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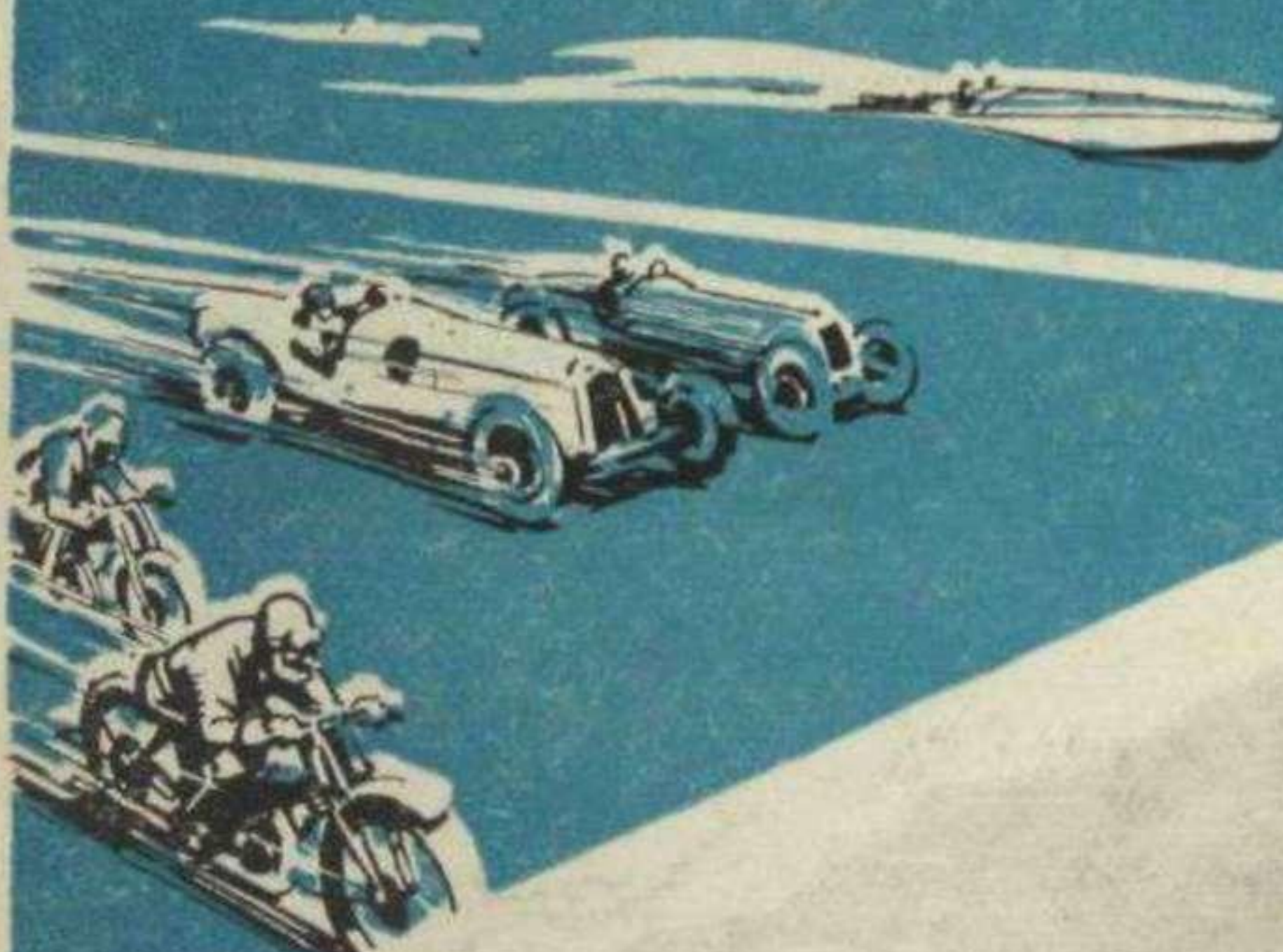
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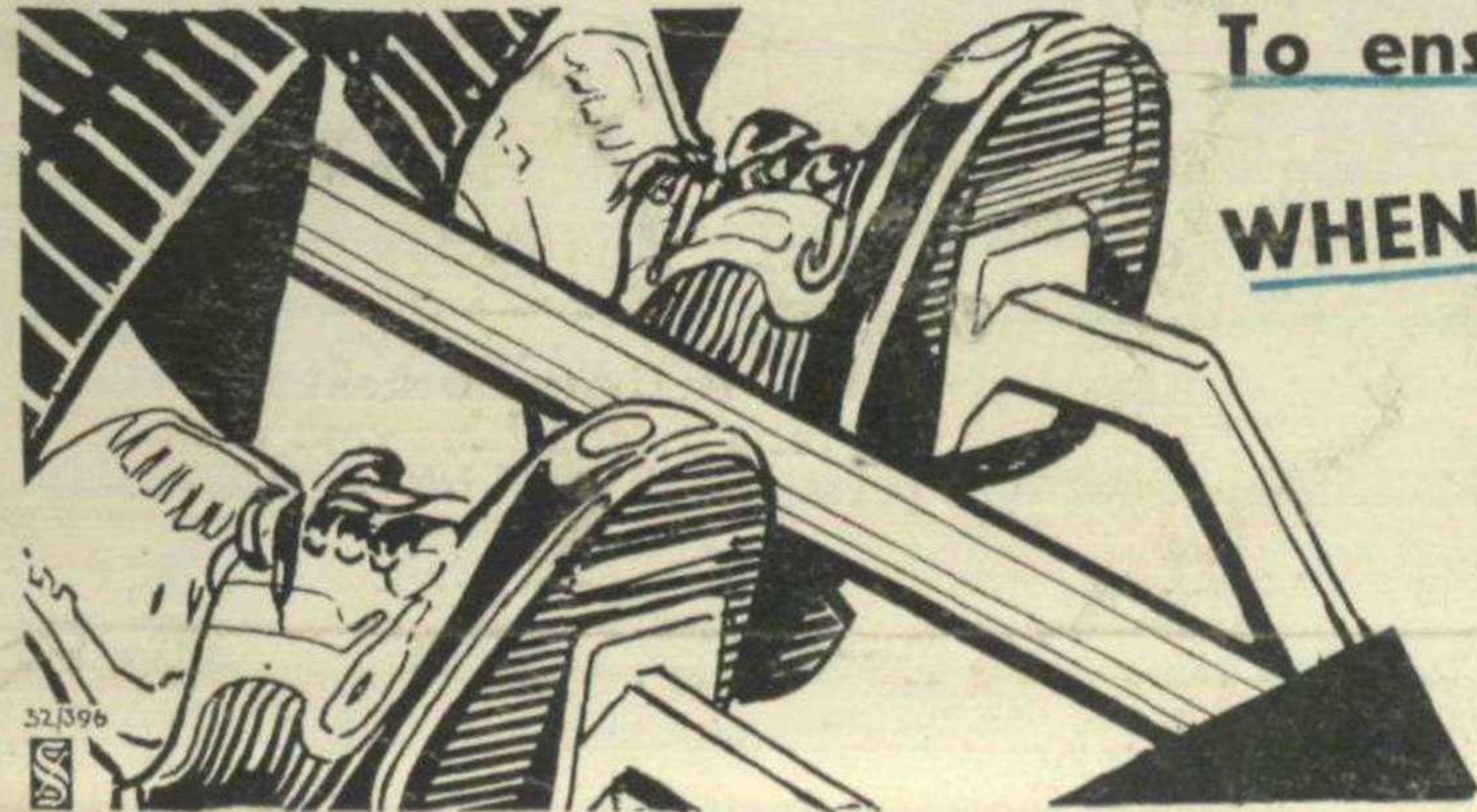
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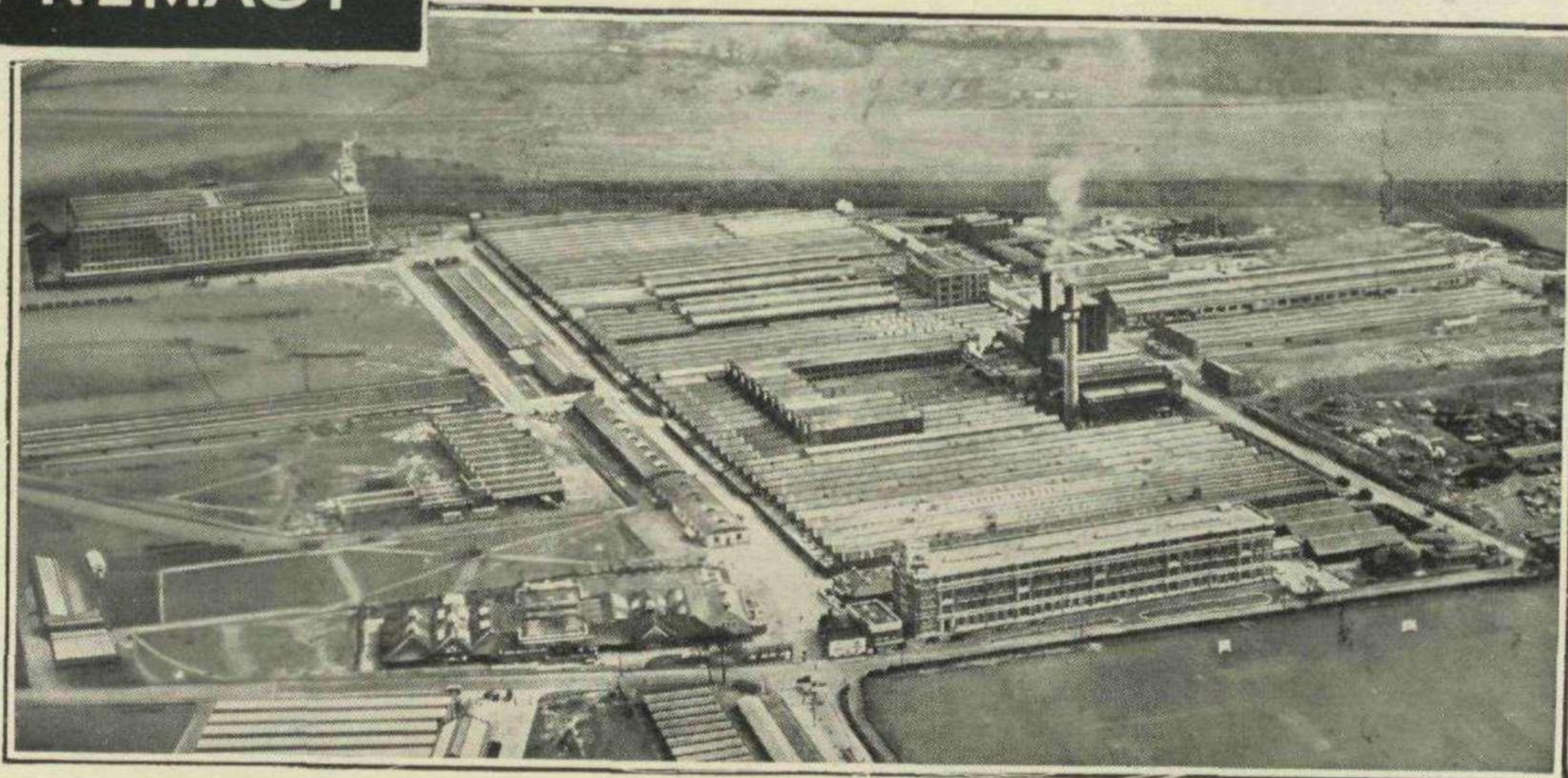
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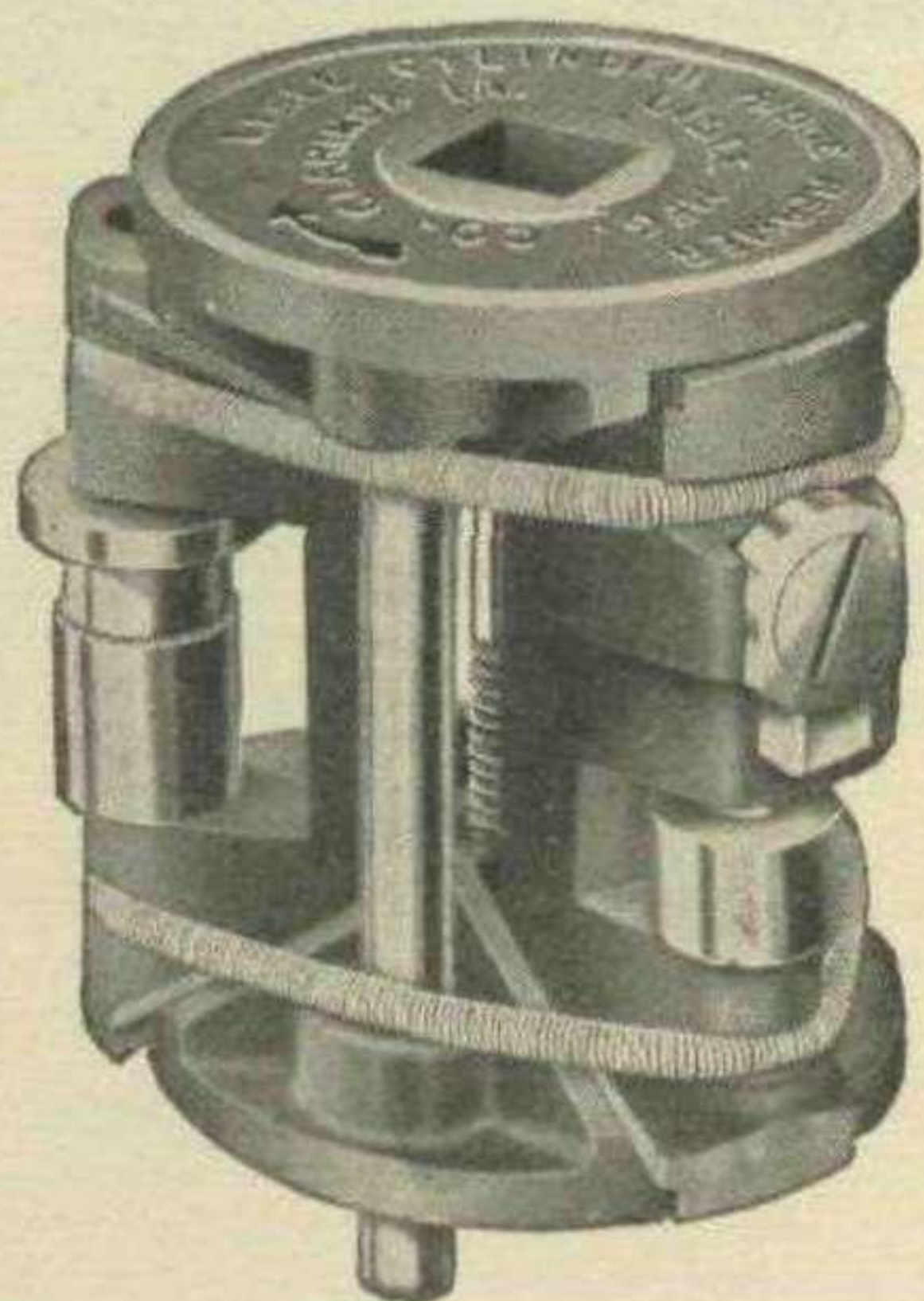
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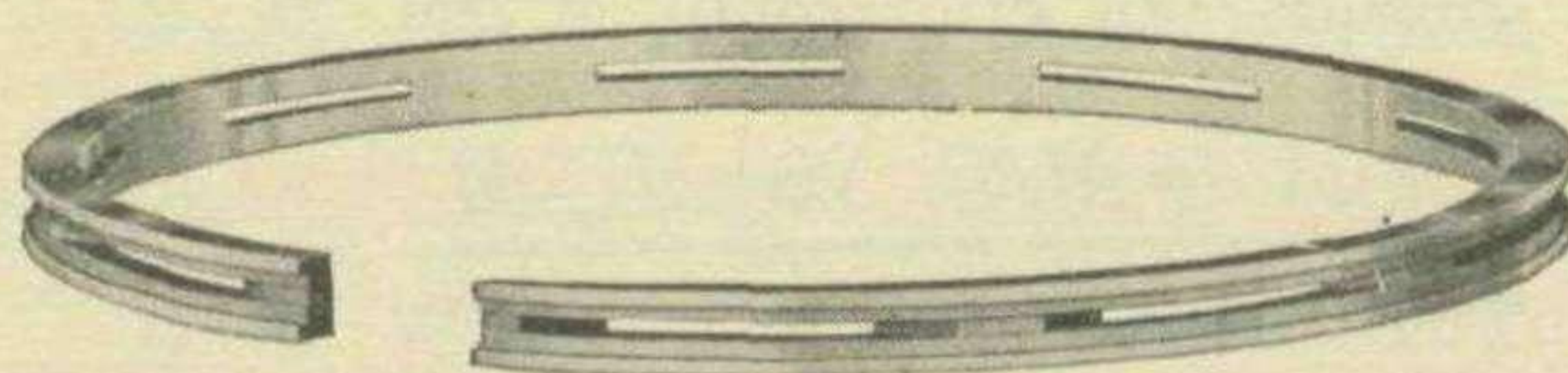
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The Way of Things

ANOTHER season of motoring sport has drawn to a close, and we are left in the usual position of taking stock of our achievements, and also considering methods of remedying failure.

