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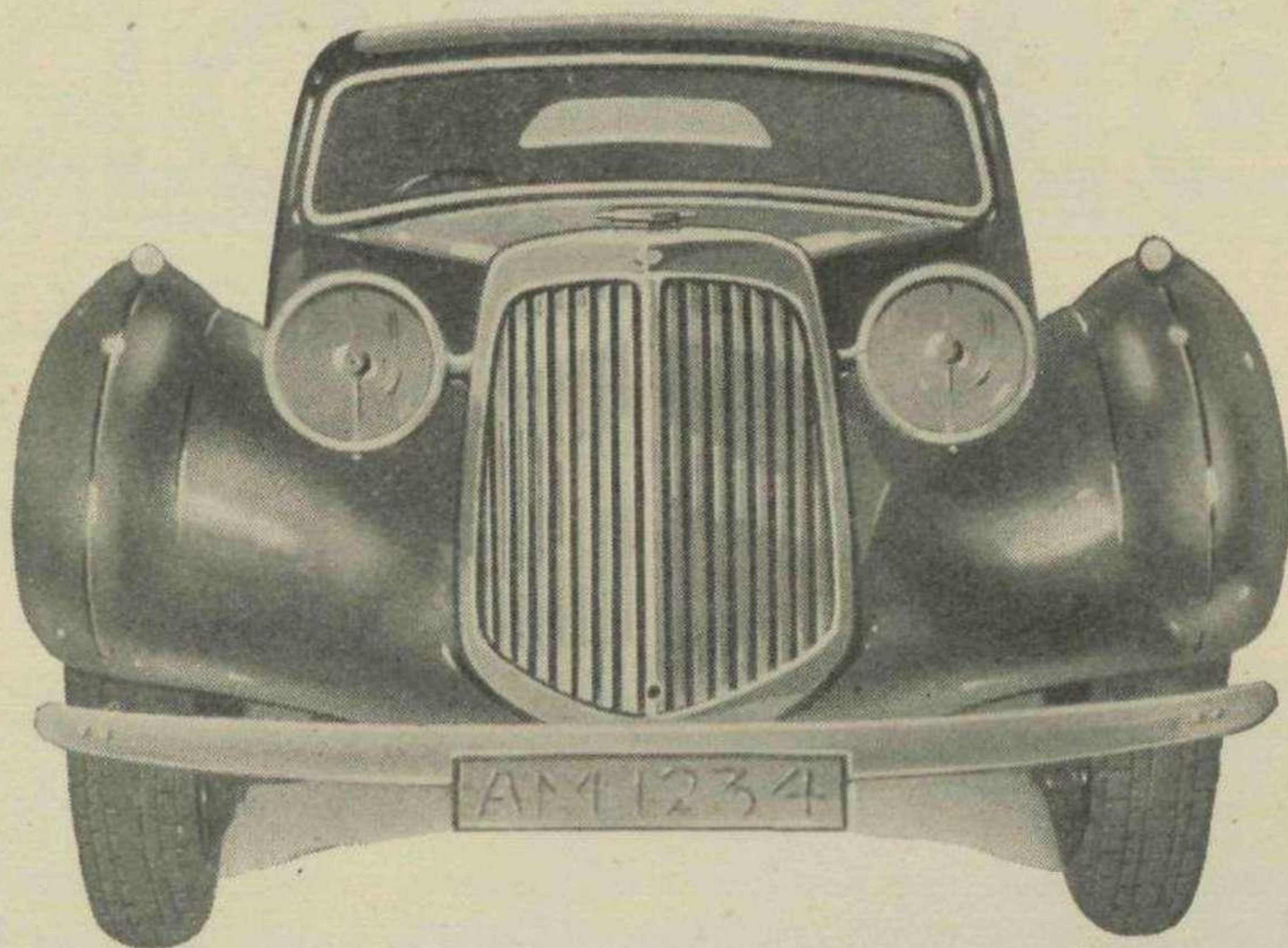
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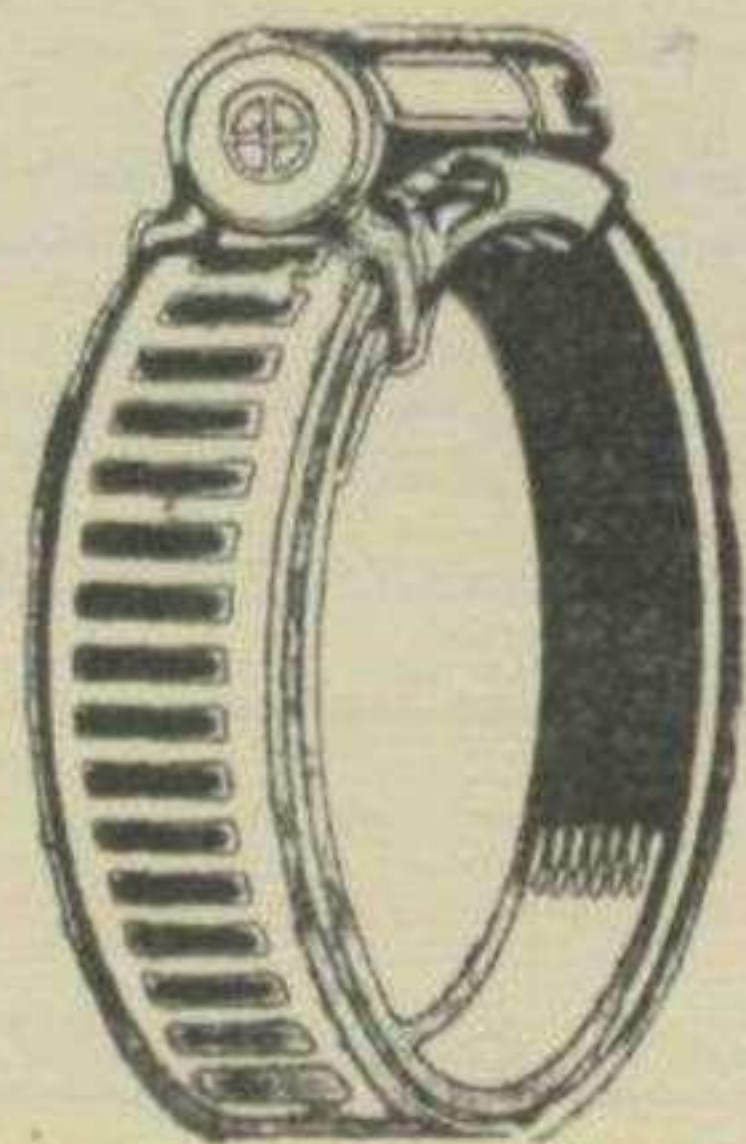
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Matthew Arnold

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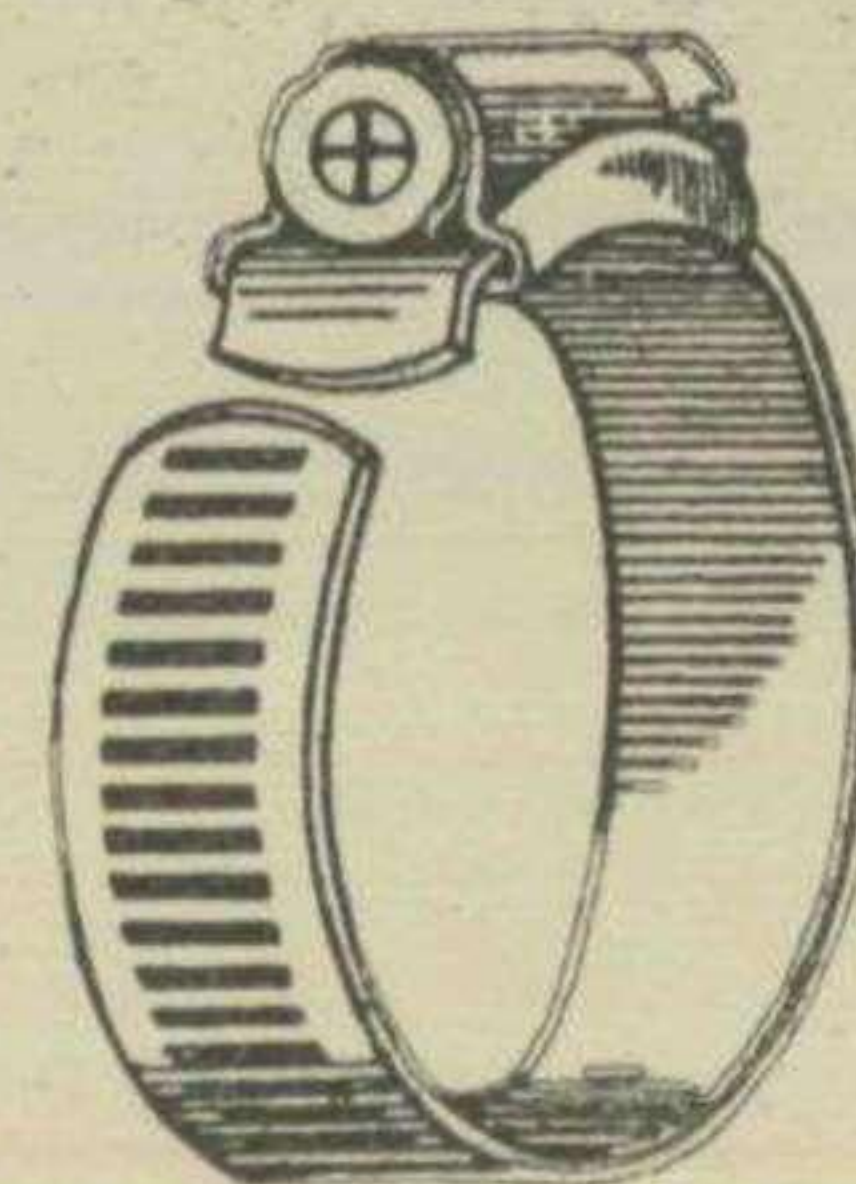
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FORD V8 "SPECIALS"

WHEN in 1932 the Ford V8 was first introduced to the general public those among it who were motor sportsmen realised that here, indeed, was "a car that was different," one which gave town carriage comfort with super sports performance, a combination which had never been realised before at a competitive price.

Early in 1933 several slightly-modified Model 18s appeared in the Swedish Winter Grand Prix with promising results, and British drivers were not slow in following suit. Then began to appear, at regular intervals, in the competition world, modified versions of this product of Detroit and Dagenham, with varying degrees of success up to the outbreak of war.

Such cars as the Batten, Jensen and Allard I do not class as modified Fords but rather as individual cars built of, basically, Ford components; they are rather outside the scope of this article, in which I propose to refer to cars actually built up by modifying standard Ford V8 models. The first of these which comes to mind is the white V8 with which K. N. Hutchison registered so many successes before he became a confirmed "Allard addict." Originally this was a standard Model 40 2-seater, driven in trials with verve by C. G. Fitt, of B.M.W. and blown Hudson fame, and was used by Hutchison in standard form, the only deviation being that Fitt had some 15-in. wheels built, which were fitted with 8.50-in. tyres. Later, Hutchison stripped off the body and ran for a time with a bath-like body of extremely light-gauge aluminium, the back of the chassis consisting of a kind of plywood platform on which as many as four wheels could be piled, thus concentrating weight in the right place. In this form it ran in a Southport 100 Mile race, but retired after about 75 miles with a cracked cylinder head. The decision to completely rebuild came after a hectic week-end consisting of the "Colmore" on the Saturday and a Southsea event on the Sunday. During the "Colmore" the car hit a tree and did the front end no good whatever, whilst in the Sunday's event another tree was collected by a rear wheel, thus tearing

Harold Biggs describes some interesting examples, and suggests a line which should appeal to enthusiasts planning post-war cars of high performance.

the axle away from the propeller shaft; Hutchison collected a cup in the "Colmore" and a first-class award in the Southsea affair despite these handicaps. The Ford was brought home on a lorry and it was decided to rebuild it in the light of the experience gained in its initial form.

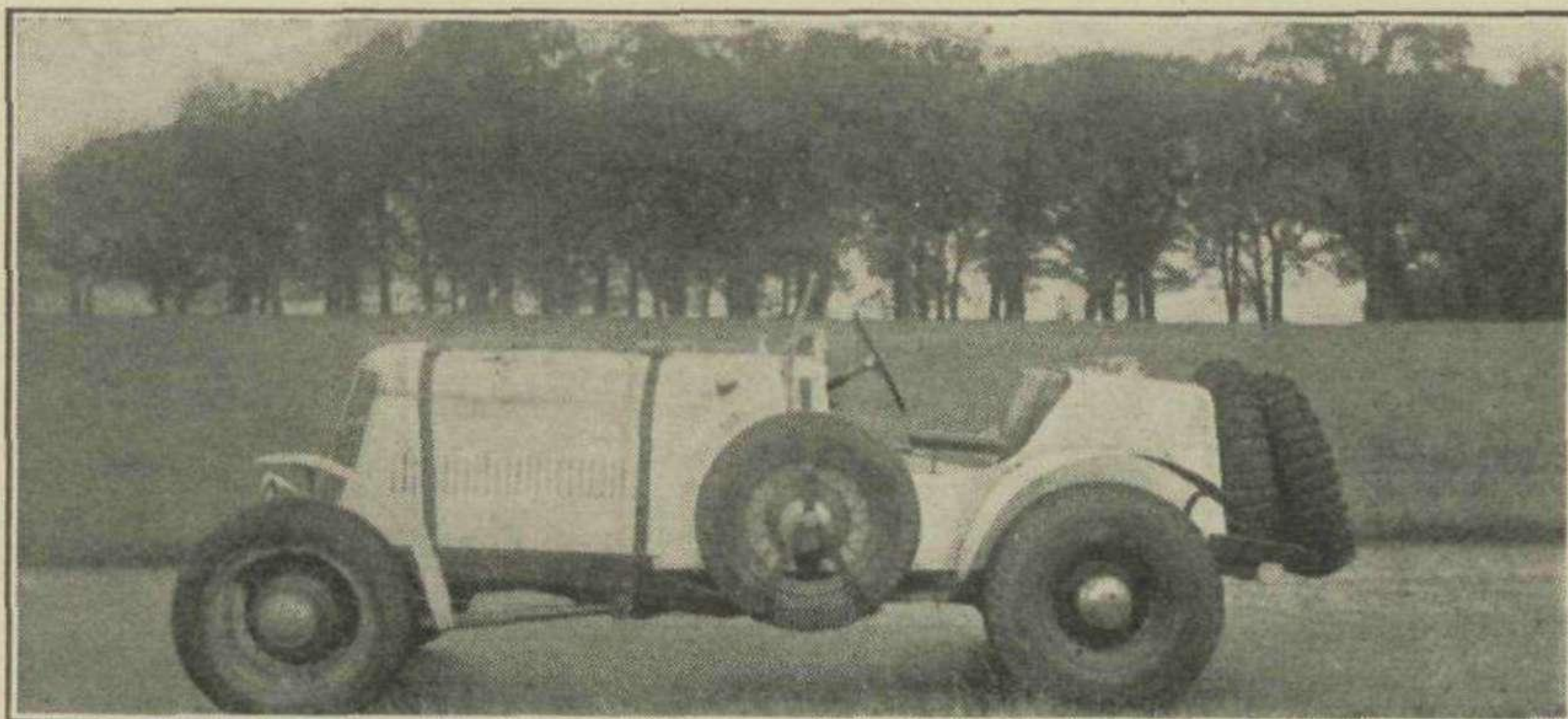
Before continuing I should point out to those readers who are not conversant with the various Ford types, that the Model 40 is the most suitable type for modification. It was produced in late 1933 and, whilst having a longer wheelbase than the Model 18, or original V8 (which was, in effect, the 4-cylinder chassis fitted with the V8 power unit) it had a more robust rear axle with the bevel pinion supported in straddle bearings, an engine with aluminium heads having a compression ratio of 6.32 to 1 against 5.5 to 1 of the cast-iron-headed Model 18, and a double-choke downdraught carburetter. It developed 90 b.h.p. at 3,800 r.p.m., against 65 of the Model 18 at 3,400 r.p.m. There were, of course, other minor detail alterations. To revert, after this digression, to Hutchison's car; the remains, after being sorted out, received expert attention, the chassis being cut to 8-ft. wheelbase by Bainshaws, of Wimbledon, and the engine moved as far to the rear as practicable, the propeller shaft and torque tube being shortened accordingly. Whilst the standard Ford axles were retained, both front and rear, the crown and bevel were changed from the standard 4.1 to 1 to 3.5 to 1.

Apart from the fitting of a Scintilla Vertex magneto the engine alterations were negligible, thin gaskets and a few pounds off the flywheel being the only departures from standard, even the heat-retaining stock exhaust manifolds being used. The radiator remained the same and the bonnet line was unaltered, but a quite respectable body was fitted;

this had no internal strengthening, the wired-edging of the panels being the only reinforcement. A neatly-rounded tail was later cut off flat, vertically, to carry two comp.-shod spares (a third could be carried on the near side of the body in a triple strap Bugatti-pattern sling). Steering was Ford, with a longer drop arm, and a fold-flat windscreen with twin aero additions and a "pocket handkerchief" hood looked after the comfort (?) of the crew. The whole car tipped the scale at 16 cwt., of which more than half came in the right place, over the rear axle. Despite additional and more robust shock-absorbing devices the job was a definite handful at speed (some 85 in second) but, as the aim was trials of the tough variety, this was not of major importance, it being extremely difficult to combine the weight distribution of a trials job, with its load over the rear axle, of fuel and spare wheels, with that required on a racing car.

When the white V8 was sold to W. S. Millar, of the Scottish Sports Car Club, it was advertised as "having secured, in 15 events, 21 awards, including 10 trophies"—a very fine record. It also made second fastest time at Bo'ness to Harry Souter on a blown Bugatti, less than a second slower.

Yet another trials V8 of which I have constructional details is the Terryford Special. This is the property of N. V. Terry, and my first opportunity to examine it closely was at the start of the 1938 London-Gloucester. It was, originally, a Model 40, and the chassis alterations are most interesting. The tapered portions of the side members were cut out completely and the rear cross member cut and shortened; thus when the side members were joined, the chassis was shortened by some 2 ft. and was parallel throughout its length. The central cruciform cross-brace had its members shortened and rewelded in its new position. The new chassis was far too short and Terry, realising that he must retain the front cross member in its position in order to keep the engine mounting towards the rear of the chassis, decided to extend forwards. After some weeks' fruitless search of car-breakers' yards,



Built for mud-plugging. K. N. Hutchison's famous white V8 Ford, capable, it is said, of some 85 m.p.h. in middle gear

his then future wife located a complete Model 40, which they persuaded the breaker to dismantle with care and, having acquired the complete frame, proceeded to cut off the front end, which included the front cross member with spring mounting and a foot or two of side members. This was driven over the existing chassis side members and welded in position, thus, the engine being 2 ft. nearer the rear axle, the wheelbase was only shortened about 18 in. The propeller shaft and torque tube went to Barimars for the necessary shortening.

The standard radiator remained on its original mounting, and the original bonnet and scuttle mated with simple doorless body sides attached to a 32-gallon fuel tank which completed the rear of the car; this tank was rectangular in cross-section but rounded in side elevation, and two spare wheels mounted behind gave it protection.

