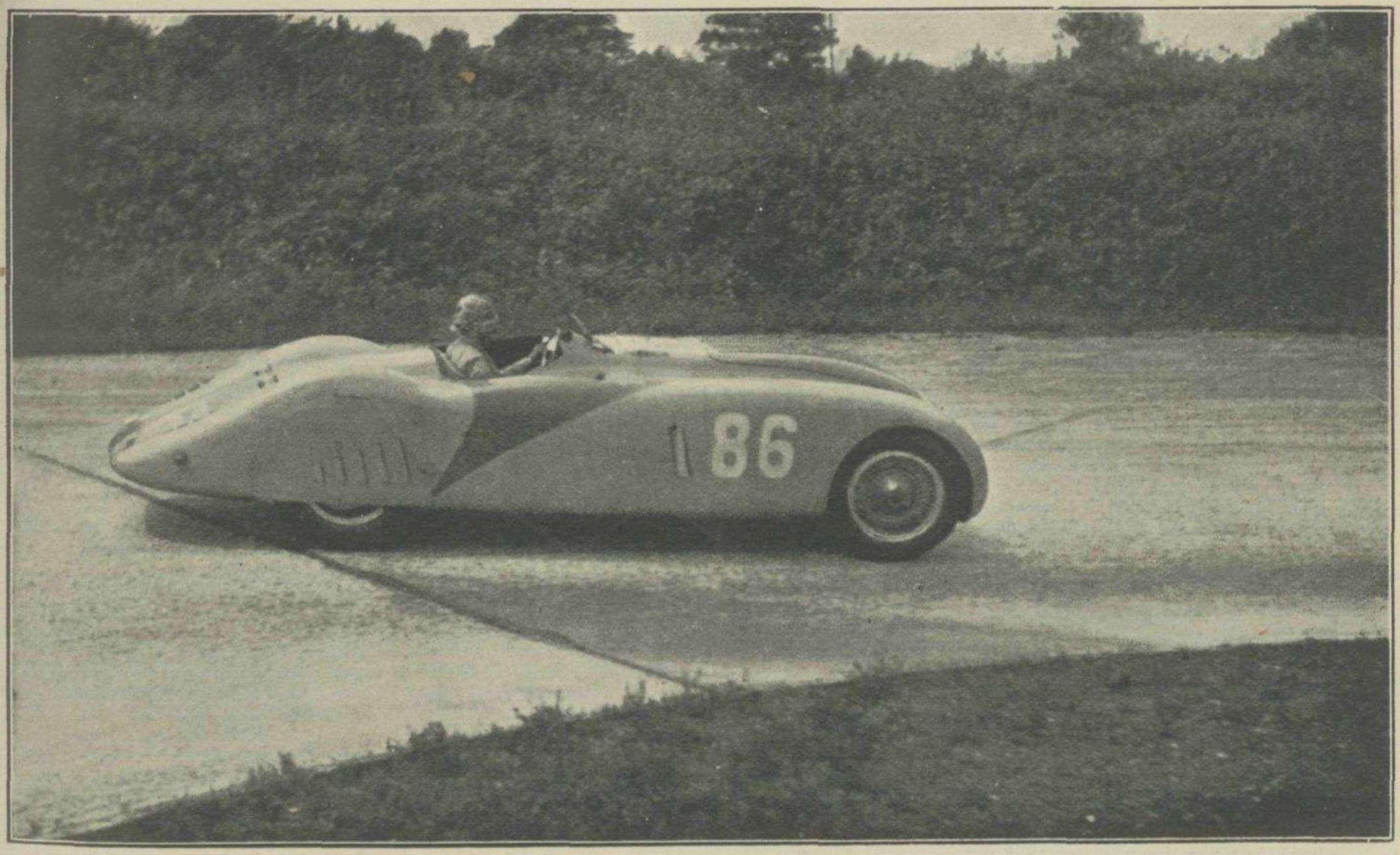
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MOTOR SPORT

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THE MOTOR RACING BRAINS TRUST —

RIVERS-FLETCHER and Bill Capon put over a very original form of motoring entertainment at the Rembrandt Hotel on January 31st, when they got five august persons to form themselves into a Brains Trust to handle questions sent in by enthusiasts, with Cecil Clutton to keep the " brains " up to scratch. The Brains Trust on this occasion comprised Peter Monkhouse, Laurence Pomeroy, Peter Berthon, Leslie Ballamy and Fred Thatcher, with Clutton as Question Master. The following gives some idea of what happened, editorial comments appearing within brackets.

The first question, set by J. Lowrey, B.Sc., concerned the advisability of using independent rear suspension for sports cars. Pomeroy stated that swing axles were abandoned on the Continent because they are unsuitable for transmitting over 300 h.p. On the score of complication, noise, etc., this form of axle seemed undesirable. Maserati always used ordinary rear axles, and their racing cars were nearly as fast as the German cars. Monkhouse said the driver could control the back part of a car when it was sliding about, but not the front, so that it was essential to steer while the back-end was swinging. He voted against the swing axle, except for the fastest types. Ballamy said independent suspension, in itself, is unstable from the steering aspect, and many manufacturers have hastily gone back to rigid axles. A rigid rear axle steadies a car directionally, so front i.s. is better than independent rear suspension, and with all wheels independently sprung you get " four wheels doing funny things." He thought a good rigid front axle might let you get away with i.r.s.

The next question was, " Why do racing drivers so often wear funny clothes, not only when racing, but in private life ? " Monkhouse rose nobly, and said it was all to do with racing folk being individualists—selfish ones at that—and wearing what they liked. He liked the clothes he wore, and, if the colours clashed, well, he couldn't see them ! Pomeroy pronounced that he didn't know why drivers wore funny clothes, but he would like to know why the engineers who designed the cars did such funny things. Berthon felt the answer lay in racing drivers being nervous, temperamental, highly-strung individualists, and Ballamy reminded us [no need !] that cars so quickly ruin clothing that drivers are soon reduced to wearing anything they can come by. Thatcher thought colours allowed people to pick out a given driver on the track. He wore a Cambridge-blue hat and shirt in his M.G.

The next query rather evaded direct answer—whether the larger the head-lamp the greater the efficiency, and, if so, was there an optimum size ? Clutton suggested that P100 lamps were often fitted mainly as a good selling point, and that streamline form would not humour either great size or high-placing of head-lamps. Pomeroy felt that with a perfect reflector size did not affect efficiency, but that in practice this was never attained, and the bigger the lamp the better the beam, quoting searchlights as an example. Thatcher complained of being dazzled by masked lorry lamps on a recent night journey down from Crewe, and started off on a theme of his own until brought to heel by the Question Master. Ballamy thought 36-watt bulbs in Zeiss lamps powerful enough for anyone, and Monkhouse felt that P90 Lucas lamps were ample for all requirements.

Next we had : " Should crash helmets be compulsory, and why are they not used by Continental aces ? " Monkhouse wasn't in favour of making them compulsory, but thought you were safer with one. He thought them infernally uncomfortable, although people told him they were not if properly fitted. Accidents were not in greater proportion on the Continent, so the practice of Continental drivers did not affect the issue. Berthon thought (*a*) that crash hats looked unsightly, and (*b*) that the head was not necessarily the most vulnerable part. Motor-cyclists did need crash hats. Pomeroy thought it all depended on whether you had your accident inside your car or whether you came out. If inside, you tucked yourself up and hid below the scuttle, but a crash hat was useful if you got thrown out—he once used to dash everywhere in a Bugatti, and this form of headgear certainly saved him when he fell out in the middle of Hyde Park. [The fact remains that when we were forcibly ejected from an Allard-Special at a certain speed hill-climb a much softer section than the Editorial brow was the first to meet the ground.] Pomeroy found his crash hat comfortable and its peak was useful in the sun. With a detachable-steering-wheel sort of car such protection would be unnecessary, as you couldn't be thrown out. [But you might then have to go with your car through a few trees, walls and a house or two, with little time to duck.] Berthon thought wind pressure on a crash hat added to its discomfort, and Thatcher thought they were unnecessary, but made you *feel* safer, especially when on a horse. Ballamy made the point that here we nurse our drivers, but on the Continent racing drivers can break their necks if they wish and no one objects. [A poor point, because in this country the popular Press encourages us to commend accident-prone drivers and British crowds invariably stand in the most dangerous places unless driven away, whereas on the Continent the drivers know their job, the crowds likewise, and racing is safer in consequence.]

Came a question about the future of plastics [not a racing topic], and then :

"Which firm has done most to enhance British racing prestige?" Monkhouse thought E.R.A., and Pomeroy said that was so, but that the M.G. Car Company, Ltd., had sold cars all over the world that had been successfully raced by amateurs, and in America, Australia and New Zealand M.G.s existed that would beat-up locals in V8s. Peter Berthon seconded Pomeroy's view, and recalled Major Gardner's 200-m.p.h. records with an M.G.—"a fine job and really worth while." This the Question Master referred to as a generous statement, doubtless thinking of E.R.A. achievements which Berthon has helped to make possible. Clutton also wondered what of Bentley and Sunbeam. [And as the question concerned purely *racing* prestige and not commercial prestige, enhanced by racing and breaking records, Sunbeam's 1923 Grand Prix victory and Bentley's great chain of successes at Le Mans surely deserved more prominence.]

The following question concerned how best the beginner could take up the Sport, and much general comment about depth

water could be added to an alcohol fuel before the water came out of suspension, but he agreed with Clutton that 4 per cent. was a more usual proportion, although not so helpful in suppressing detonation. Monkhouse recalled accidentally emptying a pint of water into the tank of Maclachlan's Austin Seven at Lewes, when it had to be refuelled in a hurry, with no apparent effect on its subsequent run up the course.

The next question produced the most pleasing retorts of all from some of the assembled brains: "Will the American-type car become the standard type, ousting the sports car?" This drew a very emphatic "No!" from Monkhouse. Pomeroy pointed out that in America they know not the cyclist, child and old woman who literally *pop out*, making it necessary to stop or swerve, which is just as well, because they cannot see out of their automobiles anyway, and could not stop or swerve suddenly if they would. He reminded us that a long sea journey pre-conditions those who travel from this country to America to withstand rolling

when it was going in—the difficulties were practical rather than technical.

Anthony Heal asked why so much time elapsed before engine output per litre again approached that of the 1924-26 V12 and straight-eight Delage engines, and Pomeroy thought it was due to the expensive construction necessary, naming the use of immense numbers of ball and roller races calling for very accurate machining, as employed by Delage, which made other manufacturers afraid to copy such designs. Pomeroy had recently counted 64 such races in the straight-eight Delage engine. Berthon agreed, but recalled the amazing output of the unsupercharged T.T. Vauxhall engine running on ordinary petrol, a 1921 design. He could not agree with Clutton that these engines suffered from cylinder head trouble, although the head was more holes than metal.

The question of ideal racing car transmission was raised, and Monkhouse favoured a 4- or 5-speed crash or synchromesh box for racing car events and a self-change box for sports car racing. Berthon

An Original and Successful Event at the Rembrandt Hotel

of pocket, reliability or otherwise of supercharging, and so on, resulted. Pomeroy quoted Seaman as saying he needed months of driving over snow before he could correctly handle the G.P. cars, and thought that if the novice drove "an oversteering car like an Austin or Ford" across Europe in winter, he might return to beat up everyone on sheer cornering merit, as Turner used to do at Donington with a comparatively slow "Ulster" Austin Seven. Monkhouse quoted "Bira's" sensible graduation to fast cars via a Riley "Imp" and K3 M.G. Magnette. Thatcher said he first ran his M.G. in trials and then got Robin Jackson to tune it for Brooklands, "which was not expensive"; it always ran unblown. Berthon felt there was no truth in the theory that motor-cycling constituted good training for handling a racing car [thank goodness!], and the Germans, he said, found that only seldom did motor-cycle aces make suitable car drivers. Clutton reminded us that big cars are cheapest in the end and in this category there is less competition.

Butler, of the 750 Club, wanted to know what percentage of water is added to racing fuel and why it didn't choke the jets. Pomeroy said water mixes with alcohol, as those who drink must know, and it goes through the large jets used with this fuel very readily. Water was purely a cooling medium; it had not been proved, although sometimes it is stated, that there is a power-gain due to chemical breakdown of the water content in the fuel. Water reduces detonation, and Alfa-Romeo had a 3-litre V16 engine in course of development before the war, designed by Ricardo, which, blown at 22 lb./sq. in., was giving some 500 b.h.p., and would, Pomeroy believed, have been raced in 1940 but for the unbalanced Axis. This engine had direct water injection to the two-stage supercharger. Berthon said that as much as 16 per cent.

motion, and Ballamy observed that naval officers seem to favour American cars, and that when one of these gentlemen gave him a ride in such a car he was terrified, whereas the owner seemed quite happy, while never before had he experienced a motoring sensation so akin to water-travel. [We have been likewise terrified by Ballamy when he has been demonstrating his suspension on American automobiles.] He thought if certain American racing cars were raced on, say, the Crystal Palace circuit, they would require scraping off the walls. [Which they seem to do when let loose in any form of American race, Indianapolis somewhat excepted.] Pomeroy said that American cars are literally designed to keep on keeping straight, to combat high winds blowing off the oyster-plains, which is why they do not feel right in this country. Individual Britishers would never tolerate an era of all-automobiles was the general inference.

The audience were now allowed to fire questions at the brains. Darbishire wanted to know if you could add methylated spirit to Pool petrol to help high-compression engines, and was told that it would not stay in suspension unless the fuel was put in in half-gallon doses or stirred like a batter pudding. Marcus Chambers asked what effect 100-octane fuel had on a low-compression engine, and was told that valve seats, etc., would be damaged and cause hot-spots, and Humphreys asked all sorts of embarrassing questions about future forms of prime-mover, rotary valves, two-stage supercharging, and the like. Of the audience, Arbuthnot was able to say that his all-independently-sprung 3.8 Alfa-Romeo had steered well, but seemed to need plenty of the track, and Peter Clark said he had used 12 per cent. water with non-alcoholic, indeed Pool, petrol in his Le Mans H.R.G. [as described in MOTOR SPORT early in the war] with very good results

said that E.R.A. went back to a crash box because power loss was traced to skipping of the shaft of an E.N.V. box, which a new design, with central bearing, would probably have overcome. He preferred the self-change box, as it enabled the driver to keep both hands on the steering wheel; he had not tried a Cotal box. J. H. Fall queried why independent suspension was regarded so highly when Ettore Bugatti obtained such excellent results from normal suspension. This drew the view that Bugatti might do even better with i.f.s., and Ballamy said he had converted a Bugatti to i.f.s. and it cornered faster than formerly. [He was referring to a type 37A once raced by Eileen Ellison and T. P. Cholmondeley-Tapper, which he subsequently altered at the front end; Ballamy's remark is interesting, as this car's subsequent timed performances never gave any basis of comparison by means of which the effects of the new suspension could be estimated.]

The session concluded with Denis S. Jenkinson's two questions: "Why do people warm up racing engines by 'blipping,' whereas Dixon warmed up Rolt's E.R.A. at a steady speed, and aero engines are warmed up likewise? Is it because it sounds nice?" "Why do people use Castrol R? Is it because it smells nice?" Pomeroy said that "blipping" was useful with a fixed-choke carburetter and large jets, as it avoids trouble due to a coarse mixture and deposits of fuel in the manifold. With an S.U. type carburetter steady speed is better. He said castor oil has a high rate of film spread and is sticky, but is soluble in alcohol, and so dangerous with alcohol fuels. Monkhouse said it was essential to warm a racing engine *through* rather than to warm it *up*, and he thought even, steady running best, as it keeps the oil down the cylinders. He found 1,500–2,000 r.p.m. a good speed

Continued on page 65

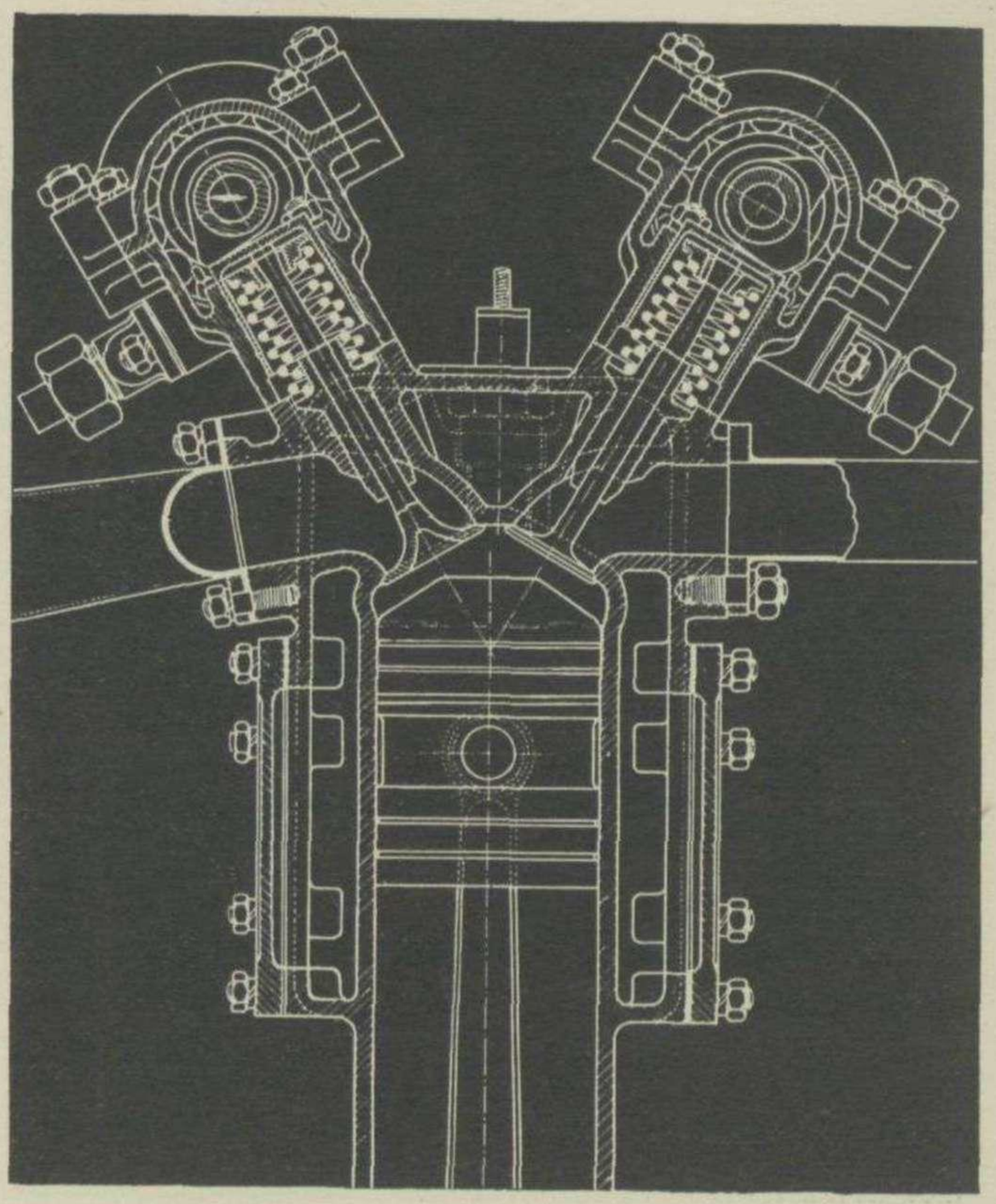
RACING CAR EVOLUTION

Part III (continued): 1926-1927

With Some Notes on Earlier 1½-litre Racing

By Laurence Pomeroy

This is Laurence Pomeroy's third contribution to the Evolution of the Racing Car series. The first article was written by Cecil Clutton and covered the period 1895-1908 ; it appeared in the issue of March, 1942. The next contribution was by Anthony Heal and covered the 1909-16 era (September, 1942). Laurence Pomeroy dealt with the periods 1919-21 and 1922-25 in the October and November issues last year, and he now deals with the years 1926 and 1927, and with the development of the 1½-litre racing car from 1920-25. The next article will cover 1927-33, and will conclude this valuable and unique concise review of racing car development from the earliest times until the present day, racing from 1934-39 having been covered in an earlier series of articles in " Motor Sport " in 1940 and 1941.—Ed.



RUNNER-UP.—Although in the early 'twenties the Talbot-Darracq teams were unbeaten in major races, there was little to choose between them and the Aston-Martin in point of speed. This is understandable, because the Talbot-Darracq engine is closely related to an Henri design, whilst the Aston-Martin was, in fact, designed by Henri, a cross-section of the cylinder being shown above.

IN my last article I carried the story of G.P. formula racing up to the end of 1925. At the close of that season the 2-litre cars, which had provided such splendid International competition since 1922, were laid aside, and designers concentrated on the task of producing new models for the 1½-litre maximum-capacity rule, which was projected for 1926 and 1927. Before I consider in detail the models produced for these two years it will, I think, be of value to deal with 1½-litre racing which had been seen between the close of World War No. 1 and the end of 1925.

I have not been able to include these in previous articles, except to mention that the first *voiturette* race was organised in 1920 and was won by three Bugatti cars, which had, in fact, been built in 1914. In 1921 Bugatti again scored a victory on the Brescia circuit, when he averaged 72 m.p.h. in a race that was run shortly after the Italian Grand Prix. It was in this event that the famous " Brescia " model made its first appearance, and although it followed in the main the classic Bugatti lines, it differed from his previous racing cars in that the bore was increased to 69 mm. (the stroke remained at 100 mm.), whilst a built-up crankshaft was employed, with ball-bearing centre main. These engines developed approximately 45 b.h.p. at 4,000 r.p.m., and had a maximum safe limit of perhaps 5,000 r.p.m. This was Bugatti's last win in a major event for cars of this capacity for four years.

During this period one marque—Talbot-Darracq—dominated the field. This team secured their first win in the *voiturette* race on the Le Mans circuit in 1921, where Réné Thomas won at 72.1 m.p.h., which compares very favourably with the Bugatti speed of 57.6 m.p.h. in the previous year. Lee Guinness and Segrave finished second and third.

The engines of these cars were in effect 4-cylinder editions of the straight-eight 3-litre S.T.D. (designs which I dealt with in the first part of my article), and they developed about 55 b.h.p. at 5,000 r.p.m., the bore and stroke being 65 × 112 mm., and there being two camshafts operating 16 overhead valves inclined in the cylinder head at 60 degrees to each other. A 3-bearing crankshaft and twin carburetters were provided, and plain bearings were used throughout the engine, whilst the chassis was of orthodox construction, with front wheel brakes.

These models followed up their Continental win by running away with the first 200 Miles Race at Brooklands, in which Segrave was first at 88.2 m.p.h., followed by Guinness and Malcolm Campbell. This, incidentally, was Segrave's first win in a major event. In the course of this win the Talbot-Darracqs showed a clear superiority in speed over the Bugattis, the best of which finished fourth.

The year 1922 saw Talbot-Darracq supremacy maintained, with the same cars running completely unchanged. They started by securing first and second places in the 1½-litre race in the I.O.M., followed by first, second and third places in the French Light Car Cup race at Le Mans, first and third in the J.C.C. 200 Miles Race, and first in the Penya Rhin G.P.