However pessimistic one may feel at times about this country's position in the scheme of things, there remains no doubt of her supremacy in the main sections of the sport of motoring.

On land we have put the speed record well beyond the immediate reach of any of our rivals, thanks to the enterprise of Sir Malcolm Campbell and his many helpers.

The greatest trophy in the world of aviation is now our permanent possession, and the oft-disputed event originated by Jacques Schneider has been finally and fittingly concluded. Further, thanks to Flight-Lieutenant Stainforth, the Supermarine Company and Rolls-Royce Ltd., we have capped this victory with the new air speed record of over 400 miles per hour.

On the water, we have had to leave the International Trophy for the time being in the hands of the Americans, but we have the great satisfaction of being in a

position to say that they can no longer beat us for sheer speed on the water. Kaye Don in Miss England II. has raised the water speed record to the incredible speed of 110 m.p.h. and completed our speed success in all the elements which man uses for transport.

In the sphere of motor racing on road and track our successes have been frequent, though not absolute, and it is here that we should concentrate and complete our supremacy. In sports car races, run on a handicap basis, we have, thanks to the M.G. Car Company secured,

a remarkable measure of success. In the racing car category of road racing we are, however, far behind our rivals. In the great Continental road races British cars are entirely absent, a state of affairs plainly caused by the ridiculous policy of prohibiting road racing in this country. We have the engineers, the designers, and drivers to put a first-class racing team into the great events of the year. We still, however, lack rulers with sufficient foresight to see the business and prestige which would be gained were a successful British racing car to beat the foreigner in a level race on British roads.

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THE B.A.R.C. CLOSING MEETING

First-class Racing Marks End-of-season at the Track



A paddock scene, just before the Mountain Championship.

[Motor Sport Photograph]

THE Brooklands season was brought to a fitting conclusion on the 17th of last month with an excellent afternoon's racing. There were some good speeds in the straightaway races, while the championship event on the round-the-mountain course was one of the best races staged at the track for years. What a pity we cannot have some more scratch races, so that the winner really wins and no one can afterwards speculate what would have happened if the handicaps had been different! The massed start of really good cars is one of the finest spectacles in motor racing, and more of them next season will do much to increase the Brooklands crowds.

The first race of the day saw Meeson's Vauxhall a non-starter, having run a big-end, while Horton's "Special" (a twin) and Papworth's Bugatti also failed to come to the line. At the start, Horsman's Triumph and Westbrook's Alvis were going well, but a good race was going on between W. M. Couper's Speed Model Rover and Fotheringham Parker's Alvis. Both these roared through the field, the Alvis winning by a narrow margin at the excellent speed of 90.11 m.p.h. Straight's Riley was third.

A faster race followed, the starters including Cobb's Delage Dudley

Froy on the Leyland Thomas, and Sir Henry Birkin's Alfa-Romeo.

Cushman on the single-seater Austin, and Clayton's Amilcar settled down to a good scrap with Brian Lewis on the single-seater Talbot coming up fast behind them. Lewis then went into the lead, but as they came off the home banking Birkin's Alfa swept past him to score an excellent win, having put in a flying lap, at just under 125 m.p.h. Froy was third.

Incidentally, this meeting proved a real "day out" for the firm of Birkin and Couper, for the two members thereof actually collected two firsts, a second, and a third, on four different cars, a very fine effort.

The Mountain Championship.

Undoubtedly the finest race of the day, and probably of any B.A.R.C. this season, was the Mountain Championship which followed.

Mays was a non-starter, but Birkin, Staniland, Lewis, Aldington, Campbell, Howe, Penn-Hughes and Cushman came to the line. The flag dropped, and, with the exception of Earl Howe, whose G.P. Delage suddenly decided to be fractious, the cars shot away for the first corner. Their acceleration was terrific, and the noise most inspiring. At the first bend Campbell's big Mercédès was leading, with Alding-

ton's Frazer-Nash right on his tail, and Staniland's 1½ litre Bugatti close up, followed by Birkin, Penn-Hughes and the rest. The cornering was a stirring sight, and the bunching of the cars at the fork and the members' bridge gave a fine opportunity for drivers to use their skill in fighting for position. After a couple of laps Aldington had to drop out with fuel starvation, the trouble being later traced to defective filters.

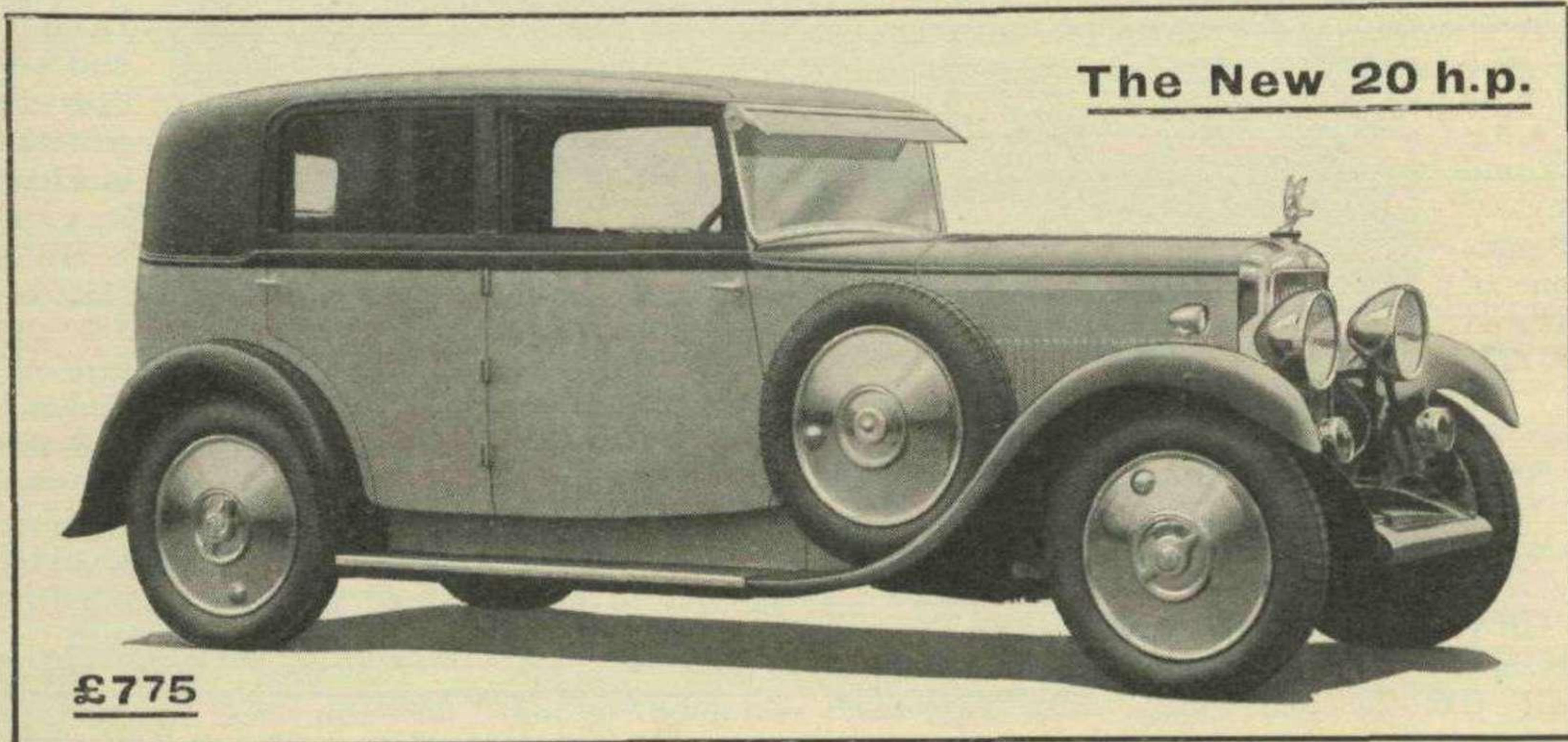
On the third lap, Birkin on the Maserati drew up and passed Campbell and steadily increased his lead for the remainder of the 15 laps. A fine race was now in progress between Campbell's Mercédès and Penn-Hughes on the 2,300 c.c. Bugatti. The latter had pulled up to close behind Campbell, and was making every effort to get by. Lap after lap he tried to pass on the corners, and gradually gained on him, till he managed to get by right on the rim of the track at the top corner. However, no sooner had he got past than his engine began to miss slightly, and he dropped back again to third place, in which order they finished. Brian Lewis found the 4-seater "105" Talbot could not quite hold the supercharged racers, but he put up a wonderful show, and his driving on the corners was terrific. Every time he took the fast bend under the bridge with a steady scream of tyres



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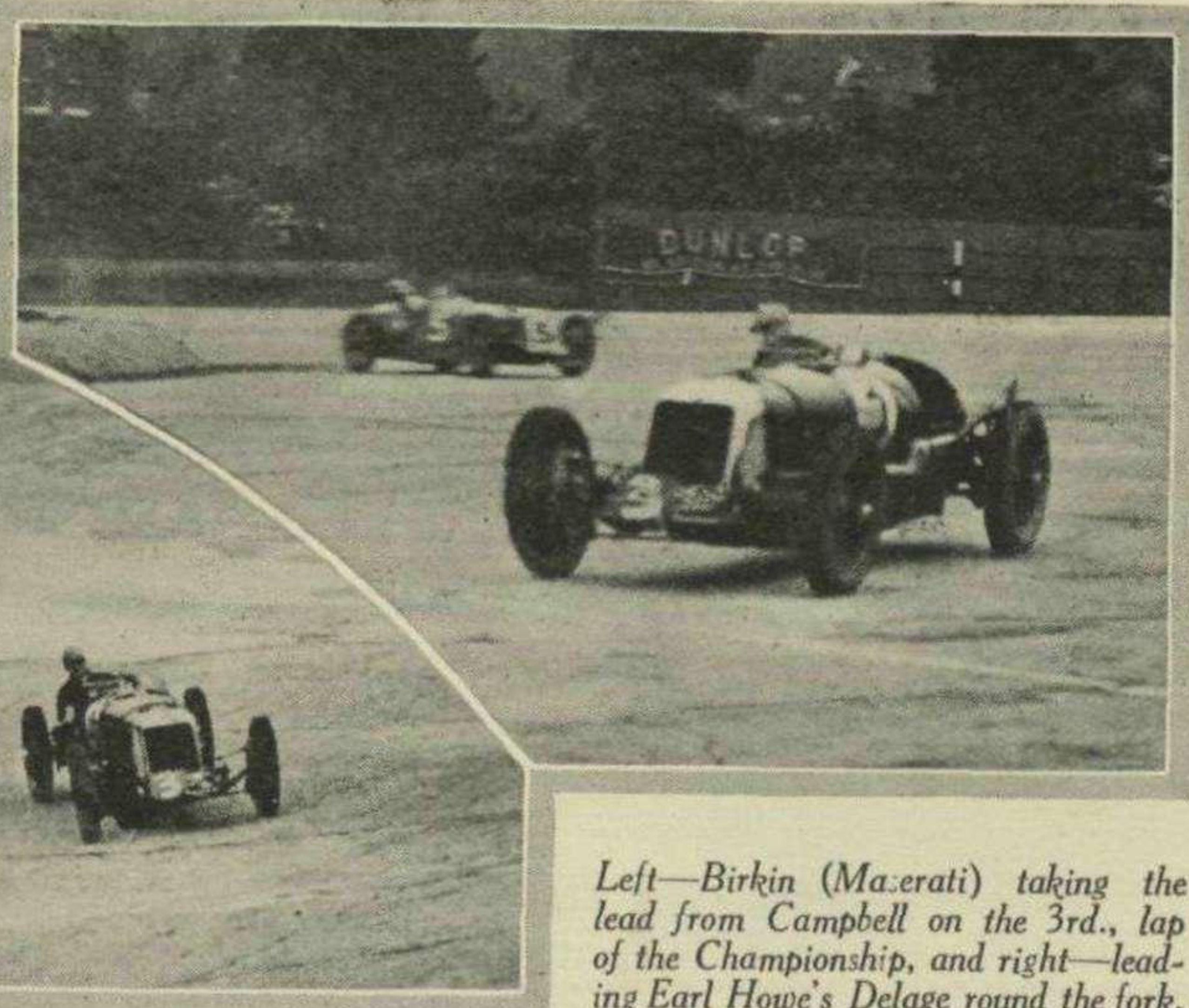
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THE B.A.R.C. CLOSING MEETING—continued.

in a long controlled slide, going within a few feet of the top of the banking. Birkin broke his own lap record, his new speed being 75.21 m.p.h. This event will not soon be forgotten by those who saw it.

The next event, somewhat quiet by comparison, was the Ladies' Handicap, with Mrs. Wisdom on scratch in a 4½-litre Invicta, and Miss Fay Tylour on the 5 seconds mark in one of Messrs. Fox and Nichols' 500 mile race "105" Talbots, which proved the winner. This car was untouched since the "500" and had also been used by Brian Lewis for practising during the week, a good record of consistency.

The first lap saw Miss Schwedler's 12-60 Alvis in the lead going very well, though with the rear shock absorbers apparently rather slack. On the second lap the Talbot and



Left—Birkin (Maserati) taking the lead from Campbell on the 3rd. lap of the Championship, and right—leading Earl Howe's Delage round the fork.

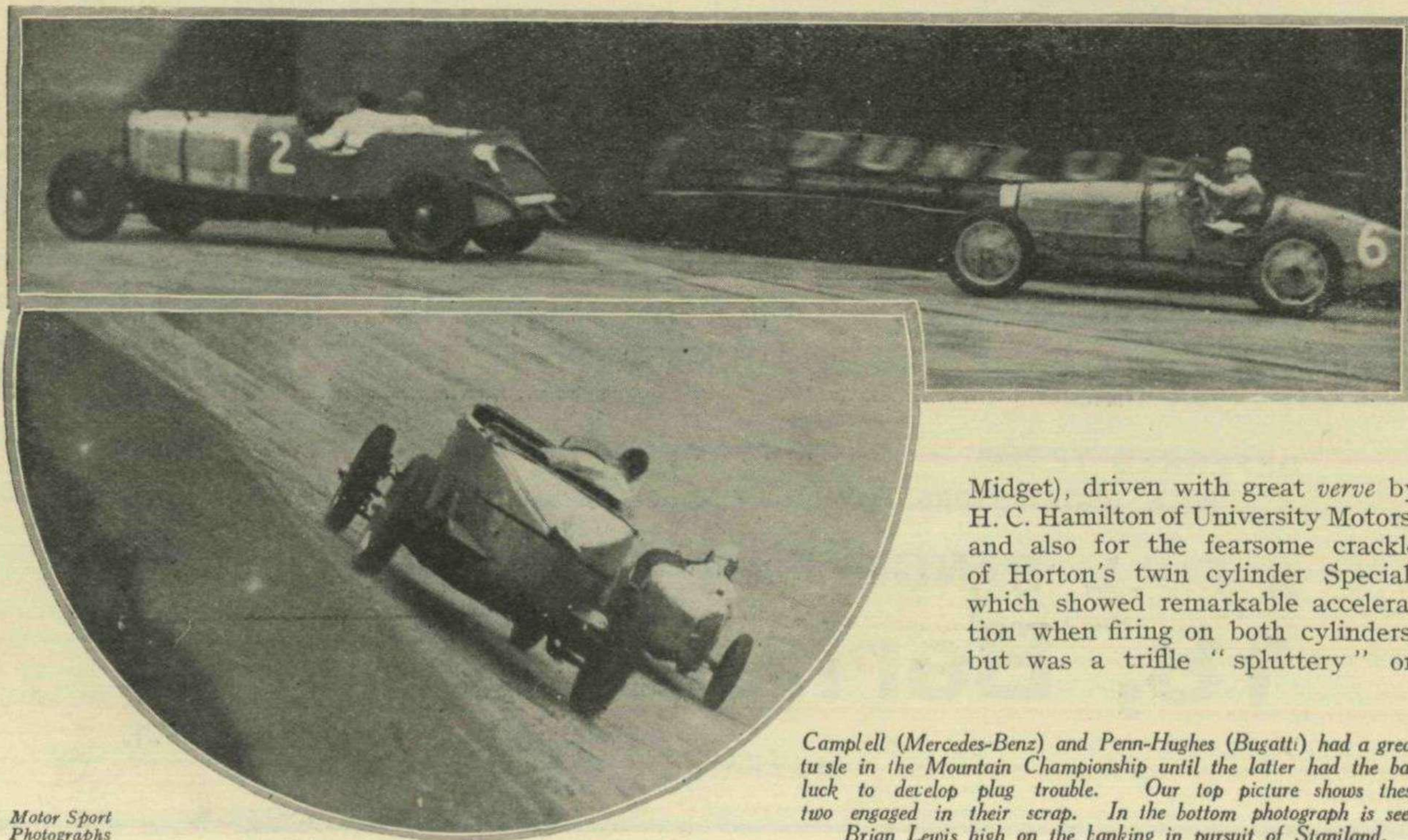
Invicta came right through the field, Miss Tylour winning at the good speed of 98.37 m.p.h. Mrs. Wisdom was slow off the mark and could not catch the Talbot.