Owing to the forward mounting of the front axle extra long radius rods, cranked to clear the wheels on lock, had to be used and, by extending the drop arm, a steering gear ratio of one complete turn of the wheel from lock to lock was obtained. Terry mounted his hand-brake lever on the outside of the bodywork; thus, by using one hand for this and the other for his gear lever, he could put up phenomenal times in "to-and-fro" tests.

As to equipment, the car used large Hartford shock-absorbers and, ultimately, *did* have a windscreen and diminutive hood; but when I saw it the driver only

had the luxury of a single aero screen. A single Notek lamp mounted low down, and side lamps fitted to the scuttle sides to avoid vibration, were found very satisfactory.

In order to dissipate some of the exhaust heat, which is the bugbear of the V8 engine, Terry made up sweeping exhaust manifolds with twin silencers and tail pipes, but otherwise the engine was standard Model 40. When completed the car weighed approximately 24 cwt., of which 14 cwt. was over the back axle. An amusing incident occurred when Terry was being towed to some suitable private testing ground—one which has happened to more than one Ford owner! He had temporarily forgotten that the Ford ignition lock also locks the steering, and on approaching the first corner, discovered that he could not turn the steering wheel. Frantic yells to the driver of the towing lorry went unheard, and the car was well over the path when Terry's cousin, coming out of a gateway ahead, saw what was amiss and stopped the disaster happening! [It has happened to me.—Ed.]

The Terryford Special was cellulosed a brilliant blue and, after the usual teething troubles experienced by all "specials," put up some very good shows, particularly in the Lawrence Cup trial in 1939, where it gained the Ripley Cup and was only 1/5th sec. slower up Red Roads than Silcock's V12 Allard.

The last V8 I intend mentioning is the L.M.B. V8 built for H. G. Symmons,

who in 1935 won the Experts' Trial. This car was truly referred to in *The Autocar* as a "Special of Specials." The chassis was cut to 8 ft. wheelbase by Bainshaws, who had done the same for Hutchison some time previously; the axles were not crabbed in any way, although a special L.M.B. divided front axle with lateral radius arms was used. The engine being moved some 18 in. to the rear of the car and a 21-gallon tank mounted over the rear axle, the weight distribution aided wheel grip in no uncertain manner. The use of 7.50-in. tyres on the rear and 6.50-in. on the front wheels, all on 16-in. rims, ruled out any doubt of under tyreing. The rear-axle ratio, as on Hutchison's, was 3.5 to 1, and the steering Marles, as fitted to Allard cars, showing how, in this V8 modification, one constructor benefits from another.

The engine used in Symmons's car was a standard Model 40 with lightened fly-wheel and two separate swept manifolds, silencers, and tail pipes; the fume extractor, a Symmons speciality—witness his blown P-type M.G.—was conspicuous and a special radiator with large header tank was another endeavour to dissipate the unwanted heat.

Beautiful metal work was demonstrated by the panelling of the light aluminium body, utilising rubber mountings wherever possible and giving a total all-up weight of 18 cwt. with tank full. Equipment included the customary twin spare wheel mounting at the rear, fold-flat screen, Dunlopillo upholstery, Smith's instruments and Bosch electrical equipment.

The whole car gave me the impression that money had been no object in the construction, no expense having been spared in making this car a trials car *par excellence*. The unfortunate thing about owning a car like this is that one *must* be successful in any trial, as if one is not, one obviously cannot blame the car! I regret that I have no records of the successes of the L.M.B., no doubt Mr. Ballamy can oblige, as H. G. Symmons is at present on active service in India.

I trust that this brief article will make readers more Ford-conscious, as the V8 is undoubtedly a great car, and well worth consideration as a post-war trials mount, the only drawback being the taxation. Even this does not amount to so much when balanced against the low cost of maintenance and the modest price of spares needed in a full trials season.

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THE EVOLUTION OF THE SPORTS CAR—1908-1938

By Cecil Clutton

AT various periods sports cars have had very varying characteristics, and I doubt if it is possible to define a sports car in greater detail than by saying that it has better performance than other cars of the same power or engine capacity. "Performance" is made up of speed and acceleration on the one hand, and braking and handling on the other. A sports car may come about in two ways. It may be a detuned version of an existing racing car (or it may even be designed *ab initio* on semi-racing lines) or it may be a souped-up edition of an existing touring model.

It might, perhaps, be worth while to glance back and examine the sources which have influenced the evolution of the sports car down the years, and how the various problems, which have arisen from time to time, have been solved.

It has always been possible to obtain speed by employing a high b.h.p./weight ratio, and in the early years of the century this was attained by using very large, light, inefficient engines in flimsy chassis, with practically no coachwork. This type of approach reached its height at the end of the 1,000 kilo. racing formula which operated between 1902 and 1906—the 1906 G.P. Panhard weighed only the specified ton, and had an engine of 18½ litres. But these were not sports cars, and they never could have been turned into road cars for regular use. They were too extravagant and unreliable.

Class racing goes back into the last century, and one might expect to find the germ of the sports car in the early *voitures legeres* and *voiturette* classes. But I doubt if this is the case. Very little attempt seems to have been made to get more power per unit of engine capacity; the racers were just scaled-down editions of the big cars.

The early (1905-1908) T.T. races might have been expected to produce sports cars, but the entries seem, in fact, to have been very meagre efforts, and the regulations were not exactly inspired.

I am inclined to think that the modern sports car has its roots in 1908, and in tracing its history on very broad lines I propose to regard 5-litres as the maximum size to be considered. There have, of course, been very fine and real sports cars of greater size—"Boulogne" Hispano-Suiza, 6½- and 8-litre Bentleys, "Phantom II" Continental Rolls-Royce, and S.S. Mercédès, for example—but, as has been remarked before, it has always been possible to get speed by using a large engine, and I think that class competitiveness is an essential of the sports car.

The year 1908 saw two important events: the R.A.C. 2,000-Mile Trial, and the Voiturette class of the Grand Prix, and it seems that they aroused designers to build high-efficiency engines as nothing previous had done.

The R.A.C. trial was divided into very numerous horse-power classes (as opposed to the weight classes, which had been predominant, if not universal, in previous such events). Instead of seeing how large an engine they could get into a chassis of the specified weight, designers had to discover how many b.h.p. they could squeeze out of each rated horse-power. Around 1908, 8 b.h.p. per litre



was a very useful figure, and 10 was an outside figure for the G.P. cars, even when fitted with inclined overhead valves.

So it was not a little startling when an almost entirely unknown youth designed a 3-litre car developing 42 b.h.p. from a perfectly ordinary side-valve engine, and swept the board with it. This was, of course, the late Laurence Pomeroy, and the car a Vauxhall. Pomeroy had worked on the basis that b.h.p. is not so much a function of engine *size* as of engine *speed*, and his otherwise very normal engine had a top speed of 2,500 r.p.m. Within a very short time after the trial it had been developed to give over 17 b.h.p. per litre, or twice the normal figure at that date.

The Vauxhall's theatrical success is apt to overshadow its rivals, but several other

AUTHOR'S NOTE

In November last the Midland Motor Enthusiasts' Club unwisely invited me to make a speech at them. I did, roughly tracing the evolution of the sports car from 1908-38, at almost interminable length, and with a maximum of incoherence. The Editor has since asked me to put the same material together in an article for "Motor Sport." I have done this—being, by now, too well trained to disobey—with some diffidence and doubt, partly because I am writing it while on Service, and away from all works of reference, and partly because I have already covered a good deal of the ground in two articles quite early in the war, entitled "The Appeal of the Vintage Sports Car" and "The Vintage-Modern Axis."

However, whereas those articles were more a consideration of as many individual cars as possible, this present effort tries to go a little deeper, by looking more for the sources of influence which have caused the sports car to evolve in the way it has. Thus, while individual makes are necessarily mentioned fairly frequently, this is mainly done to drive home or exemplify some particular point, and only as an undercurrent to the main theme.

I hope, therefore, that the insufferable amount of print which is now to appear under this title may not be entirely a work of supererogation.

manufacturers entered not dissimilar cars, among which the Talbot was little, if at all, inferior to the Vauxhall.

In fact—almost overnight, as it seems—the sports car had arrived. Although a 3-litre car was then considered very small, we now look upon 3 to 5 litres as a large car, and I think the modern large sports car may be traced directly from the 1908 R.A.C. trial.

The medium-sized modern sports car, of 1½ to 3 litres, has no very well-defined beginnings, and it hardly becomes prominent until the 1920s. The important 1½-litre class can, I think, be traced back to the 1908 G.P. Voiturette race. This laid down that contestants might equip themselves with motors of 1 cylinder of 100-mm. bore; 2 cylinders of 78-mm. bore; or 4 cylinders of 62-mm. bore. Now, at a time when few people envisaged crankshaft speeds of more than 2,000 r.p.m., it was obvious that to get the most from a limited bore it was necessary to employ a long stroke. And, as even the most enthusiastic did not contem-

plate a bore/stroke ratio of more than 3 to 1, it was evident that the single-cylinder engine possessed considerable advantages, so far as the formula was concerned. To get the most from a 4-cylinder 62 mm.-bore engine called for more r.p.m. than anyone cared to think about; so monstrosities like the 2½-litre, 100×300-mm. Corre-la-Licorne appeared, while the 1½-litre, single-cylinder Sizaire-Naudin was undoubtedly the most successful production *voiturette* of its time. But this was obviously a dead end, and had it not been for more enterprising spirits, the birth of the modern light car would have been put off till a later date. But, fortunately, several more adventurous people tried their hand at the 62-mm. engine. Strokes varied, but 62×100 mm., giving only 1,200 c.c., was usual. Most unfortunately there seems to be very little available information about these important pioneer efforts. They were not very successful, and none of them seems to have been put into production.

But Ettore Bugatti marked and digested, and in 1910 he startled the world by putting his Type 13 on the market. The 4-cylinder, 65×100, 1,327-c.c., o.h.c. engine ran up to 3,000 r.p.m., and while the power output is not known, it was enough to motor the car along at 60 m.p.h. and to come home second in the rather abortive 1910 *formule libre* Grand Prix. As has been said before, the Type 13 Bugatti may be regarded as the parent of the high-efficiency modern light sports car, even more surely than its larger brother can be fathered upon the 2,000 Mile Trial cars.

Owing to the peculiar no-man's-land between 1½ and 3 litres (of which, however, more anon) it will be convenient, having established the *fons et origo*, to trace the large sports car and the light car separately. We will look at the 3-5-litre category first.

As soon as cars of the Vauxhall type had established their superiority over the relatively unwieldy giants it is amazing that the latter continued to be made.

The Vauxhall was, advisedly, a very simple design and it proved its longevity by persisting, in enlarged form, until the 1922 E type "30/98" and, as its close relation, the OE "30/98," until 1928. It was advisedly simple because the type was intended for regular production, and it achieved even greater fame as the 1910 4-litre (95×140) "Prince Henry" model of undying fame. Undoubtedly related to its rival the Talbot, was the 4½-litre s.v. Talbot, on which Lambert first exceeded 100 miles in the hour in 1913.

The "Prince Henry" trials did much to foster this type of car, and the regulations for the 1911 Coupe de Voitures Légères were also a step in the right direction. They demanded a minimum weight of 800 kilos. (16 cwt.) and a 3-litre engine of 4 or 6 cylinders, with a bore/stroke ratio of not more than 2/1, which definitely precluded freaks in the way of egregious strokes and flimsy construction. This race was followed by the important Coupe de l'Auto races which formed such an important step in racing-car development. At first they evoked cars not very unlike the "Prince Henry" Vauxhall, and the "Alfonzo" Hispano-Suiza was

an outstanding newcomer. Finally marketed as a 3.6 litre (80×180 "T" head), this Hispano had a tremendous success, and it would not be far from the truth to say that it and the "Prince Henry" Vauxhall are easily the foremost production sports cars of the pre-1914 era.

All this time performance had been obtained from engines of perfectly ordinary touring pattern, except for the one fact that they were capable of relatively high crankshaft speeds. But the value of a scientifically designed head had been known since the 1905, inclined-o.h.v. Grand Prix Fiats; so it seems remarkable that additional performance and reliability for sports cars was not sought by this means. The solid reason seems to be that, at that time, there was no great advantage to be gained by the more complicated construction. This was shown in the 1913 Coupe de l'Auto, in which Peugeot ran a 3-litre edition of the 7½-litre job which so effectively drove the giants from the field in the previous year's Grand Prix. This Coupe de l'Auto car was a 4-cylinder, 3-litre, 2:1 bore/stroke (78×156) with double overhead camshafts. It was claimed to give out 90 b.h.p., which was certainly a most creditable figure, but only slightly (if at all) in advance of the competing Vauxhall and the Sunbeam, which had by now entered the sports car field with such notable success, both still having the old side-valve engines. At the general crankshaft speed of around 3,000 r.p.m. these outputs are really remarkable, being equal to some 130 b.m.e.p. But whereas they represented the utmost development of the s.v. unit they marked only the beginnings of the more high-efficiency designs.

So in the next year's Grand Prix the o.h.c. engine, with inclined valves, reigned supreme. But having regard to the amazingly high outputs of about 30 b.h.p. per litre in the 1913 Coupe de l'Auto, the very general 25 b.h.p. per litre in the 1914 G.P. seems inferior, by comparison (unless the 1913 claims were exaggerated).

So it is, perhaps, not very remarkable that Vauxhall and Sunbeam were content and successful in continuing to offer only the old s.v. engine to their sporting clients, and in 1913 the "Prince Henry" was stretched into the "30/98" (98×150, 4½ litre)—intended as a Shelsley freak, but destined to become one of the most famous, fastest, long-lived and best-loved sports cars of all time. The exceptional bad luck of Pomeroy's splendid 1914 G.P. cars is well known, and it is an ironical thought that had a "30/98" team been entered instead, they might have made a very respectable showing at greatly diminished expense.

Once again (and not for the last time) Bugatti was very early on the scene with a high-efficiency production car of the type similar to "Black Bess." This 5-litre (100×160) o.h.c. engine was phenomenally advanced for a production car, and it first appeared in the "Prince Henry" trials of 1910. Except as regards its chain drive it was in every way a pointer to the type of large sports car which was to hold the field throughout the 1920s. Incidentally, "Black Bess" bears a quite startling resemblance to the 1910 G.P. Fiat. The G.P. Fiats of 1905-10 were very modern designs, and it only required to reduce their enormous size,

and speed up the crankshaft, to have all the makings of a 1925 sports car. Bugatti once more showed his sagacity by being the first person to do this. How many of these cars were sold I do not know; probably not a very large number. Another make of whose doings among early sports cars one would like to know more is the Austro-Daimler. As early as 1910 it appears that the youthful Porsche was designing for them, and in that year he produced a very racy machine of around 5 litres, with inclined valves, for the "Prince Henry" trial. A 1912 car of very similar design existed in England within the last 15 years, and if the type did, in fact, go into regular production it, too, would be an important landmark in sports-car evolution.

It is probable that research (unfortunately impossible when one is in the R.A.F., away from all reference works, and reliant solely upon a very third-rate memory) would reveal other useful Continental examples, but in general, the great foreign marques seem to have shown very little enterprise in connection with the true sports car of less than 5-litres capacity; Vauxhall and "Hisso" are definitely the pioneers. Too little credit has been given to pre-1914 American sports cars. Mercers, in particular, made numerous very rakish and comely "roadsters" with woolly "T" and "L" head engines of around 4½-litre capacity, and there were other excellent makes besides, such as the National. This kind of car was not much seen in Europe after 1910, but these American cars are very much in the true tradition and still arouse great interest among U.S. enthusiasts.

So comes the 1914-18 war and we find ourselves in the early 1920s with very little development to show since the promising beginnings back in 1908.

The stage of 1920 was clearly set for great developments. Not once had racing car design risen to a regular *sforzando* in 1913 and 1914, but the war had seen many designers busy at work on aero-engines, so that they were thinking in terms of light alloys and multi-cylinders. But their experience was not to bear full fruit for some time to come; the 1920s were the golden age of the large 4-cylinder, long-stroke, medium-efficiency sports car; the traditional vintage type.

At the beginning of the decade one must refer to two epic cars, one looking back, and giving all that was best of the Edwardian era; the other setting a standard for all future design. The first is the E type "30/98" Vauxhall. A perfectly normal side-valve engine, with a maximum of 3,000 r.p.m., was arranged (largely by its cam design) to give exceptional power at low speeds, and producing about 98 b.h.p. at its peak of 2,500 r.p.m. It was exceedingly flexible and did the bulk of its work on its 3:1 top gear. Very little could be done to improve its performance. The engine was mounted in a sub-frame, so that the skimpy chassis was almost entirely unbraced; but fairly stiff springs, in conjunction with low unsprung weight, gave very reasonable roadholding. The low unsprung weight was ensured by beaded-edge tyres (820×120) and very skimpy rear-wheel brakes only. Electrics, though present, were frankly an afterthought. With a slim but comfortable open 4-seater aluminium body the car

was capable of 85 m.p.h. in full touring trim, and cruised well into the 70s. Excellent acceleration was available without gear changing, and braking was largely nominal, though no worse than its contemporaries. It was a remarkable feat that the E type, in full touring trim weighed only 22 cwt., and to this it undoubtedly owed much of its charm.

And even when the "30/98" developed front-wheel brakes and overhead valve in 1923-24, it still remained in essence an Edwardian until its demise in 1928; the last, and a magnificent, monument to a past age.

In sharp contrast is the 1921 37.2-h.p. Hispano-Suiza. Admittedly outside our "syllabus," it was an epoch-making event. The 6-cylinder engine was largely constructed of aluminium, and had an efficient head and overhead camshaft. The chassis was stiff by existing standards, as was necessary in view of the revolutionary braking arrangements. Large-diameter drums, with servo-operated shoes, appeared on each wheel, and retardation was practically up to modern standards. Electrics were designed with the car. Although fairly slow revving, the power output was respectable and the engine was so highly flexible throughout its range that only three speeds were provided. It is true to say that this 1921 design has never become out of date nor been surpassed, and in the matter of smooth performance, comfort, braking, roadholding and light engine construction it set the pace for all other manufacturers. It is only fair to state that Delage was not far behindhand with a somewhat similar 40/50-h.p. model which, if more could be ascertained about it, might also be proved to deserve a high place in motoring history. In conformity with Delage production practice the 6-cylinder engine had push-rod operated valves.

The 1913-14 racing car had the makings of a very promising sports car; especially the German machines. The Henri School was rather more specialised, with its ball main bearings, gear-driven double o.h.c. and peculiar lubrication. But the 1914 G.P. Mercedes, for example, had only one camshaft, shaft driven, and operating four inclined valves per cylinder. The crankshaft was entirely a plain bearing affair. The Henri type of machine was very noisy mechanically, but the Mercedes was commendably silent.

So when W. O. Bentley decided to go into production on his own account he called in Burgess, who had designed the 1914 T.T. Humber, to do the technical designing. The very beautiful Humber had fairly closely followed the Henri fashion, but for the new Bentley, Burgess conformed more to the German fashion, the actual details of the design being too well known to repeat.