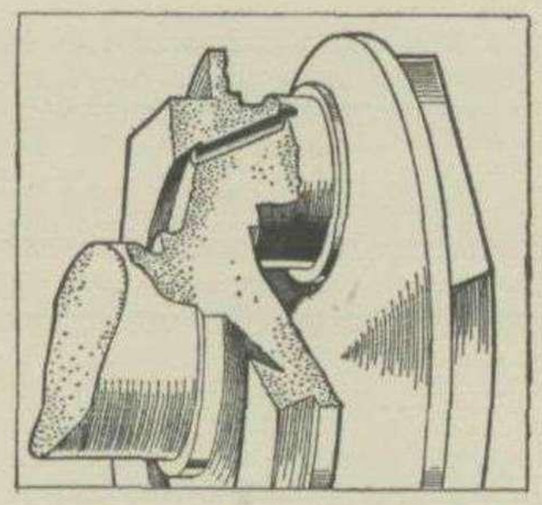
Despite this apparent clean sweep, in point of view of speed they were closely rivalled by the twin o.h.c. Aston-Martin, a design which really consisted of half a 3-litre straight-eight Ballot placed on a crankcase and crankshaft originally designed for a side-valve engine. The bore and stroke were 65 × 112 mm., as on the Ballot, and these cars actually proved superior in speed during the opening laps of the 1922 200 Miles Race, whilst Zborowski was runner-up to Guinness in the Penya Rhin event. It is worth mentioning that these cars were amongst the first to employ alcohol mixture, and were supposed to have derived an additional 1½ m.p.h. on this account.

In the remote mountains of Sicily Mercédès also started something by running the first supercharged racing cars of European design, but, largely owing to chassis defects, these models did not, in fact, prove so fast, even in the 1½-litre class, as cars of much more humble origin. However, in 1923 Fiats decided to supercharge a 1½-litre 4-cylinder car, which once more was really half one of the

straight-eight 3-litres which I have discussed at some length in previous notes.

This model made its first appearance in the 200 Miles Race at Brooklands in 1923. Public report of its great speed was sufficient to cause the S.T.D. directors to keep out of the entry lists for this race after they had again won the *voiturette* race at Le Mans, this time at 71.5 m.p.h. The Fiats speed was certainly no myth, for the two cars, driven by Malcolm Campbell and Salamano, achieved the honour of being the first cars of their capacity to lap Brooklands at over 100 m.p.h., the actual speed being 101.64 m.p.h. Nevertheless, they failed to win, both suffering from engine trouble, and, as a result, victory went to an Alvis, which was nothing more than a highly-tuned edition of the standard "12/50" sports model. This notwithstanding, it achieved the excellent average of 93.29 m.p.h., i.e., 5 m.p.h. faster than the Talbot-Darracqs, which had had pure racing-car lineage. The latter team secured a final triumph with their 65 × 112 mm. engine in the 1923 Penya Rhin race, once again being chased home by Zborowski and his Aston-Martin.

In 1924, as I have previously mentioned, Bertarione left Fiat and joined the S.T.D. combine. His known influence on the Grand Prix cars was equally apparent in the case of the 1½-litre models. The by now three-year-old Talbot-Darracqs were abandoned and replaced by a brand new design which was called, simply, the Darracq. It was a scaled-down version of the 2-litre G.P. Sunbeam, but differed slightly in that the bore and stroke were 67 × 105.5 in place of 67 × 94 mm. Mechanically the engines were virtually identical, except, of course, that the smaller unit had four cylinders and a three-bearing crankshaft. The cars were immediately successful, and gained a superiority which may best be indicated by their 200 Mile Race performance, wherein they finished first, second and third at an average speed of 102.27 m.p.h., i.e., one m.p.h. faster for the full distance than the best Fiat lap of the previous year.



TYPICAL PRACTICE.—It has often been thought that Bugatti was alone in employing jet lubrication to the crankshaft. In fact, this practice was used by other constructors, notably Delage, who had jets on each side of the webs supporting the big ends which injected oil into the annular grooves shown in this drawing, centrifugal force then sending it up the drilled passage into the big end.

By now other designers were leaning towards supercharging, but neither in 1924 nor in 1925 did anyone contrive to get anywhere near the Darracq performance. Superchargers were fitted to side-valve Anzani engines, also to some specially built Alvis cars which had straight-eight engines and front-wheel drive. A further development was a supercharged 8-valve Aston-Martin, but none of these broke the sequence of Darracq wins which included, in 1925, a race on the Montlhèry circuit, where they were first and second, this order being once again repeated in the J.C.C. 200 Miles Race, in which the Outer Circuit was abandoned in favour of a course with artificial corners.

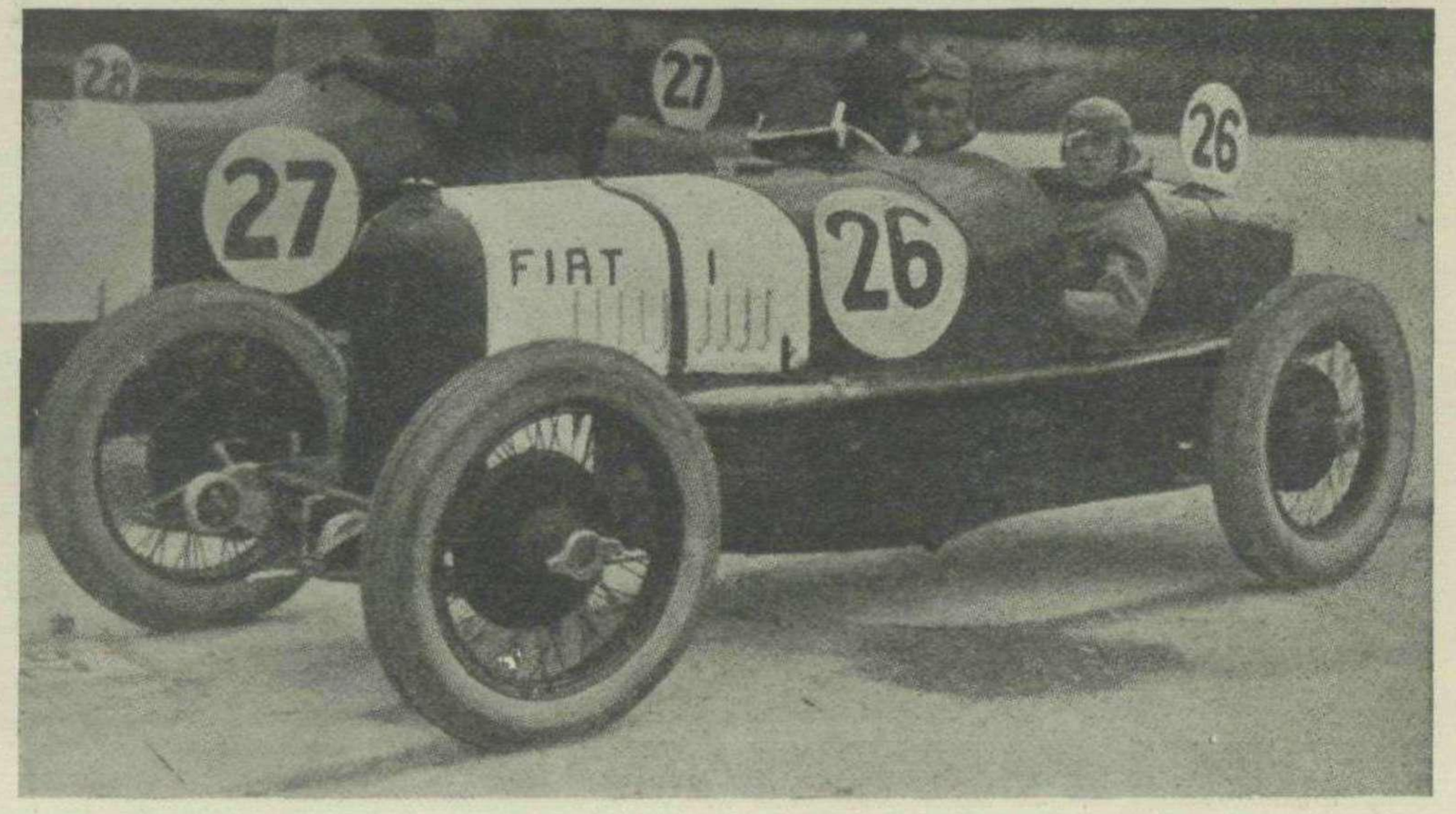
Nevertheless, this year did see a portent of the future in that Bugatti reappeared on the scene with some straight-eight 1½-litre engines fitted in what was virtually a Type 35 chassis, and having natural aspiration. With these he won the Italian 1½-litre event at Monza, averaging 86.61 m.p.h. for nearly 500 miles.

From this brief summary of the background to 1926–27 racing it will be seen that the most successful *voiturette* cars were 4-cylinder editions of 6- or 8-cylinder Grand Prix types of 2- or 3-litres capacity. Supercharging was, by the end of 1925, just as much an established principle in the smaller class as it was on the Grand Prix cars, and although I shall deal in more detail later in this article with technical features, it may be interesting to note that the Darracq engines produced 108 b.h.p. at 5,500 r.p.m., with a boost of about 0.5 atm.

As has been seen from the past articles, manufacturers supported the 2-litre formula in quite a big way right up to the end, and works teams of Alfa-Romeo, Bugatti, Fiat, Delage, Sunbeams and Rolland Pillain, as well as Benz, Schmid and Mercédès, made for exceedingly interesting events.

In 1926 the promise of a 1½-litre formula was even more satisfactory. Although Alfa-Romeo announced their intention of retiring from the field, most of the other companies were busy preparing, and, in addition, new contenders were to be expected from Alvis and Thomas in this country, O.M. in Italy, and Sima-Violet in France. This being so, the A.C.F. looked forward with a pardonable degree of optimism to the running of the French Grand Prix at Miramas at the end of June. Alas for their hopes! Out of all these possible starters Bugatti alone was ready to race, and he secured a complete walk-over. A unique occasion, one must think, not only because of the absence of other competitors, but because it must have been the only time when Bugatti was ready and the other people weren't! It was, however, not so much design as construction that was at fault, for much earlier in the year there had been full descriptions of a variety of cars.

Dealing with the new-comers, Alvis had a development of their front-wheel-drive car on the stocks, using eight cylinders of 55 × 77.75 mm., cylinder head and block cast in one, and horizontal valves. This engine was blown by a Roots-type supercharger. The Thomas-Special was another



One of the first supercharged cars was the **1923** *1½-litre Fiat, the example shown here being that driven by Malcolm Campbell in the J.C.C.* **200** *Miles Race. Although not at first satisfactory, this design paved the way to successful application of forced-induction to the* **2**-*litre Fiat cars.*

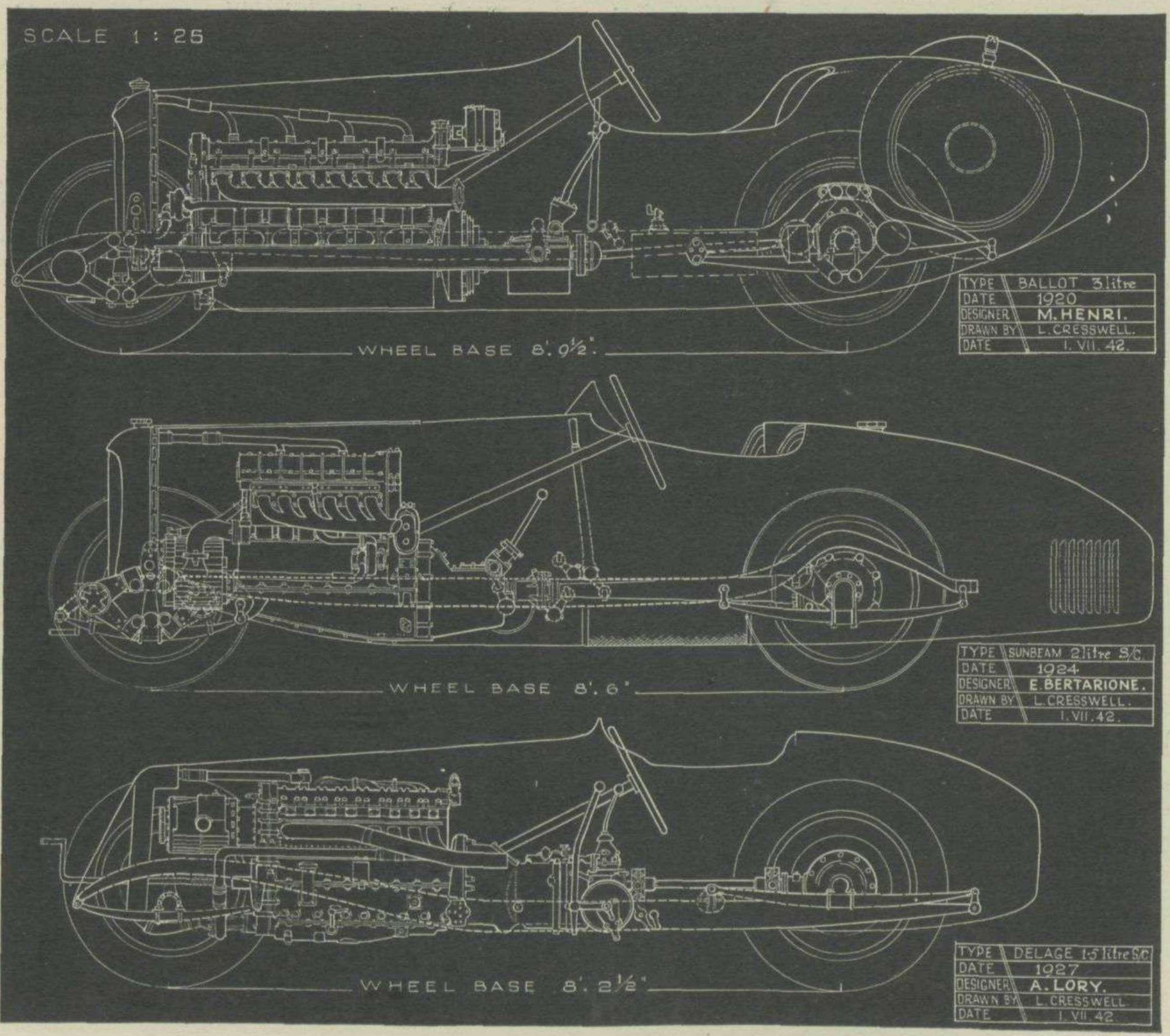
adherent to the straight-eight principle (52 × 88 mm.), and was notable for using leaf springs in the valve gear, whilst the Sima-Violet was a 2-stroke designed and built by a man who had had a great deal of experience with this type in 750 c.c. events. His Grand Prix job was a good deal more ambitious than anything he had previously attempted, and had four horizontally-opposed cylinders of 74 × 84 mm.

Fiat also built a supercharged 2-stroke engine, and although this never appeared in competition, a great deal of work was done on it, and in view of the performance figures which were later published, it is a great pity that it was not able to appear. As it was, however, the main competition (after the French Grand Prix) was between Bugatti, Talbot and Delage.

Bugatti ran supercharged versions of the 1½-litre cars which he had run in the autumn of the previous year in the Italian Grand Prix. These had cylinder dimensions of 52 × 88 mm., and, together with the 2.3-litre edition of the same design (60 × 100 mm.) which was run in the Targa Florio, marked the departure of Molsheim from atmospheric-induction, some two years after most of his rivals had taken this step.

The Talbot (it was given this name quite arbitrarily as a member of the S.T.D. group) was a really beautifully designed job. The eight cylinders were made up in two blocks of four, with the characteristic Bertarione welded-up construction. The crankshaft was also made in two pieces and ran on roller bearings throughout, whilst the whole engine was offset from the centre line of the chassis, enabling the driver to be placed really low down on the off side of the car. Thus, the designer took advantage of the regulation which had come into being in 1925, whereby for the first time in motor racing history the mechanic was not carried on the car. The frame was an excellent piece of work, stoutly cross braced and immensely stiff as a beam, being made from a double length of channel, one placed about 6 in. above the other with suitable vertical spacing members, each side member being pressed out as one piece; in other words, it was rather like the Lancia "Lambda" frame on a small scale. The front axle was hollow and in two pieces, with a flanged joint in the centre.

The Delage designed by M. Lory was a direct development from the previous year's 2-litre cars so far as the engine was concerned. This may not be immediately apparent, as it was a straight-eight and not a V12, as was the original model. Nevertheless, the basic design-concept was very similar, including the use of a single iron casting for the block; as also was the proportion, location and drive of the valves, and the details of the crankshaft and rods. Cylinder dimensions were 57.5 × 75 mm., and the induction arrangements included two superchargers mounted centrally on the near side of the crankcase. They were driven by a pair of gear wheels like those employed on the *Monoposto* Alfa-Romeo of later time, but the driving gear was mounted on a



SEVEN YEARS TREND.—The progress in general design during the period **1920–27** *covered in these articles is shown by the drawings above. The maximum speeds of the cars portrayed were approximately* **110, 122** *and* **127** *m.p.h., respectively.*

long shaft which ran forward, inside the crankcase, to pick up with the timing gears on the front end of the engine. Each blower served four cylinders and the engine was set slightly athwart the frame, the transmission line extending this angle so that the crown wheel and pinion were appreciably offset toward the near side of the car. Once again, the purpose was to lower the driver and so reduce the frontal area. A five-speed gearbox was employed, and, unlike the Talbot. the frame was exceedingly light and flexible. One further difference is apparent in the chassis specification, viz., that the Delage brakes were put on through the medium of a friction servo device driven off the rear end of the gearbox, whilst the Talbot had self-servo shoes in the brake drums.

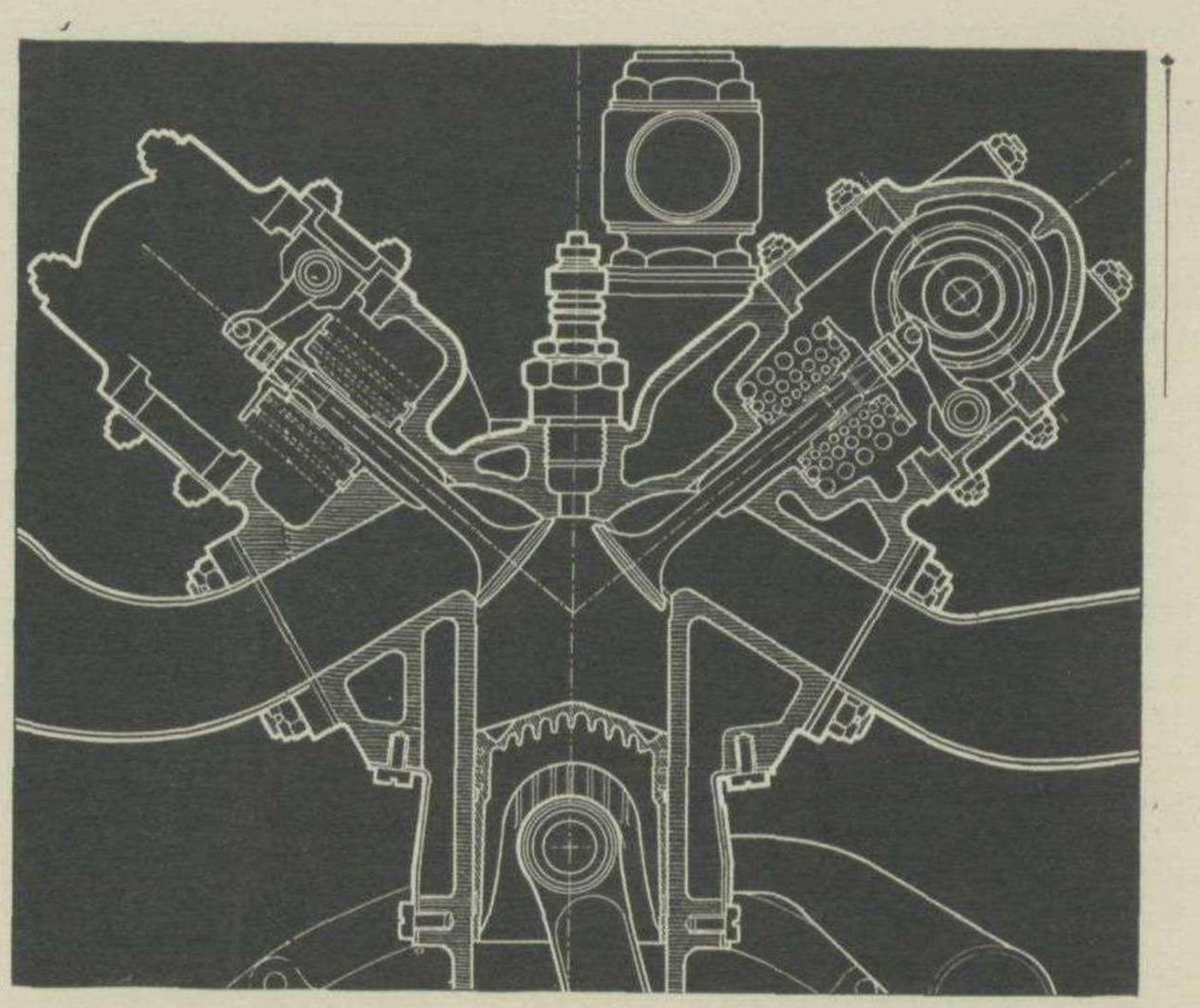
The Delage made its first appearance in the San Sebastian Grand Prix in July, and showed itself vastly superior in speed to the Bugattis, fresh from their French Grand Prix victory. This notwithstanding, Bugatti came home first, as at one time and another all the Delage cars were brought to stop for varying periods of time, due to the roasting action of their exhaust system upon the feet of their unhappy drivers. Owing to the disposition of the superchargers on the near side of the car the exhaust pipe came along the off side, and the offtake pipe of No. 8 cylinder formed a tube of red-hot metal but a few inches from the pedals. The effect, when combined with strong Spanish sun, may well be imagined, and it is certain that this defect cost Delage the race.

The first time the Talbots appeared on the scene was in the first of the only two British Grands Prix which have ever been run by the R.A.C., and the event showed that they were by no means in a fit state to race. On one of them the front axle broke in the first lap, and although Segrave led for 10 laps, and actually made the fastest lap of the day, he eventually went out, probably with valve trouble. The third car also suffered engine trouble before the race was over.

Thus, at this stage it was possible to put Talbot, Delage and Bugatti in an ascending order of reliability and a descending order of speed. Unfortunately, although one might have hoped for a Grand Finale for 1926 with every car at its best in the Italian Grand Prix, this was not to be. Only Bugatti ran, and scored an easy win, thus securing the European Championship.

Dealing with the lesser machines, the Sima-Violet gave some taste of its quality when it ran in the Boulogne Light Car Grand Prix. It showed itself to be slightly slower than one of the works 1,100 c.c. Salmsons, so, although one must give the designer some credit, one can scarcely put the car down as a likely contender for G.P. honours. The Thomas-Special comes into rather a different category, as shown by its hour record at 112.77 m.p.h. Nevertheless, although being able to cover a steady run at this speed, the subsequent record of this car indicates that various defects in the chassis, and the strange valve gear which limited the speed in the gears, were troubles which prevented it from becoming famous in the sphere of road racing.

Thus it was that in 1927 the same competitors who had fought out their



FINAL FLOWER.—A cross-section of the Delage **1927** *engine, probably the most efficient power unit of its size ever made. The excellent sweep of the ports, the large volume of water surrounding the exhaust port and valves, the stiff construction of the connecting rod and wide angle of the valves are all brought out in this drawing, which, like that of the Aston-Martin, is reproduced to a scale of* **1 : 3.**

triangular duels in 1926 were again fighting amongst themselves. But whereas the Talbot and Bugatti cars ran with comparatively small changes (albeit the Bugattis had larger radiators and superchargers, new engine dimensions of 60 × 66 mm., and were certainly faster than the 1926 models), Delage incorporated radical "mods." as a result of his unhappy experiences in the previous year's events. The cylinder block was turned back to front, as it were, and the exhaust system shifted to the near side of the car, where it was well out of the way. This obviously made it impossible to keep the twin blowers in the centre of the crankcase; they were therefore deleted and a small plate covered up the hole previously made by the drive. A single supercharger was made, using the same rotor forms as previously, and it was therefore of rather abnormal length. It was mounted now at the front of the engine, raised rather high so as to give ample clearance for the front axle and the chassis. The steering connections were stiffened up considerably, and over half a hundredweight was added to the weight of the car. With these changes the Delage proved quite invincible, and, in fact, for a decade no one was able to produce a more powerful engine of its size, and it stands to this day as a high-water mark of efficiency if one takes blower pressures into account.

