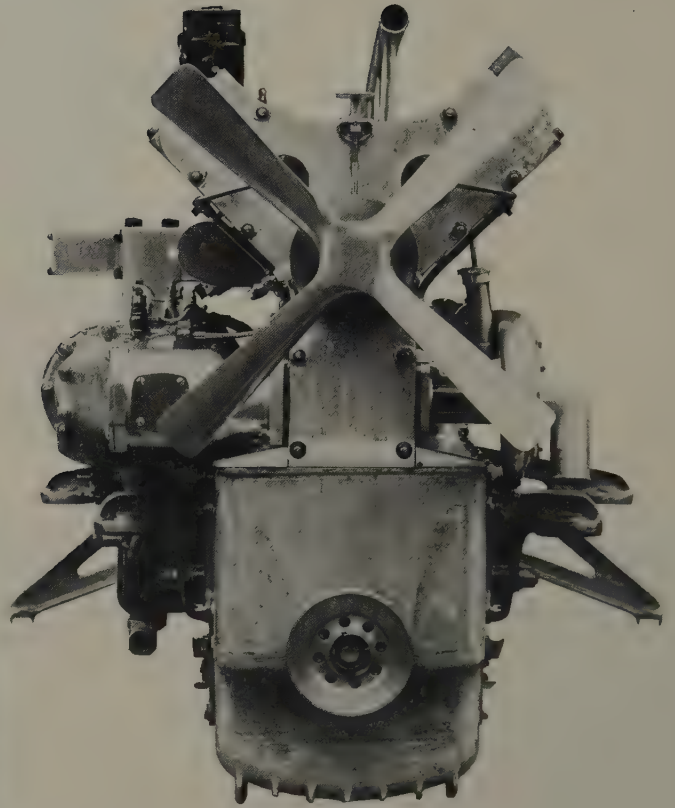
This perfectionism was not without its darker side. Allied to his hatred for anything that smacked of plagiarism was an almost pathological obstinacy. A glaring example was the affair of the hydraulic brakes. In 1921 he had designed a hydraulic brake system; but because at that time he lacked the suitable materials, he decided, after due trials, to abandon the idea once and for all. From then on he was bent on continually improving his cable braking system, stubbornly refusing to recognise the advances taking place in hydraulic operation, which most of his competitors had adopted. Only with the greatest reluctance did he eventually change his mind . . . and that was not until 1938 . . .

How could one doubt that, with such a man at the helm, a strong team spirit existed on the shop floor, an *esprit d'équipe*? They formed a closely-knit community, inspired by a common faith. The strength of this feeling was brought home to the present writer in 1968 while at Molsheim collecting material. Talking to a group of retired ex-

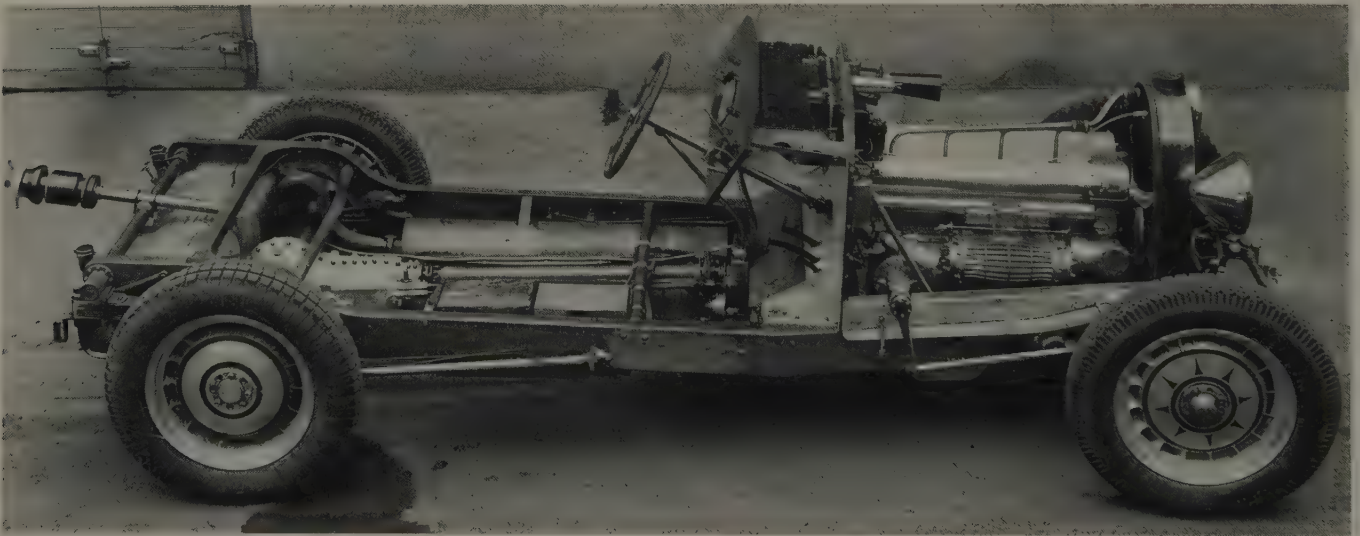
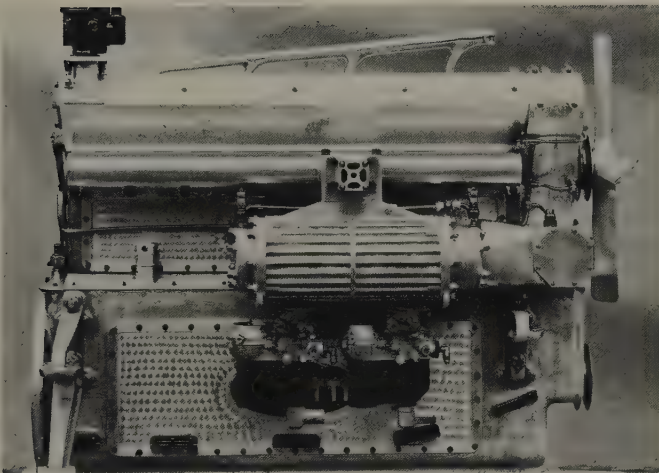


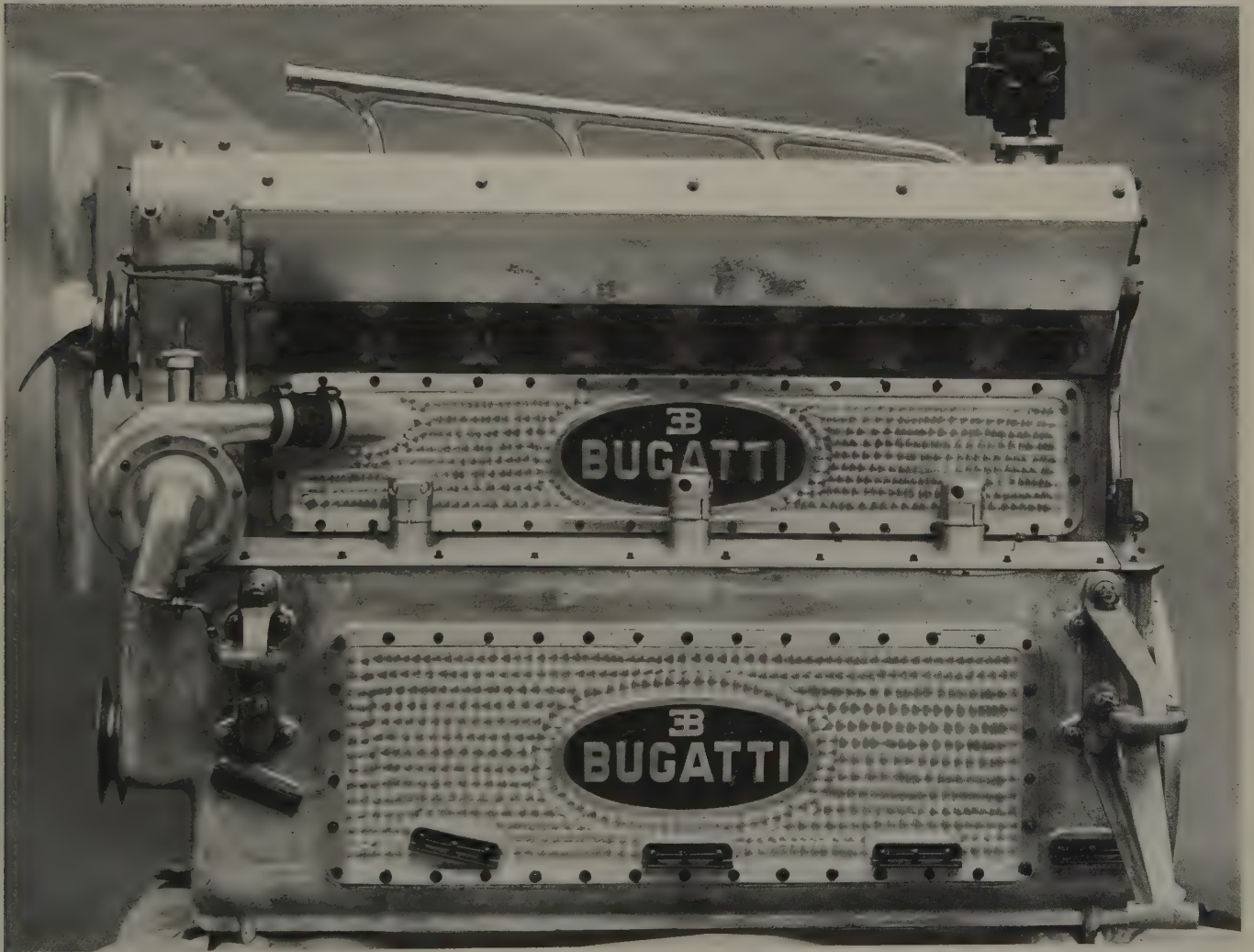
The first 'pur-sang' (right) was built by Bugatti in the basement of his house while he was working for Deutz at Cologne.





Bugatti engines would not look out of place in an exhibition of modern art. This example, seen from in front, from both sides and installed in a chassis, is a Type 50 twin-overhead-camshaft 4.9 litre built in 1931. The light-alloy castings show the Patron's mastery of foundry techniques. He always tried to combine good looks with fitness for purpose.





The Blacksmiths' Gate is the very essence of mediaeval Molsheim. Some people believe that it was the shape of this Gothic archway that led Bugatti to choose a horseshoe form for his radiators.



employees, he passed round some photos of the Type 57 'tank' at Montlhéry in 1936. '*Tiens*', cried one of the men, 'that's the one we took the record with' . . . Thirty-two years later, he still said 'we'.

Actually, although he was always called 'Patron', Bugatti was no despot. In the early years of this century he was thought of as a liberal employer, unusually accessible to any of his work people who found themselves with problems. Today, no doubt, some would call him paternalistic, for he certainly helped his people out of trouble, financial and otherwise. He regarded every employee, whatever his status, as a member of the same family working towards the same ends. The Patron's attitude towards his subordinates seems all the more remarkable when one considers what conditions were like for the worker several decades ago.

Ettore Bugatti was an innovator too in the way he laid out his factory, making best use of existing buildings. As for the workshops themselves they were a model of neatness and cleanliness, while modern equipment simplified working conditions. The Patron was also ahead of his time in what we now call conservation. One has only to visit Molsheim to see this: the Bugatti factory blends so well with the landscape that a stranger could pass by without knowing it was there.

Thanks to his artistic training, and his gifts as an engineer, Ettore Bugatti may be considered one of the masters of modern industrial aesthetics. The architecture of his eight-cylinder engines with single overhead camshaft is so pure, so free from inessentials, that it is impossible to divine their

The largest vehicles built in the Bugatti works, without any doubt, were the railcars built for the French railways and driven by either two or four Royale engines. Fast and comfortable, they held several speed records and could be recognised by the superimposed control cabin.



internal structure. Only the ancillaries emerge from the rigid rectangularity of the block, showing in their detail that elegance as well as practicality was sought in their design. Bugatti always designed his engine parts as simply as possible, so that they were both beautiful and less expensive to produce.

Jean Bugatti

Thus throughout his career and indeed the life of his concern, the Patron's style, and by extension that of each and every one of his creations, bore the stamp of his extraordinary personality. However, from 1929 onwards his elder son Jean was to exert a considerable influence on the design and manufacture of Bugattis. In fact it was Jean who suggested the adoption of twin overhead camshafts, and Jean clad the resultant new models in coachwork of remarkable originality. His hand may be seen in the close-coupled and saloon bodywork on Types 50, 55, 57 and 57 S. As one studies the progressive refinement of these bodies one sees that Jean was pursuing a particular line of thought, so that his creations have remarkable homogeneity, almost a timeless quality. Thus the Type 57 S Atlantic coupé appears as a refinement of the 'super-streamlined' Type 50, and the Type 64 body constitutes the ultimate development of the Atlantic coupé.

But, besides these highly personal designs Jean Bugatti produced a series of quite different models, a sort of synthesis of his father's style and his own. These are the coupés of horsedrawn carriage inspi-

In 1927, when his younger son Roland was five, Bugatti built him an electrically driven racing car. The lower picture shows father and son together. In the upper photo the present King Hassan of Morocco is seen taking an Alsatian doll for a ride.



ration, an obvious echo of Ettore's bodies on the Royale, but refined and modernised by Jean and bearing his personal stamp. These cars sit lower on the road, and the graceful wings, especially, give the whole vehicle a sporting air, despite the rather square-rigged presentation.

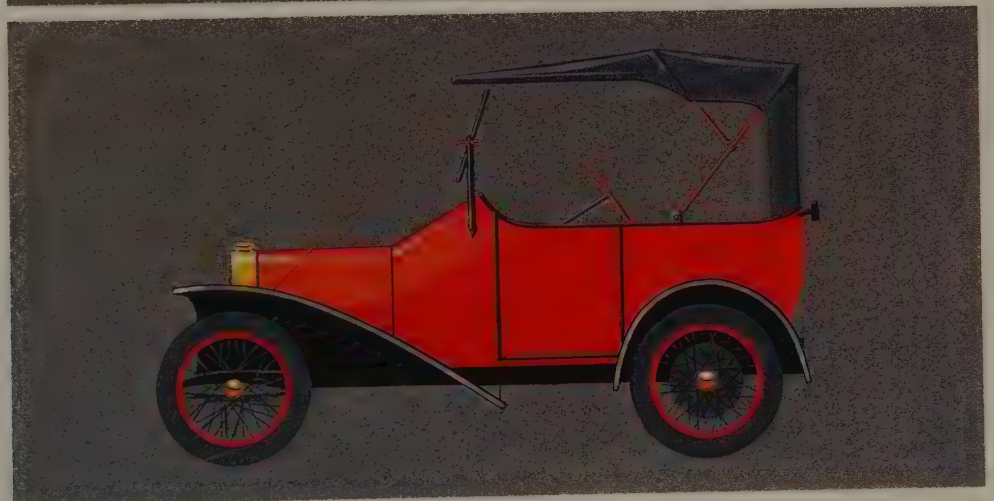
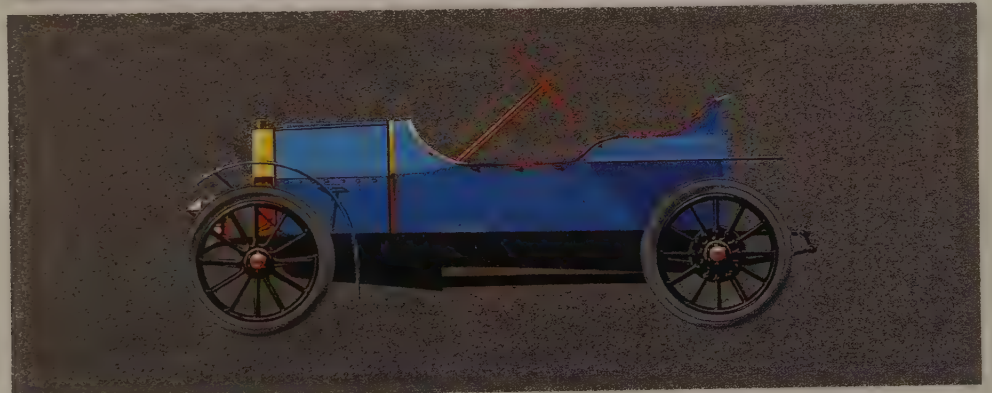
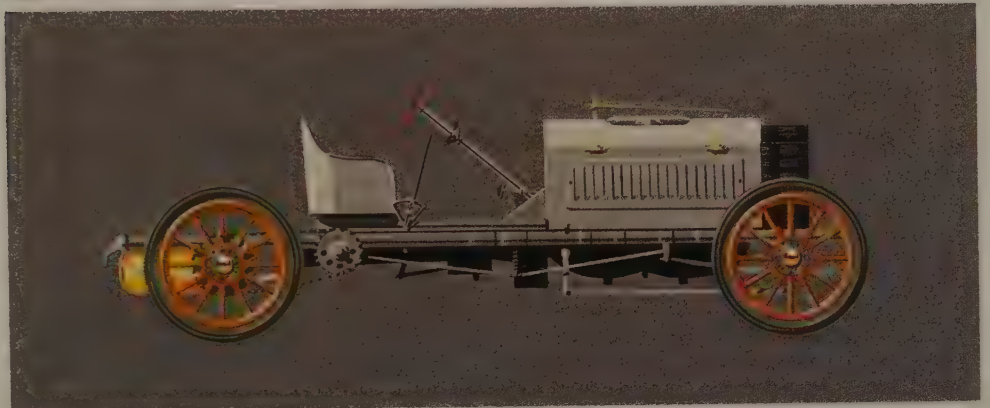
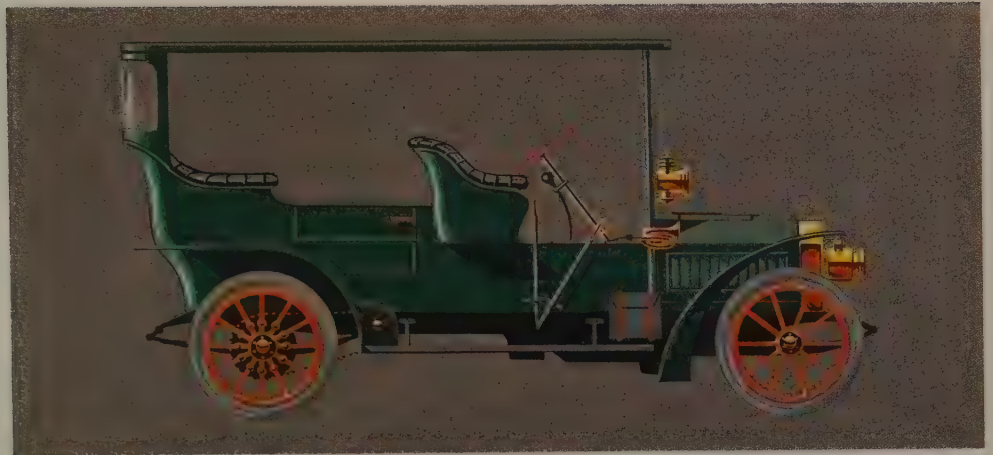
Jean's inventiveness, good taste and flair for design proved that he had indeed inherited his father's artistic gifts. Alas! his creative career was brief. He died, in 1939, at the wheel of a racing car. But Bugatti cars will forever bear witness to his immense talent.

* * *

It would not be right to conclude this brief résumé of Ettore Bugatti's career without mentioning certain other fields in which he was active. The Patron was truly eclectic. He by no means confined his interest to motoring although cars remained his primary concern. During the First World War, for example, he designed a sixteen-cylinder aero-engine comprising two straight eights side by side which enjoyed a certain notoriety, and for which a licence was acquired by Duesenberg with a view to manufacture in the United States.

In 1925 he planned another large engine, the 25-litre Type 34, which was to form the basis of the Royale. Years later, just before the Second World War he settled down to design a complete aeroplane. This was a single-seater powered by two Type 50 B engines mounted in tandem behind the pilot, with a shaft on each side of the seat conveying

Four Bugatti designs: 1. A 1902 De Dietrich; 2. The Paris–Madrid car in its original form, with driver's seat directly on the chassis; 3. The first *pur sang* built in his basement while Bugatti was with Deutz, Cologne, in 1908; 4. Baby Peugeot, several thousands of which were built under licence from 1911 to 1914.



This gig-like vehicle, Type 56, enabled Bugatti to drive about within the confines of the Works. The electric motor, similar to that of the miniature racing cars, may be seen above the rear axle. Steering was by tiller, as on early horseless carriages.⁴



power to a pair of concentric contra-rotating airscrews. Unfortunately the outbreak of war put a premature end to development, and the aeroplane never flew. However, the machine still exists and is at present undergoing restoration.

Ship-building too came under the Patron's scrutiny for his enthusiasm extended to all kinds of engineering. His projects included a boat whose top speed of 80 to 85 m.p.h. would have permitted a transatlantic crossing in fifteen hours. A model of it was built, looking rather like a submarine, a fact which is not surprising since the shape was based on aerodynamic experiments.

In 1931 it was railway matters that engaged the Patron's attention. Bugatti designed a railcar propelled by Royale engines, the numerous patents involved in its construction making it a highly original vehicle. The first railcar was completed in 1933 and production continued until 1939, with various twin- and four-engined models, and with one, two or three coaches. Nearly 80 were built in the Molsheim shops, many of them continuing in service until 1958. This steady flow of work proved a money-spinner and allowed Bugatti to set his financial house in order.

Lastly we should recall that Bugatti produced a couple of vehicles very different from the classic cars with which he is usually associated. First there was the Model 52, a miniature car built in 1927 for his younger son Roland, then five years of age. This marvellous toy was a scaled-down Type 35 driven by a 12-volt battery and electric motor. It went into limited production as the *Baby-Bugatti* and proved

very popular with the well-to-do child of the period. Some years later the Patron produced another electric car, this time for his personal use inside the factory and grounds. This simple gig-like vehicle ran on pneumatic-tyred wire wheels and had quite good suspension. Steering was by a simple tiller. It was known as Type 56.

The End of a Reign

It was in 1947, at the age of 66 that Ettore Bugatti died. The sudden and tragic death of his son Jean had profoundly affected him. In addition the two World Wars, each of which entailed the abandonment and virtual destruction of his factory, had disrupted the course of his life. All these factors probably contributed to his premature demise. Visionary, craftsman, artist, engineer, manufacturer: Bugatti earned all these descriptions in turn, and it was thanks to this multiplicity of talent that he produced such exceptional cars. Although his total production did not exceed 7500 vehicles in forty years, no other make has earned such a reputation nor aroused such fanatical devotion. Bugatti owners' clubs exist throughout the world, with an active and constantly growing membership dedicated to the study and maintenance of *le Patron's* products. No motor museum worthy of the name is without at least one Bugatti, and always this is the star exhibit.

It is many years now since the Molsheim works changed their activities, but nobody there has forgotten the cars, nor will they ever forget. Bugatti cars are immortal.

ORIGINS AND SUCCESSORS: A FAMILY TREE

Taken all in all, Bugatti production was limited – in extent if not in variety. This is one reason that newcomers to the subject became lost in a maze of Type numbers, especially as these indicate the order in which design studies were initiated, not the order in which they went into production. Furthermore Type numbers were assigned to prototypes as well as catalogued models, and to machines other than cars, such as aero-engines, boats and electric vehicles.

Besides the difficulty created by this plethora of figures there is the complication that a Type number alone is not sufficient to identify a model, nor even to show whether it was a racing, sports or touring car. Even the letter of the alphabet following a Type number can be misleading, for the same letter can mean different things depending on the year and model. The letter A for example originally referred to models equipped with a supercharger, e.g. Types 37 A, 38 A and 39 A. In the case of the 35 A however, the A means not supercharged but 'sham', for although the chassis and racing body of the car were Type 35 the engine was Type 30, a cheaper and less powerful device. Type 40 A was the Type 40 with the later 72-bore engine. Type 43 A on the other hand was a 43 dolled up with a later body to look like an American roadster . . . Letters, in fact, serve only to increase confusion. Even more bewildering are the permutations on a small number of different engines, chassis frames, gear-boxes and axles etc. to produce different racing sports and touring models. The Family Tree on page 30 may help to clarify matters.

Genealogical Table

The Genealogical Table is presented in diagrammatic form to indicate the ancestry and succession of each Type. It also shows the number of new designs emanating from Molsheim each year.

Bugatti automobile production commenced in 1910 with a single-model policy, as Types 13, 15 and 17 differed only in wheelbase. There was however one exception, the 5-litre Roland Garros, produced in strictly limited numbers. After 1920 the range multiplied in spectacular fashion, reaching its peak in 1926. Later, new models were less frequent, perhaps reflecting the rationalisation of production when Jean Bugatti took a hand.

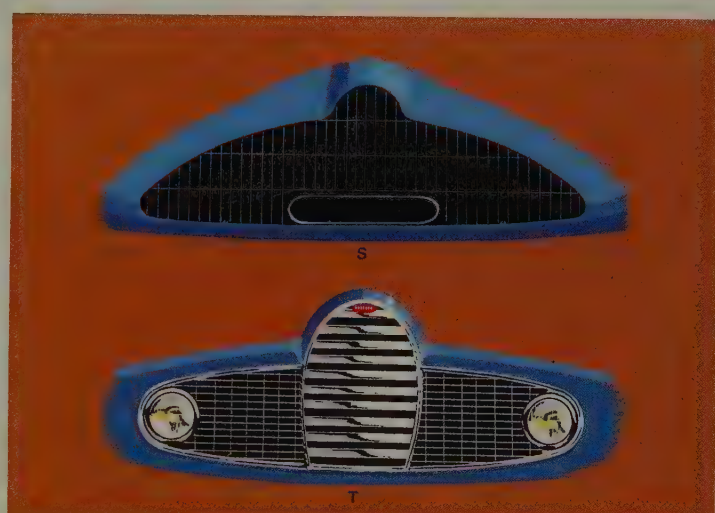
On the chart each plaque represents a Type and shows the year in which the prototype appeared or production commenced; the plaques are colour-coded to show the application of each model. The arrows, also colour-coded, show the ancestry and development of each Type in relation to its neighbours. Orange arrows indicate descent in a direct line (here taken, for the sake of simplicity, to mean use of a common engine); yellow arrows indicate replacement models, which need bear no resemblance to the Type replaced beyond a possible sharing of certain components. Non-productive war-time years are shown by hollow arrows.

It may assist in understanding the above if we follow the fortunes of a specific Type, say Type 43 A, introduced in 1930. The purple plaque means that this was a Sports model. It stems from the Type 43, which itself was closely related to the Type 35 B



The evolution of Bugatti radiators, grilles and cowls.

- A. Types 13, 15 and 17, 1909–1911, based on the Deutz radiator.
- B. Types 13, 15, 17, 22 and 23, 1909–1914.
- C. Types Brescia, 22 and 23, 1918–1922.
- D. Type 28, one-off, 1921.
- E. Type 30, 1922.
- F. Type 35, 1924, and all its variants.
- G. Types 38, 40, 43, 44, 49, 1926–1934.
- H. Type 41, the Royale.
- I. Types 45, 47, 51, 54, 59, 1926–1934.
- J. Type 53, four-wheel-drive, 1931.
- K. Type 57, 1934–1939.
- L. Type 57 S, 1936–1938.
- M. Single-seater 3-litre Grand Prix car, 1938.
- N. 4.7-litre single-seater, 1939.
- O. Types 68 and 73 A, 1942 and 1947.
- P. Type 101, 1951.
- Q. and R. Type 251 Grand Prix car, 1956.
- S. Prototype 252.
- T. Proposed Michelotti design, Type 252.



at least as regards engine. In 1932 Type 43 A was replaced by Type 55, the engine of which came from the twin-o.h.c. Type 51 racing car. Thus by consulting the table on page 32 and the coloured plaques one can arrive at a true picture of any Bugatti type.

Bugatti Radiators, 1910 to 1951

The radiator shell used always to be one of the principal features of a car, important both aesthetically and socially. Who, for instance, does not know a Rolls-Royce radiator, with its strange resemblance to a Greek temple? Bugatti radiators and their horseshoe shape were equally well known during the twenties and thirties. Their evolution dated right back to Types 13, 15 and 17 of 1910–11. An angular brass radiator (A) was used by Bugatti on his first car built in the basement while he was working for Deutz in Cologne. It is in fact, a miniature Deutz radiator.

The Roland Garros came out just as Bugatti had designed new brass radiators (B) which, having no angles or shoulders blended into a slim bonnet line. The Garros was similar but more rounded, stouter, taller and more elegant.

The next step came after the Armistice (C), when Bugatti radiators became almost pear-shaped. These were used on the Type 13 Brescia and models derived from it. In 1921 when the Patron introduced his first big touring car, the 3-litre Type 28, a true horseshoe shape was used for the first time (D). It was in fact the shape of a

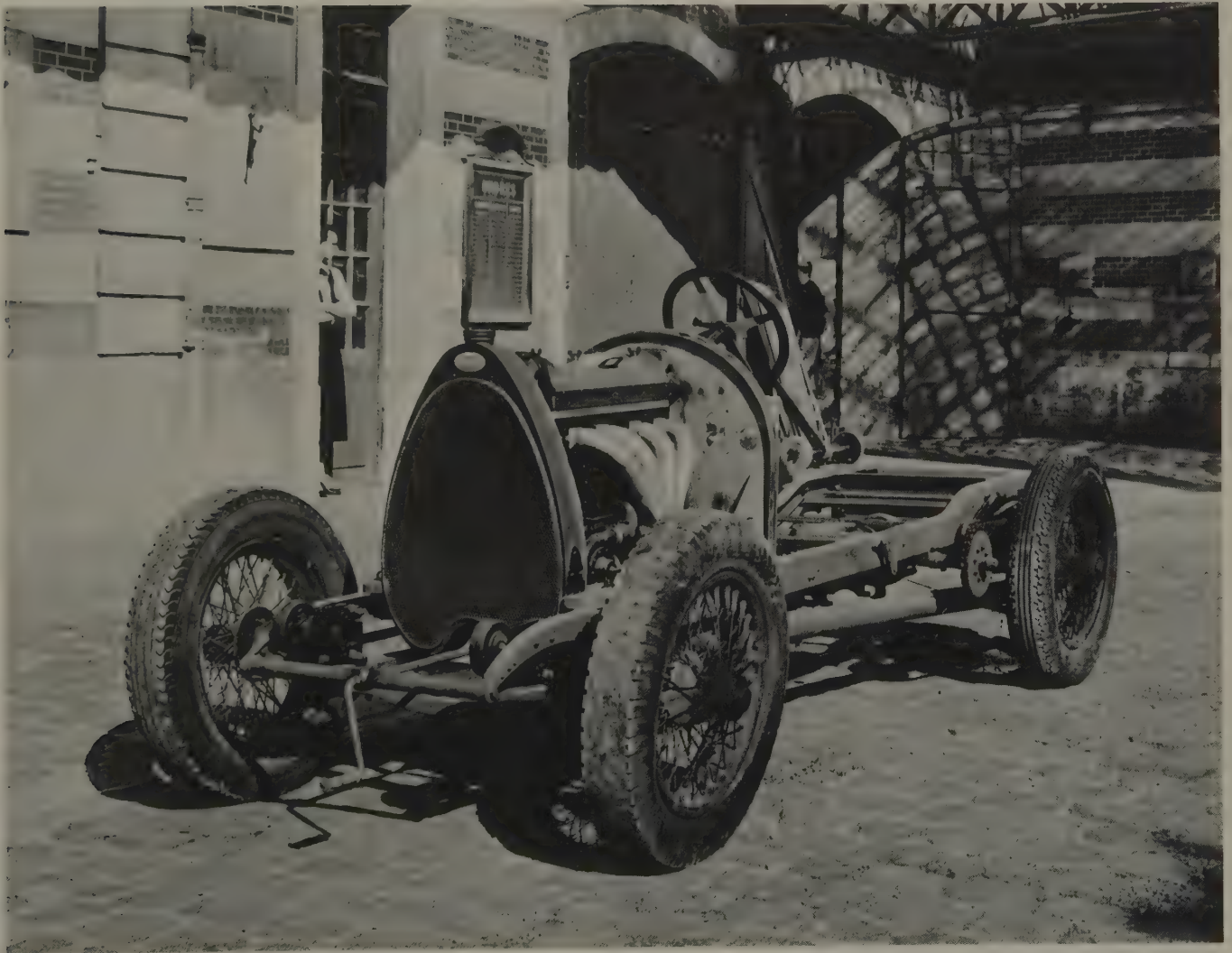
horseshoe, being actually the 1913 design with the base cut off just below the widest point. As Type 28 never progressed beyond the prototype stage this shape of radiator seems to have fallen into oblivion.

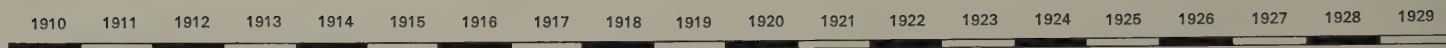
The following year there appeared Type 30, Bugatti's first production straight eight. This was the first Bugatti to have a radiator made from nickel-silver instead of brass (E). The shape was a compromise between the Type 13 Brescia and the 28, at its widest near the base, and the bottom no longer straight but slightly curved. Until now the red oval Bugatti badge had been attached to the deepest part of the radiator shell at the top; but on this new design the plated shell enclosing the honeycomb was of constant width, and the badge attached to it therefore overlapped the cooling tubes. This model was also used on the last Types 22/23 Modified Brescias.

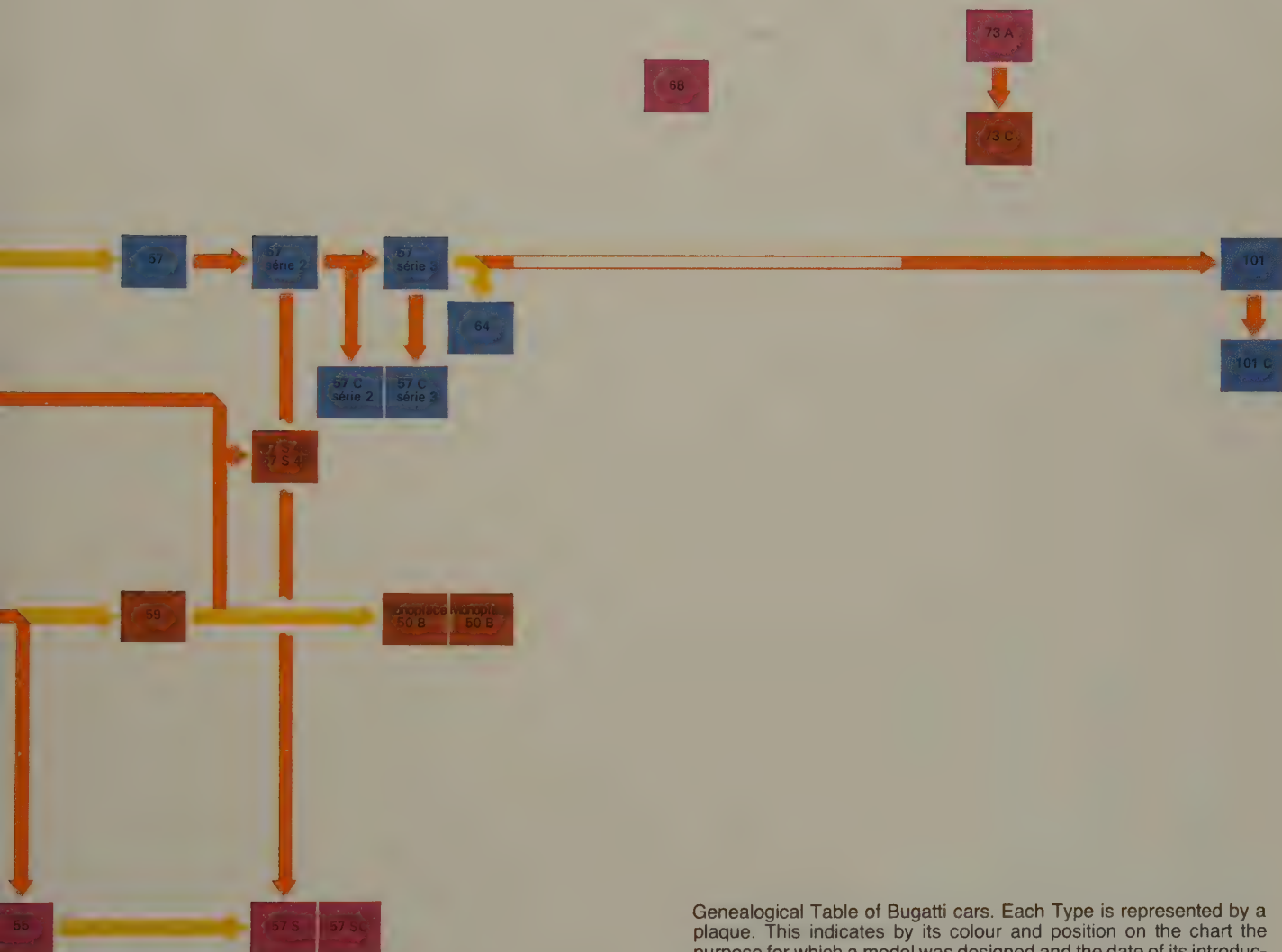
A new generation of Bugatti racing cars made its appearance at the A.C.F. Grand Prix held at Lyons in 1924. Carrying entirely fresh bodywork they received a new design of radiator (F), destined to become famous in the annals of racing. It was also used on various derivatives of the Type 35, such as the 37, 39 etc. Most Sports and touring models produced at this time, Types 38, 43, 43 A, 44, 55 etc., had similar radiators, but larger and more curved at the side (G).

As for the grandest of all Bugattis, the Royale, this had a radiator of suitably imposing proportions, the details of which varied from car to car. The drawing (H) on page 26 is taken from that of the Roadster. Despite its imposing dimensions the

This 5-litre chassis was the one that was at Molsheim until 1963.
The radiator form is clearly shown.







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design retained all its subtlety, more indeed, as witness the delicate base curve and the exquisite transition between this line and the flanks. As a crowning refinement the filler cap carried a handsome mascot in the form of a silver-plated elephant. Unlike the early Royales which had coachwork designed by the Patron himself, later cars, including the Roadster, had radiators displaying a slight shoulder. This feature recurred on all the Type 57's. The Type 57 shell was virtually the Royale on a smaller scale, although it looked more massive owing to the thermostatically-controlled shutters in front of the honeycomb. Type 57 shells were either plated or cellulosed.

The most striking break with tradition came when Jean Bugatti designed a false grille for the Type 57 S (L) placed ahead of the radiator proper. Shaped like an egg upside down, the grille was slightly vee'd, with a central strip flanked by slim chromium-plated slats. The Type 64 grille was similar but with black criss-cross slats.

Types 68 and 73 prototypes reverted to a flat horseshoe radiator (O) but to look more up-to-date it was sloped backwards and the shell became a mere rim of chrome. This return to tradition probably marked the Patron's own return as head of the company after the death of Jean. The Type 101 front was identical, since it harked back to certain Type 57 S 45 bodies raced at Le Mans in 1937. In profile the grille was slightly curved; its decoration consisted of numerous slats arranged in two adjacent planes, vertical on the front one, horizontal on the other.

TYPE BY TYPE

The principal features compared

Application	T:	Touring
	S:	Sports model
	G.S.:	Super Sports
	C:	Racing
R.B.	=	Wooden spokes
R.M.	=	Wire wheels
R.M.S.	=	Special wire wheels
A.R.L.	=	Light alloy, wide spokes
A.A.	=	Aluminium alloy, finned
T.E.	=	Pressed steel

* Choice of four-speed box with overdrive or Cotal electromagnetic box.

	Application	Number of cylinders	Capacity	Bore	Stroke	Overhead camshaft(s)	Valves per cylinder	Supercharger	Number of speeds	Wheels	Wheelbase (metres)	Track	Length overall including bodywork (approx.)	Width overall including bodywork (approx.)	Height when closed (approx.)	Maximum speed (approx.)
ROS	T	4	1327	65	100	single	2	no	4	R.B.	2,00	1,15	2,80	1,30	1,65*	95
	T	4	1327	65	100	single	2	no	4	R.B.	2,40/2,55	1,15	3,30/3,50	1,30	1,80*	90
	G.S.	4	5027	100	160	single	3	no	4	R.M.	2,55	1,25	3,70	1,50	1,30	150
	T	4	1368	66	100	single	2	no	4	R.M.	2,00	1,15	2,80	1,30	1,25	95
	T	4	1368	66	100	single	2	no	4	R.M.	2,40/2,55	1,15	3,45/3,60	1,30	1,30	90
	C	4	1368	66	100	single	4	no	4	R.M.	2,00	1,15	2,90	1,25	1,10	130
	T	4	1368	66	100	single	4	no	4	R.M.	2,40/2,55	1,15	3,45/3,60	1,30	1,60*	110
IA	C	4	1496	69	100	single	4	no	4	R.M.	2,00	1,15	2,85	1,30	1,10	150
	T	4	1453	68	100	single	4	no	4	R.M.	2,40/2,55	1,15	3,45/3,60	1,30	1,60*	110
	T	4	1496	69	100	single	4	no	4	R.M.	2,40/2,55	1,15	3,45/3,60	1,30	1,60*	115
	T	8	2995	69	100	single	3	no	2	R.M.	3,12	1,25	4,40	1,60	1,80	?
	C	8	1991	60	88	single	3	no	4	R.M.	2,40/2,00	1,15	4,00/3,80	1,20	1,15/0,85	175/185
	T	8	1991	60	88	single	3	no	4	R.M.	2,85	1,20	3,90	1,55	1,60*	120
	C	8	1991	60	88	single	3	no	4	A.R.L.	2,40	1,20	3,65	1,40	1,05	175
)	S	8	1991	60	88	single	3	no	4	R.M.	2,40	1,20	3,65	1,40	1,05	145
	C	8	2261	60	100	single	3	yes	4	A.R.L.	2,40	1,20	3,65	1,40	1,05	200
	C	8	1991	60	88	single	3	yes	4	A.R.L.	2,40	1,20	3,65	1,45	1,05	200
	C	8	2261	60	100	single	3	no	4	A.R.L.	2,40	1,20	3,65	1,45	1,05	185
	C	8	1100	51,3	66	single	3	yes	4	A.R.L.	2,50	1,20	3,85	1,45	1,00	170
	S	4	1496	69	100	single	3	no	4	R.M.	2,40	1,20	3,65	1,45	1,05	150
	C	4	1496	69	100	single	3	yes	4	R.M.	2,40	1,20	3,65	1,45	1,05	175
A	T	8	1991	60	88	single	3	no	4	R.M.	3,12	1,25	4,20	1,55	1,70*	120
	S	8	1991	60	88	single	3	yes	4	R.M.	3,12	1,25	4,20	1,55	1,70*	130
	C	8	1493	60	66	single	3	no	4	A.R.L.	2,40	1,20	3,65	1,45	1,05	170
	C	8	1493	60	66	single	3	yes	4	A.R.L.	2,40	1,20	3,65	1,45	1,05	200
	T	4	1496	69	100	single	3	no	4	R.M.	2,56/2,71	1,20	3,85/4,00	1,50	1,50*	120
	T	4	1627	72	100	single	3	no	4	R.M.	2,71	1,20	4,00	1,50	1,50*	120
	T	8	12763	125	130	single	3	no	3	A.A.	4,30	1,60	5,90	2,00	1,90*	200 (?)
S	G.S.	8	2261	60	100	single	3	yes	4	A.R.L.	2,97	1,25	4,30	1,55	1,50*	170
	T	8	2992	69	100	single	3	no	4	R.M.	3,12	1,25	4,20	1,55	1,65*	130
	C	16	3801	60	84	2 single	3	yes 2	4	A.R.L.	2,60	1,25	3,95	1,50	1,05	200
	T	8	5359	81	130	single	3	no	3	R.M. ou A.A.	3,50	1,40	5,00	1,70	1,70*	150
	T	8	5359	81	130	single	3	yes	3	A.A.	3,50	1,40	5,00	1,70	1,70*	160
	G.S.	16	2986	60	66	2 single	3	yes 2	4	A.R.L.	2,75	1,25	4,20	1,55	1,45	200
	T	8	3257	72	100	single	3	no	4	A.A.	3,12/3,22	1,25	4,40/4,50	1,55	1,55*	130
5	G.S.	8	4972	86	107	twin	2	yes	3	A.A.	3,10	1,40	4,20	1,65	1,40*	175
	S	8	4972	86	107	twin	2	yes	3	A.A.	3,50	1,40	4,85	1,75	1,50*	160
	C	8	2261	60	100	twin	2	yes	4	A.R.L.	2,40	1,20	3,65	1,45	1,05	210
	C	8	1493	60	66	twin	2	yes	4	A.R.L.	2,40	1,20	3,65	1,45	1,05	190
	C	8	1991	60	88	twin	2	yes	4	A.R.L.	2,40	1,20	3,65	1,45	1,05	200
	C	8	4972	86	107	twin	2	yes	4	A.A.	2,60	1,25	3,50	1,50	1,25	200
	C	8	4972	86	107	twin	2	yes	3	A.R.L.	2,75	1,35	4,00	1,60	1,25	240
T	G.S.	8	2261	60	100	twin	2	yes	4	A.R.L.	2,75	1,25	4,20	1,55	1,30	180
	T	8	3257	72	100	twin	2	no	4	R.M.	3,30	1,35	4,60	1,75	1,55*	150
	S	8	3257	72	100	twin	2	no	4	R.M.	2,98	1,35	4,30	1,75	1,30*	180
	T	8	3257	72	100	twin	2	yes	4	R.M.	3,30	1,35	4,60	1,75	1,55*	175
	S	8	3257	72	100	twin	2	yes	4	R.M.	2,98	1,35	4,30	1,75	1,30	200
	C	8	4743	84	107	twin	2	yes	4	R.M.S.	2,98	1,35	—	—	—	220
	C	8	3257	72	100	twin	2	yes	4	R.M.S.	2,60	1,25	3,95	1,50	1,20	280
S	T	8	4432	84	100	twin	2	no	4	R.M.	3,30	1,35	5,00	1,75	1,50*	—
	S	4	369	48,5	50	twin	4	yes	1	T.E.	2,00 (?)	1,15 (?)	3,25 (?)	1,35 (?)	1,20* (?)	—
	T	4	1488	76	82	single	3	yes	1	T.E.	2,60	1,26	4,20 (?)	1,60 (?)	1,40 (?)	—
	C	4	1488	76	82	twin	4	yes	1	R.M.	2,40	1,20	—	—	—	—
	T	8	3257	72	100	twin	2	no	4*	R.M.	3,30	1,35	5,20	1,75	1,55*	155
	T	8	3257	72	100	twin	2	yes	4*	R.M.	3,30	1,35	5,20	1,75	1,55*	180

The evolution of radiators and grilles was not the same on the racers as it was on the touring cars. Types 45 and 47, the only 16-cylinder models had extra-broad radiators to suit these wide engines. The same shape of radiator but smaller was used on Types 51, 54 and 59, successors to the Type 35 and its variants. In most cases it was protected against flying stones by a plated wire guard mounted an inch or so in front.