Very shortly, the Bentley appeared with a full-scale outfit of brakes, and the vintage sports car *par excellence* had arrived. In standard "red-label" form the 3 litre probably developed around 84 b.h.p. at 3,500 r.p.m., equivalent to some 28 b.h.p. per litre and 104 b.m.e.p., the piston speed being the high one of 3,500 f.p.m. On the standard 3.78:1 axle ratio this gave a cruising speed of 65 m.p.h. at 2,500 r.p.m. The power low down was rather poor, necessitating free use of the close-ratio gearbox; this was in strong contrast to the performance

of the "30/98," and was the penalty paid for the rather higher efficiency of the engine. The chassis weighed 23½ cwt.

The brakes greatly increased the unsprung weight all round and this was one of the major problems which the vintage designers had to face. With the somewhat flimsy, lightly-braced chassis then fashionable, the heavy new axles were rather apt to behave like the tail that wags the dog. But rather than face up to stiffening the dog, designers preferred arbitrarily to limit the oscillation of the tail. This they did by shortening and stiffening the springs, and draping them with copious shock-absorbers. They also stiffened the chassis to a very small extent; but owing to the quelling of the proper suspension the chassis had to absorb a large proportion of the road shocks, and it became very difficult to produce a body which did not rapidly disintegrate. It also became necessary to provide the engine with a three-point or flexible mounting.

It was a brutal arrangement, but it did provide good roadholding, and though the Bentley has very well-informed critics, I continue to maintain that its roadholding and cornering were excellent. In addition, the Bentley was able to run immense distances between overhauls, and to withstand any amount of hard driving without complaint and without requiring endless minor attention.

I think it is no exaggeration to say that the Bentley dominated the 1925-30 period, and the great Continental houses produced nothing to approach it. Now-

adays, the tendency is to keep the revs. up and piston speed down. With the Bentley this was reversed, and the emphasis was on low r.p.m. The arrangement was not conducive to high specific output, but it gave a very pleasant type of performance and was certainly conducive to exceptional longevity. [The "24/90" Straker-Squire Six, in much smaller construction, bore an even closer resemblance to 1914 G.P. Mercedes practice, and merits mention. Its 80 x 130 engine (4-litre) gave 80 b.h.p. at about 2,500 r.p.m., and the 4-seater weighed 25 cwt., doing 85 m.p.h. on a 3.65 top gear.—ED.]

Despite its more advanced design it was natural that the Bentley should be unable to cope with the 50 per cent. larger "30/98," so about the time when the "30/98" faded out of the picture, the 4½-litre Bentley came in. It aimed to combine the characteristics of the "30/98" and the 3-litre Bentley; and although the standard 4½ was not a car of any great character, it certainly achieved this aim with considerable success. The standard engine developed 115 b.h.p. at 3,500 r.p.m. (25½ per litre and 95 b.m.e.p.). Owing to its shorter stroke compared with the 3-litre (140 instead of 149) and its 3.53 axle, its comfortable cruising rate was up to 75 m.p.h. And the engine was capable of very considerable development without tiresome results; which was not true of either the 3-litre or the "30/98." It was undoubtedly a very good car. It is often done to compare it with the "30/98,"

but this is a silly thing to do. Despite their superficial similarity they are fundamentally different in outlook, and, anyway, the "30/98" had practically gone out of production before the first 4½-litre Bentley was sold over the counter.

So much for the absolute epitome of the large vintage sports car—the 3- and 4½-litre Bentleys and the E and OE "30/98s." They were the ultimate development of the best of Edwardian touring and racing practice. Had the abortive H-type Vauxhall gone into production it would almost certainly have surpassed them all, being, as it was, a direct development of the inspired double o.h.c. G.P. car. But the directors most mistakenly turned it down.

In the meantime, the Continent was producing few, if any, genuine large sports cars, though there were one or two very pleasant, fairly high performance, large, 4-cylinder sleeve-valve jobs, around the 4-litre mark, such as the Voisin and Peugeot, and one should, perhaps, mention Lorraine-Dietrich, Delage, Chenard-Walcker, "22/90" Alfa-Romeo, and one or two others who turned out respectable machinery. America had dropped right out of the picture except, perhaps, for the large Stutz.

In a moment we shall have to go back and see what has been happening to the 1½-litre jobs, but first of all we must consider a newcomer on the scene, in the early 1920s. This is the fast tourer of around 2-litre capacity; it is a very important event, because it was the one type to survive the vintage era and

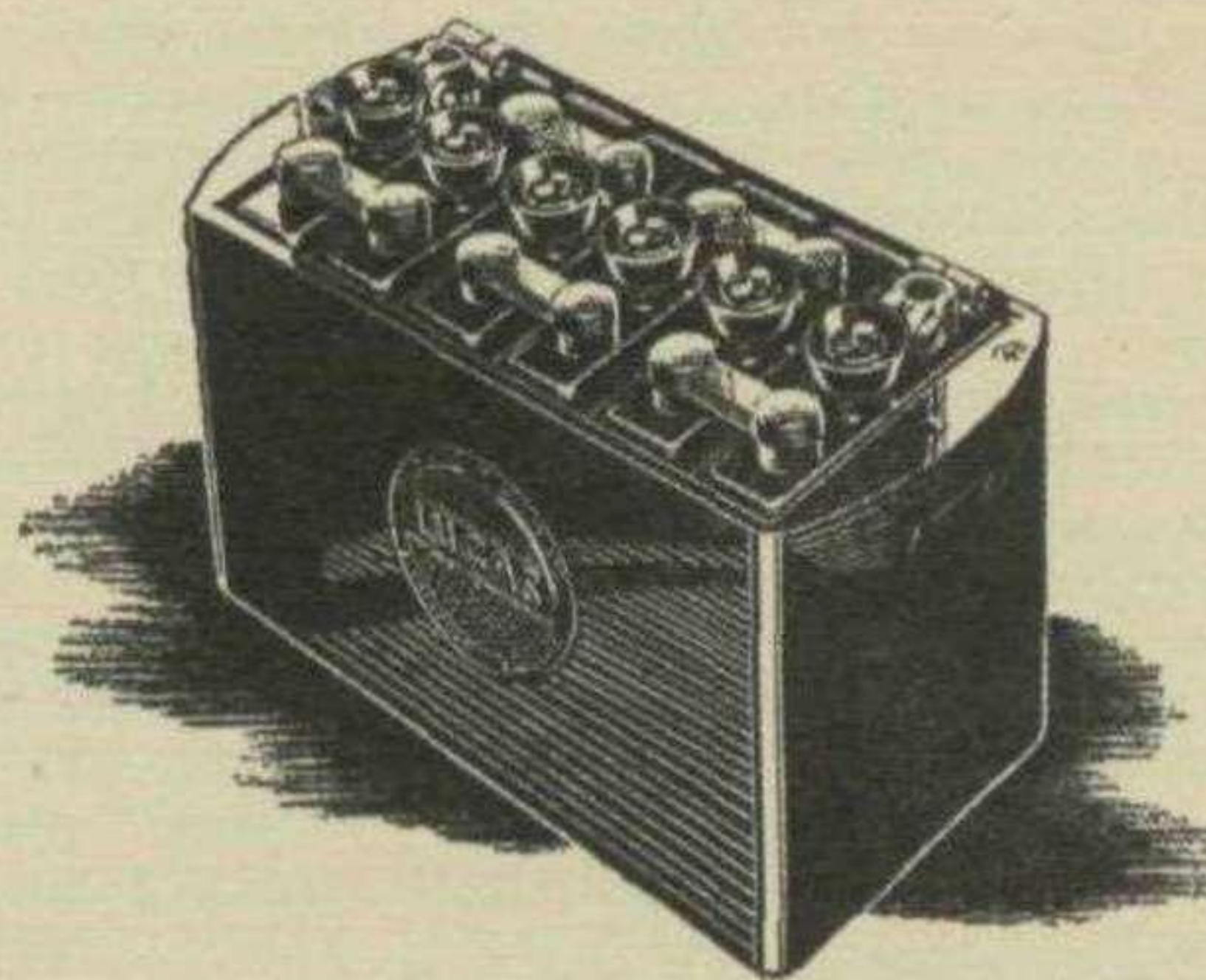
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become the normal sports car of to-day. There were quite a lot of people who hankered after the general characteristics of the true sports car, but either they could not afford to run the real thing, or else they required more accommodation, or both. In the Edwardian era this would have meant that they would have had to go without, but the new progress in specific output gave them a very respectable compromise. Now that 30 b.h.p. per litre was a perfectly practicable proposition without having to resort to rough, unreliable and intractable power units, it was possible to make a 2-litre car with quite a commodious body which had excellent braking and roadholding, a high cruising speed and, in fact, all the characteristics of the real sports job except rapid acceleration.

Examples are so numerous that one hesitates to quote them; names such as Delage, Ballot, Lancia, O.M., Diatto, Ansaldo, Schneider, Lagonda, Alvis, all spring to mind in this class, some having more performance than others, according to overall weight. Probably the D.I.S.S. Delage and 2LTS Ballot are the outstanding examples, while such jobs as the SD and SE 3-carburettor "Silver Eagle" Alvis very definitely move up into the genuine sports class, a very fine car indeed. The 2-litre A.C., introduced in 1921, was a notable exponent of weight saving, and its highly efficient o.h.c. engine (capable of 80 b.h.p. unblown as finally developed) employed a very high proportion of light alloy. Unfortunately, the ever-obstinate Edge insisted on endowing it with a hopeless 3-speed gearbox on the back axle. The Lancia "Lambda," again introduced in 1921, was the first i.f.s. job to go into large-scale production (although, of course, Sizaire-Naudin and Morgan had the idea much earlier), and set a standard of roadholding, combined with comfort, which was not to be rivalled for perhaps 15 years.

The bulk of these 2-litre jobs had fairly long-stroke engines (120 mm. would be an average figure) and few, if any, of them could safely exceed the 4,000 r.p.m. mark at most. Most of them were geared at about 20 m.p.h. per 1,000 r.p.m. so that they could cruise comfortably at 60 m.p.h. They were, in fact, an exceedingly good sort of car, and it is no wonder that they catered for a large and enthusiastic public which has continued until the present time.

Going back to 1910, we left Bugatti introducing the modern small high-efficiency sports car in the shape of his 1,327-c.c. Type 13. This continued, practically unchallenged, until the last war, being joined by the slightly larger (1,453-c.c.) 16-valve Type 22 in 1914.

But people at Brooklands were beginning to find that they could attain as much as 100 m.p.h. on 1½-litre cars, provided they were very careful about frontal area and wind cutting generally. The streamline shape of to-day was undreamt of, but back in 1910 the Pomeroy-Vauxhall faction had been doing pioneer work with excellent results, rapidly followed by others.

These Brooklands small cars usually employed quite ordinary s.v. engines, and it is really remarkable to consider the speeds they attained. Such makes as Hillman, Horstmann, A.C. and s.v. Aston-Martin come to mind, but from

1924 onwards the Anzani-Frazer-Nash was the unquestionable pick of the bunch, one of the outstanding cars of all time. From our point of view the whole business can be boiled down to one thing—the 1½-litre Anzani engine. Weighing around 166 lb. it was capable, at best, of putting out 40–47 b.h.p. and had excellent low-speed torque besides. It was in every way a perfectly normal 69×100 side-valve engine with three main bearings, a detachable head and single carburettor with porting cored through the block, like the E type "30/98." While not conducive to the highest efficiency, this arrangement has the considerable merit of providing a very stable mixture. Maximum speed varied up to 4,500 r.p.m. according to the type of rod fitted. It was an altogether outstanding power unit and was the favourite among manufacturers employing proprietary engines.

These Brooklands achievements led enterprising manufacturers to adapt the cars for normal production and they marketed cars weighing not more than 12 cwt. with light narrow bodies, but with some pretence at what we now include in complete touring equipment. This gave performance in the order of 15 seconds for 0–60 m.p.h. Both from a performance and equipment point of view this represented a vast improvement on any previous attempts to get high performance from a light car.

In the meantime, Bugatti had advanced (in 1923) to the famous Type 23, "Brescia." In "Full Brescia" form, this was to all intents and purposes a scaled-down racing car, and very much a matter for the enthusiast. The English type of sports car, owing to the flexible Anzani engine, mostly had only three gears, but the "Brescia" had four very close ratios upon which it was quite difficult to obtain peak revs. in third, let alone top.

And so we find the same state of affairs as existed in the large-car class in 1913, when the new, high-efficiency, o.h.c. Peugeots met the old style of sports car, and showed only a slight advantage. The same thing happened when the Bentley and "30/98" crossed swords in the middle 20s. Here, again, we have the high-efficiency Bugatti engine meeting the simple side-valve, and showing only a very slight advantage.

But, again, the Anzani engine had reached the end of its tether (I believe that no artifice known to man has been able to coax more than 55 b.h.p. from an unblown Anzani), while the "Brescia" engine was only at the beginning of its potentialities. The "Brescia" is, I believe, capable of putting out as much as 70 b.h.p. unblown, after proper attention. The Bugatti high-efficiency cult was followed in the racing field by Talbot-Darracq, o.h.c. Aston-Martin and A.C.

So people begin to turn their attention to the potentially high-efficiency engine. But as soon as they got a little more performance they tended to offer their public a little more comfort, and when the public had got a little more comfort they demanded greater smoothness and reliability from the engine. And finally came the additional burden of fat tyres and front-wheel brakes. So light-car performance improved but little from 1924 onwards, and we shortly find ourselves arriving at such admirable compromises as the Meadows-engined Frazer-

Nash, "12/50" Alvis, Type 40 Bugatti and o.h.c. Aston-Martin. The latter could give 80 b.h.p. with a 9:1 c/r and amazingly smooth performance. It was a pity the car was so heavy. The other three were offering around 50–55 b.h.p. (but somehow it was rather a better sort of 50 b.h.p. than the Anzani's 47!), and total weight was up to 15 or 16 cwt. Maximum speeds varied from 70 m.p.h. up to 87 for the best 'Nashes. Comfort, equipment and braking were up to very respectable standards. For the super-enthusiast there were the fastest 'Nashes and the Type 37 Bugatti, formidable cars indeed even by present-day standards. So by 1927 the 1½-litre vintage car had reached its peak of development, and it continued with little change until the end of the vintage era. The Continent, again, offered little serious competition, but as engine output improved the same sequence of events took place with, first, the 1,100-c.c., and lastly the 750-c.c. class. In the "1,100" category the French appeared with several rather spidery but rapid vehicles, of which the o.h.c. Salmson achieved the greatest popularity in this country. Better still was the Riley Nine in its various stages of development up to the "Brooklands" model. In the "750" class we had it our own way with the Austin Seven, and with the M.G. "Midget"—first the M-type and then the very exciting "Montlhéry" model—a most desirable property.

We have now dealt with all three categories of the traditional 4-cylinder vintage sports car—the light car, the large car and the medium-sized fast tourer. Both in the light and the large classes the English were unquestionably on top of the world; among the fast tourers, the honours are more equally divided between us, the French and the Italians. In 1930–31 everything went mad, and the vintage tradition disappeared as suddenly as though the earth had swallowed it up. But before going on to the next stage, we must see how its seeds had been sown and had slowly matured throughout the 1920s.

What we have to look for is the beginning of the modern, really high-output, high-revving, multi-cylinder engine.

In 1913 M. Bugatti had experimentally stuck together two Type 13 engines in line astern, so achieving a small (2,650-c.c.) straight-eight. During the war he worked on the straight-eight aero engine, and with him worked M. Henri, already famous for his revolutionarily successful Peugeots.

Like Handel, Bugatti has always been a big enough man to exploit other people's ideas—it was, if anything, a compliment to them. But this time the trick was played on him. In 1919 M. Henri went to the new Ballot firm, and here he produced the Bugatti straight-eight arrangement, but in conjunction with his own high-efficiency, double o.h.c. head. (In passing, it was a strange coincidence that two men with such strangely distorted ideas on lubrication should have worked together!) His 1919 5-litre, straight-eight Indianapolis Ballot has been the undoubted parent of all subsequent racing-car design, up to the present day. It is certainly a most inspiring and desirable machine. The Alfa-Romeo shows unmistakable signs of its paren-

which must be allowed for in the damping mechanism."

He might have added that the more flexible the springs, the stiffer must be the chassis, if all sorts of conflicting periodicities are not to get moving around; also that the more flexible the springs the lower must be the centre of gravity if the car is to be reasonably stiff in roll (this, of course, is where all American cars fail so catastrophically).

Let us see how designers took note of the new German precedent to produce a new type of sports car, overcoming the difficulties which had been besetting them in the early 30s.

Chassis.—Starting with the German G.P. machines, designers fulfilled these requirements by very stiff chassis. Unsprung weight they reduced in every way possible, but particularly by discarding the semi-elliptic spring and the front-axle beam in favour of an independent front layout. The bouncing tendency of the wheels was looked after by large-absorption-capacity hydraulic shock-absorbers, as opposed to the old, very stiff friction variety (albeit, right up to the war, very few hydraulic absorbers had anything like the efficiency and durability they should have done. With the advance of design under war conditions it seems likely that, before long, suspension units will be a sort of pneumatic-hydraulic shock-absorber, the spring itself entirely disappearing). Now that the road wheels moved freely, and closely followed the road surface without bumping everything else up and down with them, there was no longer any great objection to a forward engine mounting, and this new redistribution of weight towards the extremities made the cars slow to alter direction, so that there was no longer the need for the very high-g geared steering of earlier times.

Engine.—This has branched out in two directions. A much refined edition of the long-stroke engine has grown up, giving excellent low-speed power. A very high overdrive looks after effortless cruising. This may be semi-automatically engaged, as done by the Americans, or assisted by some easy-change mechanism, such as the self-change preselector, synchromesh, or the electric Cotal box. The Mark V Bentley is undoubtedly the outstanding example of this class of car.

In some makes a definitely vintage type of engine has persisted, fairly rough and inflexible, and of fairly long stroke. The French 4-litre Darracq and the 3½-litre "Competition" Delahaye are the outstanding examples of this school. Furthermore, although adopting front-end independent suspension and a stiff chassis, the old-fashioned leaf spring is retained, and the amplitude of spring movement is not great. The Darracq and Delahaye may be counted as the last surviving cars in the real vintage tradition. One must not, however, forget the H.R.G., which is pure vintage, and has proved the continuing appeal which that kind of car holds by the successful reception with which it has met. Both as to chassis and engine, Bugatti has struck out his own line as usual. Neither typically vintage nor modern, his 57C and 57SC must be counted among the most successful, if not as absolutely the most successful high-performance cars of the present day.

A few cars have followed up the logical

line of engine development—the short-stroke, multi-cylinder job, both blown and unblown. Outstanding are the V12 Lagonda, Lancia "Aprilia" and Fiat range. It is strange that both the super-efficient modern supercharged cars—the 57 Bugatti and the 2.9-litre Alfa—should have the rather long stroke of 100 mm. Nothing more than 85, or 90 mm. at most, can count as short stroke, while it seems to have been established that the ideal bore-stroke ratio should not exceed 1 to 1.25. The short-stroke engine is content with low b.m.e.p., but comfortably surpasses the long-stroke engine on output per litre by virtue of the high speed which it can attain and sustain without risk or effort, by dint of its short stroke. Equally, it develops its power very much more smoothly and silently than the long-stroke engine, which gave off its power in large lumps, rather widely spaced. So far as supercharging is concerned, the indication seems to be that it is only worth while if laid on at a considerable pressure, otherwise it hardly compensates for the added complication and cost, and for driving itself around, especially at cruising speeds. The short-stroke engine generally demands fairly close-ratio gearboxes, but this is now looked after by the various easy-change devices.