The French Grand Prix was run at Montlhèry, and with Bugatti a non-starter, it was virtually a straight fight between Talbot and Delage. The latter had new brakes and front axle and stood an excellent chance of winning. In the event only one Delage, the winner, driven by Benoist, was able consistently to keep in front of the Talbots, but the latter suffered from their old unreliability, and eventually Delage gained the hat trick. At this time the S.T.D. combine were in difficulties, and having failed to win the premier event, no further Talbot entries were made in the season's racing.

In the Spanish Grand Prix, Bugatti started and very nearly won, but a crash by the leading driver let Delage into the lead, chased by another Bugatti into second place. On the fast artificial circuit used at Brooklands for the second British Grand Prix, Delage showed a marked superiority over the Bugatti and won easily, and in the only other event of note, the Italian Grand Prix at Monza, a single Delage was challenged by a Duesenberg and two front-drive Millers. Although the invaders showed turns of speed on occasion, the result was a win for Europe by a very big margin.

The eclipse of the American cars was undoubtedly due to the low efficiency of their brake and transmission systems, and the poor low-speed performance of the centrifugal type of blower. Since their 1921 G.P. win the Americans had, in fact, concentrated entirely on flat-out racing for board and brick tracks, for which purpose their 8-cylinder 1½-litre cars were no mean performers. In the first year that this size was employed for International racing a Miller averaged 116.58 m.p.h. for 200 miles, and 123.41 m.p.h. over 120 miles. In 1927, at Atlantic City, a Miller front-drive increased the speed for 200 miles to 130.05 m.p.h. Thus there is no doubt that the cars which appeared at Monza were certainly as fast, flat out, as anything on the circuit, and as I have just said, their failure is explicable on other grounds.

At the same time Fiats made their sole appearance with a 1½-litre car intended for Grand Prix racing. This was in the Milan Grand Prix, and the car was not the 2-stroke which had been previously tested, but a remarkable 12-cylinder model with two crankshafts geared together and a bore and stroke of 50 × 63 mm. This engine developed about 160 h.p., and it put up a lap speed of 96.56 m.p.h. This was over two miles faster than the best speed of the Delage (94.1 m.p.h.), but the latter was not pressed and was running in a long race, whereas the Milan affair was over a short distance only. Both speeds were far below the 2-litre lap record of 104.24 m.p.h., whereas at Montlhèry the 1½-litre Delage was slightly faster than the 2-litre cars.

Delage were, of course, easy winners for the European Championship of 1927, and it must be conceded that the 1½-litre formula was a failure from a competitive viewpoint. By contrast, it was a brilliant technical success, and the tremendous step forward in the design of 1½-litre engines from 1922–27 is of extreme interest.

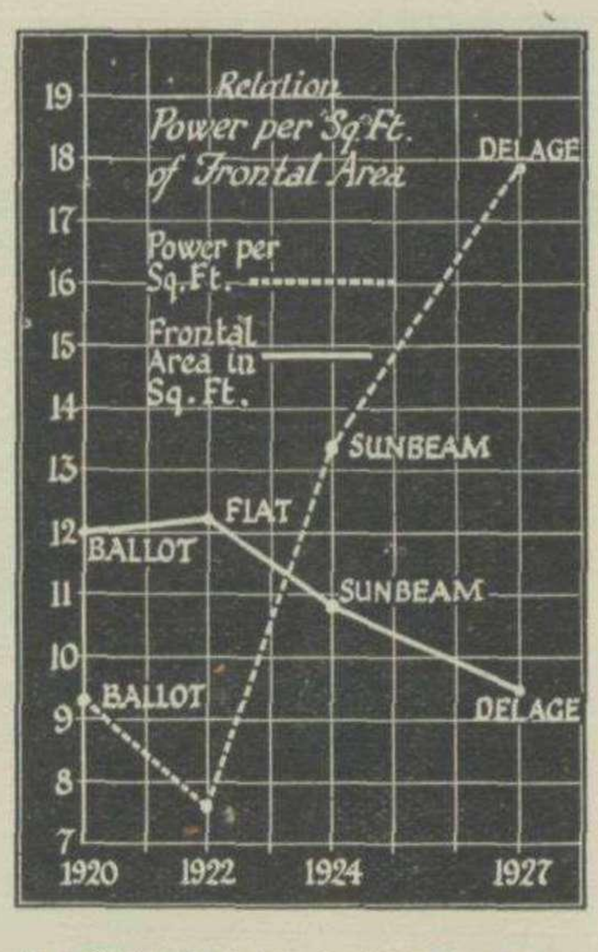
A point which is worthy of particular analysis is the difference between the best specimen of 1924, the Talbot-Darracq, and the 1927 Delage, for both of these cars were supercharged and both used about the same boost pressure.

I have set out in a table the salient facts about these two engines, and a thing that immediately takes the eye is that whereas the gain in m.e.p. in these three years was only 5 per cent., the increase in horse-power-per-litre was over 50 per cent. The reason for the marked superiority of the Delage was its ability to run up to 8,000 r.p.m. and to hold 7,000 r.p.m. for long periods. This ability was derived in part from the use of eight cylinders in place of four, but, even so, the choice of a comparatively high stroke-bore ratio means that the maximum piston speed amounted to as much as 4,500 ft. per minute. This figure was an exceedingly high one, which would have involved severe friction losses if the mechanical lay-out of the engine had not been devised with outstanding skill.

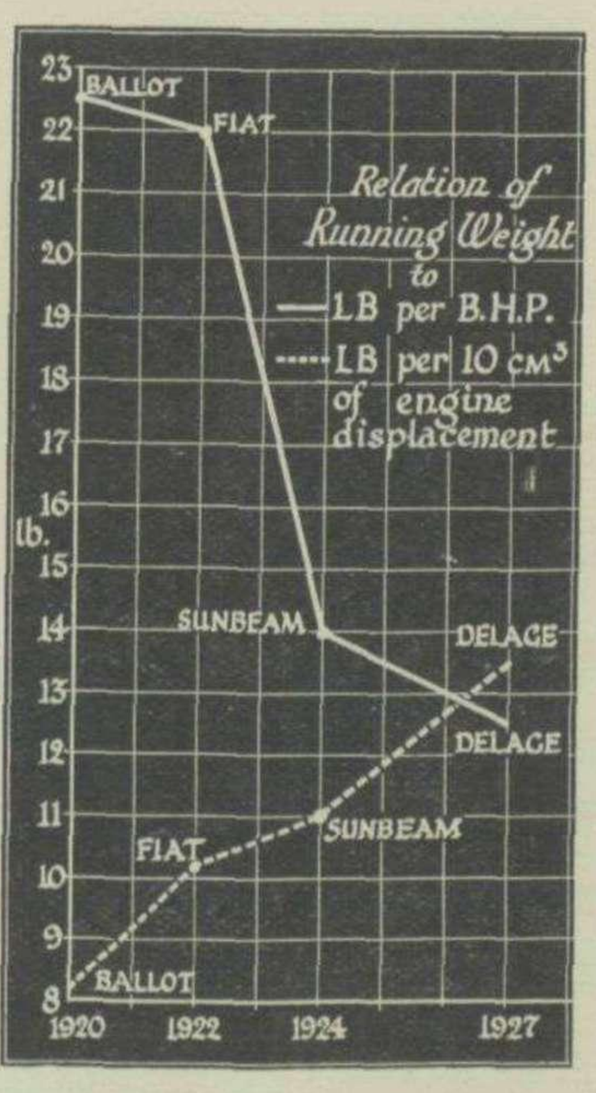
Although there is no reliable data available as to the oil-efficiency of ball and roller bearings, there are certain reasons for suspecting that the extra efficiency derived from using the latter is quite considerable at high rotational and piston velocities. In any event, Lory took no chances in this matter on the Delage, which had ball or roller bearings throughout, with the exception of the oil-pump spindles. Thus, the crankshaft ran on 10 separate roller bearings, with eight roller big-ends. Each camshaft was supported on eight roller bearings, and the drive to both of them involved 14 ball bearings. The blower made up a total of four more roller bearings, and then, just as an incidental, the magneto notches up the score for ball bearings by a further half-score, making a grand total of 62 races of one sort or the other!

When one reckons that, in addition, the engine incorporated 21 gears, 48 valve springs and 32 piston rings, it becomes clear that the Delage company were in no mood to let complications and expense in design or manufacture stand in the way of the best possible results. But all this effort would have been wasted if the design of the blower and cylinder head had not been so arranged that full advantage could be attained from the high engine speed potential.

In point of fact, as a cross-section drawing shows, the lay-out of the cylinder was most excellently arranged. The sides of the casting were left open so that one could be really sure that no sand from the foundry remained in awkward places, whilst the wide angle of valves, and the intelligent disposition of the water spaces, is a model which subsequent designers would have been well advised to follow, but which, unfortunately, they lamentably failed to do.



A GRAPHICAL STORY.—These two graphs show the development of the racing car between 1920 *and* 1927 *in respect of weight per horse-power, weight per engine displacement, frontal area and power per square foot of frontal area. Bearing in mind that the speed varies approximately as the cube root of the last-named figure and acceleration is roughly in proportion to the first-named, one has here a complete picture of seven years development work.*



It is worth noting that the valves were inclined at 100 degrees, and that the inflow value must be quite first-class is shown by the excellent figure of horse-power per square inch of piston area, despite the comparatively low boost and the moderate valve timing, which provides 43 degrees overlap.

Perhaps the most practical illustration of how good this engine is may be found in the fact that it gave in its original form approximately the same power with 7½ lb./sq. in. boost as the 1935 E.R.A. gave with 13 to 14 lb./sq. in. boost. It is not impossible that with only 15 lb./sq. in. boost the Delage would give nearly 230 h.p., and this would put it on the same plane as the 1939 1½-litre models of Alfa-Romeo, Maserati and Mercédès-Benz.

Let us now turn back a little to a comparison between the Aston-Martin and the Talbot-Darracq. The power per litre of the latter was nearly twice that of the former, but the engine speed rose by only 20 per cent., and the main gain was derived from a 60 per cent. (I speak in round figures) gain in m.e.p. The source of this benefit is obvious, viz., that the latter engine was supercharged with 7 lb./sq. in. boost pressure, which of itself should suffice to raise the output to over 80 h.p. and the m.e.p. from 106 to 150 lb. per sq. in. What little gain in output that cannot be ascribed directly to blowing can be found in improved inlet arrangements on the later engine, for there is little doubt that the single large inlet valve on the Talbot-Darracq had a substantially better flow-value than the two inlet valves on the Aston-Martin.

In their general lay-out these two cars characterised the change-over between the French and Italian schools of design, and if the Aston-Martin *had* been supercharged it would certainly have been far from reliable. A cross-section of the engine clearly shows the inadequacy of the head cooling arrangements, whilst the lack of stiffness in the crankshaft and crankcase design generally would have been an insuperable handicap.

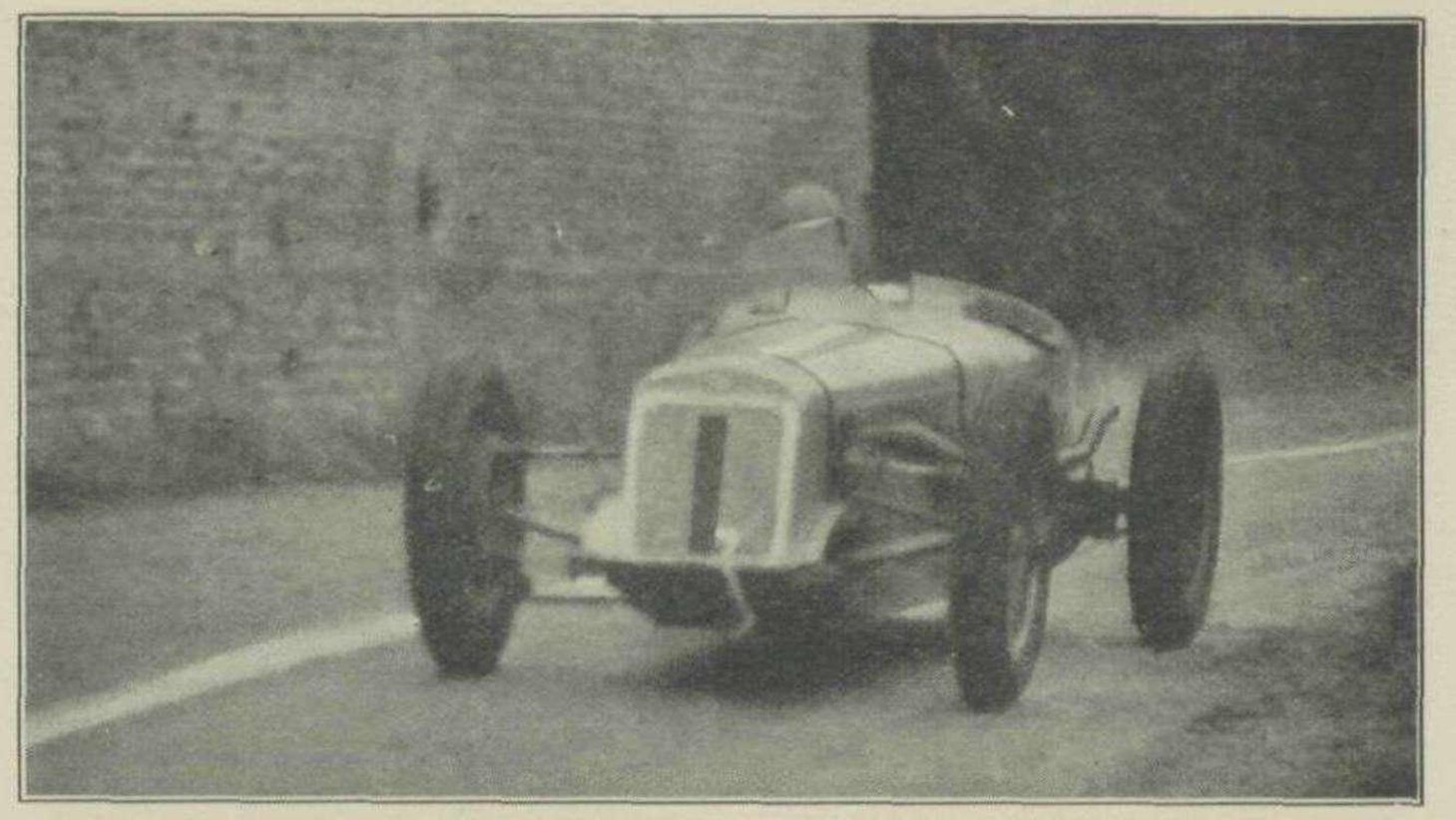
There is no doubt that as a 4-cylinder engine the Talbot-Darracq was a really fine effort, but it is, of course, impossible for an engine with fewer cylinders to compete on equal terms with an engine with a greater number of cylinders on a power-per-litre basis. Thus, the mere fact that Bugatti in 1926 had an 8-cylinder engine gave him an advantage in both power and reliability over any possible 4- or 6-cylinder rival. It is doubtful if this engine of his gave much greater power than the Talbot-Darracq, but the high piston area and comparatively low piston speed gave it outstanding reliability whilst the well-known Bugatti qualities of road-holding and steering enabled the engine output to be used to the fullest extent. The Bugatti was, like all of this series, a three-valve-per-cylinder engine (two inlets and one exhaust), and as the

same casting was used irrespective of whether the capacity was of 1.5, 2.0 or 2.3 litres, the smaller size was definitely over-valved, and has much the lowest figure of horse-power per square inch of valve area of any unblown engine. In point of fact, from a mechanical viewpoint the Bugatti could have been supercharged at a much higher pressure, and the horse-power could, I think, have been raised without much difficulty to well over the 150 b.h.p. mark. Owing, however, to the well-known allergy between Bugatti cylinder heads and the cooling fluid, it is very doubtful whether the casting would have remained in one piece very long if this course had been followed; it has always been le Patron's policy that his racing cars should not break down, even if they are slower than other starters. As a matter of fact, with a single-cam vertically-valved engine Bugatti could not hope to compete in speed with Delage, quite apart from other aspects of the matter, such as his continuance with a 2-seater type of body with the driver mounted above the propeller shaft, and the fact that the car consequently had a comparatively big frontal area.

From a strictly engineering point of view the only possible challenge to the Delage came from the 8-cylinder Talbot-Darracqs (which were, in fact, just as fast, and could, if they had been taken more seriously, have been made just as reliable, I am sure) and the experimental Fiats. Little has been written of the Italian engines, but the data published indicates some exciting possibilities.

The 2-stroke model had two crankshafts geared together, with six throws on each. There were, therefore, 12 pistons, the combustion space being formed between them. One piston uncovered the inlet and the other the exhaust ports, and with a bore and stroke of 52 × 58 mm. it was possible to run this engine at 6,200 r.p.m., with a piston speed of well under 2,500 ft. per minute. Only 6 lb./sq. in. boost was employed, and despite the inevitably small ports-opening period, a m.e.p. of 122 lb. per sq. in. was realised. This is equivalent, of course, to double the pressure on a 4-stroke engine, so that the exceptionally good output figure of 174 b.h.p. at 6,500 r.p.m. was obtained and 170 b.h.p. at 6,000 r.p.m. The highest m.e.p. equals 320 lb. on a 4-stroke.

The output was held right down the engine scale, 80 b.h.p. being realised at 3,400 r.p.m. One of the designers associated with it has said that no difficulties were experienced with sparking plugs (a common difficulty with designs of this type), but it is fairly evident from some of the suggestions that he makes regarding pistons that these had been a source of much cogitation. The piston uncovering the exhaust ports had an exceedingly hard time, as it had high temperature gas poured right down the side of the piston and over the face of the rings. I do not know what fuel was used, but from the fact that it had a 6½ to 1 compression ratio, and that the consumption was little over one pint per b.h.p.-hour, I should imagine that the alcohol content was small. Perhaps if a less conservative outlook in this respect had been followed and the alcohol percentage had been raised and the consumption deliberately increased to the 1½ pints per b.h.p.-hour which is normal with present high power-per-litre engines, this Fiat power unit would really have acquired reliability. As it is, it remains an exceedingly interesting experiment.



The straight-eight 1½-litre Delage, designed by M. Lory, was one of the most successful first-line road racing cars ever built. It developed 170 b.h.p. at 8,000 r.p.m., and won the Championship of Europe in 1927.

Turning now to chassis design, the most obvious development in these two years was the off-setting of the transmission line. This, in turn, was directly inspired by the revision of regulations in 1925, whereby the car was manned by the driver alone. The result can be quickly gauged by an examination of the side elevations of the three typical Grand Prix cars which are illustrated, and which make apparent the relations of frame height, propeller shaft and scuttle height. The net result of all this was to reduce the frontal area of the 1927 Delage to about 9½ sq. ft. as compared to just under 11 sq. ft. for the Sunbeam of 1924, which may be taken as representative of the 2-litre Grand Prix cars. Lowering of the c.g. improved cornering speeds, whilst the reduction in frontal area just about corresponded with the decrease in horse-power which followed the cutting down of engine capacity from 2-litres to 1½-litres.

Actually, from measured performances it seems clear that the 1926–27 cars were not quite as fast as their 2-litre predecessors, and if we take 135 m.p.h. for the latter and 130 m.p.h. for the former, we shall not be very far out in our reckoning.

The 2-litre cars had an even better margin in respect of acceleration. Thus, whereas the Delage of this capacity averaged 79.39 m.p.h. and 93.68 m.p.h. for the standing kilometre and mile, respectively, the 8-cylinder Talbot speeds for corresponding distances were 81.55 m.p.h. and 92.33 m.p.h., respectively, this showing up the high speed acceleration, which really counts in racing and which is indicated by the average for that part of the run between the end of the kilometre and the end of the mile. The figures were 132.8 m.p.h. for the 2-litre Delage and 118 m.p.h. for the 1½-litre Talbot.

An interesting comparison can be made in this matter with the earlier-type E.R.A., which had an average speed of 119 m.p.h. over this distance. But although the smaller cars inevitably paid the penalty of reduced gross power and higher weight-per-litre, the improved engine efficiency did actually result in quite a perceptible reduction in the weight-to-power ratio, which is reflected in the improved average speed over the standing kilometre.

As I have said before, all this, combined with the lower centre of gravity, added up to better performances on slowish circuits, but inability to come up to previous standards on fast courses like Monza.

In suspension and braking systems there is little of interest to record, and it is really true to say that little, if any, progress

Continued on page 61

STATISTICS OF RACING 1½-LITRE ENGINES
1922–27

	1922 *Aston-Martin*	1924 *Talbot-Darracq*	1926 *Fiat*	1926 *Bugatti*	1927 *Delage*
Cylinders: No.	4	4	6 (12 pistons)	8	8
Dimensions	65 × 112	68 × 105.5	52 × 58 Two-stroke	52.0 × 88	57.5 × 75
B.H.P. and R.P.M.	55 at 4,500	102 at 5,500	174 at 6,500	110 at 5,500	170 at 8,000
B.H.P. per litre	36.5	71	116	73	112
B.M.E.P.	106	168	122=244	174	177
Piston area, in.	20.6	22	36.6	26	32
B.H.P./piston area	2.65	4.85	4.75	4.3	5.3
Maximum piston speeds	3,000	3,800	2,350	3,200	4,000
S/B ratio	1.71	1.58	1.12	1.7	1.4
Inlet valve area	7.7	8.5	—	12.3	9.4
Inlet valve/piston area ratio	0.375	0.385	—	0.485	0.30
B.H.P. per sq. in. inlet valve area	7.15	12.6	—	8.9	18.7
Induction system and carburetter.	2 Zenith	Roots blower single Solex 7 lb. boost.	Roots blower 6 lb. boost.	Roots blower single Solex 10 lb. boost.	Roots blower single Cozette 7½ lb. boost.

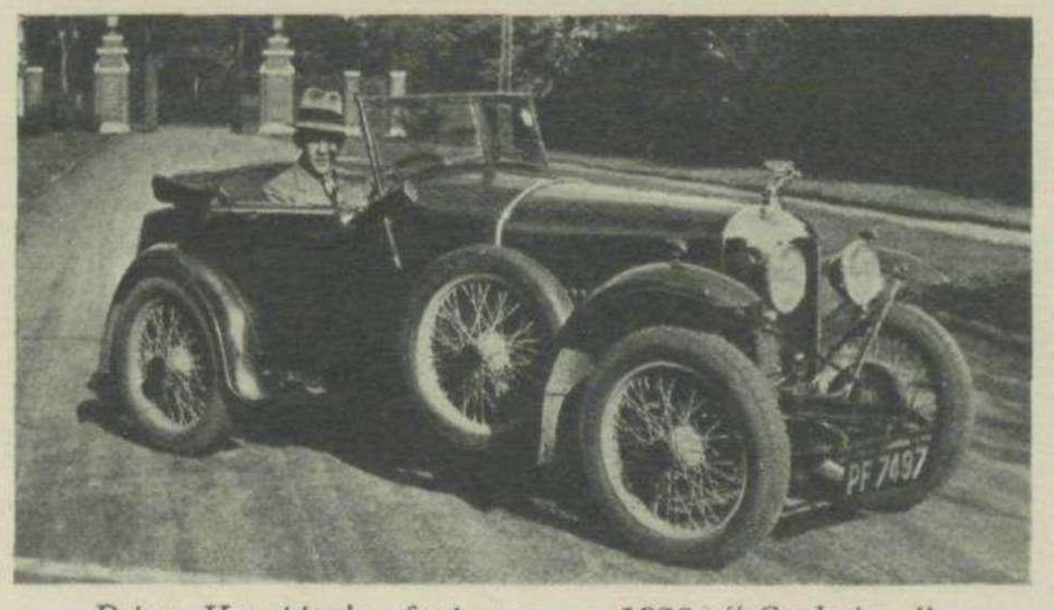
CARS I HAVE OWNED

C. W. P. Hampton, well-known member of the Bugatti Owners' Club and Vintage S.C.C., and now a lieutenant in the Guards, tells of his 22 cars over 12 years' ownership, explains how he graduated to an appreciation of real motor-cars, and expresses a decided preference for Continental productions. The Editor and proprietor of this paper do not necessarily endorse his views.—Ed.