The only competition Bugatti that was substantially different mechanically was Type 53. Having a body like the 13 Brescia but bulkier and more elaborate, it differed from all the others in having a slightly pointed cowl, forerunner of that used on the Type 57 S (L).

When the single-seater G.P. car came out in 1938, with 3-litre Type 50 B engine, its body looked surprisingly modern compared with Type 59. The entire front was cowed, including the dumb-irons. The air inlet was embellished with a bulbous slatted grille (M) still more or less like a horseshoe. For 1939 the body fairings were tidied up and the grille moved further forward. Once again this looked like a horseshoe (N) and it was made very like that of the three-litre, although less bulbous and more sloping, with vertical slats.

Beneath and separate, with horizontal slats was the inlet for the oil-cooler. This was the last of the Grand Prix car radiators. Having looked at these various radiator grilles and cowlings all linked to the same basic shape, one can see roughly how the Bugatti style evolved. Consideration of the coachwork will make clear that radiators were always carefully chosen with the style and purpose of each car in mind.

Chronological Table of Bugatti Types

In the list that follows every Bugatti car model, whether or not it was actually built, is entered opposite the years during which it appeared in the catalogue. Some models, of course, never went into production. This was the case with experimental cars, and with various racing machines, especially in the late 1930s. Other Types, although listed for years, enjoyed only limited sales: the Royale is a classic example. Certain racing cars appear in this list, even though confined to Works drivers. From the table it is easy to distinguish prototypes, models and production cars. Experimental 'one-off' machines are shown in inverted commas, e.g. the Type '28', '64', '68' etc.

BUGATTI TYPES YEAR BY YEAR

Year	New Models	Models in production
1910	13, 15, 17	
1911		13, 15, 17
1912	GARROS	13, 15, 17
1913		13, 15, 17, GARROS
1914	22, 23	13, GARROS
1919		13, 22, 23
1920		13, 22, 23
1921	13b, « 28 »	22, 23
1922	29, 30	13b, 22, 23
1923	32	13b, 22bm, 23bm, 30
1924	35	13b, 22bm, 23bm, 30
1925		13b, 22bm, 23bm, 30, 35
1926	35A, 36, 37, 38, 39, 39A, 40, 41	35
1927	35T, 35B, 35C, 37A, 38A, 43, 44	35, 35A, 37, 38, 39, 39A, 40, 41
1928		35, 35A, 35T, 35B, 35C, 37, 37A, 39, 39A, 40, 41, 43, 44
1929	45, 46, 47	35, 35A, 35T, 35B, 35C, 37, 37A, 39, 39A, 40, 41, 43, 44
1930	40A, 43A, 49, 50, 50T	35, 35A, 35T, 35B, 35C, 37, 37A, 41, 45, 46, 47
1931	51, 51A, 51C, 53, 54, 46S	41, 43A, 46, 49, 50, 50T
1932	55	41, 46, 46S, 49, 50, 50T, 51, 51A, 51C, 53, 54
1933		41, 46, 46S, 49, 50, 50T, 51, 51A, 51C, 54, 55
1934	57, 59	46, 46S, 51, 51A, 51C, 55
1935		46, 46S, 51, 51A, 51C, 55, 57, 59
1936	57S, 57S45	46, 46S, 57, 59
1937	57C, 57SC	57, 57S, 57S45
1938	50B	57, 57S, 57C, 57SC, 57S45
1939	« 64 »	57, 57C, 50B
1942	« 68 »	
1946		
1947	« 73A », « 73C »	
1948		
1949		
1950		
1951	101, 101C	
1952		101, 101C
1953		101, 101C
1954		101, 101C
1955		
1956	251, « 252 »	
1957		
1958		
1959		
1960		
1961		
1962		
1963	BUGATTI factory acquired by Hispano-Suiza	

Note: 'One-off' experimental models
are shown in inverted commas.
13b Type 13 Brescia
22bm Type 22 Modified Brescia



M. M.

Considérant les frais énormes occasionnés, jusqu'à ce jour, par les voitures vites et puissantes, je me suis proposé de créer une race de voitures légères, pouvant rendre les mêmes services, jouissant des mêmes qualités, du même confort, mais débarrassées à jamais du gros élément de dépenses: LE POIDS.

Or il ne faut pas croire qu'il suffit de réduire seulement le poids et les lignes d'une voiture, pour faire de celle-ci un véhicule rapide, pratique, possédant la même stabilité et les mêmes garanties de sécurité qu'une automobile de puissance et de poids normaux. Il faut encore que ses proportions soient minutieusement étudiées, sa construction soignée à l'extrême et que les matériaux employés soient, cela se conçoit sans peine, de tout premier ordre.

Moyennant cela, on peut alors, ainsi que l'a écrit avec humour, Mr. BRADLEY rédacteur au Journal "The Motor" mettre sur le marché une voiture dont l'entretien soit effectivement une plaisanterie.

J'espère avoir atteint le but et par là même, conquis l'assentiment et la sympathie de ma clientèle.

Molsheim, le 1. Décembre 1910.

ETTORE BUGATTI.

EARLY DAYS AT MOLLSHEIM

As we saw in Chapter I of this book, it was at Christmas 1909 when he was 28 that Ettore Bugatti moved into his works at Molsheim and commenced his career as *Patron*. Placed thus in possession of adequate machinery, and backed by a team of highly qualified men, he could at last undertake the manufacture and exhaustive development of the various models which flowed from his drawing board. Appropriately it was the little car built in the basement at Cologne while he was working for Deutz that served as prototype and thus became the ancestor of all later Bugattis.

The first Type built at Molsheim bore the number 13 and quite obviously stemmed from the Cologne car. The 13 was very clean for its period and looked something like a cyclecar, without the spideriness. Bugatti of course wished his cars to be light and nimble; so they had to have an engine powerful enough, without making them unduly heavy, to give a top speed of 60 m.p.h. or so – faster than many much larger cars.

According to Ernest Friedrich, Bugatti's works manager and right-hand man, five Type 13 chassis were delivered during 1910. As was usual at that time, a brass radiator was fitted; it looked like a Deutz, on a smaller scale, although original in having the top corners rounded off, while the bottom remained strictly rectangular. The design constituted a preliminary sketch for the famous pear-shaped radiator characteristic of the make; and for the first time there appeared the oval red badge bearing Bugatti's name framed in a white dotted border, the dots being usually round but sometimes

square, and coloured to match the oval. Incidentally it may be remarked that Bugatti here for once showed little originality, for many of his competitors had similar designs.

The illustration on page 39 shows what the earliest models were like. This one has a body by Forrler, a small Strasbourg coachbuilder who is no longer in business. It looks quite a big car, despite its true size. This is accounted for by the somewhat massive wings, and the rather high waist line. Considerable care, too, has been taken to integrate the radiator with the mass of the body, the bonnet blending with the scuttle sloping gently up to the cockpit, creating an impression that the bonnet is longer than it is. This treatment may to some extent be compared with that adopted by Henri Labourdette on his famous Panhard et Levassor 'Skiff'. There was just room for two on the single seat, and the interior was pleated and buttoned as far as the passenger's door on the near side and the corresponding sham door on the right. The seat squab rested against the rear panel, and the latter supported a rather primitive hood. No windscreen was fitted, and the protection given by this hood was necessarily incomplete.

The wing line was particularly good. The wings themselves had edges wired for strength and generous valances. A long valance between body and running-board protected from dust and mud – features unusual enough on cars of this category at the time.

The brackets on the front wing and alongside the sham door were for carrying a pair of spare tyres.

This impressive column of Type 13 chassis was photographed outside the Works about 1913. It will be noted that square and oval radiators were used indiscriminately and that only the leading car has been bodied.



Finally it will be noted that the wheels on these early cars had wooden spokes and rims, as was the fashion about 1910. The Type 13 as illustrated has the air of a *voiture de luxe*, doubtless because of its black paint, and the amount of brasswork, all of which had to be polished. Its proportions, in the absence of other models for comparison, suggest a car in the medium horsepower bracket. Yet its overall length was barely 10 feet!

When fitted with less luxurious coachwork the Type 13 could be a rakish and lively little car; and in 1911 an occasion offered for Bugatti to prove it by entering for the Grand Prix de France, organised by the Auto Club de la Sarthe at Le Mans.

For this event Bugatti clad the 2 metre (6 ft 7 $\frac{3}{4}$ in) wheelbase of the Type 13 with a simple but attractive little shell. This was made at the Works although there was then no special body-shop; only simple curvatures were used, so that no skilled panel beater was required. A cylindrical bolster fuel tank was mounted in a wooden cradle on a wooden platform behind. This had two advantages: it allowed a larger tank, and the latter was less exposed than on the standard model. To reduce wind-resistance and save weight, the cockpit was so narrow that the riding mechanic had to hold the spare wheel in his lap; and wire wheels replaced the heavy and frail wooden sort. Finally, for the first time on a Bugatti there were bonnet louvres to assist cooling.

In due course a little Type 13 racer appeared on the Sarthe circuit resplendent in white paint, its racing number 14 painted on the side of the body.

The white colour scheme, so extraordinary on a Bugatti, is explained by the fact that Alsace still formed part of the empire of Kaiser Wilhelm II of Hohenzollern, and Bugatti was therefore obliged to make his racing debut wearing German colours. In those days there were agreed national colours for racing cars – Germany white, France blue, Italy red, Britain green. At the wheel of the new car sat Bugatti's faithful right-hand man Ernest Friedrich, all set to win the first international race in which he had taken part. He succeeded brilliantly. He won the class for cars up to 1400 cc and came second in the general classification behind a Fiat of ten litres capacity driven by Hemery.

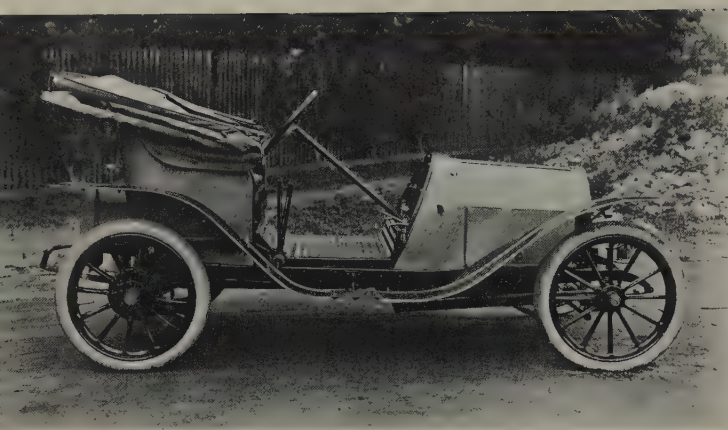
The first victory in an international event made Bugatti's name famous throughout the farthest confines of Europe. One Type 13 of 1910 or 1911 was bought by a Russian customer. This car has recently been brought back to France. Now, after restoration, it may be seen in the Museon di Rodo, the car museum at Uzès near Nîmes in the South.

At the same time as this successful racing debut Bugatti laid down a batch of long-wheelbase (7 ft 10 in) chassis to carry more spacious bodywork. An early specimen, if not the first, was bodied by Gangloff of Colmar, a most successful design which marked the beginning of an association that grew ever closer as years went by. As we have already remarked, the Molsheim works had no coachbuilding facilities of their own, so Bugatti had recourse to small local firms more used to horses and carts. The majority rid themselves of their previous methods, urged on by Ettore himself. A new style

The Type 13 rarely exceeded 10 ft in length although it could be fitted with quite pretty little bodies, like this touring two-seater by Forrier, a small Strasbourg coachbuilder.

In 1911 Bugatti entered a Type 13 for the Grand Prix de France at Le Mans. The car was painted white, the official racing colour for Germany (and Alsace). Friedrich finished second, behind Hemery's powerful Fiat (see pages 40 and 42).





Same Type, different treatment. The smart Type 13 above is fitted with wings and a hood. The experimental car below is evidently later as it has wire wheels and rear suspension by reversed quarter-elliptics.



had to be found that would do justice to the new brand of sporting vehicle.

But with his long-wheelbase Type 15 Bugatti was exploring quite different territory; he was inaugurating a class of vehicle that was to prove the mainstay of the company throughout its existence – the high performance closed car. These no less than the racing and sports models were to point the way towards *Grand tourisme*, then still in its infancy.

The first Bugatti saloon carried a tall angular body by Gangloff of purest equine origins – a style which was to crop up again and again. The sides (see page 42) were vertical but the back was sloped, finishing just behind the axle, an arrangement which brought the passenger's seat inside the wheelbase. A bonnet like that of the prototype was

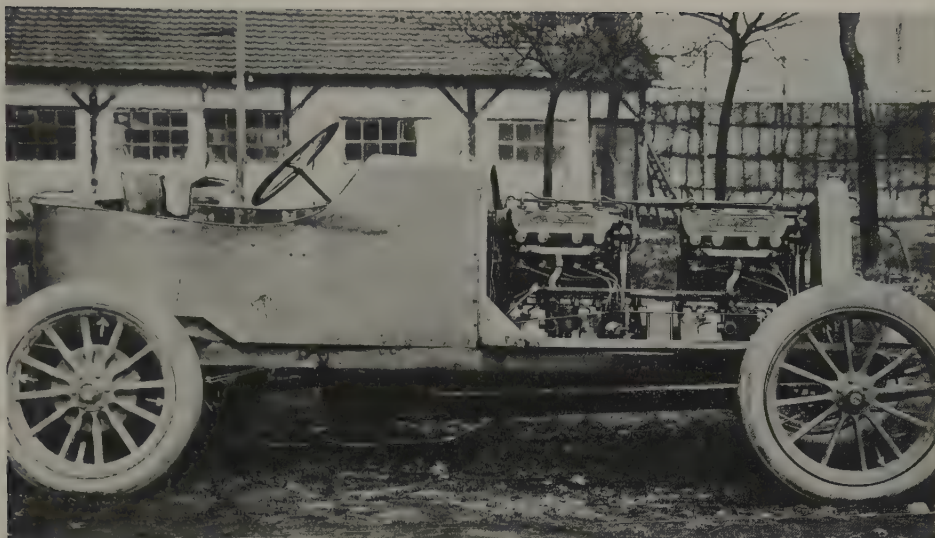
used, linked to the body by a short almost horizontal scuttle.

Three facts strike one about this body: The large area of glass and the thinness of the screen pillars giving far better visibility than was usual in closed cars at the time: the single central door on each side providing convenient access to all four seats: and the rigorously vertical windscreen with its folding visor to ward off the rain – for remember, wipers were not yet in use. The visor is important architecturally, as it continues the sweep of the roof; note also the sharp angle between panels and roof.

Mechanically the long-wheelbase Type 15 was identical with the Type 13; theoretically therefore it could lay claim to similar performance; but the extra weight and bulk made this impossible. Nevertheless Bugatti drove a Type 15 from Strasbourg to Paris in 1910 at an average of 37 m.p.h., a spectacular performance bearing in mind the state of the roads and the smallness of the engine.

In 1912 the Patron started numbering Types according to their wheelbase. Catalogues list the 2-metre (6 ft 7 in) chassis as Type 13, the 2.40 m (7 ft 10 in) as Type 15 and the long, 2.55 m (8 ft 10 in) cars Type 17. The Berline on page 42 has chassis number 366; it left the works in December 1910, was exhibited at the Paris Salon of that year and purchased in 1912 by an Englishman, Colonel Dawson. The chassis, now fitted with a two-seater body painted midnight blue, belongs to the English collector, C. W. P. Hampton. It is in exceptionally fine condition.

On his competition cars Bugatti laboured unceasingly to improve the power/weight ratio. In 1913 he fitted a long chassis with two Type 13 engines in tandem, a timid first step towards the straight eight.



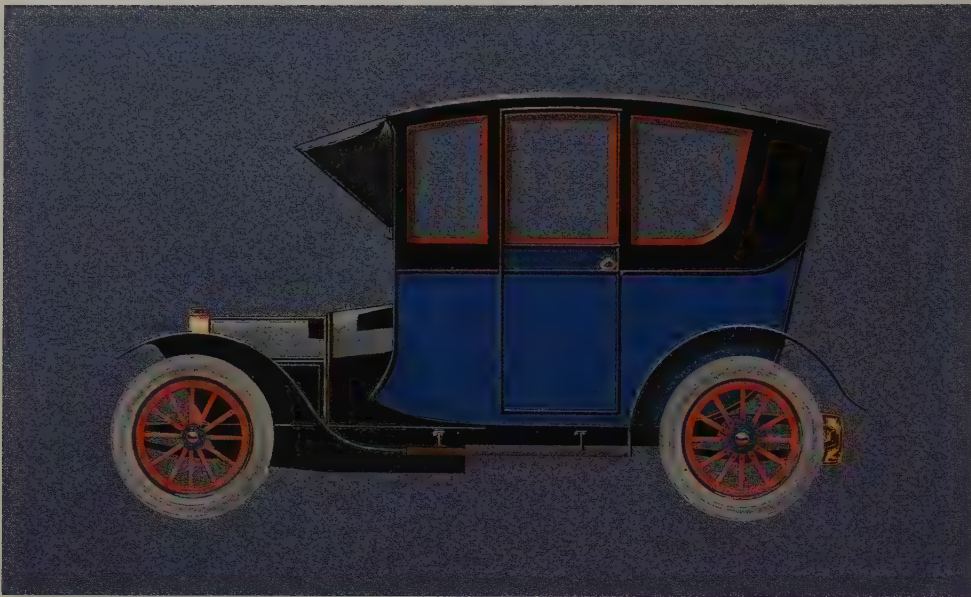
The Roland Garros

Probably in response to demand from influential clients Bugatti placed a powerful four-cylinder 5-litre model on sale in 1912. Architecturally the engine resembled the small units he had made hitherto; but now for the first time there were three valves per cylinder, two inlet and one exhaust. Apart from later versions of the Type 13 which had four valves per cylinder, this layout remained standard for Bugatti engines until the introduction of twin overhead camshafts in 1930. The extra litre-age and higher specific output gave the 5-litre a top speed of 100 m.p.h. One of these chassis, without body, lay in the works at Molsheim until 1963, when it was acquired by the collector, Schlumpf, along with numerous other rare models. The only complete example is the one belonging to C. W. P. Hampton; although strictly speaking this car is not quite original as the typically British wings date from the rebuild undertaken in 1935 by the late Col. G. M. Giles, C.B.E., M.C., T.D. This chassis, no. 474, was purchased new by the well-known airman Roland Garros, who was shot down in aerial combat towards the end of the Great War, and who gave his name to the type. An often published photograph of the famous fighter pilot shows him at the wheel of his striking five-litre two-seater, built on an 8 ft 10 in wheelbase, like that of the longest standard Bugattis, but with wider track. A pear-shaped radiator, very narrow at the top, established the cross-sectional shape, while the smooth bonnet and scuttle ended vertically at the bulk-

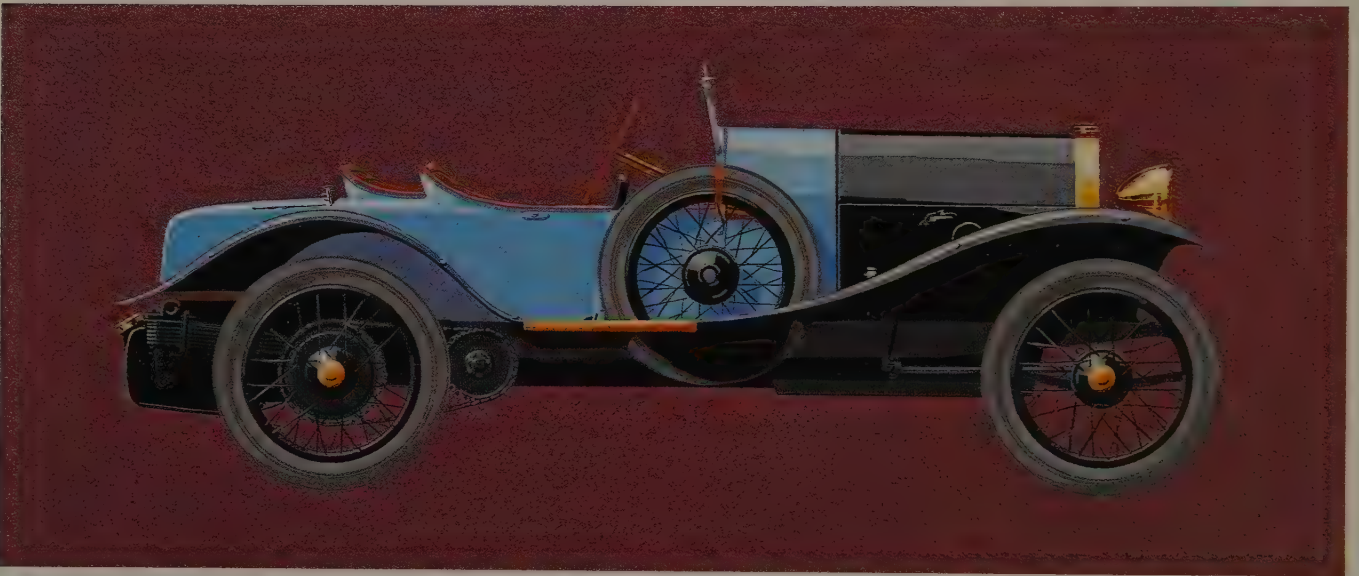
head. The elbow line was emphasised by a polished hardwood fillet round the driver's seat which was integral with the body. Arrangements for the passenger's seat were similar, this being a bucket seat well-upholstered at the sides and 'staggered' slightly to the rear to give the driver's left elbow full liberty of movement. Behind, the body terminated in a point, foreshadowing the tail of the Type 35 and its derivatives.

The slim and elegantly swept wings were separated by short running-boards placed level with the top of the frame. This high position allowed them to clear the chain-drive sprockets. The harmony of line was emphasised by the light colouring of the body, which made it seem longer. It should be mentioned incidentally that the car was later repainted black, which explains the name *Black Bess* by which the car is known in Britain. It never had a type number. It was Miss Ivy Cummings who christened the car soon after 1920. Several 5-litre cars were built, including one with shaft drive instead of chains for Ernest Friedrich to drive in the Indianapolis 500 Miles race. Unfortunately he was obliged to retire while lying third after 425 miles. There is a photograph of another 5-litre, fitted with an interior-drive body like the Gangloff Type 15, but shorter and roomier and for two persons only. This coupé (see foot of page 42) was a four-light body but otherwise similar to the Gangloff and fitted, like that machine, with a folding leather-cloth visor.

Although 5-litres were normally chain driven, shaft drive and the other mechanical features of



The first *conduite intérieure* (left) built in 1910 by Gangloff of Colmar and mounted on Type 13 chassis. Below, the powerful *Roland Garros* 5-litre model of 1912 with open body and another 5-litre in coupé form the lines of which recall the Gangloff *conduite* (see op. page).





Although accustomed to horsedrawn transport, the small body-builders of Alsace could produce some quite rakish designs, as witness this Type 23 by Durr of Colmar, the lightness of which is emphasised by the absence of windscreen. Below is another Type 23 tourer, but dating from 1920; it offers better weather protection.



Ettore Bugatti as hill-climb competitor in a 5-litre at Mont Ventoux in 1912. He was already concerned about the airflow over the back of the car, hence the oddly pointed tail, precursor of later racing designs.



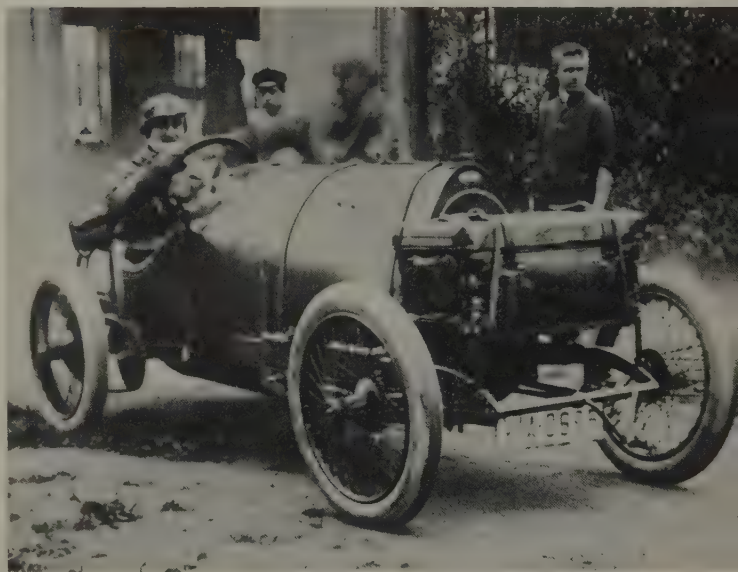
Friedrich's car became standard on subsequent models: reversed quarter-elliptic springs, separate gearbox and three valves per cylinder. As regards external appearance the model illustrated on page 42, as delivered to Roland Garros, featured front wings that seem to forecast the Type 55, and rear ones as on post-1924 racing cars. All in all the 'Garros' was a considerable advance, especially as regards appearance, and may therefore be considered the real ancestor of Bugatti sports cars.

The 12-valve Types 22 and 23

At the beginning of 1914 Types 15 and 17 were replaced by Types 22 and 23. Dimensions remained the same but the new numbering drew customers' attention to certain mechanical changes, the most obvious of which was the use of reversed quarter-elliptics for the rear suspension.

Two illustrations on page 43 depict an ultra-lightweight body on the 2.55 m Type 23 chassis, a roomy and remarkably up to date Torpedo by Durr, a small coachbuilder in Colmar. This rakish design has a radiator like that of *Black Bess*, but not so tall and therefore rather squat. The body had no doors; it needed none with those low sides and high running-board. Motorists before 1914 were less pampered than they are today. The front and back are separated by a partition forming an integral part of the structure, and increasing its rigidity. The seats, front and back, are deeply upholstered, and have armrests which serve also to shelter the thighs. Without a windscreen there was no protection

Two versions of the racing 5-litre: Ettore Bugatti sets off for a hill-climb event by road, his luggage strapped in front without regard to road-holding or cooling; and (below) a 5-litre built specially for the 1914 Indianapolis 500 miles race).

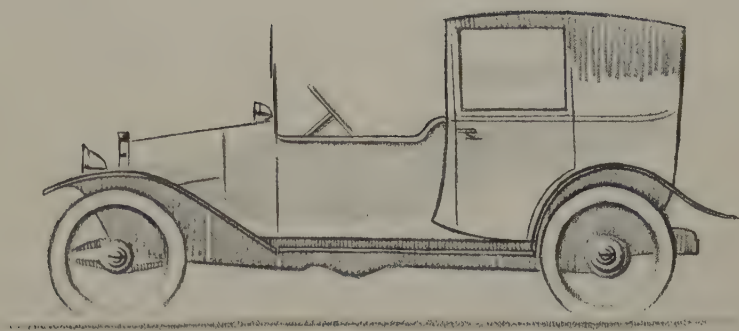




Immediately after the war Types 22 and 23 were fitted with light bodywork as before, but on more modern lines. The green car above is a boat-tailed torpedo, so fashionable during the early twenties, while the car below is a version of the starker Durr body on page 43. Between them is the model which came first, second, third and fourth at Brescia in 1921 (see pages 48 and 50).



Although intended primarily for sports cars, some Type 23's were fitted with coachwork *de luxe*, like this equine Coupé de Ville of 1920.



above waist level; one sat out in the slipstream, exposed to the fury of the elements. But wouldn't it be lovely on a warm sunny day?

The narrow wings are triangular in section. They clearly owe their inspiration to the 'wind-cheating' style fashionable before the War for radiator cowls, and despite their simplicity the coachbuilder has lightened their already flowing lines by an upward curve – to the detriment, alas, of their effectiveness as mudguards.

Only rarely were these chassis fitted with closed bodywork. Almost all were supplied as light open sports cars, the very image in fact, of what one thinks of as a *pur-sang* Bugatti.

The 16-valve Types 22 and 23

Before examining the mechanical changes which the Patron introduced on Types 22 and 23 we must consider what the 1914–18 war entailed for the Molsheim Works. In fact they just missed being wiped out. Bugatti had always evinced a profound attachment to France, even though during twelve years' residence in Germany he had worked mainly with German concerns. When war broke out therefore in August 1914 he left Molsheim, with all his family. After many vicissitudes he succeeded in reaching Switzerland, then Italy. Eventually he placed himself at the disposal of the French and settled down in Paris to design an aero-engine, as we have already seen.

Before going into exile, however, the Patron returned briefly to Molsheim and collected two

cars he wished to take with him to Milan. He also disposed of three engines of a new specification to hide them from the invaders. These were known as Type 13 *modifié*, having four cylinders, 16 valves and a swept volume of 1368 cc. He buried them secretly, having prepared them for a long spell without maintenance. They had been intended for the light-car Grand Prix at Clermont Ferrand, scheduled for August 1914 but cancelled owing to the war.

Once hostilities were over Bugatti moved back to Molsheim, where a scene of desolation awaited him. After four years of neglect buildings were dilapidated, roofs had fallen in, machines covered in rust and hand tools dispersed. Worse, there were sad gaps in the ranks of the loyal ex-employees who hastened to answer the Patron's call. The latter possessed nothing in working order except the three engines he had hidden and the two cars he took with him. With all the enthusiasm of his 37 years he set about reorganising the works so that he could go racing again and re-kindle the name of Bugatti. But first chassis production must be resumed. Engines would be the same as in 1913–14 Types 22 and 23, i.e. 1368 cc.

For an example of immediate post-war production the reader is referred to the drawing at the foot of page 43. This shows an open four-seater which is frankly rather dull, mounted on a 2.55 m Type 23 chassis; the two compartments are completely separate. The front seat has leather upholstery. Wire wheels help to lighten the car's aspect in spite of the high body; the latter gives better weather protec-

tion, and greater comfort thanks to the higher seat squabs. The windscreen, still lacking a wiper, can be folded so as to give a better view in the wet. This type of car was capable of about 75 m.p.h.

The wings and their valances, now in one piece, are lighter and better looking. Accessories such as lamps, horns and wheel centres, are still made of brass, giving these cars an old-fashioned air, despite their advanced specification.

At this period the choice of body styles was infinite, giving coachbuilders great freedom of expression; but customers showed a marked preference for open cars with sporting lines. Despite this Bugatti managed to fit some of his chassis with more formal coachwork, like the Coupé de Ville on page 47. There is a photograph of this car in *The Bugatti Book* published in England to mark the Silver Jubilee of the Bugatti Owners' Club. This car, with its open front seats and Brougham body, closely resembles the Type 28 which we shall be meeting in due course.

The Type 13 Brescia

Once re-established at Molsheim, Bugatti lost no time before recovering the three engines he had buried to save them from the ravages of war. Their restoration and tuning proceeded simultaneously with the preparation of three 6 ft 8 in chassis—for in 1920 the first post-war race meeting was to be held at Le Mans, scene of the Type 13's first victory in 1911. Bugatti entered his three 16-valve cars, with drivers Ernest Friedrich, Pierre de Vizcaya and

Baccoli. The race was an exciting one, and although Vizcaya was disqualified by the Stewards, Friedrich won, with almost 20 minutes in hand. Over the distance of 353 miles he made the astonishing average of 57 m.p.h. And so Bugatti was literally 'back in the race'!

These little racers had the simplest of bodywork, for Bugatti was anxious to prove that lightness assisted road-holding, contrary to the popular and generally accepted view that weight kept cars 'glued to the ground'. To save weight on these cars Bugatti reduced equipment to the minimum. Consider: behind the now well-known radiator came a simple two-piece bonnet hinged at the top, covering the engine and the occupants' legs. Held down by two straps, this bonnet took its shape from the radiator, and broadened out to the cockpit, which was exactly the same width as the frame and was no more than a metal sheet bent through two right-angles to enclose a space for driver and mechanic. Only the former had a proper seat. The latter perched on a cushion, his right arm behind the driver's back so as to reach the pump by which air pressure was maintained in the oval bolster tank.

The following season, in September 1921, the Light-car Grand Prix at Brescia saw the apotheosis of the 16-valve Bugattis, and put them on the map.

The 16-valve 22 and 23 Modified

Meanwhile the Types 22 and 23 carried peacefully on, not unaffected by the successes of their little brother, the Type 13. Detail modifications

Formerly, even more than nowadays, speed hill-climbs were the delight of thrill-seeking spectators. The mechanic of this Bugatti leans far out, to keep the car on its line.



increased the reliability of their engines. In 1922 the first eight-cylinder models made their appearance, although their development was somewhat retarded because Bugatti was preoccupied with the four-cylinders – and not without reason, for the latter remained popular, their chassis being safe and easy to drive, thanks to good road-holding and precise steering. They were in the forefront of automobile production.

During the winter of 1923 and spring of 1924 Types 22 and 23 were given Type 13 Brescia engines (69 mm by 100 mm, 1496 cc) and called Modified Brescia. Technical considerations apart this brought advantages from the advertising point of view. Production models would benefit directly from successes in racing. Mainly sports bodies were fitted. The yellow four-seater on page 46 is a striking example. Apart from their 7 ft 10 in or 8 ft 4 in wheelbase instead of 9 ft 6 in, Modified Brescias looked very much like the contemporary Type 30 eight cylinder and used the same radiator. Their most typical bodywork (although other very different sorts and conditions were made) was not unlike the one made by Durr in 1914. The resemblance is

due mainly to the mounting and treatment of the wings. The line of these mudguards raises the question of evolution. All the principles governing the Durr design recur here: the extended bonnet gives an impression of power, the lightly-mounted two-piece windscreen enhances the impression of lightness conferred by the wire wheels. An integral partition between front and rear improves structural rigidity. Lastly, there is the upward and inward sweep of the tail to suggest the beginnings of a fin.

From an aesthetic point of view the colour scheme is important. The high running-board reduces the body to a narrow horizontal strip, enhancing its lines. The impression of slimness is helped by the darker colour of the wings.

When eventually, in the summer of 1926, the Brescia and Modified Brescia were withdrawn, their place was taken by Type 40, of similar bore and stroke but different design. Thus ended the era of four cylinders and 16 valves, as that of the straight eights began. Already the latter had evolved and progressed. In racing they had things all their own way.

PUR SANG DURING THE TWENTIES

Let us now slip back a few years, to the time when Ettore Bugatti, home at last after the war, resumed production of his standard models Types 13 and 15 using the 16-valve engine, and prepared the racing Brescias. The end of the war and the resumption of activity in a works of his own seemed to unleash his imagination. Despite the heavy task of reorganisation, his inventive faculty knew no rest. Besides, customers were clamouring for more power and, though Ettore was little swayed by requests of this sort, he could not be unaware of them. The main thing was to be inventing and experimenting all the time. He thought back to an experimental car he had made in 1913, fitted with two Type 13 engines in tandem. Why not build an engine with eight cylinders in line? The externals could be very like those of the 16-valve fours. He settled down to work. And went on working. In his *annus mirabilis*, 1926, he brought out no fewer than seven new models, including two racing cars and the Royale.

Type 28

For a long time Bugatti had been obsessed by the idea of building a car for the luxury market. Back in 1913 he described what he had in mind: 'Larger than a Rolls-Royce, but much lighter', a phrase which neatly summed up the problem he had set himself to solve.

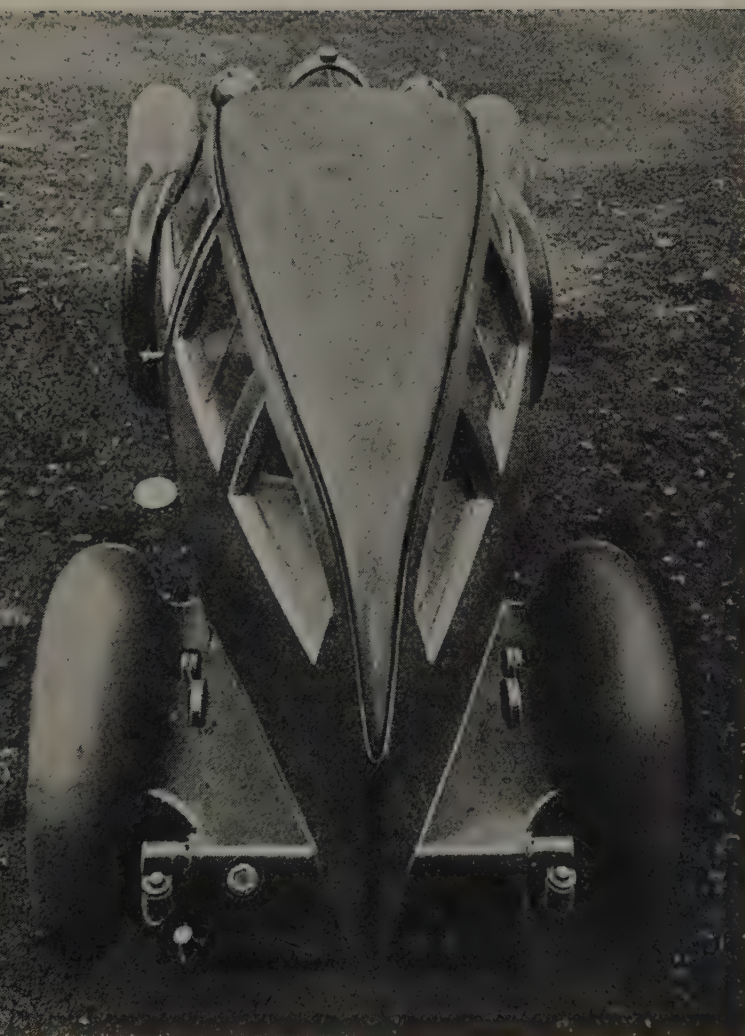
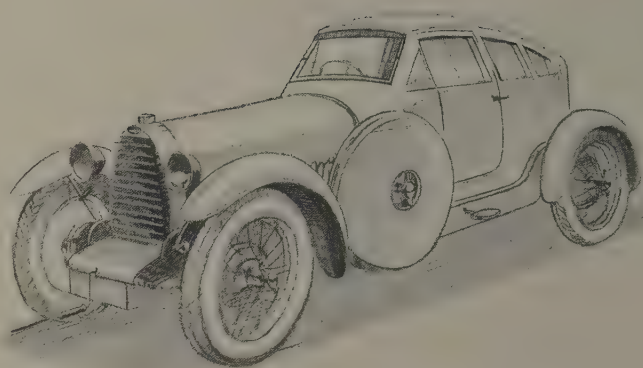
Despite this outspoken declaration, the model he exhibited at the Paris Salon in 1921 looked hardly more imposing than the long-chassis four-cylinder cars he had shown before; but to the

enthusiast what a delight and revelation it was! An engine like a symmetrical block of polished aluminium: the Patron's latest creation, a straight-eight of three litres. Superbly finished, it looked more like goldsmith's work than machinery. The camshaft cover had not yet the strict rectilinearity of later types, but already it housed the classic Bugatti arrangement, first seen on the Roland Garros, of three valves per cylinder, two inlet and one exhaust operated by a single overhead camshaft. Bore and stroke were 69×100 as on the later Brescias. The crankshaft ran in nine main bearings, an onerous arrangement but one offering great reliability. This engine gave some 90 b.h.p. It powered a chassis of astonishing lightness and drove the rear wheels via an aluminium gearbox in the back axle. The box gave only two speeds, these being deemed sufficient in view of the high power output.

For the first time on a Bugatti the brakes were hydraulically operated, on a system devised by the Patron. Steering rods were all duplicated and made from small-diameter tubing, another effort to save weight. Unfortunately the Type 28 remained at the prototype stage; not that it had been poorly received but more likely because Bugatti realised that the time was not ripe for him to enter the luxury market. Or had he to admit that this objective could not be attained with the Type 28?

The upper illustration on page 53 shows one form in which the 28 might have been sold, being carefully based on a factory drawing (Coachwork design No. 977). The general lines recall those of a

Not only boats but aeroplanes exerted an influence on body designers. The triangular plan of this coupé must have reduced wind resistance. On page 53 opposite: Body design for Type 28 taken from a Works drawing; centre, handsome drophead coupé; and bottom, a boat-tailed four-seater, both on Type 30 chassis (see page 58).

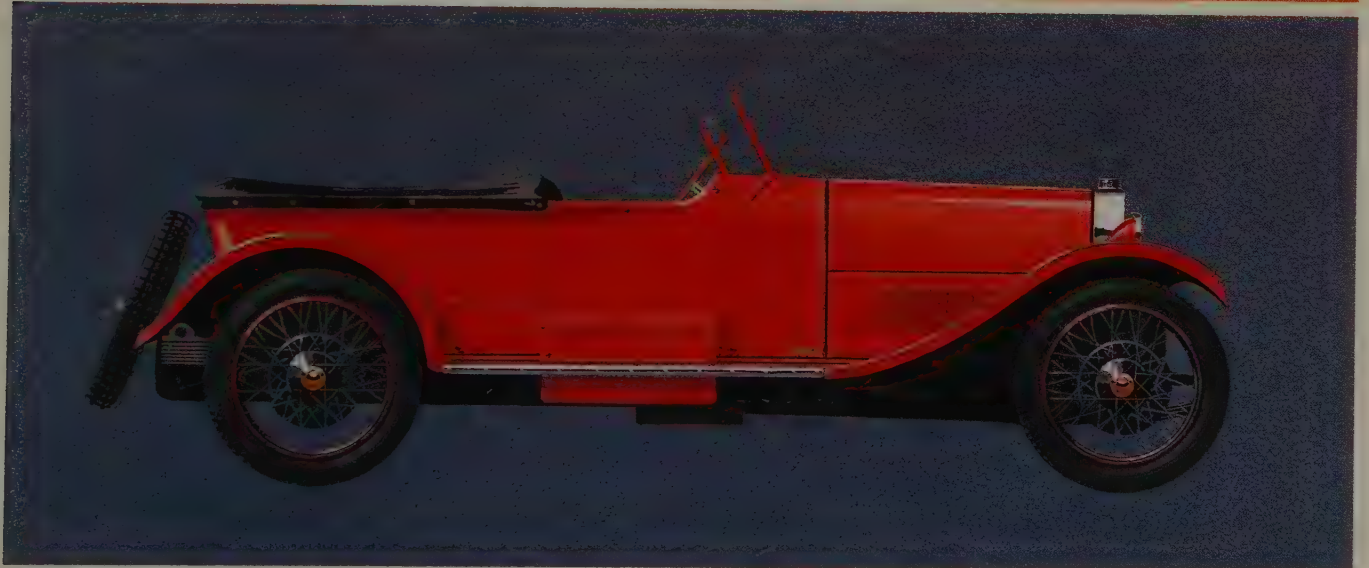
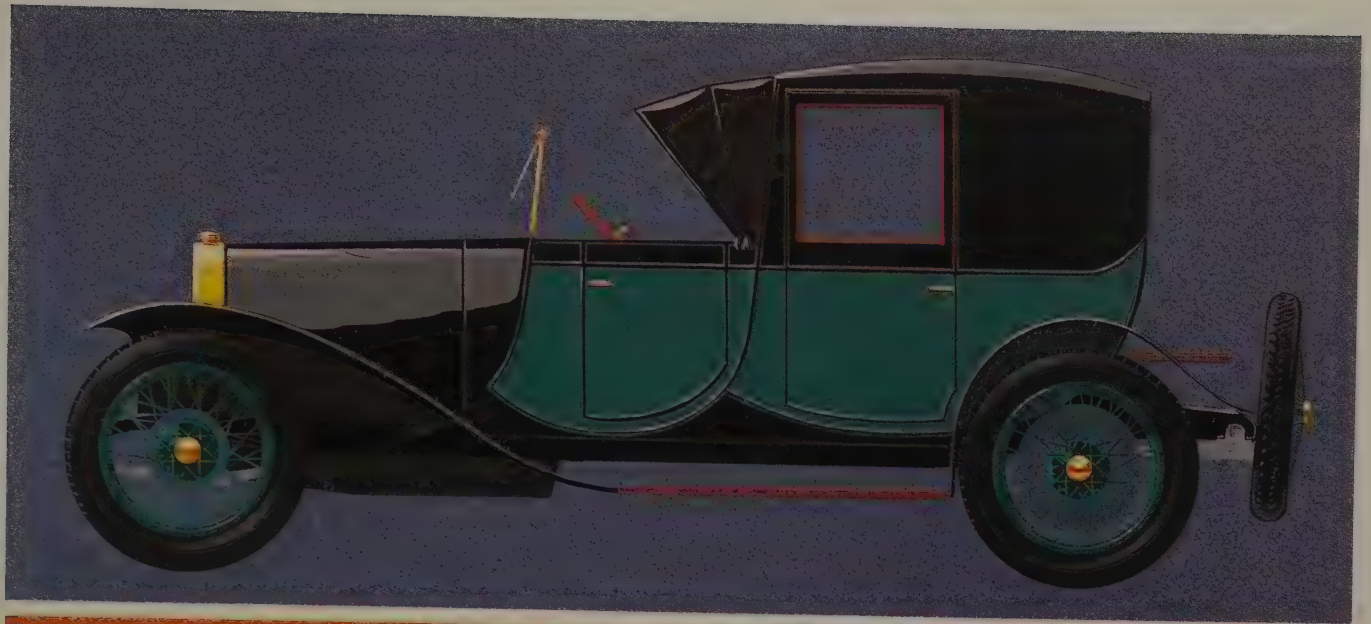


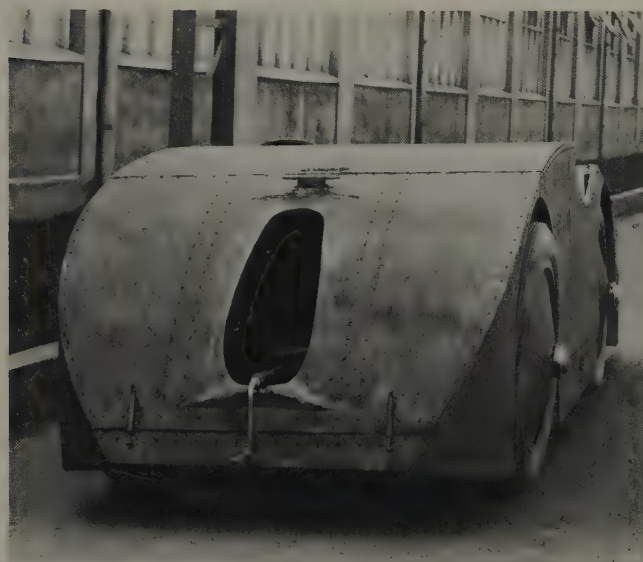
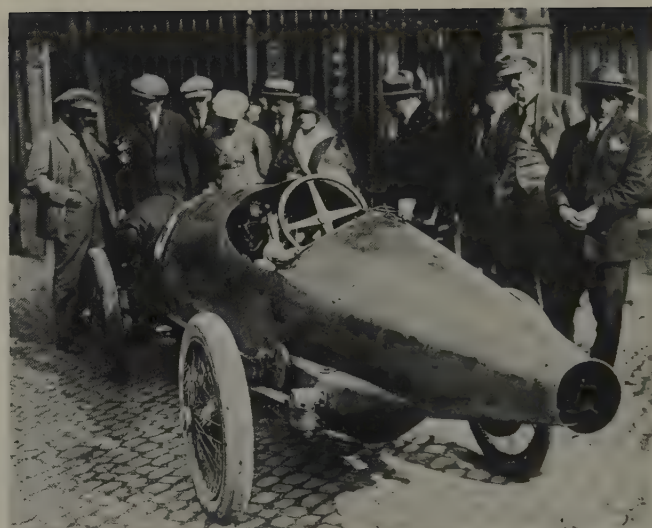
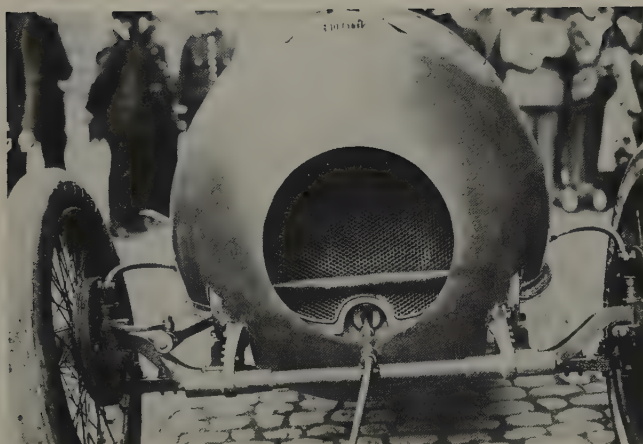
5-litre actually built in 1913 (see foot of page 42). The latter was an interior-drive coupé but the resemblance is striking all the same; a similar Type 23 has already been reviewed. The Type 28 project, too, had a folding visor, its function in this case being to shelter the front seats, rather than the wind screen. The top panel of this two-piece screen opened upwards, while the whole screen could be tilted back on its mountings. In this way the chauffeur and his companion were sheltered, if only to a limited extent, and could see where they were going despite the absence of wipers. Bugatti had thought this car out from the driver's point of view: mixture controls were fitted so that the two carburettors could be altered without stopping the car, he could alter the position of the steering wheel by means of a special sleeve, and check on engine performance, since the instruments were clamped to a tube just above the steering column.