Bodies.—Advances in streamlining have shown that ample body space can be provided, not only without loss of efficiency, but actually with greater efficiency than the old narrow vintage style of coachwork. This, of course, has put an emphasis on the saloon body, and body weights have gone up. This has an adverse effect on acceleration up to about 50 m.p.h., but the increased use of light metals, multi-ply or plastics, will probably catch up on this snag before long. The effect of a fully streamlined body on high-speed cruising and acceleration, and on running costs, is phenomenal. The only sacrifice it calls for is somewhat limited headroom.

Unquestionably the first modern sports car, in every sense of the word, was the B.M.W., which was in successful operation almost as soon as the 1934 German G.P. machines, and in the view of many people the Type 328 remains the outstanding sports car of the present day. Perhaps even more outstanding are the streamlined 1,100 and 1,500 c.c. Fiats which were coming on the market when the war started. An excellent example, too, is the Lancia "Aprilia" although, as with the 2.9-litre Alfa and the 540 Mercédès, the rear independent suspension proved to produce more ills than it cured. The De Dion layout certainly seems to be the coming thing, for the back end. These machines are in the tradition of fast tourers, rather than out-and-out sports machines, of which I am afraid we shall see less and less in the future.

The old, medium-sized, fast tourer of the vintage era has, of course, survived, and perhaps the best example of all is the D.670 Delage, a worthy successor to the D.I.S.S. Its fairly lazy, short-stroke, 2.7-litre, 6-cylinder engine (80×90.5) develops 83 b.h.p. at 4,000 r.p.m. (a piston speed of only 2,400 f.p.m. at a road speed in top gear of about 78 m.p.h.) which it seems able to keep up almost indefinitely and in complete silence. With ample body space it affords superb

steering stability and roadholding, in conjunction with luxurious comfort. The engine is highly flexible, but free use of the gears is also encouraged by the delightful Cotal gearbox. It is certainly one of the outstanding cars of the present day, while the bored-out 3-carburettor, 3-litre edition must be exceedingly potent. Even the single-carburettor D.670 has a maximum of nearly 90 m.p.h. with only a semi-streamlined body. This is really a very fine achievement. Other good examples of advanced design are the light 15 Citroen and Types 320 and 327 B.M.W. England has some effective fast tourers, though not of outstanding modern layout. The Rover is, however, in my opinion, one of the outstanding cars of the present day, both as to comfort, finish, performance, smoothness, roadholding, cornering and, above all, value for money. Like the Bugatti, it is a wonderful example of what can be done with a conventional chassis layout and non-independent springing. On every head, it can hold its own with any home-produced or foreign machines up to twice the price, and with considerably larger engines. It and the Delage are certainly in a class by themselves.

While I think it is clear that, with the present state of knowledge, it is possible to produce really practicable road cars capable of between 130 and 150 m.p.h., there are so many factors militating against the use of such a high performance that I am afraid that we shall see increasingly little specialised sports cars, at present mainly represented by Bugatti and Alfa-Romeo. Engines such as the "1,100" Fiat, and the V12 Lagonda show that 40 b.h.p. per litre is compatible with quite straightforward methods of construction, smooth operation, durability and economical running. Such outputs, in conjunction with utility streamlining, indicate that 85–90 m.p.h. are within the reach of the 1-litre car, and 115–120 m.p.h. within the scope of the 3-litre. When performance of this style is available from a type of car compatible with fairly mass production, appealing to a large public, it seems that there is increasingly little call for the expensive specialist job. The fact is sad, but a fact I am afraid it is. Something closely related to the Fiat, Lancia, Citroen, B.M.W. and Delage is, I firmly believe, the sports car of the future. Superior chassis design and streamlining are the characteristics likely to pick the sports car out from its fellows; high engine efficiency is no longer likely to be the outstanding factor.

When speaking of these up-to-date designs, one must also add that too many so-called sports cars continue to wallow in the slough of 1930–35 despond, and it is curious that when vintage and modern cars are being compared, it is so often this retrograde class of car that is cited in support of modern superiority. They are, of course, entirely contemptible.

Now that modern and vintage characteristics have been so closely compared, it might, perhaps, be in place to try to draw up an unbiased resumé of their respective merits. I suggest that the position might be summed up as follows: (1) the best modern sports cars are better than anything of the vintage era; (2) the best of the vintage era is still able

Continued on page 124

Racing with a K3 M.G. MAGNETTE

H. J. P. Williams's experiences of an ex-Mille Miglia car in races and on the road, recounted by Roy Jackson, his engineer.



"K 3001" was one of the team cars to run in the 1933 Mille Miglia, being driven by Lord Howe and the late H. C. Hamilton. After the race the car came back to England. Again it went on its travels, this time to Germany in the hands of Kohlrausch who, incidentally, ran it in conjunction with his J4 M.G. "Midget" in a large number of Continental races, and especially hill climbs.

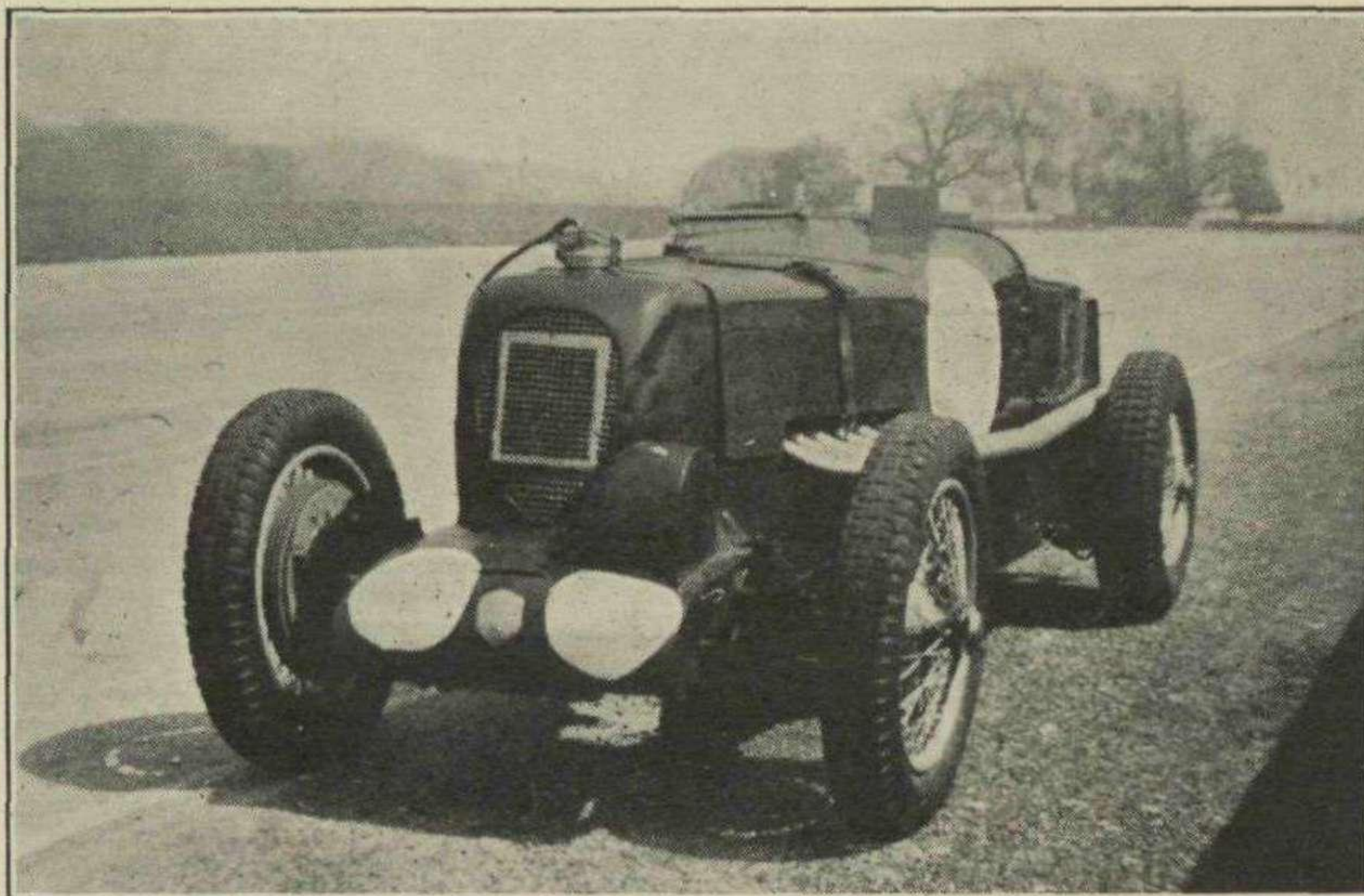
During 1934 Kohlrausch ran the car successfully, at the conclusion of which season it came back once again to Abingdon-on-Thames.

It was at this juncture that H. J. P. Williams—who was to be the next owner—decided that a K3 M.G. Magnette was the ideal motor-car with which to combine fast road work and racing.

I contacted the M.G. car company, on behalf of Williams, and was informed that "K 3001" had landed back in this country and was to be offered for sale, and would I care to come down to look it over? In due course I arrived at Abingdon and was ushered into the competition department where "K 3001" was standing in what appeared to be a sorry condition. Five badly-worn racing Dunlops, inclusive of the spare, were fitted. The white paintwork (Germany's "colour") was in bad condition, having a large area covered with tar splashes; the exhaust manifold and pipe were covered with rust, having no doubt accumulated during the journey. Altogether not an enviable sight.

We discussed the price and what should be done to the car prior to it being collected. It was agreed that a complete overhaul and repaint should be carried out, the car at the same time being made suitable for road use. Prior to signing on the dotted line I had to contact Williams to convey my impressions which, judging by the way his face lighted up with enthusiasm, must have been most favourable. Needless to say, Williams decided to purchase the car, and the day of collection was eagerly awaited.

Notification that the car was ready was eventually received, and Williams and myself proceeded to Abingdon in my J3 Midget, arriving at about 11.30 a.m. on a Saturday morning. As I had been down to M.G.s on various occasions I knew my way around the works, so we drove straight into the despatch bay where Midgets and Magnettes (Midgets predominating) in every conceivable colour, were lined up ready for collection. As we entered a crowd was stand-



ing around a car which was in the middle of the floor. We drove up to the crowd, and there in the centre of the admiring group was "K 3001." What a transformation! In place of dishevelled white paint was a glistening British racing green. The front axle beam, track rod and drag link were polished. The brake drums had been polished and glistened behind the wheels in their new aluminium paint. The exhaust manifold and pipe had been blackened, and at first the exhaust system looked strange. It was then observed that there was no silencer. A straight-through pipe ended in an enormous fish-tail which, ultimately, cost a fortune to be kept full of pan scrubbers. All the business transactions regarding the car had been previously dealt with, and all that remained was to sign the receipt of delivery. This done it was decided to start the car and wend our way towards London, where we had decided to spend the week-end.

Suddenly remembering the necessity of having a spare set of plugs, we suggested this, and were informed that it was now after mid-day and the stores closed. Fortunately, I was carrying about twelve spares for my J3—knowing its own capabilities for oiling them in traffic.

Williams jumped into "K 3001," switched on, pressed the starter and the sudden staccato roar reverberated around the despatch shed. With a tank full of 75 per cent. Benzole, 25 per cent. No. 1, and a voluminous cloud of castor oil smoke he engaged bottom gear and slowly ran out of the shed on to the road to Oxford.

I followed in the J3, and we cruised slowly along the Oxford-London road at a steady 55-60 m.p.h. Nothing of any consequence occurred until we entered Oxford Street, W. I was in the lead, with Williams hugging my tail, when No. 6 plug on the Magnette oiled up. We came to rest at a set of traffic lights, myself in the front of the outside line of traffic, when Williams gave the Magnette a burst, hoping to clear the offending plug. The resultant "bark" had the effect of galvanising all in the immediate vicinity on either side of the street to

The ex-Mille Miglia K3 M.G. Magnette at Donington. Amongst its successes in H. J. P. Williams's hands were a 3rd in a Southport 25-mile race; 1st in a Southport 75-mile race; f.t.d. and course record at Wetherby and the Southport flying kilo at over 100 m.p.h.

the spot with heads turned towards us. I looked up at an omnibus, on our inside, and was rewarded with a marvellous view of an array of faces with noses hard pressed against the windows. The lights changed to green and the street was clear to the next set of lights. By the time the 'bus had begun to move I was on the other side of the crossing just getting into 2nd; again "K 3001" was immediately behind, still trying to clear the plug. The J3 was far from being quiet, and the combination of exhausts by the time we both "bore down" on the next set of lights, which happened to be our destination, Berners Street, was justifiable of a conviction! We proceeded sedately down Berners Street with the plug cleared and tucked the cars away for the night.

The next day we set out for the North, and noticed then how effortlessly the Magnette responded, or would have responded if allowed, to the throttle at between 60 and 70 m.p.h. Temptation was overcome, and the tedious job of running fairly slowly for 1,000 miles or so was adhered to. The prescribed period was soon over, and although the engine felt fairly free during this period, the fact that all main and big-end bearings, pistons and rings were new had to be considered.

During this slow period the M.G. Car Company, Ltd., forwarded the second set of plugs which they had promised. These were as originally fitted, KLG.718C, which for normal road use were satisfactory if kept spotlessly clean. When we were satisfied that the car was free the taps were turned and these plugs failed on hard driving. Subsequently, we found Champion JA.11, which I had been using for some time on the J3, to be most satisfactory. These were used for all road work and racing. If kept very

clean they withstood quite an amazing amount of oil.

Since our days on J2 Midgets we had had a $\frac{1}{4}$ -mile measured out on the Buxton-Ashbourne road which, although slightly downhill, served admirably for our test runs. The police had a pretty shrewd idea of what we were up to when, on several occasions, they steamed past in their Austin Ten and saw a conglomeration of people and cars on the grass verge, with enquiring heads under bonnets. Anyway, we were always lucky! Our timing was primitive, two stop watches, one at either end of the measured distance.

On initial runs with full road equipment and the original Powerplus supercharger, 75/25 benzole-Ethyl which was always used when in road form, and the engine clean internally, the maximum was not in excess of 103-105 m.p.h. The Powerplus supercharger only gave a pressure of 11-12 lbs./sq. in., and the car was, consequently, dead reliable, as was later to be proved, and with the full weight of road equipment this performance was good for a 1,100-c.c. engine. Coupled with this was the confidence inspired by the superb handling qualities, and the excellent roadholding, coupled with good brakes. As time went by several points asserted themselves, which, together with certain modifications carried out from time to time, will be enumerated below, and kept together for the sake of clarity:

The cam drive spring coupling was found to be free from fracturing if fitted carefully, so avoiding any distortion. Otherwise, the spring discs fractured easily.

The front oil drain pipe to cylinder head face joint always leaked unless a very soft packing was used.

The h.t. wires were fitted with "snap-on" terminals. This proved to be a source of great satisfaction.

The S.U. float mechanism allowing automatic feed to the sump from an auxiliary tank in the scuttle was most unreliable, due to foreign matter getting between the needle valve and seat and allowing flooding. This was never used, after having been let down numerous times.

The twin "Autopulse" fuel pumps appeared to operate every "Preston guild." These were scrapped in favour of a pressurised tank. An outside pump, hand operated, was used.

The front springs were too soft. A broken shock-absorber bracket was the first intimation of this fault, resulting in Williams retiring in the 1936 International Light Car Race in the I.O.M. They were reset with an extra second leaf—so relieving the shock-absorbers—curing the trouble.

The Powerplus supercharger was removed in favour of a Centric. This gave a pressure of 12-14 lbs./sq. in. The power in the lower ranges was improved vastly, and maximum speed was increased.

The braking system was powerful and smooth, but we invariably suffered slight binding. This was due to drag of the inner cables and the consequent inability of the brake shoe springs to overcome this through the operating cams. Subsequently, after much patience had been expended, we fitted "pull-off" springs

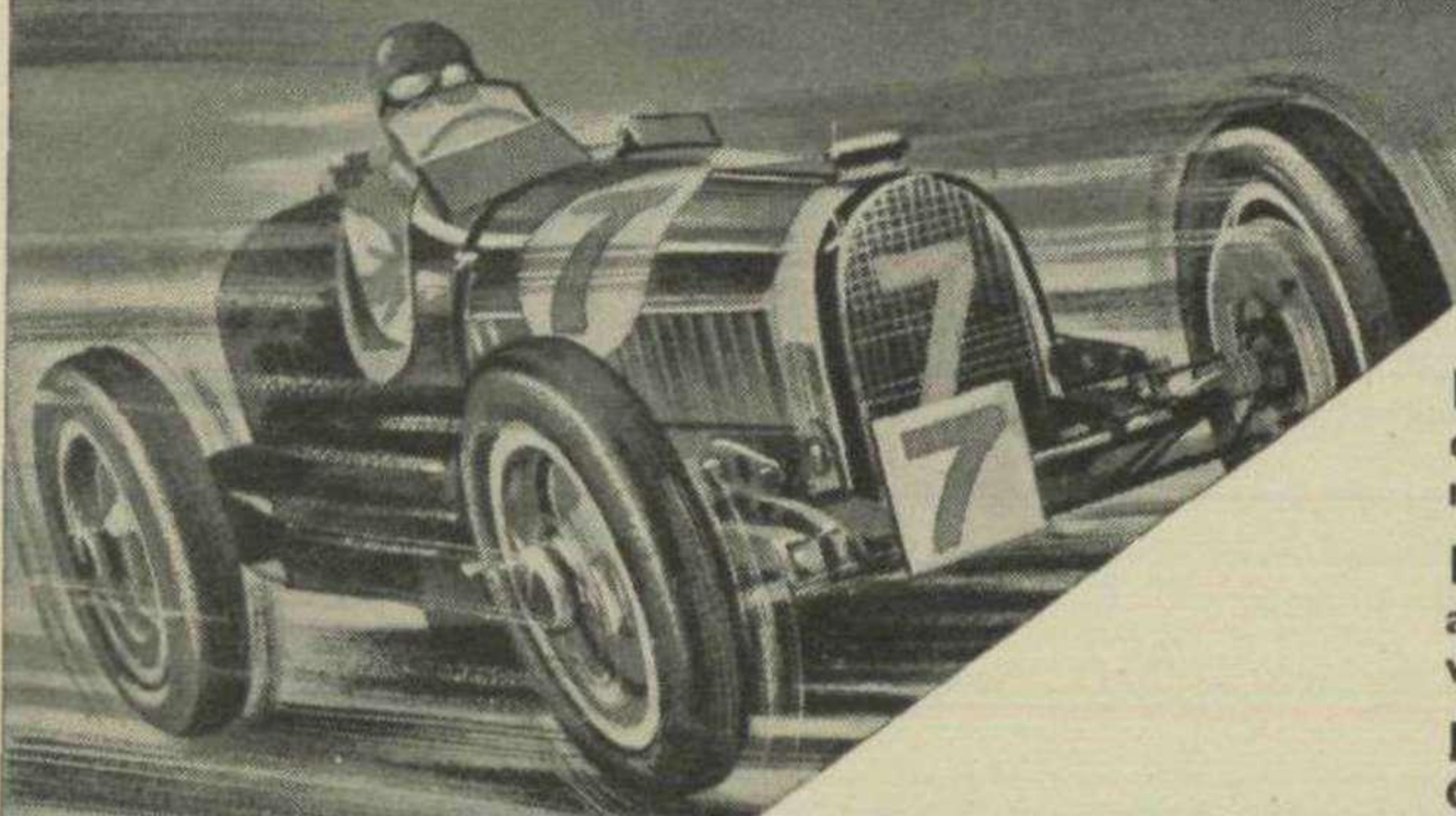
attached between the operating cam cranks and a suitable outrigger anchorage attached to the brake backplate. As brake shoe springs were used for this purpose the braking system became, naturally, much heavier, but the trouble was thoroughly cured. The most essential modification was the moving of the brake cable adjustment locking nut from the front of the anchorage to the rear. By doing this the pressure, which was otherwise on the adjustment thread, was taken on the face of the lock nut abutting against the anchorage. The necessity of this was observed when Williams was proceeding at a high rate of knots bearing down on a corner, and upon applying a fair measure of brake an adjustment pulled through the anchorage on the off-side front wheel. Fortunately, after a few gyrations a degree of control was obtained. It was found upon investigation that the anchorage had expanded, due to braking pressure on the outer cable, so allowing the adjustment to "jump" the threads.