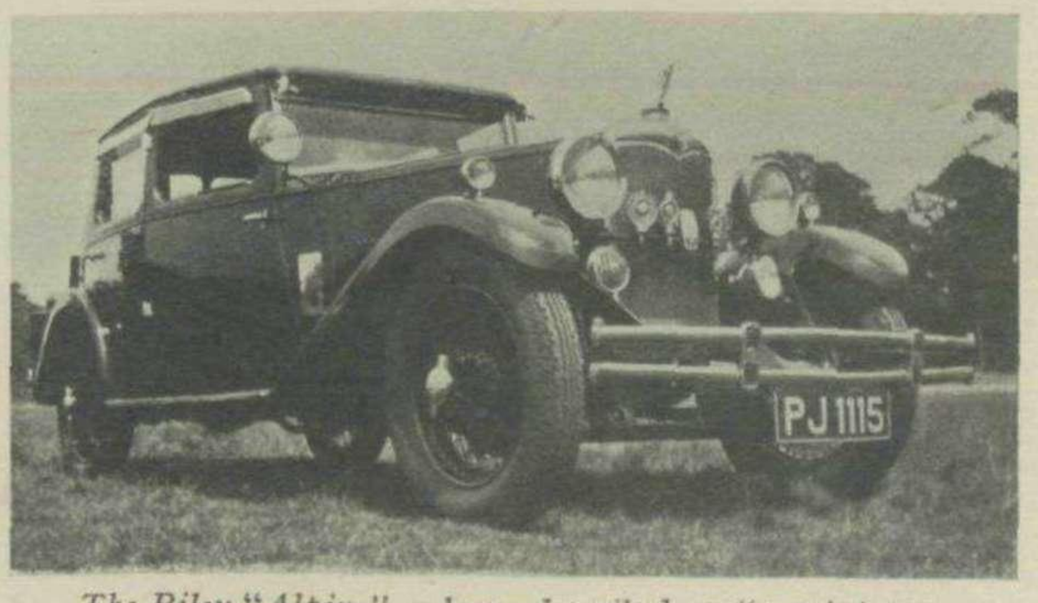


LIKE a good many young enthusiasts, my one thought in life as I approached the age of 14 was the acquisition of a motor-bike as being the best possible outlet for enthusiasm for things mechanical and an obvious stepping-stone along the road to the ownership of a car. Thus it happened that at the Motor Cycle Show in 1927 my father bought me a 250-c.c. A.J.S., a model which had just been announced, much to my delight, as I always wanted an A.J.S.; but hitherto their smallest model was the well-known "350," and I was limited to 250 c.c. I had a lot of fun on this machine, which had three speeds and a maximum of 60 m.p.h., and I covered about 4,500 holiday miles on it before selling it in 1930. On one occasion I went bustle-over-hatpins with the bike on top of me, after which I had little use for two wheels, though I persevered for another year until I was old enough to have a car licence. I then started searching for something cheap and exciting in the way of a car, and eventually purchased a 1928 "Surbaisse" Amilcar from J. H. Bartlett for £85 (PF 7497). This was fitted with a 3-seater fabric body and was in pretty good order. I took it along to Boon and Porter, of Hammersmith, one-time Amilcar specialists, and had it repainted and teed-up mechanically. When it went, it went very well, but was temperamental and a bad starter. The radiator had an incurable leak, which always dripped on to the magneto, causing the works to stall invariably at the most unwanted moments; this became very annoying. But I did some relatively fast journeys in this little car, once clocking 75 m.p.h. on the speedometer downhill (probably a genuine 65). I was never very far behind my brother's "14/60" Lancia "Lambda" on cross-country journeys, which gives a fair idea of the Amilcar's capabilities, due largely to excellent road-holding and cornering; the latter, due to a solid rear axle, was done to the accompaniment of shrill tyre screams and yards of burning rubber left behind in the dust. Happy days! The rev. counter used to show astronomical r.p.m., especially in second (three speeds), and almost as high a speed could be attained in reverse. I kept this car about eight months, and in October, 1930, Boon and Porter gave me £100 for it in exchange for a new Riley Nine "Monaco" saloon, which my father was giving me. This car (PL 4514) duly arrived in January, 1931, and we soon became great friends. The 1931 Nines, "Plus" Series, were fitted with larger, heavier and better-looking bodies than the previous models, and, whilst not particularly fast, were grand little motors, very reliable, comfortable and beautifully finished. The car handled well and had a good quality feel about it. The maximum speed was somewhere just over 60 m.p.h., with 25 and 45 on second and third. The two chief snags were poor brakes and appalling road-holding in wet weather. It would skid and slide about on any sort of wet road in the most alarming manner for absolutely no reason at all. I entered for a J.C.C. half-day trial in the Berkhamsted area, my first motor competition. But although it managed all the relatively easy hills and tests with no difficulty, I only gained a 2nd class award, due to inevitable failure in the brake test. Later on I had two Solex carburetters fitted, which was a very worthwhile alteration, as it made the car quite a bit more lively and put the maximum speed up to 68 m.p.h.

When the newness and thrill of it all had worn off a bit I hankered after something a bit more sporting, and, in particular, a Bugatti, a wish I had held dear, for no particular reason, since the tender age of 11, when the Brescia first appeared. But a new Type 40 was beyond my financial reach, though I used to gaze longingly into the Bugatti showrooms in Albemarle Street. So I visited Sprosens, Ltd., and tried a second-hand Type 40. To my great sorrow I had to admit to myself that I didn't like it; it seemed so harsh and noisy after my Riley Nine, and I very reluctantly decided that perhaps, after all, the Bugatti wasn't quite the car for me. Maybe I had better wait till I could afford a second-hand 3-litre which, with its eight cylinders, was then reputed to be quiet and smooth running. So I thought again in terms of more docile English cars, and, at the 1931 Motor Show, I tried a Riley "Alpine" Six, and was greatly impressed by its extreme silence and silkiness. In December, therefore, having covered about 18,000 miles in my Nine, Boon and Porter exchanged it for an unused, shop-soiled "Alpine" (PJ 1115). This car was a sheer delight for the first 4,000 miles. It ran just like a Rolls, and, I think, gave me more pleasure and satisfaction than any car I have owned. It had an amazingly expensive and high-grade sort of sound and feel about it. But, alas, thereafter it was a complete flop and quite the most *un*successful car I have owned. At 4,000 miles I had it decoked and stronger valve springs fitted (to prevent bounce, which occurred all too easily); the engine became ever so slightly rougher. I entered for the Riley Motor Club's Torquay Trial, and on the way to the start an oil pipe burst at 76 m.p.h., spraying hot oil all over the driving compartment. I managed a 2nd class award again, failing, I think, on Ibberton Hill, due to wheel spin; but on the way home the gearbox seized in second gear while ascending Trow Hill, Sidmouth. This fault occurred two or three times later on, on different occasions, though no cause could be found nor satisfaction obtained from the works or elsewhere. After several further troubles (starting, ignition, coils, etc.), the climax was reached when, at just over 10,000 miles, a valve dropped through a piston while tooling along Wimbledon Common at 25 m.p.h. in top. I drove it slowly to Boon & Porter's, who, having dismantled the engine, discovered that all the big-end bearings showed distinct signs of overheating and had to be renewed. From new, I ran it in very carefully (as I do with every new car, for the first 2,000 miles) and never treated it harshly, though, admittedly, cruising at 60 m.p.h. on most occasions,



Peter Hampton's first car—a 1928 "Surbaisse" Amilcar.



The Riley "Alpine" saloon, described as "a miniature Rolls Royce."

which, I suppose, was too fast. But for a car with a sports and racing pedigree and a maximum of nearly 80 m.p.h., I *contend it should have stood up to it* with no trouble at all.

This, I thought, is not good enough. I must find a car that will stand up to fast driving, and like it. So once again I investigated the possibility of owning a Bugatti, and visited L. G. Bachelier & Sons, of Wimbledon, and tried a Type 43 supercharged 2.3. But once again the noise and apparent harshness was rather too much for my liking. Or, more correctly, I was not yet sufficiently educated to appreciate *real* motoring. So I sought something a bit softer and fell for a very lovely Talbot "90" fixed-head coupé, which Warwick Wright had for sale. They gave me a poor price for my Riley (usual story, "unpopular model"—and I didn't really blame them for that), and I drove away in the Talbot (PL 3312), two days later taking it down to Cornwall, covering nearly 1,000 trouble-free miles. Here, I thought, was a real car at last. And so it turned out. It was a 1930 model, with noisy crash-type gearbox, and was reputed to have been a chassis built along with the team of racing "90s" before they substantially reduced the chassis price and, I think, rather ruined a fine car. It had done 34,000 miles when I bought it, and was thoroughly overhauled, rebored, etc., at 30,000 miles. It was fitted with a most striking fabric-covered body, painted pale green, by Grose, and was their show car at Olympia in 1930. The one previous owner had fitted it out with every conceivable extra (including a 7½-gallon reserve petrol tank in addition to the large capacity, bulbous-shaped Talbot tank); and with one or two pet additions that I made, it now had nine different horns and ten lamps in front! A veritable Christmas-tree, and about as entertaining, since one day (or rather, night), 90 miles from home, the wiring gave up the unequal struggle and the ominous smell of burning rubber sallied forth. Having hurriedly pulled away several offending wires, I found the siren horn button worked the starter, the direction indicator switch produced a rattle from the electric bell, the starter button worked the Cicca 4-note horn, and so on! I got home by means of the two separately wired, windscreen-mounted searchlights, much to the annoyance of other road users. However, it was impossible to sort it all out and I had to have the whole outfit rewired and a new dashboard made for the 13 dials and other switches. It was a lengthy and costly job, incorporating a new fuse box with a dozen or more accessory fuses and countless yards of armoured cable.

Apart from an initial decoke and check-over by Talbots, at Barlby Road, London, this car was always serviced and maintained for me by Fox & Nichol, Kingston By-pass. Troubles were few and comprised mostly a perpetual tendency for the rockers to jump off the tops of the push rods—an easily remedied fault, but none the less annoying. The Dynamotor was very often not equal to the task of starting the engine, as with all Talbots of around this vintage; also the front brake mechanism, where it was fitted to the chassis, was apt to come adrift and cause erratic braking. Another bother was shock absorbers. Due to the weight (around 33 cwt.) and rather high chassis and bonnet line, if fast cornering was indulged in the soft suspension needed pretty severe damping. I had Hartford telecontrols fitted, but twice broke the shock absorber arms. Eventually I had outsize lorry telecontrols fitted at the back, and, having overcome perpetual loss of pressure in the pipes if screwed down hard, they stood up well until I did some rather foolish high-speed swerving on the sands in N. Cornwall. But if well damped, the road-holding was good and suspension very comfortable. The car was very pleasant and easy to drive with a delightful, but tricky gearchange, quiet and fairly smooth engine, and very reliable. Being high geared, the engine did its stuff with a complete lack of fuss or apparent effort. For really fast work Champion R1 plugs were necessary, though not too happy in traffic, when R3 were more suitable. The performance was good, giving 40, 65 and 87 m.p.h. on second, third and top respectively, and 0–50 in 13 secs. It would cruise around Brooklands for lap after lap at 75–80 m.p.h. without any sign of stress or overheating and never even looked like blowing up. As a team, of course, the "90s," and, later, the "105s" were remarkably consistent and reliable. I kept it for 18 months, and it had covered nearly 65,000 miles when I sold it in May, 1934. I entered for a few events, being one of seven, out of an entry of 83, to gain a 1st class award at the 1933 J.C.C. Opening Rally at Brooklands. At their High-Speed Trial, in the same year, I gained a standard award, averaging 53 m.p.h. for the 20 laps. The course then included the very slow hairpin bend past Vickers's works.

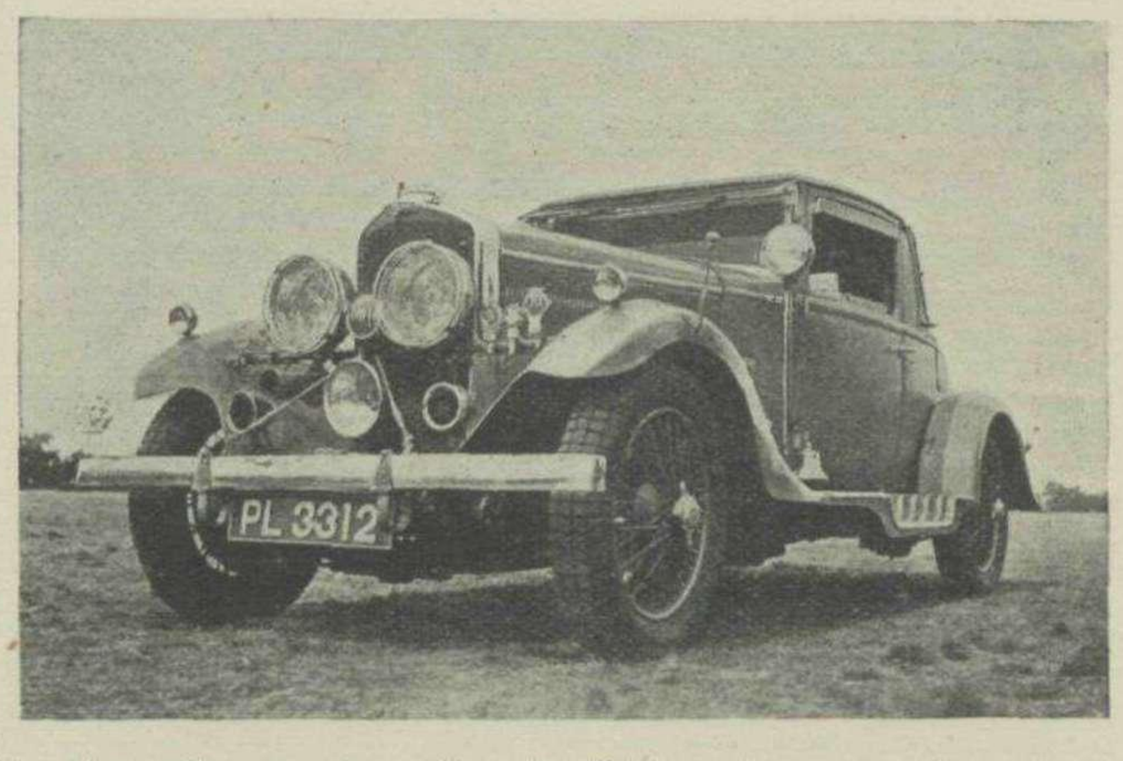
During the early part of 1934 I thought a change might be a good thing, as I had grown accustomed to the speed and performance of the "90," and had ideas about something a bit faster. It was quite plain there was no British car, except perhaps a "blower" Bentley, that would satisfy my requirements, or suit my purse, and I didn't really want a "battleship" type of car. So, determined as ever, I again visited the late Bachelier and had another ride out with him in a Bugatti. This was a Type 43 supercharged 2,300 c.c. straight-eight with the traditional 3/4-seater "Grand Sport" body, immaculate in blue, with chromium-plated front axle, steering arms, etc. Originally, I believe, it was the car that Campbell drove in the Ulster T.T., catching fire during the race. It was subsequently rebuilt, and, amongst a variety of owners, W. K. Faulkner had it and raced it at Brooklands quite a bit, tying with Whitney Straight on one occasion for first place in a Mountain Handicap. Bachelier had partially overhauled it and turned it out in the best Bachelier manner. It was certainly a sight to fill any enthusiast with joy, looking typically Molsheim and very stark. I had a fairly long trial run and the performance took my breath away. It was my first real motoring thrill and I shall never forget it; the stink of Castrol "R," the scream of everything as we accelerated at a fantastic pace, the straight-through gear changes, the heat from engine and exhaust on the floorboards, and the amazing rapidity with which we were doing 90–100 m.p.h. on short by-roads and seemingly suicidal speeds round corners with no roll or slide whatever—this was altogether too much for me. I said "Yes, I'll take that one"—and so, with my fifth car I at last became a Bugatti owner (PJ 679). I sold the Talbot (but not without a pang of regret) two or three months later after considerable difficulty, and at a sacrificial price via the Second-hand Motor Exhibition.

A week after I had the Bugatti I attained 108 m.p.h. (my first time past the magic century) across Pevensey Marshes, in teeming rain. Towards the end of this then meteoric run the dynamo fell off and the electrical wiring (my hoodoo) caught fire. So, once again, I had to have a car completely rewired. Bugatti's fitted no fuses at all on this model—just wait till it burns out, I suppose. Similarly with the oil level; no dipstick or level indicator of any sort—just wait till the pressure gauge needle flickers and reads low! And no petrol gauge, feed being by pressure. However, I had a special pressure-proof Hobson telegauge fitted and an Autopulse petrol pump with the pressure system as a reserve. Soon after purchase I took the Bugatti to a firm of body repairers and coachbuilders, so-called, to have it re-upholstered, new fold-flat screen, new hood and all-over tonneau in blue mohair, body sides cut away, and sweeping mud-guards instead of the cycle wings. They took a hell of a time over the job, charged me double their estimate, and really hadn't a clue as to what decent workmanship should be. However, unless you looked into the detail closely the final job, I think, was an immense improvement in looks, comfort and practical usefulness on the original car.

In the 1934 J.C.C. High Speed Trial I gained a special award, averaging 61.8 m.p.h. for the twenty laps of the same course as in the previous year, and was the first car to finish in my class. In the afternoon events, starting from scratch, I never got within sight of even a place, though I did beat-up a Type 500 Mercédès, also on the scratch mark, and won my class in the Driving Skill wiggle-woggle test, due to the excellent steering lock which is a feature of all Bugattis. I competed several times at Lewes, but somehow it never seemed very quick on that course, partly due, I expect, to my fear of stripping the transmission if I got off the mark too violently. As it was, an axle half-shaft sheared the day after one event there. I never succeeded in bettering a second or third place, my best time being around 27 secs. In the Bugatti Owners' Club Day Trial in Wiltshire, the dynamo again fell off and I had a head-on smash before the lunch check, luckily doing only slight damage to the front end, but bending the steering connections. My most successful event with this car, and the most enjoyable, was the J.C.C. Donington meeting in August, 1934, the first club meeting to be held on the then new short 2½-mile circuit, and terminating at Starkey Corner, as the Melbourne extension had not then been added. I won one 3-lap handicap from scratch at 63.01 m.p.h., and just snatched third place from Charles Follett in a 5-lap handicap, again starting from scratch. Follett, in a Speed-

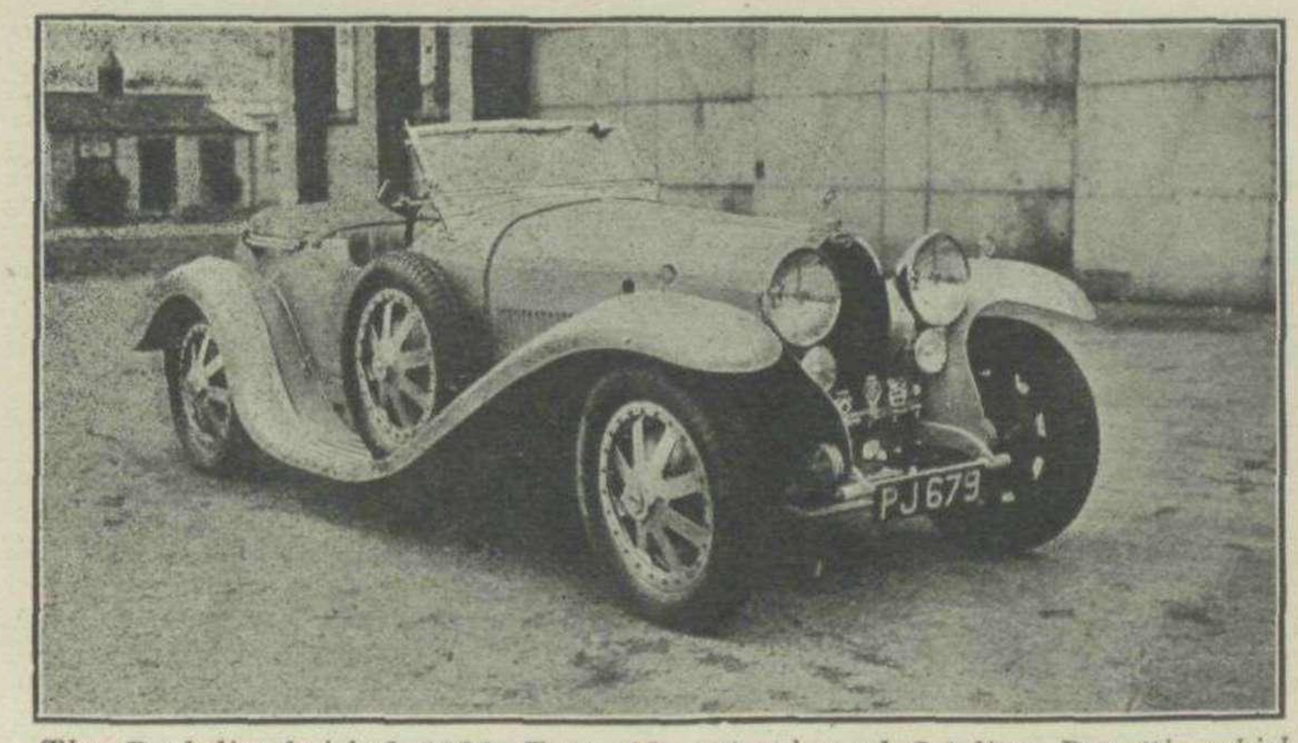
Twenty Alvis and complete with a service truck and bevy of mechanics, was my chief rival, and we had some grand scraps. After giving him 12 secs. in the 3-lapper, and being rehandicapped in subsequent races, the Bugatti usually managed to catch and pass the Alvis, also making fastest time of the day with a lap at 70.08 m.p.h. As the afternoon wore on, the brakes, which were never any good the whole time I had the car, became steadily less effective (in spite of roughing-up the linings and using bits of a tobacco tin as shims between each event) until, in the last race, they were practically non-existent and life became unusually exciting at Starkey Corner, and necessitated a " phenomenal avoidance " on the last lap of the last event, when Follett gyrated on to the grass just in front of me. This was followed two months later by my most *un*successful and most expensive event—the J.C.C. Lynton Trial. I had fitted two competition covers on the rear wheels and had high hopes of success. After a fast run to the start at Salisbury, averaging just under 60 m.p.h. from my home at Weybridge, we set off for the Porlock area. At the very first hill, Doverhay, the engine never got its revs. in bottom gear from the word " go," due to the higher-than-standard axle ratio (14 × 54) and complete lack of wheelspin due to the competition covers. As a result, all forward movement ceased at the first hairpin corner and it was a struggle to reach the summit even with the aid of willing helpers. Not downhearted, however, and in spite of the teeming rain, we carried on and attempted the next hill, Yealscombe. Due to the rain, the River Exe at the foot of the hill had become a raging torrent, and we stuck halfway across, well and truly scuttled with water everywhere drawn in by the carburetter, which is situated below the blower. The car was towed out and left for the night on the Yealscombe side. Things looked pretty black, and in the dimmest possible spirits we got a lift into Lynton with Silcock, who had, at the same spot, changed the broken bevel pinion on his old bull-nosed Morris-Oxford—a pretty good effort in the rain and mud. Returning in the morning, a local stallion pulled the Bugatti backwards through the river, and we set to getting the water out of the sump,

The author's first real taste of speed came with this Grose-bodied Talbot 90.



cylinders, carburetter, footwells, and other unwanted places. Eventually, all was relatively well and we set off for Weybridge. The water had swollen the fabric in the shockers, so that the suspension was pretty well board tight—quite the most uncomfortable journey I have ever experienced. On reaching Bachelier's the rear axle seized up (roller from a broken thrust race got between the crown and pinion) and the gearbox made ominous noises. Result, a new crown and pinion (of normal ratio—12 × 54—and spiral bevel, being a very great improvement from the noise point of view), new set of gears (I reckon the original ones were made of chocolate), new battery, new starter motor, and a new improved Bosch dynamo (the original Marchall dynamo, apart from its habit of falling off, used to burn out at 5,000 r.p.m.). All this had a most disturbing effect on my bank balance, and I decided to take things more steadily for a while.