The French Grand Prix, Strasbourg 1922

In 1922 Bugatti decided to recommission his eight-cylinder engine shelved following the failure of Type 28. A few racing cars were fitted with it before series production began, just so that the customers could see it in action.

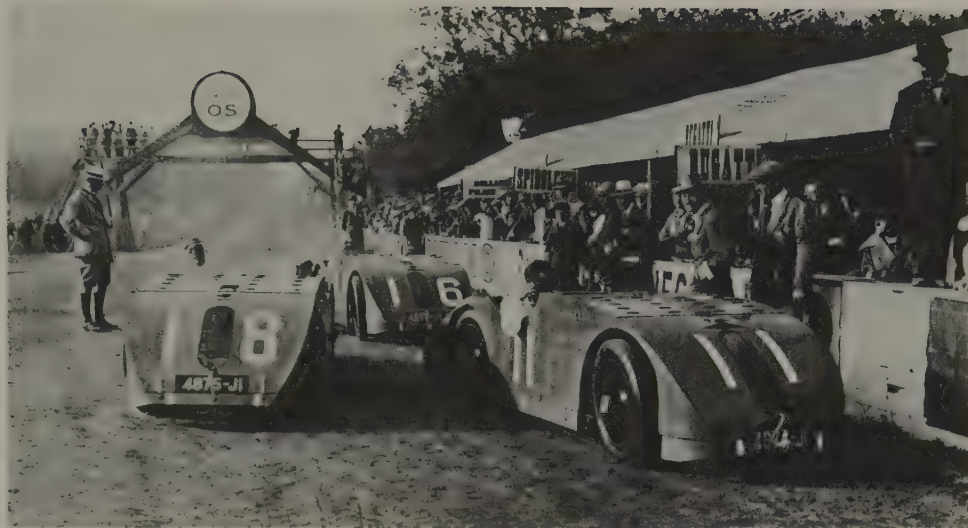
The first public appearance of these machines (60 × 88 mm) built to the new 2-litre Grand Prix formula was in July 1922, at the French Grand Prix held that year on a circuit near Strasbourg. This choice of venue was doubly fortunate for Bugatti. Its proximity to the Works would facilitate





In designing his Type 30 Bugatti had racing in mind. A variant, Type 29, took part in the 1922 Grand Prix of the Automobile Club de France; this was the celebrated 'cigar', above and left. For the 1923 Grand Prix the Patron explored other solutions, a shorter chassis with different streamlining (left).

A.C.F. Grand Prix, Tours, 1923: three of the four Type 32 2-litre 'Tanks'. No. 18 was driven by Prince de Cystria, 16 by Marco and 11 by Vizcaya. Friedrich's car, not in this photograph, took third place, behind two Sunbeams.



preparation and tuning, and the cars would be performing in front of their local supporters.

Not content with the advantage that the legendary lightness of his cars would confer, Bugatti determined to play another trump card: streamlining. Of course this was not the first time he had taken this factor into consideration. In 1913 he had built a 5-litre Roland Garros with bonnet completely shrouded, apart from a five-inch slot running from top to bottom of the cowl, and a curious long tail sticking out behind. Later the same year the twin-engined chassis similar to the Type 17 was fitted with a comparable body, as in B, page 67, although the back was more roomy.

A return was therefore made to streamlining by cowled radiators and long tails. These were used on the Strasbourg two-litres as photographs on page 54 show, but this time the shroud was more bulbous and the air inlet a circular hole quite small in relation to the cooling area. An almost cylindrical metal fairing enshrouded the chassis from the front to a tapering tail through which the exhaust pipe passed. This car was not badly streamlined for its day. It earned the nickname 'Cigar' – from its shape, and from the plume of smoke issuing from its tail. Lubrication systems were crude and it was better to burn oil than risk running the big-ends.

It is well-known that when new models race for the first time chances of success are slim. In spite of this, and of being under developed, Bugattis driven by Vizcaya and Marco finished second and third. Victory went to Felice Nazzaro in a Fiat.

The dimensions of Type 29 were in scale with the new engine. The wheelbase, only 6 ft 8 in on the Brescia, became 7 ft 10 in, an increase almost exactly representing the difference between a straight eight and a four-cylinder engine. This wheelbase was to become standard on Bugatti works' entries.

The French G.P. at Tours, 1923

Two months after the 1922 French Grand Prix came the Italian G.P. at Monza. Pierre de Vizcaya took part, driving his Strasbourg car, though as a concession to sultry Milanese weather he removed the front cowl. Once again victory eluded the Patron, for Vizcaya could manage no better than third place, behind two Fiats.

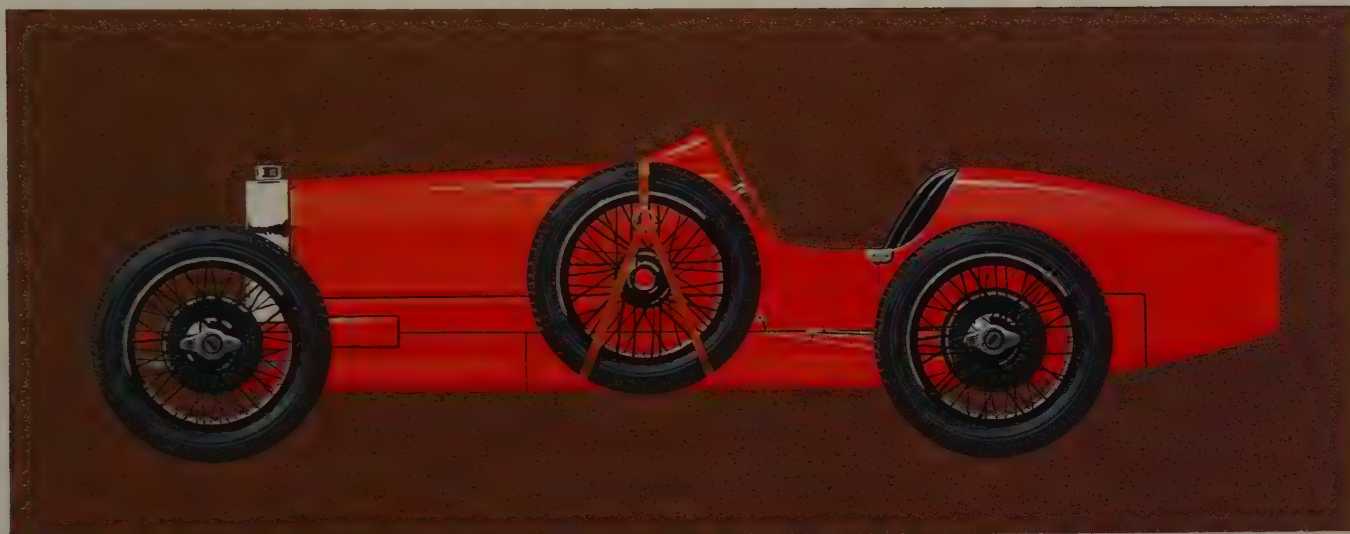
In May 1923 Bugatti decided to enter for Indianapolis. Apart from Vizcaya none of his four drivers had much racing experience. The cars were much the same as the Strasbourg 'Cigars'. Single-seater bodies were fitted, though, higher and slimmer, and slightly offset to the right. The radiator was cowled, and the tail tapered to a vertical knife-edge; there was a streamlined fairing behind the driver's head. Once more victory escaped the Patron, and in pretty disastrous fashion: the only car to finish came ninth. All the others retired as the result of bad lubrication.

Bugatti did not lose heart, nor did he waste any time. His cars for the 1923 French Grand Prix, held at Tours, produced total surprise. They were extraordinary little monsters, on the old Brescia short



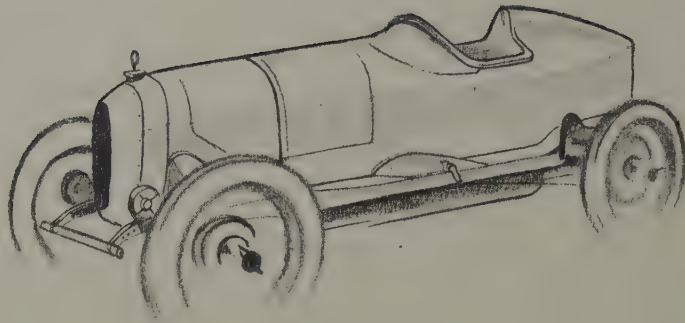
The illustrations opposite provide a résumé of the racing body shapes used by Bugatti, which contributed to his success. They are, from top to bottom: 1922 Type 29 'cigar'; 1922 'tank' whose aerofoil section interfered with roadholding; 1924 Grand Prix design which formed the basis of so many subsequent Types; and Type 36, smallest of the Bugatti straight-eights, with a capacity of only 1100 cc.

Below: two models of the Type 37 four-cylinder which replaced the Brescias in 1926; a standard car, and one equipped with numerous extras like that now owned by G. Prick.



Below: the Type 30 single-seater prepared for the 1923 Indianapolis 500, prophetically showing features of the Type 35.

On facing page the Type 35 prototype, photographed in the yard at Molsheim. The shape of the radiator blends perfectly with the bonnet.



wheelbase into which he had managed to cram an eight-in-line engine along with the driver and mechanic. With axles only 80 inches apart there was not really room for a bulkhead.

The design of the bodies was based on a section of aeroplane wing. This would be easy to make since all surfaces were flat or curved in only one plane. The cooling air inlet was a mere rectangular slot, rounded at top and bottom and protected by wire mesh. Ground clearance was minimal and total height was less than three feet. The vertical sides included a cutaway for the driver's right elbow. The top was flat, sloping at the front, horizontal over the engine compartment and sweeping sharply downwards after the cockpit to a horizontal knife-edge. This sweep was so steep that swellings had to be made for the wheel arches. All in all the cars looked like a First World War tank, and Tanks they were called.

This unusual approach to streamlining was only partly successful, for although there was some reduction in drag the effect on road-holding was disastrous, since the aerofoil section tended to lift the car from the ground, affecting both adhesion and steering. Drivers also complained of the Patron's hydraulic front brakes; however Friedrich in Number 6 managed to come third, behind the Sunbeams of Segrave and Divo. Bugatti realised that he must change his whole approach. The Tanks were unsatisfactory and their Type 30 engine had been nothing but a stop-gap. He must build proper racing cars. So he began on the Type 35 and its successive variations.

The Touring 2-litre, Type 30

Bugatti's first 8-cylinder production chassis, the 2-litre Type 30, differed little from 4-cylinder Types 22 and 23, except that early examples were fitted with hydraulic front brakes. As for the engine, this was the same unit that had proved itself in racing throughout 1922 and 1923. There was therefore every reason to think that it could be used in a touring vehicle.

Nevertheless performance figures of Type 30 were scarcely more brilliant than those of the 1500 cc 'four', although the flexibility inherent in an 'eight' and the extra power at low revs, made it suitable for a general purpose vehicle. Type 30 chassis were usually given open bodywork, very like that of the fours. The former however were remarkably low built, which fact, along with their longer wheelbase and extended bonnet line, gave them a very rakish air. Certain cars were made with no body as such, merely a bonnet and scuttle without windscreen and four wicker chairs attached to boards bolted to the frame, making a vehicle of somewhat non-conformist appearance.

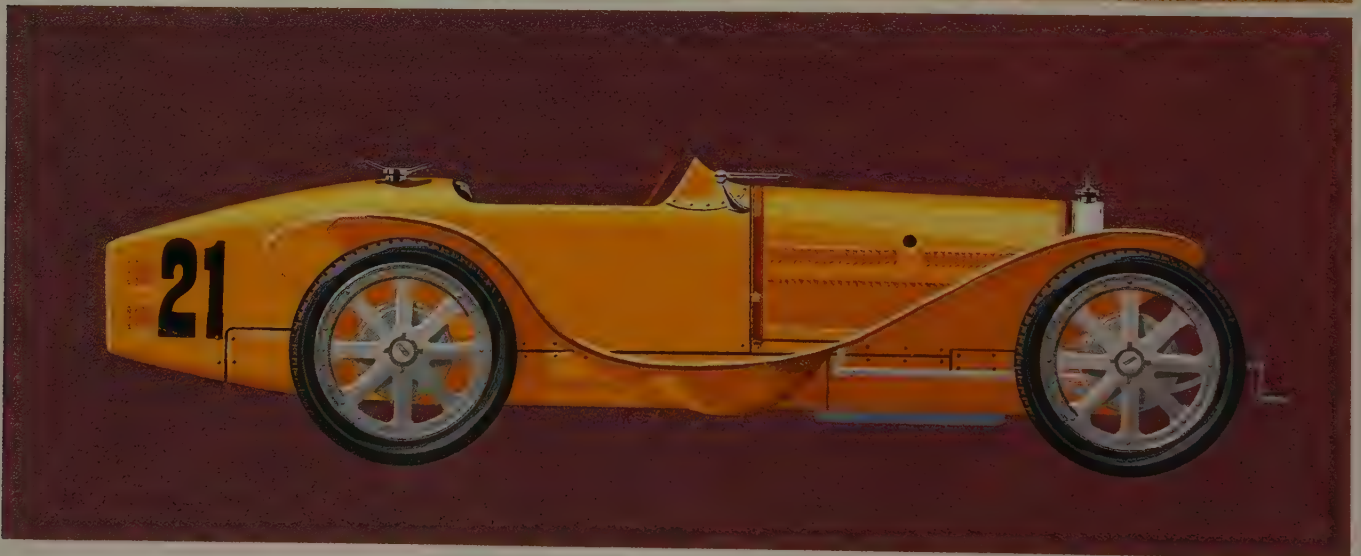
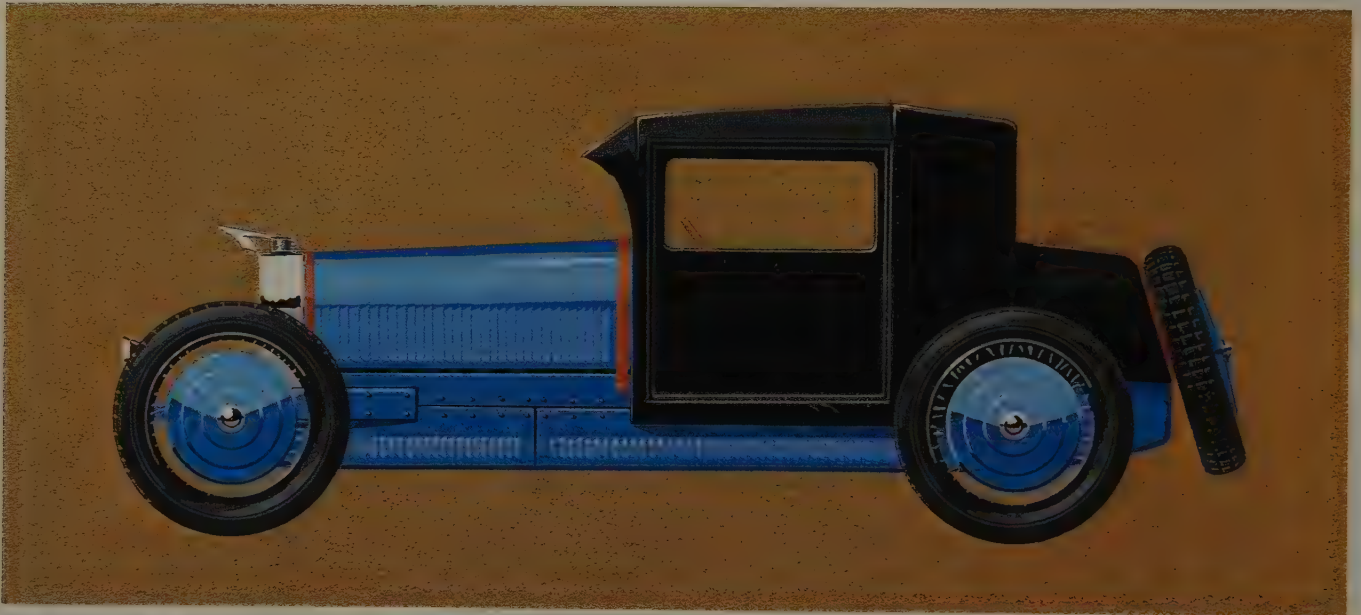
Elsewhere coachbuilders began to take a closer interest in Bugattis. Quite often Type 30's were seen with two-seater drophead coupé bodywork with detachable luggage trunk on the back; minimal mudguards, like those on a motor cycle, gave them a very 'grand tourisme' look. Others carried slim 'torpedo' bodies, like those of the Modified Brescias discussed in the last chapter.

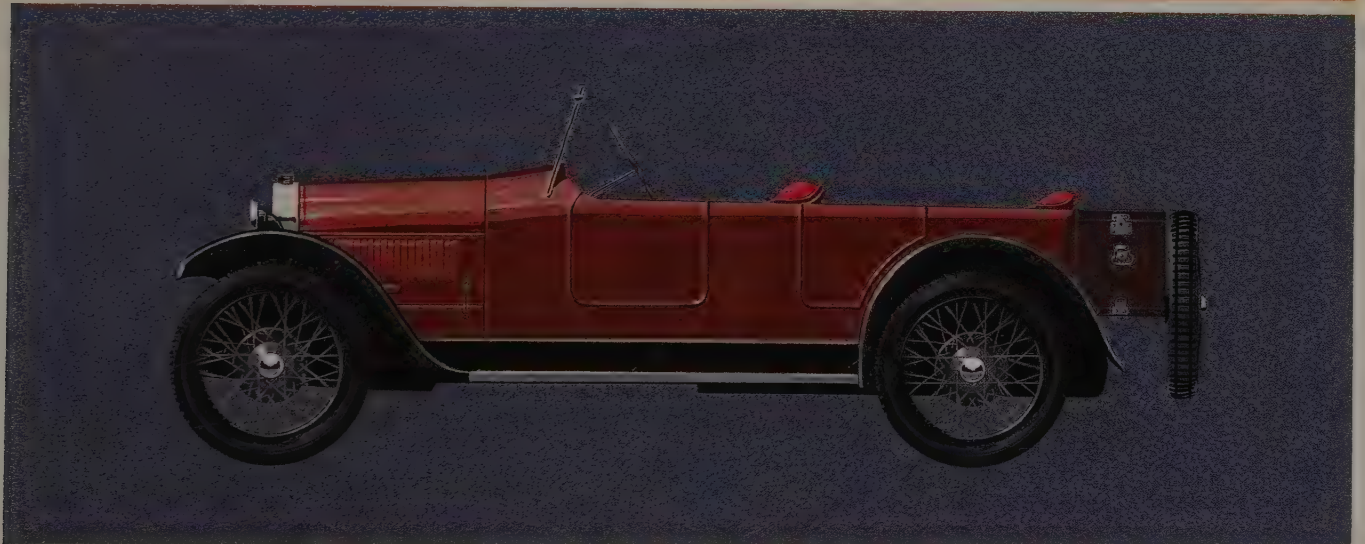
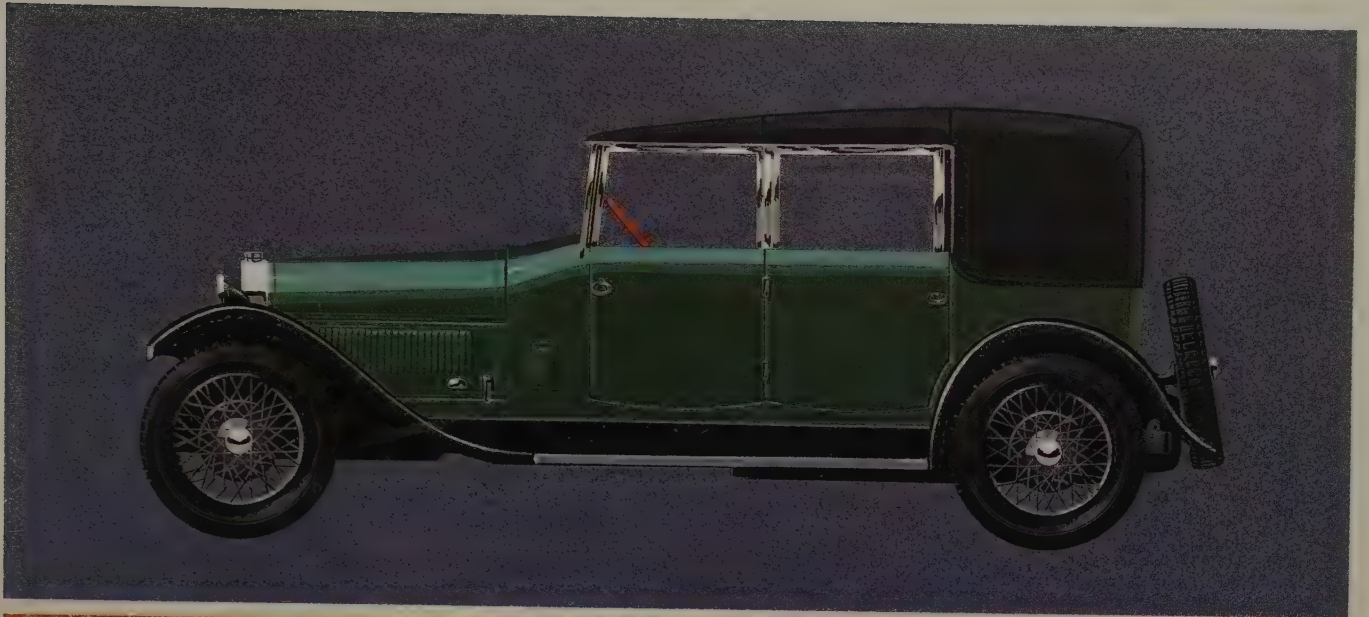
The sporting four-seater shown at the bottom of



Right: The All-Weather Saloon and *faux cabriolet* (centre) both on Type 38 chassis, although recalling the joys of open motoring, prove that the era of closed-car comfort has arrived (see page 76). The four-cylinder Type 40 (foot of page) performed well despite limited power, because the body was light.

Below: *Concours d'élégance* called forth some strange creations, like this Type 37 coupé. Below is the Type 35 C which Elisabeth Junek used to drive. The smart sports body, she states, was painted daffodil yellow as a symbol of *joie de vivre* and sunshine.





page 53 is more orthodox. The wings hug the wire wheels fairly closely; they are flat in section and square edged. The sole concession to lightening the lines of this body is the high running-board almost level with top of the chassis. The body itself has a fashionably boat-shaped back and a two-piece windscreen in Vee form. A tonneau cover increases the boat-like effect.

The Type 30 radiator had a shape all its own, somewhere between a Brescia and the true 'horse-shoe' that came in with the Type 35. It was also the first Bugatti radiator made of nickel-silver. Type 30 production ran for four years, some 600 being made. It ended when the Type 38 came out, in the year 1926.

Type 35 and its variants

We have seen how disappointing 1922 and 1923 had been for Ettore Bugatti. During the winter of 1923 and spring of 1924 he concentrated on designing a brand new racing car, Type 35. This model represented a complete break with the past. Until now, racing Bugattis had all been special models, built always with a particular Grand Prix in mind. There had been no question of marketing them on a large scale, even though most of them were in fact sold off to private owners.

The Type 35 of 1924, Bugatti proclaimed, was the first racing car to be designed *ab initio* with a view to series production. In fact, several cars were sold as soon as the first batch of ten was complete, the good-looking saleable bodywork to which as

much thought had been given as to the mechanism itself, all contributing to sales appeal.

Thoroughbred in every sense of the word, Type 35 had an 8-cylinder 2-litre engine of 60×88 mm, the same bore and stroke as the Type 30. Three valves per cylinder were retained, but all moving parts had been lightened and the oiling system re-designed. A profound and detailed study of this high-precision machinery will be found in H. G. Conway's book *Grand Prix Bugatti*.

Ettore Bugatti himself said that the body was designed to make the most of the radiator contour. Its delicate silhouette extends in an unbroken sweep to the cockpit, along a bonnet secured by two straps with louvres in the top and sides. A wind deflector protected the driver and an 'aero' screen was added later. The cockpit had a bench seat for two, and was deeply cut away at the sides; a fuel tank was housed in the shapely tail. The frame members conformed to the body section throughout their length, narrowing as it narrowed behind the cockpit, so that the reversed quarter-elliptic springs came inside the tail, under the tank. No suspension members were visible, except the radius rods locating the back axle. And all that could be seen of the chassis were the tips of the front dumb-irons. The rest of the structure was masked by valances generously provided with louvres. The latter incidentally were quite necessary because of the undertray, from which only the sump protruded, with oil-cooling tubes running through it. So to a certain extent one could say that the Type 35 was enclosed in a regular shell; in this respect it

satisfies two of Bugatti's principles, namely that streamlining must not be obtained at the cost of either good looks or handling, both of which are indispensable from an owner's point of view.

The completely new character of this car was emphasised by another of the Patron's innovations: cast light-alloy wheels. In course of making his own engines Bugatti had gained much experience in light-alloy foundry techniques; and he was tireless in his efforts to save weight – especially unsprung weight; so he had pondered the problem of wheels, and solved it in this way. The first light-alloy wheels used a variety of split rim, a detachable ring bolted to the rim proper so that tyres could be changed, a new variation on an old idea. The brake drum on the other hand was integral with the wheel, which meant that when the wheel was changed, the brakeshoes and drums were also renewed. The very wide spokes were set at a slight angle, like the vanes of a turbine, to direct air and assist cooling. The high conductivity of aluminium was also helpful in this respect. Cast alloy wheels remained a feature of Bugatti racing cars until 1934. (Later 35's and 43 etc. dispensed with the split rim.)

Another innovation, just as remarkable although less obvious, was introduced on the Type 35. This was the hollow front axle, a gracefully curved component posing delicate manufacturing problems since it had also to locate the semi-elliptic springs, which passed through slots in the beam contrived while it was being forged. Made from nickel-chrome steel, these hollow – and therefore light – axles were machined all over and burnished.

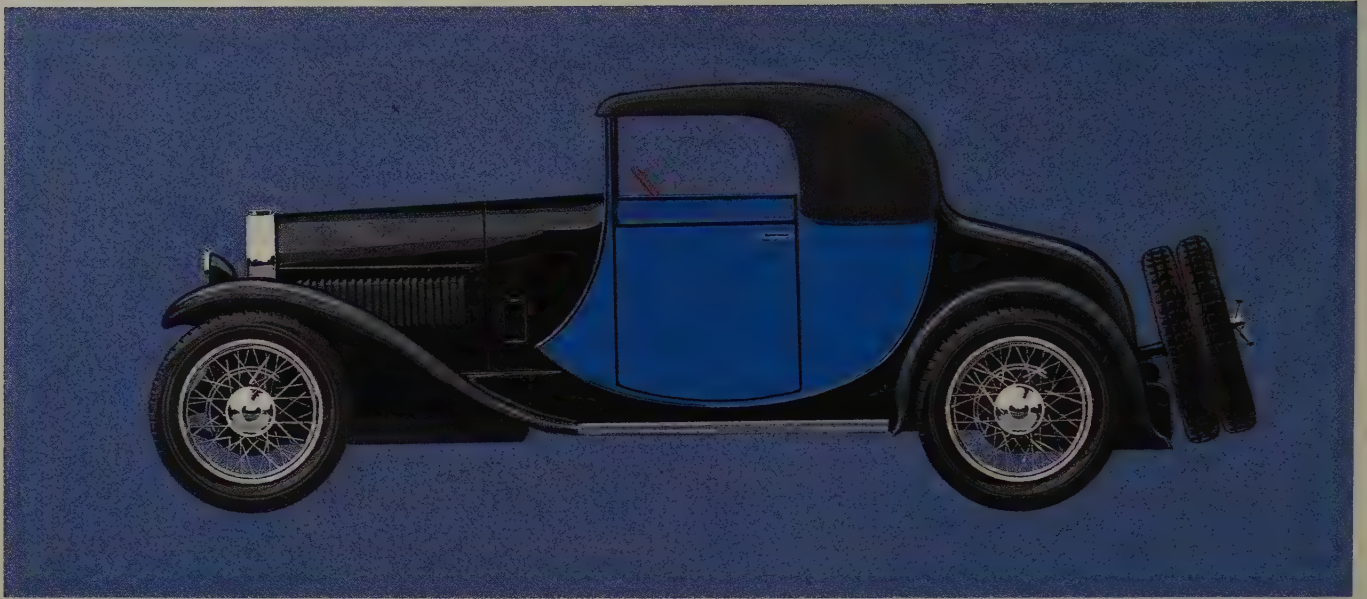
The first competition in which the Type 35 took part was the Grand Prix of Lyons in 1924. The new Bugattis, all sparkling in French blue, caused a sensation, the aluminium wheels adding to the effect. Unfortunately tyre troubles prevented Bugatti from showing what his new cars could do.

The Type 35 gave rise to several variants. First came Type 39 in 1925 with 1500 cc engine (60 mm by 66 mm); followed almost at once by Type 39 A, the first supercharged car in this range. It was only after a struggle, incidentally, that Bugatti was won over to supercharging, having opposed it for years. The reduction from 2 litres to 1500 cc was made necessary by a change of Grand Prix Formula for 1926–27.

In 1926 Bugatti developed a larger-engined Type 35 for the Targa Florio. This 2.3-litre was called 35 T (T for Targa Florio). When supercharged the 35 T became Type 35 TC, later renamed 35 B. This was and will remain the greatest of all 35s. Bugatti made yet another variant, Type 35 C, a 2-litre, supercharged.

To recapitulate, therefore, the following versions were made, all with 60 mm bore:

Type 35:	2 litres, 88 mm stroke, u/s
Type 35 C:	2 litres, 88 mm stroke, supercharged
Type 35 T:	2.3 litres, 100 mm stroke, u/s
Type 35 B:	2.3 litres, 100 mm stroke, supercharged
Type 39:	1.5 litres, 66 mm stroke, u/s
Type 39 A:	1.5 litres, 66 mm stroke, supercharged



The Type 40 became Type 40 A when fitted with a later engine and up-to-date-body. The blue coupé, left, is by Gangloff (see page 68). In the centre a Type 43 with somewhat Spartan sports body based on the Type 35. The engine, too, was from Type 35, 2.3 litres supercharged. Below, a Type 43 A with more comfortable body on American lines (see page 71).



The only way to tell supercharged cars from unsupercharged at a glance is the round hole on the right-hand side of the bonnet.

Concurrently with Types 35 and 39 customers less interested in performance – or less well-to-do – could buy a Type 35 A *Course Imitation*, indistinguishable from the real thing, except that these Type 35 A did not have cast alloy wheels. They used the same 2-litre engine as the Type 38, itself a derivative of the Type 30. This was a less sophisticated unit than the new 2-litres, unable to operate at the same high revolutions owing to a chronic lubrication problem. Still if well tuned and looked after a Type 35 A was good for an easy 90 m.p.h.

All these models were normally supplied in stripped racing form, but their flexibility made them perfectly suitable for ordinary use on the road. In no time at all they could be equipped with all that the law required: cycle-type wings, headlights and tail lamps could be bolted on in a moment. This also meant that owners interested in competition could use the same car for Grand Prix racing and sports-car events.

Type 36

The moment has come for another digression, to speak of a rare car. In 1925 Ettore Bugatti built two Type 35's with substantial modifications and 1.5-litre engine. They had very narrow single-seater bodies and no rear suspension at all. The Patron indeed reckoned that racing cars did not need any! But the tests they underwent were far from exhaus-

tive, for no driver could stand the jolting for more than a few minutes at high speed. That year, therefore, they took no part in racing.

The following season, however, one finds them cropping up at the Grand Prix d'Alsace, with supercharged 1100 cc engines. They were in fact the first 'blown' Bugattis. These single-seaters (now with normal rear springing) were beautifully slim and streamlined, thanks to the low frontal area and the way the radiator was cowled by the bonnet which enclosed it on each side. The whole front of the chassis was also cowled in, so that nothing emerged save the axle, which was perfectly straight, not curved like the standard 35's. The back was different too: the tail was more arched and its end came closer to the ground.

In the G.P. d'Alsace the two Type 36's proved victorious, but Ettore Bugatti disposed of them shortly afterwards.

Types 37 and 37 A

With Type 35 and its variants Bugatti acquired much experience in the manufacture of high-performance engines. The erstwhile four-cylinder 16-valve motors of the Brescia series now seemed to him outmoded. To replace them he designed a completely new 'four' in 1926, in which cylinder bore (69 mm) and stroke (100 mm) stayed the same, but most of the moving parts were identical with those of the straight eights. The valve arrangements comprised four sets of three and the external appearance was that of an eight-cylinder,

The diverse drawings on page 67 illustrate the evolution of Bugatti's racing-car bodies. The Patron may be said to have backed two fancies in racing: lightness and streamlining. Sketch A is the 1912 5-litre; B is the 1913 experimental car with two Type 13 engines in tandem; C is the famous Type 29 'cigar' which proved less satisfactory in the 1922 French G.P.; D shows the 1923 Type 32 'tank' of aerofoil section. E is the Type 35 which appeared in so many successful guises between 1924 and 1934; F the 1934 Type 59; G is the 1938 single-seater, and H the 4.7-litre single-seater of 1939.

but shorter. The Patron was very anxious that these engines should be pleasing to the eye, and insisted that even on the least expensive model, which was to be called Type 37, the whole exterior of the engine should be machined and polished. The new motor was installed in a Grand Prix Type 35 chassis, the latter clad in bodywork that was a replica of the original. Consequently it was hard to tell this model from the straight-eight racing cars. The bonnet was a little less wide, like that of the 35 A and the very narrow radiator looked fine-drawn compared with the bulkier 35 B, for example. A Type 37, on its wire wheels, has an air of great lightness.

As for performance, this proved far more impressive than that of a Type 35 A. The new 'four' although smaller in capacity would turn at higher revs thanks to its more advanced design. Whereas a Type 35 A could reach 90 m.p.h. only at its mechanical peril, the Type 37 ran quite happily at 90–95 m.p.h.

The following year, 1926, the Patron, now quite won over to the principle of forced induction, put a 'blower' on the Type 37. The change improved performance considerably, as much in increased flexibility as in acceleration and maximum speed, which rose to 105 m.p.h. – very nearly as fast as a standard unblown 2-litre Type 35. The majority of 37 A's were supplied with the wide-spoked aluminium wheels. And so the Brescia cars found descendants in every way worthy of them.

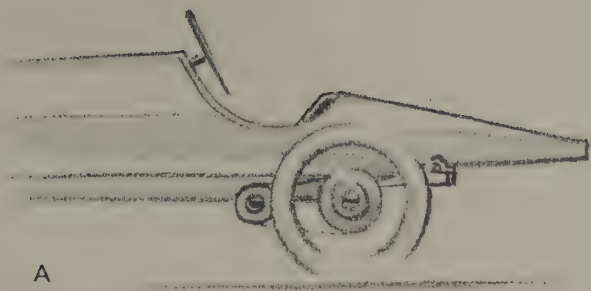
Type 38

In 1926 Type 30 was replaced by Type 38. On a

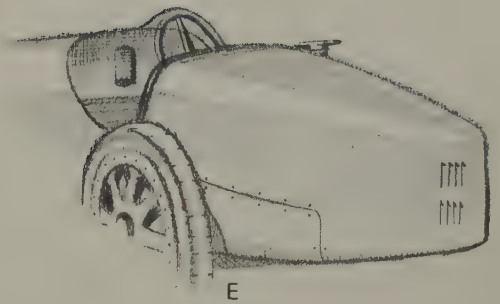
10 ft 3 in wheelbase instead of 9 ft 0 in it carried coachwork offering some degree of comfort. Its new gearbox was controlled by a central lever, emphasising the touring nature of the design. This was in fact the first touring Bugatti to benefit from the many lessons learned with the racing cars. The celebrated circular-section front axle recurs, although this time solid not hollow, and there were large brake drums of equal diameter on all wheels. The latter were wire-spoked. The brakes were cable operated as on the racing cars. Also inherited from the Type 35 although on a larger scale, was the radiator which, for the first time on a touring Bugatti, had the true horseshoe shape.

The upper picture on page 61 showing a Type 38 (which was in fact a transitional model) came from a Bugatti advertising leaflet. Next to this all-weather body the prospectus shows a sporting four-seater, while on the front page appears a somewhat austere fixed-head coupé. The Type 38 bonnet reproduced here is the sort normally supplied with the chassis. The top is very rounded, like the radiator, and the sides are pierced with louvres. The shape, if not the length, carried forward to Types 40 and 44. The engine, by the way, in the Type 38 was the 35 A 'imitation racer'. The following year a supercharged version appeared, 38 A, using the blower from Type 37 A.

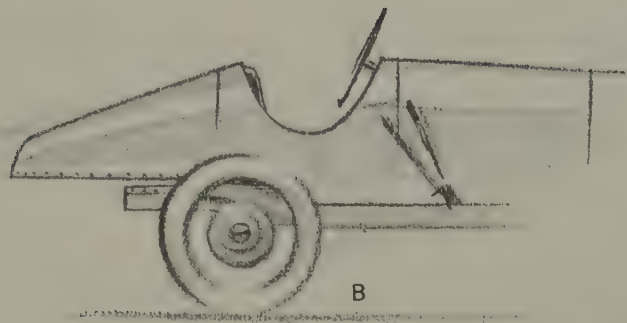
So far as bodies for the Type 38 are concerned, their shape followed prevailing fashions and tended more and more to be of the enclosed type. They also showed the influence of new styles from America, although as yet in very minor degree.



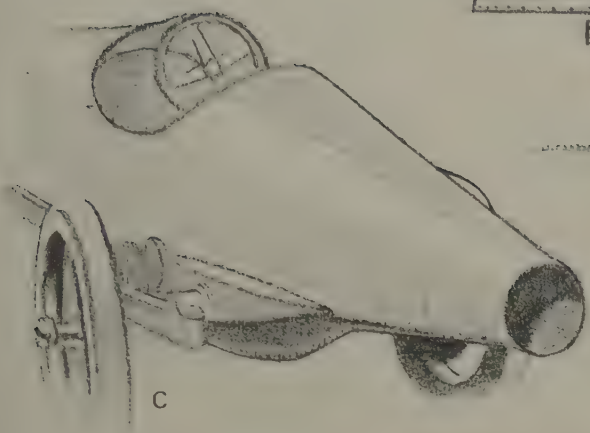
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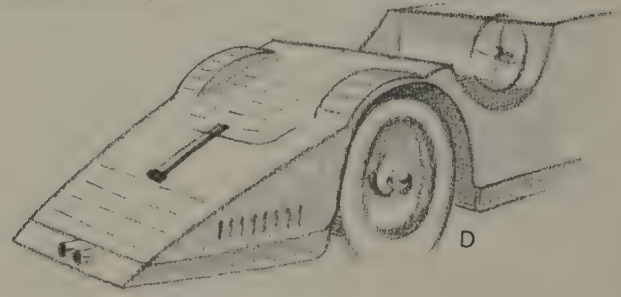
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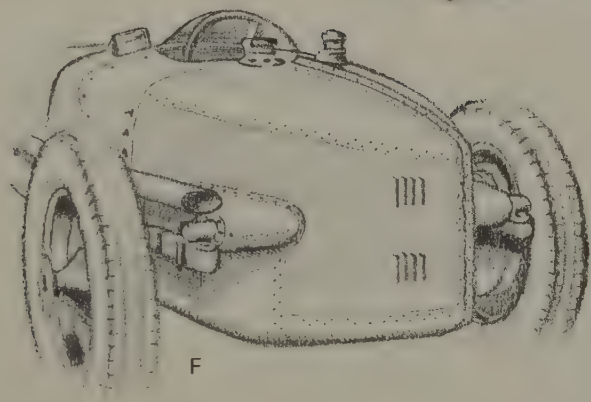
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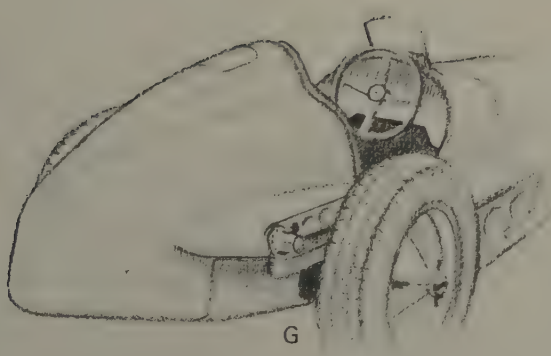
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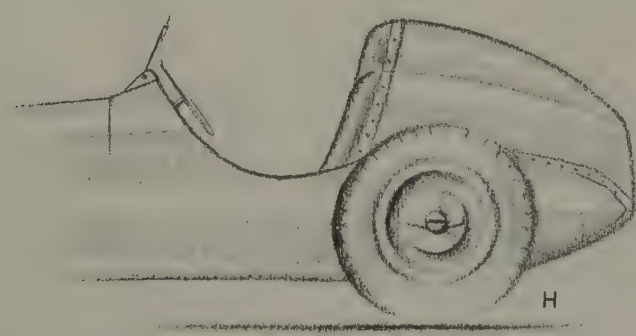
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F



G



H



The Type 40 A with four-cylinder 1.6-litre engine (left) has a handsome drophead body by Jean Bugatti. On the right another of Jean's designs for the Type 40 A poses in front of the Chateau Saint-Jean at Molsheim. This car belonged to the Bugatti family; Roland Bugatti is seen with his sister Lydia. The unusual bonnet louvres and windscreen will be noted.

Types 40 and 40 A

Just as Type 37 took over, in 1926, from Type 13 Brescia, the Modified Brescia gave way that same year to Type 40. It will be recalled that the Type 13 Brescia had the same engine as the Modified Brescia, but in more powerful form. It was the same with the Types 37 and 40. In matters of chassis one could choose two lengths of wheelbase, 8 ft 4 in or 9 ft. Like most of the mechanical components these came from Type 38. The four-cylinder 1.5-litre Type 37 and its less powerful Type 40 counterpart were very reliable and performed more than meritoriously for the period.

The standard body on these cars was very like that of the Type 43 which we shall be examining in due course. Motor cycle wings, a pointed 'racing' tail and spare wheel strapped to the right-hand side opposite the only door made the little four-cylinder look like a grown-up sports car. This being said it is possible to work out the range of models that Bugatti had in mind: Type 37 bore an unequivocal likeness to the Type 35; Type 37 A was the counterpart of 35 C; the 40 would be imitated by the 43, and its successor, the 40 A generally had bodies like the 43 A. The sole fundamental difference by which in general (for non-standard arrangements did occur) four-cylinder cars could be distinguished from the eights at a glance was that only the latter had wide-spoked aluminium wheels. So we have two ranges of cars closely resembling one another: high-performance eights, and less expensive fours.

The four-seater Type 40 at the foot of page 61

also comes from an advertising leaflet. The same basic elements are here: radiator identical with that of the Type 38, also bonnet and wings, apart from their length. The general lines are those of the Modified Brescias, and the body is very rigid, with cross bracing between front and back. But the lines in general are lower, and the presence of a rear trunk, however austere, assists the conviction that the car has grown longer. Some Type 43's too had this kind of body because it was roomier than the standard one.

The 1.5-litre Type 40 engine was inherited from Type 37. Its block would later constitute one-half of the 3-litre unit which powered Type 44. The latter, in turn, would be increased in capacity, becoming the 3.3-litre used in Type 49. For reasons of standardisation the cylinders of the latter were used in a four-cylinder engine of larger (1627 cc) capacity with bore and stroke 72 by 100. The model in which this was used was Type 40 A.

These 40 A's were usually fitted with a two-seater Roadster on American lines rather like that of the 43 A. Meanwhile, Bugatti was again obsessed by bodies of horse-drawn style. He was harking back to a 1911 silhouette, which we have seen on Type 15 chassis and as a 1921 project for Type 28. The latter formed a basis for this body which, with its sharp angles, resembles a cab of the 1860s.

The model at the top of page 64 is a development of this style, intended for Type 40 A. Designed by Gangloff, a coachbuilder at Colmar, this fixed-head coupé is more rounded and therefore less typical, than the closed cars of very angular aspect



The 3-litre Type 44 sold in large numbers and carried widely varying bodywork by the leading coachbuilders. The Sportsman's Coupé by Weymann is a scaled-down version of one fitted to a Royale.



The cabriolet (right) by Labourdette on Type 44 3-litre chassis has simple lines and is somewhat reminiscent of certain Type 30 bodies; the opening windscreen however is original in design.



which were so special. Strong colours such as blue, red or yellow could also assist in giving a special character to bodies of this stamp. And now at last the trunk is no longer an accessory but forms an integral part of the body, as on a roadster with rumble seat.

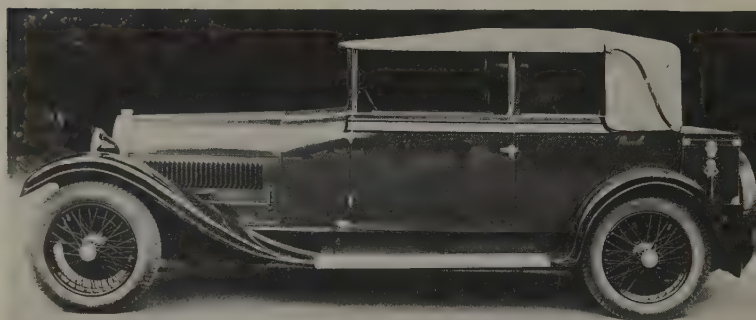
The year 1930 marked the end of the Type 40 A. Henceforth Bugatti would concentrate on his eight-cylinders for touring, *grand sport* and racing.