The rear axle hub bearings were rather too small. These were renewed many times as, when slight wear had taken place the wheel went off dead alignment, and the felt oil-retaining washer was unable to cope with resultant oil on the rear brakes. (I experienced the same trouble on my J3 and J2 Midgets.)

The divided track-rod gave superb handling qualities. These were exercised to the full when the car was motored over the Derbyshire roads.

The single set of double Hartfords on the front and the double set of double

SHELSLEY



REMEMBER the hill, and the grass on its side, and the mud when it rained . . . ?

REMEMBER the tent near the top, and the "Swan" at Tenbury afterwards . . . ?

REMEMBER the "pips" from the Orchard, and the waiting at the Hairpin till he came—and went.

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precision that wins

Hartfords on the rear were somewhat of a nightmare to keep in accurate adjustment in the Derbyshire climate, rain, snow, frost and heat (comparatively!) all being probable within two days. Although not affecting the understeering qualities of the car to any extent, the tolerance of understeer was remarkably small even with drastic shock-absorber variations; the front shock-absorbers, if adjusted in excess of the optimum tightness, would give rise to synchronous front wheel bouncing which was tiring to one's arms over even a short, but fast, journey. When the shock-absorbers were in perfect adjustment a complete absence of kick was achieved.

Water and oil temperatures under hard driving conditions were approximately 95-98°C. and 60°C. respectively.

In place of the 4.75×19 in. tyres on the rear, 6.50×16 in. were fitted. The front remained at 4.75×19 in. The improvement gained by this change was most marked with regard to roadholding, at the same time making the car less susceptible to shock-absorber adjustment.

After many miles covered with the Centric supercharger fitted, it was found that far fewer plugs had been changed due to oiling.

The Wilson gearbox was most reliable. The only failing was the burning out of bottom gear once (during the entire running of the car by Williams). In view of 1st gear acting as a clutch on all starts—there was direct coupling between engine and gearbox—this was remarkable. Granting an increased drag factor for these boxes, as well as an increase in weight, the fine handling qualities far outweigh these two detriments. Over undulating and twisting roads necessitating frequent gear changing, the advantages of these boxes soon became apparent, both to the driver and in respect of performance.

The brake adjustment wheel, mounted at the rear of the gearbox remote control casting, required gentle handling if used when the car was in motion. This adjustment acted on the brake cross-shaft, and if indiscriminately used, resulted in all the brakes binding.

No trouble was ever experienced with cracked cylinder heads, although a degree of distortion of the cylinder head face was observed every time the head was lifted. Strictly adhering to a fuel mixture standard prevented this common failing, as no experiment of road fuels was ever carried out, the aforementioned benzole-Ethyl mixture being used permanently when in road use.

K.E.965 inlet and exhaust valves were used, and the original cylinder head was in service when the car was eventually sold by Williams in 1937. The valve seats had been "crowned" almost up to a maximum, and that this state of affairs existed after many valve guide renewals was due to very careful valve guide fitting necessitating much trial and error to ensure the minimum amount of metal having to be cut from the seats to ensure a perfect seating.

Two complete sets of main and big-end bearings were fitted during the two complete overhauls which we gave the engine. Upon examination all the bearings were found to be cracked; the centre mains in both instances were beginning

to break up, and the rear main bearing journal was very badly grooved as well as showing signs of ovality. These bearing conditions obtained both times that the engine was stripped. Although the main oil pressure was low, about 55 lbs./sq. in. normal instead of 90-100 lbs./sq. in. normal, this was due to the bad condition of the rear main bearing, and the normal pressure was restored upon reassembly.

When the engine was initially stripped the rotating mass assembly was balanced dynamically by a firm manufacturing dynamic-balance-machines. They took infinite trouble while carrying out this work, and the result was a perfect range up to 7,500 r.p.m. Williams usually limited himself to 6,000 r.p.m. on the road, although 7,500 r.p.m. was used at Wetherby, quite happily.

The normal top gear ratio 4.89 to 1 was used on all occasions, and for general purposes was found to be an excellent choice.

One experience worth recalling shows how fate steps in. In the early months of 1936, after spending the entire winter on completely stripping and rebuilding the car, we decided to have the manufacturers' circuit at Donington for a day so as to pack as many miles in as possible and get everything nicely bedded in. For the first two hours everything went well. We were cruising around the circuit at a steady 50-60 m.p.h. accompanied by the usual scream of the straight bevel crown wheel and pinion. Suddenly, and without warning, the scream changed to an ominous grating noise. The car was immediately stopped and the ultimate examination showed that one of the differential adjusting ring-nut locking washers had come adrift, the differential assembly, consequently, gliding away from the pinion. The differential assembly was the only part of the car that had not been stripped during the winter!

Minor bodywork alterations had been carried out, as will be seen from the photograph, in the nature of a radiator cowl which had the supercharger cowl integral. Access to the carburetter was gained through a door in the grille. Although one worked blind, carburetter needle alteration was comparatively easy when the knack was acquired. A permanent tonneau cover was fitted over the passengers' compartment, greatly cleaning up an otherwise "wide open space."

During 1935 and 1936 only the minor modifications were carried out. In the winter of 1936-'37 the main modifications of supercharger change-over, with the second complete rebuild, took place. At this juncture the body alterations were carried out.

In 1935 the first race in which the car ran with its new owner was the 25-Mile Senior Handicap in the Donington July meeting. The race was won by A. H. L. Eccles's "3.3" Bugatti at 63.84 m.p.h. Williams finished 3rd at 56.78 m.p.h.

At the end of the same month the 75 miles "Jubilee" race was scheduled to be run at Southport. It will be remembered that this was a black day for the race organisers. During the previous day the tide had been higher than anticipated and had inundated the proposed course. During the night the shed in which was stored the mallets, flags, pegs, rope and all accessories for the marking

out of a course was broken into and its contents pilfered.

As though this wasn't enough to justify an abandonment of the meeting, a high wind with blinding sand was awaiting a harassed body of organisers and competitors alike.

We ploughed our way along Ainsdale beach looking for some semblance of a course, when we eventually came across a gathering of despairing officials who, in spite of all these setbacks, were determined to run the race. Consequently, the officials and drivers decided on a modified course, to suit prevailing conditions, measuring 50 miles, the course to be one of a mile in place of the more usual two miles.

The best portion of the beach was chosen and duly marked out. The surface over the mile circuit was far from being uniform. Cross gullies, caused by the tide and wind, resembled corrugated iron. Some sections of the beach were soft, soggy sand which would depreciate quickly. In spite of all these hazards the cars were lined up and the race commenced. As in all sand-racing a car appears to be progressing favourably when on solid sand and then the speed is visibly slowed, to the spectator even, when a soft patch is encountered. So it was on this day; cars appeared to motor along literally in leaps and bounds! At the end of the race the course was very similar to a tank-testing ground. Nevertheless, Williams was first home in 1 hr. 11 mins. 7 secs., having covered his 52 laps (2 laps handicap).

The car was used on the road again until the winter, when it was stripped and rebuilt in readiness for the 1936 season.

The first big race in 1936 was the International Light Car Race in Douglas, I.O.M. Although the car ran consistently at just over 65 m.p.h. for the 18 laps, retirement was necessary due to a fractured front shock-absorber bracket.

The same cause necessitated retirement in the Phoenix Park race of the same year.

It was now decided to rebuild the front springs, at the same time fitting an extra leaf. No further trouble was experienced. In the practising period for Phoenix Park, I remember, we had much fun coaxing the "Autopulse" fuel pumps to perform. We eventually made some headway, but as early retirement occurred their reliability was further unknown. On arrival home we fitted the pressure pump and eliminated further possible trouble.

During the winter the car was once again completely stripped. The Centric supercharger was fitted and the body and front fairing alterations were carried out. The green paint was thought to be a bad omen, as 1936 was a most unfortunate year, so a new coat of blue was applied. As will be seen, a decided change in fortunes prevailed in 1937.

Due to the car having a slender chance of success in International 1½-litre events, it was decided to limit the programme to more favourable events, handicap races, Wetherby, Southport, etc., where a more promising chance of success was apparent.

In the early days of 1937 we took the car to Donington where, after hiring the manufacturers' circuit for the day, we proceeded to turn many laps off while bedding in the engine. After about five hours of continual running—we stopped

at the pits quite frequently to change drivers and to make small adjustments—we decided to give the car a couple of fast laps before calling it a day. On one "full-out" run down Starkey the r.p.m. corresponded to 118 m.p.h., and considering the car still had the regulation A.I.A.C.R. body fitted, we felt satisfied with the performance.

When the car came home we decided to keep it as it was for the first Wetherby Meeting. The head was lifted, cleaned, and replaced.

The first meeting was in May and Williams put up fastest time of the day with 30.64 secs., beating H. B. Prestwich's ex-Cecchini single-seater Magnette, which returned 30.83 secs.

The second Wetherby meeting of 1937 proved to be more successful still. Good weather again prevailed, and this time the record for the course was broken when Williams returned 30.13 secs. The record had previously been held by Cummings's Villiers-Supercharge at 30.20 secs. H. B. Prestwich was again competing and, using the 6.50 in. tyres loaned to him by Williams, his best run was 30.25 secs.

A Donington meeting and the first meeting at Shelsley Walsh were unsuccessful, due to trouble being experienced with the supercharger. The vane trunnions were found to have swollen excessively due to using alcohol fuel, so seizing the rotor. Although the trouble was eventually remedied it nevertheless caused two annoying retirements. When operating on the road on petrol-benzole the supercharger was efficient and reliable.

The car was run on the road most of the summer and operating under road conditions once again, with full equipment, we were able to ascertain the true road performance. On subsequent runs over our measured $\frac{1}{4}$ -mile on the Ashbourne road the top speed under these conditions was 108-110 m.p.h., which, even though the stretch of road was slightly favourable, was a performance with which we were highly pleased. Our modifications had been carried out one at a time, and at the same time the car's inherent reliability was never impaired, and the ultimate result was a motor-car possessing all those alterations of which enthusiasts dream.

The Southport Championship meeting came round at the close of the season; once again a wet day was experienced, resulting in soggy sand which made the going very heavy. The meeting comprised several short races for motor-cycles and cars, also the flying kilometre event, and it was in this latter contest that we were most interested. The course used was the seaside leg of the circuit which, incidentally, was usually the firmer, although the initial 100 yards had been badly cut up. In these flying kilometre runs a restricted distance only is allowed before commencing the measured distance. On both his runs, I was standing on the starting line; when Williams passed me I should imagine he was doing only about 90 m.p.h., although his acceleration was decidedly retarded on coming into the loose section of sand. He disappeared into the distance and sounded to be motoring well when suddenly the ominous

bangs through the induction blow-off valve indicated a "cooked" plug. I went back to the pits, where we fitted a new set of plugs and returned for the second run.

The second run was almost satisfactorily concluded when the car began to lose speed some 150 yards from the end. When he was crossing the finishing line Williams noted that the boost gauge was down to zero. Investigation showed that a piece the size of a sixpence had blown out of one of the canvas-rubber induction pipe connections! We walked over to the timing tent and learned that the last run showed 100.70 m.p.h.

The aim of achieving 100 m.p.h. over the kilometre had, even in face of bad luck, been achieved. The fastest speed recorded that day over the kilometre was 107.54 m.p.h., by Conan-Doyle's twin-o.h.c. 1,500-c.c. Bugatti, which was new.

The road equipment was once again replaced and the M.G. was used through the winter months for pleasantly covering the counties' highways.

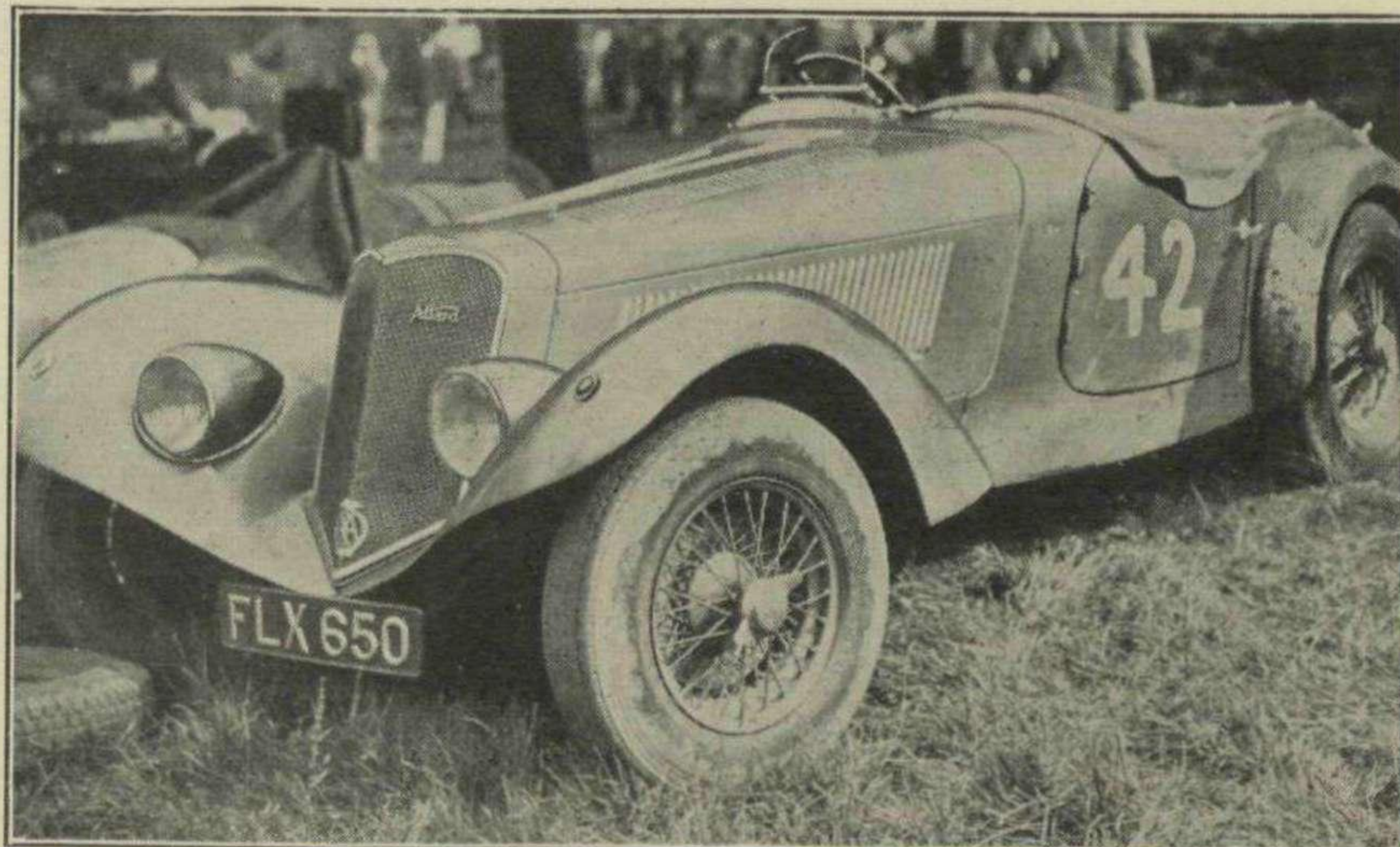
Williams then decided to give up racing and so the car was offered for sale. It was a sad passing. "K3001" had, in the main, been an evenly disposed motor, seldom showing the temperamental side of its character. It had served admirably under many diverse conditions. When running in an international 1,500-c.c. event it never disgraced itself. When running in its class it was fully capable of looking after itself. When running on the road it was unsurpassable. Altogether a pleasant motor-car!

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The bulk of this issue is taken up with Cecil Clutton's masterful article on Sports Car Evolution. To those

A Matter of History

readers who, like some schoolboys, cannot stand history at any price we tender our apologies. But we feel certain that the majority will welcome this painstaking study in which, for the first time, the origin and subsequent development of the sports or high-performance car is traced in one comprehensive and complete article. It seems evident that, whether you and I like it or not, we are about to see big changes in the design, construction and conception of the high-performance car. What the engine looks like is rapidly becoming of second importance to what the engine does, and what the chassis sounds like on paper of less importance than how it goes round corners encountered on our roads.

Before the war ends and sports cars again become something to use as well as discuss, it is appropriate that we should get a clear picture in our minds of how the breed has developed in the space of thirty eventful years. Consequently, with an eager expectancy that by the time these words are in print the Second Front will be well on the way to a successful conclusion, this survey of Sports Car Evolution from Cecil Clutton's pen could hardly be published at a more opportune time. We owe this talented young man a deep debt of gratitude for allowing MOTOR SPORT to publish something which, in the vulgar language of general journalism is, we believe, called a "scoop." It is not the first time that we have done something of this sort. The "Veteran Types" articles by Kent Karslake (which series is continued to-day by various capable writers) focused attention on the more exciting veterans even before the Vintage Sports Car Club held competitive events for them. And the more recent series of articles, commenced by Cecil Clutton and ably continued by Anthony Heal, Laurence Pomeroy and the late F/Lt. John Scafe, on "Racing Car Evolution," covering, as they did, the years 1895-1933, together with earlier articles by the Editor on G.P. racing from 1934-1937, and International 1½-litre racing from 1935-1940, collectively present a work of reference on racing car development which appears nowhere else in a form so comprehensive and yet so concise.

Clutton's present article, written, as it was, almost entirely from memory, for he is in the Service away from his sources of reference, requires no further commendation on our part. It will be read and referred to again and again by all keen students of sports-car design and by all discerning motoring historians. Whether or not it is a sign of the relative interest and appeal of the vintage as opposed to the modern car that Clutton, in his original MSS., used 21 pages of foolscap to bring us from 1908 to 1930, and only five pages to complete his survey, we will not debate! Certainly some very useful factors of comparison between a number of outstanding vintage cars are given, as well as a very fair picture of how the moderns compare with the older cars. To the minority of readers who are impatient of history and interested only in non-vintage matters we offer our condolences—and the remaining matter in this issue, much of which has been specially selected for them.