In May, 1935, Bachelier fitted an improved Zenith carburetter, with a barrel type throttle. This was a great improvement and cut out all flat spots when accelerating suddenly. He also fitted higher compression pistons, which made only a slight improvement and were not really worth the expense. In this new form I competed at the Bugatti Owners' Club's Hill Climb at Northwood Hills, without any great success, but managed a 1st class award in the J.C.C. Evening Trial, in Surrey, making one of the fastest times in the restart test. In the J.C.C. High Speed Trial that year I was running on Cleveland Discol for the first time and the main jet was too small for this fuel. As a result, the engine suffered incessant misfiring and, partly due to the very warm day, overheating. In hot weather it was not unusual for the water to exceed 100 degrees in any sort of heavy traffic. Regarding plugs, I always used Champion Aero A, and had very little trouble provided they were kept clean and correctly adjusted, though for really fast work and high revving, R3 or possibly R1 were more suitable. Later that year, when going down to Eastbourne for the day, again in pouring rain, the clutch bolts sheared at Leatherhead, and I had to complete the remaining 120 miles with no clutch at all. Easy enough on the move, but *not* so easy when trying to get away from a standstill at the many road repair and other halts. I had, by the way, previously had the clutch converted from wet to dry, and had, since that, had trouble with it before. By this time I had had enough of this sort of motoring; and, in any case, it was becoming too expensive. So, after about 10,500 miles the necessity and wisdom of changing the Bugatti for some more rational vehicle was all too obvious. In fairness to the marque, however, I think I was unlucky, and the root cause of the failure of my Type 43 was due to the fact that the car, when I bought it, was already six years old, and it had not been rebuilt or thoroughly overhauled since passing through the hands of several owners. Added to this is the fact that it had been extensively raced by Campbell and Faulkner and been on fire in the T.T., which may well have caused unseen harm. I had a lot of fun with the car, but could never be sure that I would reach my destination other than on the wrong end of a rope. The Type 43, in really good order, has given other owners thousands of miles of trouble-free service.



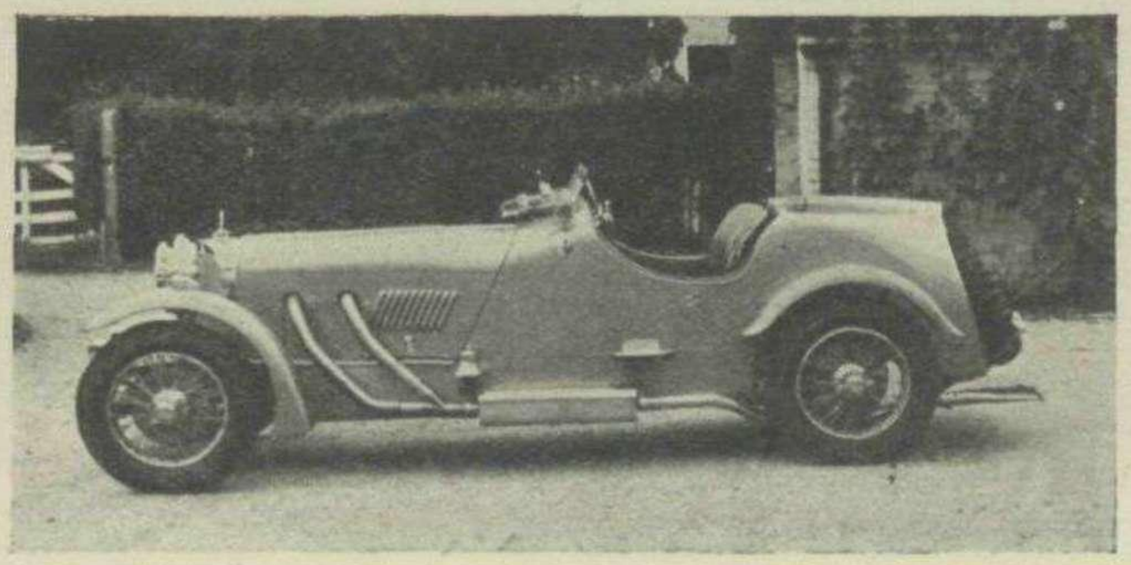
The Bachelier-finished 1928 *Type* 43 *supercharged* 2.3-*litre Bugatti, which Hampton used in* 1934.

My problem now was what car to buy. After all, it's no easy task going back to something with an inferior performance; so I started looking among other high-performance cars. I tried a short-chassis 2-seater " 38/250 " S.S.K. Mercédès-Benz. That car had the most staggering performance of any car I have ever tried—45 m.p.h. per 1,000 r.p.m.—and when the large blower was brought in,

it accelerated like a shot from a 6-pounder. But it was very large and heavy and had left-hand drive, and I had a hunch that when the thrill and novelty of it had worn off a bit, its unsuitability for my purpose would be a burden. I then thought in terms of Alvis or Lagonda; but the former were then not really fast enough and the latter, with their Meadows engines, didn't really fill me with any pride of ownership. However, I tried a 4½-litre Lagonda, one of the special red ex-T.T. 4-seaters that Fox & Nichols were selling. The suspension was extremely hard and uncomfortable, the straight-tooth rear axle whined to high heaven, and the narrow body was not particularly suitable for serious long-distance motoring. But the motor was good and possessed a very real performance. Maximum speed was over the 100 mark, cornering good, brakes excellent, and the gearbox a sheer delight after the Bugatti. But somehow the car, as a whole, lacked something—character, pedigree, finish—I don't really know. So I came to the conclusion then, as I did two years later when I was again looking for a car of this sort, that there is no British car to compare with the high-class, high-speed Continentals. Since the demise of the old Bentleys, in my view there has been no British car made worth two penn'orth of cold gin, except Rolls-Bentley and Alvis. The former, however, is more suitable for shopping expeditions and occasional high-speed journeys, provided one doesn't drive too fast and too often, or expect to get round corners too quickly. They are, of course, really first-rate motor cars, and would be good value if sold complete at around £1,200. At the present (pre-1940, say) absurd figure, representing practically two Type 57 Bugattis, 90 per cent. of their sales must surely be on the Rolls-Royce reputation alone, and not on their performance or because their controls are reputed to work more accurately than any other car. The Alvis "Speed 25" and 4.3-litre are, I reckon, fine cars, and I would willingly buy one of the latter—but not while there are still Bugattis, Darracqs and Delahayes available. On one occasion I had a trial run in a 12-cylinder Lagonda. The suspension was excellent, but the cornering suffered accordingly. The coachwork was luxurious, but in my view is in no way as elegant as the 4¼-litre Bentley. The accelerative powers fell far short of what I expected from a 40-h.p. 12-cylinder engine; likewise, the maximum speed of a genuine 105 m.p.h. (115 on the speedometer). The engine was quiet and smooth, as expected; but I decided against the car in view of its excessive cost, coupled with a performance in every way inferior to the then current product of Molsheim, which could show it (and, in fact did, very conclusively at Le Mans in 1939 with a single Type 57C entry) and the 4¼-litre Bentley, a clean pair of heels on all scores except, possibly, silence and comfort of suspension on straight, bumpy roads. But this is digressing, and I only mention it to show the difficulties experienced when seeking a high-performance car for performance and handling sake, and not merely for a name or reputation. I reckon very little to the Type 540K Mercédès-Benz, and not much more to the modern Alfa-Romeos, but however patriotic one would like to be, if you *really* want to motor, I consider the three French cars I've mentioned, in that order, have no equal.

I should have mentioned before this that at the 1934 Motor Show my mother and I went halves in a new Lancia "Augusta" pillarless saloon de luxe (BLC 557), cellulosed black with grey leather upholstery. I had daily use for a small saloon, and my mother agreed that an "Augusta" would be more handy for her use than the 16-h.p. "Lambda," which we still had since new in 1928. I liked the "Augusta" a lot, and we covered over 31,000 miles in it before it was sold in 1937. The only real trouble experienced was the water pump, which was continually being repacked. We bought this car from C. R. Abbott & Co., who did most of the servicing. It was only decoked once, at 12,900 miles. Maximum speeds were 45, 54 and 73 m.p.h. on second, third and top respectively, and quite high averages could be put up due to its excellent roadholding and cornering and extreme ease of handling. At about 18,000 miles, West and Chittenden fitted a large Solex carburetter and tulip valves. Difference in performance, nil. Oil consumption was around 4,000 m.p.g. and petrol 25 to 30. I entered this car for the R.A.C. 1,000 Miles Rally, starting from Leamington and finishing at Eastbourne, and had a grand trouble-free run, cruising all day and all night between 55 and 65 m.p.h. On the Welsh run from Llandudno to Tenby we made rings round V8 Fords and similar cars, averaging 36 m.p.h. for the first stretch over the mountains, and 42 for the latter part of the route. It did its stuff very well in the final tests (using the free-wheel and clutch pedal, and thus being able to change up with throttle held wide open) and I secured a 1st class award. I also entered for the J.C.C. Opening Rally at Brooklands in 1935 and gained a 1st class award, Brian Lewis on an open "Augusta" making best performance of the day and fastest time in the Wiggle-Woggle, where all the "Augustas" did extremely well, due to their excellent steering lock and lively performance. In June I entered for the J.C.C. High-Speed Trial, and by dint of hugging the grass verge on every lap all round the Byfleet banking and throwing it through the chicanes (much to the consternation of the officials, who thought the outside front tyre would be forced off the rim at any minute—I had telecontrols fitted at the back and screwed down hard), qualified for a standard award with an average of over 56 m.p.h. for the 20 laps, clocking 70 m.p.h. or just over on each lap along the railway straight. The car was not a jot the worse for wear after this high-speed tousing. The only other weak spot was the clutch; it was very smooth and light to operate, but was not strong enough to take up the drive on a steep hill. In 1936, for example, I and two or three others failed to make the Test Hill restart at the J.C.C. Rally.

Thinking that maybe I would sell my Type 43 Bugatti and buy something more docile, I thought it would be a pity not to have a car that really talked to you when the taps were opened. This, therefore, was the reason why in November, 1935, I rushed along to Bartlett's, once again, to inspect and buy a 1½-litre supercharged Mercédès-Benz he was advertising for sale at £95. It was in pretty mediocre condition, but was the real genuine low-chassis "Targa Florio" model I had been hoping to find some day. A very short run round the houses showed that it had great possibilities and might make an ideal second string. Also, that it was unique and would be an attractive baby "38/250." Its maximum speed then was around 65–70 m.p.h., at which it felt and sounded unsafe. This car has already been extensively written-up both in this journal and elsewhere, including a motoring weekly published in Germany. But very briefly it comprises a 1922 twin-overhead camshaft 4-cylinder engine with Mercédès Roots-type supercharger operated at will by fully depressing the accelerator pedal, as on the larger and more recent Mercédès cars. The suspension is semi-elliptic in front with very long dumb-irons in typical Mercédès fashion, and cantilevers at the rear. Wheelbase is 9 ft. 2 in. and track within ½ in. of a Riley Nine, as I had a Riley front axle fitted. Bore and stroke, 65 × 113 mm., giving a capacity of 1,499.9 c.c. and R.A.C. rating of 10.6 h.p. Maximum revs. 5,000, which is abnormally high for such a relatively long stroke engine. It was one of four (?) that were specially built prior to the 1922 "Targa Florio" race. This event was Mercédès's first re-entry into motor competition after the last war, and the factory entered two of these special 1½-litres in the 1,500 c.c. class, and four larger racers of around 4½-litres, supercharged. The race was won by an amateur, Count Masetti, on a pre-1914 war Mercédès of the type that won the renowned French Grand Prix of that year, the one and only 1½-litre Mercédès to finish being driven by Scheef and placed 22nd. They proved

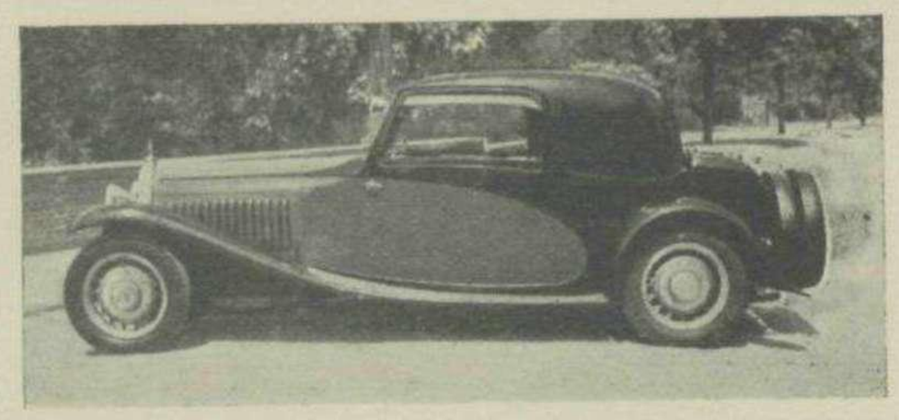


The famous 1922 1½-litre 4-cylinder supercharged Targa Florio Mercedes - Benz which Hampton had reconditioned so magnificently. It had a great many competition successes and could outperform a "38/250."

extremely fast, but experienced severe tyre trouble.

After purchasing the car, which was fitted with an E.N.V. preselector gearbox and an open 2/3-seater body by Corsica with flared wings and an M.G. Midget petrol tank, I took it along to West and Chittenden for complete overhaul and renovation. It remained there until well into the following year, afterwards having an entirely new lightweight 2-seater body built, to my own design, by Newns, of Thames Ditton, and cellulosed opalescent blue. I had the wheels rebuilt to take smaller India tyres, and, along with the radiator, manifolds, etc., they were chromium-plated. As also was the special outside exhaust system I had made on the lines of the "38/250." I then took it to Bachelier, who rewired it and attended to all matters electrical, mostly Bosch, except for the Marchal Strilux headlamps. Finally, around July, 1936, it reappeared virtually a modern and absolutely unique car, re-registered (EPC 2) and complete with Lockheed hydraulic brakes, Hartford telecontrols, etc. But the carburation was still all haywire, and continued starvation and popping back was experienced when using the blower, a trouble, incidentally, which all the previous owners had been unable to cure. After running it in very carefully that summer, and competing unsuccessfully in the Vintage S.C.C. Chiltern Trial and one or two others, I took it to Wolfe & Wilcockson (both late of Fox & Nichol and now together on their own at Kingston-on-Thames) for further treatment. After water-jacketing the manifold, fitting twin S.U. electric petrol pumps working in conjunction with the existing semi-autovac (Hobson aero carburetter, by the way) and making other experiments with pressure pipes, etc., they overcame all snags and the car appeared in 1937 absolutely "au point," and would rev. gaily from zero to 5,000, blower pressed hard "in" all the time. The result was far above my expectations. The car's two faults were inability of the large Young battery and Bosch starter to turn the engine over fast enough to fire; and the gearbox. The former was largely overcome by fitting a Ki-Gas, and also a new Scintilla magneto *and* Scintilla coils and combining the two, having two H.T. leads to each plug. The gearbox was too small for the power transmitted and, although I had it rebuilt, the bottom gear band lasted no time. It was absolutely impossible to do any sort of fierce getaway until changing up to second; then it really did get going. But for this reason it was no use at all in any "stop-go" or short acceleration test, though I competed at Lewes once or twice, not without success; and under these circumstances the times of around 26–27 secs. were, I think, pretty good, and showed the car's accelerative powers when on the move. I reckon this 11 h.p. Mercédès had a performance not very far behind the "38/250," and the blower made just about the same exhilarating noise. During the latter part of 1936 I saw advertised an exactly similar model—the only other genuine 1½-litre "Targa Florio" Mercédès in the country. Scott Moncrieff was the vendor and the car was being overhauled. I bought it as it stood (Reg. No. GP 6376) and collected

Back to closed coachwork—the 1934 *Type* 49 3.3-*litre Bugatti.*



from Weldangrind the rebored block, reground crankshaft and new Aerolite pistons (my No. 1 Mercédès was fitted with Martlett pistons of about 7 to 1 compression ratio). This second car I still possess, dismantled and just as I purchased it. It is at present stored away awaiting rebuilding after the war, but probably not on such a lavish scale.

To go back a bit, to the early part of 1936, I still had the Type 43 Bugatti, and had been unable to find a suitable car to replace it. So I again looked to Molsheim to help me out. At the previous Motor Show, Bugatti had introduced the 3.3-litre "Competition" model (later known as the Type 57S), and it appeared with a striking electron coupé body and still retained the flat-faced radiator. But the chassis price was £1,300 and quite beyond my reach. So I contemplated getting a normal Type 57, though at £975, as the chassis price then was, I couldn't really afford it. Bachelier, however, persuaded me that the 2.3 was still the car for me, and suggested taking my Type 43 Bugatti in exchange for a very attractive Type 55 2.3-litre twin-overhead camshaft 2-seater he had for sale. This car was virtually brand new. It had been imported into this country the previous summer, and was then on view in a London showroom (painted light blue and silver), as the original purchaser had been unable to take delivery. Charles Martin bought it and ran it for a while, eventually removing the cylinder block for his Grand Prix car and selling the rest to Bachelier, who fitted a new block, pistons, gear wheels, brake linings, etc., and recellulosed it black and yellow. It was still unregistered. A short trial run was sufficient to convince me of the vast difference between this car and the single camshaft Type 43. Terms were agreed, and in April, 1936, I drove it away from Wimbledon (BPK 1). It was a grand motor and one of the best cars I have ever had; and it completely restored my rather shaken confidence in the products of M. Le Patron. The urge was terrific and there was a wonderful all-in-one-piece sort of feel and sound about the whole car. The driving position was perfect, steering and roadholding also, and, with its upright seat cushions and very low cut-away sides, one felt complete master of the car in any situation. In every respect, not least the clutch and gearbox, the Type 55 is a tremendous improvement over the Type 43. The blower gave a lovely growl and the pick-up was smooth and clean right from a standstill to maximum r.p.m. of, I believe, 5,500. I did some very fast runs in this car, both here and abroad, on one occasion doing the 48 miles from Newmarket to Norwich in 40 minutes, an average of 72 m.p.h., cruising at 95–100 most of the way and touching 112 beyond Barton Mills. In June that year I gained a special award in the J.C.C. High Speed Trial, averaging 73 m.p.h. for the 20 laps, the third fastest time of the day. I also managed a third place in a 1-lap handicap, starting from the 10 sec. mark. I then took it to the South of France, driving straight through from Dieppe to Cannes, 705 miles, in about 18 hours running time. I also drove alone from Biarritz to Lausanne, 623 miles, in about the same time, including all meal stops, an hour's sleep by the road and an hour-and-a-half wait in a village for a petrol station to open. I had the greatest possible fun in Switzerland, dicing up and down the mountain passes in the very best Bugatti style. On my way home I called at the Molsheim works, had a ride out with Jean Bugatti in a Type 57, and spent a night at the Hostellerie du Pur Sang—but that is another story. I averaged 45 m.p.h. for the 345 miles journey from Molsheim to Dieppe—and then missed the boat by 10 minutes and, as a result, a meeting at Lewes the following day. I did, however, compete there once or twice with this car with fair success, my fastest time being, I think, 25 secs. or just under. At another speed trial, the United Hospital's affair at Aston Clinton, I managed to win my class in spite of the very rough course, pouring rain and competing with the hood up. I competed in two Bugatti Owners' Club events that year, the Monte-Honiton Rally and the Welsh Trial. In the former, I couldn't spare the time to go further than about 600 miles, but, by reason of making fastest time in my class in the hill climb at the finish, recording 40.28 secs., I managed third place in the event as a whole. In the Welsh Trial, in October, preceded the night before by the usual cheery party at the Lake Vyrnwy Hotel, the Type 55 showed its superiority, especially at low revs., over the Type 43 on a trials course as distinct from sheer speed performance. It surmounted all the hills, slippery and otherwise, with ease, having bags of power in reserve, making fastest time in the stop and restart test, and best performance of the day, winning the Giles Challenge Trophy. This was followed by the B.O.C. Night Trial, when some very fast running was done on the Stockbridge-Camberley road, in the early morning, when trying to check in on time.