Types 43 and 43 A

Between the rather dull-looking Type 38 and the rorty but uncomfortable 35 range there was room for a rapid sports car. Bugatti decided to fill this gap, now that business was going well, by selecting components from various models. Thus came into being the Type 43.

The chassis was identical in design with that of Type 38. Wheelbase was 2.97 m (9 ft 8 in). All other essentials such as gearbox, front axle, radiator, also came from Type 38, a model which although sold in very small quantities supplied materials for a number of popular types. Type 43's engine, however, was Type 35 B, i.e., the supercharged straight-eight 'two-three', first string in Bugatti's *écurie de course*.

To display his new brainchild to advantage, Bugatti offered an open tourer body looking as much like the Type 35 as possible. It was an 'occasional four-seater', with a single door on the near side – what we now call a '2+2'. In the top of the pointed tail (hallmark of Type 43) was a small



These two bodies by Gangloff are fairly similar in style although showing a certain evolution in their proportions. The cabriolet appears very long and lean, while the rounder contours of the lower car make it seem far less of a thoroughbred.





This type 44 chassis with 'soap-box' test body is on the way to a coachbuilder. At the wheel, Jean Bugatti, with his brother Roland beside him.

On the page opposite: The height of the side panels on two differing Type 44's is reduced by the use of a second colour for the waist line. The upper car is the Works prototype, the lower a fixed-head coupé by Gangloff (see page 74).

The 16-cylinder 3.8-litre Type 45 (foot of page) closely resembled Type 35 but differed in having external exhaust pipes (see page 81).

luggage locker. Cycle-type wings fitted closely round the pretty cast-alloy wheels. The spare on the off side helped to give this car its look of a crouching beast. A fixed windscreen, flat and slightly sloping gave frontal support to a hood.

The extreme slimness of the Type 43 may be visualised by contrasting its overall length, 12 ft 6 in, that of a modern medium-sized car, with the width of the cockpit which was barely 3 ft 6 in. Today it would be at least 5 ft 3 in. In its day no other car in the world could claim to equal Type 43's performance, especially bearing in mind that more than 150 standard examples were built. This was no special one-off job. The price, too, would stand comparison with that of any high quality car, while its performance, specification and reliability made it fine for hill-climbs and, more especially, long-distance racing.

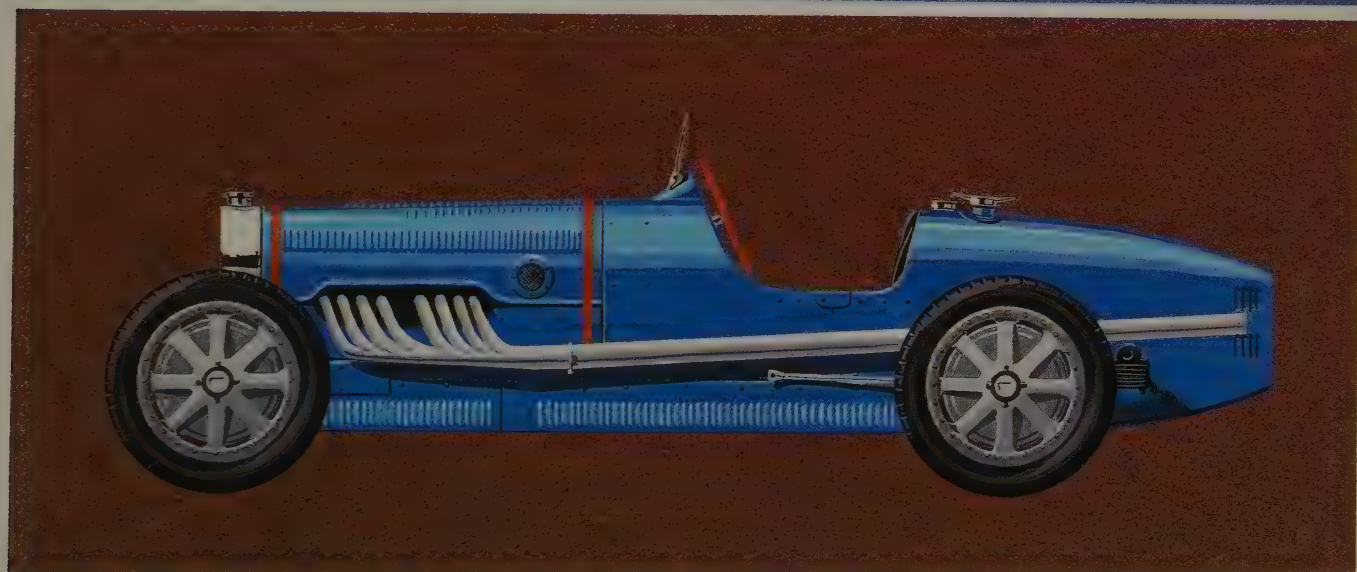
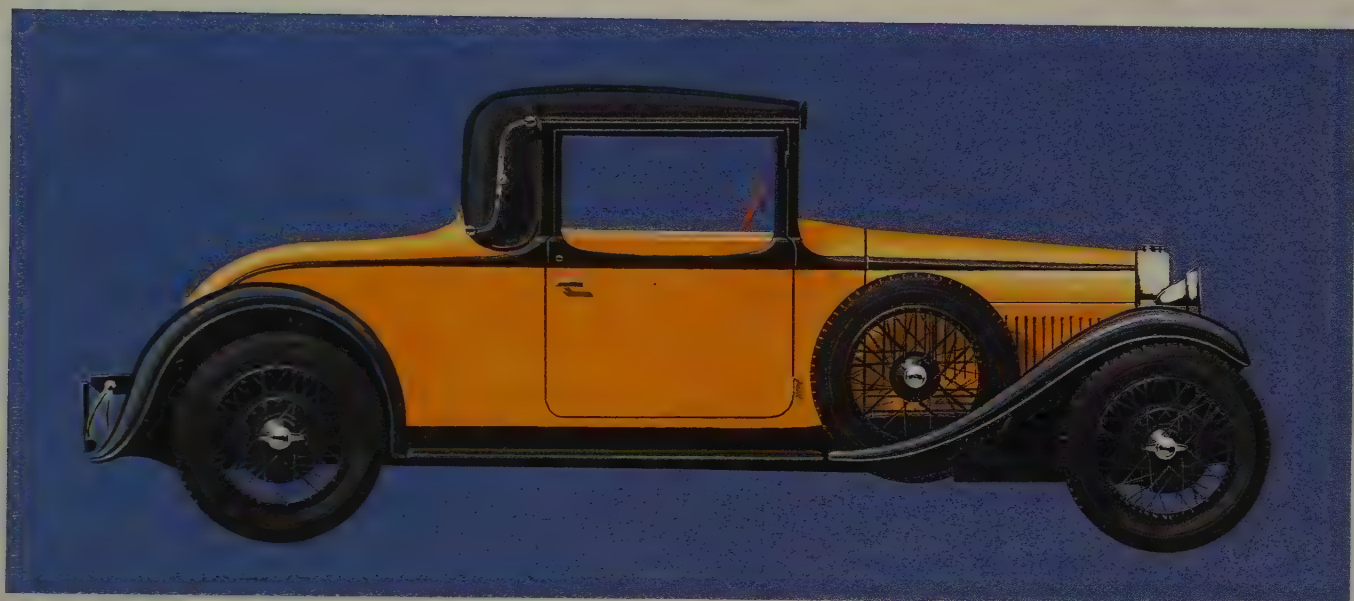
In 1930 in response to demands from America for greater comfort for the principal occupants and more up-to-date lines, Bugatti decided upon a 'roadster with rumble seat'. More attractive in appearance and largely influenced by Transatlantic fashions, this new version, known as the Type 43 A, had lost none of its road-going qualities or performance, in spite of the rounded stern. Apart from some decorative mouldings the bonnet was the same as Type 43's. So were the wings and radiator. Now each of the two occupants had a door of his own; and, luxury of luxuries, there was a special locker for golf clubs! The windscreen now folded flat and the hood gave better protection because there was less space to protect. As the two spare

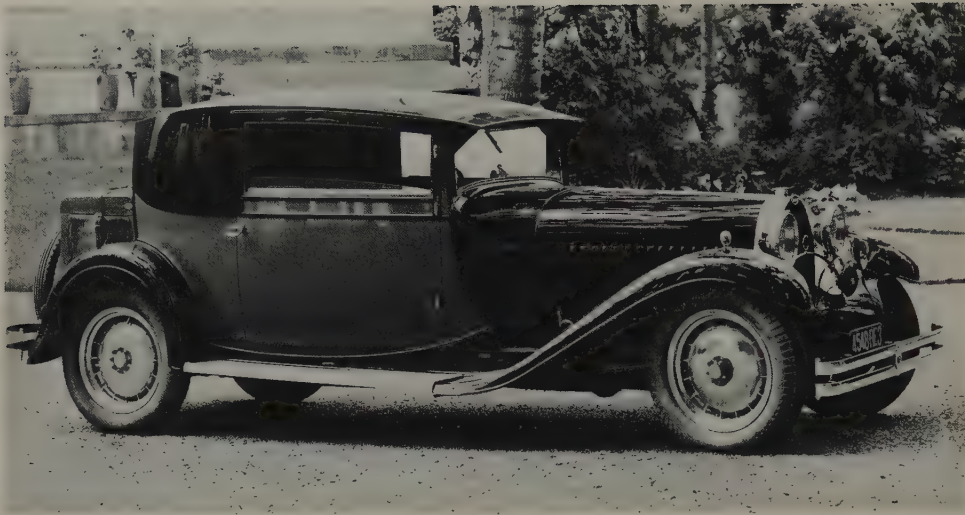
wheels on the 43 A could no longer be mounted alongside because of the two doors, they found a new emplacement behind, on a slightly sloped mounting. However, despite these concessions to comfort the Type 43 A derived a certain aggressiveness from the louvred chassis valances and the cast aluminium wheels, a constant reminder of the racing cars from the same stable.

In due course as we shall see Type 43 gave way to Type 55. This model too, was fitted with roadster bodywork, and retained the mouldings shown painted white in the 43 A illustration on page 64; the base line however was different. We will return to these details later.

Type 44

During 1927 trials proceeded well on the prototype Royale. Bugatti seemed satisfied with it for it was a docile, quiet and comfortable machine. It was moreover the realisation of a dream, the fulfilment of his ambition: a carriage as grand and stately as any in the world. At the same time the Patron had plans for a medium-sized luxury car, a replacement perhaps for the stillborn Type 28 of 1921. The result of this thinking was Type 44, introduced at the 1927 motor shows. The chassis and running gear came from Types 38, 40 and 43; the engine stemmed from the Type 28 with similar specification, being an eight-cylinder 24-valve 3 litre (69 by 100 mm); but now, in the interests of standardisation, formed from two Type 40 blocks, whose bore and stroke were the same. For all its oft-cited





The Type 46 with 5.3-litre engine carried comfortable and sometimes whimsical coachwork, like this razor-edged style that appealed so much to the Patron.

power and flexibility this engine was never fitted with a blower; on the other hand, the nine plain main bearings made it remarkably quiet and smooth, a fact which may be considered a distinct advantage in a touring car, even though one with sporting pretensions.

The Type 44 had four-wheel brakes of large diameter with the now well tried system of cable operation. Wire wheels lightened the appearance even on closed cars. Unfortunately wheel discs were coming in and many 44's were encumbered with those great circular bits of embossed metal, plain or coloured, that did little to enhance them.

The four-door saloon (upper, page 73) is the prototype Type 44. The wings, with no radical change in style, have become more enveloping and the valance joining them to the bonnet is bigger. The running boards are not level with the bottom of the chassis, but lower still and more convenient; they are valanced, to protect the chassis and relate them to the body. Radiator and bonnet are like those of Type 38, but the body displays a moulding that runs all the way round.

The windscreen is slightly inclined, but is still surmounted by a visor prolonging the line of the roof. The latter is much rounded at the back, accentuating the streamlined and quite modern lines of the car, while the luggage trunk, though small enough to our eyes, helps to create an atmosphere of *grand tourism*, an effect heightened by the spare wheel in its rexine cover. Type 44 was destined to become a favourite with coachbuilders like Weymann, Young and Kellner. Bugatti himself

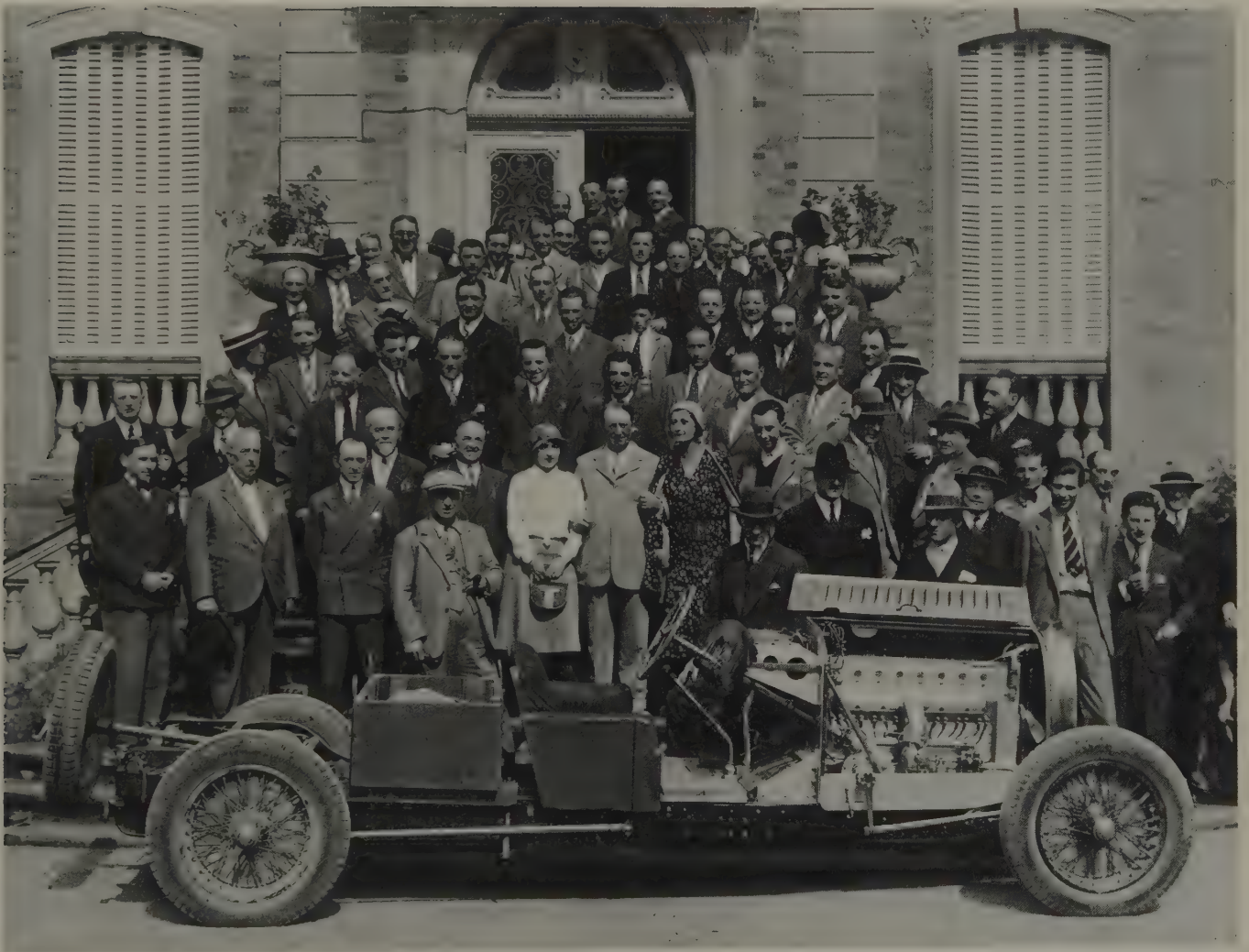
made strikingly original bodies for it, often consulting with his old colleague, Gangloff.

For an example of Gangloff's work we need look no further than the yellow *faux cabriolet* depicted on page 73. As the name indicates, this looks like an opening car but is in fact a fixed-head coupé, the roof being covered in imitation leather to look like a soft top. To make the illusion more complete sham hood irons are fitted to the quarter panels. This imitation cabriolet is to some extent a precursor of the vinyl covered coupés of today. In general shape this car suggests the slightly Americanised lines of the 43 A, with a similar decorative moulding. Nevertheless, it looks different, with its smartly flowing wings and two spare wheels, one on each side of the bonnet, sunk into wells in the mudguards. The two-tone paintwork makes it look longer and this, with the wire wheels lightens the general effect. The back of this luxurious vehicle houses a dickey seat and there is a folding luggage rack to increase the carrying capacity.

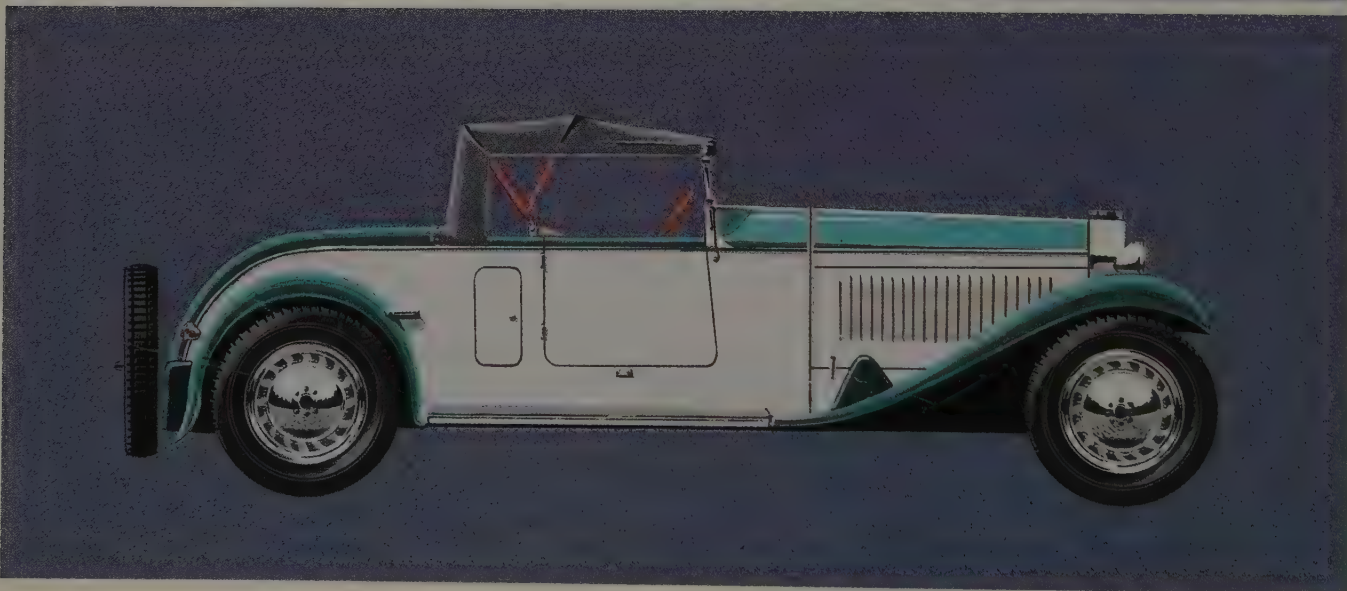
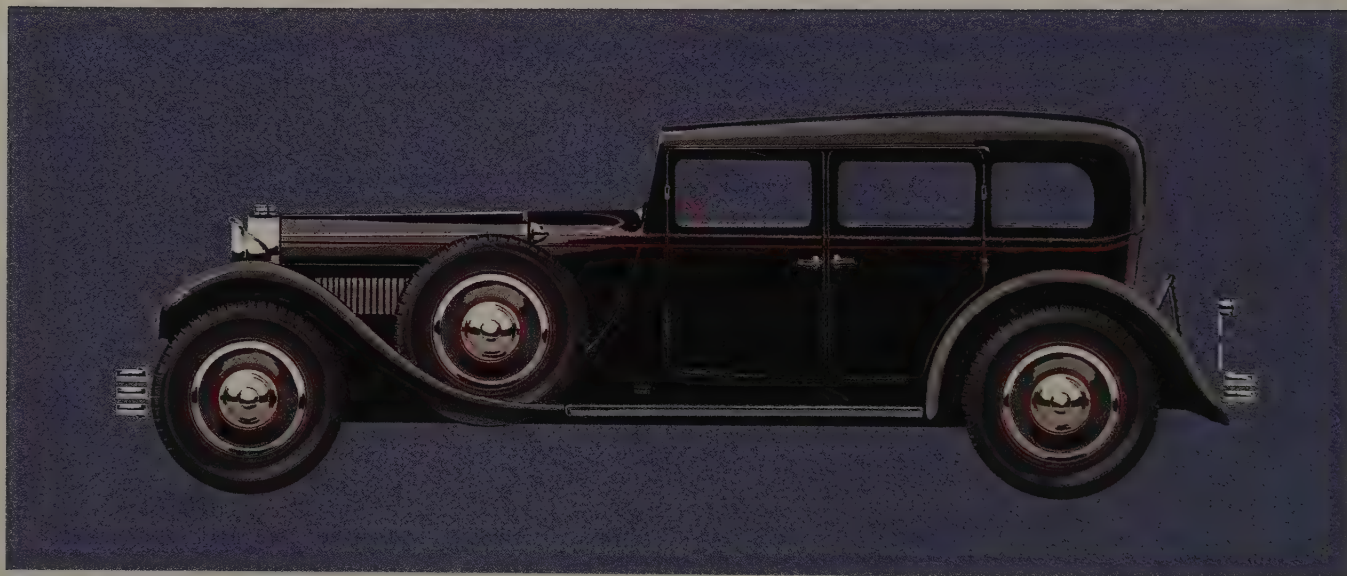
Types 46 and 46 S

Before considering Type 45, which is rather a special case, it will be well first of all to examine Type 46. Designed in the same visual idiom as the 44, this was a far larger straight-eight of 5.3 litres, almost double the engine size. Layout was the same, with three valves per cylinder and nine plain main bearings. The sole innovations lay in the siting of the ancillaries and the position of the camshaft drive. Otherwise the engine was outwardly very

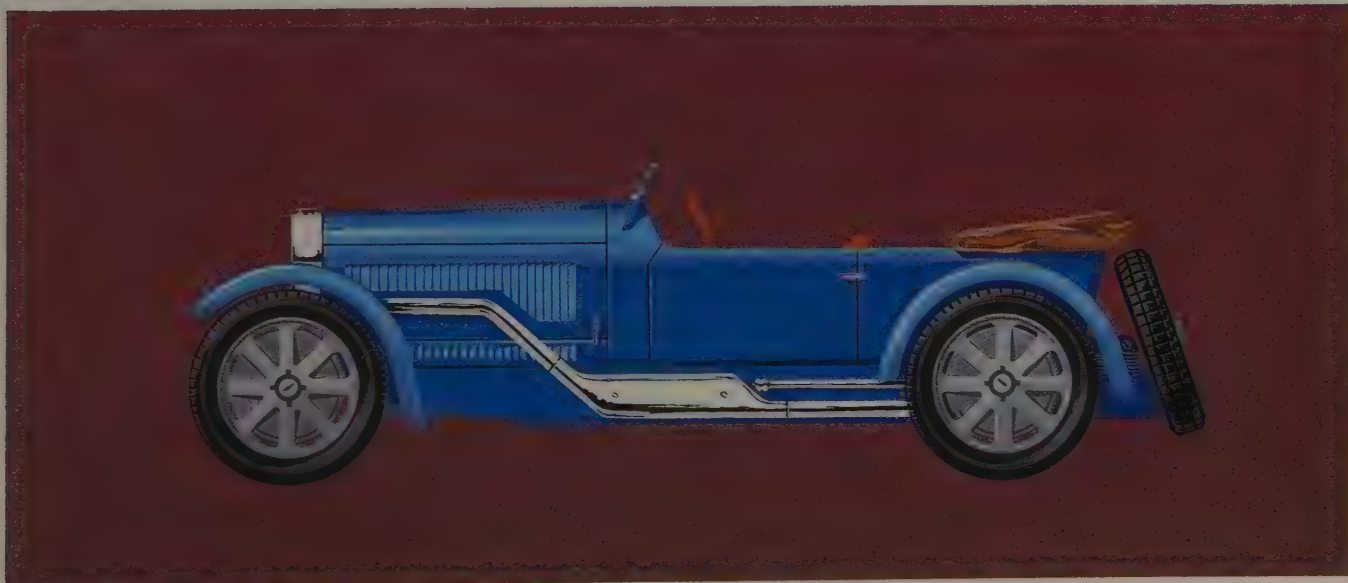
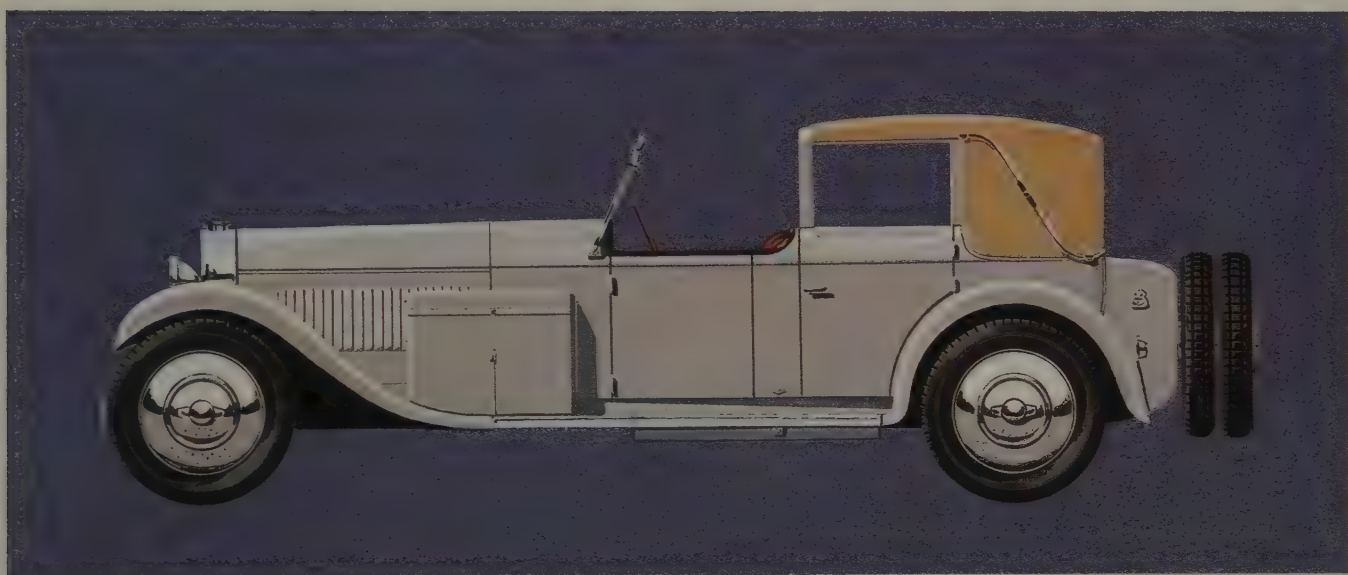
Type 46 chassis on display at the Chateau Saint-Jean at Molsheim. Ettore Bugatti, looking very relaxed, is surrounded by family and guests, among whom may be seen Friedrich in the front row with cap, Dreyfus on the Patron's left, and Chiron in the doorway. The chassis is ready for test, with box of ballast behind a temporary seat.



The body shops at Molsheim were eventually capable of very high-class work, as witness this imposing Type 46 5.3-litre limousine. The two-seater below, by Ottin, of Lyons, closely resembles the Works Type 43 A. Only passenger space determines the apparent size of these cars, the overall dimensions being almost identical.



The 3.5 m wheelbase enabled the great coachbuilders to produce some superlative turn-outs, like this fully-opening Cabriolet de Ville. On the other hand the width of the 3-litre 16-cylinder engine used in Type 45 (below) obliged the coachbuilder to lead the exhaust pipes outside the body, providing a novel and sporting touch.





similar to that of the Royale, and like the latter was fitted with dual ignition. This was not, moreover, the only feature the cars had in common, for both used a three-speed gearbox built into the differential-casing; and when wire wheels gave way to a new sort of finned wheel cast in light-alloy like those of the Royale, connoisseurs then called it '*la Petite Royale*'.

Two years after the Type 46 announcement in 1929, Bugatti introduced a supercharged version. This was Type 46 S. The blown 'five-litre' was even more flexible than the 46; the extra power promised higher maximum speed, but the latter, in the region of 100 m.p.h., depended largely on the shape of the body. The 11 ft 6 in wheelbase and 4 ft 8 in track allowed coachbuilders to construct majestic great bodies, notably Coupés de Ville of fine proportions and spacious interiors.

The limousine used in illustrating this chapter (page 76) brings out the aristocratic qualities of Type 46. The wing line has barely changed since the Type 44. It is the overall lengthening of the body that makes the car look so smart. The windscreen, slightly sloping, rejoins the sides of the scuttle in a downward and forward direction, as on a horse-drawn brougham. The general effect is a trifle severe. The waist line is marked by a swaged moulding which starts at the radiator and encircles the entire vehicle. A folding luggage rack is mounted behind, while multiple bumpers at front and rear further enhance the sumptuous appearance. In our illustration the wire wheels are covered by discs, following a fashion we shall meet

again on Type 57. The discs here are painted to match the body, picked out in red and surrounded by chromium. The nave-plates are also chromed. Lastly, wing-mounted spare wheels bring a little animation to the perhaps unduly taut lines of this splendid limousine.

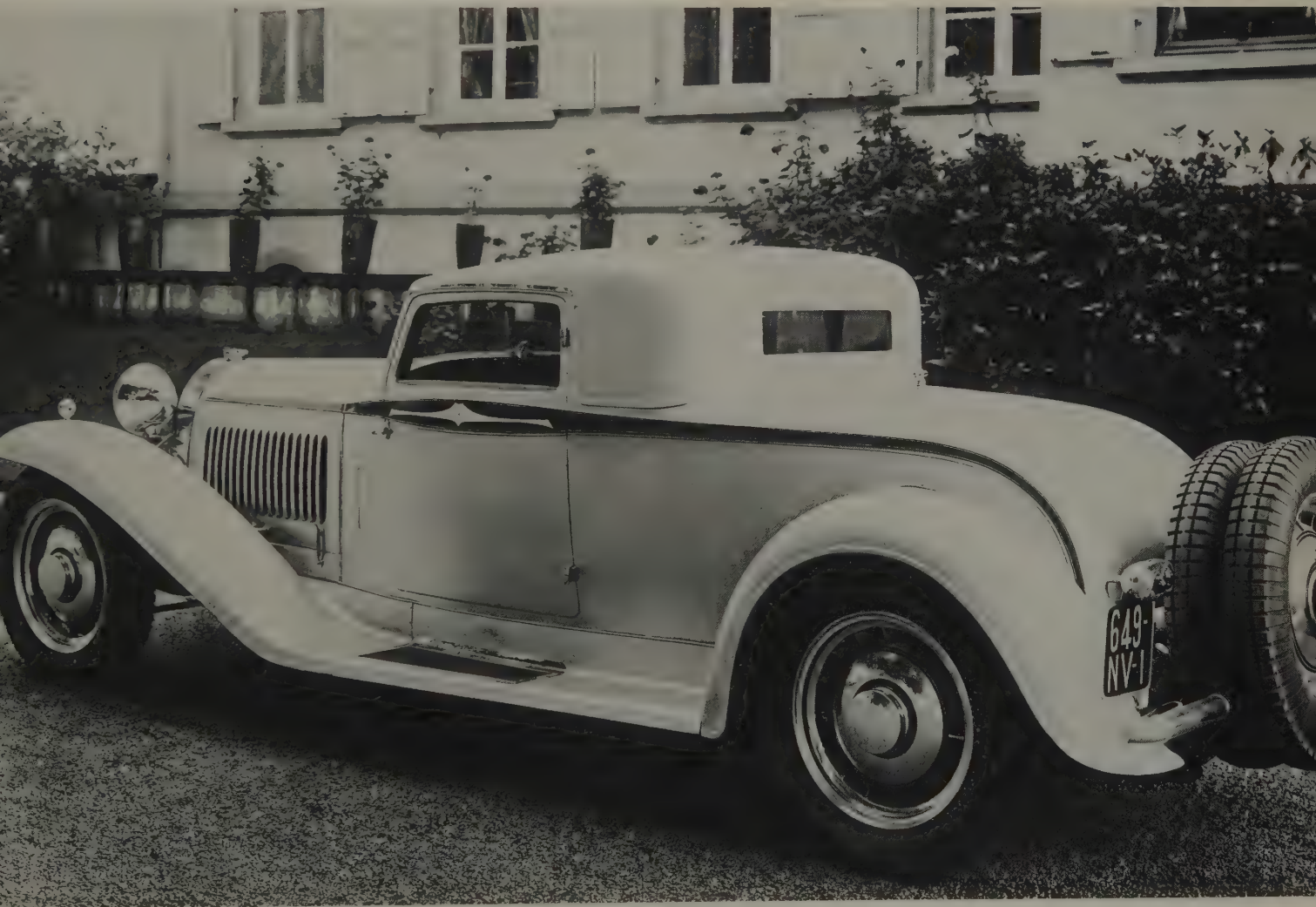
Thanks to its supercharger the 46 S gained something in acceleration, although the improvement was modest, in view of the car's considerable dimensions and weight. However the car's stately vocation in no way affected the traditional qualities of road holding and accurate steering. This explains why some customers had 46 S chassis fitted with sports bodywork. In witness of this is the roadster by Ottin of Lyon on page 76 which has a strong similarity to the Type 44 fixed-head coupé by Gangloff (page 73) and also to some extent the Type 43 A roadster. It has new and splendid typically Bugatti finned alloy wheels.

Although the 46 S was an expensive car the Patron managed to sell 400.

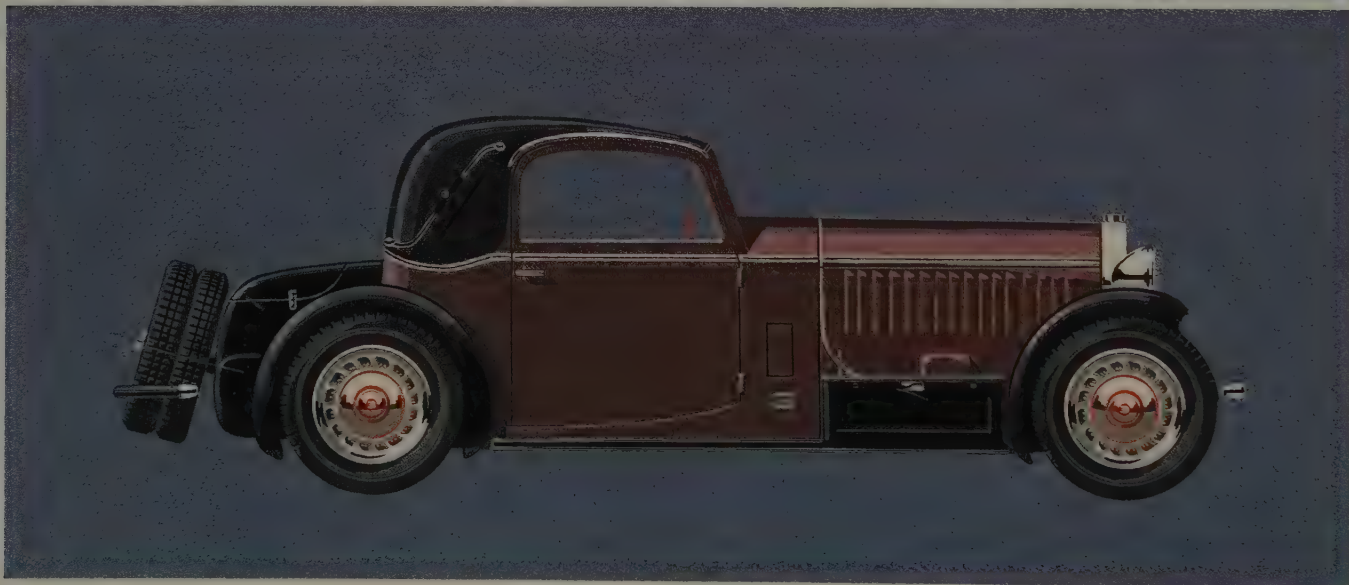
Type 49

When the 3-litre Type 44 had been on sale for three years from 1927 Bugatti brought out a replacement during 1930, Type 49, increased to 3.3 litres by enlarging the bore to 72 mm. The rest was identical, except for the addition of a fan and the use of two sparking plugs per cylinder. The model was to have the same sort of wheels as the 46 S. There was an optional long wheelbase of 11 ft. So this in effect was a new version of the Type 44. The engine was

Jean Bugatti went from strength to strength as body designer. This Type 46 coupé appears extra long by reason of the small space allotted to passengers, and seems light for the same reason, despite the imposing dimensions of the chassis. Analysis of the curves and proportions enables subsequent developments to be forecast.



Type 49 was the last Bugatti model to have single-overhead camshaft and three valves per cylinder. The two examples below, an All-Weather Saloon and a *faux cabriolet*, do credit to their creator, Gangloff, the Alsatian coachbuilder who worked so closely with Bugatti. The light-alloy wheels would not look out of place on a modern car.



more powerful, enabling the top speeds to be more easily attained, although these did not significantly increase at all.

It was body design that showed the most marked improvement. The curved front wings which previously had hugged the wheels closely like those at the back, tended to straighten out, integrating with the running-board, which was disappearing as a separate entity. Front wings swept down to the point where the rear ones began; and the curved running-board comprised no more than a few metal slats on the wing. This evolution seems to have been based on studies for the Coupé de Ville Royale. The wings were of domed section.

The ventilation louvres in the bonnet were taller and more open than those on the Type 46. Bodies were wider; they encroached on the running-boards and rear wings, so that ugly straight valances could be abolished. Spare wheels were placed as convenient, on the wings or behind the boot. The all-weather 49 saloon on page 80 conforms fairly closely to our general description. The running-boards merge with the sweeping front wings and the latter carry the two spares. A detachable trunk of medium size occupies the rear of the frame. The all-weather saloon was a style much prized during the thirties; it offered a spacious and comfortable interior with four doors; in fine weather the completely folding roof allowed passengers to enjoy the sunshine and admire the view, especially in mountainous country. The door pillars and cantrails remained fixed.

Finned wheels produce an impression of power,

allied to fine craftsmanship. These are qualities traditional to Bugatti. This thoroughbred quality and animal grace are essentially due to the perfectly balanced proportions of bonnet and body. The effect is enhanced by the beautiful wheels and elegant line of the wings.

Type 45

While busy with Type 49 Bugatti designed two new racing models capable in his opinion of offering effective support to the Type 35 range. These engines differed only in cylinder capacity, one having a shorter stroke than the other. Both had 16 cylinders, and their layout was somewhat unusual. Each engine had two straight-eight blocks similar in bore and stroke to Types 35 and 39, that is 60 x 88 and 60 x 66 respectively. The two blocks were set side by side, each with its own crankshaft, its camshaft for 24 valves, its magneto and its supercharger, the whole mounted upon a common crankcase and connected by a train of gears. The arrangement was basically similar to the aero-engines built by Bugatti during the First World War. The layout is sometimes called U-shaped: the two blocks are the uprights, while the lower loop is the chamber housing both cranks and their gearing. Behind each block and halfway up was its supercharger with the carburettor bolted directly to it. Despite the 16 cylinders, two crankshafts, two blowers and 48 valves they were very compact.

It was indeed the compactness of this layout that allowed the Patron to install this 3.8-litre unit in



Louis Chiron leans negligently against a Type 46 Sportsman's Coupé in the grounds of the Patron's home, seen in the background. For all the long wheelbase this body is scarcely higher than certain vehicles of today.

a chassis no wider than the standard Type 35, although longer by 8 inches because the blowers were now mounted behind the blocks. As the greater width of engine allowed no room for exhaust pipes between crankcase and chassis, Bugatti was forced to bring them out through the bonnet. This was the first time Bugatti used an 'outside exhaust' in the style so beloved by his rivals, but it would not be the last.

Apart from the bonnet and the longer wheelbase, which hardly shows, the body was like Type 35. Type 45 did however possess certain features of its own: the oil-cooler was ahead of the radiator, almost flat between the dumb-iron, two magnetos in the dash, and the rear springs outside, not inside the tail. Wheels were the same as on Types 35 and 43 with similar detachable rims.

As it happened the 45's were not intensively raced. They came out mainly for hill-climbs and sprints where acceleration showed to advantage. Two only were made; they can be distinguished by their exhaust manifolds, one being twisted, the other (page 73) gracefully curved. The latter car is now in the F. Schlumpf collection.

At one time Bugatti contemplated producing a Type 43 A *Super Grand Sport* with the 16-cylinder 3.8-litre engine. But in view of what the model would have cost he abandoned the idea.

Type 47

The smaller, 3-litre 16 the Patron installed in a four-seater tourer complete with four doors,

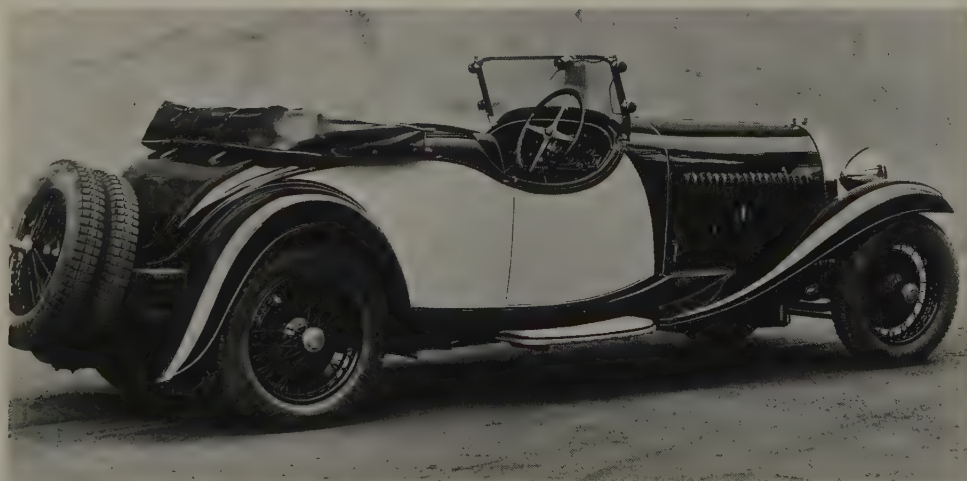
windscreen and hood, full lighting equipment and cycle type wings to comply with the Law and the regulations governing sports car racing. This Type 47 was probably intended for events like Le Mans. The special chassis, designed for this car had side-members of exceptional depth, 9 inches deep for a distance of more than three feet, unlike other Grand Prix chassis, which were very variable in depth and never exceeded $6\frac{3}{4}$ inches. The petrol tank was slung below the frame and not above it as usual on racing Bugattis. The wheelbase was 8 ft, even longer than Type 45.

According to an advertising brochure Bugatti intended to market this model as he mentions a price: 250,000 francs of 1929, representing some 200,000 francs in today's money for the chassis alone. An extra 12,000 francs would be charged for the body. The car would therefore have cost more than twice as much as a Type 43.

Our drawing (page 77) is based on an illustration in the same brochure. The front is identical with that of Type 45. Accommodation is generous and the back is flat, as in old-style touring cars, not pointed like a Type 43, behind which the spare wheel is mounted at a slight angle. On each side a wide door gives easy access to the front seats and a bench seat behind. The exhausts are led differently from those on the Type 45: the eight outlets on each side feed into a single exhaust pipe and silencer attached to the frame. Only one Type 47 was built. This brings us to the end of Bugatti's single-camshaft designs.



Gangloff too was enterprising when it came to body sides. The wing line is lightened by a broken running-board, which ends at the shut-line of the doors.



La Royale

Prompte et souple comme un être animé, sûre, rapide, puissante, silencieuse, telle est la Royale : rêve magnifique, que plus de trente années d'expériences, d'observations innombrables, m'ont permis de réaliser.

Véritable synthèse de mes recherches et de mes réalisations les meilleures, elle est une mécanique vivante.

Ciselée jusqu'en ses plus menus détails, la Royale est aujourd'hui tout à fait au point; je suis heureux de pouvoir dire, qu'au cours des essais volontairement des plus sévères, j'eus sans cesse la joie de voir cette belle mécanique toujours parfaite, et digne d'être à l'avant-garde des progrès à venir.

J'ai parcouru une grande partie de l'Europe par tous les temps, à toutes les altitudes, sans jamais constater une défaillance.

Les petites routes des Alpes se sont notamment chargées de me démontrer combien la Royale était souple, maniable, virant partout comme une bicyclette, insensible aux variations de température.

Rapide, sans jamais donner l'impression de l'effort, elle offre toujours le plaisir de se jouer des obstacles de la route.

Ses dimensions, sans doute les plus grandes actuellement, permettent de réunir dans ce cadre les moyens de satisfaire les désirs les plus divers.

L'élégance, la majesté des plus belles carrosseries lui siéent naturellement, les lignes du châssis complètent ces beaux contours en formant un tout harmonieux très personnel.

La suspension, parfaite à tous les points de vue, le ralenti qui ne laisse même pas soupçonner le souffle du moteur, suscitent la plus vive admiration.

L'impeccable tenue de route, d'ailleurs proverbiale pour les Bugatti, rend extrêmement facile et légère la conduite de ce pur-sang merveilleux, qui, puissamment, rapidement, avec une sécurité absolue, vous transporte en tous lieux sans la plus petite appréhension.

Rien, enfin, n'a été laissé au hasard, les plus petits détails minutieusement étudiés, chaque problème entouré de la plus prudente sollicitude.

Le moment est venu maintenant, où je crois pouvoir considérer ce réel chef-d'œuvre mécanique comme terminé, et tout à fait au point, j'ose même l'accompagner d'une garantie absolue, sans limite de temps.

Cet exposé est trop sommaire, pour qu'il soit possible de se faire une opinion exacte de la Royale : un essai complet en ville, en montagne, en plaine, est nécessaire ; l'imagination seule ne saurait suffire pour comprendre ce que cette construction représente de progrès et de perfections jamais atteintes.

Molsheim 1931

Texte rédigé par Mlle L'Ebé Bugatti à la demande de son père

LA ROYALE



In 1926 Ettore Bugatti was at the height of his powers. His cars won a great many races that year while he himself enjoyed a period of intense creativity, bringing out no fewer than seven new models, amongst them the prototype of a fabulous and still unrivalled machine. This was Type 41, universally known as the Royale.