* * *

The plans laid some time ago by Dick Caesar and Walter Watkins, in association with Joe Lowrey, for production after the war of an entirely new sports car, are going along healthily. We are now able to give exclusive information of the preliminary plot. The new car is to be called the Gordano, after Caesar's home village. Two models are anticipated, a 2-seater sports job, with a third seat in the tail, of high quality and outstanding design, and a competition or "Donington" model for competitive events. Suspension is to be all-round independent, to a design of Caesar's, incorporating a Morgan-cum-Lancia layout. The chassis will be composed of 5-in. diameter tubes and the rear cross-member is to be a sheet-steel fabrication, carrying the suspension units and differential casing. A three-piece body—scuttle, cockpit and tail—will be easily removable to facilitate servicing, and accessibility throughout will be a very strong point of the Gordano. Braking will be Lockheed hydraulic and, although much detail work remains to be settled, we understand that numerous practices borrowed from the aircraft world will be adopted. For example, it is thought that a single central head-

lamp in the streamlined nose will prove adequate for, as Watkins says, "If a Beaufighter can land at 100 m.p.h. on one lamp, it should be possible to motor behind similar quantities of light." The engine, undecided as yet, is likely to be a proprietary unblown 1½-litre 4-cylinder unit, and it is expected that the sports 3-seater will sell for approximately £350. The "Donington" model will be a very stark and "built-for-business" affair, probably sold without any such frills as hood, screen, third seat, streamlined wings, etc. It will probably be cheaper than the road-equipped model. Readers who crave something different for after the war should certainly welcome this venture and will wish the Gordano actuality and future success. Incidentally, Watkins is further modifying his sprint G.N., using Morgan steering and building on more bodywork, while he also has a rather revolutionary idea anent the 500-c.c. class flying mile and kilo records, which Count Lurani holds at present at around 107 m.p.h. Caesar is thinking in terms of more and more Alvi, and Lowrey rides the skies in Tiger Moths—so the Gordano is being launched by practical people.

* * *

Alan Southon is serving overseas, but his cars are safely stored in this country. Passing recently through Salisbury we thought to seek out his father, who kindly took us to a large garage just off the main road, wherein are two of his son's cars—the well-known "14/40" 4-cylinder H.E. which he drove

in Vintage S.C.C. events before the war, and his F.W.D. Alvis. The H.E. is the most beautifully stark thing we have seen for a long time. It has a Zenith carburetter feeding the s.v. engine; sober as the power-unit is, the car certainly could perform. The exhaust manifold is a very utility-car object, but apparently Southon was building up a new one with separate off-takes. Ignition is by a Scintilla "Vertex" magneto, and the electrical panel on the dash is also Scintilla. Bugatti reversed ¼-elliptic suspension is now used and the whole car has been lowered. The fuel tank was picked up on an aerodrome and conveyed home by Southon when he was a callow youth, years ago—it proved just what was needed for the H.E. The Alvis is a 4-cylinder 2-seater front-drive car, with the usual commodious boot in the tail; it, too, has a Scintilla switchboard. The engine is partially dismantled and a Roots supercharger was to be seen amongst the pieces. This garage is a delightful enthusiasts' quarters, the many racing numbers and plaques adorning the walls testifying to the owner's skill as an amateur tuner and driver, while the piles of magnetos, carburetters and spares of all descriptions are a reminder of the thought and careful experiment which made such results possible. Southon's other car, a Type 38 Bugatti, we could not see, as it was further away than the D.P.O. would have liked. This is certainly one of the more practical vintage stables, and we hope Capt. Southon will let us have more information of these cars from his own pen.

EVOLUTION OF THE SPORTS CAR

—continued from page 118

to hold its own, on performance, with all but the best of modern cars. It is only in comfort and silence that it is outclassed.

As an aside, although the ordinary run of vintage cars are now surpassed in all tangible assets, this does not diminish their appeal to a large and discriminating body of motorists; but their preference for the type must now be recognised as resting solely on what can be described as sentimental grounds. And one hopes that these people will preserve an adequate selection of good vintage cars for posterity.

In conclusion, how strangely the wheel has turned full circle.

Early racing cars, of the 1904-1910 era, combined admirable roadholding with an extraordinarily comfortable ride. They achieved this, despite flimsy chassis, by dint of very low unsprung weight. With heavy modern brakes, tyres and axles, things got more and more difficult and uncomfortable until the modern school of stiff chassis and i.f.s. has put us back to the beginning again, plus modern advantages, especially as to good brakes. Then, in the search for power, engines became increasingly rough and inflexible. Now, again, the multi-cylinder, short-

stroke, high-revving racing engine has shown us that a much simplified edition, suitable for production, can still give a very respectable output, compatible with smoothness and flexibility. The old chain drive gave equal traction on both wheels, and very low unsprung weight for the back wheels. We only have to await the general adoption of the De Dion axle to reintroduce this further old-time advantage.

All along the line our sources of influence have come from the field of racing and competition, but the great turning points have been the racers of 1913-14 and 1934.

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News from Australia

BEFORE this war we were apt to think that sports cars could only be truly appreciated in this country, where the roads possess such fascinating variety and even a main road journey necessitates driving every inch of the way. This island seemed to offer the very best motoring conditions, and some of us, at all events, felt that the Swiss could keep their sinuous alpine climbs, the French their long tree-lined straights, and the Italians and Germans their new-fangled autobahn. Moreover, only trials enthusiasts would crave the unmade roads and heavy going reported to exist, and to call for American cars, in many of our overseas possessions. The war, however, has given us a less insular viewpoint, and news from all quarters is not only welcome, but goes to prove that enthusiasts for the Sport have much the same outlook throughout the English-speaking countries. We mentioned recently having received a long letter from R. Beal Pritchett, of New South Wales, and we now have more space in which to quote from it.

Beal Pritchett himself is very busy installing a Mercedes engine into his "20/70" Crossley, no mean task, especially as the Crossley has open shaft transmission and the Mercedes had a torque tube. He says he knows fellow "special" builders will admire his restraint in not writing a book about it! John Read has very thoroughly rebuilt a twin-o.h.c. Lea-Francis engine, including reboring, fitting special Hiduminium pistons giving a compression ratio of 8 to 1, regrinding the crankshaft and fitting high-duty bearing metal, hard-chrome plating the camshafts and cam

followers, fitting new valve springs and valves and lapping together the head and block. It is proposed to use six Amal carburettors, and this virtually new power-unit is scheduled for a chassis with independent suspension all round, using three Lancia "Lambda" front ends. Read also has a blown 1,750-c.c. Alfa-Romeo (now restored to 100 per cent. condition after a period in the hands of a vandal), a Riley "Imp" and a cinder-midget with Salmson "San Sebastian" engine. Pip Thomas, while in England on Coastal Command duties, bought a "Hyper" Lea-Francis chassis with Frazer-Nash-type front end and a twin-o.h.c. Salmson engine and gearbox. This he took back to Australia, and it is shaping well—a very low car, the top of the steering wheel barely above the top of the wheels. For a time Thomas ran a well-preserved T.B. M.G. Midget, but someone in the street offered him a considerable sum for it, and he parted with it on the spot.

The *pro tem.* secretary of the proposed Vintage and Sports Car Club of N.S.W. runs an A.C. Six of some eighteen summers, which is said to comprise an S. F. Edge Special body, a modified Monthèry chassis with somewhat non-standard gearbox-cum-back axle, and the alloy cylinder head which was fitted to three cars only. The present owner has fitted three carburettors with beautifully-made controls, certain alterations to the polished alloy body (which is kept in immaculate condition), and a fascia which has everything from a Tapley "Q" meter to a voltmeter—Pritchett remarks that, "most disappointingly, they all work!"

Then there is an Austin Seven owner who bought one of these little cars to augment his S.S., read Birkett's article in MOTOR SPORT, and has now collected twin Amals, "Ulster" camshaft, alloy head, large alloy sump and a 6-in. rev-counter. He is now making up a tubular front axle, like that of the racing Austins, and built-up inlet and exhaust manifolds of welded tube, and Bill Heath, who is building an underslung bull-nose Morris with twin S.U.s, is making up some special Austin tulip valves.

Other cars mentioned by Pritchett include a well-preserved B.S.A. "Scout," an A.C. Six-engined Frazer-Nash, a Salmson-engined "special," and an Aston-Martin sold to F/Lt. Bruce Higgins, who also had a single-cylinder De Dion dog-cart. We deeply regret to learn that Higgins was killed when the Catalina he was flying hit the sea. Other cars seen in use on essential work have included a white 328 B.M.W., a T.T. M.G. Magnette, said to do over 35 m.p.g., a black Vauxhall "Wensum" and Alsatian dog, a "14/40" Vauxhall on charcoal, an early Rolls-Royce "Twenty" in super condition, a Riley "Redwing," a "Brooklands" Riley, a 3-litre Sunbeam, another lowered and modernised o.h.c. Sunbeam, a beautifully-kept "22/70" Alfa-Romeo, a 4½-litre Bentley, Rolls-Bentley, Brough Superior, S.S. 100, Railton, "30/98" Vauxhall saloon, and countless M.G.s. Robert Hood still has his Stoewer, and has acquired a "30/98" Vauxhall, and John Crouch, who raced an M.G. and 2.3 Alfa-Romeo, now motors in an Austin Seven, consuming coal gas.

Bravo, Australia!

BELATED BOOK REVIEW

"The Motor Maniac," by Mrs. Edward Kennard (*Hutchinson*, 1902, 320 pp.).

It is not related whether Mrs. Jenks, the leading character in "The Motor Maniac," had saved the hundred-odd pounds out of housekeeping money, but her husband certainly registered extraordinary alarm and despondency when she said she was going to buy a car. However, like most wives, she got her own way. "I have bought both *The Autocar* and *Motor Car Journal*," she said, "and for the last three days have spent most of my time poring over the advertisements." She combed the showrooms, thoroughly though inexpertly inspecting a Peugeot, Darracq, Progress, Boyer, Benz, De Dion, Daimler, Decauville (trial run described), Orient, Renault, Mors, Hercules, Kochs, and Vallée, and learnt something of the wiles of salesmen of those days in discreetly discrediting the products of other firms. She learned to drive and maintain a secondhand Benz Ideal, and finally purchased one. There is a wealth of sordid, but, in the main, accurate, mechanical and other detail: "Opening up the back part of the car, Mr. Long pointed to the oily piston and crankshaft, laying a tender hand upon the former (!) . . ." ". . . tugging and pulling at the dirty flywheel

. . . at last . . . she managed to set the engine going . . . she wiped her damp brow . . . and her heart fluttered against her corsets . . ." "she pushed the (gear) lever forward so suddenly that the belt broke." "They were now approaching Kingston, and the police in that river town being notorious for their hostility towards motorists. . . ." "You cannot go on any long journey without having at least a couple of sparking plugs, a belt and belt fasteners, exhaust and inlet valves with springs." "Thomas cautiously raised the lever of the Crypto. . . ." "They lost the cover of the grease cup supplying the piston. . . ."

The reluctant husband having been persuaded that motoring could provide at least as much fun as golf, the family tries a Napier "ten nominal, giving twelve on the brake," and are so impressed that Mr. Jenks decided to order one. Meanwhile, Mrs. J. tries and tribulates on a tricycle with 3-h.p. De Dion engine behind. "The piston and rings were in first rate condition. The valves, it is true, were a trifle dirty, but they soon cleaned and ground them in." The coil suffered from engine-heat and was despatched "to Messrs. Peto and Radford, of Hatton Garden." After competing in a ladies' gymkhana race in

a borrowed 3-h.p. De Dion Voiturette, losing honourably only to a 6-h.p. Daimler, the arrival of the new Napier suggested bigger and better things, the Great Durability Trials. ". . . stately Daimlers, smart M.M.C.s, workmanlike Wolseleys, natty New Orleanses, fleet Napiers, substantial Stars, swift Progresses, trim Stirlings, neat Argylls. Panhards ranged from the 5-h.p. Voiturette to the monster 70-h.p. vehicle . . . Mercedes, Gobron Brillié and a host of lesser vehicles were all there," and, of course the Jenks family's Napier won, to the delight of Mr. Pellin Sedge! Other thinly-disguised personalities were the Hon. Cyril Rowley, Charlemagne Parrot, Montmorency Black (presumably our old friend Montague Graham-White, or rather a libellous impersonation who philandered blatantly though he motored spectacularly, got into hot water, and finally redeemed himself by apology: "'you are quite right,' he said, gnawing miserably at the ends of his moustache . . ."). Definitely a good book worthy of a place near Peter Chamberlain's "Sing Holiday."

[The foregoing review, sent to us by a reader, adds yet another book to the motoring list—but whether diligent search of secondhand bookshops will reveal copies remains to be seen.—Ed.]

WE HEAR

Wing-Cdr. T. M. Evans has a most enviable stable, comprising a "Red Label" 3-litre Bentley, a very fine 1923 O.E. "30/98" Vauxhall recently acquired from Lt. Normanton, and a "12/50" Alvis. He seeks a balanced crankshaft and a f.w.b. assembly for the Vauxhall. F. G. Gent proposed to restore to good order a 1931 "Silver Eagle" Alvis, and would like to correspond with other enthusiasts for these cars, and Cpl. Green, R.A.F., who owns the "Grasshopper" G.N. and lots of Salmson parts, is rebuilding a "Grand Sport" Amilcar, type 3 C.G.S. K. W. Smith, who asked recently for particulars of his Bentley, now finds this to be a 4½-litre car and not a 3-litre at all. He, too, is renovating a 1929 "Grand Sport" Amilcar, having lots of spares, and he intends to spray it French blue; it should be a pleasing second string to the Bentley.

John Maclagen, of the Scuderia Chemvamo, is working hard on the ex-Evans T.T. M.G. Magnette BLL493, for which he especially needs an outside exhaust system of either of the two authentic types, if any such thing is to be had. Then Capt. G. Wilson, of the Army Dental Corps, has acquired an unblown 1,750-c.c. Alfa-Romeo from a doctor in Scotland and is having it sent by train to Aldershot. K. G. Couper has a J4 M.G. "Midget" to which he contemplates fitting a Lockheed braking system from a Wolseley Hornet Special, and taking it all round there are lots of plans a-forming. Peter Robertson-Rodger is flying with A.T.A. and has managed some duty runs in his 1½-litre B.M.W., which he says goes like a ding bat in spite of having run 70,000 miles in eight years; it still has no appetite for oil. Then Rodney Clarke, with Potter to help him, has opened a motor business at Chobham, and up in Scotland a 1934 Singer "Le Mans" 2-seater, and an old 13.9 Lancia "Lambda" lie derelict in a garage and may soon be for sale.

Of veterans, a big 4-cylinder Panhard, reputed to have automatic inlet valves, trembler coil ignition, and solid tyres, and said to have run in the "Brighton," lies in a breaker's near Whitstable and could be bought for £75. A Big Six Bentley breakdown lorry keeps it company, and there is a 3-carburettor Riley 12/6 engine in the same yard. Incidentally, when writing, Gent kindly sent a manual covering the J-type M.G. "Midgets" for MOTOR SPORT Instruction Book Library—new contributions will always be gratefully received, and quite a few books are already out on loan. A Senechal in need of reconditioning is available in London for a few pounds, and a 1925 13-h.p. De Dion coupé, which has had one owner only since new, and is still quite nice, is reported in a Dagenham breaker's yard and might constitute a serviceable hack for someone.

The twin-o.h.c. 3-litre Sunbeam would seem to have new adherents in Norwood and Romford, both believed to be rebuilding examples of this famous car, and a Th. Schneider was seen travelling rapidly on the Gt. North Road last month. Then Wadsworth has the Gwynne Eight-engined L.G., we hear tell of an H.E. chassis, and Lomas is steadily restoring his "Blue Label" Bentley to fine order, having acquired a second car for the sake

Club News

of its open 4-seater body—he may have a good few parts left over in consequence, if anyone is in need of "Blue Label" spares.

★

J.C.C.

The Junior Car Club continues to hold its monthly council lunches, and excellent institutions they are.

The *Gazette* also comes along every third month, so at least one of the bigger clubs is by no means dead. The A.G.M. was held on January 27th, and it was recorded that at September, 1939, the membership roll was 2,320; many members have maintained their subscriptions throughout the war. Major F. H. Bale took the chair. Mr. Peachey proposed election of the officers and council *en bloc* for 1944, and this was seconded by Mr. Rivers-Fletcher and carried unanimously. The subscription during the war is 5s. for non-car users, 25s. for users of cars over 10 h.p., or 20s. for users of cars up to 10 h.p. Hon. Sec., H. J. Morgan, 14, Lime Grove, Ruislip.

★

M.M.E.C.

The Midland Motoring Enthusiasts' Club held a highly successful meeting last month, over 60 souls hearing Cecil Kimber deliver his talk on "The Sports Car—Past and Future." Mr. Kimber was afterwards elected an honorary member. The next meeting is scheduled for June 7th, but the "Windsor" will not be available, and a watch should be kept on the weeklies for the venue, which will be somewhere in Birmingham. Chairman: Stewart Forrest, 22, Ratten Park Road, Birmingham, 16.

★

ODD SPOTS

The recent "Rembrandt" Brains Trust raised another appreciable sum for charity. It is hoped that Capt. George Eyston will speak at an I.A.E. Graduates' Meeting when the next session opens in September. Edwin T. Meyers was

scheduled to talk on American Motor Racing, particularly on its Hollywood aspect, at a meeting of the Ulster Automobile Club on May 5th. A book on early American cars, "Fred Clymer's Historical Motor Scrapbook," is announced by Clymer Motors, of Los Angeles.

★

V8

This month's cover picture shows the Hon. A. D. Chetwynd's Ford V8 climbing Oakshott Hill in the 1935 Inter-Varsity trial, in which it finished without loss of marks.

★

CONTACTS

We receive a great many letters from readers with a request that we forward them to other readers, which we are always delighted to do. Sometimes, however, readers send stamped envelopes and ask for other readers' addresses. Up to now we have stretched a point and complied but, strictly, a paper has no right to thus disclose addresses, and in future we can only forward letters.

★

NOTICE

The success of MOTOR SPORT since the war has depended almost entirely on the generosity and labour of enthusiasts who have sent in voluntary contributions, although the Editor and staff have also done their best for the customers in very limited spare time—the Editor's reward at the moment being a spot of optic pother! He now finds the stock of MSS. lowering and so appeals once again for such contributions—they can be written in longhand on both sides of the paper and be of any length. Articles on actual experiences in races and other events would be especially welcome, and it would be nice, too, to recapture some of the happy atmosphere of those articles on "scuderias," etc., which we were able to publish earlier in the war. The "Cars I Have Owned" articles are scheduled to cease in four months or so unless new contributions arrive. Everything will be carefully considered, but it may not be possible to acknowledge all MSS.

Thank you!



Under the shadow of the swastika—before the British bombers came

Letters from Readers

Sir,

As a keen motor-racing enthusiast, being particularly interested in the future of the Sport, I welcome the suggestion, in the April issue of your wizard monthly, for new blood on the R.A.C. Competition Committee.

The suggestion of electing Raymond Mays seems long overdue, as obviously there is nobody who is better suited. More than once he has publicly voiced his willingness to assist the Sport to the utmost, particularly as regards helping the new generation of racing drivers. It was, I believe, solely due to Mays's pioneering that the E.R.A. car came into being, and, entirely apart from that, his all-round racing experience is unique.

Having started as an amateur, he must have experienced the financial and other difficulties of the would-be driver.