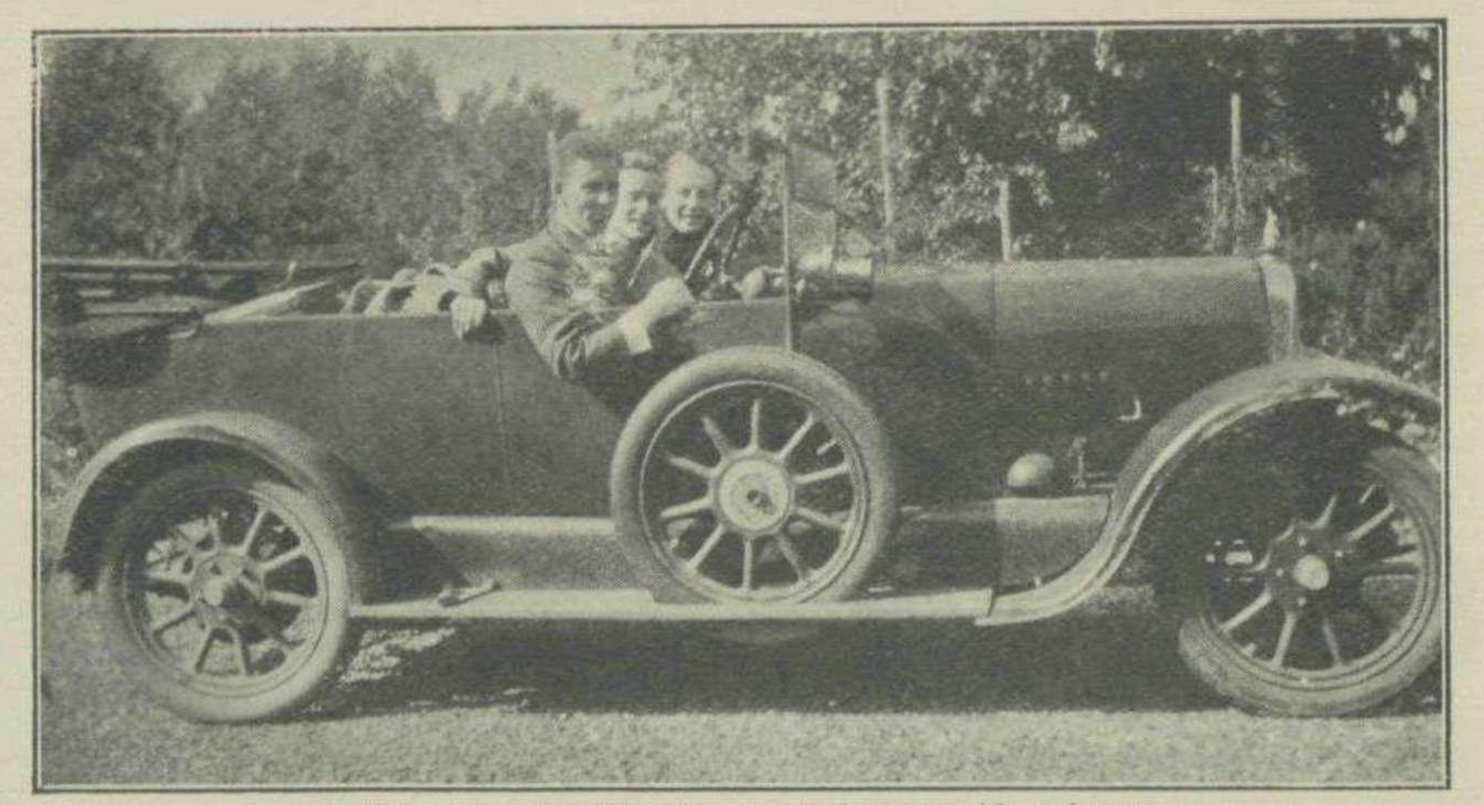
In November, 1936, Miss Enid Fawcett ordered a new Type 57 Bugatti to replace her 1934 3.300-litre single camshaft Type 49 model. This latter car, fitted with a luxurious fixed head 4/5-seater coupé body by James Young, of Bromley, cellulosed blue and black, and, of course, in typically immaculate and well-kept

Continued on page 61

RUMBLINGS

The Second-hand Market

Speculation as to where the sports cars go to when wars happen gives rise to two theories. One is to the effect that dealers are clinging on to once easily acquirable cars, expecting the value of interesting fast cars to soar when peace returns. The other is that before the war dealers in second-hand sports cars may have had a carefree habit of advertising several variations of one model, or of freely inserting the phrase "Choice of three," when, in fact, they had in stock only one of the type, so that one is, consequently, apt to overrate the available numbers of vintage sports cars. Both these theories are interesting, but we refuse to take sides. The fact remains that in spite of all the present obstacles in the way of motoring enjoyment, people still seek sports cars, and in far larger numbers than supplies of known vehicles can meet. All of which rather saddens one when the breaker's hammer is observed to soullessly destroy an unusual sports car or an Edwardian tourer. The time may well be in sight when those who have taken steps to save even fairly poor specimens of the rarer types may have good and sufficient reason to rejoice, while those still seeking such cars will go unappeased. Be this as it may, the rosy period for the impecunious appears to have been 1928, or thereabouts. Picking a Show issue of a weekly motor paper of this date at random, we turned to the "classified smalls" and amongst a large selection of interesting announcements were large numbers of "12/50" Alvis, 3-litre Bentley, Amilcar, Bugatti, H.E., Lancia, Lea-Francis, Mercédès, M.G., Salmson, Senechal and "30/98" Vauxhall cars. Admittedly, these were then current models, usually not over four years old, and the prices were very much higher, obviously, than one would pay for like vehicles now; but the significant feature was the big choice of real sports cars offered, compared, for example, with the 1934 vintage sports cars on the market in 1938. To-day, an advertisement of a vintage sports car is quite a startling discovery, and when you reflect on the numbers of such cars which must have been scrapped, judging by the diminution in advertisements for them between 1928 and the present day, the sanity of saving even breaker's-condition examples becomes apparent. Apart altogether from the evergreen topic of vintage cars, those with limited purses were far better catered for in 1928 than in 1938. Cars costing under £25 were quite lavishly advertised, and even £5 "bargains" were thought to be worth announcing in this happier era. Variety, too, was then at the buyer's command. In the "smalls" in this Show issue of 1928 we have counted 92 cars of makes then no longer available on the British market, those still popular "defunct" marques comprising Albert (2), Ansaldo (2), Arrol-Johnston (9), Aurea, Belsize, Belsize-Bradshaw, Calcott (4), Ceirano (2), Charron-Laycock, Crouch, Deemster (2), Diana, E.H.F., F.A.S.T., Flint, Galloway (4), Kissel, Lombard (3), Lorraine (4), Marseal, Mathis (6), Metallurgique (3), Napier, Oldsmobile, Paige-Jewett (2), Panhard (5), Rhode (4), Rollin, Ruston-Hornsby, Schneider (6), Scripps-Booth, Senechal (9), Sizaire-Berwick, S.P.A. (2), Spyker (2), Unic (2), Vinot and Vulcan. Add to these the many makes then on the new car market which have since succumbed, and breakers' arms must surely ache! Clearly, in 1928 many more second-hand sports cars were available than has been the case in recent years, many more really cheap cars were advertised, and many more cars then regarded as of "vintage" age were offered for sale. This was the state of things until 1928, and we seem to recall that it existed at least up to 1934. Allowing that cars wear out and that war does not encourage the vendors of used motor-cars, comparison of to-day's "smalls" with those from which we have quoted is apt to suggest that sentiment alone is not responsible for the adage "old times were best."



"Alvivacity!"—This is one of the rare side-valve cars.

Letters

The Editor's correspondence is, of necessity, sadly neglected these days, but he wishes to assure those who write that their news and good wishes are much appreciated, even although they may have to go unacknowledged. The response for contributions has been excellent, and the continuance of MOTOR SPORT far into the future is assured as a result, although fresh matter will continue to be very welcome. The Instruction Book Library has hardly had time to get under way yet, but we have to thank M. D. Tooley, B.Sc., Grad.I.E.E., A.I.R.E., for a quite unique document, in the form of an instruction book for the Rover "Eight," together with a power curve which reveals that the output of this air-cooled twin was 13 b.h.p. at 2,800 r.p.m., later increased to 16½ b.h.p. at 3,000 r.p.m. Mr. Tooley remarks that he once contemplated putting this engine into an O.E.C. motor-cycle, so the information now to hand may yet assist those with ideas of using this engine in a similar

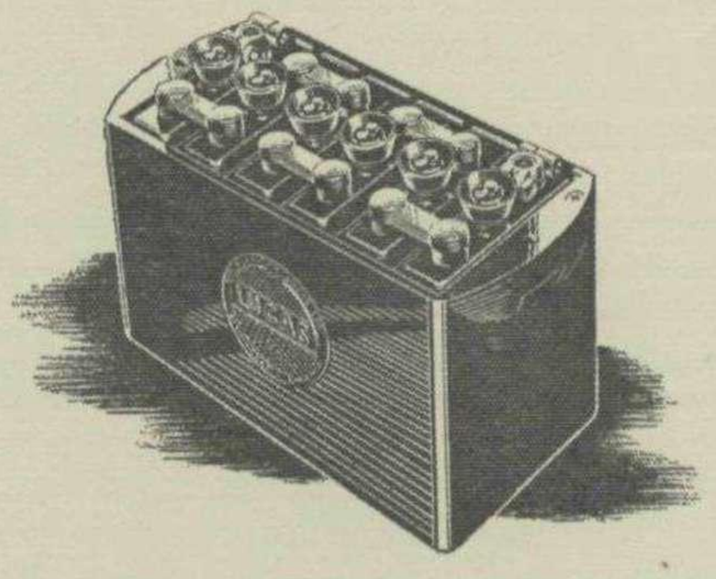
manner. Meanwhile, we have a book for the " 17/95 " s/c. Alfa-Romeo and a 1931 " 12/50 " Alvis instruction book has been loaned to us. An interesting letter from W. G. Battersby encloses two catalogues, in German, of the Type 57 Tatra, an example of which he is improving for after-the-war use. This interesting car has a tubular backbone chassis and a 2-stroke flat-four engine of 70 × 75 mm. (1.16 litres), developing 20 b.h.p. Front suspension is by twin transverse leaf springs, resulting in i.f.s. without wishbones, and rear suspension is by a single transverse spring above a swing axle. The top gear ratio is 3.5 to 1, with 5.25 in. × 16 in. tyres, and the chassis weighs just over 8 cwt. and the 2-seater just under 15 cwt. Battersby's other car, which he has had for five years, and which he still uses for business and A.T.C. duties, is a 1,600-c.c. backbone-chassis Hansa. From Scotland comes long overdue news of R. G. J. Nash. He confirms that most of his veterans were destroyed by enemy action, but we are relieved to hear that the 1912 Lorraine-Dietrich " Vieux Charles Trois " is safely stored near Oxford while, although the twin-blower 1½-litre Fraser-Nash-Union-Special " Terror II " was hurled some 15 ft. by a bomb and landed upside down, it can be repaired for further dicing—although Dick thinks that rubber and fuel rationing may delay the resumption of racing for quite a time after the armistice. We hope " R. G. J." will write an article for us on his many and successful sprint cars, amongst which the supercharged s.v. Anzani-Nash " Terror I " and the o.h.c. Anzani-Nash " Spook " are well remembered. Meanwhile, does anyone know what has become of the " production " Anzani-Nash 2-seater, which was built by Nash for a client in 1934? It had a Laystall roller-bearing crankshaft and was blown at about 21 lb./sq. in. by a No. 11 Cozette supercharger, and " R. G. J." recalls getting it up to nearly 120 m.p.h. on test, before the wings were fitted.

* * *

Obituary

When " Ebby " died most of us realised that Brooklands, come what may, will never be quite the same again, and the death of H. P. McConnell reminds us of this only too forcibly. Hugh Patrick McConnell scrutineered at all the big Brooklands meetings, usually assisted by Hudlass or H. R. Godfrey, and his technical knowledge was amply tempered by his ready wit, his love of motor-racing and his practical understanding of requirements, when he encountered enthusiastic entrants of rather amateur or hastily-completed cars. " Mac " was with the Bianchi concern until 1916, when he set up as an independent consultant. He assisted in organising the first J.C.C. 200 Mile Race in 1921, and his technical qualifications included membership of the S.A.E., I.A.E., I.M.T. and I.Arb. He possessed a fluent command of French, Italian and German, and counted nearly all the British and Continental drivers amongst his friends. His car was a vivid-hued Riley saloon. McConnell died at the age of 59 and was laid to rest at Putney Vale Cemetery, where Guinness and Seaman were buried.

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Club News

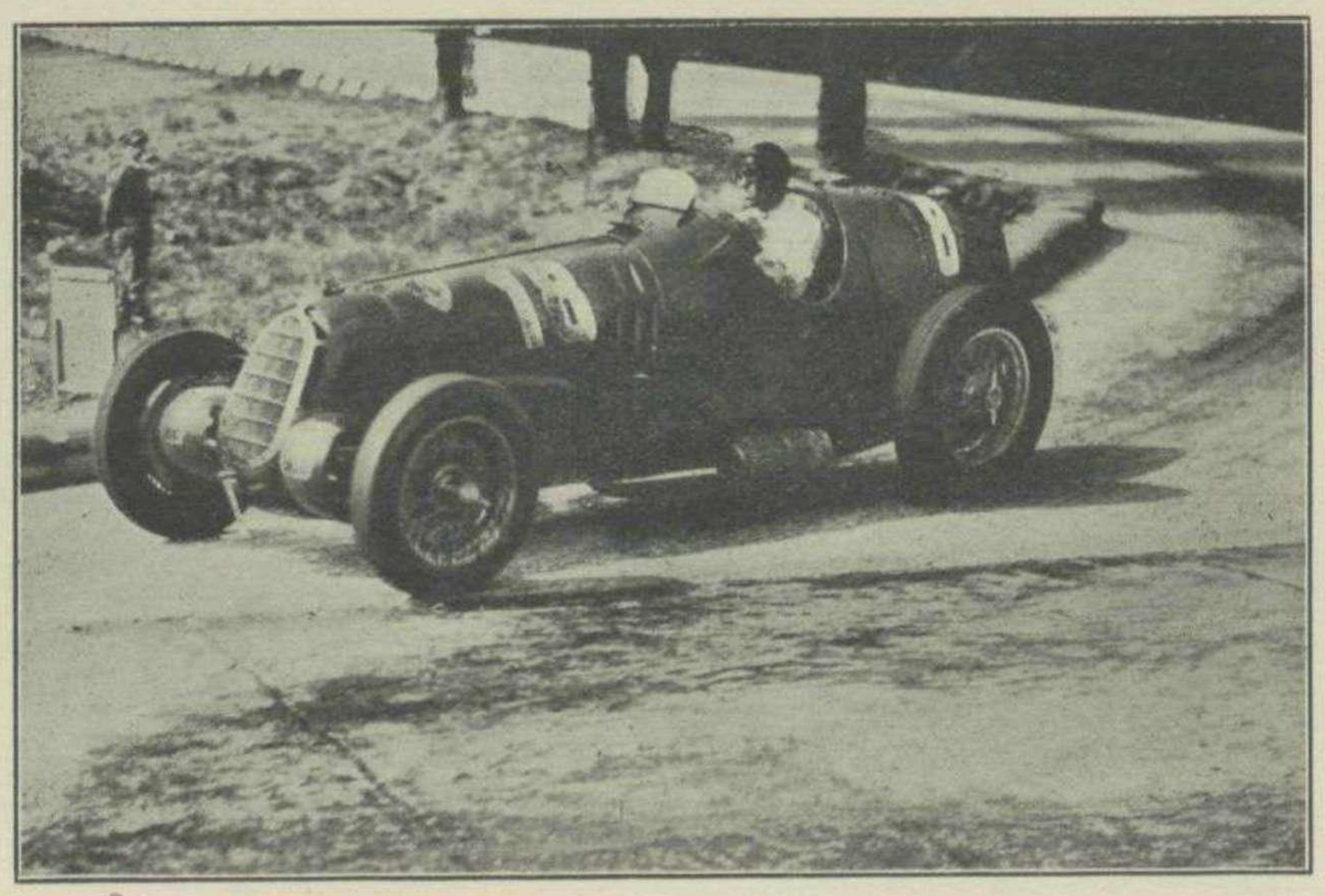
WE HEAR . . . .

John MacLagen, of the Scuderia Chemvamo, has sent out another newsletter to his Scuderia mates, and mentions that there is a very early 2-port, 2-stroke, single-speed belt-drive Connaught motorcycle at Bradford's Garage, Sherburn, near Malton, Yorks., in case any motorcycle folk are interested. We regret to hear that Sgt. Pilot Pierre Bell, of this Scuderia, is reported missing. Gordon Woods is very anxious to acquire yet another Frazer-Nash, although he is not disinterested in a Squire. At present he uses an Austin Seven. The editorial Lancia "Lambda" has been laid up and a 1928 "12/50" Alvis drophead coupé succeeds it, but Boddy also plans to install a big-port "12/50" engine in one of the 1924 duck's-back aluminium 2-seater cars for speedier, if anti-social, occasions. He has also been made a most acceptable present by H. G. Symonds of the ex-Davenport 1½-litre G.N. "Spider," which he intends to have rebuilt for post-war club sprint events. Holland Birkett is thinking very much in terms of Bugattis, having sold his special 4-seater Austin Seven to Phil Hunter, and he hopes to obtain the Type 40 owned by Shapley if he can get it up from Torquay. The proprietor of Motor Sport has become a D.K.W. enthusiast and would be glad to find some oversize pistons to suit, and a reader seeks any sort of roomy, family car, in not too poor order, and for which spares are available at a breaker's, "at between £5 and £300," a requirement it should be relatively easy to satisfy. We know of a Lancia "Lambda" 6th Series tourer, recently overhauled by Lancias, and complete with its special set of tools and instruction book, which sounds to be in very good fettle, for sale near London for £50. Charles Mortimer has bought a very fine car indeed for after-the-armistice exercise, in the form of the blue single-seater 2.9-litre Maserati which Count Villapadierna ran in S. African events. Rowland, of Byfleet, is storing it for him "until afterwards." Jenkinson should be busy for the remainder of the blitz, even if peace is further away than we all hope, for he plans to install an A.C. Six engine into a Frazer-Nash chassis putting on a duplicate of the "T.T. Replica" body for a fast road car and to build up a sprint car consisting of a G.N. chassis, with 1½-litre 4-cylinder Powerplus or V-twin J.A.P. alternative powerplants, and a Morgan independent front end. T. P. Breen has sold an old Lea-Francis coupé to a Major, R.E., who is rumoured to be getting excellent every-day service from it; Breen has for sale a 1931 4½-litre Invicta (high type) chassis, with tyres, at £15, and he would like to find a boat-bodied or other open-bodied 1921–31 Hispano-Suiza at a reasonable price, to preserve as a museum piece. E. T. Barnard, 194, Luton Road, Dunstable, Bedfordshire, who, as mentioned last month, has acquired a 1937 "Competition" 3½-litre Delahaye (DXE 66), is very anxious to obtain data, spares and a handbook about it, and to correspond with past owners. This is the car once owned by Count Heyden, with Cotal gearbox and an Abbey drophead coupé body; it has been carefully stored since August, 1941, and is reported to be in very fine condition. Barnard is contemplating a light body for post-war sports car racing. A Sheffield reader has come upon a 150-c.c. o.h.v. engine which apparently adorned an A.B.C. Scoota-Motor in the dark ages. At last comes news of what seems to be one of the now almost extinct "22/90" Alfa-Romeos. Charles Lambton, of the 5th Btn. Coldstream Guards, has seen a coupé example, in poor condition, but with a complete engine and four tyres, at a breaker's at Semley, in Wiltshire, and he thinks that £15 at the very outside should buy it—if anyone is disposed to save a now quite unique model of a great marque. There is a 1906 single-cylinder de Dion in Tonbridge, which is not for sale, although spare cylinders and connecting rods exist, and would be sold to any one needing them. Ian Metcalfe has added some fresh stock to his intriguing sports car emporium at Shepperton and sold others, the newcomers including a 7th Series Lancia "Lambda" coupé, an open 3½-litre Hotchkiss, Orlebar's pre-1914 Mercédès fire-engine, an Edwardian 14 h.p. Mors 2-seater, and a supercharged Austin Seven 2-seater with Ford radiator, known as the Cooper-Special, with the ex-Cowell sports Alta, the Eccles-Special and the ex-Monkhouse chromium and black Amilcar Six amongst the quick stuff. Down at Bristol, Watson dreams of a rosy future for his special sprint G.N. and "Red Biddy's" former owner has re-acquired this desirable property, which was in danger of being sold as scrap, while an elusive G.N. is rumoured to be around. The Veteran C.C. announcement has further increased keenness for the Edwardians. Richard Shakespeare's touring Mors and Enfield-Alldays are safely stored in Surrey, and Boddy is trying to save a sporting 1912 16-h.p. Gregoire which lies exposed to the elements beside a country garage, its fate uncertain. There is a very sound 1931 "12/50" Alvis saloon for sale in South London, at £80, with many spares.

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THE MIDLAND MOTORING ENTHUSIASTS' CLUB

Enthusiasm for the Sport is certainly in a most encouraging state, even to the formation of yet another club, the Midland Motoring Enthusiasts' Club, which has as its aims the following: (1) To maintain contact between enthusiasts during the war; (2) to enable members to exchange ideas and spare parts to their mutual advantage; (3) to hold debates from time to time on various motoring subjects; (4) if sufficient enthusiasm can be raised and maintained, to try to induce well-known motoring personalities to give lectures and talks; (5) to visit members who have interesting cars and, with their



"Nuvers."

permission and co-operation, to browse over them to their enlightenment ; (6) to co-operate with similar clubs in other towns ; (7) to endeavour to bring about normal motoring as soon as possible after armistice ; (8) to enable members to loan to one another motoring books, periodicals, textbooks and instruction books which they may have in their possession ; (9) to look after enthusiasts' interests, whether members or not, who are in the Forces.

This new club was formed at the suggestion of Stewart Forrest, and it is hoped that monthly meetings will be held at the " Bull's Head," Bishopsgate, Birmingham ; two meetings had already been held by the end of January. Mr. Forrest was elected chairman and D. F. Mallalieu secretary, at a meeting on 18th January. The annual subscription is 5s., and all enthusiasts are welcome, members of the Services being invited to join free of charge. It is hoped to hold meetings on the third Wednesday in each month, and co-operation is being sought with D. L. Gandhi, secretary of the Enthusiasts' Car Club. A club-room at the aforementioned hotel has already been acquired, and we wish this new organisation well. Hon. Secretary D. A. Mallalieu, 81, Olorenshaw Road, Sheldon, Birmingham, 26.

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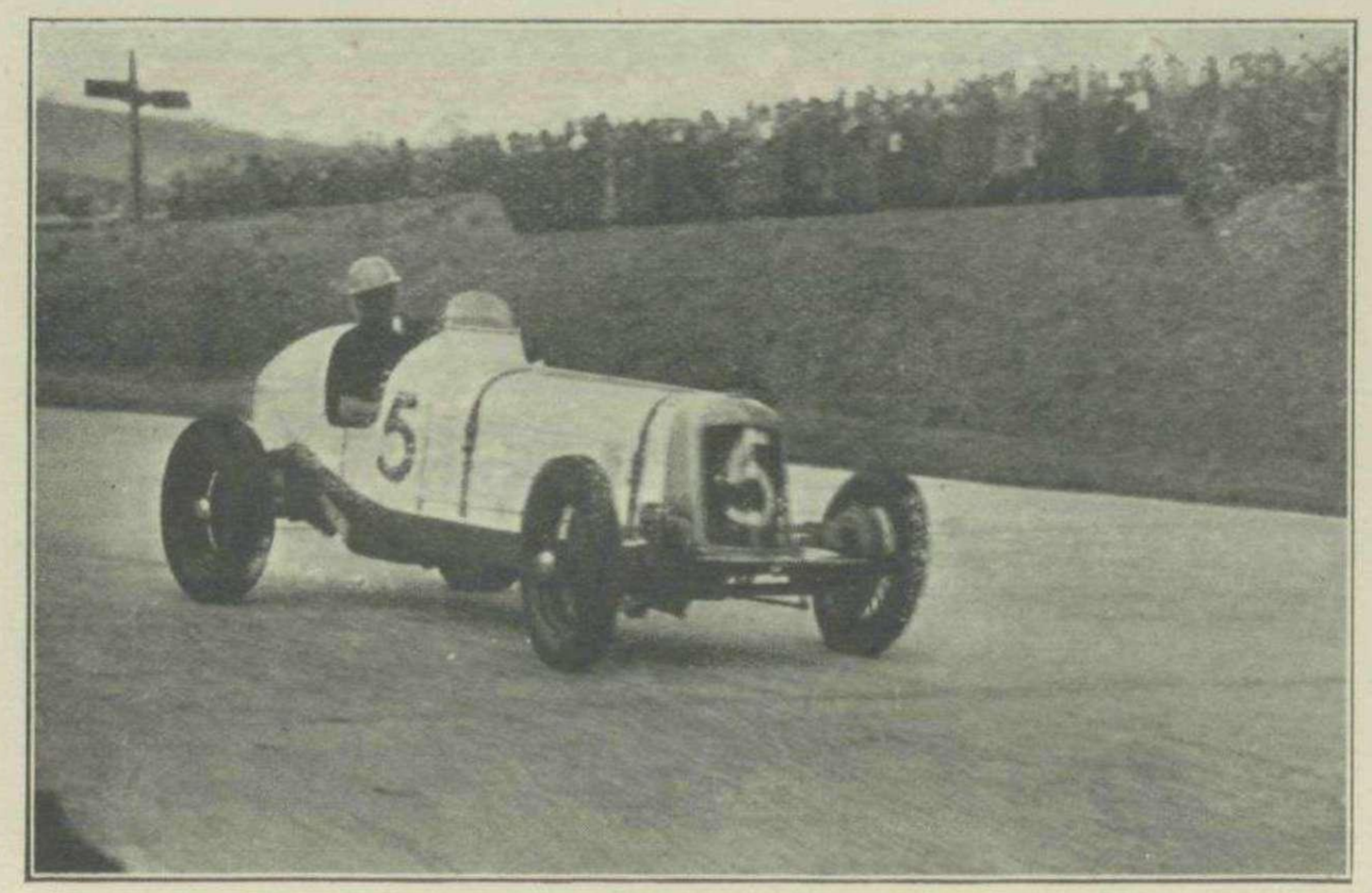
JUNIOR CAR CLUB

The Junior Car Club continues to hold its Council luncheons in London, and has issued its *Gazette* for October to December, 1942, this issue containing an account of the early years of the " Double Twelve " Race. From it we learn that Norman Freeman, Dunlop Competition Manager, is a Home Guard Lieut. ; John Cobb is joining A.T.A. as a pilot ; Lieut. the Earl of Brecknock is at Area Headquarters, London ; Reuben Harveyson is an Assistant Regional Officer, Ministry of Supply ; C. W. D. Chinery is also with this Ministry ; R. E. Rushbrook is in the Middle East ; Miss Watson drives for the Y.M.C.A. and Miss Woodhead for the W.V.S. ; and Major H. C. Dryden is engaged to Dorothy Stanley Turner. Secretary, H. J. Morgan, 14, Lime Grove, Ruislip, Middlesex.