Bugatti had long dreamt of building the ultimate in luxury cars. This production represented the realisation of that dream, the culmination of a line of development that included the Roland Garros and Type 28. Now, his coffers filled as a result of racing successes and the sale of models already in production, he was able to go ahead. Among the first people privileged to ride in the Royale was the English journalist, W. F. Bradley of *The Autocar*. His report included a brief specification, stating that the wheelbase was 15 feet (4.57 m) and the track 5 ft 5 in (1.65 m), and the engine a huge straight-eight with Bugatti's usual three valves per cylinder, dual ignition and a bore and stroke of 125 mm by 150 mm, so that the swept volume was 14,726 cc. Power output, according to Bradley, was 300 bhp at 1700 rpm, or about 20 bhp per litre.

The moment the chassis was ready Bugatti adapted and fitted the body from a big touring Packard, and himself embarked on a series of long test runs in the Alps, the Pyrenees and the tortuous going of the Massif Central. The result of this test

programme spread over two years seemed to him satisfactory, affording experience on which to base a production model.

The production Royales, of which only six were built, were slightly smaller than the experimental car. Wheelbase was reduced to 14 ft 2 in (4.30 m) and track to 5 ft 3 in (1.60 m); the bore remained 125 mm but the stroke was shorter, 130 mm, bringing the capacity down to 12,763 cc to give an almost 'square' engine, unusual at that time.

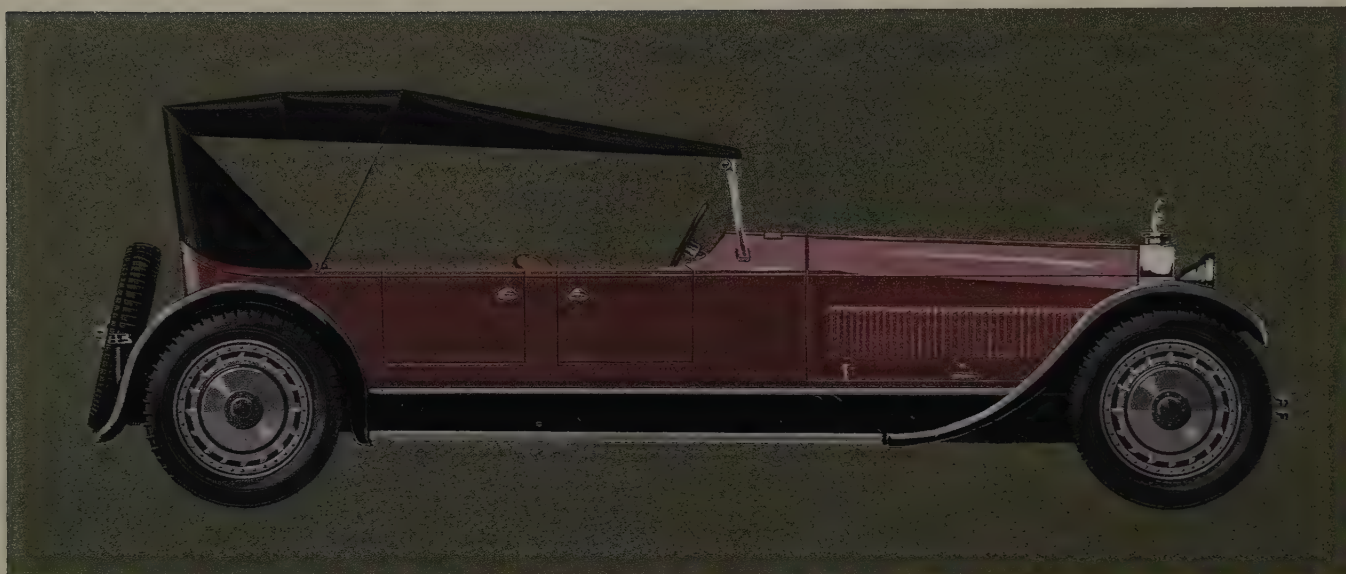
The long experimental chassis remained in use for some time, and once relieved of its Packard reach-me-down was to carry various new bodies, as we shall see.

Two mysteries continue to surround the Royale: the number of chassis built, and the order in which they were put into service. The evidence in our possession seems to indicate that in addition to the experimental car, Bugatti built six chassis during 1928–29 and that these were numbered 41 100, 41 111, 41 121, 41 131, 41 141 and 41 150. The six were fitted originally with the following very diverse bodies, which were respectively a Coupé de Ville (the so-called Coupé Napoleon), a two-seater Roadster, a Weinberger cabriolet, a Park Ward limousine, a *Coach* (two-door close-coupled coupé) by Kellner and a *Double Berline* (duplex cabriolet). Three of these, the first two and the last-named, were the work of Ettore Bugatti and his son Jean.

It may seem reasonable at first sight to assume that this chassis numbering corresponds with the order in which the machines were bodied and put

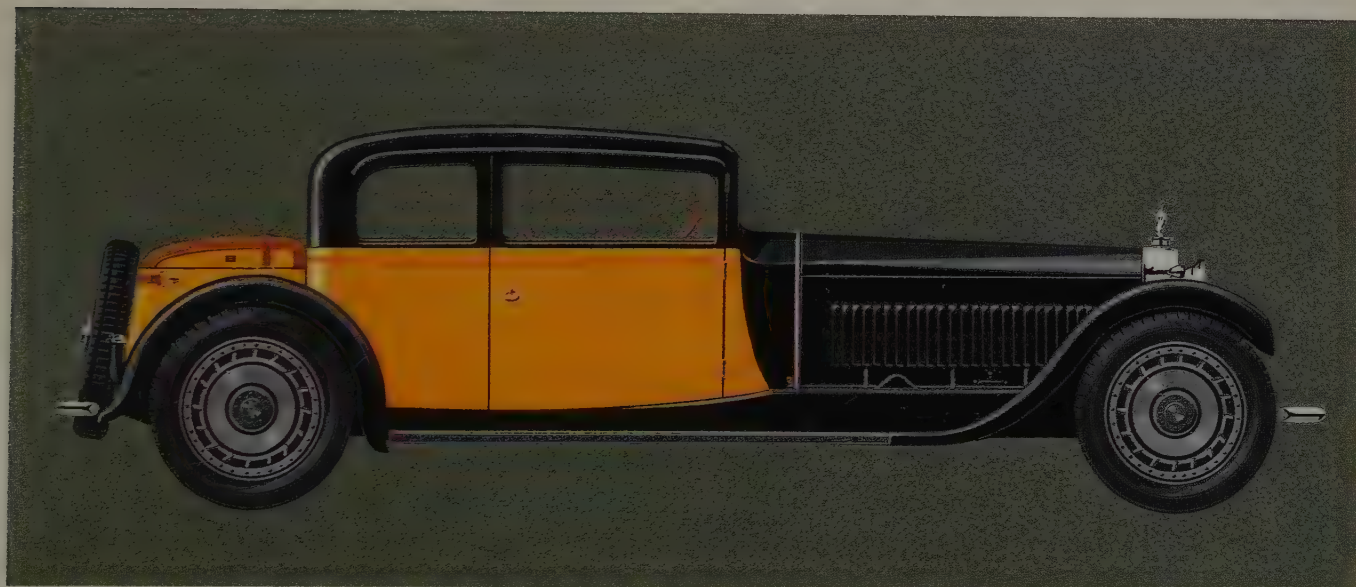
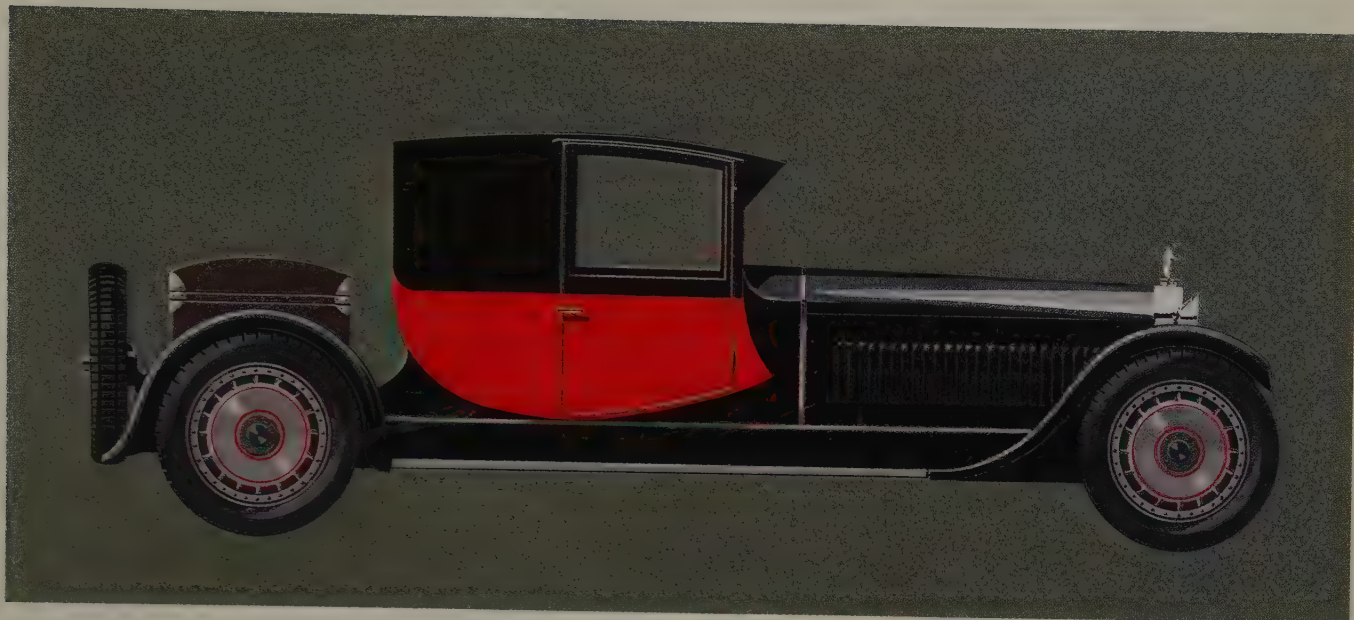
The elephant which surmounted the Royale radiator cap was designed by Rembrandt Bugatti. It symbolised the car's qualities, strength, majesty, size and docility. The photograph shows the original sculpture, made in 1903.

The prototype Royale chassis, of 4.55 m wheelbase, was fitted successively with four bodies, shown here in chronological order. The first, an open tourer, came from a Packard. In 1928 the red coupé appeared outside the Paris Salon, a somewhat stiff design typical of Bugatti; the following year a more pleasing Saloon was built at Molesheim. Finally a Sportsman's Coupé was commissioned from Weymann, a slimmer more modern design which won numerous *concours d'élégance*

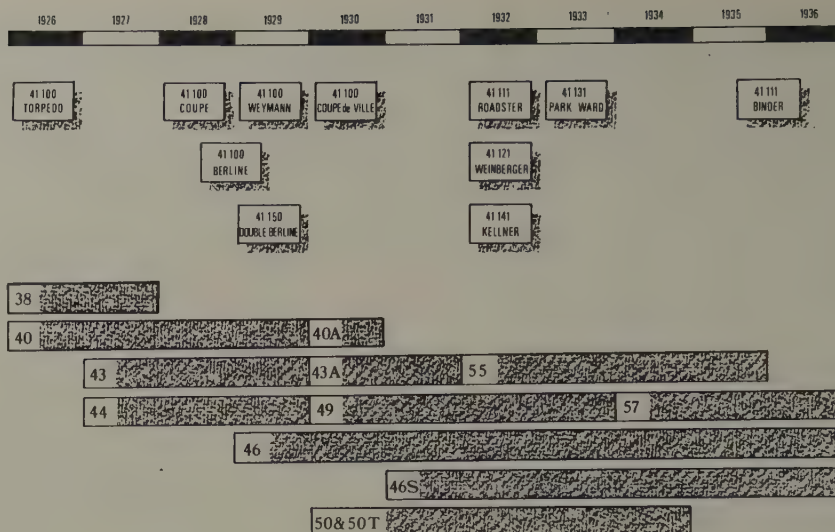


on the road; but we doubt this for several reasons. For example the Double Berline, which should have been built last as it is numbered 41 150, is far closer stylistically to the rather horsey Coupé and Saloon bodies (red cars, page 87) which successively replaced the Packard on the prototype. This leads one to think the six production Royales were built in a batch but delivered (to outside coach-builders or to Bugatti's own body shops) without regard to numerical order. So little importance seems to have been attached to chronological numbering indeed, that the two chassis reserved for Bugatti's personal use, numbers 100 and 150, are the only ones which do not end in the figure 1.

If, then, we accept that one long-chassis (15 ft wheelbase) experimental was built and followed by a batch of six 14 ft 2 in 'production' cars, the total output of Royales was seven. Certain writers on Bugatti would have us believe that the Coupé de Ville known as the Coupé Napoleon was mounted on the long experimental chassis after the latter had been involved in a crash which destroyed the Weymann body it was wearing at the time. If this were true, the total number of Royales would be only six! However, can one really imagine the Patron having a badly wrecked vehicle repaired in order to fit it with such an expensive new body? In fact, the Coupé Napoleon (which still exists) has



This table shows the order in which the Royale bodies were built. The shaded strips show when other Bugatti models were in production, so that styles may be compared.



the short 'production' wheelbase, not 15 ft as the prototype. The engine, too, is the short-stroke 'production' type; so it is not only the wheels that differentiate this car from the experimental model. All these factors seem, to our mind, to constitute so many proofs that the Coupé Napoleon body was in fact mounted on a new chassis from the production batch that the identification plate from the experimental car, 41 100, was transferred to it.

Even if some lingering doubts remain as to whether six or seven chassis were built the number of bodies is not in dispute. There were in fact eleven: four on the 15-ft experimental chassis and seven on 'production' cars, one of the latter (no. 41 111) having been once rebodied.

The chart above enables Royale chronology to be related to the rest of Bugatti's production. Certain styles, or at least certain features, are held in common; for La Royale, although no close relation of any other Type, was every inch a Bugatti.

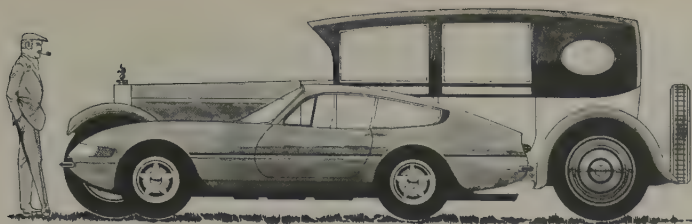
Mechanically indeed the Royale embodied all the features which ensured the success of the *marque* but carried to a pitch that was quite extraordinary. No component, no part, no casting, ever was left in its original state. Everything was machined, worked over and finished by hand. Never, before or since, has any car been constructed with such care. The size of the car, its specification and the incredibly fine finish compelled Bugatti to place the selling price at such a level that its acquisition became the exclusive prerogative of royalty, even though purchasers were given an unconditional guarantee throughout the life of the car.

In actual fact few enthusiasts came forward to purchase the Patron's *chef d'oeuvre*. There were only three, and not one of them a crowned head. King Alfonso XIII of Spain, it is true, showed keen interest in the experimental car when Bugatti drove down to San Sebastian for the Grand Prix, and there is even a publicity photograph, showing the Bugatti children in the Tourer, the caption to which states that the King of Spain would be taking delivery of the first production car. Unfortunately this was not to be, for Revolution broke out in Spain, costing King Alfonso his throne and diverting his mind from *automobiles de grand luxe*. Bugatti could not have chosen a worse moment to announce a car of this price. The Great Depression of the thirties was beginning to bite, frightening away purchasers. Thus it was that this model, so resounding technically, became a financial failure.

Royale Open Tourer on Experimental chassis no. 41 100

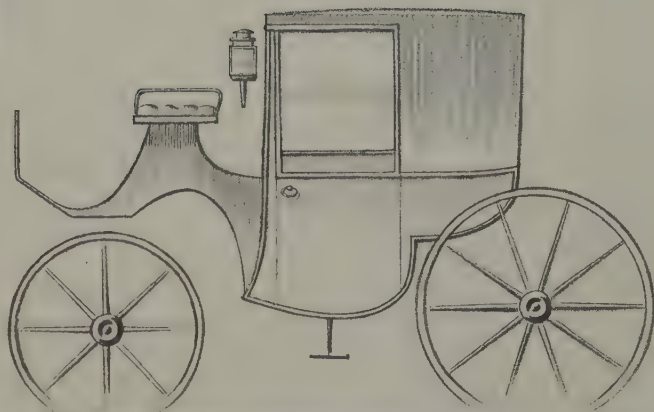
The first body on the prototype chassis was, as already mentioned, an open tourer taken from a Packard in Bugatti's possession. This type of touring car was very popular in the mid-twenties, and by using an existing body Bugatti was able to go out on test without waiting on a coachbuilder.

This enormous body suited the long wheelbase very well, and was a seven-seater. Passenger space and the bonnet-cum-scuttle were of roughly equal length. The immensely long horizontal bonnet conformed to the shape of the radiator in front and



It is hard to visualise the Royale without some present-day car for comparison. Here a Ferrari Daytona is pictured beside the Saloon; its roof does not come up to the waist line.

The clean lines and harmonious curves of the nineteenth-century Brougham appealed strongly to Ettore Bugatti.



broadened very progressively. Just before the scuttle a step or shoulder was introduced so that Bugatti's bonnet merged neatly into the characteristically Packard scuttle, traditionally shaped to conform with a Packard radiator, its rearward continuance forming the elbow line of the body. The impression of length is emphasised by a black valance and running-board, and by an array of bonnet louvres. The spare wheel was behind, nicely balancing the side elevation and in no way detracting from the clean lines of the Torpedo body as a side mounting would have done. The only curves in the composition come from the mudguards, which enshroud the wheels fairly closely.

These wheels are a striking feature of the car. At a time when the majority of cars still had metal – or even wooden – spoked wheels these are light-alloy castings with integral cooling fins for the brake-drums. Royale wheels are not, of course, to be confused with the wide-spoked variety used on Type 35 and its variants. A wide annular section carries a central flange for the wheel-nuts and hub-cover, and is joined to the rim by sixteen 'spokes' like the blades of a turbine. These are slightly larger than those on later Royales, and reminiscent of Type 49. The rim has a great number of fixing bolts, as on early Type 35's; and here is another problem. On the tourer there are thirty-two bolts although with later bodies on the same chassis there are only sixteen. Yet all other Royales have thirty-two. . . . Various other modifications accompany this anomaly. A photograph of the Tourer at the German Grand Prix in 1928

shows an extra painted line round the central flange, and the wheels appear now to have sixteen bolts. One concludes that Bugatti indulged in all sorts of experiments on the prototype chassis; it is quite reasonable that he should change the wheels, and perhaps even the engine. . . .

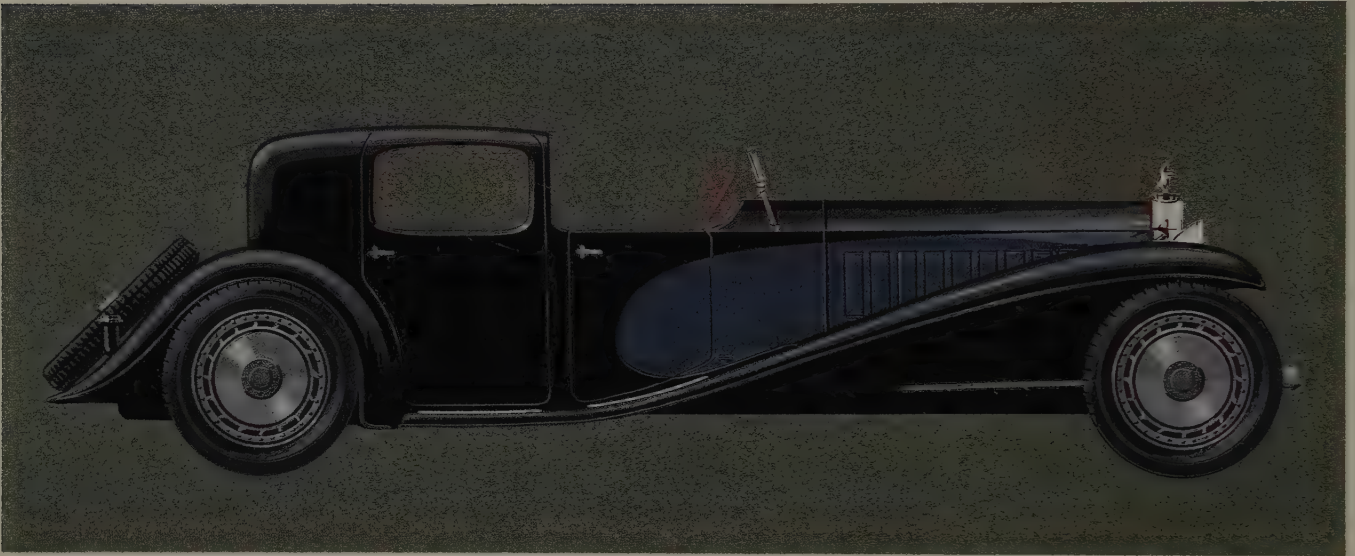
There is one other feature that determines the style of a car: the radiator. On the Royale this attained its purest form. Huge, of course, its façade is composed of small black squares surrounded by a thin nicked shell rather rounder than on other models of the time, and with the bottom corners softened out. The sole decoration is that oval red badge with white lettering, so well known on the Grand Prix circuits. Topping all the filler cap forms a pedestal for the silver-plated elephant mascot, the work of Ettore's brother Rembrandt Bugatti, the well-known *animalier* sculptor. This pachyderm admirably symbolises the qualities of the Royale: heavy but swift, powerful but docile, huge and indestructible.

Royale Coupé on Experimental Chassis no. 41 100

As the long period of personal testing drew to a close Bugatti pondered the question of coachwork for the Royale. He removed what was there, retaining only the wings, running-boards, radiator and spare wheel. His first inspiration, derived from his love of horse-drawn carriages was a classic coupé or Brougham. The radiator set the shape for a new bonnet little different from that of the Tourer except that the louvres were wider and fewer. The

The Two-Seater at the head of page 91 was Jean Bugatti's second design; it no longer exists, having been replaced in 1934 by a Binder Coupé de Ville (centre, page 91) which closely resembled Jean Bugatti's. Below is the Cabriolet by Weinberger of Munich built to the order of Dr Fuchs, not unlike the Jean two-seater but bulkier.

Below: After the crash which destroyed the Weymann body, Bugatti had a new Royale chassis made, with wheelbase reduced to 4.30 m, and charged his son Jean with designing a body. The result was the Coupé de Ville shown below, whose perfect proportions and elegant wing line make it in some people's estimation the most beautiful body of all time (see page 102).



shoulder on bonnet and scuttle remained, but its line swept sharply upwards into the windscreen pillar. The roof line extended forward above the screen forming a peak like the folding visor on the first *conduite intérieure* Type 15 of 1911.

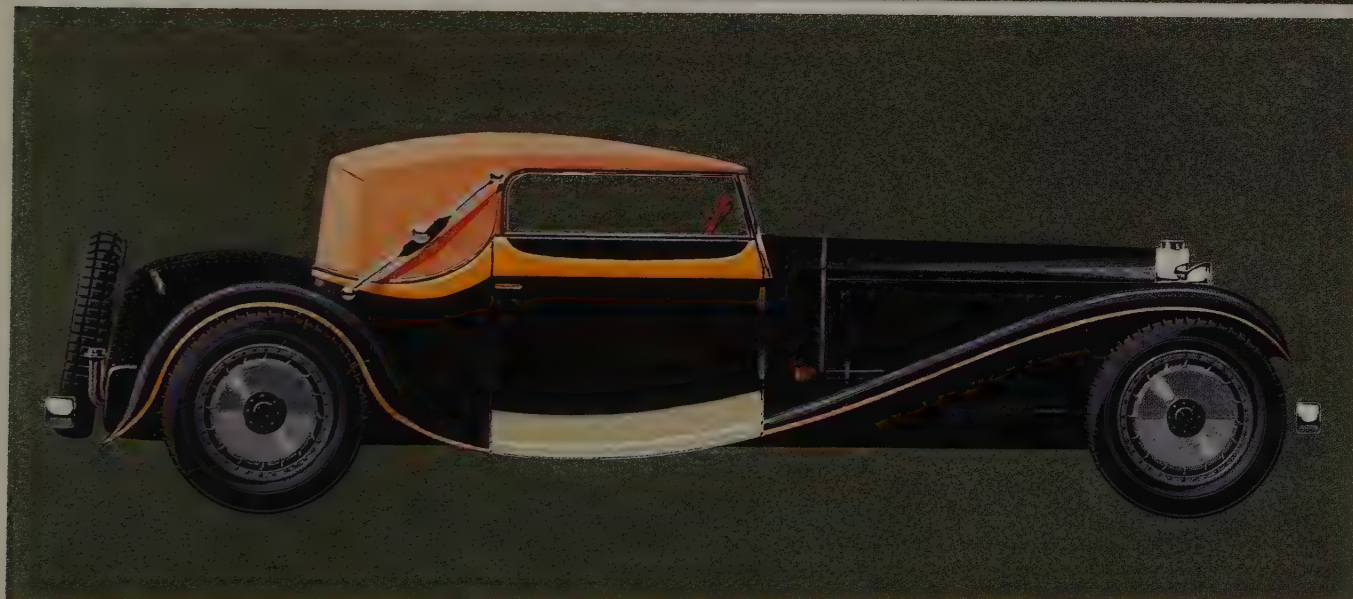
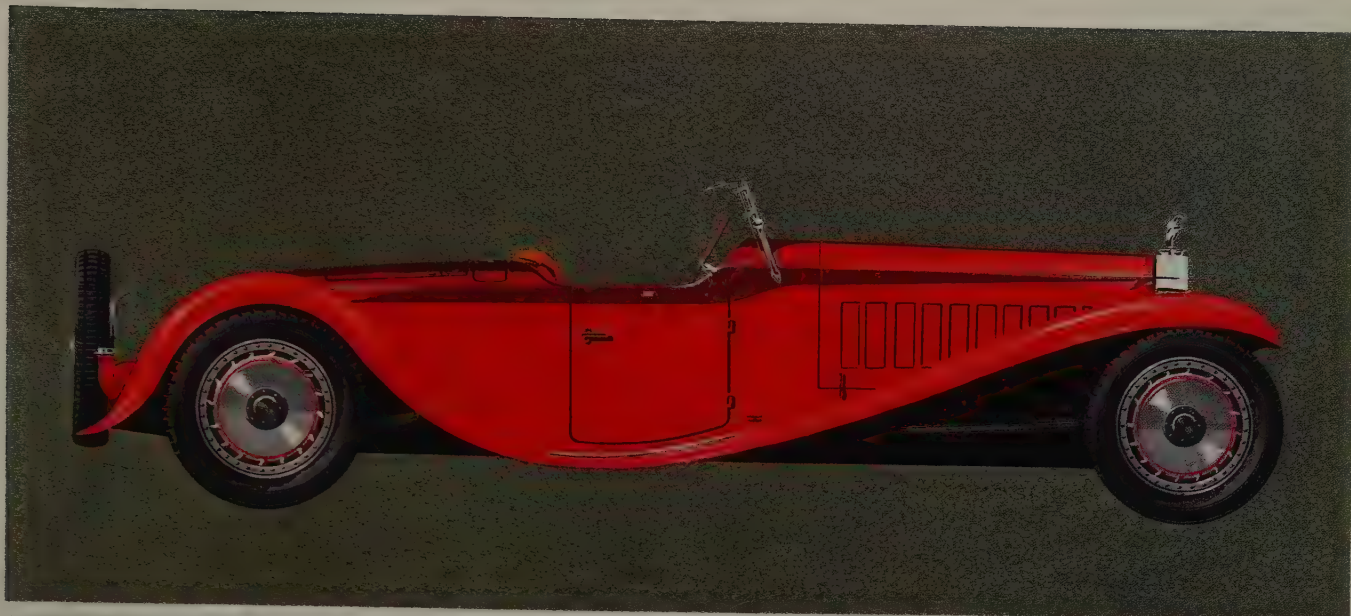
The body was very small for the length of chassis, but would comfortably seat three abreast. In outline it was almost perfectly square although judicious use of colour made it seem lower. To fill the space behind, a large trunk was mounted above the axle in a way which made it impossible to remove. This arrangement, though traditional on eighteenth- and nineteenth-century carriages, was unsuited to so long a chassis. The idea was later

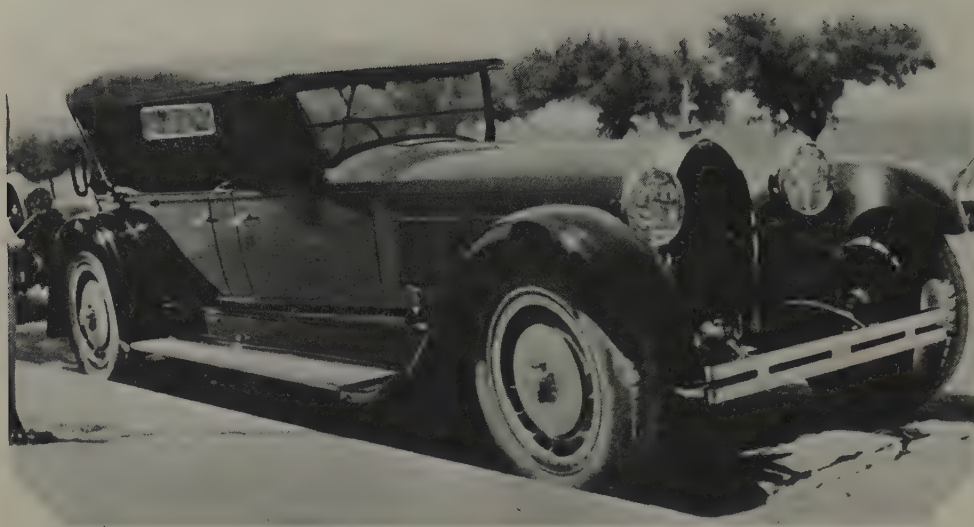
taken up and applied to more conventional vehicles with far happier effect.

It would seem that the Patron himself was not enchanted with this model, which made its bow during the 1928 Paris Salon. The only photograph we have shows it standing outside the Grand Palais. Little is known about this short-lived Coupé.

Royale Saloon on Experimental chassis no. 41 100

Almost before the Coupé came out Bugatti was planning new bodywork on the prototype chassis, realising that the horsey Brougham was hardly successful from the aesthetic point of view. Neverthe-





Left, the very American Royale touring car was perfectly proportioned, despite its great size. The only known photograph (right) of the Saloon bears witness to Bugatti's perennial interest in body design.'

less the four-door Saloon body he designed to replace it was in the same idiom and by no means unlike. This time the length was that of the Tourer, and seven or eight persons could be carried. Contrasted paintwork and a moulding display helped to lighten the appearance and emphasise the traditional lines. The subtly curved roof kept its visor and the panels were 'razor edged', while door shuts and lights were angular as before; but a new touch was introduced by the oval quarter lights, breaking the general severity and going well with the 'brougham foot' of the standing pillar. A spacious, imposing and severely classical carriage, the Royale 'Berline' – essentially a four-door saloon – was a highly impressive creation, comparable with the most luxurious cars of its period, even though somewhat old-fashioned.

Royale Coach or Close-coupled Coupé by Weymann on Experimental chassis no. 41 100

Bugatti was still not satisfied. Mechanically the car was ready, but he still had not found the right bodywork. He therefore prepared to mount a big publicity operation, if we may allow ourselves the phrase. He wished to contact any possible buyers, however few they might be, in order to learn their reactions. The enquiry was to take place via a coachbuilder already entrenched in this market. This was C. T. Weymann, well known for his special system of construction, and to him Bugatti entrusted the building of the fourth body on the experimental car. The principle of Weymann's

patent consisted of covering the body, which was of wood, with tightly stretched leathercloth, thus making it lighter and much quieter than one made of metal. The inherent flexibility of such a body enabled it to follow the bending and twisting motions of the chassis. Acting closely on Bugatti's instructions, Weymann produced the last word in coachwork, using neither leathercloth nor metal but *tôle souple*, a high-gloss fabric covering designed to make the best of both worlds. The new body differs completely from those previously fitted. No doubt the wings are similar, and also the scuttle (although the shoulder is less pronounced) but the lines are more pleasing and definitely more modern than those of the coupé and saloon. Gone are the sharp angles and razor-edge panelling, replaced by flowing curves traced by the hand of a master coachbuilder.

In many respects the Weymann was to influence the style of future Royales. The agreeably rounded roof dispenses with a visor, although these were still quite fashionable, curving gently into the windscreen and rear panel. The very wide door is hinged to a curved standing pillar painted yellow to match the car. A black valance and moulding display reduce the height of the body. Finally, further to lengthen the silhouette, a genuine luggage trunk fits snugly against the back, leather covered and resplendent with metal corners and leather straps. The spare is again at the back. When we look closely at the three bodies, coupé, saloon and Weymann we find several similarities of detail. These are evident in the disposition of colours, and



also in the continued use of what coachbuilders call 'brougham foot' or 'chariot line' for the base of the standing pillar. Also mouldings to the window frames recur, although the glasses are more elongated owing to the lower roof. It is thanks to such up-to-date touches that the car is so trim and elegant looking.

The lines of this beautiful two-door were much admired and applauded from the time of its announcement in 1929, and the car took many prizes at the *concours d'élégance* so much in vogue at that time. Bugatti retained the Weymann for his personal use, as he had the coupé and saloon incarnations of the same chassis. Unfortunately within a few months the car was involved in an accident and the body totally destroyed.

Royale 'Coupé Napoleon', Coupé de Ville on production chassis re-numbered 41 100

'Coupé Napoleon' ... the very name is an enchantment. This Bugatti was the ultimate in prestige motoring.

When the long-wheelbase Weymann-bodied prototype was crashed beyond repair a number of 'production' Royale chassis stood ready at the Works awaiting bodywork. It was therefore replaced by one of these.

The task of designing a body for the new car was entrusted by the Patron to his son, Jean. Ettore must have had great faith in his ability for the job was one which the great names in coachbuilding must have envied him. But Jean was no beginner,

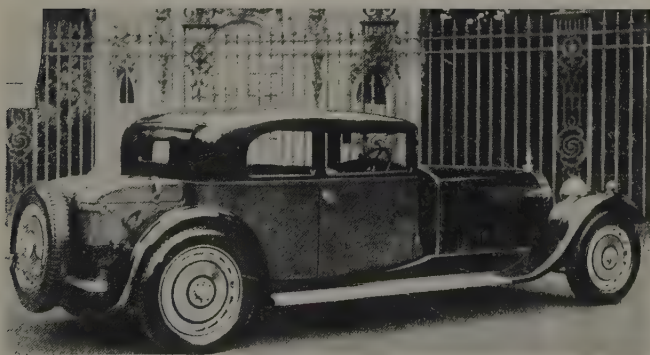
of course; he had already been responsible for the new Type 50.

A Coupé de Ville, as the name implies, is essentially a town carriage, chauffeur driven. The style has virtually disappeared, and is no longer used even by heads of state; a pity because it combines comfortable accommodation with great nobility of appearance. Jean Bugatti knew all this when he chose a Coupé de Ville for his first essay in coachwork for Royales. He did not allow himself to be influenced by contemporary fashions, but modified, down to the last detail, his father's models.

The great expanse of bonnet was still further lengthened by continuing the scuttle rearwards as a horizontal cowl over the instrument panel. The shoulder, first seen on the 'Packard' tourer, now extended to the radiator, the shell of which was slightly indented. The horizontal line that resulted ran right back to the Division, broken only by an inclined folding screen with plated frame. The innumerable bonnet louvres had given place to eleven adjustable ventilators; bonnet, scuttle, doors and panelling were all therefore perfectly plain. This bareness might have looked heavy and boring, had not Jean been inspired to relieve it by means of a shallow recession, whose elegant outline swept round from the bonnet hinge line, into the door panel and forward again following the sweep of the wing.

The Brougham portion was almost a cube, perfectly flat in front. The side glasses were almost rectangular with slight curvature to the upper and lower edges and no peripheral mouldings. A novel

Caught by a photographer, Ettore Bugatti tries to hide the sight of a Royale in trouble. Below, a three-quarter rear view of the Weymann two-door coupé, a worthy *concours* winner.



feature was a transparent roof, lighting the interior and giving the impression of an open car. No trunk was fitted to this strictly town carriage. The spare wheel assumed an angle of 45 degrees, filling the hiatus behind the Brougham body.

On this highly individual model the wings are a characteristic feature. Beaten from a single sheet to include the mud valance, they extend in an unbroken sweep to the junction with the rear wings, their domed section diminishing gradually, becoming flat by the time it reaches the running-board. The rear mudguards follow the contour of the wheel but are gracefully upswept behind, echoing the curves of the front.

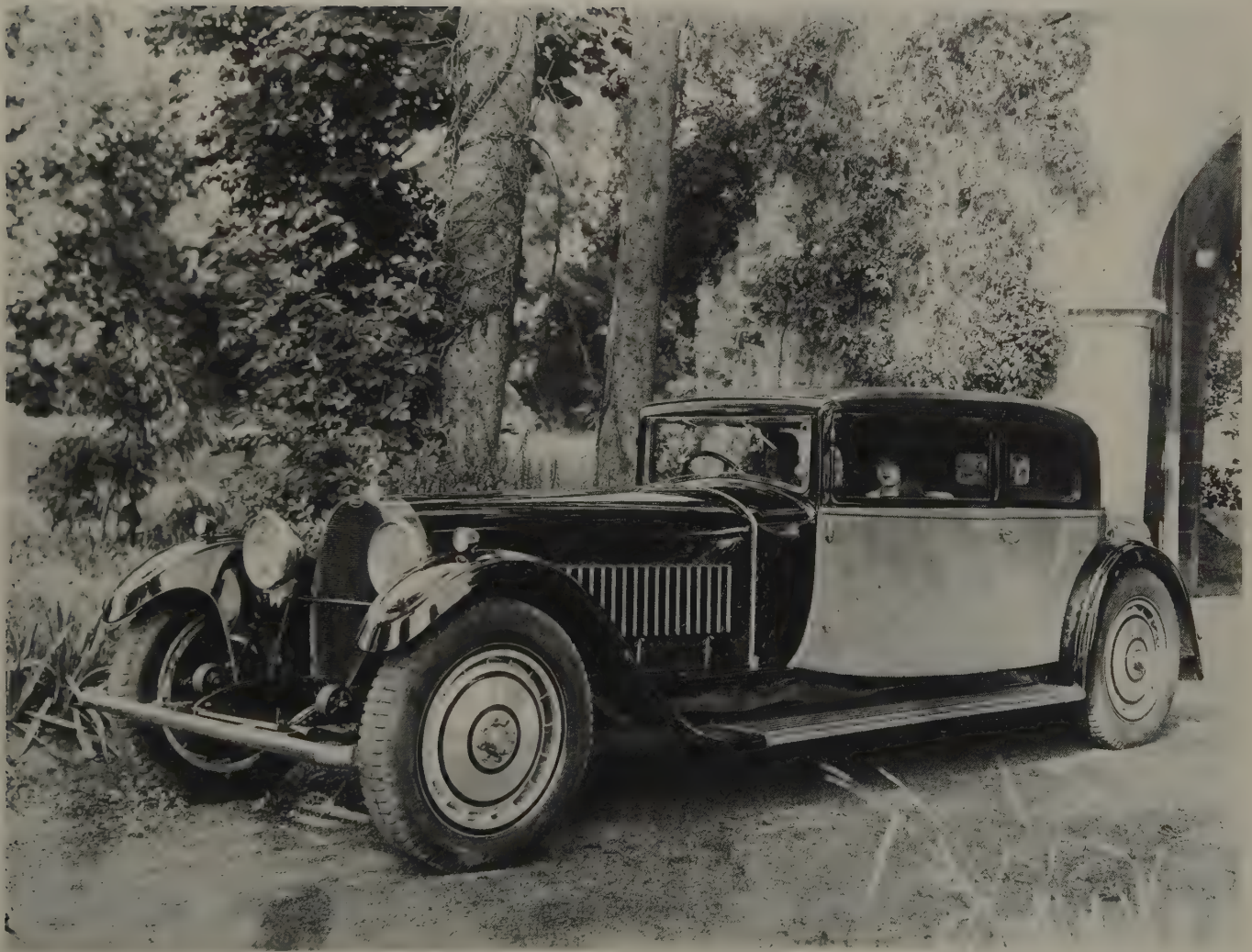
This then was the 'Coupé Napoleon', subject of so much adulation, which many consider the most beautiful car ever built. Ettore Bugatti never relinquished possession of this car, which remained hidden throughout the war along with two other Royales. It appeared for the Coupe des Prisonniers race of 1945 held in the Bois de Boulogne, when the Patron was able to savour his first post-war victory, which unhappily proved also to be his last.

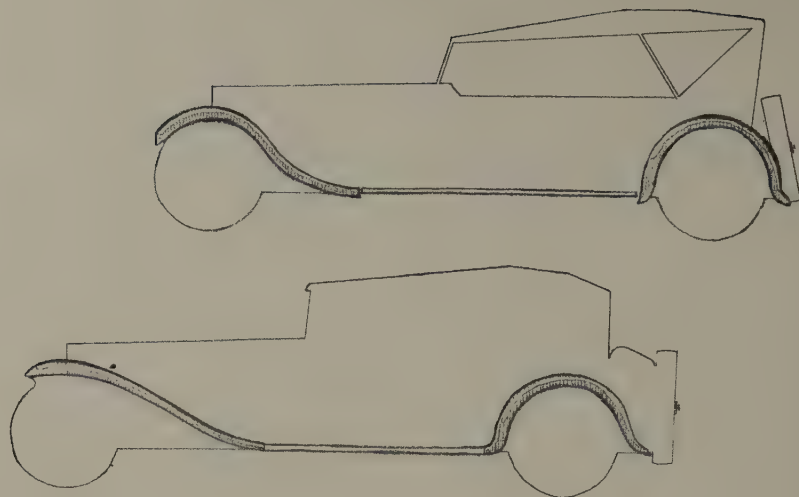
After the transfer of the Molsheim works to new owners, Hispano-Suiza, the Coupé de Ville passed into the hands of the Alsatian collector F. Schlumpf, who keeps it locked away even from Bugatti enthusiasts. Let us hope it may be seen again some day.'

Royale Double Berline de Voyage (Duplex Cabriolet) on short chassis no. 41 150

Ettore Bugatti designed this body, mounted on

Photographed in the grounds of the Chateau Saint-Jean at Molsheim, the Weymann Royale was considerably ahead of its time, a beautifully proportioned design in an age noted for stately cars.





short 'production' chassis no. 150, in the same style as the Coupé and Saloon used on the experimental car. If, as we have seen, one trusted this number, or even the engine number, this would be the most recent of the Royales. It is more likely, however, that this was the first of the short-chassis (14 ft 2 in wheelbase) cars to be bodied. It was built shortly before, or at the same time as, the Coupé Napoleon. Moreover, the chassis number 41 150 assigned to it marks a departure from the sequence of numbering adopted for the other production chassis, all of which end with the figure 1. This would seem to indicate that the car was specially earmarked, and both were retained by Bugatti.

The *Double Berline* is a typical Ettore Bugatti creation. If the prototype Coupé resembled a nineteenth-century Travelling Chariot, this one suggests a Diligence. The door panels are elaborately moulded; and although the body has been repainted many times, constantly changing in appearance according to the arrangement of colours, these mouldings have always been featured. As for the top, a folding leather head, this too reinforces the suggestion of Diligence. This immense top can be opened fully and is kept taut when erected by 'landau irons'. Note also the small extra window between the doors which Bugatti was obliged to insert so as to keep the doors to a reasonable size and retain the rectangular outline then in vogue.

Radiator, bonnet and scuttle recall those of the Weymann *Coach*. The radiator has not yet the slight indentation noted on the Coupé de Ville. A

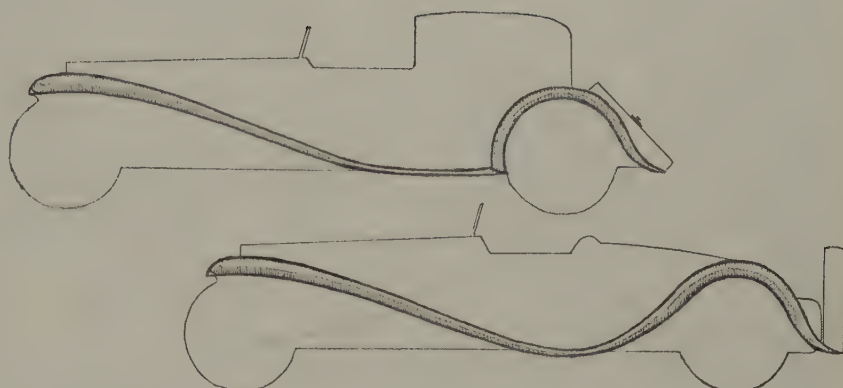
strictly horizontal valance calls attention to the swept panels and diminishes their depth. The whole car is lowered by this means, and again by the waist mouldings. The front wings commence like those of the Coupé de Ville but drop more steeply, meeting the long-running-board at the junction of bonnet and scuttle. The rear wings fit more closely to the wheels. A panelled trunk, very small for a car of this size, is shaped to the back panel and behind it is the spare wheel, mounted in a vertical position.

Aesthetically the *Double Berline* cannot be counted a success. It failed to arouse the enthusiasm which greeted the Weymann and Coupé de Ville. Nonetheless it symbolises the ideas and aspirations of Ettore Bugatti. Retained in his family until 1950 it then went to America where, after changing hands several times, it entered the Harrah Collection at Reno, Nevada where it is on view beside another Royale.

Royale Production chassis no. 41 111 Two-seater by Jean Bugatti

Six years after the first public appearance of the Royale the first paying customer placed an order, and he was neither Royalty nor Head of State, but a prominent man in the textile industry, one Armand Esders. Mr Esders wanted a car that would not pass unnoticed, and as he would not drive at night he desired it to be made without lamps. Design was again entrusted to Jean Bugatti, who suggested a two-seater body with dicky.

These four sketches show the evolution of wing design on the Royales. Those on the left are by Ettore, on the right by Jean. The lengthening sweep of the front wing will be noted, and its eventual merging with the rear mudguard.



Reference to the chart on page 88 reveals that 1932, the year of the Royale Roadster, was also the year of the Type 55 two-seater, a miniature version of the same design, although it is difficult to say which came first.

Just as the same designer's Coupé de Ville gives an impression of majesty and breeding, so the Roadster evokes speed and the joys of the open road. From the front the cars are strikingly similar: the same wing line, the same ventilators, and on the bonnet the same shoulders, mouldings and recessed panel, although the Roadster's moulding outlines the scuttle, emphasises the top of the doors and rear decking and merges finally with the tail at chassis level. This moulding, like the dickey seat, was finished in a darker tone, probably to match the wings. The dual red scheme chosen for our picture on page 87 is not in any way historical.