This suggestion is by no means only my own outlook, and so we look to you as Editor of a most powerful part of the motor-sporting Press to help carry this suggestion into effect.

Thank you for the marvellous work you are doing in keeping up the morale of we enthusiasts in the Forces.

I am, Yours, etc.,

JOHN F. G. MACLAGAN.

Rotherham.

* * *

Sir,

I was very interested to see Capt. Moon's reply to my comments on his proposed sports car design, and I am prepared to accept that his choice of a 5-speed gearbox and rear-wheel drive have not been dictated by the requirement that the car should be capable of competing in not too fearsome trials—though I am still a little surprised that he requires five speeds for normal road work. To have the perfect ratio for every condition from repeated re-starting in traffic to continued high-speed cruising seems to me a luxury for which he is likely to have to pay dearly in both weight and expense, and one which has not so far been considered worth while by sports-car designers.

My apologies to him for implying that he had not specified his ground clearance. I overlooked the relevant paragraph in his very comprehensive article. But his letter serves to emphasise a point I made—that his ground clearance was increased by the requirement that the car should be suitable for trials. For road work his figure of 7 in. could be reduced to 5½ in. with a corresponding reduction in effective frontal area.

I will concede his point that a weight distribution which is excellent for the road may not be a bar to trials success. His example of the "328" B.M.W. is very convincing.

The question of the third passenger's "reasonable" comfort is a key point in the design. It is Capt. Moon's principal reason for using his unusual and rather complex transmission line. It is one of

my chief reasons for suggesting front drive as an alternative. Of course, it turns largely on one's interpretation of "reasonable." Personally I feel that it is a nuisance to the third man (or woman) to have to put both feet on one side of the transmission tunnel, and that if he puts one on either side, he is likely to be in the way of the driver, who usually has little enough room for his own left foot off the clutch pedal. Evidently Capt. Moon thinks that this degree of discomfort is not unreasonable, and, disliking front drive, feels that it would be a heavy price to pay for the extra room. I like front drive for a number of reasons, and think quite the reverse. Obviously we must agree to differ here.

Capt. Moon suggests that by using front drive I should increase the height of the crankshaft from the ground, and thereby raise the centre of gravity and increase the frontal area of the car. Measurement of my Citroen Twelve gives me the following figures: height of differential centre 14 in.; height of crankshaft centre 16½ in.; clearance under clutch-pit 10½ in. From these I deduce that it would be possible to pass the clutch shaft under the final drive and obtain a crankshaft height of 11½ in., with a clearance under the clutch-pit of 5½ in., which should be adequate for road use on a car of 8 ft. 9 in. wheelbase, particularly as the low point would be very close to the front wheels. These heights could be slightly increased if desired by using larger diameter wheels (5.50 x 16 on the Citroen), or the clearance under the clutch-pit enlarged by using a multi-plate clutch of smaller diameter. In short, front drive imposes no significant limitation on the minimum height of the crankshaft.

Certainly, as Capt. Moon points out, the wheelbase would have to be increased over his by some 9 in. All front-drive cars are longer than their rear-drive counterparts, but since, from savings of weight in various directions, they work out as light, or lighter, this extra wheelbase is an advantage rather than a drawback.

I therefore maintain my original point that, by using front drive and accepting a slight sacrifice in versatility, it would be possible to build a sports car equivalent to Capt. Moon's, but more roomy, simpler, lighter and cheaper.

I am, Yours, etc.,

C. W. J. MARRIS (Squadron-Leader).
R.A.F.

* * *

Sir,

My good friend Capt. John Moon is absolutely correct. Not only does the crankshaft-mounted fan on the Ford V8 pick up water, but also dust and small stones. The reason for using this type on FGP750 was to reduce the frontal area of the car for speed trials and hill climbs. It was never run in a trial in this form. We are following with interest the progress of Ford technicians and

appreciate the possibility of the new central mounting of the fan for post-war trials use.

I am, Yours, etc.,

HAROLD BIGGS.

London, S.W.6.

* * *

Sir,

Referring to your article, "Racing and the Public," in the issue for May, I would like to make one or two by no means unimportant points from the point of view of the ordinary soldier. The Royal Gloucestershire Hussars in peace-time had a squadron with its headquarters at Colston Fort, St. Michael's Hill. Many of the members of this squadron were also members of the Bristol Light Car Club. The regiment has for many years been mechanised, and a very strong enthusiasm for "matters motoring" has been built up at the squadron headquarters.

I would like to represent to some of those people who would deery any demonstration of enthusiasm over sporting motoring that it is competitive events, the club spirit, and the enthusiasm of the amateur owner-builder which produced the driver-mechanics and fitters, second to none, with whom I had the privilege to train and fight in the Western Desert.

If a mechanised army is required to win our wars, then in order that they may preserve our national beauty spots for the public, let us give our potential soldiers every encouragement in following a hobby or profession which will be of inestimable value to them when the call comes.

I am, Yours, etc.,

JEREMY TAYLOR, R.G.H. (Major).

London, S.W.1.

[While we devoutly hope the call will not come again in our lifetime, it seems possible that it will, and probable, if we go soft again. Major Taylor sees what so many ordinary motorists miss—if we are to avoid wars in the future we must be prepared and motorised.—Ed.]

* * *

Sir,

The discussions now proceeding upon the revision of taxation open up the possibility of interesting pecuniary speculations for the economy motorist. If a capacity tax should be adopted, it will be necessary to fix swept volumes which will represent the limits for various rates of tax. In the lower classes these may well be 750, 1,000, and 1,500 c.c., or, possibly, 850, 1,100, and 1,500 c.c. Should either of these limits be adopted, it will be seen that the majority of British second-hand cars will move up one class, assuming these capacities to take the place of the 8-, 10- and 12-h.p. rates. Conversely, the square-engined Continentals will move down. It is, therefore, reasonable to assume that while the market values of British cars would fall, there will be a corresponding rise in Continental values.

If our wily industry should adopt irregular capacities to keep their cars at the same tax level, such as 1,000 c.c.-8-h.p., 1,250 c.c.-10-h.p., 1,650 c.c.-12-h.p., it is unlikely that there would be any appreciable fluctuation in their market value. But such volumes would also bring more Continental cars into lower classes, making them more popular with a corresponding increase in price. It would appear, therefore, that there is a very good reason for those of us who own British cars to dispose of them now while the prices are high, exchanging them for square-engined Continentals which again will be able to show a good profit if the capacity tax be eventually adopted. Should the speculator be thwarted by the introduction of a petrol tax instead, he will at least have had the pleasurable experience of some good cars.

Under a capacity tax, all long-stroke engines must suffer, even if a graduated scale of capacities is employed. One must view with concern possibilities such as the 3-litre Bentley being rated higher than the 2.3 Bugattis and Alfas, the 4½ equal to the 12-cylinder Lagonda, while the graph and bank overdraft will go right off the page before coming to the big stuff.

Another interesting point, should the poor motorist have to bear the burden of a capacity tax, is accentuated by Laurence Pomeroy's recent article in the *Motor*, giving "average" statistics for pre-war cars. Before the war we were told that if we wanted more performance from British cars we would have to pay for it. The article mentioned shows that if our 12-h.p. car is to compare with the "1,500" Continental, it must reduce weight by 24 per cent., petrol consumption by five per cent., and the standing quarter by eight per cent. It must increase low speed pick-up by five per cent., higher acceleration by 11 per cent., maximum by 17 per cent., and IT MUST STILL SELL AT THE SAME PRICE. If that can be done, either we were sadly misled before the war, or our manufacturers have only just begun to learn the fundamentals of business economics. We all know that they are able, technically, to surpass these figures with ease, but unless some business acumen is present, one can imagine the whole potential increased prosperity being absorbed in an effort to keep the price down sufficiently to compete in those markets.

I am, Yours, etc.,
GRAHAM C. DIX.

Birmingham.

* * *

Sir,

For some time past there have been discussions at Brains Trust meetings and various articles in motoring journals as regards the future of motor racing in its different forms, suggesting G.P. formulas and the make-up of the R.A.C. Competitions Committee. This committee is, after all, responsible to the country for all these things, and it was interesting, in the April issue of MOTOR SPORT which specialises in furthering these aims, that the name of Raymond Mays was suggested for inclusion on the R.A.C. Competitions Committee. It is no overstatement that the carrying into effect of this suggestion is voicing the most earnest hope of many of those who have

the future success and advance of British motor racing at heart, both as a national asset in general and as a sport in particular. After all, who was it that was really responsible for there ever being an E.R.A.?

£ s. d. alone will produce little. £ s. d. has to be invested in a good thing to produce a tangible or worth while result, in whatever form that takes. It is no good saying, "Here is £X, go and beat the world in the 1,500-c.c. class next year." The result from scratch would be little. But if £X is placed at the back of a good article, which is the culmination of years of research, development and proof by test, then one may reasonably expect results to be swiftly forthcoming. Such was the case with E.R.A.

Raymond Mays, over a period of many years, carried out extensive research and development with various engines and chassis, with the assistance of many well-known engineers plus considerable help from many of the leading manufacturers, connected with the motor industry, who had faith in his very earnest endeavour to succeed. (It is not generally known that Amherst Villiers, the late Murray

CHANGE OF NAME.

We understand that the well-known firm of Cox & Company, Watford, manufacturers of tubular motor seats, etc., has been converted into a private limited liability company under the title of Cox & Co. (Watford), Ltd. This is an entirely formal matter and there is no change in regard to ownership.

Jamieson and Peter Berthon all were given the opportunity of showing their technical ability through first being associated with Raymond Mays, whose super-enthusiasm and determination started them on their specialised careers.) The culmination of some of this research and development work was the engine in the White Riley. This highly successful power unit was the backbone of the E.R.A., and round it a suitable chassis and body were built. The man who therefore was primarily responsible for the E.R.A. more than anyone else was Raymond Mays. The marque's success is a household word.

Is he not, then, the obvious man to give a hand at the hub of British motor competition and sport, and put his unrivalled experience and knowledge—with his uncanny ability of being able to get together a band of people who do produce results—into that organisation?

The R.A.C. represents the £ s. d.—Raymond Mays's opinion represents the good article worth backing.

I am, Yours, etc.,
H. L. P. LESTER (Wing. Cdr.),
International Sportsmen's Club,
Upper Grosvenor Street,
London, W.1.

* * *

Sir,

I read the letter from Capt. Moon with interest and must congratulate him on his observance of a remark in Mr. Biggs's article on the Light Trials Allard. I refer to his point about the crankshaft fan mounting and its unsuitability for

negotiating water splashes. This is quite correct, and when such events occur again I would naturally remove the offending fan. This car, incidentally, runs quite satisfactorily without the fan being fitted at all. In my previous Allards, all of which had the fan mounted in the dynamo, it was my practice (and my team-mates' also) to slacken off the dynamo mounting and thus disconnect the fan and fan-belt before entering deep water splashes. Even the rotation of the belt tended to throw up water.

I am, Yours, etc.,
K. HUTCHISON.

Farnham, Surrey.

* * *

Sir,

I was interested to read in the May "Club News" of Mr. H. Macey's scheme for rear independent suspension using a f.w.d. Alvis chassis.

One wonders in which direction he intends to propel the chassis.

I believe some of the early Burney streamline experiments were carried out on a reversed f.w.d. Alvis with the stub axles locked and with a more orthodox front axle assembly in place of the independently-sprung rear wheels.

Mr. L. A. Lansdown, of Westland Aircraft, a "12/60" owner, might know something of this chassis; I believe he took part in some of the road tests.

I am, Yours, etc.,
W. JACKSON.

Old Bursledon,
Hampshire.

* * *

Sir,

Referring to the letter from S/Sgt. R. Truscott, and the photograph of his 4½-litre Bentley, the following information may interest him and other enthusiasts.

Bentley chassis No. 290 was an early 1923 speed model 3-litre and the 4½-litre engine No. TX3246, is 1928—one of the last to be fitted with the cone clutch. The main disadvantage of this is the heavy pedal pressure required. I rather liked the cone clutch, but had to abandon it eventually because of its inability to transmit the considerable additional hairy-legged horses I was able to get out of these engines, and still retain their original reliability which entailed considerable and costly research. The cone clutch had the advantages of being relatively light and having the minimum of overhang as compared with the 1929-31 plate clutch. The weight complete with flywheel was, cone clutch 76 lb., plate clutch 139 lb. The early 4½ litres had rather a tender rear end to the crankshaft, and it has been suggested to me by a vintagent that the design of this part was left to the works office boy. If that was so, his efforts in weight-saving were commendable at that time, if, unfortunately, a little misplaced. When plate clutches were fitted to these crankshafts, the shaft objected to the additional load and overhang, and things became worse when badly damaged starter teeth unbalanced the flywheel. The 6½-litre back axle is very heavy, and the additional unsprung weight does not improve roadholding with a short chassis. Mr. Truscott may have the 6½-litre ribbed front brake drums, but it is impossible to use the 6½-litre method of front-brake operation on a 3- or 4½-litre frame.

In the photograph, truss rods are clearly shown under the frame side members. These were not fitted as standard to this frame, and it is very important to see that the frame is suitably reinforced at both ends for a distance of about 7 in., where the truss-rod brackets are attached to the side members. If this is not done the side members will break between the rear shackle of the front spring and the truss-rod bracket. One will also find that cracks have developed at the other end just in front of rear spring anchorage. If Mr. Truscott wishes to have any other information, and cares to write to me, I will be delighted to help.

I am, Yours, etc.,
L. C. MCKENZIE.

Thornton Heath,
Surrey.

* * *

Sir,

I do not think that any car in standard production has had its maximum speed more discussed than the M.G. "T"-type. As road-tested by the motor Press its maximum speed, taken over a flying ¼-mile, mean of two runs in opposite directions, was stated to be 82 m.p.h. by the stop-watch. I do not know what speedo readings were recorded, but I have no doubt that M.G.s, like most car manufacturers, "permit" the reading to be somewhat fast in order to satisfy the great British public. The red "danger" mark on the rev.-counter is at 4,800, which corresponds to 82 m.p.h. By the way, my figures are all from memory, so please don't jump at me if I'm slightly inaccurate! [*The Autocar* got 77.59 m.p.h. mean and 79.65 maximum, and *MOTOR SPORT* could not do timed tests because of obstructions on Brooklands.—Ed.]

Mr. A. G. Sanderson is not quite correct in his description of the 100-m.p.h. "Musketeer." The first ones were not fitted with a balanced shaft, but they did have cycle-type wings of "ali." in place of the long sweeping iron ones, which incorporated running boards. The bonnet and door panels were also "ali." Compression was raised from 6.5 to 1 to 7.2 to 1 for my model, while the other team cars were even higher—7.5 to 1. The cylinder head was copperised, special valve springs, larger Luvax shockers, special braking system were all used. Of course, there were many other alterations and fittings of value in reliability trials, but having no connection with speed. The Marshall blower on my car ran at one-and-a-half times engine speed, and puffed at 6½ lb. per sq. in. I think I am correct in stating that the standard "T" is 45 b.h.p. My tuned engine gave 50 b.h.p. unblown and nearly 90 b.h.p. blown. Thus we have a 45-b.h.p. car giving, say, 80 m.p.h., and in its lightened, tuned and blown form giving 100 m.p.h. Quite reasonable really. The cynic will enquire, "And, pray, what are the revs. at that speed?" and I would at once agree that they are excessive. Once again I am unable to state figures, but I remember crossing the finishing line at Wetherby Speed Trials at 73 m.p.h. in third gear with rev.-counter needle off the dial!

Harold Biggs doubts that the M.G. "Musketeer" can do 100 m.p.h., and quotes his experiences with Macdermid in Mac's "Muskets." As the owner of

probably the most potent "Musket," which I bought from Mac in February, 1938, I think I can write reasonably authoritatively on this subject. My model is the 1937 car, "number one" of the team for that year, and was probably better cared for than the others as, I understand, the others always ran blown while Mac and I only ran blown for trials, etc. Indeed, I used to run to the scene of an event unblown and connect up the blower at the start. It was only a 10-minute job and could be done, with long practice, with one's eyes closed! The team of cars was entered for the Donington 12 Hours in 1937 and were quite standard as they were seen at trials, except that the front wings, head lamps, windscreen, air cleaner and other very minor things were taken off. Even the wing brackets were left on, as these affect the radiator mounting. Very little work was required before or after the event in which the cars won the team prize, which was what was aimed at from the very beginning. I should mention that the team was made up of a combination of the "Musketeer" and "Cream Cracker" drivers. Below I am showing how they won and some interesting data. Macdermid stated to me that down Starkey's he was getting 104 m.p.h. each lap. I have also reached this figure at the same place, and in order to ward off the obvious challenge *re* speedos, let me say here and now that the speedos were "police accuracy" type and were often sent back to Jag's for checking (which explains the nasty marks round the dial on the dashboard from constant removal!) I have recently sold this car to Rowland Motors.

	Class Position	Race Position	No. of Laps	Miles	Average Speed
Macdermid-Toulmin Car No. 18 ...	5	8	245	625.24	52.10
Bastock - Crawford Car No. 19	11	17	234	597.16	49.76
Langley - Jones Car No. 20 ...	6	9	244	622.68	51.89

I am, Yours, etc.,
JACK M. REISS.

Leeds.

* * *

Sir,

The views of Cecil Kimber and Raymond Mays on post-war racing must obviously be considered in all seriousness.

Is Mr. Kimber not taking too gloomy an outlook of the future of Brooklands, though?

It may be some time before racing can be resumed at the Track, but when this is possible, it is an infinitely better course than the Crystal Palace, and has the advantage over Donington in being near London; also it lends itself to every type of race, which neither of the other venues do. Outer Circuit events at Brooklands still had quite a following up to the outbreak of war, and there are still a good many racing and sports cars capable of putting up a good show. If some of the older hands are tired of the Outer Circuit, there will be many young enthusiasts only too keen to follow their footsteps. As the Editor reminds Raymond Mays, the Outer Circuit is a very

READERS' SALES AND WANTS

FOR SALE

GRAND PRIX BUGATTI SPARES AND SERVICE

F. O. CLEVELAND HARMER
Bugatti Specialist
83, Old Oak Road, Acton, W.3
Shepherds Bush 5022.

78 uncut copies *MOTOR SPORT*, 1938-43 inclusive. Offers. Cooke, 62, St. Stephen's Road, E.3.

E.N.V. Box. Ex-Riley, complete controls. Needs slight adjustment. Offers. Ward-Booth, Fairhaven, Beechwood Avenue, Coventry.

SPECIAL external exhaust layout manifold and four direct pipes. Full windscreen, chrome; also Radiator stoneguard, spare wheel, tyre. All for Type 37 Bugatti. £14 10s. lot. Statham, "Gelligaer," Uplands Crescent, Swansea.

TALBOT "105." aluminium front wings, excellent. Meteor black chromium road lamp, new. D. L. Leathley, Brownings, Cowfold, Sussex.

2-19-in. Rudge wheels, 4 doz. small Jubilee rose clips. S. R. Green, 117, Trowbridge Road, Bradford-on-Avon, Wilts.

WANTED

BUGATTI, 1½, 2 or 2.3-litre Grand Prix, complete, or parts for same. F. O. Cleveland Harmer, 83, Old Oak Road, Acton, W.3.

MARSHALL supercharger, suitable 18-lb. boost "N" Magnette, in good condition. Fittings immaterial. Lt. D. Hiley, Birtley Rise, Bramley, Surrey.