The Junior "Long" fell to Major Gardner's very swift Monthlery M.G., which lapped at just over 100 m.p.h., with Horsman's Triumph second, and Metcalfe's veteran Horstman third.

was travelling really well on the Bentley, and ran into third place, afterwards going on for two laps in an attempt on the lap record. He came very near success, for his lap speed was 136.82 m.p.h., less than 1 m.p.h. below record.

The final event, run in semi-darkness, was a mountain race, chiefly remarkable for the speed of the winning M.G. (a fairly normal

The Senior Long saw Birkin's Bentley at scratch and Clayton's Amilcar on the limit mark. On the second lap Widengren's O.M., now supercharged once more, and going great guns, went into the lead and scored an easy win at the remarkable speed of 110.43 m.p.h., having lapped at 117 m.p.h. Not bad for a 5-year-old 1½-litre car! Birkin



Midget), driven with great *verve* by H. C. Hamilton of University Motors, and also for the fearsome crackle of Horton's twin cylinder Special, which showed remarkable acceleration when firing on both cylinders, but was a trifle "spluttery" on

Campbell (Mercedes-Benz) and Penn-Hughes (Bugatti) had a great tussle in the Mountain Championship until the latter had the bad luck to develop plug trouble. Our top picture shows these two engaged in their scrap. In the bottom photograph is seen Brian Lewis high on the banking in pursuit of Staniland.



An Announcement!

Frazer Nash cars were not at Olympia, and we are now taking this opportunity of reaching those who are interested in the 1932 Frazer Nash models, to invite them to visit us at "Falcon Works."

We shall be delighted to give anyone definitely interested a really worthwhile demonstration—not just "round the houses" but a run which will convince them of the all-round road and cross-country performance of the Frazer Nash. Whether you are interested in what the Frazer Nash can do in Town and its traffic, on the open road, over rough "colonial" going, how we can "flatten out" main road gradients or freak trial hills, or if you want to experience its famous stability and perfect control on wet and greasy road surfaces, please get into touch with us by telephone or letter.

Apart from sheer performance the new Frazer Nash is extremely prepossessing in appearance, with well built coachwork and lavish equipment, while the inclusion of innumerable small but important details provide for the owner-driver's comfort on long journeys.

A new model which we confidently predict will appeal to many enthusiasts is the genuine replica of the non-supercharged 1½-litre Tourist Trophy Frazer Nash which we are putting into production this season. A run will convince you, as it has many others, that this model is without a doubt the finest all-round competition car which has ever been offered to the public, irrespective of price. It is capable of 90 m.p.h., fully equipped, will lap the T.T. course at 70 m.p.h.,—amongst other successes, a car of this type has won a "Round the Mountain" race at Brooklands in brilliant fashion, and a five lap event at a B.A.R.C. meeting at an average speed of 88.92 m.p.h. with a flying lap of 91.72 m.p.h.

You may not be aware that owing to the ban on reliability and sporting trials enforced by the Society of Motor Manufacturers and Traders (who organise the Motor Show) no members of the Society may compete in these competitions. It is obviously impossible for us to relinquish our present advantage and privilege of being able to compete in these trials, although it means we cannot present our latest models at Olympia.

Frankly, we look upon reliability trials as a definite and unique opportunity for "improving the breed" and as being the most valuable testing ground available for manufacturers, like ourselves, of a sports car—enabling us to pass on to our owners the practical experience and knowledge gained by our active participation in trials in the ultimate form of improved design throughout Frazer Nash construction—chassis, engine and coachwork.

We do not think there is any need here to enlarge upon the definitely outstanding performance and signal success of the Frazer Nash, in all spheres of motoring sports.

During the present season the non-supercharged 1½ litre Frazer Nash has proved its ability to stand up to gruelling long distance races, to finish first in High Speed Trials (regardless of engine capacity or price of cars entered), to put up the most outstanding performance in competitions, exemplified briefly by winning the only Premier Award in the last M.C.C. One Day Sporting Trial, the Acceleration Test in the London-Exeter against all entries, et cetera, while Frazer Nashes in the hands of various private owners have been consistently successful in breaking old (and setting up new) records, and carrying off the premier awards in the most famous speed events and hill climbs, notably Shelsley Walsh, Lewes and Craigantlet.

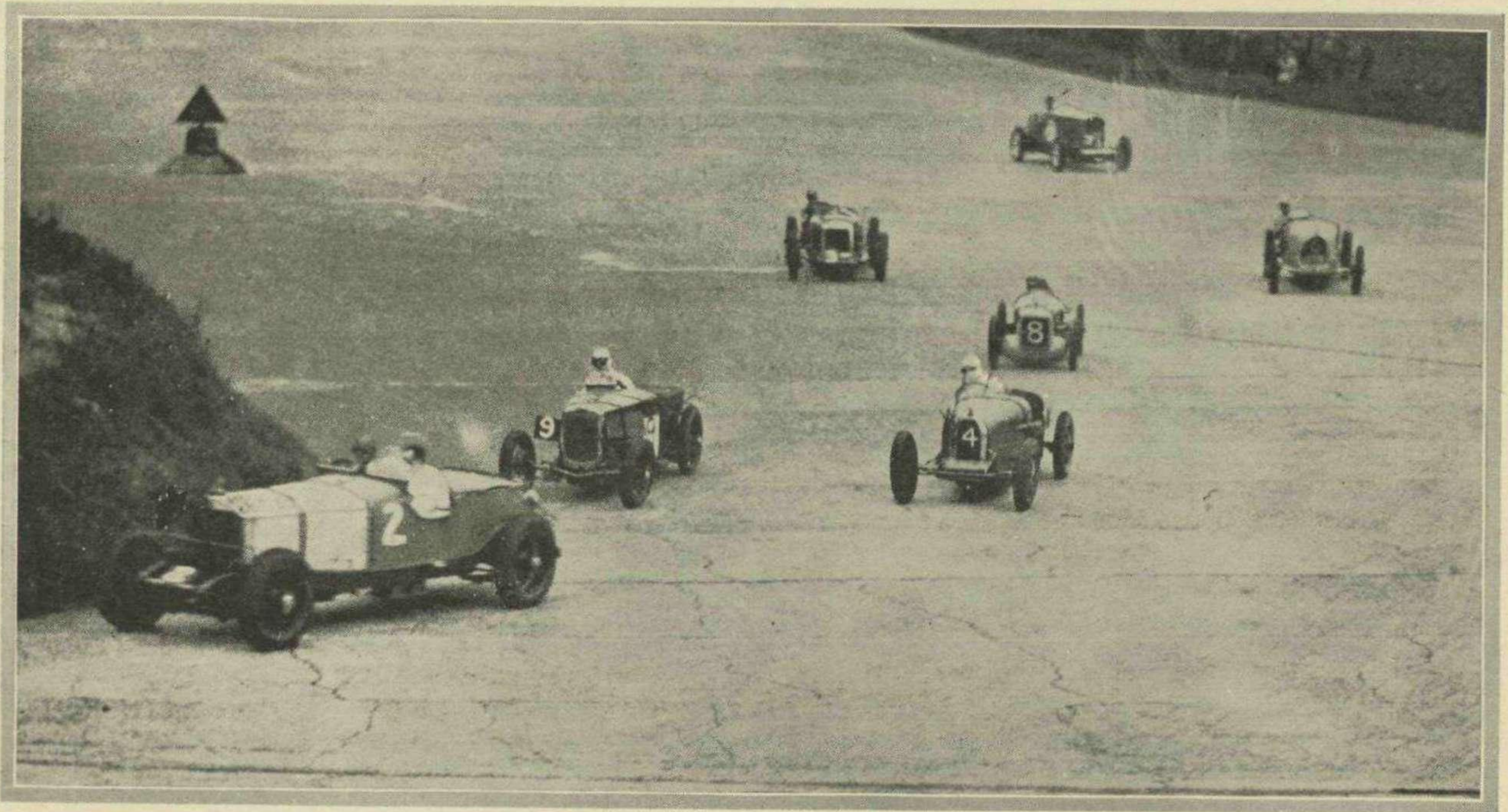
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THE B.A.R.C. CLOSING MEETING—continued.



[Motor Sport Photograph

An historic moment. The first corner in the Mountain Scratch Race, with Campbell leading Aldington and Staniland. Cushman's Austin (No 8.) is just behind Staniland with Birkin, Penn-Hughes and B. Lewis following.

occasion. Maclachlan's Austin was also very fast on the corners, and managed to get third place.

This brought the meeting, and another Brooklands season, to a close.

RESULTS.

JUNIOR SHORT HANDICAP.—1, P. Fotheringham Parker, Alvis, 1,991 c.c. (33 sec.); 2, W. M. Couper, Rover, 2,565 c.c. (33 sec.); 3, W. Straight, Riley, 1,089 c.c. (39 sec.).

Won at 91.11 m.p.h.

SENIOR SHORT HANDICAP.—1, Sir H. Birkin, Alfa-Romeo (S), 2,354 c.c. (15

sec.); 2, B. E. Lewis, Talbot, 2,970 c.c. (38 sec.); 3, D. Froy, Leyland-Thomas 8,297 c.c. (15 sec.).

Won at 114.61 m.p.h.

MOUNTAIN CHAMPIONSHIP.—1, Sir H. Birkin, Maserati (S), 2,795 c.c.; 2, Sir M. Campbell, Mercedes (S), 7,020 c.c.; 3, C. Penn-Hughes, Bugatti (S), 2,263 c.c.; 4, C. S. Staniland, Bugatti (S), 1,496 c.c.

Won at 73.51 m.p.h.

LADIES' HANDICAP.—1, Miss Fay Taylor, Talbot, 2,970 c.c. (5 sec.); 2, Mrs. T. H. Wisdom, Invicta, 4,467 c.c. (scratch) 3, Miss I. C. Schwedler, Alvis, 1,645 c.c. (1 min. 10 sec.).

Won at 98.37 m.p.h.

JUNIOR LONG HANDICAP.—1, Major

A. T. G. Gardner, M.G. (S), 746 c.c. (1 min. 11 sec.); 2, V. E. Horsman, Triumph, 832 c.c. (2 min. 8 sec.); 3, C. Le Strange Metcalfe, Horstman, 1,496 c.c. (2 min. 12 sec.).

Won at 92.99 m.p.h.

SENIOR LONG HANDICAP.—1, H. Widengren, O.M. (S), 1,496 c.c. (51 sec.); 2, J. R. Cobb, Delage, 10,688 c.c. (4 sec.); 3, Sir H. Birkin, Bentley (S), 4,398 c.c. (scratch).

Won at 110.43 m.p.h.

MOUNTAIN HANDICAP.—1, H. C. Hamilton, M.G., 847 c.c. (1 min. 57 sec.); 2, R. R. M. de Belleruche, Austin, 749 c.c. (2 min. 7 sec.); 3, A. N. L. Maclachlan Austin, 749 c.c. (1 min. 49 sec.).

Won at 60.99 m.p.h.

BENTLEY'S TO BUILD AGAIN

NEGOTIATIONS WITH NAPIERS NOW COMPLETED.

Everyone interested in motoring was glad to see the official announcement that an agreement has finally been reached by which the famous firm of Bentley Motors Ltd., who recently suspended business, is to be taken over by the Napier concern. Negotiations had been in progress

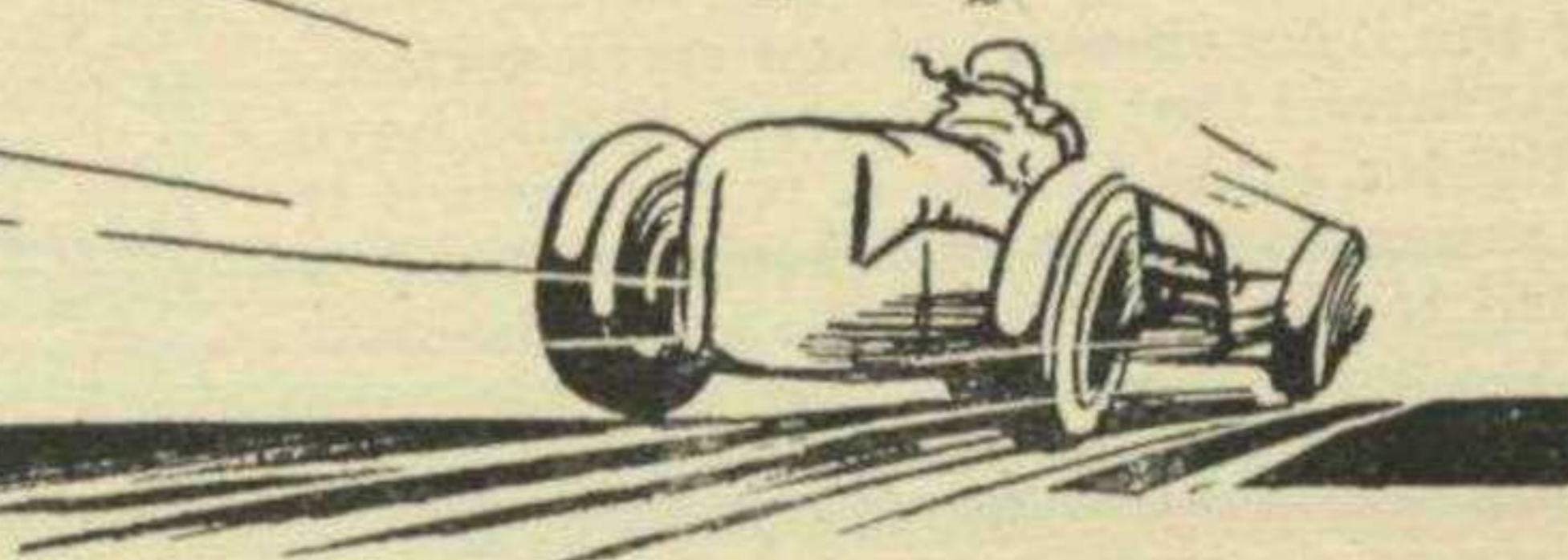
for a considerable time, but were concluded after Captain Wolf Barnato's recent return from America. Napiers have already had experience in the making of quality cars, while W. O. Bentley, the designer of the Bentley, was the creator of one of the finest aero engines of

its class ever built. He will be connected with the new company, as will Wolf Barnato, and the result of the amalgamation should have every chance of success. A new 3½-litre car is said to form part of the new programme, while the famous 8-litre will be continued.

Rumblings



BOANERGES



Four-wheelers on the cinders.

AN interesting innovation at the Wembley Speedway was introduced on the first of last month, when H. J. Aldington, Mrs. T. H. Wisdom, and R. J. G. Nash, turned out on Frazer-Nashes to set up a car lap time for future reference—so to speak. "H.J." and Mrs. Wisdom had normal sports models—with blowers, while Nash had the "Terror." The first two set up equal times with quite a nice demonstration, but they were leaving it to the "Terror" to stir things up fully. Unfortunately this vehicle chose to be fractious and seized up the blower, so Nash took Mrs. Wisdom's car and proceeded to imagine he was still in the "Terror," with the result that he turned the motor over, with considerable eclat but little damage.

The fact that a normally non-upsettable motor car can be turned over quite easily on cinders may not be obvious at first sight, but things which are obscure are always more interesting, and this little episode leads one to consider the mechanics of cinder tracking, which are rather intriguing.

Some thoughts on cornering.

In the first place there is a very wide difference between the cornering methods and the forces on the car in dirt-tracking, and the same car on a normal corner.

On concrete or tarmac, the sole forces acting on the car, provided that it is rounding the corner at a uniform speed, are (a) centrifugal acting outwards through the centre of gravity of the car, and (b) the frictional acting at the tyres, in exactly the opposite direction to the centrifugal force, and (provided the car is not going too fast for the corner) equal to the centrifugal force.

Assuming for the sake of argument that on a particular surface the coefficient of friction is 0.5, then the limiting speed of a car on a given corner is that at which the centrifugal force becomes equal to half the weight of the car. This force is proportional to $\frac{V^2}{r} \times w$ where V is the speed and r the radius of the corner, and w the weight of the car.

The limiting frictional force is w times μ , where μ is the coefficient (in this case 0.5). Thus on any corner the limiting speed is reached when, $\frac{wV^2}{gr} = \mu w$, or since

w is on both sides of the equation, when $\frac{V^2}{gr} = \mu$. (V must be in feet per second and r in feet).

From this it is obvious that the coefficient of friction—or in ordinary terms the sort of road surface employed—is the deciding factor, and that the greater the friction the greater the speed. Taking an even curve of 100 ft. radius the limiting speed will be $=\sqrt{16000} = 40$ ft. per sec. i.e., just under 30 m.p.h.

All this assumes that the surface is even, as bumps will tend to throw the wheels off the ground, and it is here that springing and shock absorbers become important.

When the car is going slightly faster than the limit, if the weight distribution is correct the rear wheels will start to skid, and therefore the car will be moving sideways. This has an immediate braking effect which will bring the speed within the limit, and the car will (we hope) continue normally. If it is going much too fast it will merely slide off the road.