The Roadster windscreen is similar to that of the Coupé de Ville, although the stanchions are more robust and it has frameless wind-deflectors. The wide front seat is upholstered in light-coloured leather and looks very inviting. Behind it, all neatly concealed, are housings for a concealed hood, and the dickey with its own disappearing three-piece windscreen. At the extreme rear is the spare wheel mounted perfectly upright. Some photographs show the spare sloping and encased in a metal cover, but these were modifications made later in the car's life.

The front wings have the same sweep as on the Coupé de Ville, but instead of flattening to form a running-board, they curve upwards again and

merge gracefully into the rear mudguards. The panel-beaters who made them certainly deserved congratulation; and Jean Bugatti once more gave proof of his outstanding talent.

Unfortunately this marvellous body no longer exists. It was later replaced by a Coupé de Ville built by Binder.

Royale Coupé de Ville by Binder. Chassis no. 41 111

This Coupé de Ville, the most recent of Royale bodies, looks very much like a modernised version of the Coupé Napoleon designed by Jean. Its chassis, no. 41 111, is that of the Roadster, and the bonnet and radiator come from that car, having been re-used by Binder. The rest of the body, although higher built, could almost be mistaken for Jean's original; the windscreen however is higher to permit the use of a canopy over the front seats.

The most obvious distinguishing feature between this town car and its predecessor are the wing valances ('skirted fenders' in the U.S.A.), which became fashionable in the mid-thirties. Their function was utilitarian rather than decorative, namely to keep mud from splashing the body. The front wings fit closely round the upper half of the wheels and their sweep, for all the presence of valances, is less rakish than on the earlier car. The central running-board portion is flat and the valanced rear wing also fits snugly round its wheel.

All in all one can say that the Binder town car has



Left and top right, a photograph and drawing bear witness to the uncompromisingly British Limousine by Park, Ward & Co., most austere of the Royales. The two-door Kellner (centre) a slender and far less bulky design displayed at the 1932 motor shows, cost three times the price of a Rolls-Royce. Below, the so-called *Double Berline* (actually an Enclosed Cabriolet) designed by Ettore Bugatti on the lines of an old-fashioned *diligence* recalls his Coupé and Saloon for the prototype Royale.

not quite the same charm as its progenitor. What it principally lacks is a touch of Jean's genius.

Royale Cabriolet by Weinberger, Munich, on chassis no. 41 121

It was in 1932 that the first Royale chassis was sold outside France. The car was ordered by a German doctor, Dr Fuchs, of Munich; it was no. 41 121, and the customer's choice was for a four-five seater cabriolet body, to be built by a local coachbuilder, Weinberger, of Munich.

Quite orthodox in design, this car had Jean Bugatti's style of bonnet with the same shoulder and the same number of louvres, but the side line of the scuttle was not upswept as on Ettore's own Cabriolet, the so-called *Double Berline* built at Molsheim. An additional ventilation flap in the scuttle made the bonnet look even longer. A chassis valance recurs on this machine, reminiscent of the Weymann close-coupled coupé. The very shallow windscreen has rather thick chromium plated pillars and there is a triple screen-wiper. A rather deep swept moulding underlines the window and reduces the apparent height of the door, then continues rearwards, diminishing in section, to mark the junction between the body and cabriolet head. The latter, in light-coloured material, is tensioned by massive landau irons. Side windows, like the screen, are very shallow, so that the car has a low-slung, crouching look, like an animal about to spring. The trunk, mounted separately, is a saddler's job, like that of the Weymann coupé.

Weinberger's front wings were evidently influenced by those of the Roadster, but they hug the

front wheels more closely and a more rigid central portion enables it to be used as a running-board. This latter once had a white rubber toe-plate or kick-strip. The wings are outlined by a lightly swaged moulding matching the body mouldings.

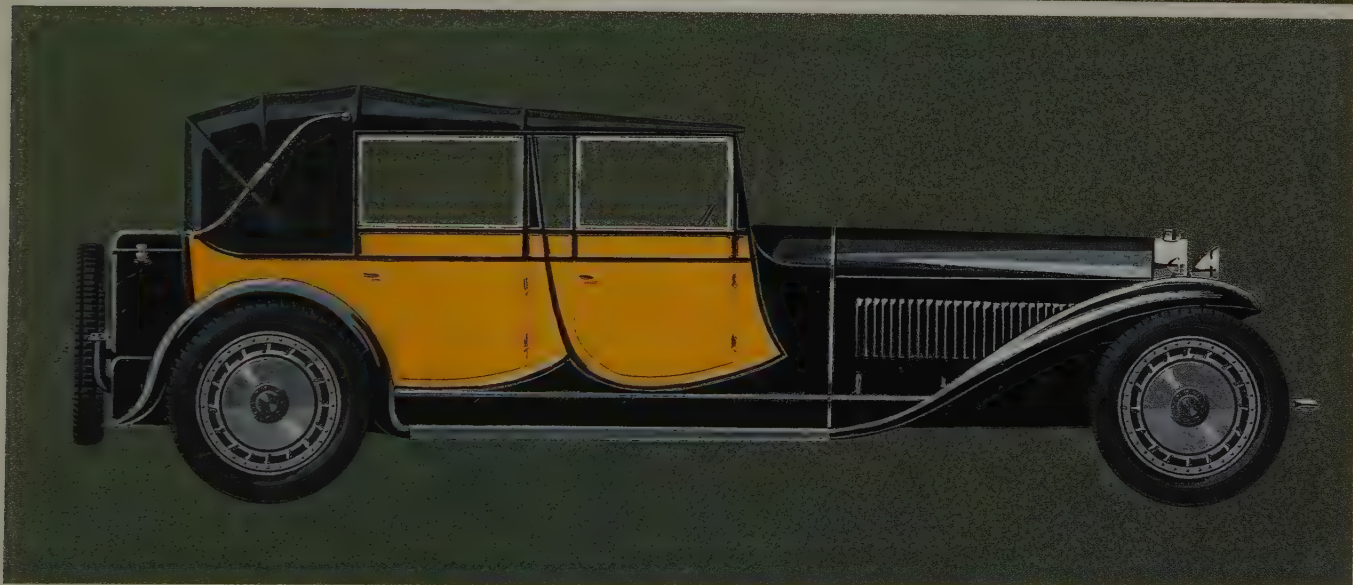
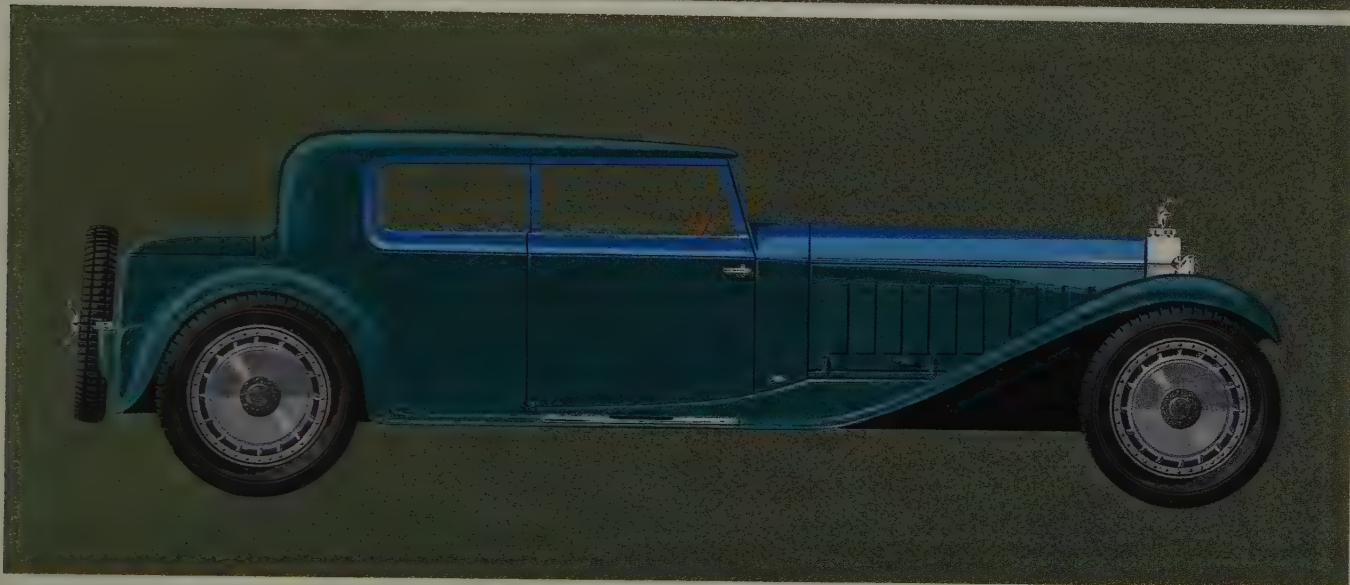
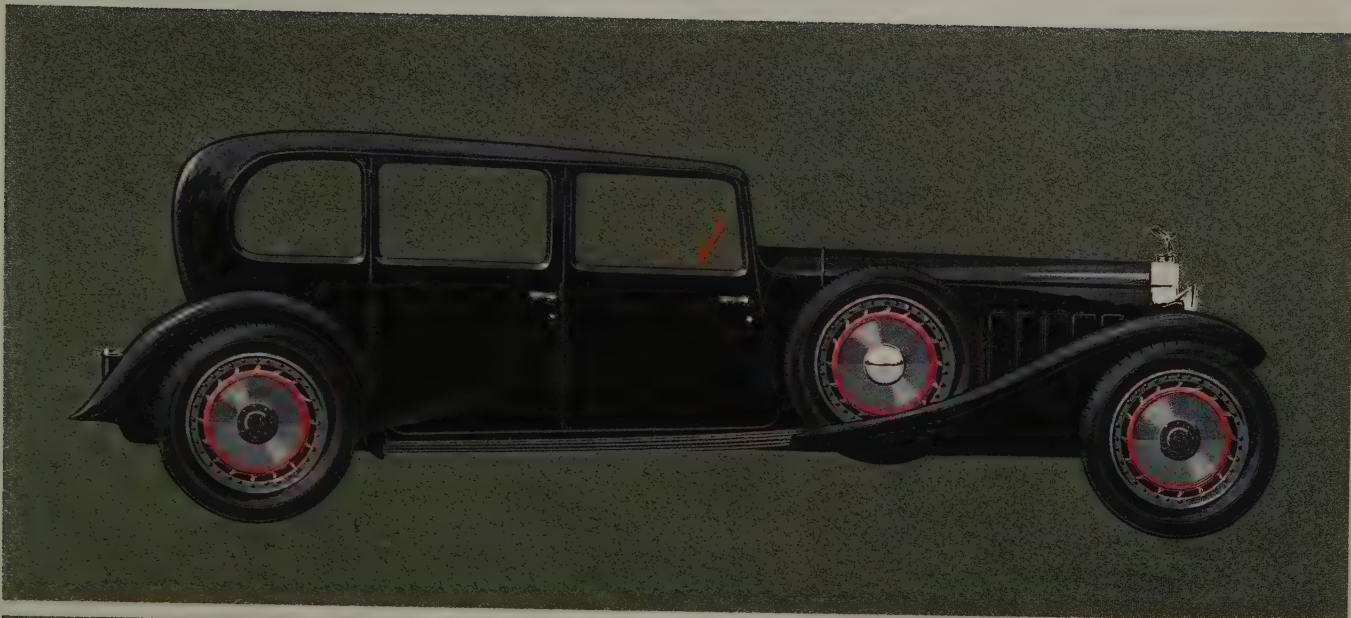
Painted display on the wheels is completely absent from this body. This does not mean that the wheels themselves are new, simply a change in decoration. The look of the car, front and rear, is transformed by heavy chromed bumpers.

Photographs of the Cabriolet, with rare exceptions, show it painted pearl grey with dark green mouldings, head and trunk. Today, after following its owner to Shanghai and to the United States, where it was scrapped, the car is on view in the Ford Museum at Dearborn, Michigan, to which it was presented by its restorer, Charles Chayne. It will be noted that the head irons are upside down, the kick plate has disappeared, and the wheels have chromium-plated 'embellishers'.

The Weinberger Cabriolet, of all the Royales, is the one best known to the general public, thanks to numerous photographs that have been recently published, and to the Lindberg plastic models on sale in every toyshop. This was the most successful Royale body built outside Molsheim.

Royale Limousine by Park, Ward & Co., Ltd, chassis no. 41 131

This car does not bear the highest serial number but it was the last Royale chassis to be bodied, for although built at the same time as those of the Roadster, Cabriolet and Kellner two-door coupé, it was not delivered to the London firm of coachbuilders Park, Ward & Co., Ltd until the middle of







This bird's eye view of the Two-Seater brings out the feline grace of Jean Bugatti's masterpiece. The boldly swept wings are a triumph for some Molsheim panel-beater. On the right a close-up of the dickey, complete with folding windscreen.

the following year (June 1933). The customer was an English businessman named C. W. Foster.

In bodying this Royale Park, Ward & Co lived up to their reputation. The car is very much in the firm's tradition, as haughty and austere as any Rolls-Royce. Black paintwork and an absence of decoration on the sides give it an air of aloofness.

The bonnet is like those of the other Royales. The sole timid concessions to modernity are a slightly raked windscreen and the quite daringly bulbous curve between the almost flat roof and the back panel. Typical of Park, Ward & Co. is the 'Easter egg' back which overhangs so far as to leave no room for a trunk or spare wheels. The latter therefore are mounted in the wings on either side of the bonnet; perhaps a happy solution after all, for the presence of these exciting wheels picked out in red adds just the touch necessary to relieve the severity of this limousine.

Royale Coach by Kellner on chassis no. 41 141

In 1932, the year which saw the delivery of a chassis to Weinberger and the creation by Jean of the Roadster for M. Esders, Ettore Bugatti placed an order for a new body with Kellner. This was a 'Coach' (two-door close-coupled coupé) on Bugatti's stand at the London Motor Show and it won a prize for the most costly exhibit.

The price, which was three times that of a Rolls-Royce, discouraged customers so effectively that the Coach was not sold until twelve years later, when Briggs Cunningham acquired it direct from the Bugatti family.

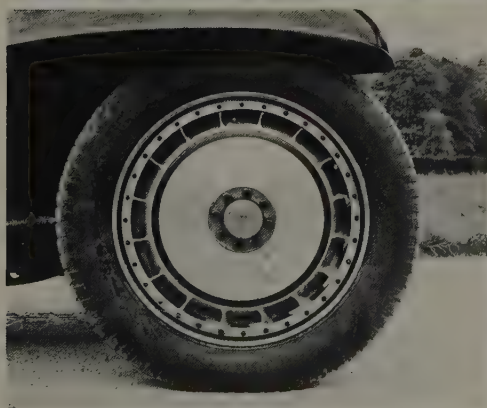
This two-door owner-driver body looks a trifle stiff perhaps, but has excellent lines. Kellner has managed to provide a roof offering unusually wide visibility for the passengers, even though the windows are shallower than the average for the period. It is the very thin pillars that increase the view.

The bonnet shoulder marks the separation of the two-colour paintwork, and continues as a side moulding across the doors and back to the quarter-panel, emphasising also the shape of the windows. This moulding reduces the volume by decreasing the depth of the panels. The back is linked to the fairly flat roof by a sweep less bulbous than Park, Ward & Co.'s and rather reminiscent of Weymann. The panelled boot is linked to the body proper by curves which show the angular shape of the lid to particular advantage.

The wing line is close to that of the Limousine although the section above the wheels is deeper. The illustration on page 99 shows how the wing merges into a valance, forms a running-board comprising two step plates, and at the rear becomes one with the panelling. Our picture of this car has the colour scheme rather unconventionally arranged; the sole reason for this is to make it look long. Bugatti blue has been reserved for the bonnet top and mouldings; the rest is bottle green.

We now know what the eleven bodies were like which were built for that fabulous mechanism. Summing up, we can say that only three of the seven chassis found purchasers; that, apart from the Tourer three of the bodies were designed by Ettore, two by Jean and five by leading coach-builders; that six Royales are extant, four in the United States, two in France.

Jean Bugatti's Coupé de Ville Royale owed its air of thoroughbred elegance to the careful juxtaposition of volumes and curves. The effect is enhanced by the light-alloy wheels, and the transparent roof strikes another original note. The instrument layout is interesting, as is the early wireless set in the Division.



THE HALLMARK OF JEAN BUGATTI



‘Times change, automobiles too . . .’ This aphorism coined by a famous manufacturer when announcing a new model may serve equally as introduction to the present chapter, and perhaps with greater justification.

By 1930 Bugatti had been making straight-eight engines for almost ten years, each unit having the form of a parallelepiped – a clear-cut oblong in aluminium. From the 1100 cc Type 36 to the 12.7-litre Royale all had three valves per cylinder, an arrangement that proved successful in nearly a dozen different models. Now an important change was to take place, a change avidly desired by Jean, and reluctantly accepted by Ettore.

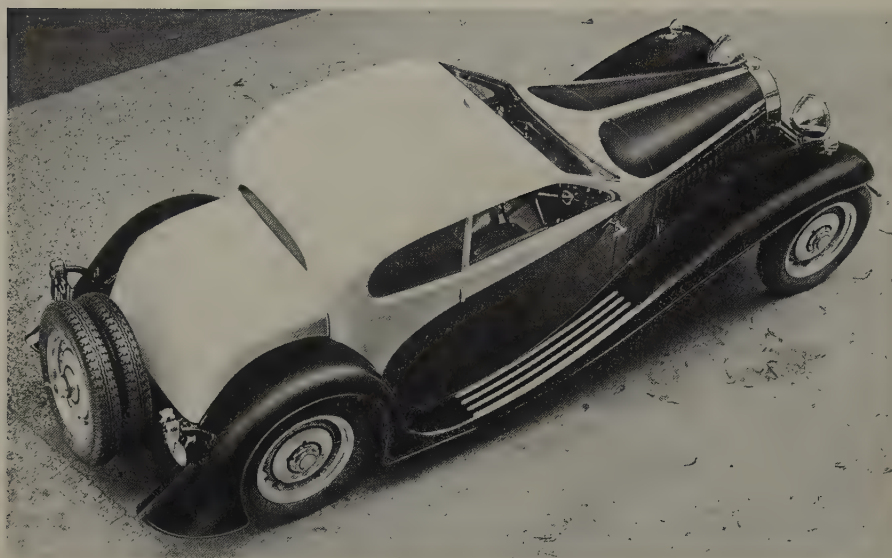
A commonly-believed legend is that the previous year an American, Leon Duray, arrived in Europe with two racing cars and ran them at Monza. Their performance gave the Patron to think. These Millers, for that was the name of the make, developed an impressive power output thanks mainly to their valve layout, operated by two overhead camshafts. At his son’s insistence the Patron made up his mind: he agreed to acquire the two Millers in exchange for three Type 43 Bugattis. The deal was hardly advantageous for him, but he realised that time was of the essence if he was to retain his place in motoring sport. Several of his competitors, including Mercedes, Alfa Romeo and Maserati were already equalling or even surpassing the performance of his cars. Once the deal was concluded the Bugattis, father and son, dismantled the Miller engines and noted their special features,

particularly the new miracle-working valve gear. Jean at least was convinced!

The Type 50

Thus it was that in 1930 a new engine made its appearance at Molsheim. Its valves were operated by twin overhead camshafts. With a bore of 86 mm and 107 mm stroke it came out at 4.97 litres, and with its supercharger developed more than 200 bhp at 4000 rpm, or close to 40 hp per litre. This engine was not intended for racing, but rather for a big ‘prestige’ model fitting somewhere in between the categories of *grand sport* and *grand tourisme*.

As a means of testing his new creation Bugatti decided to submit three examples to that gruelling ordeal, the Le Mans 24 Hours. They were installed in chassis of 10 ft 3 in wheelbase, that is an inch or two shorter than Type 49. Almost all the components came from Type 46, and open four-seater bodies were fitted very like the previous year’s Type 47. These had two small doors only, the right-hand one being cut away to make elbow-room for the driver. At first glance there was nothing special about the cars except for a rather large radiator, and perhaps the gracefully curved tubular axle embracing the flat front springs. And the finned alloy wheels, this time with eared racing hub caps, and mechanical self-adjusting brakes. One could not call it a beautiful body; but it did its job, and a touch of savagery is what Bugatti owners like. . . .



The Type 50 brought out all Jean Bugatti's great gifts as a designer. The *coach profilé* or Streamlined Coupé is one of the Molsheim classics; the Drophead Coupé below was also one of Jean's most successful designs and became his personal car.



At Le Mans in 1931 all three Type 50's went out from the same cause: tyre trouble. One (number 6) driven by Rost, was involved in a dreadful accident when a tyre-tread stripped and locked the wheel. The second car, driven by Chiron and Varzi had the same thing happen three times. The third car, Divo and Bouriat, was withdrawn by the Patron to avoid a similar fate.

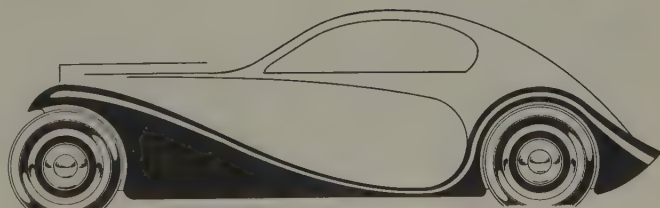
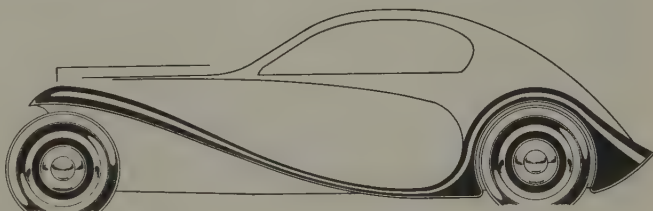
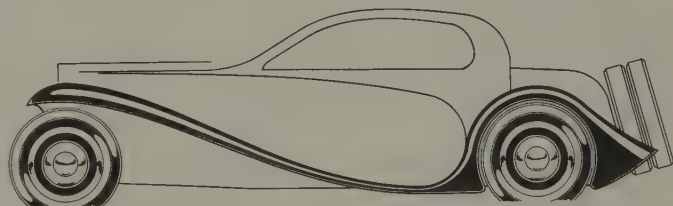
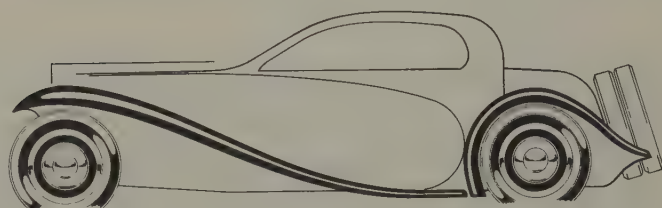
Type 50 T

The Type 50 T chassis was supplied with finned light-alloy wheels like those of the Royale; they had been optional on the Type 46 and were now standard. The normal 11 ft 6 in wheelbase allowed imposing luxurious coachwork, and although some cars were rather dull, recalling the Americanised 43 A, Jean Bugatti's designs showed a marked *avant-garde* trend, although he could modify his ideas to suit a stately occasion.

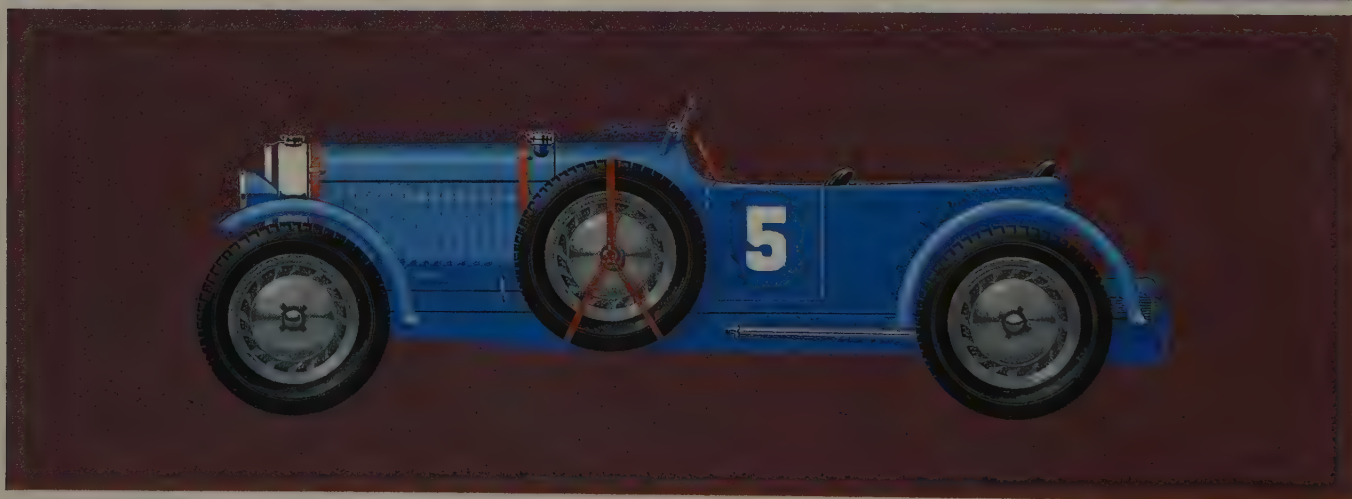
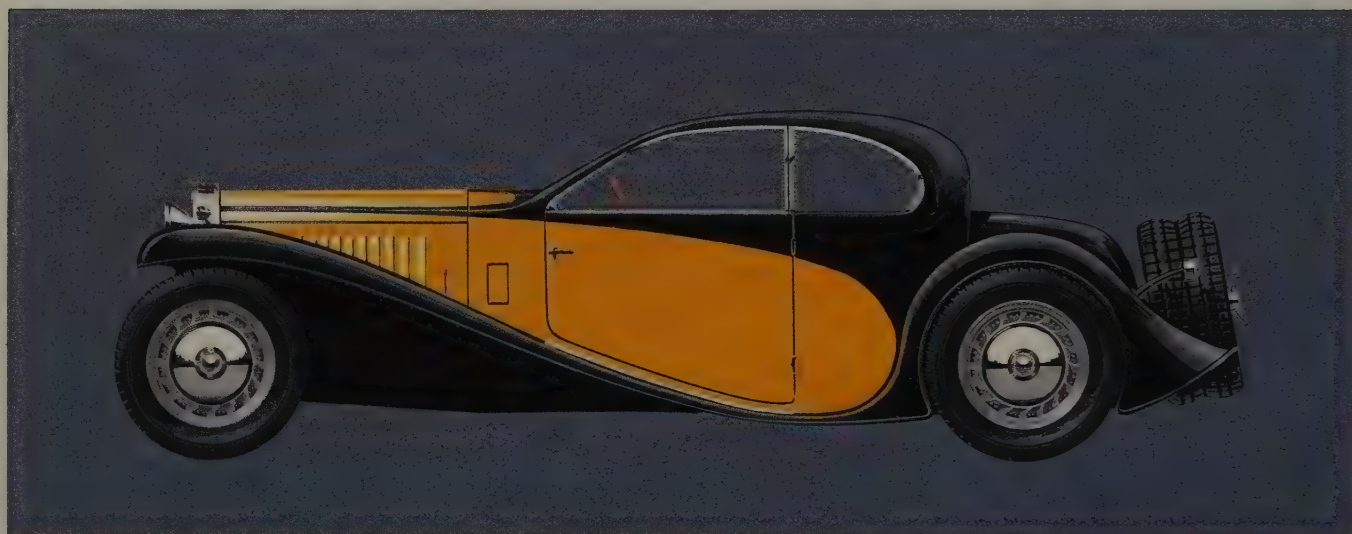
Of all styles the one that looked best on the Type 50 T was the *coach profilé* or 'close-coupled streamline coupé' designed by Jean Bugatti when he was only 25. It is one of the landmarks in coach-building history, made at a moment when classic lines were yielding to something more aerodynamic. This *coach* and Jean's Royale Coupé de Ville were on the stocks at the same time, and were mutually influential.

We have already noted the sureness and consummate mastery with which Jean handled the sweeping wings on his cars. Mudguards are an important factor in the general look of a body. For

This set of drawings shows the increasing fluency of design as applied to a Two-door Coupé until the addition of wing valances caused an aesthetic impasse.



The Streamline Coupé on 3.50 m wheelbase Type 50 T was the starting point of a whole range of designs created by Jean during his short career. At foot of page a short-chassis four-seater of stark aspect built for the 1931 Le Mans 24-Hours.





The long-wheelbase Type 50 T lent itself to slim bodywork. The smart lines of this Landaulet are enhanced by Jean's favourite two-tone mouldings, the hood-irons, and the delicacy of the wheels.

this reason they underwent continuous development, growing more slender and delicate, more modern, too, improving both side elevation and general effect.

In examples 1 and 2 front and rear wings are separate, as on the Coupé de Ville. The second is the smarter of the two owing to the unbroken sweep uniting the front wing with the rear, as on the Royale Roadster; the return curve espouses the curve of the flank moulding. In the third sketch the rear wing is valanced on both sides, concentrically framing the wheel.

The fourth drawing shows how the entire aspect changed when the boot and spare wheels were moved inside the body. This new 'fast back' treatment gave a domed, very streamlined roof like that of the Coupé Atlantic (pages 122, 123). In sketch 5, the front wing also is valanced, its lower edge forming the bottom line of the car. Here the Coupé has attained almost the last stage in its evolution, completed in 1940. It is probably the third sketch that would receive the most votes today, because it is so typically Bugatti. This is why we have chosen to show it in colour, on page 106.

It must of course be recognised that the interplay of colours and tones has a tremendous effect on the appearance of a car. Jean Bugatti knew exactly what he was doing when he employed contrasting paintwork to make his cars slim and dynamic, by emphasising the subtle shape of the mouldings.

Now let us return to 50 T and the Streamlined Coupé. They led the world in matters of comfort, power and controllability. They exceeded even the



hopes entertained of the Royale, for the latter was henceforth outmoded.

Type 51

Ever since 1924 the Type 35 and its sisters had defended the Molsheim colours (Bugatti blue, of course). But little by little they had been overhauled by German and Italian competitors. The fault lay not in their mechanism, which had attained a very high degree of reliability, but rather in lack of power. It was output that needed considerable improvement.

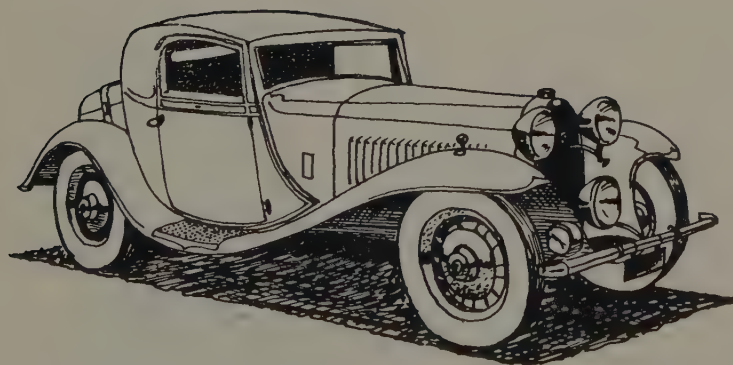
In this connexion Ettore Bugatti made a fortunate discovery during the winter of 1930: his new Type 50 engine gave 30 per cent more power than the 46 S although it was 7 per cent smaller. This very marked improvement was due partly to modification of the combustion chamber but mainly to the adoption of twin overhead camshafts. These figures apparently convinced the Patron of the merits of the system; Jean needed no convincing.

It therefore seemed logical to apply the new layout to the Type 35 B, which should be quite capable of handling substantial increases in power. Consequently the 2.3-litre 35 B engine, its capacity unchanged, was given two overhead camshafts. But, on this account, it lost its parallelepipedal appearance and fixed head, and acquired the new shape seen on all Bugatti engines thereafter.

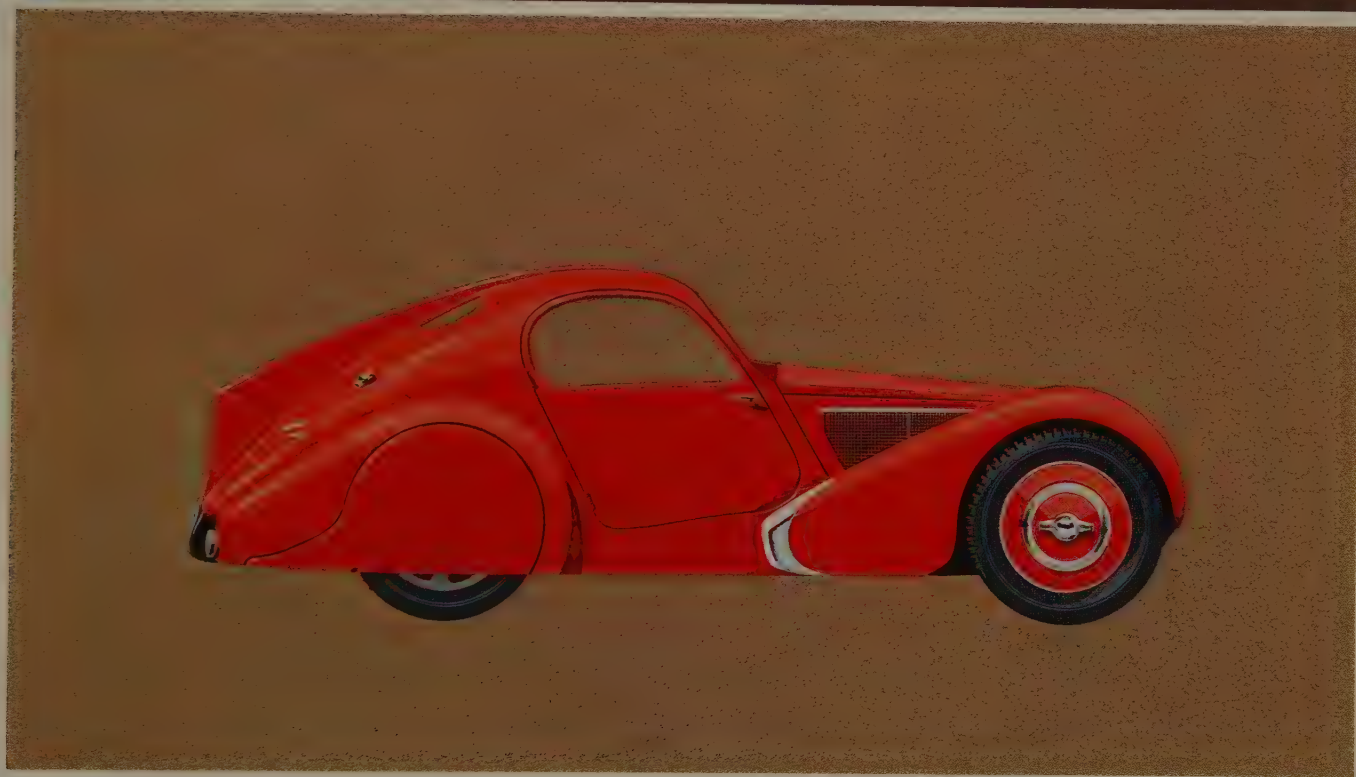
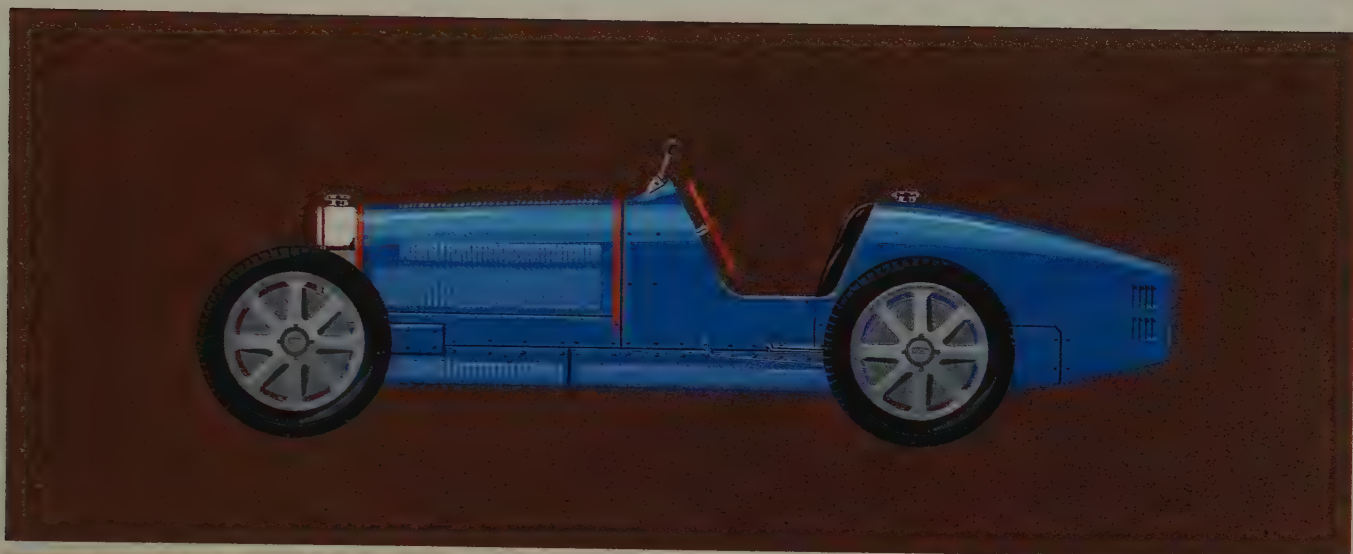
Type 51 cars differed hardly at all from Type 35. The body was almost the same. The bonnet had an extra row of louvres on top, above those already



The above Type 50 T is a factory design. The wing line recalls that of the Coupé de Ville Royale.



Opposite: Despite the immense success of the Type 35 and its derivatives, eventual demands for higher performance led to their replacement by the twin-overhead-camshaft Type 51 (see page 107) which was outwardly almost identical. Below, a streamlined coupé (the Atlantic) supplied to special order on Type 51 chassis.





The incorporation of the luggage boot into the body itself gave this 'fast back' lines different from those of the coach *profilé* on page 106.

existing. The hole characteristic of the 35 B's was a little lower down, and the light-alloy wheels were of the new well-base type introduced on the 47, without detachable rims. The petrol tank had two filler caps side by side and from the centre of the dash the magneto was moved to the left, in line with the camshaft that drove it. Generally a nickel-plated stoneguard was mounted in front of the radiator, matching its shape. All in all, the finish on the new cars was more striking.

If Type 51 and its new 2.3 litre works was to replace the Type 35, it was logical to fit new improved engines to other existing models. So with twin cams the 1500 cc 39 A became 51A, and the 2-litre 35 C became 51 C, although not many were made as there were few 2-litre races. A total of 40 or so 51, 51 A and 51 C cars were produced compared with 350 of the 35 series, showing how production had been affected by the prevailing economic and social conditions.

Despite its evident superiority Type 51 was never able to equal the 35's incredible score. The explanation lies in the fact that competitors now had access to resources, private or public, far greater than Bugatti could command, being deprived of government subsidies.

Type 53

We have seen how increased power from the Type 50 engines caused tread-stripping at Le Mans in 1931. To overcome this serious trouble Jean Bugatti had the notion of driving all four wheels.

This idea resulted in Type 53, only two examples of which were built. From every point of view these cars were unlike previous Bugatti racing cars. The Type 50 engine developed some 300 bhp, which had to be delivered equally to all four driving wheels. This was installed in a special 8 ft 6 in wheelbase chassis, with a new four-speed gearbox mounted amidships of the car but offset towards the left, so that the shaft driving the front differential, which was also offset to the left, could pass alongside the engine. The four-wheel-drive transmission system was very complicated and expensive as there had to be a differential in each axle, plus a third differential built into the gearbox acting between the two axles. Final drive to the front wheels was by two cardan shafts fitted with simple (not constant-velocity) universal joints; which for Bugatti meant yet another innovation, in the form of independent suspension for each wheel, comprising two superimposed sets of very short transverse laminated springs on each side similar to those at the rear.

The very stark body (page 112) was not unlike that fitted ten years before on Type 13 Brescia, with its louvres, bonnet straps and bolster fuel tank. The driver's seat itself was offset leaving room beside it for the gearbox. Differential and radiator were shrouded by a sloping cowl and wire-mesh grille. Aerodynamic panelling would only have burdened the car with unnecessary weight.

It must be admitted, though, that the Type 53 was not easy to drive: the front wheels had a vexatious tendency not to answer immediately to the

helm. This was due to the employment of simple universal joints, which affected the steering when high power-outputs were being transmitted. The same vicious behaviour was responsible for Jean Bugatti's crash in a Type 53 at Shelsley Walsh. That car was never repaired, and the other remained at Molsheim until 1963, when it left to join so many other rare Bugattis in the collection of F. Schlumpf.

Type 54

As the blown 4900 engine of the 1931 Le Mans Type 50 cars was so powerful why not use it against Bugatti's German and Italian competitors, since racing capacity was unrestricted at this time. This must have been the question that Bugatti asked himself when planning Type 54. The latter could be quickly developed by using existing components.

The chassis was based on Type 47, with its 16-cylinder engine replaced by the 'four-nine' and a 3-speed gearbox. The body was standard G.P. Bugatti scaled up to a 9 ft wheelbase. Wheels were as on Type 51. The most striking difference between this and other racing Bugattis was the long straight outside exhaust-pipe on the near side. From the other side the Type 54 looked like a 51 except that the bonnet and tail were higher.

Some Type 54 chassis were later fitted with sports bodies. One of them, a black beautifully preserved two-seater, is in Czechoslovakia.

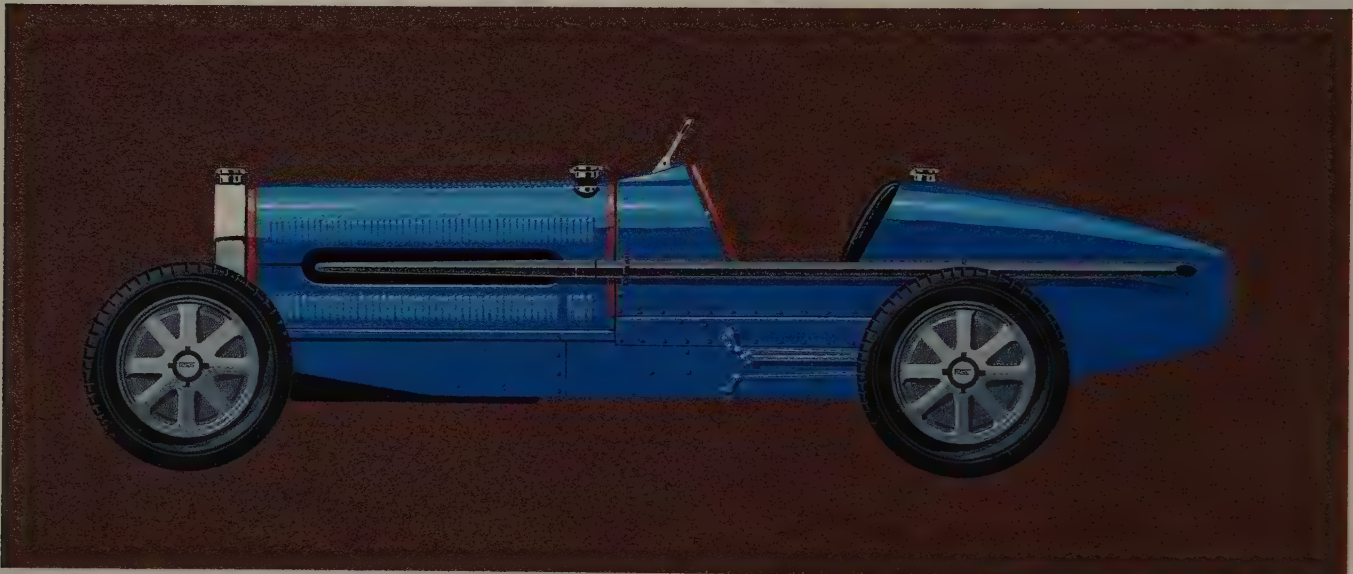
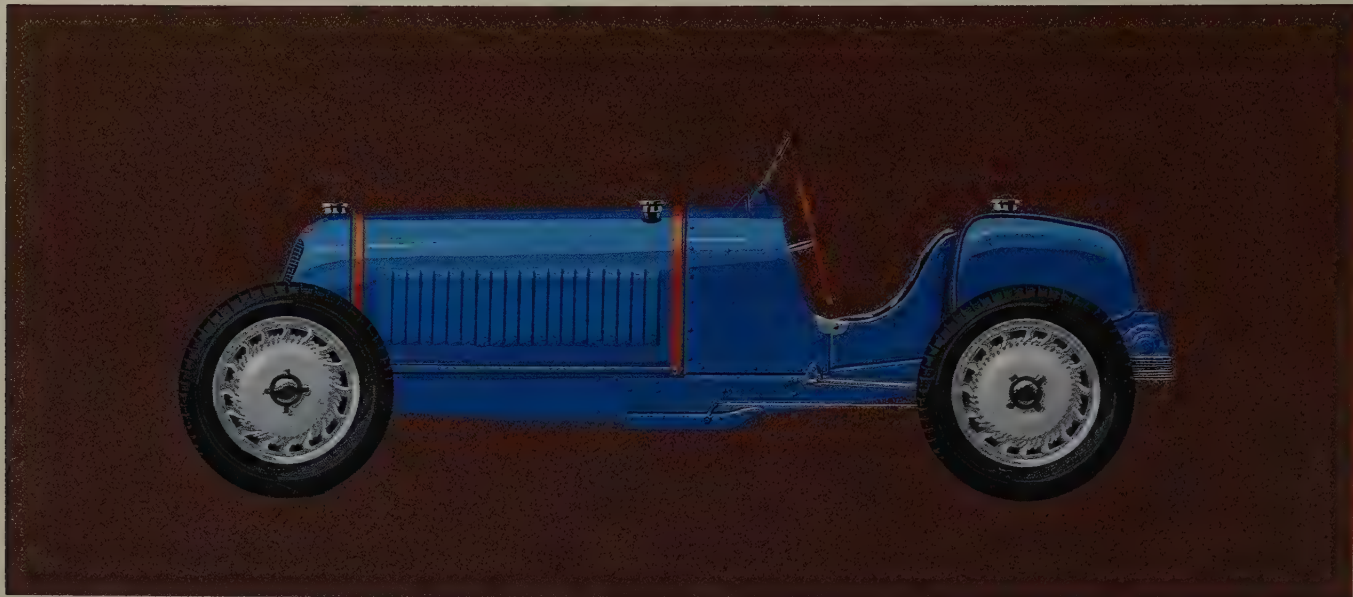
Type 55

As part of his new-model policy in 1932 Bugatti set about replacing Types 43 and 43 A. As these had been fitted with the supercharged 2.3 litre engine from the 35 B, their replacement the Type 55 was to use that of the Type 51, of similar displacement, but with twin overhead camshafts. The chassis was to be modelled on that of the Type 54, with the same wheelbase, i.e. $8\frac{3}{4}$ inches shorter than the 43. The wide-spoked eared centre-lock light-alloy wheels came from Type 51.