★

VETERAN CAR CLUB

The Veteran Car Club has recently issued some more announcements relating to their decision to extend their scope to embrace cars built up to the end of December, 1912. Cars built prior to 1905 will be known by the club as veterans, and those built between January, 1905, and December, 1912, for the time being, as Edwardians—presumably " Georgians " will be adopted later. Four classes have been constituted, as follows : Class A, 1895–99 ; Class B, 1900–1904 ; Class C, 1905–1909 ; Class D, 1910–12. Ardent veteran car collectors who seek to draw a line somewhere may now aim at a minimum of one car per class. It is proposed to extend the scope of Class C by " one year in every five," so that by 1948 1913 cars will be eligible and by 1953 1914 cars come in, and so on. We rather wish that August, 1914, had been taken as the last limit date, although admitting that " pre-war " is now a very confusing term. A very sound and sensible ruling is that Class C and D cars shall not compete in the Brighton Commemoration Run or act as tender cars, or run over the course on the day of that event. These cars will be allowed to compete in other club events, in their own categories. The Edwardians are being looked after by a sub-committee, to which Cecil Clutton and Anthony Heal have been elected, as well as having been elected to the main committee. The club hopes to have central premises after the war. A running buffet was organised at the Waldorf Hotel on 13th February. Hon. Secretary, Capt. J. N. Wylie, 38, West Cromwell Road, London, S.W.5. (Western 3032.)



Arthur Dobson.

GENERAL NOTES

Motoring experiences come all too infrequently now, but they have not entirely ceased, for many individualistic motor-cars are still in use on work essential to winning the war and our personal good fortune holds. Thus there was a journey all the way to beyond Bristol and back in an " eleven-hundred " H.R.G., which, postponed, led to a long day in a train. But eventually it came about, and very welcome it proved to be. Only once exceeding 50 m.p.h., the roads were so deserted that over 20 miles were put into the half-hour periods quite effortlessly, in spite of a few short stops for the purpose of map-cogitation and for clearing the windscreen of a thick layer of mud slung up by Army vehicles as we climbed the latter part of Salisbury Plain, when passing a convoy, which also caused some hectic slides on the far from clean road surface. The run home in the dark was equally satisfactory, after an annoying electrical short-circuit had been cured, although the night was bitterly cold. Later, there was the urgent need to find another " official " car, resulting in the purchase, for a modest sum, of a stately, but somehow pleasing, and well-shod " 12/50 " Alvis coupé, which ran home in a manner inspiring every confidence that it would render good service on future occasions. On third gear 35 m.p.h. seemed ample, the howl and clatter from the doubtless hard-used box terrific, and the low ratios, and the gaps between them, were not too welcome after many months' experience of a Lancia " Lambda." But once in top we rattled along without effort, albeit with a healthy burble of exhaust note, at 40–50 m.p.h. Thoughts of economy and dependability compensate for a lot these difficult days, and the steering, if the lock was quite unbelievably small, was yet very light, high-geared and reasonably accurate, the brakes were spongy but effective, and the car was somehow endowed with breeding which suggested not altogether touring ancestors. Moreover, everything functioned, even to an aristocratic electric horn and an oil pressure at all times above 15 lb./sq. in., and, anyway, we like a right-hand change. The Alvis had to be used for several pleasing official journeys, and then a friend murmured that he had to deliver a 4-speed Austin Seven " special " to a nearby town, using those so valuable white-and-red plates, and that he intended to get on a train and go to Torquay to bring home a Type 40 Bugatti by the same means. A little long-overdue leave being possible, we went as well, of course. The Austin took us the first few miles on a perfect morning without incident, and there followed a seemingly interminable train journey which made up for a lot by taking in some magnificent coastal scenery on the last lap. Unloading two boxès of tools and spares, we had a brief look at the Bugatti, finding the appearance of the car, with its black body on the lines of a scaled-down Type 43, a stimulant for what was to come. In the failing light we murmured of Molsheim magic as we took our hostess home in an Austin Twenty taxi. Next morning a smaller Austin taxi took us to the garage where the Bugatti awaited our ministrations—the fuel system had to be

cleared, we knew, but it was with alarm that we regarded the aperture where the ignition distributor should have been. Telephone calls to the owner elicited the information that it was nowhere to be found, and that two friends, on work of national importance in a "12/60" Alvis, had suffered stripped timing gears on Dartmoor and were coming on by train in the hope of a lift back to their base. So the writer met every train as it emerged from the picturesque tunnel into Torquay station, by a sea front deserted of cars save for the inevitable Austin taxis. That afternoon the distributor was found, and late that evening our friends arrived, to find the Bugatti almost ready to take the road, although we had not been able to commence the engine. Supper in a lounge-bar facing the sea did much to restore our spirits ere yet another Austin taxi conveyed us away for a well-earned sleep. Next day the Bugatti's engine commenced after a downhill push, and we were away by mid-day, four up and loaded with luggage. At once the magic of the whole business came back to us. The rising whine as each higher ratio went in, the typically-Bugatti exhaust note which turned into a calico-ripping sound above "two-five," and the taut, live feeling of the little car, allied to the glimpses of a Devon sea deep blue in the clear sunlit atmosphere, blended into an experience valuable beyond price. That this was an isolated journey necessary because the car had to be moved to a new locality became a pill more bitter to bear in consequence. Even the exhilaration of this now completely rare motoring could not blind us to the fact that the engine had a bad misfire, a reason for apprehension, with the distributor a very jury-rigged affair and held on to the rear of the cam-case by perished rubber-bands and hope. This trouble became worse, necessitating many stops, some involuntary as the timing slipped at intervals. The dynamo not charging, the batteries began to fail, and by Exeter our drive temporarily terminated. Some frantic telephoning resulted in a Scintilla Vertex magneto of trustworthy quality being put on a night train from Reading. We retired to a miserable railway hotel after nothing more inspiring than an immense supper in a fish-and-chip bar, one member of the party deeming a train the surer method of returning to his toil, notwithstanding that it left at the ungodly hour of 1.20 a.m. At breakfast next day—*which* day was now becoming a detail requiring immense thought!—the box containing the magneto was borne triumphantly to the table, and very soon a garage was dealing brutally with the task of changing the driving pinion. Life was thereafter immediately enlivened by a run in a vintage Dodge taxi, which we insisted on taking in preference to the all-too-modern Austins, being rewarded with hard suspension, 38 m.p.h., and very powerful rear-wheel brakes. An hour sufficed to fit the Vertex in place of the offending distributor, and we were on our way again. For a time we tailed an R.A.F. officer in a 4¼-litre Bentley drophead coupé, until we passed at speed downhill, only to be promptly re-passed, and left, on the very next uphill stretch. Thereafter we had the road up from the West very much to ourselves, and the Bugatti cruised in a most spirited manner at 3,000 r.p.m., the exhaust note the kind of sound one could go on listening to for ever, the gear hum adding to the car's Molsheim manner of going in the few congested areas through which we passed. Once or twice we stopped for no very apparent reasons, the plugs, K.L.G. K.1s, remaining quite healthy, and we had an excellent lunch in Yeovil. Just beyond Lobscombe Corner the fuel required replenishment, whereafter we motored on not slowly until, a mile out of Whitchurch, an "expensive noise" occurred. We examined the engine sufficiently to ascertain that the lubricant had not been going to all the places where it is essential, and then pushed the car into the town. Another train journey, a run through brilliant moonlight with the trade tow-car to bring the Bugatti in, and one of the longest, most strenuous and most absorbing "week-ends" we have spent for some four years or more concluded. Certainly this motoring hasn't lost one iota of its fascination for us, although such experience of it seems possibly to have terminated now until after the war. Reminiscences of this run must keep us inspired until then, and we shall long remember the little old lady who looked over the fence as we worked on the Bugatti and sadly observed that it never would go properly, that we had wasted our money, but that perhaps the metal would do for scrap.

★ Book Review

Aircraft of the Fighting Powers, Vol. III, by H. J. COOPER and O. G. THETFORD. Edited by D. A. RUSSELL, M.I.Mech.E. (The Harborough Publishing Company, Ltd. £1 1s.)

It is with extreme pleasure that we draw readers' attention to the third volume of *Aircraft of the Fighting Powers*, which covers military aircraft of 1942. In present circumstances, this well-produced book, with its art paper, excellent photographs and scale plans, is more than usually welcome. It follows on the standard set by the two preceding volumes and describes the leading military aircraft of 1942 with a detailed specification, description, recognition notes, photograph and one-seventy-second scale plan of each machine reviewed. British caution has resulted in only seven new British types being released, and the bulk of the 160 large pages is devoted to American aircraft, while liberal space is devoted to Russian, Netherlands East Indies, Japanese, Italian and German machines. The British types covered are the great Lancaster I, the Beaufighter II, the D.H. Mosquito, the Hurricane in bomber form, the Miles Master III, the Whirlwind and the Hotspur II glider. This book is definitely one of the few really good things the war has produced. Apart from the scale plans, model makers are well catered for by the Aircraft Marking Compendium, while there is a colour plate of Hurri-bombers as a frontispiece. This publication now carries a useful amount of advertising, and rightly so.

RACING CAR EVOLUTION

—continued from page 51

in these directions was made during the two years under review. In frame design there is no doubt that the 8-cylinder Talbot was far in advance of its time, and it is something of a paradox that the Delage, the most successful 1½-litre car, had about the weakest frame that can ever have been put into any racing model, particularly as the designer made little use of the crankcase as a means of stiffening the front end.

The winter of 1927 witnessed the close of an epoch in motor racing history. For five years International Grand Prix races had had the support of many leading manufacturers, who had been willing to spend sums of between £50,000 and £100,000 per annum in the construction and operation of entirely special racing cars. Everyone seemed to decide at once that this was excessive, but it had certainly realised magnificent technical results, as the following comparison will show. The 1927 1½-litre Delage produced 170 b.h.p., which is equal to 112 b.h.p. per litre, 177 lb./sq. in. m.e.p., and 5.3 horse-power per square inch of piston area. The speed of the car was approximately 130 m.p.h. Five years later the Alfa-Romeo *Monoposto* produced not more than 180 b.h.p. from 2.65 litres, which was equal to 68 horse-power per litre, a m.e.p. of 160 lb./sq. in., and only 4.3 horse-power per square inch of piston area. Thus, at least in so far as engine design is concerned, the decade 1927–37 is one of recession, but this I will now leave for another's pen to portray.

CARS I HAVE OWNED

—continued from page 56

condition, was just what I wanted to replace the Lancia "Augusta." Not that the "Augusta" was worn out—far from it. It was still in grand form and giving excellent service, but I wanted a change, and thought that two Bugattis would be just that much more enjoyable than one. So in January, 1937, I bought this Type 49 (ANU 9), it having then covered approximately 29,000 miles. My mother exchanged the "Augusta," through C. R. Abbott, for a Fiat "500"—one of the first in this country. Thus, the family stable had grown to five cars, the fifth being my mother's 20-h.p. Rolls-Royce (which she still has in store), purchased new in 1928 as an open tourer and fitted in 1934 with a drophead foursome coupé by James Young. This little Fiat, by the way, impressed me a lot. Its suspension, cornering and handy size were super, and I once had 67 m.p.h. on the speedometer going down from the Hogs Back. I drove it myself for about 20,000 miles, up till June, 1940, and it is still going strong to-day. My brother owns it, and uses it as much as his petrol ration will allow. He had it thoroughly overhauled after about 25,000 miles as a big end "went," I regret to say, when I was "revving" the tiny engine a bit fast on second gear up a long hill. It now has a higher compression, an S.U. carburetter and oversize tyres.

To be continued.

Letters from Readers

Sir,

There must be in Great Britain at the moment several million tubes of rubber solution for repairing cycle and motor tyres. As these become empty, would their owners mind taking the trouble to drop the used tubes into the salvage bin at the nearest chemist's? Toothpaste makers have been kind enough to accept the suggestion of the Tyre Manufacturers' Conference that cyclists and motorists should put solution tubes in the bins for empty toothpaste tubes. All profits on the sale of metal tubes go to the Red Cross and St. John Fund. Without cost to themselves, therefore, contributors of used tubes help the war and the nursing services by one simple act.

I am, Yours etc.,

W. B. STOKES,
Secretary,
Tyre Manufacturers' Conference.
London, W.C.1.

* * *

Sir,

I have followed with interest the recent reminiscences in MOTOR SPORT, which I receive with surprising regularity, thanks to a kind motoring friend of old, who also keeps me well informed of motoring activities at home. As this world-wide war has brought about foreign travel to a far greater extent than ever before, I think it would be of interest, by way of change, to consider motoring in other lands. For my part, I would welcome contributions by others, probably more fortunate in their allotted venue, but certainly no more enthusiastic than myself in a desire to partake as fully as possible of the undoubted joys of motoring. Although opportunities are restricted and no motoring is done in these times without a background of duty, there is no reason why enjoyment should not still be derived. Indeed, the pleasures may become more intensified as the opportunities to indulge become less.

The sense of pleasure for me is limited, for there are no scenic splendours to enhance the charm of motoring in the land of which I write. I gain what joys I find from the smaller things—the feel of wind through the hair, the art of snappy gear-changing and the sense of freedom provoked by travelling unencumbered by the paraphernalia demanded by the changeable English clime. Thus, I seem to have found the very source of the enjoyment—yet only by forfeiting the convenience of home travel, with its better roads and higher speeds, the hills and dales of Derbyshire, numerous excursions to Donington, and the like.

In order now to gain a sufficient local atmosphere the better to appreciate the conditions of which the following makes mention, the doors and windows should be secured, all available heat turned on, and, preferably, the sand held in readiness for A.R.P. purposes scattered liberally over the floor. Come with me now, in imagination, to a desert wilderness where the sun beats down relentlessly upon a scene of unchanging monotony and the natives leave their work as frequently as possible to offer praise to Allah for the granting of such unbounded benevolence. Here the seasons are but two—hot and ruddy hot.

Yet despite this, one still contrives to find pleasure, and if no breeze is blowing, then there is more reason to create one on a motor-cycle or in an open car. Tarmac roads in the Anglo-Egyptian Sudan—for it is that country to which I refer—exist only along main thoroughfares and are not defined in any way at the edges. They become begotten as they merge into sand. Other roadways are of sand only, and no surfaced road leads far from the boundaries of a town. No speed limit is necessary, for the nature of the surface imposes sufficient restriction.

The greater part of my travel here, as in England, has alternated constantly between two wheels and four, which suits the requirements of my rather taciturn nature admirably. My true love, I believe, is two wheels; especially when unrestricted by a lot of clothing and entirely certain of the weather.

I have ranged the country considerably from the Uganda frontier to the Red Sea, from Nimule to Khartoum, Atbara and Port Sudan. In all the time I have been abroad I have seen scarcely no rain, for I seem fated to go from place to place and miss the rainy season of each. As I have never felt too safe on wet roads, I am wondering just how I shall fare when again I face the changeable climate of England! At one time I was entirely fearless under all conditions, and I believe my present reaction to wet surfaces is due to the fact that the only times I have ever come unstuck were under really slippery conditions. During the summer months it is desirable to sit on something other than the seat of a car, which otherwise becomes unbearably hot, while one soon learns to leave a motor-cycle in any little shade which may exist. Experience soon teaches that if a motor-cycle proves difficult to start it is advisable to investigate immediately and not sweat drops of blood in constant kicking. I have seen many unfortunate D.R.s kick until they have had no energy left and are dripping with perspiration. Before temporarily abandoning any vehicle, it is essential to ensure that nothing portable or detachable is left behind unguarded, for the natives are not beyond helping themselves to anything available. For this reason no tool kit is ever carried on a motor-cycle, or even a box in which to carry them. Even tyres are stripped from the wheels of vehicles left by the roadside due to breakdown. Once when driving an Opel "Kadet" I ran out of petrol, and after filling from a spare tin carried for such an emergency, I could get no sign of life from the battery. I searched in vain for a starting handle, and then, upon investigation of the front-end, found that no provision existed for starting on the handle. This seems a very misguided sense of economy. Nothing could be done, so I abandoned ship and sought the shade while awaiting assistance. Tyres constitute a considerable problem in more ways than one and pressures need to be attended to frequently, particularly with a motor-cycle. It is seldom that a tread becomes worn to the canvas, for before that can take place the tyre walls crack. Yet if the pressure is kept at anything like the maker's figure, the front forks and links receive a terrific hammering—quite apart from the poor tummy—so that it is a case of trying to hit a happy medium. During recent travel in Port Sudan I have been troubled at times with water in the carburetter, but whether this is due to a lower grade petrol or to the humidity of the atmosphere I do not know.

Apart from motoring in the towns, I have at times had to travel far from the beaten track across open desert and also in the hill country. Oh, yes! The Sudan has its hills, or "jebels," as they are named locally. I once allowed myself to be driven from this hill area down past Suakin, to Port Sudan, by a Sudanni. I am a bad passenger at the best of times and on this occasion almost pressed the floorboard out of the Ford in which we were travelling. Like most Sudanese, he was a very irresponsible sort and tore around bends and down steep drops in a most frightening manner. On the straight sections his foot remained flat down as we bounced over the hard corrugations of the road, while one hand was constantly engaged in pressing the hooter, which seems to them absolutely essential to driving. Altogether the progress was extraordinary and rather terrifying. Pulling up at our destination the driver hurriedly asked the time and the miles clocked on the speedometer, and to make doubly certain asked for the figure in kilos as well, which made me think pretty hard for a while. I suppose he now claims the local record over cups of black coffee and handfuls of "mongareer," in which case I, for one, would certainly not wish to deny his claim.

Often when accidents occur they involve considerable numbers, for they pack so many into the vehicles. At times as many as four can be seen sitting alongside the driver, with others clinging to the sides. A car had fallen over a particular drop we passed in the hills only the previous day, with death and injury to no fewer than 20 natives, while another accident involving 17 took place on my next visit to these parts, so that you need not wonder at my fear. I shall never be so lazy in the future, however, and my driver now takes his place by my side and not at the steering wheel.

Before arriving here I travelled by way of South and East Africa, and had a very interesting car ride from Nairobi to a farm in the highlands of Kenya, which

necessitated climbing some 8,500 ft., mainly through bamboo forest. The road had been surveyed and hewn out by the farmer and his father before him, and, like many roads in Kenya, presented trials conditions unsought for. Even at this time of the year we were forced to make diversions and fit chains at various points. During the rainy season the road becomes altogether impassable. Most of the journey out was done at night, but instead of approaching headlights we were met by the gleaming eyes of animals by the roadside. This ride was quite one of the most unusual and exciting I have ever experienced, while the journey which later took me down to Lake Naivasha was through rugged and very beautiful scenery. It is scarcely necessary to add that the car was American, for cars of English manufacture are regrettably noticeable by their absence in all parts of South and East Africa, from Cape Town upwards. The number of garages in Durban rather astonished me; I think every other inhabitant must be a garage proprietor!

If our car manufacturers lack initiative the same cannot be said for the Singer Sewing Machine Co., whose machines are represented everywhere throughout the vast continent and are to be seen in the most remote spots imaginable, being treadled industriously by some dusky local. In Dar-es-Salaam I noticed a considerable number of German autocycles in use. There is little of the "Darkest Africa" touch remaining and bicycles are to be seen at the smallest and extremely remote marshland villages on the upper reaches of the Nile. It amused me to see the completely naked natives, proud owners of such machines, carrying out repairs by the side of their little domed huts near the northern Uganda border. I was dumbfounded one day, at Masindi, to be met by quite a horde of cyclists dashing in the direction of the native quarters. I was evidently witnessing the "knocking-off-time" exodus which even in remotest Africa is becoming mechanised. The roads of Uganda are highly complimentary to the responsible authorities, and are of a reddish nature, due to the ironstone which underlies the soil. To revert once more to the Sudan and to the heat which is so much a part of it, I find that on the hottest days it is advisable to start a motor-cycle in the approved textbook style. That is, to find compression, lift the exhaust valves lifter, and give a short jab before releasing the valve lifter and giving the long swinging stroke calculated to set things in continuous motion. Under less rigorous conditions I would never consider such pansy methods, but here it is necessary to conserve energy whenever possible.

I have previously had little to do with side-valve engines, another pansy creation, as I considered, but now, after sampling their more trouble-free and noiseless benefits, I am of changed opinion. O.h.v.s are certainly more efficient, yet require vastly more attention. One has to be more watchful than in England when driving in towns, for the natives saunter about with entire disregard for road users. That, then, contributes my lot to wartime travel to date, but for that of which I cannot speak. I have deliberately avoided an extensive use of place names for obvious reasons, for it is naturally impossible to write with entire freedom at present.

I am, Yours etc.,
E. L. DENMAN.

Sudan Government Railways,
Anglo-Egyptian Sudan.

* * *

Sir,

I feel that in my letter, published in January, I have not made myself quite clear as to what is in my mind.

I acknowledge the fact that there has been no general attempt in the past to exclude members of the Motor Trade from club activities, but the editorial in the December issue, quoting from an article in the J.C.C. *Gazette*, includes a paragraph as follows:

> "The kind of place we have in mind would be set up in the West End, and would not be under the auspices of any one motor firm, who might be suspected of advertising motives."

To my mind, this remark definitely shows a slight suspicion that any member of the Trade who might possess any idea of forming an enthusiasts club would do so with the idea at the back of his head that it would increase the amount of rupees coming in to the kitty. I can assure the Editor that any person who carries out his ideas with these thoughts at the back of them is a hopeless optimist! Lads who wish to buy a car will come and see you anyway, if you have the car that they want in stock, and the lads that come to chat do not want to buy.

Furthermore, some little dicky bird told me that immediately my letter was published there might be a few people who would think that it *was* somewhat of an advertising move, hence the lines: "The cars shown are well known in their class and are not for sale." The cars referred to are laid up for the duration, and are being stored on my premises, and would, with the owners' consent, be available to be viewed by members of the sporting fraternity, for their amusement.