1932/3 Singer Le Mans Handbook and Spares List. Exchange M.G. "J" Handbook. A. E. Alexander, Riseley Mill Cottage, Swallowfield, Berks.

PR. [Smith-Bentley Head Lamps, ball-cup fitting, standard pattern, Smith side lamps for 3-litre. Leathley, Brownings, Cowfold, Sussex.

M.G. Engine to fit J.2, assembled or otherwise, good condition. John Somerville, Carcant, Heriot, Midlothian.

ALVIS 12/50 or 12/60, preferably big port, reasonable condition. Stroud, 623, Walsall Road, Birmingham, 22a.

LARGE type supercharger for 1,750-c.c. Alfa-Romeo. Montague, 287, Cricklewood Lane, N.W.2. Speedwell 2426.

EARLY type Sports exhaust and unheated twin carburettor manifolds for Riley Nine; also one copy of "Pitman's Book of Riley Nine," by Blake or Warren. Addison, 10, Circular Road, Peel, Isle of Man.

DEFLECTOR head for Frazer-Nash Meadows engine. Ratio suitable road use. Lt. Shenton, H.M.S. *Bellona*, c/o G.P.O.

M.G. Magna, Magnette, Continental Coupé, good condition; also rough Magna for spares. 6, Crescent Road, Caterham, Surrey.

RILEY Imp, M.P.H., Sprite, send photograph and price. R. K. Darby, Greenroyde, Stourbridge, Worcs.

M.G. J.2 engine, less gearbox. Sgt. R. E. Miller, c/o 21, City Road, London, E.C.1.

SPORTS body wanted for Talbot, upholstery condition not important. Condition, details to L. N. Thomas, Waverley, Hookwood, Horley, Surrey.

12/50 Alvis spring steering wheel, near-side, half-shaft, sound body for 31 Chassis. G. M. G. Oliver, Ashfield, Lanchester, Durham.

Spares Section, MOTOR SPORT,
21, City Road, London, E.C.1

valuable venue for car testing. Where else could fast cars be tested?

Finally, without the Outer Circuit Brooklands would not be Brooklands.

The old methods of handicapping need altering. Class handicapping by all means, but not of individual drivers or cars in a given class. A driver who spends much time, thought and money on bringing his car to a high state of efficiency should not be re-handicapped because he wins a race. The winning of a race should be something worth striving for. I believe the falling off in attendance at Brooklands was directly due to the ridiculous display of an obviously slow, and perhaps ill-prepared, car coming in first.

I am, Yours, etc.,
C. A. L. MEREDITH.

Sutton, Surrey.

* * *

Sir,

As a T-type M.G. owner I find these exaggerated maximum speed claims by over-enthusiastic owners (and others) both amusing and annoying. The Thursby-Pelham M.G. is a good example. I remember reading in the *Autocar* that this owner ascribed his "over 90 m.p.h." claim to some form of tuning, the exact nature of which he was ignorant!

Barring supercharging, my experience has shown that the popular methods of tuning seldom increase maximum speed by more than three or four m.p.h., though acceleration is considerably improved. As an example of "popular" tuning, I suggest the following: Raised compression, copper-plated head and valves, a little port polishing, careful assembly, rounded off by suitable ignition timing and mixture strength. (Mr. Thursby-Pelham may find that all or part of that routine has been applied to his car. In any case, we should all like to know for certain how the performance is obtained!)

Very shortly after the inception of the "T" M.G. it was road-tested by the various journals, and all agreed upon a genuine maximum speed, carefully timed, of 78-79 m.p.h. This is a considerable improvement on the figures mentioned by the anti-buzz-box brigade (usually 75 m.p.h. or less), and if we add four m.p.h. for conventional tuning, we have quite

an impressive speed for a 10-h.p. cheap sports car.

I think it is a pity that such an excellent £222 worth of motor-car should become a laughing-stock in the motoring world, simply because some owners insist on making wild and unsubstantiated claims in an endeavour to impress other owners of better and/or bigger sports cars.

I am, Yours, etc.,
A. H. SHEFFIELD (F/Sgt.).

R.A.F.

* * *

Sir,

Your correspondent, Mr. F. A. Kappey, must have been bitten very severely by the 5-cylinder engine bug to make such sweeping statements in support of this type, as he does in the letter published in February.

It is not conventional thought and conservatism that has kept the 5-cylinder engine from achieving any great success, but certain of its characteristics which weigh against it, viz. :—

(1) The 5-cylinder engine is very difficult to carburate in an efficient manner. This difficulty can be overcome by incorporating a low-pressure boost, while it does not apply in the case of a compression-ignition engine, amongst

whose ranks are found the only present-day examples of this type.

(2) It will tend to be rather weighty, owing to the desirability, in the interests of symmetry, of using a main bearing between each pair of cylinders. Where sufficient crankshaft stiffness as a beam is available, I think that it is desirable to keep the number of main bearings in an engine to a minimum, in order to save friction loss and to keep the shaft short and thus torsionally rigid.

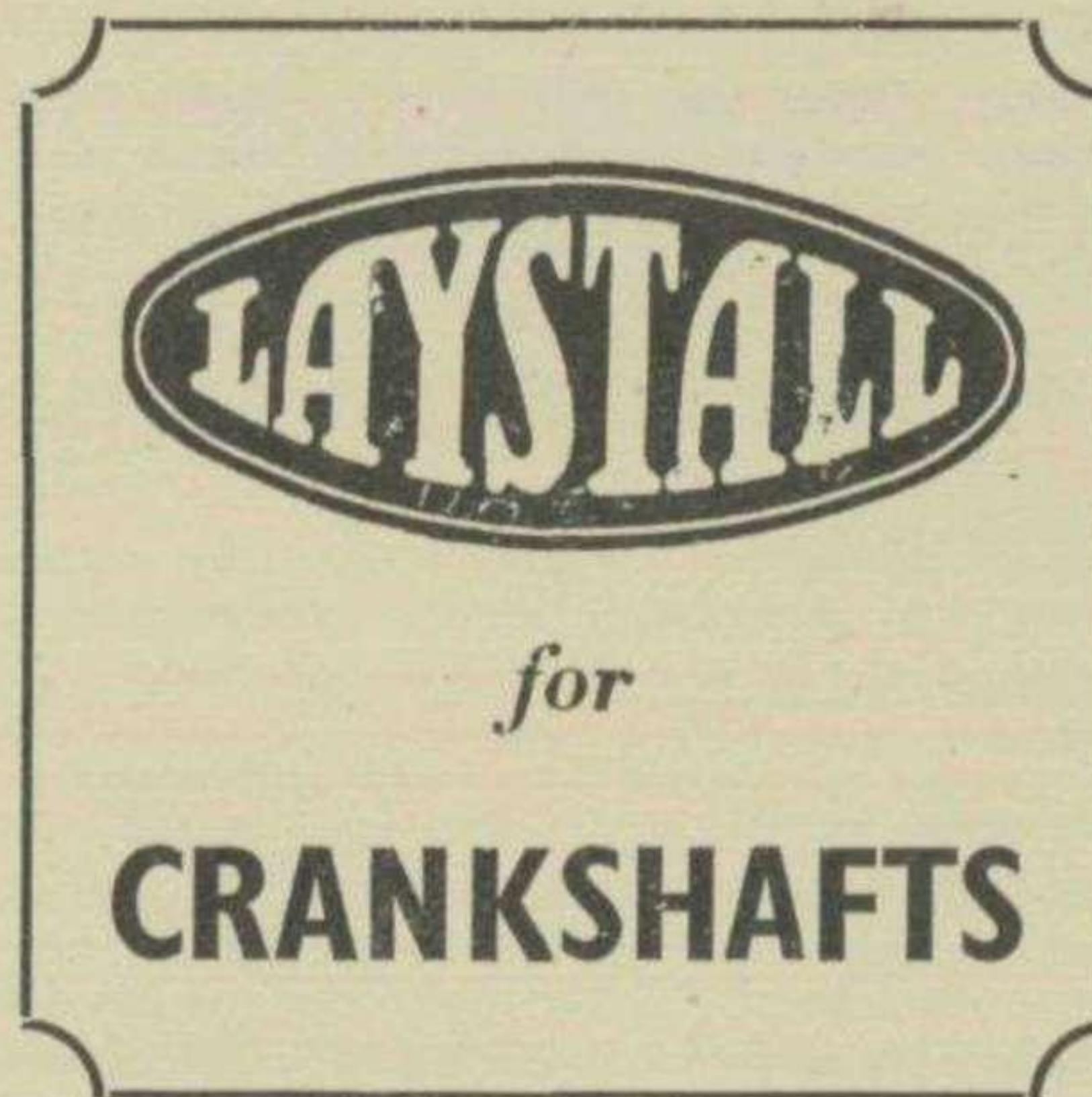
(3) Production will not be easy, relatively speaking, due to the multiplicity of main bearings, and, due to its five throws, all at different angles, as well as its six main bearings, the crankshaft will prove more difficult than a four or a six both to forge and to machine.

(4) The engine is out of balance by a primary couple which tends to make it rock about a transverse axis.

Mr. Kappey also gives a rather false impression of the popularity of the 5-cylinder in the commercial-vehicle field. Instead of finding, as one might expect from his letter, that there are several makes of this type of engine available, one finds that there is only one example, which is one of a range of engines produced by one manufacturer which have a common bore and stroke, and having 2, 3, 4, 5 and 6 cylinders. Admittedly this engine is quite widely used, but this is because it happens to conform in cubic capacity and in power output with a general requirement of the commercial-vehicle world, and because of its excellent fuel consumption and longevity, which it shares with the other models of the same make. As this engine was occasionally fitted to vehicles made by a firm with which I was associated, I have had a certain amount of experience with it, and can say that it compared unfavourably in smoothness of running both with the 6-cylinder version of the same make and with the 6-cylinder of our own make (of about the same capacity as the 5), which was the standard power unit in the vehicles in question.

I am, Yours, etc.,
J. S. MOON (Capt.).

R.E.M.E.,
Home Forces.




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C. C. TURPIN, LTD., 222, Gt. Portland Street, W.1, have a selection of Austins for sale. Competitive prices. Euston 5677/8.

DISMANTLING 200 cars, all parts cheap. Albert Motors. Albert Avenue, Albert Square, Clapham, London. Rel. 3256.

1937 British Salmson Sportsman's Saloon, 27,000 miles, twin o.h.c., 12 h.p., superb order. Also 1935 9-h.p. Singer Le Mans coupé, re-cellulosed, three new tyres, 35,000 miles. Reasonable offers accepted; railed anywhere. Wanted to buy or exchange, Aston, M.G., Riley, or anything sporting, '33 onwards. Curtis, The Butts, Rodborough, Stroud, Glos.

SPORTS car for long distances, 2 tanks, 2,500 miles only, made in Czechoslovakia under U.S.A. licence, 2-seater, 25-h.p. straight-eight, laid up since 1938, 6 brand new wheels and tyres, British size, quick sale. Offers. Box 141, MOTOR SPORT, 21, City Road, London, E.C.1.

Continued in next column

RATES (prepaid) 1/3 per line
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6 Words to line

FOR SALE—continued

FORD enthusiast offers partly-completed V.8 Special. Professionally built narrow short wheel-base frame, complete rear axle with shortened prop.-shaft, gearbox, brand new V.8 30 engine, with lightened flywheel, Scintilla magneto, twin carb. induction, steering gear, L.M.B. front axle, wheels and very good tyres. Although designed as a sprint single-seater the whole could be converted to carry a 2-seater body. Price £150. Hutchison, Vale House, Frensham Vale, Lower Bourne, Surrey.

RILEY Lynx, 1937 model, 1½-litre, convertible 4-seater, with new spec. all clos. hood, after low mileage overhauled throughout, engine, clutch and pre-selector, rebuilt by makers, genuine (Sprite) spare parts. Price £335. Box 142, MOTOR SPORT, 21, City Road, London, E.C.1.

21-h.p. 1933 Talbot for sale, suitable rebuilding or spares, open body incomplete. Sheppard, East Green Drive, Stratford-on-Avon.

18-in. Bluemels spring steering wheel, 25s.; also plugs, coils, masks, wipers, etc. Cheap. Sheppard, East Green Drive, Stratford-on-Avon.

FEW pre-1914 *Autocars*: also 1926 Austin Seven chassis. Box 143, MOTOR SPORT, 21, City Road, London, E.C.1.

T-type M.G. red, resleeved, £200. Triumph 2-litre Vitesse Sports Saloon, ivory and black, good condition, £55. Aero Minx Drophead Coupé, £50. Evans, Wheatshaf Hotel, Baslow, nr. Bake-well, Derbyshire.

BUGATTI. Set of 4 aluminium wheels, 11-in. drums, complete with back plate, hubs, brake fuse, etc., in perfect condition. F. O. Cleveland Harmer, Bugatti Specialist, 83, Old Oak Road, Acton, W.3. Shepherds Bush 5022.

1926 Alvis 12/50 Sports 2-seater, mechanically good, but body rough. Outside exhaust, bronze head, very fast. £25. A. M. Wadsworth, Sandy Lane, Leighton Buzzard.

1930 600-c.c. s.v. 86 type Douglas Motor-cycle engine, complete, in very good condition; also Rev.-counter Speedometer, almost new, suit 3.50 by 19-in. tyres. £5 the two. Walsh, Bramshott Court, Liphook, Hants.

1930 Alvis Sports Tourer, 16 h.p., stored since the war, a useful proposition, only £40. A. M. Wadsworth, Sandy Lane, Leighton Buzzard

SUNBEAM 3-metre chassis. British Salmson 2-seater. G.N. chassis with Davenport axle, less engine. Wadsworth, 39, St. John's Road, Isleworth. Hounslow 0826.

Continued in next column

FOR SALE—continued

ALFA (blown 1,750) Saloon, £350, first registered 1937. Overhauled. Spare Zagato open body also available. 1929 Alfa Chassis, £65. Box 137, MOTOR SPORT, 21, City Road, E.C.1.

DETAILED drawings to make your own super-charger. 5s. set. H. Greenhalgh, 22, Scafell Avenue, Morecambe.

WANTED

SPORTS CARS. T. & T. interested in purchase of good sports cars. Thomson & Taylor (Brooklands) Ltd., Portsmouth Road, Cobham, Surrey.

500-c.c. o.h.v. Motor Cycle, about £25. Instruction Book, pre-1930, 250 B.S.A. 18-in. Rudge wheels, suitable Frazer-Nash, Ford 8-h.p. Saloon, 1935/6. MOTOR SPORT, 1925/6, and January and March, 1930. Box 144, MOTOR SPORT, 21, City Road, London, E.C.1.

PAIR 26-mm. downdraught carbs. Solex or Zenith preferred. Instruction Book: VIII Series "Lambda." Jackall equipment for 24-cwt. car. Battersby, "Windrush," Botany Bay, Enfield, Middx.

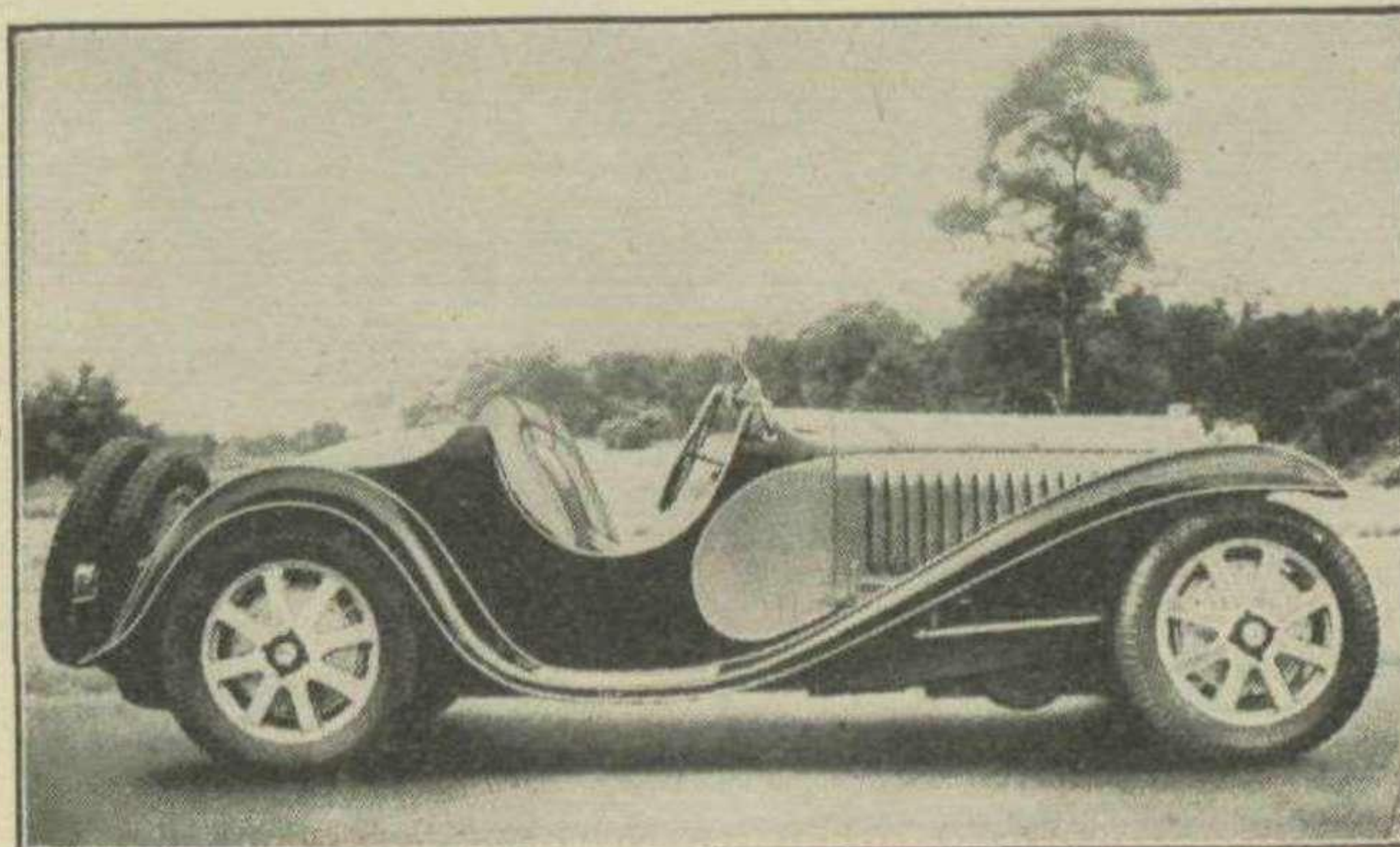
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BUGATTI CLASSICS—No. 8

Photograph from the Jack Lawrence Collection

Type 55. 8-cylinder, twin-cam, 2,270-c.c. Supercharged, "sending" approximate road speeds per 1,000 r.p.m. of 1st, 7 m.p.h.; 2nd, 11 m.p.h.; 3rd, 15 m.p.h.; 4th, 20 m.p.h. Wheelbase, 9 ft.; track, 4ft. 1 in.; chassis weight, 18 cwt.; fuel tank capacity, 22 galls.; h.p. 17.8. £1,350 worth of Traditional Bugatti Craftsmanship, possessing mechanical features derived from Le Patron's racing knowledge.

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