For this chassis Jean Bugatti designed a body of quite astounding elegance, built at the same time as the Royale Roadster and displaying the same features, notably front and rear wings flowing into one another in one clean sweep. This body became standard on the 55, although the greatest coach-builders of the period also tried their hands. A number of little *faux cabriolets* were built, but although they looked pleasant enough, none approached Jean's lovely two-seater.

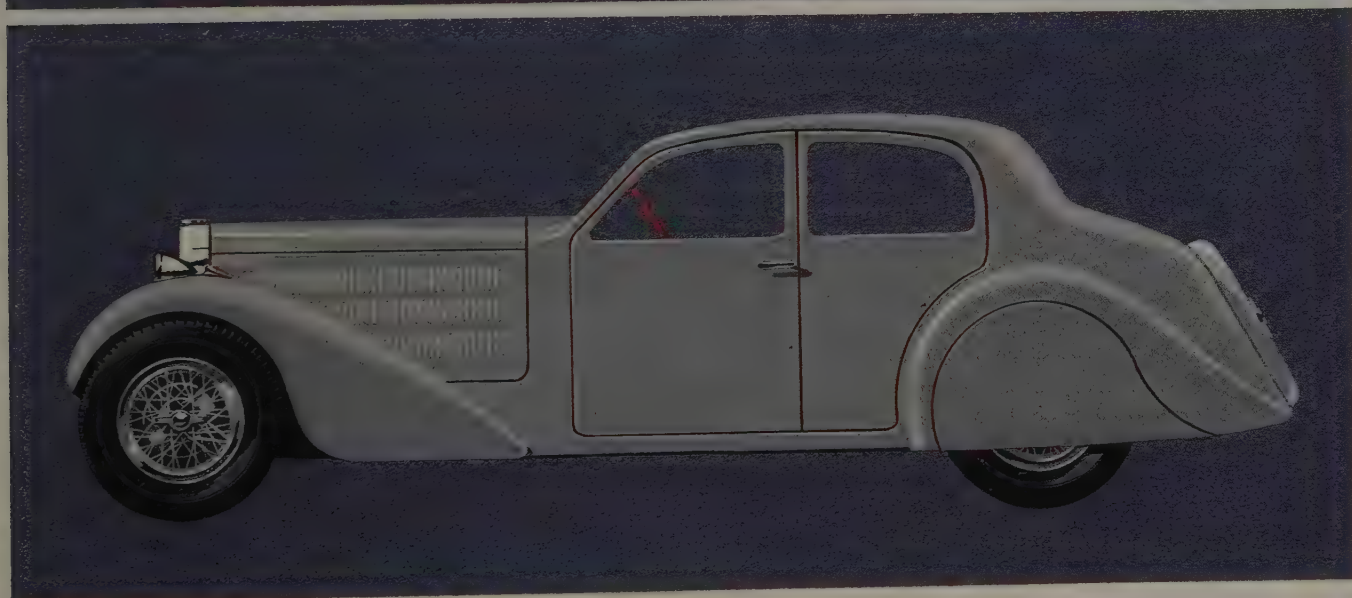
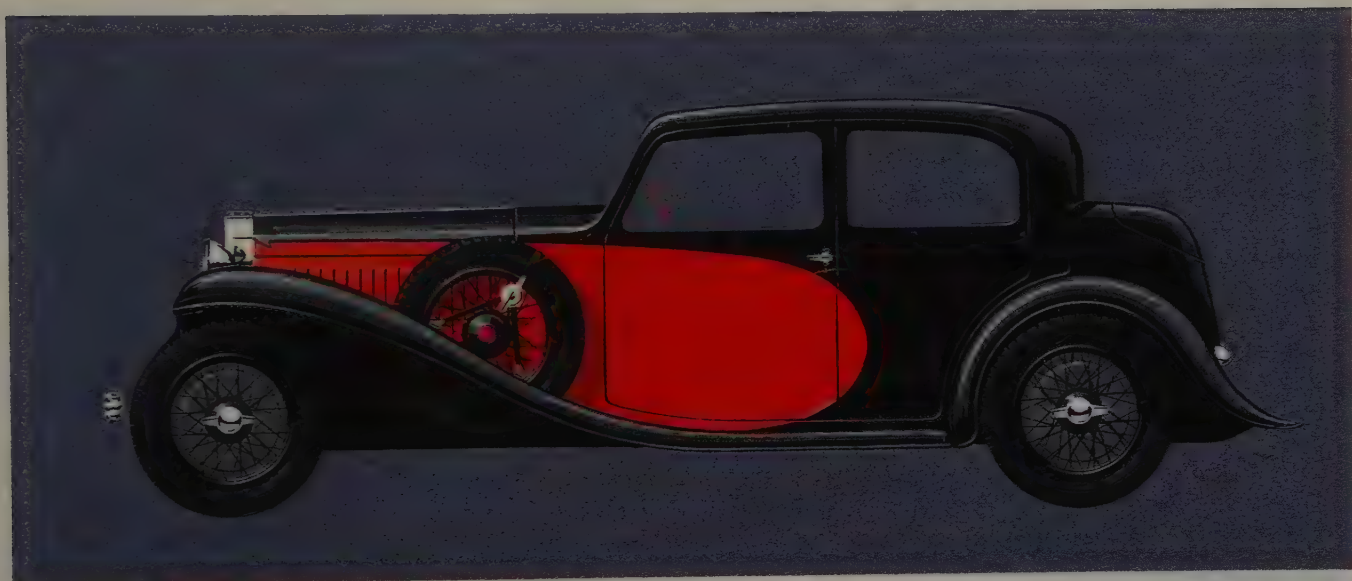
The main shell had a certain similarity to that of the Type 43 A; it had the same rounded boot and the same moulded decoration to the bonnet, but owing to the shorter wheelbase the sides were lighter, and distinguished by cutouts in lieu of doors, and by dynamic and decorative use of colour. The sinuous and elegant line of the wings was a testimony to the skill of the panel-beater who fashioned them. This more than anything made the *Supersport* the tough little thoroughbred it was.

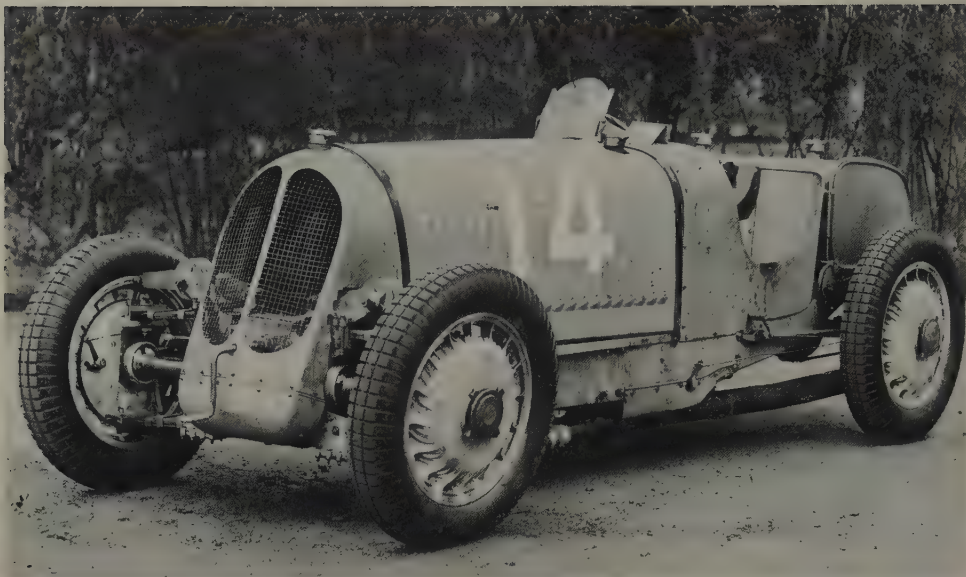
Tough and race-bred the 55 was. One day in



Opposite, top: the Type 53 four-wheel-drive car built specially for hill-climb work (page 110). The 4.9-litre Type 54 below it marks a return to classic Bugatti lines (page 111). The Type 55 two-seater in red and black was a scaled down Royale Roadster fitted with road-going version of the supercharged 2.3 Type 51 engine.

Below: two examples of Type 57, direct descendants of Type 49 but with twin ohc. Both are *Galibier* saloons. The upper resembles the Type 50 T, but the absence of running-board in the other gives it a more modern air (see page 119).





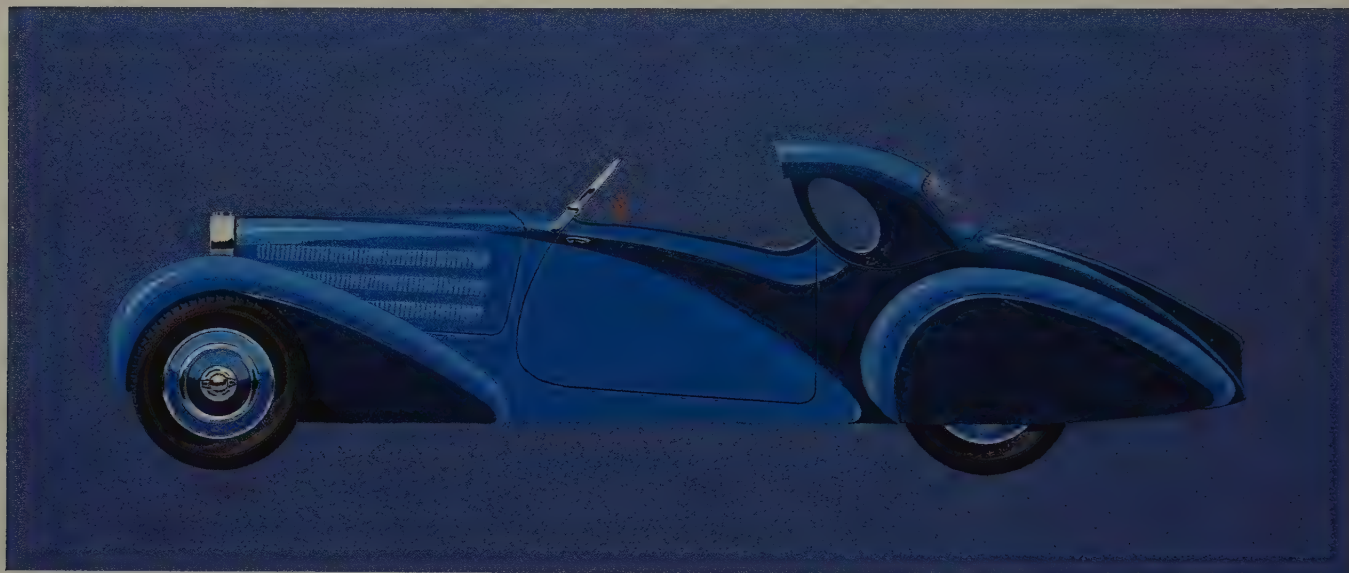
The sloping cowl in front of the radiator made the four-wheel-drive 53 different from other racing Bugattis. The Type 55 below although more flamboyant has much the same lines as Jean Bugatti's doorless two-seater.



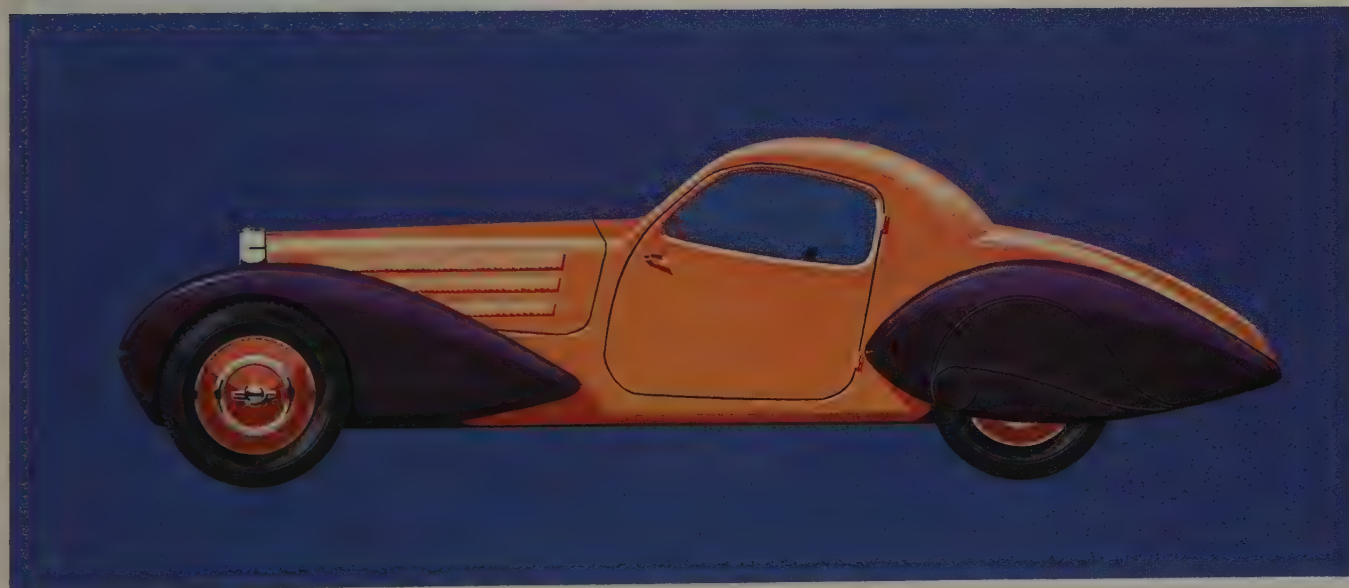
The Type 57 Saloon below is a third-series car and therefore owes something to the sports models; this is the ultimate development of a model of which the first example is shown on page 113. The handsome cabriolet below, so clean and sporting in line, is by Gangloff (see pages 119, 122).



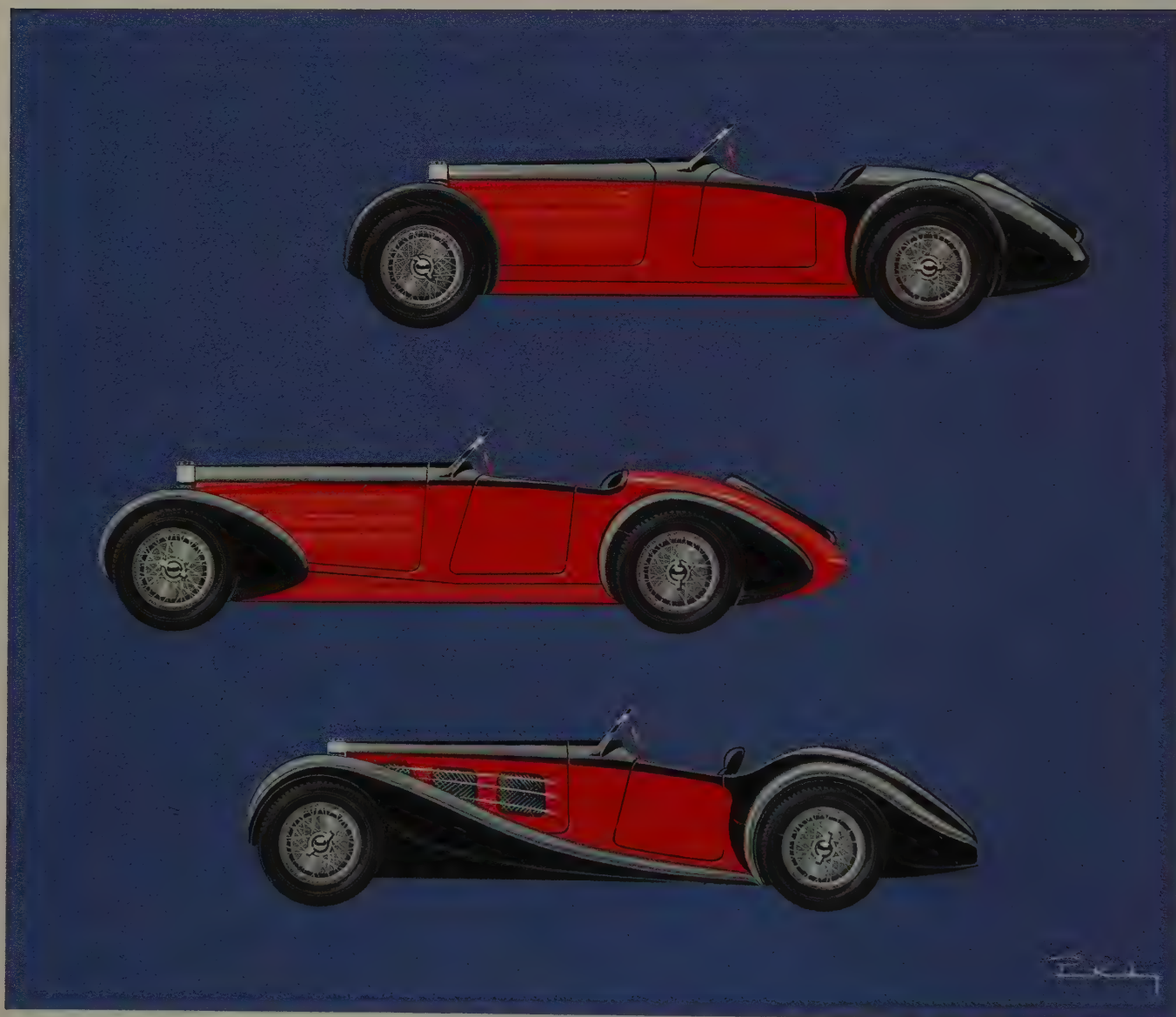
Gangloff too was responsible for this modernistic and highly elaborate Coupé de Ville, oval quarter-lights being a feature often found in the work of this coachbuilder. The lower car is an all-aluminium saloon built by Figoni & Falaschi for one of Bugatti's regular customers in England, Lord Cholmondeley. It has a 57 S engine in Type 57 chassis. This almost post-war design is discussed on pages 119 and 120.



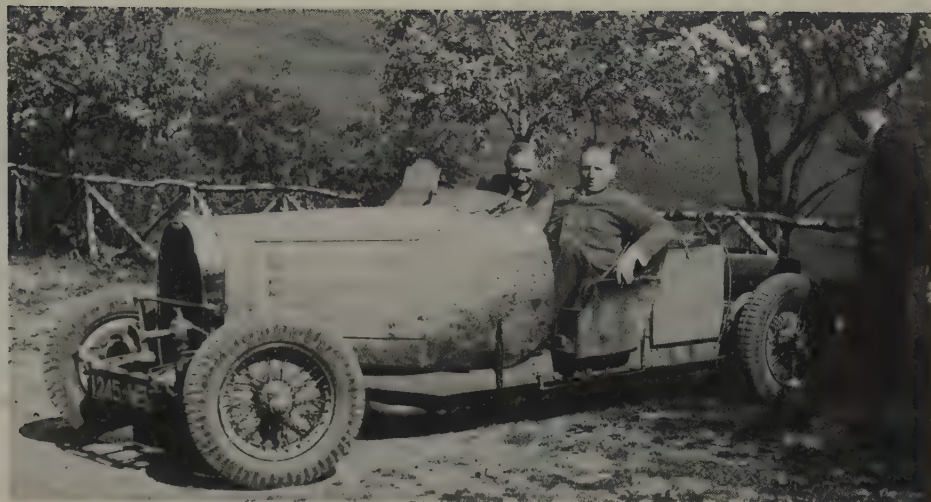
Gangloff worked in many idioms: the green four-seater could hardly look more British, while the coupé is typically French and possibly inspired by the Atalante shown on page 123. The inclined screen and the flowing curves of wings and roof give a very dynamic impression.



When it came to replacing Type 55 Jean Bugatti used later elements derived from Type 57 to build a low, sporting car, Type 57 S. Early examples, with lightened chassis and tuned 3.3-litre engine, had the upright Type 57 radiator. These three drawings are from Gangloff designs dated December 1935 (see page 122).



Before delivery to customer or coach-builder Bugatti chassis were tested on the hilly highways of the Vosges, carrying temporary seats and ballast.



1932 Jean drove from Molsheim to Paris, nearly 280 miles in 3 hours and 47 minutes, an average of almost 75 m.p.h. Even allowing for Jean's virtuosity such a performance on the roads of those days was much to the credit of this successful model.

The Types 57 and 57 C

In his constant desire to improve and up-date his cars, Bugatti in 1934 introduced Type 57, to replace Type 49. Its engine although of the same swept volume, 3.3 litres, was a completely new design in which Jean had largely participated. It had twin overhead camshafts and was bolted directly to the gearbox. The wheelbase was increased to 10 ft 11 in, and light-alloy wheels were replaced by the less demanding wire-spoked type. The brakes had yet to be modified and were still cable operated.

But Jean was not content with these mechanical improvements; he wished the Type 57 to have coachwork setting it on equal footing with the finest cars of the age. The bodies he designed for it looked astonishingly like the Type 50 streamlined coupés but retained echoes of Type 49. The more upright windscreen and more compact boot reduced the streamlined effect, and the same was true of the rather stiff front wings which curved down sharply to a horizontal full-length running-board. The radiator retained its horseshoe form but a series of vertical adjustable shutters placed in front of the honeycomb radically changed its appearance; and these slats were thermostatically

controlled, which kept the engine at its optimum temperature. Originally they were painted, only the frame being plated; later they too were chromed, making the car look rather 'Rolls-Royce' – except in side elevation. This car, like the Coupé de Ville Royale, featured a moulding which ran back from the slightly indented radiator, widening as it went until its upper ridge blended with the screen pillar and the lower one swept round in the elegant curve already seen on Types 50 and 55 to form a Brougham foot.

The saloon on page 113 is a *Galibier* four-door body without central pillars and with no outside handles on the rear doors. This gave the car the smarter appearance of a coupé, while affording the convenience of individual doors. Colour distribution was the same as on previous models.

It would have been odd if Bugatti had not thought of running this model in competitions. In fact he entered several Type 57 T cars in the Tourist Trophy, clad in quite simple but nicely streamlined two-seater bodywork with cycle-type wings. At the end of 1936, after many detail modifications, important mechanical changes were introduced: the engine was given flexible mountings and the chassis frame reinforced.

Bodies too were up-dated from year to year growing wider and more spacious. Running-boards disappeared, as they would have been too narrow. Front wings now stopped at the door, and were separated from those at the rear by the length of the passenger compartment. At the same time the addition of side valances to the wings coarsened the

overall appearance; sometimes, even, the back wheels were covered by a detachable panel or 'spat', this being the case on later versions of the *Galibier* saloon, illustrated at the foot of page 113: the spats are quite smart. The boot now forms part of a roomier body; and the spare wheel is partly sunk into the back, with its own panel-beaten cover, an artistically successful touch. The wire wheels could be fitted with optional discs, painted and chromed.

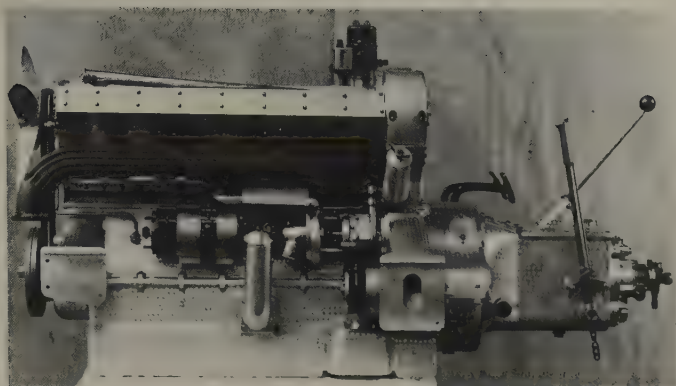
Gangloff the coachbuilder continued to work for Bugatti and, in close collaboration with Jean, produced some very interesting bodies for the 57. One of these was the two-door Coupé de Ville on page 116 the decoration of which is quite in the Bugatti tradition but fitted with curious oval quarter lights harking back to the earliest *conduites intérieures*.

At the Salon of 1938 a third-series Type 57 was introduced, fitted with hydraulic brakes and telescopic shock-absorbers in place of the sometimes troublesome de Rams. The *Galibier* had grown even more modern, with more body space and a flowing roof line in the Chrysler Airflow manner, a line also adopted by Peugeot on the 402. Luggage capacity was maintained by adding a separate bulge. Front wings were even more enveloping and had the headlamps built in; the spare, completely encased in a metal cover, was back on the near-side wing. Vertical bonnet louvres were replaced by longer horizontal ones, underlined by chromium strips. Each door had a swivelling ventilator. An interesting feature was the transparent roof, com-

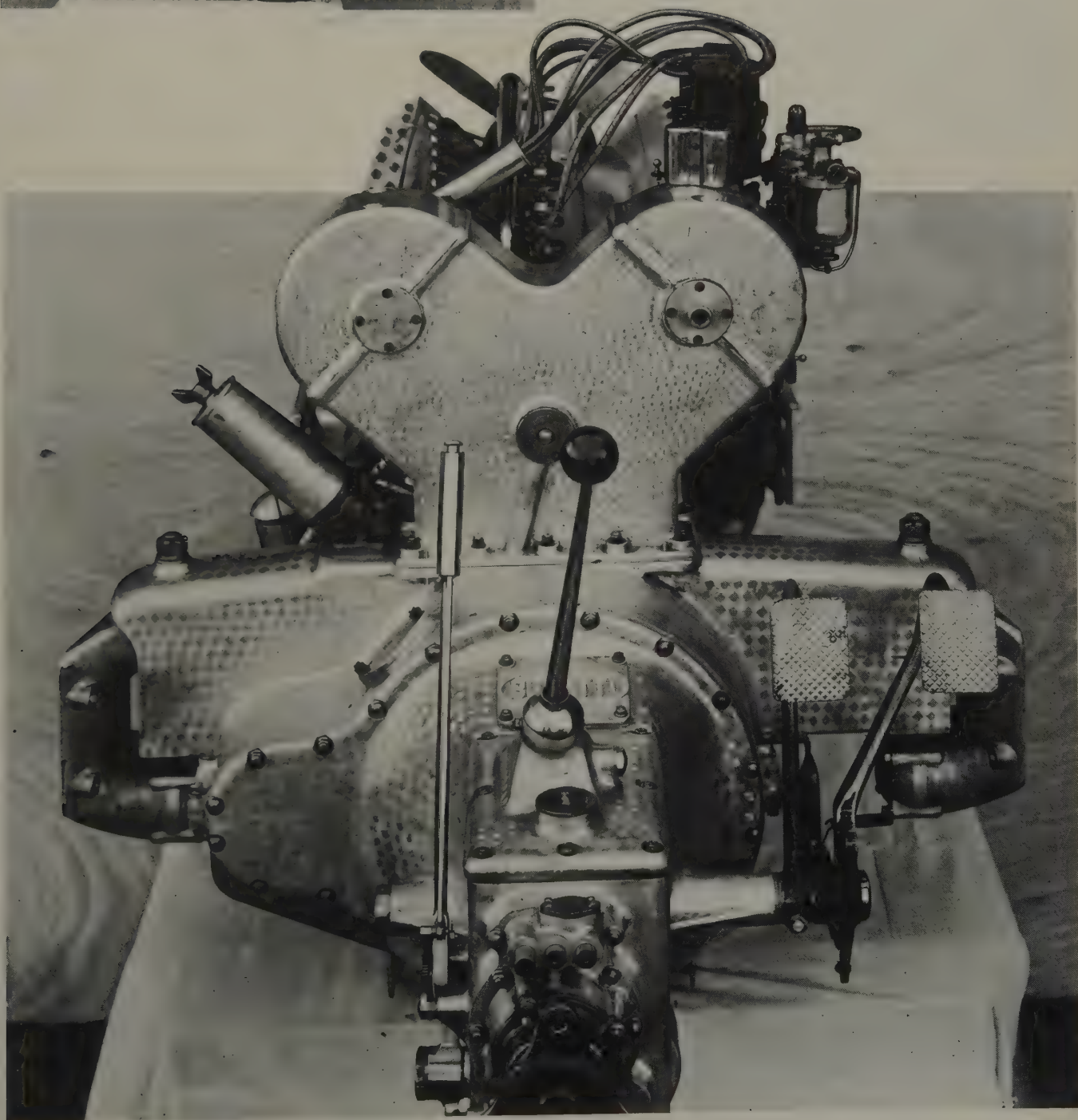
prising four large panes of glass in a cruciform metal frame. This idea had been used by Jean on the Coupé de Ville Royale. No moulding or other form of decoration was used on this body, the ultimate development of Works bodies on Type 57.

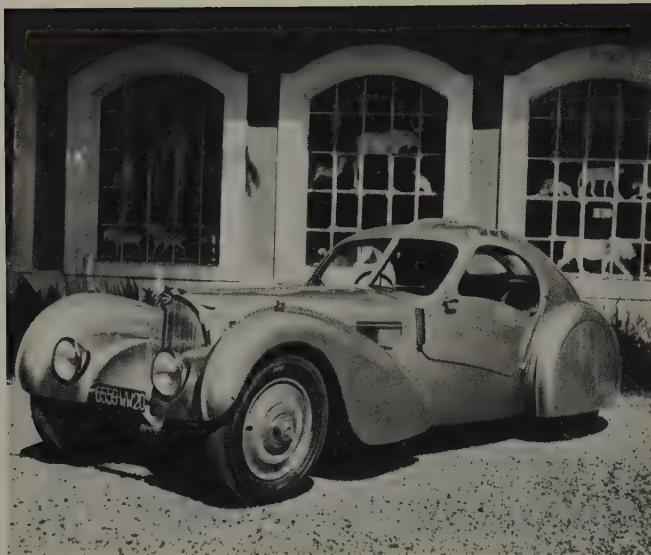
The car shown on page 116 (lower picture) was the work of the French *carrossiers* Figoni and Falaschi. Built in aluminium for a long-standing customer of Bugatti's, Lord Cholmondeley, it shows *Galibier* influence in the shape of the wings and roof. Its graceful silhouette derives from the omission of the luggage bulge, and from the falling window line. The rear wheels are completely enclosed, while the wings, doors and bonnet are lined-out in gold, producing a very smart effect against the black paintwork. Thanks to its lightweight construction and the fitting of a more powerful Type 57 S engine, performance must have been better than standard.

At the end of 1937 Bugatti and his son fitted a supercharger to the Type 57 engine, providing increased output and power at low revs. This improvement, while demanding a minimum of modification, enabled the 57 C to sell for considerably less than for the 57 S and 57 SC to which we shall return in a moment. Body styles designed for the 57 S were sometimes even adapted to the longer, 10 ft 9 in wheelbase 57 *normale*. This was the case with the strictly two-seater *Atalante*, which looked especially well on the long chassis. The Type 57 C did not always carry sports bodywork; there were many convertible cabriolets by leading coachbuilders. An example is one built by



The Type 57 engine below was probably on its way to some motor show, to judge by the standard of finish; the Patron's concern for appearance is seen in the elaborate mottling, which characterised all Bugatti motors. The flexible engine-mountings at either end of the cross-member do not appear on the 1934 model (left) which was bolted rigidly to the chassis.





The modernistic coachwork of the riveted aluminium Atlantic coupé was the end of a line which began with the Superstreamlined Type 50 T coupé. Introduced in 1936, this 57 S with 'wind-cutting' radiator grille was capable of remarkably high performance for its period.

Gangloff to a Jean Bugatti design, the Stelvio. It is shown on page 115.

Types 57 S and 57 SC

It was perfectly natural to think of using the 57 as the basis for a sports model. In actual fact in 1935, the year after its introduction, Jean was hard at work on a new chassis, shorter, lighter and lower, intended for two-seater bodies only. The back axle passed through openings in the side-members of the frame, and the wheelbase came down to 9 ft 8 in, or roughly the same as a Type 43, although this in fact was the only point the cars had in common apart from the name and the Patron's creative genius. The engine, though the same as the Type 57, was more highly tuned, developing 170 bhp instead of 135. A number of details came from the Type 59 G.P. car, among them the hollow two-piece axle. The latter was divided in the middle, the two portions being joined by means of internally and externally threaded sleeves; thus each half was allowed some degree of rotation relative to the other. Lastly the clutch was reinforced to cope with the extra power.

The first 57 S had a standard 57 radiator; but although mounted as far down as possible, this stood too high, and heightened the bonnet. An advertising leaflet illustrates a 57 S in two-seater form, resembling the Tourist Trophy 57 T, but with riveted ribs like a G.P. Type 59. This model was offered with two alternative engines, a 4-litre and a 4.5, the engines being both of Type 50 B. The cars were called respectively 57 S 40 and 57 S 45.

Gangloff the coachbuilder used to have in his archives a series of designs relating to the 57 S which are interesting for several reasons. They were all drawn during Christmas week 1935. It is not known whether the cars were ever built, but the reproductions on page 118 enable their creator's train of thought to be followed. All three have the early flat radiator, are two-seaters and are here coloured the same for the sake of comparison. The first car has cycle-type wings – a simplification more apparent than real, as they are joined to the body by an elaborate valance carrying non-built-in headlamps. The tapering tail houses a spare wheel with metal cover. The tail was rounded in plan, following the outline of the spare wheel. The line starting from the shoulder on the radiator is unusual for a Bugatti, and the bonnet sides have three rows of louvres, one above the other, while the rocker panel is also louvred, recalling the chassis valance on Type 35. Although the least elaborate of the drawings, and dated 27 December 1935, this is not in fact the earliest. The middle design was executed on 24 December 1935. It shows a similar body shell but different wing treatment: the front ones, if not more enveloping are at least more streamlined, and the rear wings smartly faired. The decorative scheme, in which the upper colour encircles the cockpit instead of meeting the rear wing, seems to our mind the most successful of the three.

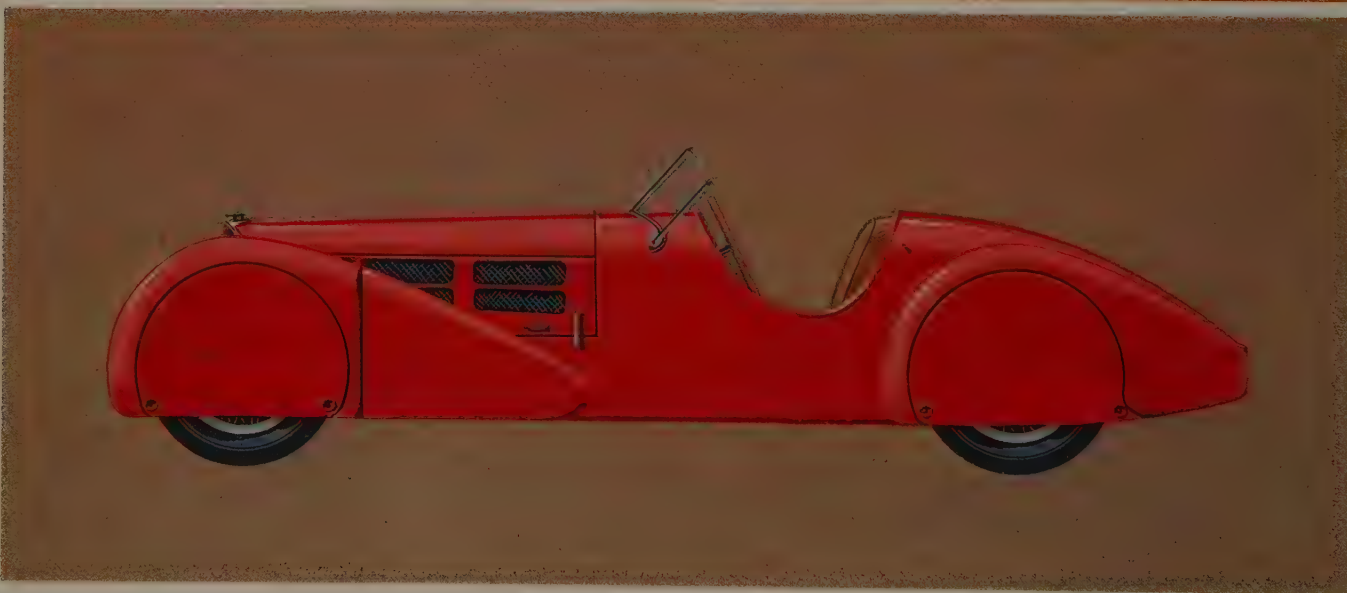
Of the three sketches the last is the least happy. It is rather heavy and seems to be inspired by Mercedes – which is by no means strange because

This side view of the Atlantic coupé shows the riveted ribs on wings and roof, a somewhat austere design feature. Of greater slenderness and refinement is the Atalante coupé at the foot of the page.

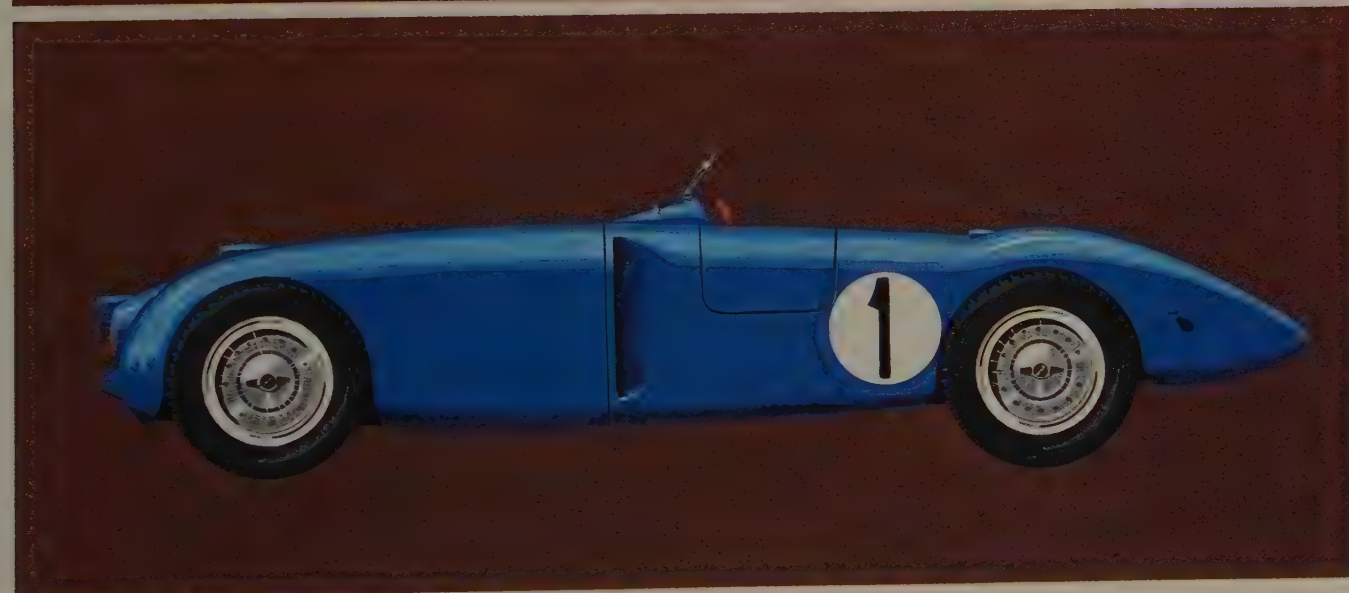


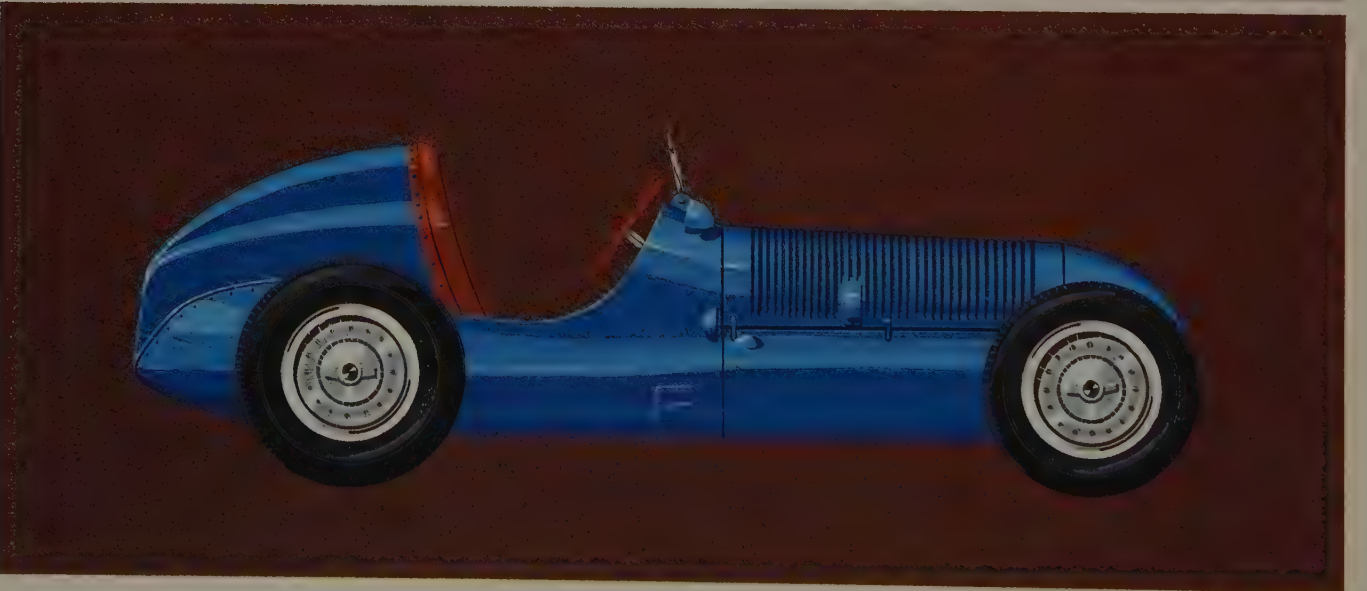
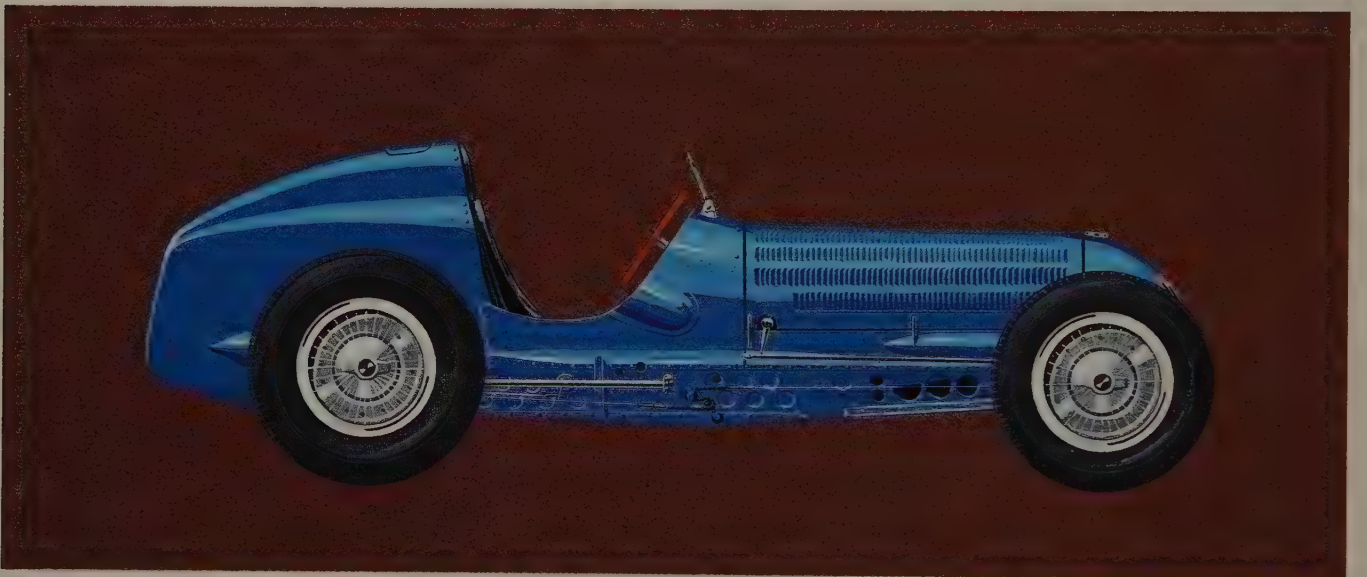
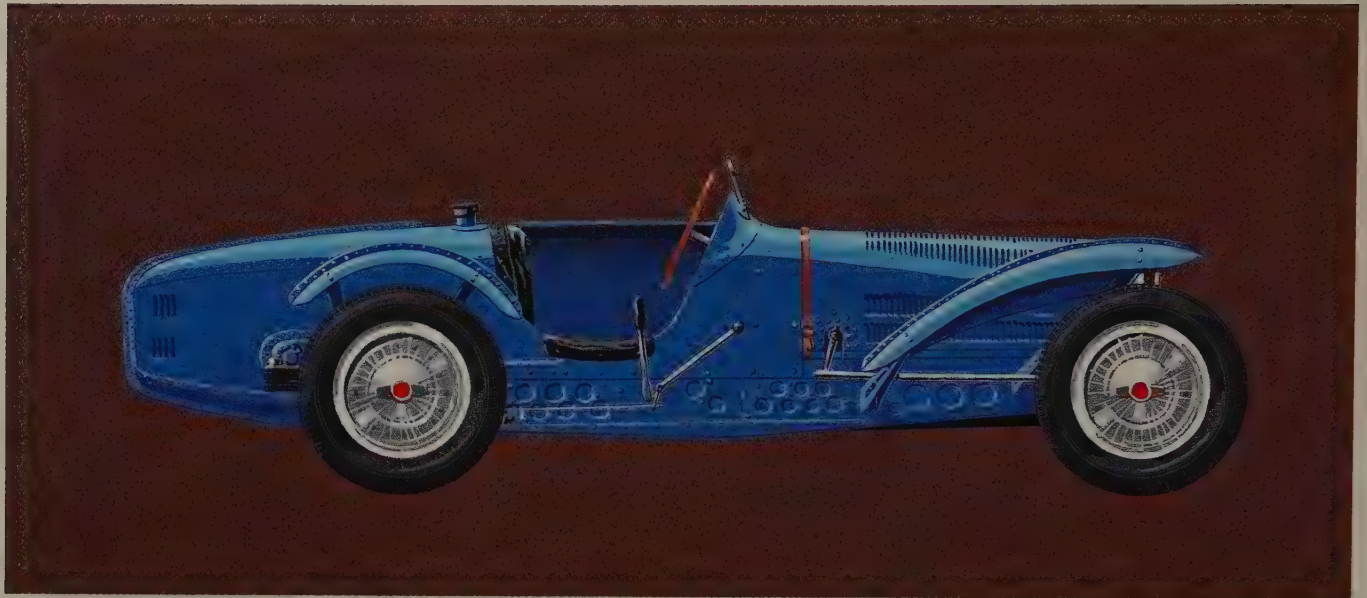


Here, seen head-on, is the Atlantic in all its splendour. The centre picture shows a handsome drophead by Gangloff. Below is a Type 57 S two-seater by Jean. The front wing is built as two elements: a front portion steering with the wheels, and a rear part which is fixed.