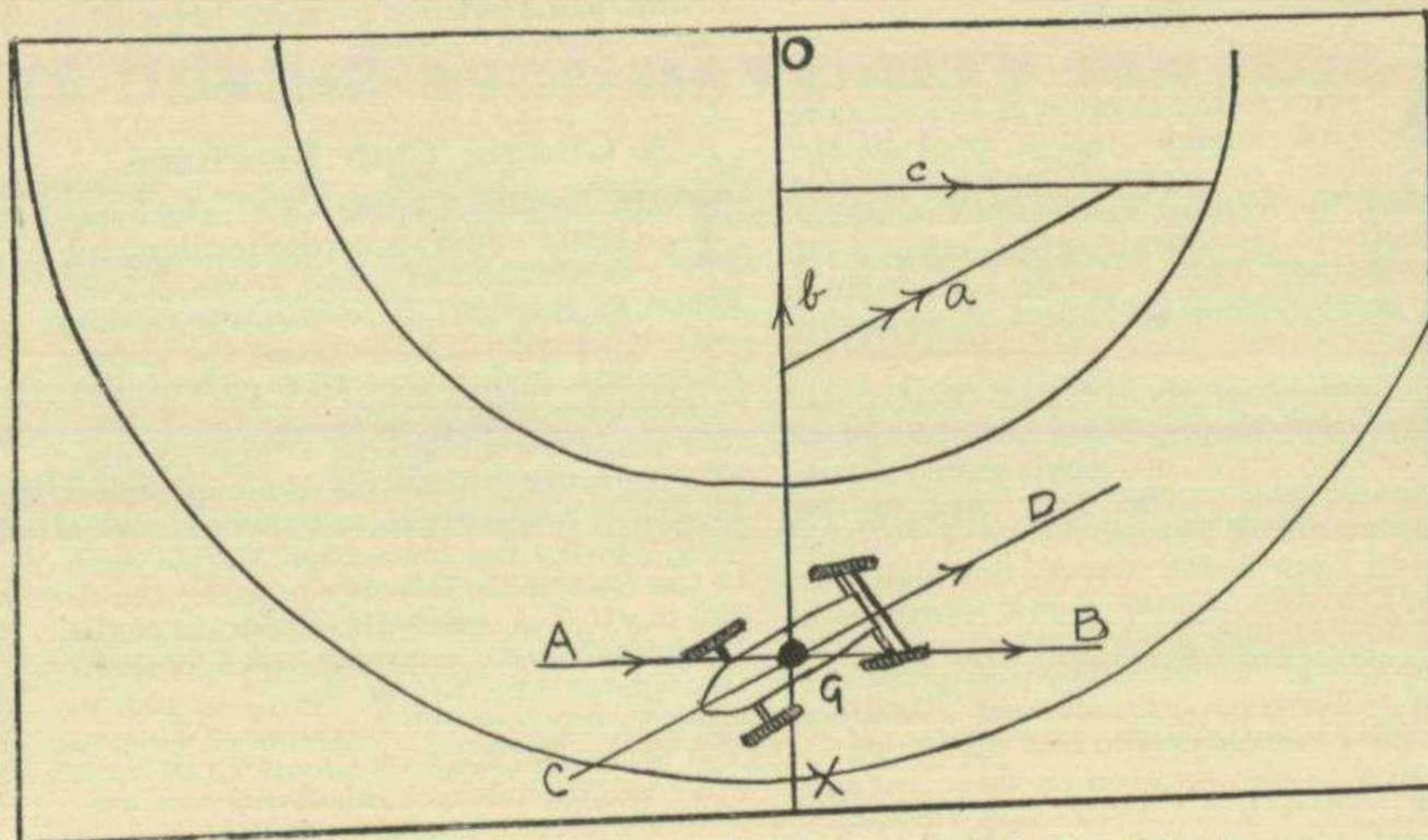
Cinder track requirements.

It is when we start to apply these principles to cinder tracks that everything goes wrong. It is generally accepted that skidding badly on a corner slows the car down, and yet the only way to get round a dirt track at any speed is to skid con-

tinuously. The two sorts of skid are quite different, however, and any attempt to skid the car round *without* the wheels spinning continuously will only result in the dirt piling up against the outside near wheel and usually overturning the car.

Driving round the corner at a uniform speed in normal road fashion is useless, as the very loose top surface has practically no grip under such conditions and the car immediately starts to slide and consequently to slow down. It is therefore necessary to develop an entirely new method of cornering, and overcome centrifugal force by some other method. The actual method is to employ engine power to keep the car cornering as well as driving it along. This can only be done by keeping the back wheels spinning absolutely continuously, and keeping the car in such an angle of skid that it will progress round the curve evenly. As far as the angle of skid is concerned this is largely a matter for the driver's skill in controlling the front wheels which, if the car is behaving correctly, will have no sideways force on them, but will be entirely steering wheels and used solely for controlling the skid. The angle also depends on the speed round the corner.

In the matter of keeping the wheels spinning, the two factors are engine power and gear ratio. The gear ratio must be



The mechanics of cinder tracking. The diagram referred to in the text.

RUMBLINGS—continued.

low enough to provide sufficient torque at the rear wheels to spin them continuously. (A solid rear axle is assumed and would be essential.) The ratio must also be sufficiently high to drive the car round the track fast enough. This means that the engine must give a good power output for the whole range, and the maximum revs. must be very high. The actual ratio will be governed at one end by the size of the track, and at the other by the "heaviness" of the track surface. This means that a large track should have a lighter surface, that is one in which it is easier to maintain wheelspin, than a small track, as on the large track the gear ratio must be comparatively high to maintain the required speed, and there will consequently be less torque available at the rear wheels. On a small track the gear ratio can be lower, and the surface can therefore be heavier without "killing" the motor.

I have already said that centrifugal force has to be counteracted by engine power, and the diagram shows how this is done.

G is the centre of gravity of the car and centrifugal force acts through this along the line OX , O being the centre of the curve of the track.

The other external force on the car is the general resistance to motion round the track, due to rolling friction, wind resistance, and the general stirring up of cinders in its progress. This force acts on the line AB which is a tangent to the curve, and of course is opposite in direction to the motion of the car.

If the car is to be in a state of equilibrium, in other words if it is to continue steadily as indicated, there must be forces equal and opposite to those given above. This is supplied by the engine—or rather by the rear wheels—and this force acts along the line CD .

This can be considered as two component forces at right angles, one acting

towards the centre of the circle, opposing the centrifugal force, and one acting along AB in the direction of motion.

The triangle of forces a, b, c , with a parallel to CD , b parallel to OX and c parallel to AB , shows how these components act and the amount is of course proportional to the length of the sides. Thus the sides a and b give the ratio of the propelling force to the anti-centrifugal force for the angle of skid given in the diagram. If the speed round the corner is greater the centrifugal force will be greater and therefore a bigger angle of skid will be required to produce a greater component of the driving force towards the centre. This will mean less force driving the car on its course unless the revs and power of the engine are increased. Hence, the fact that a really highly tuned engine is essential for dirt track racing, and that merely going fast into the corner is of no avail, and merely results in stopping or upsetting the car.

The "500."

Having used such a disproportionate amount of space for such a minor subject, I had better return to more normal matters. The 500 miles race was a bigger success than ever this year and the Bentley win was deservedly popular. 118 m.p.h. for 500 miles requires no further comment. It is simply terrific. Let us hope that something will be fixed up so that this firm will be able to come into action again. [Negotiations with Napier's have been completed.—ED.] They have certainly done too much for British motor-ing ever to be forgotten. Many of us would have liked to see a Talbot victory, as their wonderfully consistent record deserves to be capped with an outright victory. However, second place under the circumstances was a far better performance than many a win we have witnessed. The M.G. speed of over 92 m.p.h. was another amazing show in a wonderful race.

British Steel and the Motor Trade.

A STATEMENT made by a candidate prior to the election in Lincolnshire that foreign steel is used in the production of British motor-cars was denied by leading figures in the motor industry. Mr. Victor Riley said, "We use British steel. Britain can produce the best steel in the world at economic rates."

An official of the Pressed Steel Company, who supply parts and complete bodies for most of the leading manufacturers said, "The steel used in the manufacture of British motor-cars comes mainly from South Wales, the Midlands and Tyneside. Until a few years ago, Britain did not produce sheets of steel large enough for making a one-piece car body. But the British steel manufacturers have got down to this problem and are now producing steel in large enough sizes. There is no doubt that this steel is finer than anything that any other

country can produce, and enables the British manufacturer to make his motor-cars entirely British, besides giving employment to British workers.

A Gliding Club Brochure.

THE London Gliding Club, which can justly claim to be the leading club in the country, has recently published an excellent little brochure dealing with much which will interest the gliding enthusiast and prospective glider pilot.

Besides giving a history of the L.G.C., this publication contains a large number of illustrations depicting different types of gliders and soarers, and there is also a map showing the route from Marble Arch to the Dunstable Downs where the Club's site is situated. It is the intention of the London Club to continue its operations throughout the winter months, and in order to improve the amenities at Tottenham, a member's club house is to be built while additional accommodation for machines is to be provided for by the erection of a second hangar.

The Rileys had hard luck, but on the other hand they learnt some useful things. They have now got over any crankshaft trouble they used to have, and developed a most amazing speed in the process. They looked almost certain winners till a hitherto unfound clutch defect put them out of it. The trouble was apparently due to breaking of the clutch bolts in the light fly wheel, a thing which would never happen in years of normal use, but now that they have found it out will be altered so as never to happen at all. One more instance of the value of racing! Poor Humphrey's had hard luck in breaking a stub axle with the finish almost in sight.

Another M.G. Record.

A good finish to the "750" season was the breaking of yet another world's record in a "baby" car which has been achieved, this time, by E. A. D. Eldridge, once the holder of the world's land speed record, and the last to secure it on ordinary roads.

Driving an M.G. Midget at Montlhery on 17th of last month, he broke the international five kilometre record for cars of under 750 c.c. at 110.28 m.p.h., the highest speed ever yet attained in a baby car.

This new record, incidentally, is identical to two places of decimals with the existing world's record on water secured by Kaye Don in Lord Wakefield's "Miss England II" on Lake Garda.

G. E. T. Eyston was to have gone out in the M.G., but he is still suffering from the injuries he received in his accident at Montlhery some time ago. Eldridge very sportingly took his friend's place.

At Montlhery and also at Brooklands many international records have been secured during the past nine months in a Midget. It was, for instance, the first baby car to exceed 100 m.p.h. and just recently was the first to average 100 m.p.h. for the space of one hour.

Alfa-Romeo Records at Montlhery.

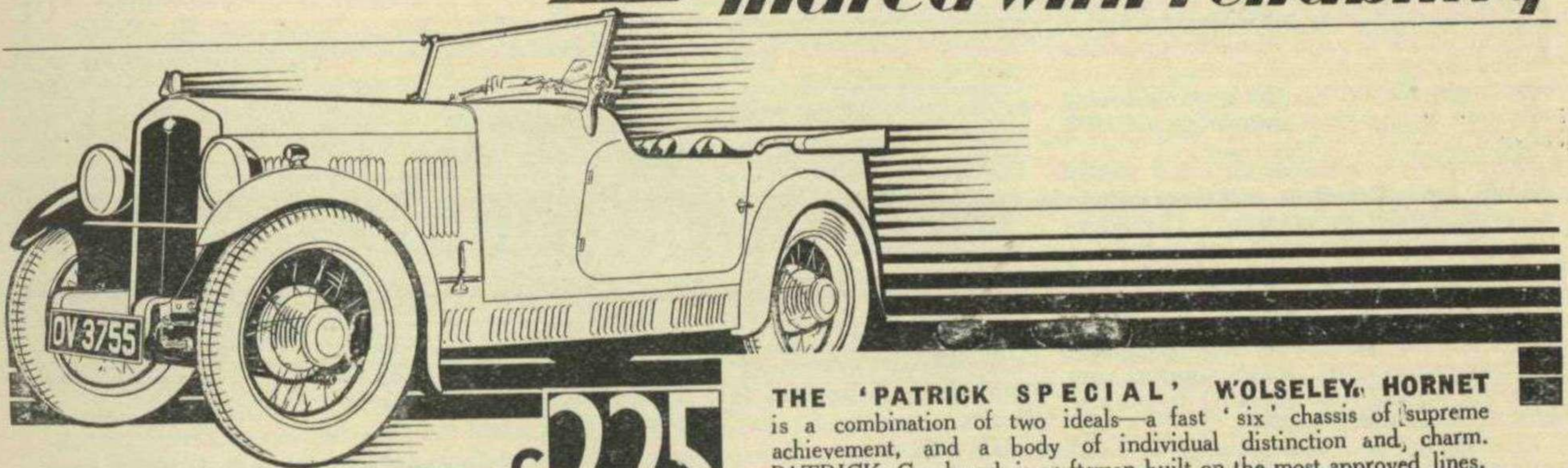
FOUR long-distance International class records were obtained at Montlhery last month by Zehender and Maurice Benoist with a 1,750 c.c. Alfa-Romeo.

The records were as follow:—500 miles at 157.60 k.p.h., 1,000 kiloms. at 156.28 k.p.h., 1,000 miles at 156.74 k.p.h., and 935.93 kiloms. in six hours (155.86 k.p.h.).

The British Africa Expedition.

THE motor convoy, consisting of two 14 h.p. Alpine Rileys, two Ford vans, a Dixon-Bate trailer and two motorcycles, which is making a tour of Africa, reached Khartoum last month. The last stage reported covered 400 miles of desert in appalling heat—112 degrees in the shade. There were minor stoppages, chiefly due to tyre trouble.

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Aug. 3rd.	Junior Long Handicap	...	Bentley	...	Mr. A. Bevan, 1st.
" "	Mountain Lap Record	...	Maserati	...	Sir Henry Birkin.
Oct. 17th.	Junior Short Handicap	...	Alvis	...	Mr. P. Fotheringham Parker, 1st.
" "	" " "	...	Rover	...	W. M. Couper, 2nd.
" "	Senior " "	...	Alfa-Romeo	...	Sir H. Birkin, 1st.
" "	" Long "	...	Bentley	...	" " 3rd.
" "	Junior " "	...	Horstman	...	C. Le Strange Metcalfe, 3rd.
" "	Mountain Championship	...	Maserati	...	Sir H. Birkin, 1st.
" "	Equal Lap Record	...	Bentley	...	Sir H. Birkin, 137.58 m.p.h.

ALSO

Irish Grand Prix 2nd. day	...	Alfa-Romeo	...	Sir H. Birkin, 1st. Place.
M.C.C. One Hour Speed Trial	...	12/60 Alvis	...	W. M. Couper, Gold Medal.

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A FRONT-WHEEL-DRIVE REVIVAL

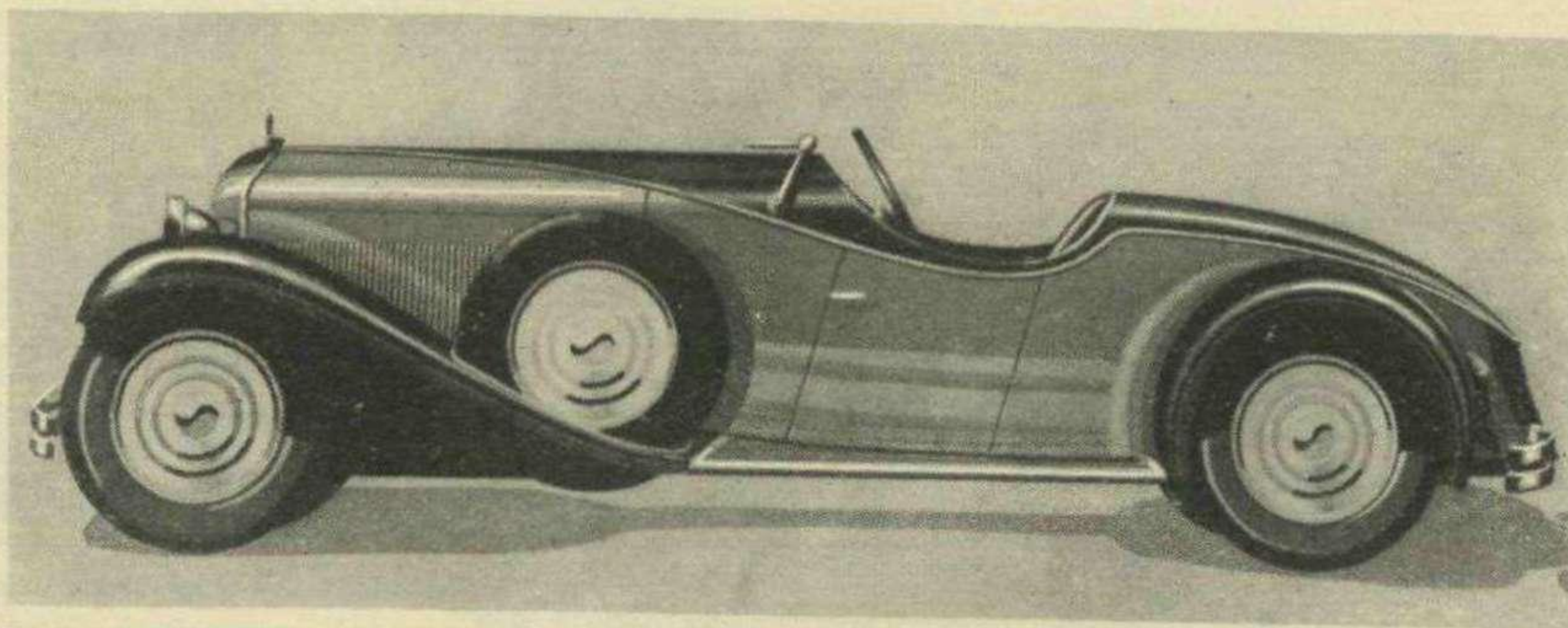
Interesting New Type Derby

IN these days it is refreshing to find a car which departs from the orthodox in design and construction, and the new front-wheel-drive Derby is undoubtedly one of the most interesting of 1932 models.