These cars cover a wide variety of types and there are some well-known record holders among them. Finally, although I am not mentioning them, I have quite a varied selection of sports and racing cars for sale, and having, as I do, quite a collection of visitors over the week-ends who come down to "browse around," I always make a point of never offering any car for sale during the week-end unless especially requested for particulars of the car by any interested person.

Thus, I can be an ordinary enthusiast myself at the week-ends, and can talk motor cars *as* an enthusiast and not as a motor dealer! Finally, may I say that Marcus Chambers's offer to give advice to Bentley owners is in my opinion very sporting of him, particularly in view of the small amount of leisure time that the calls of the Service must leave him.

I am, Yours etc.,
IAN METCALFE,

Shepperton, Middlesex. Eton Motors.

* * *

Sir,

At the Brains Trust someone raised the hoary question as to whether it is a bad thing to brake when cornering. Mr. Pomeroy pointed out that the application of brakes on a bend may tend to promote an over-steering characteristic (this, of course, would particularly

READERS' SALES AND WANTS

To meet the repeated demands for something on the lines of the old Spare Parts Announcements, we have instituted a system of inexpensive advertisements. Each announcement must be limited to **twelve** words, plus the advertiser's sufficient postal address, and the charge will be 1s. 6d. per announcement, payable at time of posting. The system will be governed by the following rules:—

(1) Each announcement to cost 1s. 6d. and be limited to twelve words and the advertiser's address. Box Numbers cannot be used.

(2) The publishers accept no responsibility for loss of advertisements, non-publication, late publication, or incorrect wording, but will endeavour to insert announcements in the next issue, if posted within eight days of the publication of the previous issue.

(3) No advertiser may submit more than **two** announcements per issue and each must apply to a separate article. Only spares for sale, spares or cars wanted, or **really cheap** cars for sale, should be announced. Prices should normally be quoted.

(4) The proprietors of MOTOR SPORT offer this scheme for the mutual benefit of enthusiasts and can take no responsibility of any sort whatsoever. All transactions must be made to the published addresses and no correspondence can be entered into in respect of announcements, transactions or any other matters arising from the scheme.

(5) Announcements should be sent within eight days of the publication of the current issue of MOTOR SPORT, accompanied by stamps or crossed postal orders to the required amount. Cheques or coin cannot be accepted.

FOR SALE

QUANTITY Ulster Austin parts, G.N. sprint chassis, 2-seater Sports Special, 8 h.p., o.h.v., suitable clubman. Write Cambridge Engineering Works, Cambridge Road, Kew, Surrey.

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.

POTENT 1,500 c.c. engine, blown or unblown, prepared to overhaul thoroughly. Particulars to Routledge, Elmete Avenue, Scholes, Leeds.

ARNOTT supercharger urgently required for Fiat 500. Really good condition essential. Major Vigors, Rosse Bridge, near Cheltenham.

ALVIS F.W.D. parts required, Fiat 1,500 c.c. parts for sale, including engine. More, 127, Old Bath Road, Cheltenham.

BODY, M.G. Magna L 2-Seater, including front scuttle; must be sound. G. D. Holland, 18, Sycamore Road, Bournville, Birmingham, 30.

FRONT springs for M.G. L Type Magna, also instruction manual for same. G. D. Holland, 18, Sycamore Road, Bournville, Birmingham, 30.

RILEY M.P.H. Model or good 1933 9 h.p. Lynx Tourer. A. F. Rivers Fletcher, 25, Warwick Road, New Barnet, Herts.

BUGATTI, Type 37a, 37, or 40 engine, steering wheel, aluminium hub caps. Riddle, H.M.M.L. 343, c/o. G.P.O., London.

WANTED for K3 Magnette, complete engine, or parts, radiator shell, front mudguards complete with brackets, steering wheel. 29, Cumberland Road, Sale Moor, Cheshire.

Spares Section,
MOTOR SPORT,
21, CITY ROAD,
LONDON, E.C.1

apply with a torque tube or radius arm lay-out), but otherwise the discussion was not carried very far. It is, nevertheless, an interesting one, and it would be instructive to learn the views of experienced drivers.

I think it probable that the adage about not braking when bending dates back to the days of loose road surfaces, thin tyres and rear-wheel brakes. To apply the brakes under such conditions meant a rear-wheel skid, which is bad driving, because its correction wastes time. In very skilful hands, however, this characteristic of early braking could be put to powerful effect; for by locking over rather *before* the corner, and clapping on the brake, the car could be thrown into a broadside, continuing to motor sideways towards the corner. In this way it was miraculously endowed with the effect of powerful four-wheel brakes and slowed up rapidly; it also arrived in the corner already pointing in the right direction for a rapid departure without more ado. Contemporary literature suggests that Bruce-Brown was an early exponent of this technique, and Archie Frazer-Nash put it to powerful effect in hill climbs of the early 1920's.

Another invaluable use of rear-wheel brakes when cornering lies in their ability to correct an unexpected front-wheel skid. This was well known to Frazer-Nash owners, and I have found it most useful on the Itala. For this reason I think it most desirable that the hand brake should operate on the rear wheels only.

With modern road surfaces, fat tyres and four-wheel brakes, there seems to be little objection to braking when negotiating a corner under normal circumstances; but if the corner is being undertaken at the limits of adhesion, any strenuous application of the brakes will remove the margin of safety, and the vehicle may go skating off at an inconvenient angle. The conclusion, therefore, appears to be that it is quite safe to use the brakes when cornering, provided that they are not going to promote a skid.

Almost under the same heading as braking when cornering comes the use of the accelerator when cornering. Mr. Lowrey recently expressed a preference for accelerating round a corner, but I think that if this is carried to its logical conclusion it will be found to be a bad thing. Given a sufficiently powerful motor car, acceleration in a corner will have just the same effect as rear-wheel brakes—it will dis-adhere the back wheels and promote a side-slip.

It seems to me that it is only bad driving to skid one pair of wheels independently of the other. Either a front or a rear wheel skid puts the car out of position, and therefore needs correction, and this wastes time. If one is arranging to traverse a corner beyond the speed at which the tyres will continue to hold on to the road surface, it is essential to lose all four at once, and to an equal extent. To do this on a car with a lot of over- or under-steer is difficult, but on a properly balanced lay-out the car will then go round the corner in a steady "drift" (the nose pointing to the inside of the bend, and the front wheels rather more so) which needs no correction, and therefore wastes no time. The amount of acceleration desirable, and the extent to which the front wheels have to be pointed to the inside of the curve, will, of course, depend on whether the car is inherently an oversteerer or an understeerer.

I wonder if these views would be generally accepted.

I am, Yours etc.,
London, W.11. CECIL CLUTTON.

* * *

Sir,

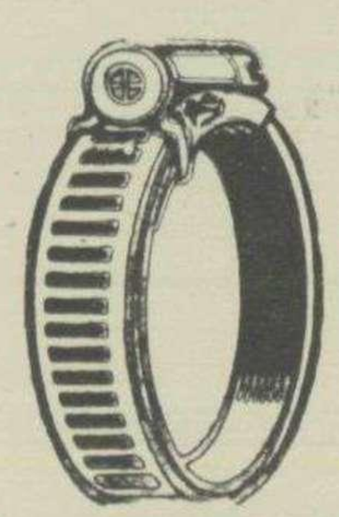
It was at a very early age that I fell a victim of the desire for motors, the first I owned, or partly owned, being a 1921 3½-h.p. Triumph motor-cycle. This model was purchased during my school days for the sum of 8s. 6d. My pal and I pushed it home a distance of three miles one dark night, and had it safely stowed away before anyone saw it.

When we ventured to see what it was made of we had a lot of trouble with the primary chain. It being a "chain-cum-belt, chain-come-off" machine, we decided to scrap the chain, consequently the gearbox was only a decoration. In this state it was induced to perform, under a bright moon, without any lights, also minus brakes and foot-rests; it was aptly christened the "Stonebreaker" by one of the elderly inhabitants. We decided to pull it to pieces, and the inevitable happened—it never went together again.

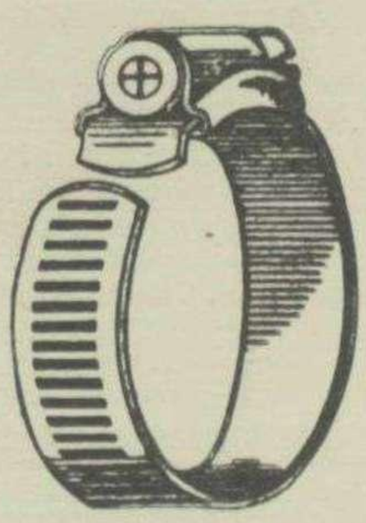
As my parents took a very firm stand regarding any more motor-cycles, I was forced to forget motoring for a few years until I was able to purchase a very much worn o.h.v. Morris Minor, which had quite an urge, and always motored merrily away from home, but seldom motored merrily back again. Its clutch gave up the ghost on the first week-end tour, quite a distance from home. After a two miles hike and a further 2½ miles sitting on the floor of a farmer's Morris Twelve, we completed the journey by taxi. After

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having this matter attended to it developed a colossal appetite for oil and a terrible hatred for my pal's girl friend, as it did all sorts of terrible things when she was present. After inspecting a Triumph Super Seven and successfully making a deal with a small cash adjustment, I drove off in the Triumph. It was quite a nice little job, but never put its heart into any effort it made.

It, in turn, was traded for a 2-seater Austin Seven, which started life as a commercial vehicle and had a rather rakish, home-made body. After altering the body considerably, we dropped the steering column, extended the controls and set the seat over the back axle. The tank was fitted in the tail, and a 6-volt petrol-lift was employed. This car gave yeoman service. Having decided to purchase something with more speed, I next went in search of an M.G. After examining quite a few, I became the proud owner of a 1933 "J2" model, which was fitted with low-pressure tyres on the back, a 6-gallon oil tank below the bonnet, oil and radiator temperature gauges, and an extra oil-pressure gauge and clock to match. Some time later I was fortunate to meet the gentleman who had bought it when it was new, one Hugo Wilson, and he informed me that he had all these extras fitted prior to entering the Craigantlet hill climb. Later he raced at Phœnix Park without much success, the chief trouble being lack of oil where it was most required. After the engine had been dismantled the cause of the trouble was found; the back main bearing was not properly lined up, thus restricting the flow of oil from the crankcase. This being attended to, the trouble ceased.

About this time, through MOTOR SPORT, I made the acquaintance of Ron Baker, of the R.C. of Signals, who owns a Riley 4-seater sports model, also "Nobby" Clarke, of the R.A.S.C., who was with "Bira" immediately before the war. We had some grand times together, until petrol rationing became acute. I tried a few experiments with Calor gas as a fuel, but the performance suffered badly, and, consequently, I sold the M.G. in favour of a more economical sports Austin Ten, the body of which was built by Whittingham and Mitchell, of London; also it was fitted with Rudge knock-on wheels and a non-standard radiator. There was nothing outstanding about its performance, and the springing was not so hot—it had hydraulic shockers on the front and friction on the back. Its maximum speed was 60 m.p.h. and it was good for 36 m.p.g.

We used to make frequent trips to Newtownards, when the Ards Motor-Cycle Club managed to hold frequent speed events and reliability trials, right until the very end of the motor-cycle basic-ration period. On one occasion, before the basic ration for cars disappeared, a special item was introduced for the benefit of car owners, a scratch event and a handicap, which consisted of a few laps of a large field. Those taking part in this event were: Noel Hillis, of Belfast, with a 3-litre Talbot; Wilbur Todd, of Lisburn, with a Riley; Peter Eve, of Walton-on-Thames, in an H.R.G.; Rex McCandless and Ray Noble with a Triumph Speed Twin and chain, and a 3-wheeled Morgan.

We have been very fortunate in Northern Ireland to have had our sport each year in spite of Shicklegruber, until practically the end of 1942. Here's hoping for 1943, and may we all meet young men with red ties and "Red Label" Bentleys ere this year closes.

I am, Yours etc.,

Belfast. SAM MITCHELL.

◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆

MOTOR RACING BRAINS TRUST

—continued from page 45

for an M.G., once it was initially warm. Castor oil was rapidly dying out, and Pratt's "Esso R" was better, having a graphite content and being unaffected by water—it had saved an engine of his on two occasions. Someone asked if "blipping" was dangerous on a roller-bearing engine, as it set the rollers skating. . . . Ballamy outlined the well-known practice of warming up on soft plugs and then substituting hard plugs, and believed in "blipping" until the "petrol has turned into gas" to "pull the oil up without oiling plugs." Berthon said "blipping" really belonged to sprint practice, when highly tuned and boosted engines with appreciable piston clearances were liable to suffer from oil dilution, due to mixture getting past the piston rings, unless the throttle was "blipped" to get the oil up, clear the induction pipe of fuel, and generally to keep the engine clean while warming up. Castrol R was regarded as the best racing oil in its day because it functioned so well at high temperatures, but mineral oil has replaced it; castor oil carbons-up badly. E.R.A. actually used water in the lubricant of their team cars in order to emulsify the oil. [Doubtless, Berthon could have told us a deal more about this had he felt so disposed. We believe this is the first time this fact has been disclosed, although unkind people have suggested that the Editorial Lancia has probably been running with water in its sump for years.]

From the foregoing it will be seen what a really excellent affair this Brains Trust was, and the next session, which will happen on March 28th at the same place, but preceded by lunch, merits even greater support and a greater number and variety of questions. Further details will appear in the weekly motoring papers this month, but we can disclose that Donald McCulloch, the Question Master of the B.B.C. Brains Trust, himself a great enthusiast and a one-time 3-litre Bentley owner, has agreed to fill this post for the motoring brains on March 28th—which, incidentally, is the very best sort of publicity for sporting motoring we could hope to have. It behoves every enthusiast who can do so to be present. Reverting to the January meeting, we hasten to apologise to any or all of the "brains" if we have misquoted or misrepresented any of their statements in the foregoing report. If any sufficiently-expert stenographer would like to help us to do better at the next session, the lunch is hers! Apart from those people already mentioned, the following were present: Artist Cresswell, Douglas Tubbs, L. G. McKenzie, Holland Birkett, P/O. Mallock, H. L. Biggs, Gordon Woods, Penny Fletcher, Mrs. Darbishire, John Ogle, Capt. J. H. T. Smith, Eric Findon, of *The Light Car*, Graham Davis, of *The Motor*, Patric Baker, of *The Autocar*, and the Editor of MOTOR SPORT.

Stop Press!

INSTRUCTION BOOK LIBRARY

As we go to Press we have to acknowledge receipt of two more books for the Instruction Book Library, in addition to those already mentioned in "Rumblings." Michael C. Wilson contributes a book on the Wolseley "Hornet Special" (1934 free-wheel model), remarking that he ran one until recently and found it highly entertaining and reliable, although his present form of transport is a 1925 Austin Seven. Laurence G. Hadler sends a book on the 1931 M.G. "Midget," which should be of interest to a great many people. Rowland, of Byfleet, has kindly given instruction books of the following: "14/45" Talbot, early "14/50" Rolls Royce, and 3-litre Sunbeam. Anyone requiring information is invited to write to us, enclosing a stamped envelope for reply—but please ask only for essential information.

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RECENT MOTOR SPORT ROAD-TESTS

IN the issue of May, 1937, we published an Index of all the road tests conducted by this paper since it was founded, as *The Brooklands Gazette*, in 1924. From this Index we have been publishing extracts, but these did not embrace the tests published during the last five years. In order to make good this omission, we give below a new Index, of tests published from May, 1937, to the present issue. Read in conjunction with the Index in the May, 1937, issue it provides a reference to all the MOTOR SPORT tests—251 in all. Readers' accounts of their cars and technical descriptions of new models, moreover, are not included in this Index. Many of the issues concerned can still be supplied, at the prices given below. Please quote date of issue when ordering.

Make of Car	Issue
A.B.C. 11 h.p. 2-cyl. 2-seater	Feb. 1926
A.C. 2-litre, short-chassis, 15.7 h.p. 2-seater	July 1936
A.C. 2-litre, 16/40 h.p. 3-seater	Oct. 1927
A.C. 2-litre, 16/66 h.p. 4-seater	June 1934
A.C. "Ace" 16/80 h.p. 2-seater	July 1937
Alfa-Romeo, 1½-litre supercharged 6-cyl. Charles 2-seater (1929)	March 1934
Alfa-Romeo 1½-litre supercharged 8-cyl. "Zagato" 2-seater (1932)	July 1934
Alfa-Romeo 2.3-litre supercharged 8-cyl. "Zagato" 2-seater (1933)	Aug. 1936
Alfa-Romeo 2900B, Type 8C supercharged 2-seater (1937)	Jan. 1942
Alvis 6-cyl., "Silver Eagle" 4-seater coupé (1929)	Aug. 1931
Alvis 3½-litre saloon	Feb. 1936
Alvis Speed Twenty 4-seater	June 1932
Ansaldo 2-litre, 4-cyl., o.h.c. 4-seater	Sept. 1924
Aston-Martin Mark II, 11.9 h.p. 2-4-seater	Jan. 1935
Aston-Martin Ulster 11.9 h.p., T.T. 2-seater	Oct. 1935
Aston-Martin 11.9 h.p. 2-seater	Jan. 1930
Aston-Martin 1½-litre Ulster racing 2-seater	Aug. 1937
Aston-Martin 2-litre Speed Model 2-seater	May 1938
Aston-Martin 1½-litre Mark II, long-chassis 4-seater (1934)	Aug. 1940
Aston-Martin 2-litre streamline saloon	June 1942
Atalanta V12 saloon	March 1939
Auburn 30 h.p., 8 cyl. supercharged 2-seater	June 1935
Austin Seven Boyd Carpenter 2-str.	Sept. 1930
Austin Seven "65" 2-seater	Jan. 1934
BENTLEY 4½-litre, 6-cyl., Park Ward saloon	June 1936
Bentley 8-litre "Special" 2-seater (1931)	April 1938 & Dec. 1940
Bentley 4½-litre drophead coupé	Aug. 1938
Bentley 4½-litre Mark V saloon	Feb. 1941
Bentley 3-litre "Blue Label" "Special" 2-seater (1928–9)	Feb. 1939
Bentley 4½-litre "Le Mans" 4-seater (1928)	Jan. 1942
Bugatti 2.3-litre 8-cyl., Type 43, supercharged 4-seater	May 1930
Bugatti 3.3-litre 8-cyl., Type 57 saloon	May 1934
Bugatti 3.3-litre Type 57 saloon	May 1939 & June 1939
Bugatti 3.3-litre Type 57C supercharged saloon	June 1939
Bugatti 3.3-litre Type 57 SC supercharged coupé	Aug. 1942
Bugatti 5-litre Type 46 saloon (1929)	April 1942
CROSSLEY 20/70 h.p., 4-cyl., s.v. 4-seater	Nov. 1925
Crossley Ten, 1,122 c.c. 4-seater	April 1932
Crouch Anzani 12/30 h.p. 2-seater	Aug. 1924
DAIMLER 2½-litre 18 h.p. saloon	June 1940 & Nov. 1941
Darracq 12/32 h.p., Weymann saloon	Sept. 1924
Delage 8-cyl., sports saloon	April 1930
Delage D8/180 drophead coupé	May 1938
Delahaye 3.5-litre "Coupé des Alps" drophead coupé	Aug. 1936
D.K.W. "Special" saloon	Feb. 1938
Dodge 25.3 h.p. "Custom Six" saloon	May 1938
EXCELSIOR 5½-litre, 6-cyl., super-sports test chassis	Sept. 1927
FIAT "Balilla" saloon	May 1934
Fiat "Balilla" 10 h.p. 2-seater	Jan. 1935
Fiat 6 h.p., Type 500 coupé	March 1937
Fiat "Balilla" 1,100-c.c. saloon	March 1938
Ford Eight "Anglia" saloon	Aug. 1940
Ford V8 "30" Estate car	Oct. 1938
GEORGES-IRAT 2-litre f.w.d. 2-seater	May 1940
HILLMAN Fourteen saloon (1939)	June 1941
Hotchkiss 3½-litre "Grand Sports" saloon	July 1939
H.R.G. 1½-litre, Meadows engined 2-seater	June 1937
H.R.G. 1½-litre Le Mans racing 2-seater	Dec. 1939
INVICTA 4½-litre saloon	Dec. 1929
Invicta 4½-litre Estate car	June 1941
LAGONDA 4½-litre 4-seater	May 1936
Lagonda 4½-litre 4-seater	Jan. 1934
Lagonda 4½-litre, 6-cyl. saloon	Sept. 1939
Lanchester Eighteen saloon	Feb. 1938
Lancia "Aprilia," Type 238 saloon	June 1938
Lea-Francis 1½-litre supercharged T.T. 2-seater (1929)	June 1934
Lea-Francis Fourteen saloon	Dec. 1938
Leyland Eight 2-seater (1927)	Feb. 1938
MERCEDES-BENZ 12/40 h.p., supercharged 2-seater	June 1925
Mercédès-Benz 33/180 h.p., supercharged 4-seater	Aug. 1927
Mercédès-Benz 2.3-litre saloon	April 1938
Mercédès-Benz 1.7-litre, Type 170V 2-seater	Feb. 1939
M.G. Midget "J1," 850 c.c. 2-seater	Sept. 1932
M.G. Midget "T" 2-seater	Jan. 1937
M.G. 14/40 h.p., 4-cyl., super-sports 2-seater	May 1927
O.M. 6-cyl., 2-litre 4-seater	Oct.-Nov. 1928
PEUGEOT "201" 4-cyl., 1,122 c.c. saloon	Sept. 1931
RAILTON 8-cyl. Cobham saloon	Sept. 1938
Riley Nine 4-seater	June 1931
Riley 16 h.p., 4-cyl., "Kestrel" saloon	June 1938
Rover Ten "Special" 2-seater	Aug. 1939
Rolls Royce Twenty, all-weather (1927)	March 1942
Rolls Royce "Phantom I," supercharged	Nov. 1942
SINGER Nine 4-seater	March 1933
Squire 1½-litre, 4-cyl. 2-seater	Aug. 1935
Steyr Type XII, 14/35 h.p., Weymann saloon	Aug. 1928
Stutz "Black Hawk," supercharged 4-seater	Jan. 1930
Stutz 5-litre, 8-cyl. 4-seater	Dec. 1927
Sunbeam 3-litre, 6-cyl. (twin o.h.c.) fabric saloon	Nov. 1927
TALBOT "90," Brooklands-bodied 2-4-seater	April 1931
Talbot "105" sports saloon	April 1934
Talbot 3½-litre saloon	March 1936
Talbot Ten "Rally" 4-seater	Oct.-Nov. 1936
Talbot "105" Vanden Plas 4-seater	Nov. 1932
Talbot Ten tourer	June 1938
Terraplane 29 h.p., 8-cyl. 4-seater	July 1935
Triumph 2-litre "Vitesse Six" saloon	April 1935
Triumph 10 h.p. "Gloria Southern Cross" 2-seater	June 1935
Triumph 10 h.p. "Gloria" saloon	Jan. 1934
Triumph Nine "Southern Cross" 4-seater	June 1932
Triumph Eight "Gnat" 2-seater	Aug. 1931
Triumph Eight, supercharged 2-seater	Dec. 1929
Triumph "Dolomite" 14/60 h.p. saloon	June 1937
VAUXHALL 20/60 h.p. "Hurlingham" 2-seater	Feb. 1930
Vauxhall 17 h.p., 6-cyl., "Cadet" saloon	Sept. 1931
Vauxhall Twenty-five saloon	Aug. 1937
WINDSOR 4-cyl., 11 h.p., "Special" 2-3-seater	Nov. 1926
Wolseley Hornet Swallow 2-seater (1933)	April 1934
Wolseley Hornet (12.08 h.p.) saloon	Sept. 1930

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