This black *grand sport* two-seater belonged to King Leopold of the Belgians. It has a Type 57 S chassis but Type 59 racing engine. Below two of the cars with enveloping bodywork designed by Jean Bugatti for Le Mans, where they won in 1937 and 1939.





On the left-hand page three racing Bugattis, starting with 1934. The first is a Type 59 with riveted panelling like the Atlantic and equipped for road use. The 3-litre single-seater (centre) resembles Mercedes-Benz G.P. cars of its day. Below it, the 1939 single-seater racing car derived from the previous model but characterised by larger bonnet louvres and completely faired chassis.

Gangloff 57 S drophead. An oval grille hides the radiator and wide fairings between bonnet and wings carry the headlamps.

Gangloff's style was very close to that of Swiss coachbuilders like Graber and others, who managed a compromise between the French and the German approach. The only bond between this third sketch and the first is the decorative side treatment which follows the same sweep. The cut-out behind the seat squab makes the line fussy, and the long rather old-fashioned valanced wings make the car seem heavier than the others. Bonnet louvres have given way to large openings protected by wire gauze and decorated with chromium flashes. This décor echoes that of the first Atlantic Coupé, introduced by Jean some months before.

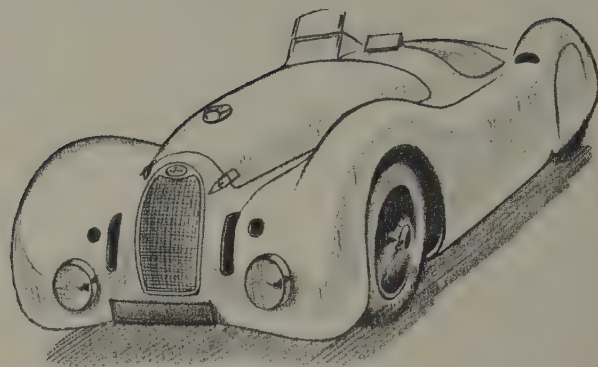
Having devoted ourselves to this brief scrutiny in an effort to arrive at the ideal style for the 57 S, let us see what Jean himself was offering his customers. In order to stress the sporting character of the 57 S and differentiate it from the ordinary 57 he designed a rather severe looking coupé, re-adopting the system of riveted ribs that was to become the hallmark of these Atlantic coupés. He gave the car a flowing slightly domed roof with a strongly marked median ridge amounting almost to a fin, which started at the radiator and ran all the way to the base of the tail, bisecting bonnet and roof. Standing about half an inch proud on the bonnet, this ridge rose to nearly two inches on the boot. The domed rivets gave the car a suggestion of tank or armoured car, an impression reinforced by the prominent ridges on the wings; which swept inwards at the rear to rejoin the central fin (page 123). Jean utilised this ridge to form the windscreen as a Vee, and to repeat the effect at the



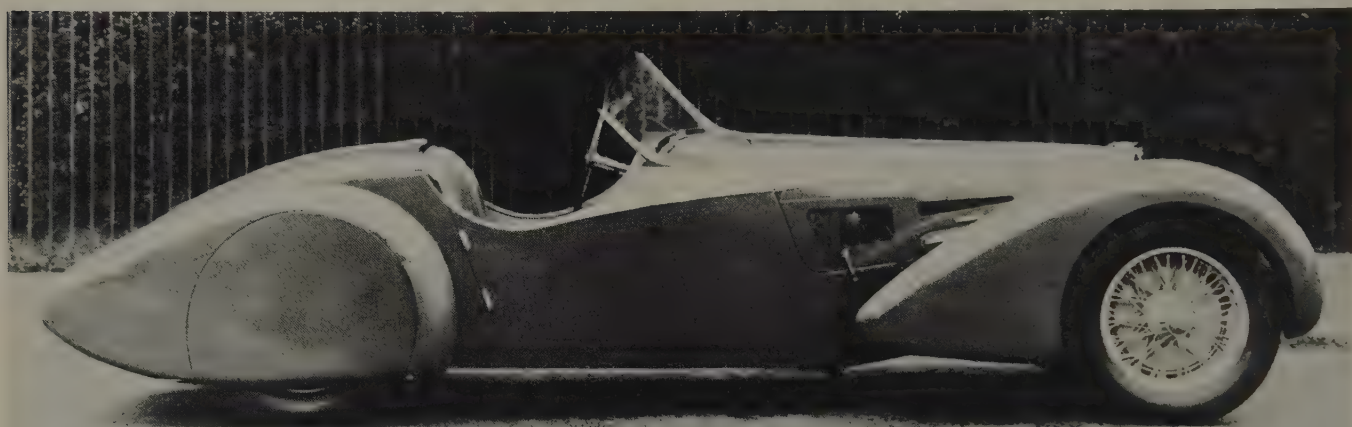
rear window. The spare wheel was mounted in the tail, blended with the body. The unusual shape of the door suggested aeroplanes rather than cars; encroaching into the roof for extra headroom, it opened obliquely and the shut line was oddly curved. The window might be called ellipsoidal, apart from the concave lower curve. As the photograph on page 122 shows, the Atlantic certainly had not the beauty of the 55 two-seater, but it certainly looked tough and sporting like a Type 43. In 1937 the 57 S became the 57 SC by the addition of a supercharger. Thenceforth the survival of the *supersport* line was assured, for with its 200 bhp the Type 57 SC could claim to reach, even perhaps exceed, 125 m.p.h.

Of course Jean realised that not everyone wanted a body as stark and austere as this. He had other, highly sophisticated designs up his sleeve. One of the most striking of these, the *Atalante*, was far more alluring. The wings were the same as those on the Atlantic, but without ribs and therefore no longer aggressive. The windscreen was one-piece and the roof very much domed. Side windows were slightly larger; the spare had a metal cover and was semi-recessed in the Gangloff manner. The interesting two-colour treatment may be examined on page 123.

Another of Jean's many designs for the 57 S was the 1936 Salon two-seater at the foot of page 124, a doorless body with large cutaways and a Vee screen. This car was remarkable for the total enclosure of the front wheels in a two-piece fairing, the front of which moved with the steering, the rear



The body shown in this drawing was mounted experimentally on a Type 57 S/45; it was the forerunner of the Le Mans 'Tanks'. Below are shown two bodies built in England, where Bugatti had many customers. The flamboyant style of this two-seater suggests Corsica, while the severe lines of the drophead coupé are typically British.



part being fixed. The dumb-irons were thus exposed, and the headlamps mounted on the tie bar. Highly effective aerodynamically although rather stark, the car looked rather heavy because of the too closely cowed wheels. Type 57 S and 57 SC cars were bodied also by such masters of the art as Vanvooren, Saoutchik, Graber, Corsica et al., to the abiding joy of *Concours d'Elégance* organisers.

Jean himself never ceased to explore new body treatments for Bugatti cars. In 1936 he caused a sensation with three Type 57 S cars with enveloping 'tank' bodies which ran in the A.C.F. Grand Prix at Montlhéry. The wing line was very sweeping; it curved upwards over the wheel arches and the stern came down to a horizontal chamfer. The driver was protected by a small deflector cowl and 'aero' screen, behind him the deck sank below the wheel arches. The back wheels were hidden by louvred panels flush with the body, these louvres, together with slots to front and rear of the wheel arches, ventilated the wheels. These were of quite a new type, first used on the Type 59 Grand Prix cars.

In this guise the 57 S managed a number of competition successes during 1936, including the international One-Hour record at over 133 m.p.h. and the 24 Hours at nearly 125 m.p.h., as the season closed.

Two of these same Tanks took part in the 1937 Le Mans 24 Hours. These cars were slightly modified for the race, having the 'spats' removed from the wheels, a spare housed in the tail and the passenger's side of the cockpit faired in with a metal

cover. The cars were driven by Wimille/Benoist and Labric/Veyron. The former pair in car no. 2 drove a splendid race to take first place overall in the GP d'Endurance, covering a record distance at 84 m.p.h. These victories and records were due not only to perfect preparation and tuning, but to the aerodynamic design of the cars, which was much ahead of their competitors'.

Tanks were entered again at Le Mans in 1939, but this time the cars were quite new. Chassis were Type 57 with the blown engine, and the bodies a considerable improvement on those of 1936-37; the swellings for the rear wheel arches had practically disappeared and the bonnet, formerly quite identifiable, was literally engulfed by the wings, and hinged to open in one piece. Large vents in the flanks carried away hot air from the engine. This time Wimille and his co-driver Veyron in car no. 1 proved victorious, beating the 1937 record with a speed of some 87 m.p.h.

Two months after this fine performance the same car was prepared with a view to running in the Grand Prix de La Baule. On 11 August Jean Bugatti himself took it out for a trial run on the practically straight Molsheim-Strasbourg road. The course was carefully guarded by Bugatti employees to keep away other traffic. Despite all precautions a cyclist emerged from a turning while the car was flat out. In trying to avoid him – an impossibility at that speed – Jean swerved and went off the road. The car was literally smashed to pieces. Thus Jean Bugatti, on whom rested all the Patron's hopes for the future, was cut off in his prime, a few

weeks only before the outbreak of the Second World War.

Type 59

Type 59 was an out-and-out racing car. It first saw service in 1934 and was the last to carry two-seater bodywork descended from Type 35. Built in not more than eight examples, the engine was that of the 57 S, with the same specification and same volume, 3.3 litres, but dry-sump lubrication and lightened crankshaft. It was fitted with the supercharger used afterwards on the Type 57 SC.

The Type 59 chassis bore a strong structural resemblance to Types 47 and 54, but with wheelbase reduced from 9 ft to 8 ft 8 in. The side members were straight as on those models, not swept as on Type 35 and its variants; the reversed quarter-elliptic rear springs therefore lay outboard, close to the wheels and parallel with the car's axis. At first glance one might almost take the car for a Type 54, especially in three-quarter front view, because of the straight exhaust pipe. However the Type 59 was much lower built, and had wheels of quite a new sort. Just as remarkable as the wide-spoked light-alloy variety they required much more machining, being built up from a number of turned and milled components and braced by radial piano-wire spokes. The brake drum was, as usual with Bugatti, permanently attached to the wheel and changed along with it. For this reason the brake-shoes (which had no adjustment for wear) could also be changed in a moment. And again as usual, they were cable-operated.

To save weight the chassis side members were liberally perforated with holes of varying sizes. Some Type 59's were fitted with aluminium bodies ribbed and riveted like the Atlantic coupé. The upper picture on page 126 shows such a car fitted with mudguards also made in this way.

In spite of fierce competition – to which the Type 51 had been no stranger in its day – the 59 built up quite a good record. Its most notable feat was achieved by Wimille in 1937 when he won the 400,000 franc prize for the car making the best time over 200 kilometres (125 miles) on the Montlhéry road circuit. He averaged 90 m.p.h. plus.

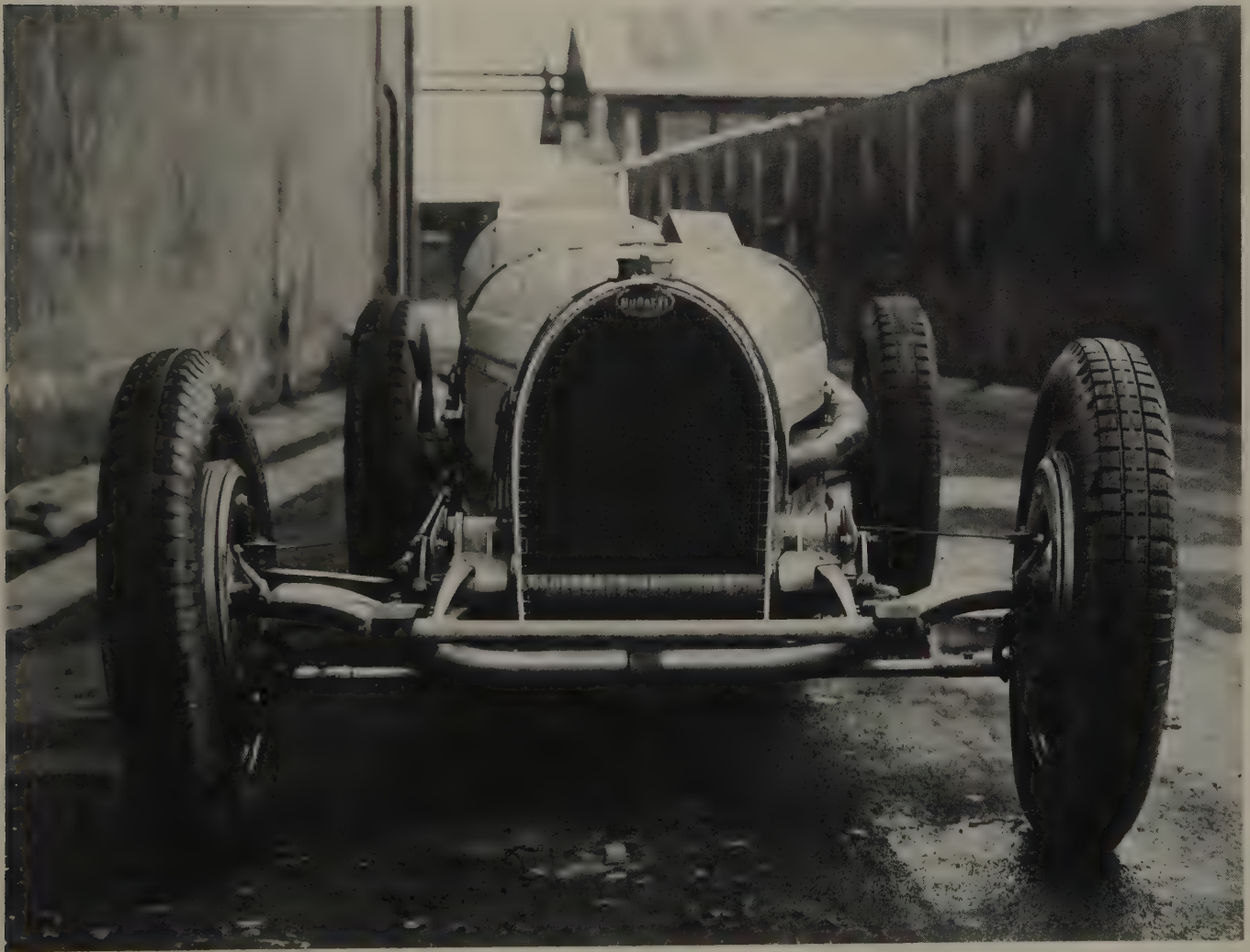
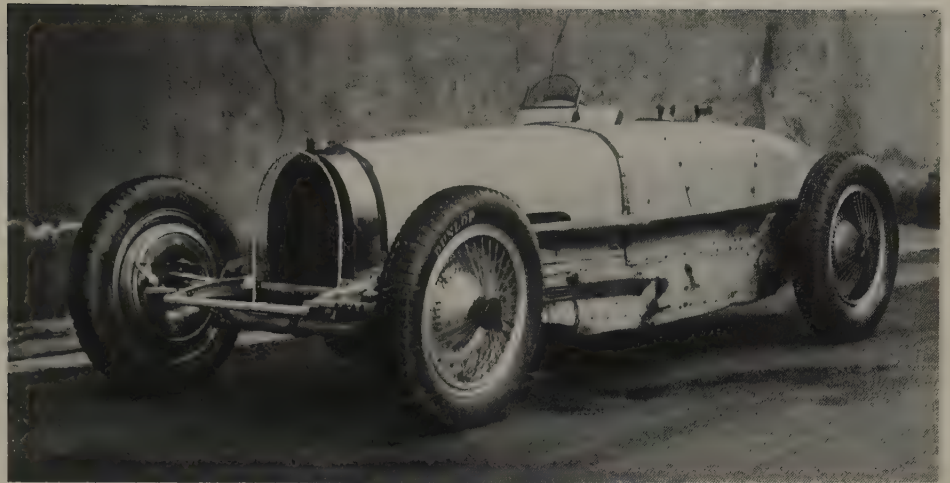
A few hybrid cars were later built up, using spare racing engines. There is one of these in Belgium at the present time, belonging to M. Falise: a Type 59 engine in a 57 S chassis, with a regulation sports racing body. This car was originally purchased at Molsheim by King Leopold of the Belgians. One could call it a Type 57 S/59.

Special Competition Cars

The story of Bugatti racing cars became rather complicated after the introduction of Type 59. That model gave rise to numerous changes in engines and equipment. Thus at the end of 1935 a single-seater was made having riveted body panels and a 4.7-litre engine of Type 50 B, this being a development, by Jean Bugatti, of the 4.9-litre Type 50. Soon afterwards this car reappeared with a streamlined fairing behind the driver's head.

In 1938 Jean brought out a new car for Grand

The 3.3-litre Type 59, introduced in 1934 was the final development of the Type 35 range dating from 1924. It was notable for an entirely new form of wheel, used on all the subsequent racing cars.



Prix racing, under the new 3-litre Formula, the 750 kilo formula having ended in 1937; new, that is, in body, for the chassis was Type 59, drilled for lightness. Apart from the engine, a 'square' 3-litre 8-cylinder (78×78 mm) derived from the Type 50 B, the rest – wheels, suspension, mechanical brake-operation etc., was Type 59.

The body, a single-seater, was much like that of contemporary Mercedes. The radiator was hidden behind a bulbous cowl with chromium-plated grille covering also the oil-cooler (see Chapter II). The bonnet, of semi-circular section, carried eight sets of miniature louvres (picture, page 126); the drilled chassis was bare throughout its length, exposing the brake-compensators. A new style of tail was fitted, based on the 1924 design, but shorter and rather squat owing to the faired headrest, which concealed a filler cap. This was the first radically new-looking Bugatti racing car since Type 35 in 1924.

The following year, 1939, Bugatti entered an-

other variant of the 50 B for *formule libre* races and hill-climbs; a 4.7-litre, supercharged. This was a more graceful car because the frame was completely cowed from front to back (page 126); otherwise it resembled the 1938 3-litre except for the louvring of the bonnet, the disappearance beneath the fairing of various projections, an even better upholstered driving seat, and two faired rear-view mirrors.

This then was the last thoroughbred produced by the Patron and his son Jean. The car took part in one final event, the *Coupe des Prisonniers* held on 9 September 1945 in the Bois de Boulogne. Once again Jean-Pierre Wimille was first past the post. The Patron had driven over in his Coupé de Ville Royale and was there. He was not to know that this was the last triumph by a Bugatti car that he would live to see . . .

The 4.7 remained at Molsheim until 1963, when, as so many rare models had already done, it joined the Schlumpf collection.

WARTIME AND POST-WAR PROTOTYPES

On 1 September 1939 Hitler's Germany invaded Poland. Europe was once more at war. For Ettore Bugatti, profoundly affected by the death of his son three weeks before, it was another catastrophic blow. The entire weight of the business which he had left more and more to Jean of recent years, fell once more upon his shoulders. Many of his assistants and workers were called up for military service. Worse, the factory itself was too close to the German border to remain in operation. For the second time Bugatti was forced to leave Molsheim. He took refuge at Bordeaux, where he remained throughout the German occupation.

Bugatti could not remain idle for long. He set to at once, planning and designing all sorts of engines and vehicles. In a paper published in April 1945 he disclosed the result of these studies and his plans for recommencing manufacture as soon as the war was over. Projects were to include: an economical small sports car with four-cylinder engine of only 370 cc (Type 68); a 4.5-litre Type 64 the prototype of which had been built in 1939; and a 1.5-litre sports/racing car with supercharged four-cylinder engine, Types 73 A/73 C. Beside cars the programme included a single-cylinder marine engine, Type 75 and one for mopeds, Type 72.

When the war finally came to an end and lawsuits and legal proceedings retarded the return to normality at Molsheim. These notwithstanding, Bugattis were represented at the Paris Salon de l'Automobile in 1947; but alas the Patron himself, physically and morally oppressed by the series of tribulations since the loss of his son, had by then

passed away. The reins were taken up by Pierre Marco, an ex-racing driver and close friend of Ettore's. Under Marco's direction construction of a few Type 101 and 101 C cars was put in hand during 1951. By 1956 the factory appeared to be resuming its automotive activities with the production of two new Grand Prix cars, Type 251, the work of the Italian engineer Colombo, designer of the famous Alfa Romeo Alfetta. Simultaneously Colombo went ahead with a four-cylinder 1.5-litre sports car, the 252. Neither of these models enjoyed much success: Type 251, driven at Rheims by Trintignant, retired through underdevelopment, and 252 was never more than a prototype.

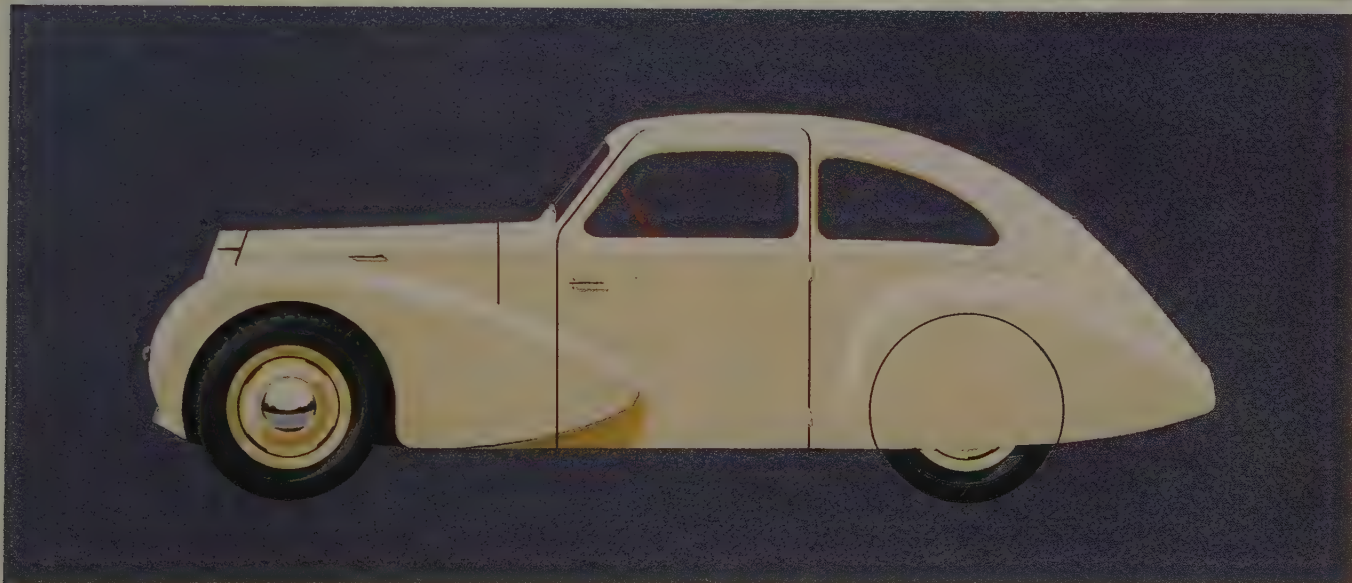
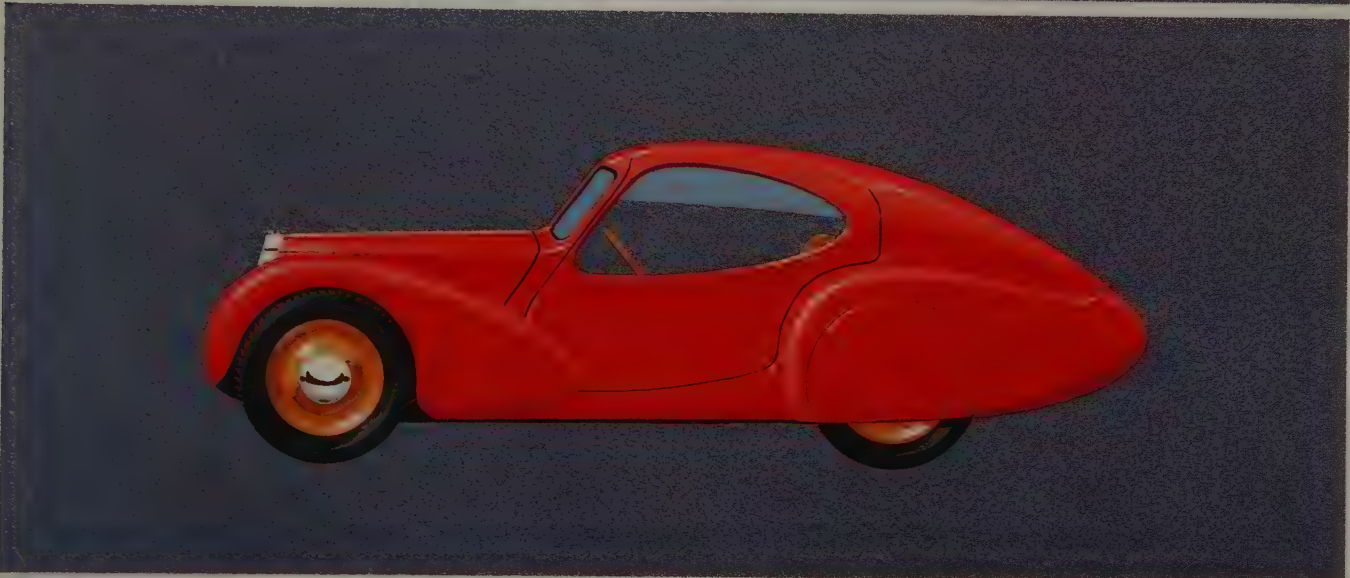
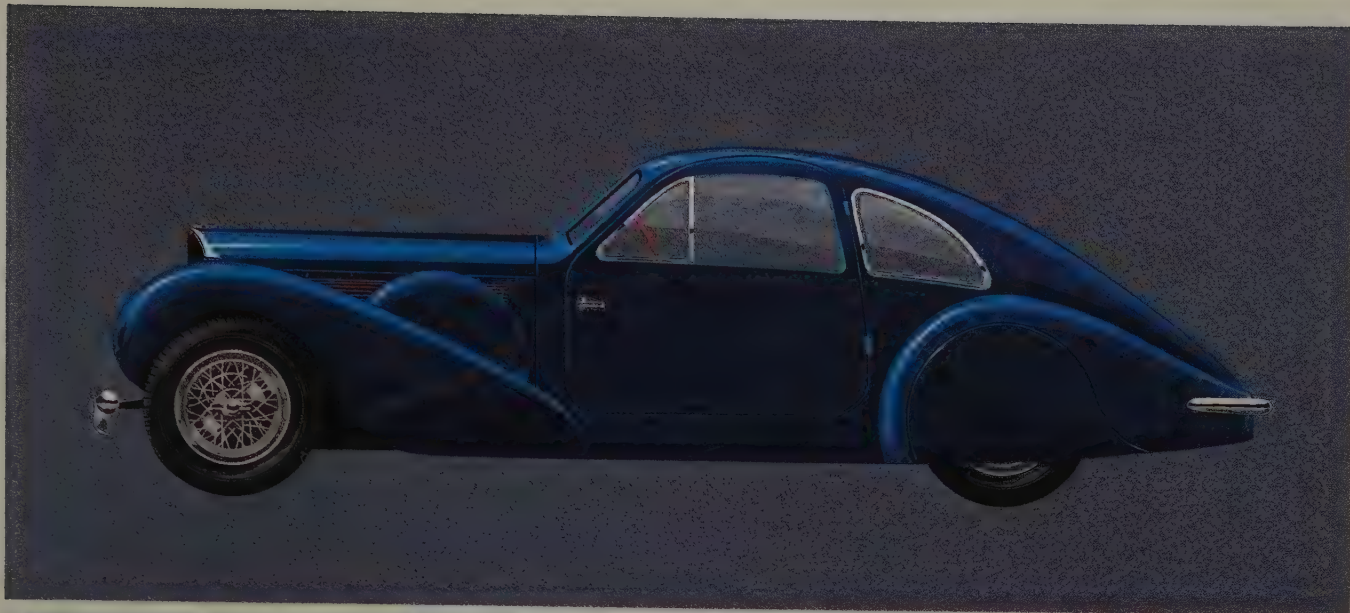
The line of *pur-sang* Bugattis therefore died out with the 101, a little-changed version of Type 57. A few experimental models were built subsequently in partial fulfilment of the programme laid down by Ettore Bugatti in April 1945; but this period too came to an end when the Molsheim works were sold to Hispano-Suiza in 1963.

'La Voiture de Monsieur Jean'

Let us return now to pre-war days. Jean Bugatti, Ettore's elder son, was in almost sole charge of the factory. The Patron had complete faith in his technical and managerial talents – not to mention his good sense and youthful enthusiasm. Jean worked away at the Type 57, devising continual improvements which led as we have seen to the sporting S and more powerful C. He was busy too designing a completely new model, Type 64 known to

Above, right: the 4.5-litre two-door Type 64 known at the factory as 'la voiture de Monsieur Jean'. This was Jean Bugatti's last design, and clearly based on the *Atlantic*. The red car (centre) is Type 68, with economical four-cylinder supercharged engine of 370 cc designed by Ettore Bugatti during the war. Below, Type 73, the Patron's last design before his death in 1947. This two-door body was merely a miniature Type 64, rather heavy of line. The pencil sketch below is reproduced from a factory drawing of the body planned for the Type 68.







This three-quarter front view of the experimental Type 73 gives a good idea of this pleasant and relatively streamlined design. One cannot help feeling however that it would have undergone certain modifications before being put into production

everyone in the works as *la voiture de Monsieur Jean*, intended as a replacement for Type 57.

There were in fact many improvements. From 3.3 litres capacity had risen to 4.5 litres, and although design was generally similar, the overhead camshafts were driven by chain instead of a train of gears, and mixture was supplied by two downdraught carburettors without supercharger. Coupled to a Cotal electro-magnetically operated gearbox, this engine was mounted in a very short lightweight chassis made from aluminium. Wheelbase was that of the standard 57.

In designing a close-coupled body for it Jean was visibly inspired by his own Atlantic coupé. The most striking difference was the addition of an extra window of more conventional shape on each side. The metal-covered spare wheels were housed in the wings, as on the contemporary *Galibier*, and the radiator was 57 S. The chromium-plated headlamps were not built in, but mounted on a fairing between bonnet and wings; the two-piece windscreen formed a slight Vee, and the door lights appear fixed, since they were made of glass curved exactly to the body contours; only the ventilators opened. As in the Atlantic the doors extend into the roof, to increase head room. Really the proposed 64 coupé was successful from all points of view. No side elevation (page 135) can do it justice.

This splendid 4.5 litre should have replaced the standard Type 57 in 1940. No doubt it would have been hailed with enthusiasm, for its performance equalled or even exceeded that of the 57 S while in comfort it matched the Type 50 of the early thirties.

Type 68

The scarcity of everything brought about by the war and the Occupation seems to have had some bearing on Ettore Bugatti's plans for his post-war programme. He set out to design an economical sports car, the engine of which would embody features unused since the 1926 Brescias, as well as those derived from his latest models. Never before had the Patron designed such a tiny car engine. Each cylinder of this 16-valve 'Four' had a bore and stroke of 48.5 x 50 mm, or 370 cc in all; the 16 valves cried 'Brescia' but twin overhead camshafts reflected the later range. Because of its small capacity the Patron fitted it with supercharger, placed at the front and driven from the end of the crankshaft. The water pump and magneto were also in front, driven by the camshafts, inlet and exhaust respectively. Clutch and gearbox were in unit with the engine. The wheelbase was apparently the same as the Brescia's, at 2 m, or 6 ft 7 in.

An experimental car with two-seater body was built as soon as the factory was working again. It looked very like its contemporary, the De Rovin, with cutouts in place of doors. In this and in the wing design it resembled a Type 55; the tiny wheels were of pressed steel. It is thought that a streamlined coupé was planned for this model, there being a factory drawing (page 134) which we have used as a basis for the illustration on page 135. One could call it a scaled down 64, total length being 11 ft 4 in, and maximum height 45 inches. It has the same Vee windscreen and 'streamline' wings as the

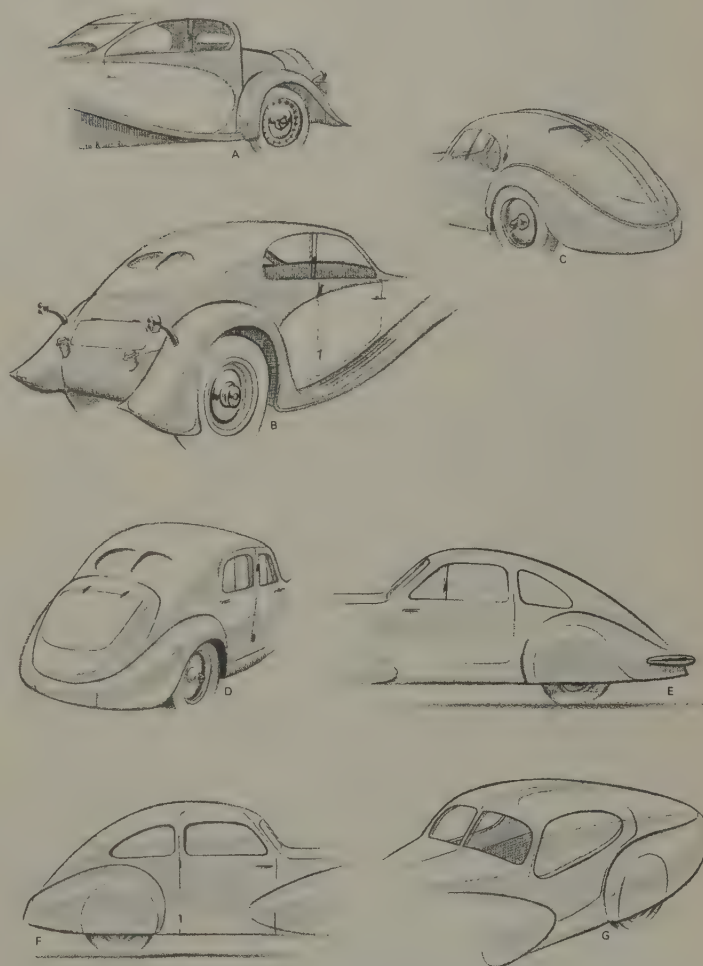
larger car. The shape of the doors is extremely complicated owing to the need for headroom and the forward position of the back wheels; perhaps the possibility of opening them was a minor consideration with the author of this design which was, after all, only a sketch. A word now about the door lights. The shape resembles those of the Atlantic, but as the roof is more rounded the windows had to be, too. So, to lessen this difficulty their surface is broken longitudinally, to produce the necessary section. The radiator is not Vee'd like the 64, but returns to the horseshoe form. This is, however, given a rearward slant, and the chromium shell is noticeably thinner.

This then is what the little thoroughbred might have been: a pony, perhaps, compared with its ancestors. But its performance would certainly have been surprising, for the engine in the prototype would go to some 10,000 revs!

Types 73 A and 73 C

At the end of the war Ettore Bugatti was designing a four-cylinder engine of 1500 cc capacity, the same size as the Type 40 of 1926. There were to be two versions; 73 A with three valves per cylinder and single overhead camshaft for a small sports car, and Type 73 C (the C standing for *Course*) a twin ohc for racing. In 1947, a few weeks after the Patron's death, both engines, together with a chassis, were exhibited at the Salon; a leaflet announced that a streamlined coupé would be available later.

The sketches below illustrate the evolution of aerodynamic bodywork at Molsheim from 1931 onwards.

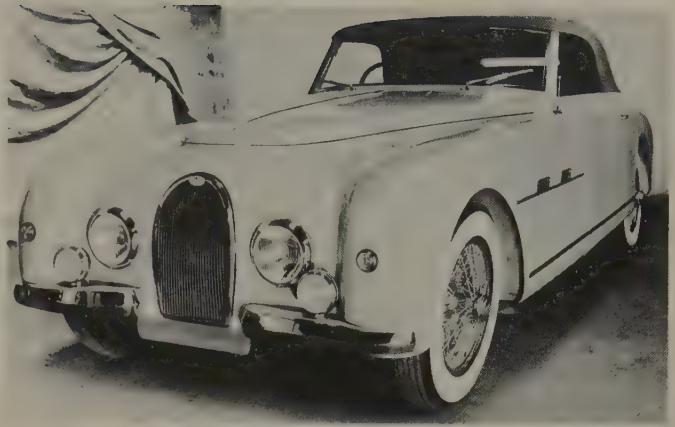


- A. Two-door Type 50 T 1931.
- B. Superstreamlined Type 50 T 1934.
- C. Type 57 S Atlantic 1936.
- D. Type 57 *Galibier* 1938.
- E. Type 64 two-door 1939.
- F. Type 73 coupé 1947.
- G. Type 73 coupé 1947.



After the Patron's death when Pierre Marco was in charge a new prototype was built in 1951. Its body (above and on page 140) was very like those being built by Touring of Milan at the time. The following year a Type 101 by Gangloff (left) was exhibited at the Paris Salon. In third position on this page stands the Formula 1 car designed in 1956 by Ing. Colombo of racing Alfetta fame, and below it we see Michelotti's design for a sporting Type 252.

Coachwork on the Type 101: right, the Gangloff drophead shown at the Salon in 1952, with somewhat hump-backed bonnet.



An experimental close-coupled coupé was in fact built, displaying features from both 64 and 68. The side view was Type 64; so were the windows, Vee screen and tail; but the wings and frontal treatment were Type 68. The radiator, too, was Type 68, though inclined, wider once more in the shell, and slightly shouldered, like a Type 57. The doors were less convoluted than Type 68's though they still cut into the roof and into the front wings, the rear portion opened with them. The prototype had pressed steel wheels; production cars would probably have had wire.

Here then was the last sports car designed by Bugatti in a bid to regain supremacy in a now difficult market. The rest of the programme, alas, he was unable to complete. Time had almost run out for Bugatti.

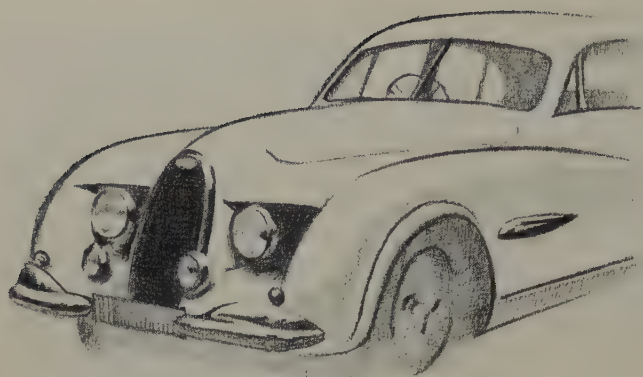
As we end this account of Ettore Bugatti's remarkable career and the short but brilliant contribution made by his son Jean, there remains one interesting topic to be discussed: the gradual evolution of coachwork towards an aerodynamic ideal. This quest for the optimum shape began with Jean's streamlined and superstreamlined Type 50's which led on to Types 57 and 64. It was then Ettore's turn to reduce wind resistance, while pondering body styles for Types 68 and 73 A. The progress is evident at first glance. In fact on turning back to the 'streamlined' Type 50 coupé (page 104) we realise that the only true aerodynamic feature was the sloping screen. Slim flowing wing lines certainly imparted a rakish air, but they did not improve drag characteristics. Later, with 'cleaner'

body and enclosed wheels the car reached its definitive form and was called *surprofilée* (superstreamlined). Its coefficient of penetration was better than that of the previous model.

Early Type 57's bore some distant resemblance to the Type 50 streamline coupé, but with fewer aerodynamic pretensions. The most streamlined of all was undoubtedly the 57 S Atlantic coupé, which had much the same profile as the last close-coupled Type 50's but smaller frontal area and less prominent, nicely faired wings offering little wind resistance. Rear wings were almost flush with the body.

There was continuity in Jean Bugatti's ideas: once he had found an effective solution he exploited it fully over a number of models. His 57's, for instance, have a style first seen on the Type 50, then worked out in the Atlantic coupé; flowing lines and streamlined wings crop up again on his *Galibier* saloon at the 1938 Salon, although the back was somewhat different because of the extended boot. Similarly Type 64 was a close-coupled coupé like the Atlantic. The longer wheelbase allowed better streamlining within the same basic framework: sloping two-piece windscreen, slightly Vee'd radiator grille, fully enclosed rear wheels and domed roof.

It is known that the body on the Type 64 was the last that Jean designed. His father drew inspiration from it when planning the Type 68. In fact, the profiles were the same, for although the latter had 6 ft 7 in wheelbase instead of 9 ft 7 in, the height was reduced in proportion. The same ratio of length to



Left: the radiator and wing treatment of the 1951 prototype. On the right a drophead built later at Molsheim. The lines are far better; note the flatter bonnet, higher headlamp mountings and chromium line on the side of this Type 101.

height recurred on the Type 73 A close-coupled coupé, which in size was midway between the two. Unfortunately it was not applied to the Type 101 which, in consequence, could not evolve towards the lines of the present-day sports car.

Types 101 and 101 C

As we have stated already: the Patron's day was done. However, the works still belonged to the family, and under Pierre Marco's direction continued to manufacture – no longer cars, it is true, but very high precision components. Inside the drawing office more secret plans were being laid for a new car to earn fresh laurels for the *marque*. And as there were Type 57 parts in stock the new model would be designed around these.

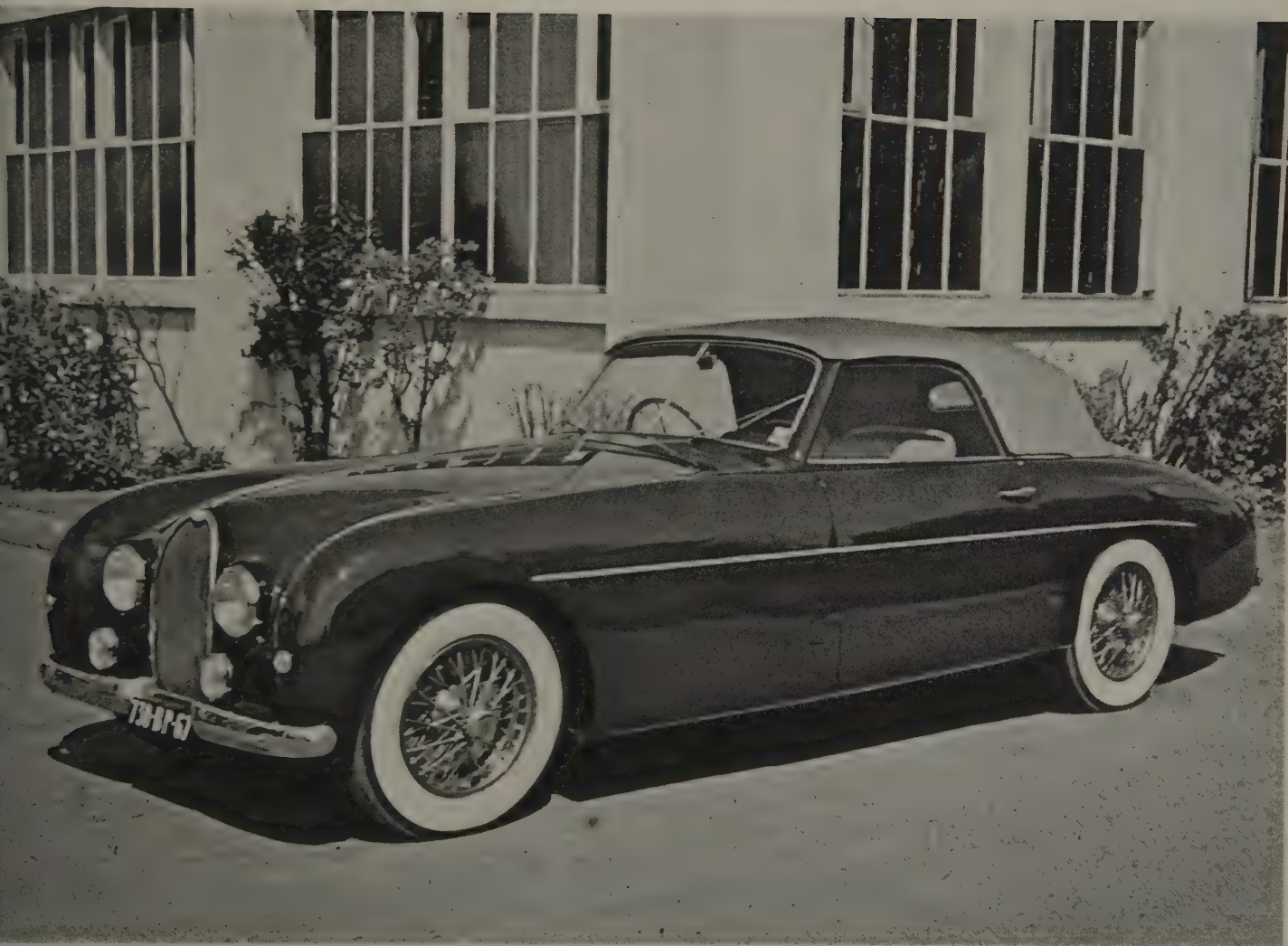
The engine was unchanged except that the ohc were chain driven, as on the Type 64. There was a choice of gearboxes: normal four-speed box with overdrive or Cotal. Brakes were hydraulic, with dual master-cylinders – modern even then!

By 1951 a prototype was running – a four-door saloon. Its shape foreshadowed the 2.4-litre Jaguar of 1957, with long pontoon wings merging into the flanks. The roof was very domed in the fashion of the time, a treatment found on Alfa Romeo bodies by Touring. A flat sloping horseshoe radiator with narrow shell made one think of the Type 68. On each side of the radiator were large openings in which headlamps were lodged but not built-in. The rather odd frontal effect may be seen on page 139.

Two versions of the 101 in 'production' form were exhibited at the Paris Salon in 1951, with coachwork by Gangloff of Colmar, whose association with Bugatti had thus lasted all the way from Type 13 to the final Type 101. One was a 'convertible', the other a close-coupled coupé. Their style was that of their period although as yet it was exemplified by very few cars – a flush-sided one-piece design with unenclosed wheels. Unfortunately the bonnet jutted out, spoiling the general effect. This was later corrected to some extent. Headlamps were originally built in, close to the radiator, and rather low down; they were later raised, for a better-balanced façade. The grille was like that of the prototype, but convex. Two-piece bumpers completed the ensemble. A spare wheel was concealed in a front wing. The chromium-plated wire wheels were shod with white-sidewall tyres, a fashion now almost forgotten. Although identical in lines, the drophead was smarter and seemed slimmer than the coupé.

The few 'production' 101's carried similar coachwork, but with one important difference: Gangloff's curved one-piece windscreen was replaced by two panes and a central plated strip.

Fewer than ten examples of the 101 and 101 C were delivered. Some owners of pre-war Type 57's fitted 101 coachwork to modernise their cars. And yet, could any 57 be more beautiful than those with original coachwork? At last the day of the prototypes drew to a close. In 1963 the Molsheim factory was sold to Hispano-Suiza.



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BUGATTI

evolution of a style

(Continued from front flap)

Paul Kestler, the author/illustrator, is an electrical engineer by profession, and an Alsatian by birth. Always fascinated by the marque, which made Molsheim in his native Alsace known world-wide, Kestler has spent more than 15 years in research for his drawings which are the backbone of his unique book, a book that recalls the time when motor cars also were works of art.