This new car replaces all other Derby models, and the firm will concentrate on a one-model programme. The adoption of the f.w.d. layout has permitted of a particularly low build, and this combined with other characteristics and a highly efficient engine make the Derby very suitable for sporting purposes. Realising this, the manufacturers are therefore listing it as a sports two-seater as well as in other forms.

The engine is a four-cylinder of 1,097 c.c., and has bore and stroke dimensions of 60 mm. x 90 mm. Ignition is by magneto and the carburetter is a Solex. The whole unit with clutch and gearbox forms a very neat assembly. The gearbox is of the close-ratio four-speed type, the clutch is a single-plate and the final drive to the front wheels is taken by two short universally-jointed shafts.

Departure from usual practice is also found in the suspension system. Each wheel is independently sprung with the axles fixed rigidly to the frame members. This arrangement was adopted after a



The 1932 front-wheel-drive Derby has several original features of design in its general lay-out. With this graceful and neat 2-seater sports body it will be available at £305.

great deal of experiment, and it is understood that the road-holding qualities, ability to corner at high speeds and comfort are quite out of the ordinary. It is obvious, also, that the driving position is good and the cockpit is neat with the controls well arranged. The gear lever, as is usual with front-wheel-drive cars, projects from the dash-board, and as the brake lever is on the right, entry and egress is a simple matter. The braking

system forms another feature which is worth noting; of the internal-expanding type the brakes are operated by cables which are enclosed and they can be adjusted from the driver's seat by merely rotating a tensioning knob which is placed on the instrument panel. The price of the sports two-seater is £305 and the chassis £265. The Derby is handled in this country by Morgan Hastings, Ltd., of 17, Berkeley Street, London, W.1.

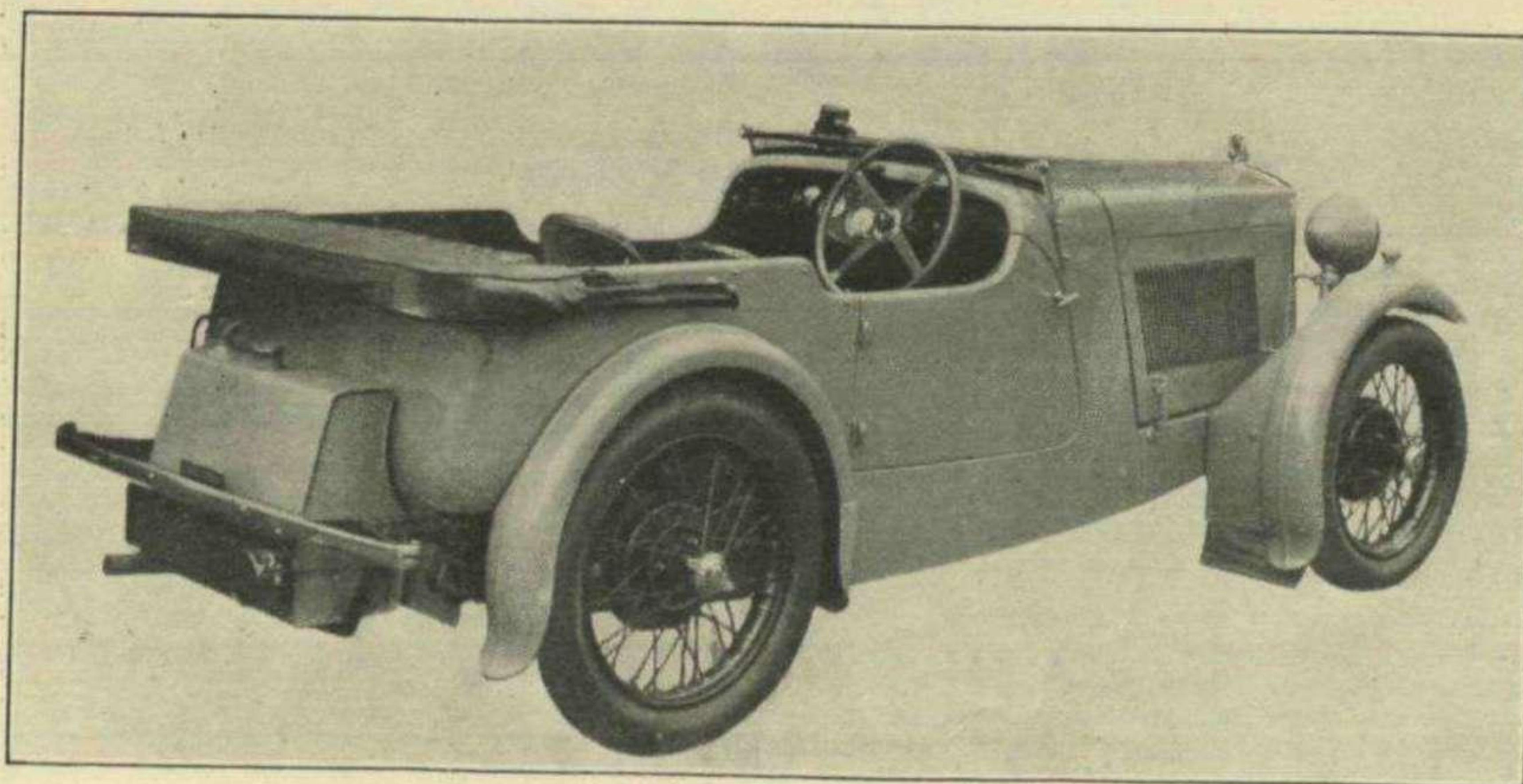
IMPROVED "HORNET" SPECIALS

FEW popular-priced cars have gained so much popularity in so short a space of time as the Wolseley "Hornet," and while its manufacturers introduced it primarily as a touring vehicle its liveliness and road-holding qualities have led a number of enterprising body-builders and firms specialising in high-efficiency tuning, to use the "Hornet" chassis as a basis in the production of special sports models.

Now, with the incorporation of a num-

ber of refinements and improvements which are to be found in the standard 1932 "Hornet" (which include a four-speed gearbox with silent third) these specials will appeal even more to the sporting motorist.

A particularly attractive "Hornet" model is that turned out by Jensen Motors of High Street, West Bromwich. Well-proportioned and clean in outline, the body is extremely well made and panelled throughout with aluminium.



Three-quarter rear view of the Jensen "Hornet."

A road-racing single-piece windscreen, which may be folded down on the scuttle if required, and a tandem electric wiper is part of the standard equipment. The driving position is excellent, and comfort and convenience is added to by the fact that Messrs. Jensen Motors have increased the rake of the steering column and fitted a Bluemel spring-spoked steering wheel. The arrangement of the exhaust system has been modified to give a pleasing but subdued note, and the whole car is a very dapper little job. Normally the Jensen "Hornet" will be marketed with a standard engine at about £220, but when required, a super-tuned power unit will be obtainable at slightly increased charge. In the latter case, the special boosting work will be carried out by M. A. McEvoy.

Another "Hornet" Special which attracted a great deal of attention at Olympia last month was the Arrow 2-4 seater sports type which was exhibited on the stand of A. P. Compton and Co., Ltd. This firm, whose address is, Arrow Coachworks, Boston Road, Hanwell, W.7., have been engaged for several years in the design and building of racing bodies, and the experience they have thus acquired has been utilised in the manufacture of their standard production jobs. In addition to their "Hornet" model (which is priced at £232 10s.), Messrs. Compton also turn out special forms of Austin Sevens, Morris Minors, and Standards.

A WANDERER AT THE SHOW

Afterthoughts of Olympia.

IN these times of mass-production utility vehicles there are many who assert that the day of the specialised car, built for the enthusiast who takes a pleasure in driving, is dead.

Anyone pessimistic enough to take this view could soon have been revived by a visit to Olympia, where in spite of the cry that times are hard, and so forth, there was plenty to interest the keen sports car owner, and what is more, it was evident at the show that there are more buyers than ever for this type. To say this "type" is perhaps misleading, for the very existence of sports cars depends on their individuality. However, there is one common factor to all sports cars, and that is that they all have a common object—efficiency.

Racing has developed performance and road holding so that the results can be passed on to the sports car, and though the effects are noticeable in touring car design, they are here hampered by demands for large body space, cut prices, and other useful but uninspiring items, whereas the pukka sports car is not so fettered.

True the amount of money available varies enormously with individuals, but the demand is not so much for as much motor car as possible for the money, as for something good in its own class. If the only class available to the buyer's pocket is something small, there are cars which anyone should be proud to own, at a reasonable price. If price does not enter into the question and the choice of the world's finest sports cars is open to him—well, I wish I were in his shoes!

The usual effect of Olympia is to leave one in a complete haze, and one brings little away from the show but confused impressions and a severe headache. However, a renewed attack and a little consideration clarifies things and one realises that this show had some very fine sports car exhibits.

"750" Popularity.

In wandering round one saw that the M.G. attracted much attention, and in view of the wonderful year they have had this is hardly surprising. The Montlhery model Midget is already familiar to followers of the sport, though its price of £575 puts the supercharged model out of reach of any but the competition man who must have a fast "750." Personally I found the M.G. Magna chassis the most attractive piece of work on this stand, with its ultra low frame level and neat lay-out. The 1,250 c.c. engine in such a small chassis should give a wonderful power weight ratio and I think it will be one of the year's "best-sellers."

Another firm with an excellent record for this season, especially in the matter of reliability is Aston Martin, and their stand was bound to attract anyone with an eye for a really high class job. These 1½-litre cars are notable for quiet and pleasing lines and first class design and workmanship. They are not cheap, but anyone who has seen and studied the chassis and components will realise that they are worth the money, and that they would outlast the majority of sports cars of any size.

Fiat produced a very snappy looking sports car of obvious continental type in their 2½-litre. Although recently associated with family motor cars, the firm's racing experience is as old as motoring, and it will be interesting to see how the new model performs. Students of design will find the Derby interesting as it is now front-wheel driven, and though not intended as a full sports car, is said to have a very good performance.

Another unusually interesting foreigner is the new 2½-litre 8 cyl. Lancia; the engine with staggered cylinders has no greater length than the average four. The chassis is a fine example of the scientific use of pressed steel, and the braking system and adjustment, together with the fine chassis lubrication system, were points to be noted.

Of the Alvis range, the 12-60 sports models are probably the most attractive to MOTOR SPORT readers, and practical experience of this model has shown that its economical running is almost as remarkable as its performance. Moreover, it is not unduly expensive for such a well built and finished car.

Gearbox Developments.

The self changing gear-box is gradually spreading, and although at first sports car drivers were apt to sneer at such a device, it is now proving its value, and it is also most entertaining to use. The Lagonda "Selector" chassis has a Maybach 6-speed gear-box with pre-selective gear, and it has been definitely shown that average speeds can be increased by means of the gear. The 2-litre supercharged unit was another attraction on this stand while Mercédès are also devotees of the self-changing gear on certain models.

The new 3½-litre Mercédès was chiefly remarkable for its amazing compactness, for some years now a feature of this famous make.

The larger English sports cars were represented by Invicta, with the low 4½-litre which has been so popular this season, and the "105" Talbot. The amazing performances of this fine car have made it almost a synonym for consistency, and we can imagine few more delightful fast motors than a "105" chassis with a really full four-seater open body. The International regulation body shown will also appeal to the prospective competition man.

Rileys have provided a very attractive intermediate type between the Brooklands model and the touring car in the "Gamecock," an attractive sports two-seater.

The big 8-cyl. Delage is a wonderful combination of speed and comfort, and moreover it is not expensive. It is a good example of the way successful racing experience can be applied to sports cars.

The O.M. stand always shows some good cars, and the big 8-cyl. Bianchi is another good example of Italian engineering.

For those to whom price and cost of running mean but little the big Hispano must have been attractive. This chassis had a V-12 engine with an R.A.C. rating of 75

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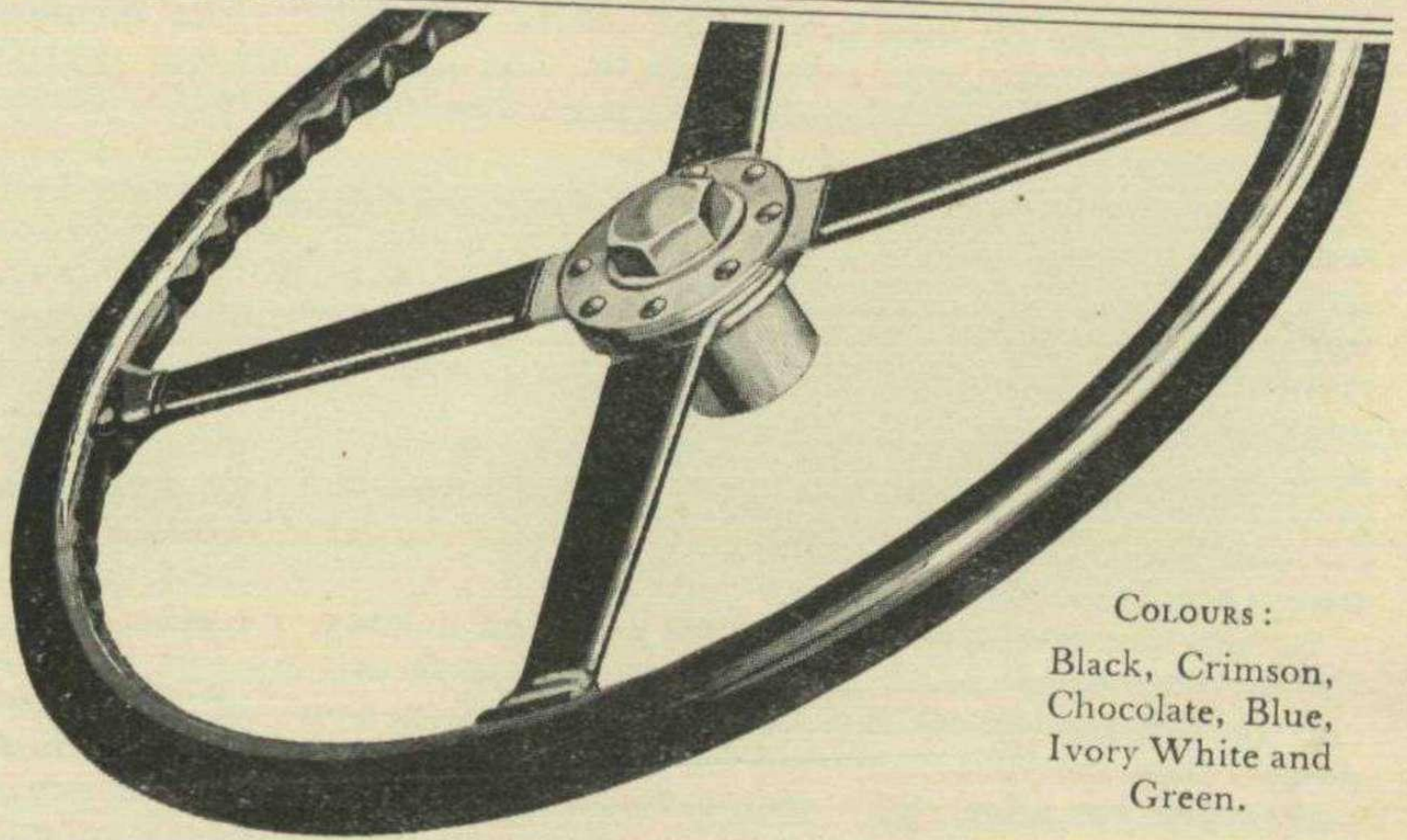
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A WANDERER AT THE SHOW—continued.

h.p. and with the petrol tax at its present rate the exchequer should do well out of any purchasers.

Among not quite so big cars, the Stutz "Bearcat" is a real good-looker, and previous experience of this make has shown us that the performance is fully up to expectations. The 8-cylinder engine now has two overhead camshafts, and is guaranteed capable of 100 m.p.h.

It was impossible to see every car at the Show in a single survey, but no visit can be complete without a brief worship at the shrine of Bugatti. The name conjures up memories of hundreds of historic struggles on road and track, and on the stand was the "touring" edition of the famous "blown" 5-litre.

The engine is a 2-overhead camshaft straight-eight with a total capacity of 4,840 c.c. The engine has the typical square cornered Bugatti lay-out, even to the camshaft casings, and the wheels are the patent Bugatti type of aluminium alloy cast in one with the rims and brake drums. I strolled over to examine the great rival of this make, the Alfa-Romeo, and here again was a wonderfully neat and symmetrical engine in the 2,300 supercharged car. Both designs are entirely distinctive however, and the much fancied piping and dull sand-blasted finish of the Alfa was in marked contrast to the shining flat surfaces of the Bugatti mechanism.

In spite of modern tendencies to standardise, the Show was still interesting.—L. S.

"WIZARD" SMITH READY.

ACCORDING to a report from New Zealand, "Wizard" Smith's new car, with which he intends to attack Sir Malcolm Campbell's record, is now completed, and has already undergone preliminary trials.

This car, which is named the "Fred. H. Stewart Enterprise," is powered with a Napier "Lion" aero

engine (12-cylinders) of the same type as that installed in the "Blue Bird," and the general design closely follows the famous "Golden Arrow."

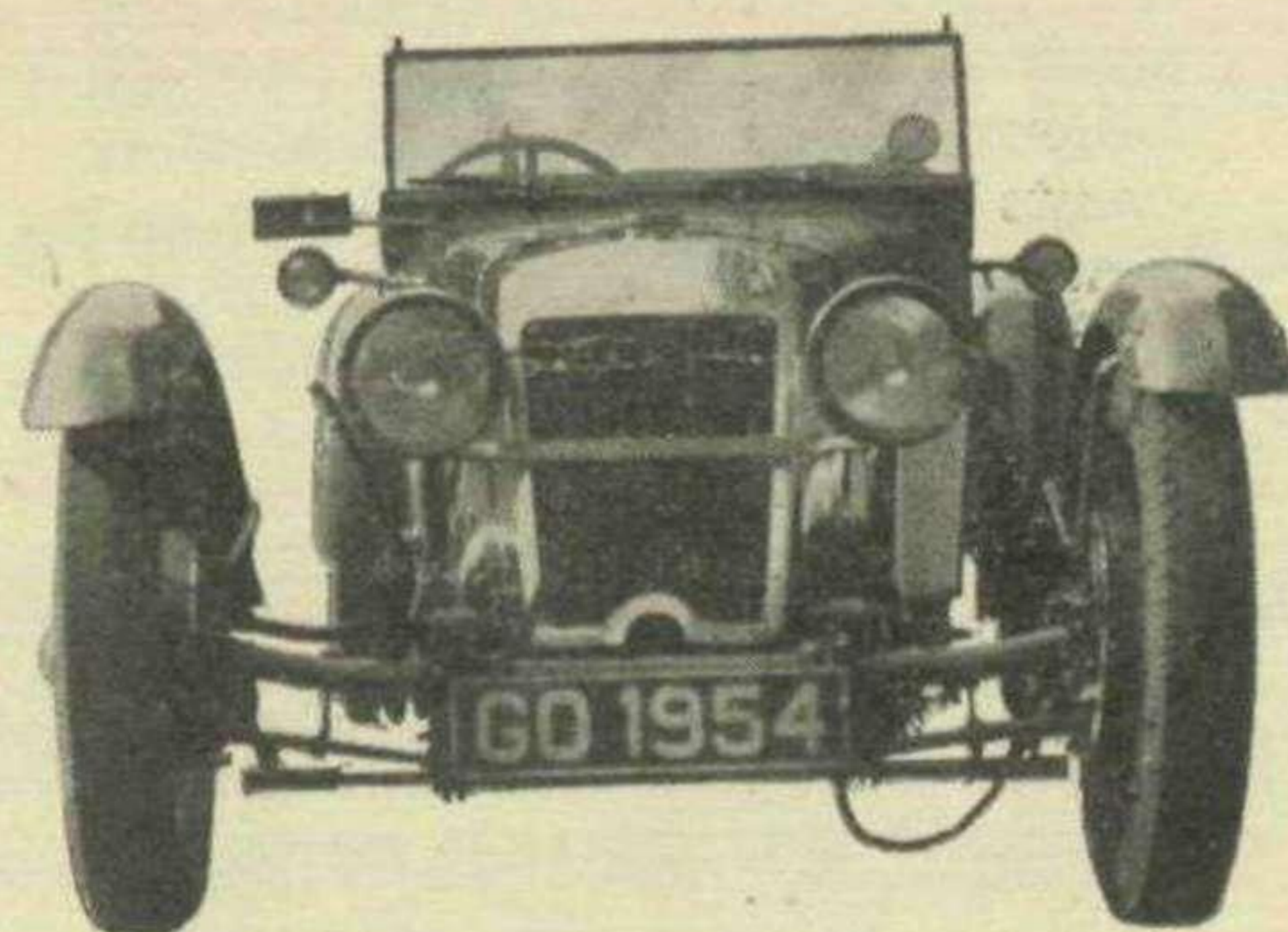
It is unlike other famous record-breaking "specials," however, in that it has brakes operating on the rear wheels only. It is also remarkable for the fact that it is even lower built than the "Golden Arrow."

"Wizard" Smith will make his attempt on the record on a course marked out on the famous Ninety Mile Beach, which is situated in the west side of the North Island.

Coinciding with this report is the news that Sir Malcolm Campbell intends to again go out for another record attempt with his "Blue Bird" early next year.

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CONTINENTAL NEWS

The Grand Prix of Czechoslovakia

THE Grand Prix of Czechoslovakia race, run off on the circuit of Masaryk on September 27th, provided a double victory for Bugatti, the unlimited class being won by Chiron and the 1½-litre category by Schmidt.

It was a race full of interest for there was Bugatti, winners of the French Grand Prix and also at Spa; Alfa-Romeo, with the Targa Florio and the Italian Grand Prix to their credit among other events; Maserati, winner at Monza, and Caracciola's famous Mercedes, whose victories this year included the Nurburg ring, the Thousand Miles Race and the Mont Ventoux hill climb.

Surely enough to satisfy the most critical, and the drivers included Louis Chiron, Achille Varzi, Nuvolari, Fagioli, Lehoux, Borzacchini, and Von Morgen, all stars of the first magnitude.

The circuit is 29 kilometres in length, and a record crowd assembled to see the race, in fine but chilly weather.

The cars got away to a fine start except Von Morgen, who anticipated the flag by some 3 seconds. On the first lap Fagioli (Maserati) drew slightly away from the pack, followed by Borzacchini (Alfa-Romeo), Varzi (Bugatti), Caracciola (Mercedes), Chiron (Bugatti) and Nuvolari (Alfa-Romeo), all close together.

An extraordinary mishap.

Everyone was settling down to enjoy a wonderful race when there occurred the incident which robbed the race of much of its interest. A bridge, grazed by Fagioli fell across the road, and in a few seconds the most amazing, but fortunately harmless "pile-up" occurred.

Borzacchini, by some miracle roared through the falling debris without touching it. Then Varzi and Nuvolari neck and neck charged at the obstacle to find at the last minute that they could not pass.

It is such a moment that calls for the driver's utmost skill and quickness of thought. Without hesitating, they took to opposite sides of the road, one in the ditch and one on the bank.

Varzi's car was still able to run but had to be withdrawn, but Nuvolari had smashed his back axle, so he accompanied Varzi back to the stands.

Fagioli also had to retire.

Five seconds after this crash the big Mercedes thundered out of the bend and came on the general melée, with Chiron's Bugatti a few yards behind with nothing to see except the back of the Mercedes, and he had to act entirely on what Caracciola did.

The German driver braked violently and took to the ditch, smashing a shock absorber but continuing. Chiron, with marvellous skill, avoided the skidding Mercedes, and got through unscathed, although he too had to take to the ditch.

Caracciola retires.

Shortly after Caracciola, his broken shock absorber making the car hard to place accurately, grazed a tree and a wheel broke up. He escaped unhurt, but retired.

Lehoux was going wonderfully, and actually pulled up seven seconds on Chiron. It was evident, however, that Chiron was easing off and taking no risks now that he was in the lead. Lehoux has driven this car in many events already this year, and he had no hope of anything but a place. At the last moment even this was snatched from his grasp. Coming out of a left hand bend he touched the bank with a rear wheel, and the aluminium flew in all directions. He contrived to fit the spare wheel by the side of the road, but it took 19 valuable minutes. He started off again in pursuit, and after filling up, actually broke the lap record, but retired shortly afterwards.

Nuvolari, tired of remaining at the pits signalled in Borzacchini to take over. After considerable

altercation he leapt into the driving seat, but the motor refused to start. They wound the handle without avail, and then resorted, with complete indifference to the regulations, to pushing the car down hill, and ended up with three men working on the car 500 yards from the pits!

No one could catch Chiron and he came home an easy winner having driven a well-judged race.

Schmidt won the 1000 c.c. class after a fine race with the Comte d'Arco's Amilcar which put up a valiant show.

RESULTS.

UNLIMITED CLASS.

- 1st. Louis Chiron (Bugatti), 4h. 12m. 7s. Speed, 117 km.p.h.
 - 2nd. Stuch von Villirs (Mercedes), 4h. 26m. 3s.
 - 3rd. Von Morgen (Bugatti), 4h. 30m. 6s.
 - 4th. Lobkowitz (Bugatti), 4h. 33m. 50s.
 - 5th. Prince de Leiningen (Bugatti), 5h. 5m. 36s.
- Fastest lap., Chiron (4m. 25s.).
- ##### 1500 C.C. CLASS.
- 1st. Schmidt (Bugatti), 4h. 58m. 13s.
 - 2nd. Comte Arco (Amilcar).
 - 3rd. Sojka (Bugatti).
 - 4th. Franckl (Bugatti).
 - 5th. Antonio (Maserati).

Mountain Championship of Europe.

Final Placings for the Season.

The final event for the hill-climb championship, which should have taken place on September 27th was cancelled, and thus the final placing is that decided by the Mont Ventoux.

Therefore in the racing category is Zanelli, on a Nacional Pescara, and in the sports car class, Caracciola on a Mercedes.

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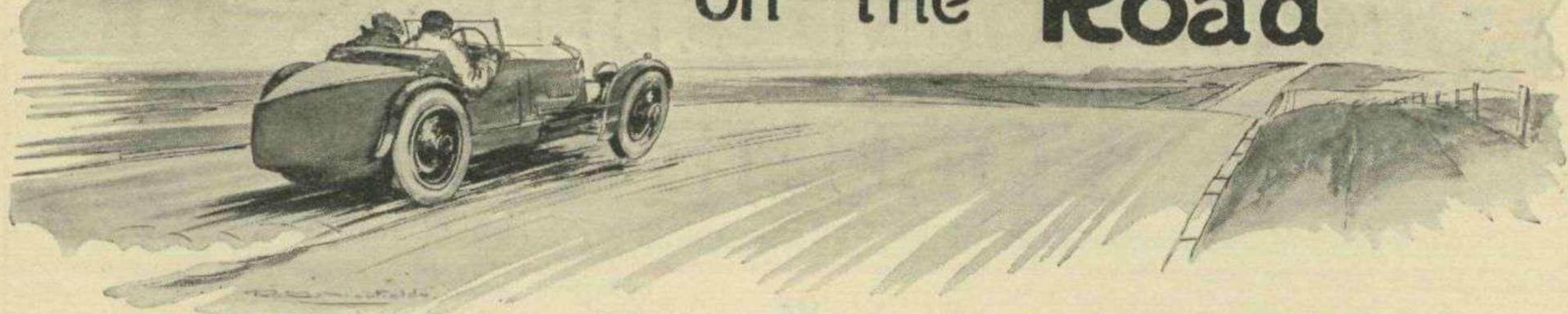
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THERE are some motor cars which differ only in detail from other makes of the same size and while satisfying their owners do not so inspire them as to prevent them ever wanting anything else.

On the other hand there are a few makes of sports cars which are so outstandingly individual in their design and performance that an owner, once used to their ways, becomes enthusiastic to such a degree that he considers his car the only one of its type worth having.

It is to the latter category that the Frazer-Nash belongs, and always has from its inception. It is a car about which motorists may argue and wrangle, but about which they are bound to have a very definite opinion. If you like it, you like it very much indeed, and we have yet to meet a keen sports car owner who did not like driving one of the latest models.

Many and fierce have been the arguments among motorists as to whether chain drive is suitable in theory or practice, but such arguments dissolve in praise after a run in

the car. Incidentally chain drive is one of the most efficient forms of transmission extant, and is very light for a given power, but in the case of the Frazer-Nash such points are entirely forgotten in the remarkable efficiency with which the vehicle operates as a whole.

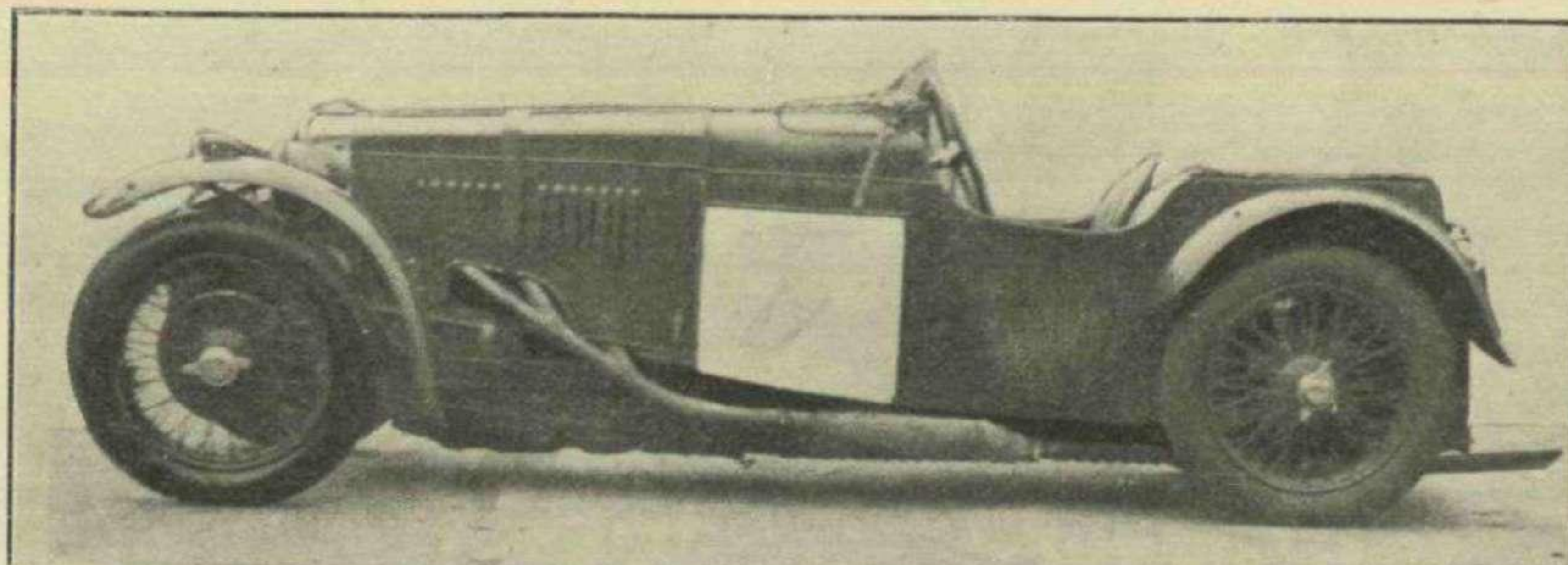
As the T.T. type car is now in production as a standard model, it was one of these cars which we took out for a road test, and which we must admit left us as enthusiastic about it as the most rabid owner.

The main features of this car follow the lines already familiar to MOTOR SPORT readers, in that it incorporates the unique dog clutch gear with a final chain drive for each gear, which has long been a feature of this make. The power unit is an unsupercharged O.H.V. unit of normal layout with pushrod operated valves

and two carburettors. Four forward speeds and reverse are fitted, and owing to the principle used all gears are as silent as top, being equally direct but merely of different ratio. This arrangement also gives the very valuable property of being able to alter any gear ratio without affecting the others. The advantage of this to an owner who goes in for competition work hardly need stressing. With the same car he goes in for trials, speed hill climbs, or road races, as well as using it for normal road work.

The standard gear ratios of a 4-speed Frazer-Nash are 11.5, 7, 4.8 and 3.7, but all these are optional and can be varied to suit individual requirements. On the T.T. model a low gear of 10 to 1 is fitted and owing to the light weight of the car (approx. 13 cwt.) this is fully low enough, and

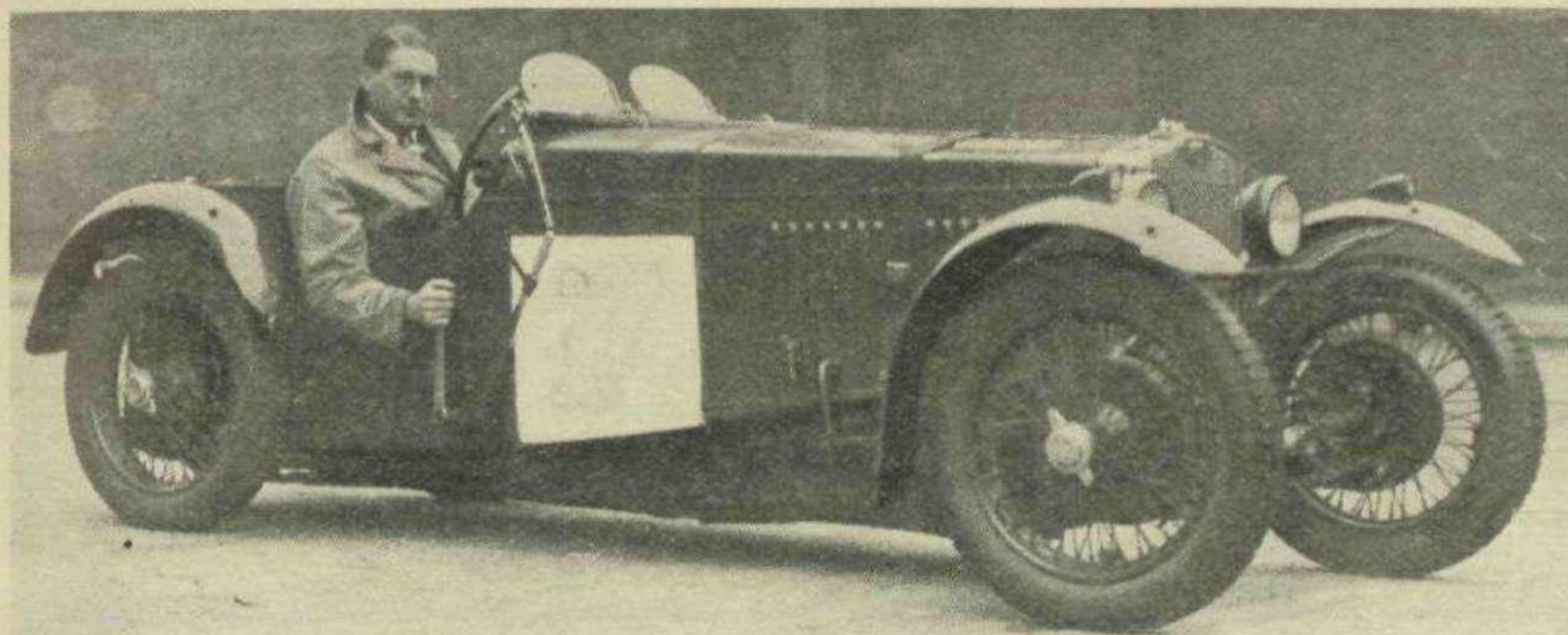
the getaway and acceleration are really remarkable. 10-30 m.p.h. on this rather high bottom gear takes 4 seconds, but if the clutch is slipped and the engine revved up, as one would normally do when getting away from such a low speed, this



[Motor Sport Photograph.]

Built for the job. The T.T. Frazer-Nash which has a maximum speed in the neighbourhood of 90 m.p.h.

THE T. T. FRAZER-NASH—continued.



[Motor Sport Photograph

The driving position, like other features of the new Frazer-Nash makes an immediate appeal to the sporting motorist.

time can be reduced to a fraction over 3 secs. 60 m.p.h. can be reached from the same speed in well under half a minute through the gears.

These figures give some idea of the terrific "pep" of the model, but no figures can give a full impression of the fascination of driving the car.

The high-g geared, dead accurate steering, the low build, and excellent weight distribution inspire one with complete confidence in the car and in oneself. After a short spell of driving one finds oneself doing things safely and neatly which one would never dare to attempt in the majority of cars.

Corners merely encourage the driver to prove the car's stability. One of the best things about the car's cornering is the way it can either be coaxed round in a gentlemanly fashion, or deliberately thrown into a controlled skid as

and when required. This is a great help in a tight corner, as the slowing effect of the skid and the fact that a slight movement of the wheel corrects it with ease and certainty, means that one can "get away with it," under the most awkward conditions.

By this we do not wish to convey the impression that it is the sort of car in which one is always getting into difficulties, but merely that it is so inherently safe that one cannot help taking liberties with it.

A further attraction when scraping on the road is the ease of gear changing. Owing to the dog-clutch arrangement, changes up can be pulled right through without a pause, and the downward change is also practically fool-proof. Our only criticism of this change is a slight tendency to "hang" when trying to get out of gear when over-running the engine, as when chang-

ing down for a corner. We soon got used to this, however, and found a touch of throttle at the right moment made it slip out easily.

Experience of older Frazer-Nashes has showed us that this tends to get easier with use. However, the car we tried had only done the Double-Twelve, a few Brooklands races, "round - the - mountain" events, high speed trials, and the Ulster T.T., and judging by the service some owners extract from these cars might still be considered fairly new.

We have not yet mentioned the maximum speed, as the acceleration and road holding were the first things we noticed, but for a 1,500 c.c. engine they are rather remarkable especially as excessive revs. are never resorted to. The maximum speed on the level was just under 90 m.p.h., but with a slight downhill gradient 95 m.p.h. was easily attained.

This car has been officially timed in a race to lap Brooklands at 91.72 m.p.h., so that it has every right to be placed in the exclusive class of genuine 90 m.p.h. sports cars. Another interesting fact is that it will comfortably exceed 80 m.p.h. on third!

Taken all round it is an ideal sports car for the competition enthusiast who also wants to use his car on the road, and its performance can only be fully appreciated by actual trial. The works are at London Road, Isleworth, and the price of the model with 3-speeds is £425, and with 4-speeds £445.

Stinging the Motorist.

COMPLAINTS from various parts of the country continue to reach the A.A. concerning the increasing demands upon motorists for the payment of fees for the parking of motorcars for short periods.

These charges are being made not only in the case of open spaces to which the public has a right of access, but for parking on the public highway, in spite of the fact that no statutory authority exists for such charges.

Furthermore, although the parking fee is generally supposed to be for the provision of an attendant, any liability for loss of, or damage to, the motor vehicles in his "care" is stoutly disclaimed on the tickets.

In the interests of its 430,000 members, The Automobile Association has investigated many complaints about such charges

and has taken legal opinion as to their legality.

Although the fees may be small, the cumulative effect of these "pin-pricks" is arousing strong resentment. The A.A. is determined to resist these impositions, and is therefore concentrating on the subject with a view to establishing a definite ruling.

Overseas Sales and Service.

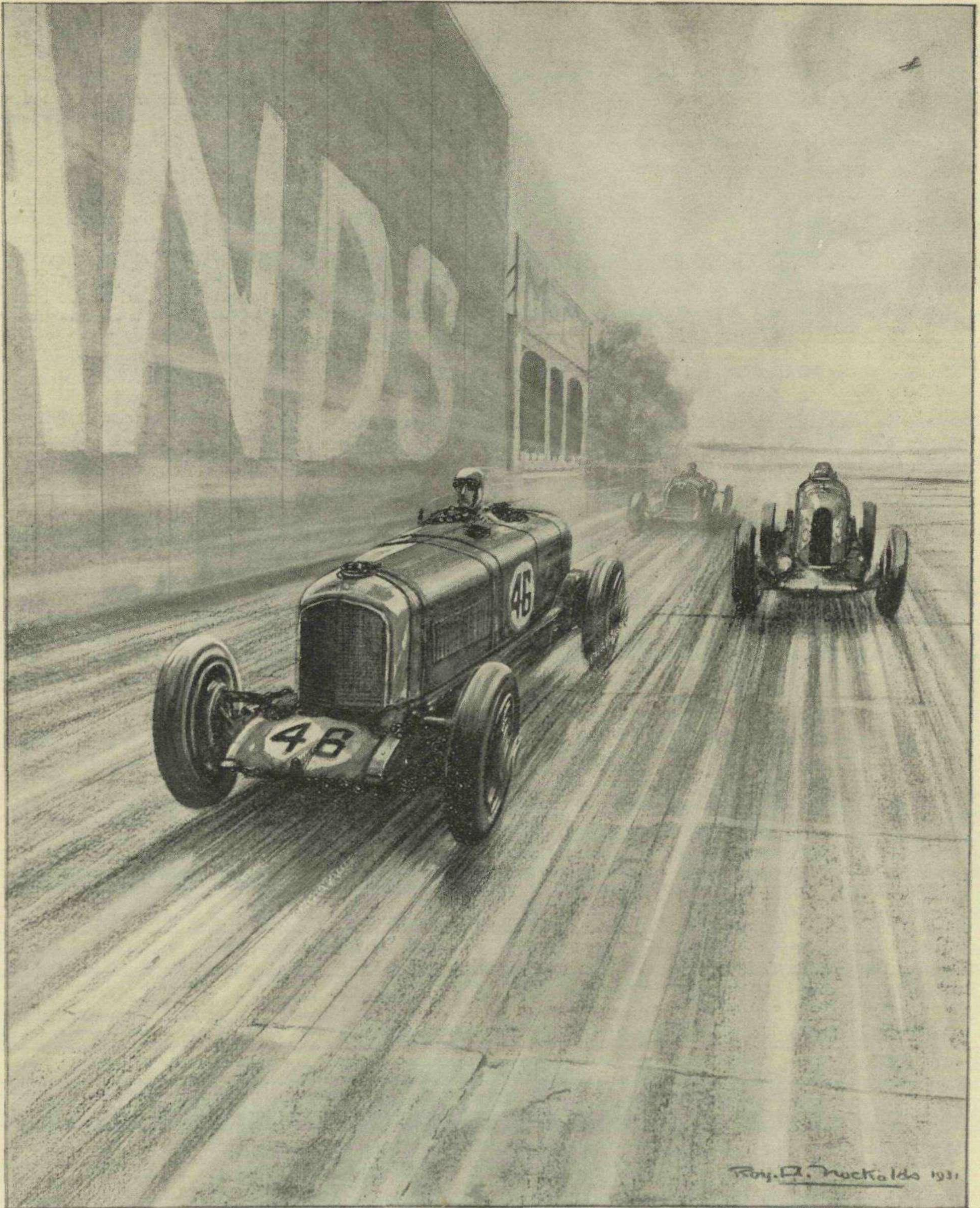
PARIS is considered to be an important and convenient centre for the handling of automobile business for the Continent of Europe and certain overseas countries. People interested in the merchandising of cars, and others as buyers or users of cars visit Paris frequently.

It is the intention of the manufacturers of Rolls-Royce cars, Humber cars, Hillman cars and Commer commercial vehi-

cles in association with Messrs. Rootes Ltd. to co-operate in establishing for their Continental and Overseas trade a service and sales organisation domiciled in Paris, and a company is being formed to take over the service and sales organisations of these manufacturers. This company will have showrooms and offices in the Avenue George V, and its main service organisation at Sevres, together with depots on the French Riviera and elsewhere according to circumstances.

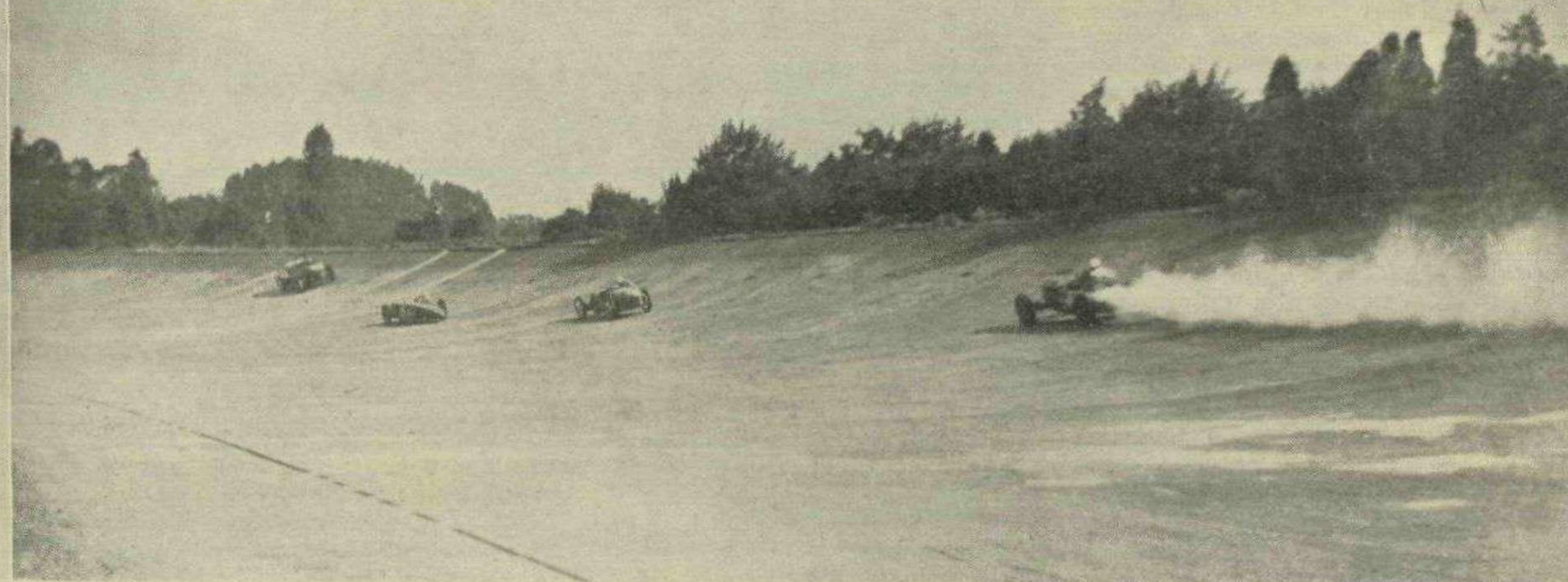
The Rolls-Royce Company, of course, has for many years had its own sales and service organisation in France for the convenience of its customers living in and visiting that country.

Rolls-Royce engineers will, under the new arrangement, continue to reside in Paris to give technical advice and repair service on the products of the Rolls-Royce Company.



The triumph of a veteran. The famous Speed Six Bentley adds to its many successes by winning the 500 Miles Race at the record average speed of 118.39 m.p.h., and in this drawing by our artist it is seen passing Brian Lewis (Talbot), who finished second.

THE B.R.D.C. "500"



Widengren's O.M. leaving a trail of smoke after breaking a piston. He is seen following two Rileys and a Talbot. [Motor Sport Photograph]

IN three short years the 500 miles race has become one of the world's classics, and those who went down to the track on October 3rd were privileged to witness a British victory at the highest speed ever attained in a long distance race.

The veteran Bentley in the hands of Jack Dunfee and Cyril Paul, followed up its fine series of victories by defying the mechanical failures which beset all but seven of the starters, and averaged 118.39 m.p.h. for the 500 miles.

This wonderful performance was far from being a runaway victory, however, for the single seater "105" Talbot, that marvellous, unsupercharged, silent 3-litre only missed victory by a narrow margin. As it was Brian Lewis and Saunders-Davies drove it into second place at the almost incredible average speed of 112.93 m.p.h. In congratulating the entrants and drivers of this car we should not forget to include Mr. Roesch, the brilliant designer who has made their success possible.

The third car home was the super-charged 750 c.c. M.G. Midget belonging to E. R. Hall, who drove the entire distance single-handed and averaged over 92

m.p.h., a feat which would have been considered impossible, but a short time ago, for a car of this size under any conditions. A. G. Miller's Riley was fourth, with another M.G. and two more Talbots to complete the small but distinguished list of finishers.

It was a British victory without qualifications. Not a win on handicap alone, but a clean sweep in which only British cars finished, and at a speed which can leave no room for pessimists to say—if only there had been a works entry of Bugatti, Alfa, or Maserati. No, such a speed will be hard to beat, and it seems that on our own track we can more than hold our own.

One of the greatest charms of the

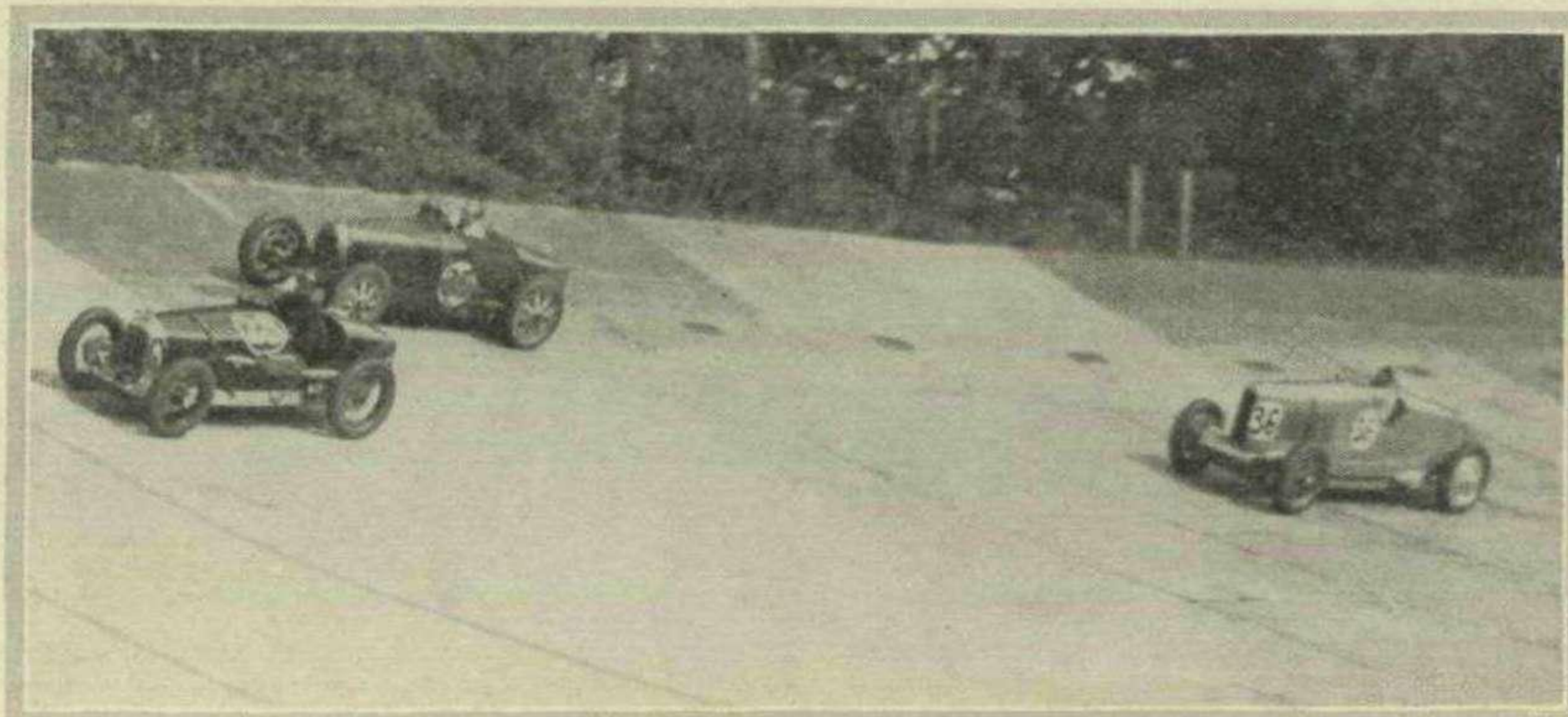
"500," and one of the secrets of its great success, is the freedom from restriction as to the cars. It is open to all types, and there is only one end in view—to cover 500 miles in the shortest possible time, and the huge crowd that gathered to see the race got full value.

The usual last-minute rumours and retirements were in evidence before the start, and by the time the solitary limit man, J. H. P. Clover, in his "unblown" M.G., came to the line, it was learned that there were seven non-starters.

These included two M.G.s to be driven by Horton and Jackson, Willis's B.C. Special, Field's Talbot (one of the old 200-mile race cars of some years ago) and the two Invictas. One of these was the streamlined single-seater specially built for the event, and was to have been driven by Froy and Wisdom, the former now completely recovered from his crash in Ulster.

However, with these out of it there was still plenty of scope for speculation in the cars gathered at the fork awaiting their time to start, but not necessarily to finish, while Clover, who started at 10.30 a.m. sped on his lonely way for 24m. 8s.

(Continued overleaf).



Carr takes his Bugatti high on the home banking to pass Humphrey's Amilcar, causing Lewis to pull his Talbot down to pass below them. [Motor Sport Photograph]

THE B.R.D.C. "500"—continued.

Then the flag dropped again and the whole howling pack of "blown" 750's joined in the fray, and straightway started screaming round at just on 100 m.p.h.

The official Austin team were single-seaters with radiators mounted separate from the body as on the record-breaking car. In fact one of them was the actual Monthlery 109 m.p.h. job. The fourth Austin, driven by Vernon Balls had a special light body, and was considerably lighter than the work's cars.

M.G.'s were out in force with an entry of no fewer than three complete teams among their eleven entries. These were entered by the Earl of March, Major Gardner, and E. R. Hall, but Gardner's team was depleted by R. R. Jackson's car being a non-starter.

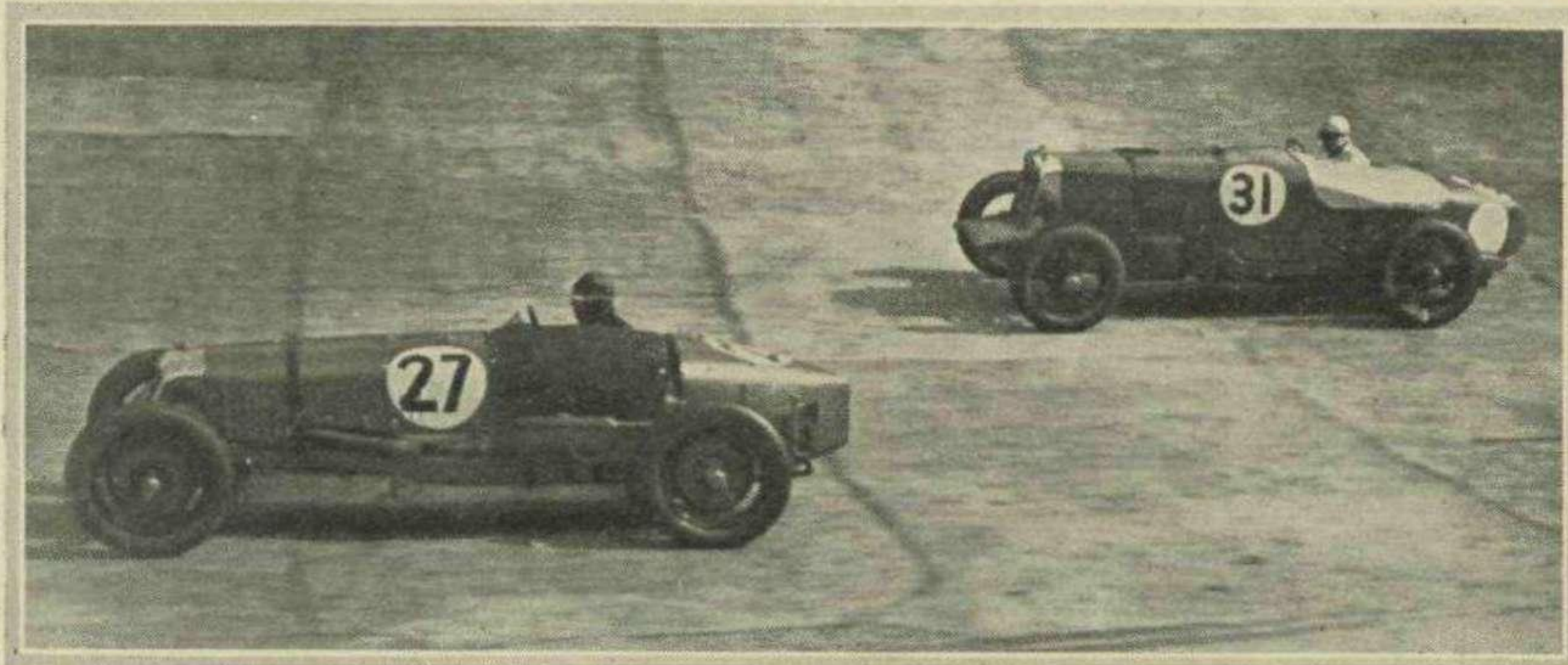
The 1,100 c.c. class joined in at 10 sec. after 11 a.m., but even as early as this the terrific speed of the 750's was beginning to tell. Dan Higgin was out with a run big end in four laps, a forecast of what was to come.

Seven Rileys were the mainstay of this class and Staniland, driving Campbell's entry shot off at about 105 m.p.h. As this car could lap at nearly 110 m.p.h. it seemed to well in hand, but six laps saw it in the pits with a loose flywheel, and Whitcroft took the running, and gradually gained a fine lead on handicap and at 11.30 a.m. at 102.9 m.p.h.

Outlaw's Maserati and Humphrey's Amilcar, being supercharged, gave the Rileys a start, and ran with the unsupercharged 1½-litres.

Group after group gathered and started and soon the track was really alive with cars. The snarling Bugattis and Sir Henry Birkin's Alfa, contrasted strongly with the smooth whistle of the Talbots, and in the big class the thundering Bentley vied with Zehender's white Mercedes. the latter cutting in and out the blower like a siren as he swept round.

The single-seater "4½" Bentley was



Outlaw's Maserati (27) and Farley's veteran F. W. D. Alvis indulging in a private scrap.

driven this time by Benjafield, but it had been recently in sprint tune, and the idea of 500 miles did not seem to appeal to it. It spluttered round in dismal manner at intervals but eventually retired with valve trouble.

Birkin's Alfa was lapping at 122 m.p.h. on occasion but his chances were spoilt when some of the electrical system became detached from the dashboard, and the subsequent experimenting with connections and running round to the pits from the Byfleet banking to get things, lost much time.

Much of the story of the race must be taken up with lists of retirements, but in such an event things are more than liable to break, and there is more credit due to those who enter and retire, thereby gaining valuable information, than to those who do not enter at all.

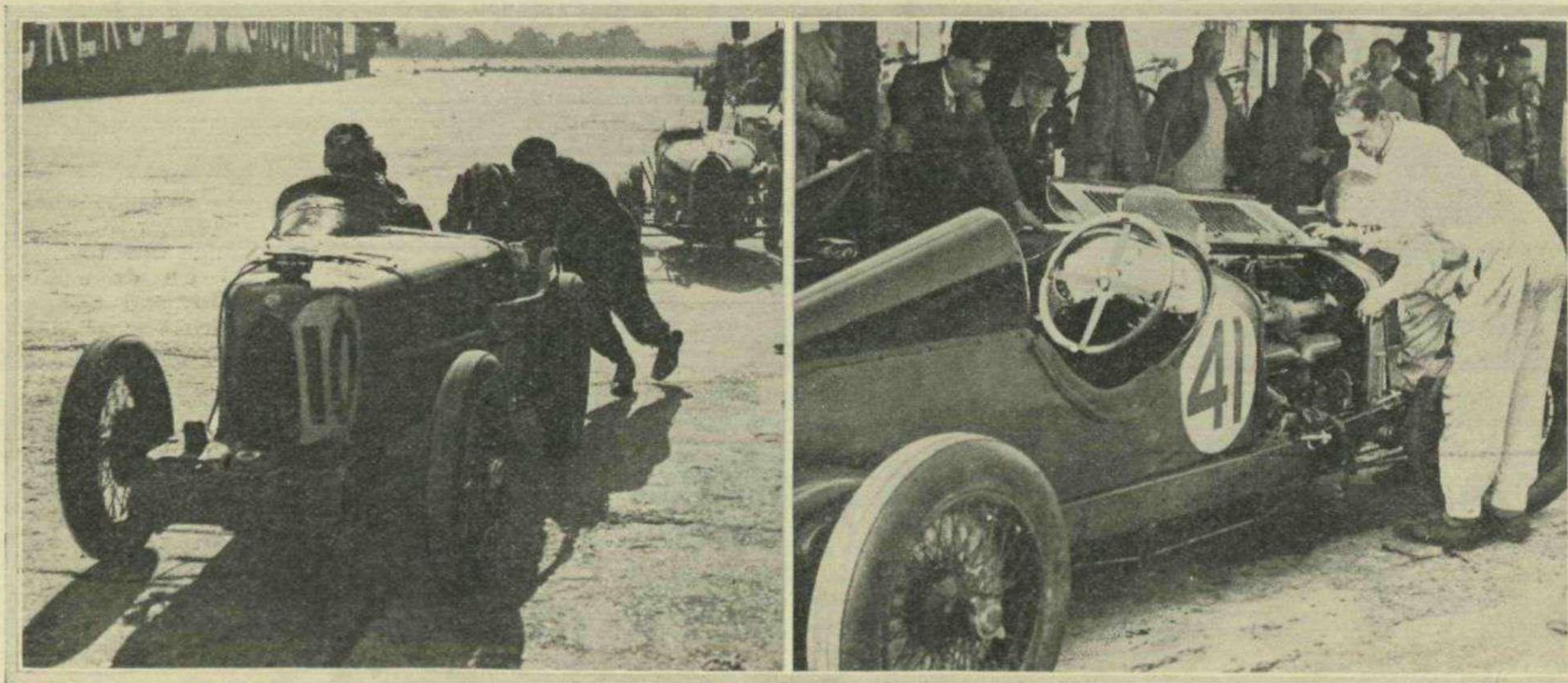
Clover had hard luck, as after lapping for 1½ hours at about 83 m.p.h., his back axle went and he had to join the retired list. Outlaw's Maserati began to slow down and misfire, and after sundry pits stops had to give up. The 1½-litre O.M., driven by Widengren and R. F.

Oates was going well at over 100 m.p.h.

Norman Black for once failed to keep going, his trouble being a blown gasket, Martin's Riley was in for repairs to the exhaust system, and Harold Parker's M.G. came in with various troubles, being mainly a general disinclination to go quickly. He adjusted various things, but to no great avail, and 15 minutes later he was in again with a hot motor and lost revs.

He changed the inlet manifold and proceeded, but eventually the trouble became more persistent and he kept coming in to the pits until it was later decided that something was radically wrong and he retired, after changing nearly everything on the engine.

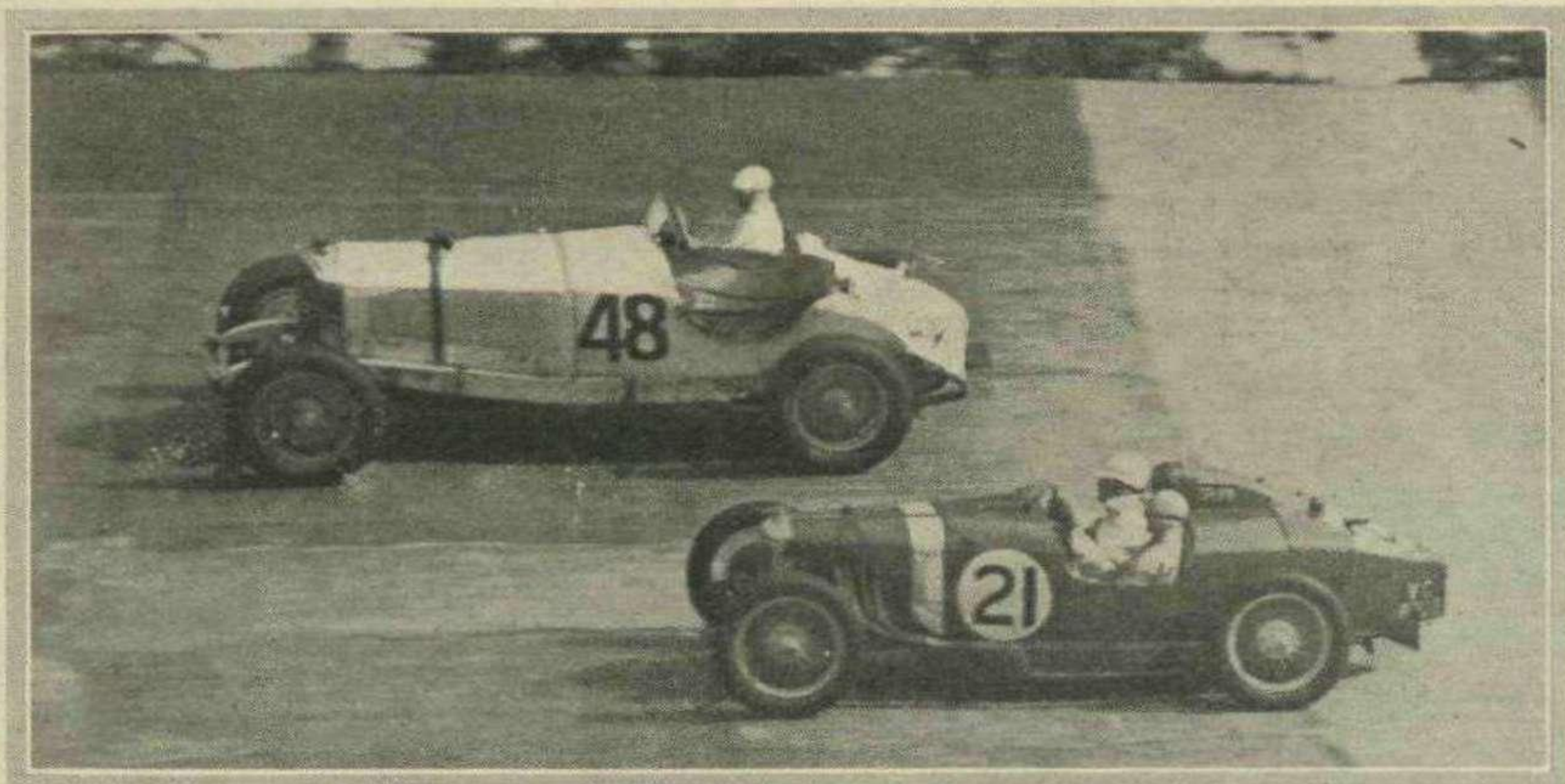
Earl Howe's Bugatti of which great things had been expected, retired very early with a broken piston. Stonard's Riley was having trouble in the clutch—a strangely prevalent complaint in this event—and the Earl of March ran a big-end. He had replaced one at the last moment the previous day and it had not been possible to clean out the engine as thoroughly as it should have been, and



At the pits. Major Gardner (M.G.) leaving after a fill-up, and (right) work in progress on Sir Henry Birkin's Alfa.

[Motor Sport Photos

THE B.R.D.C. "500"—continued.



[Motor Sport Photographs

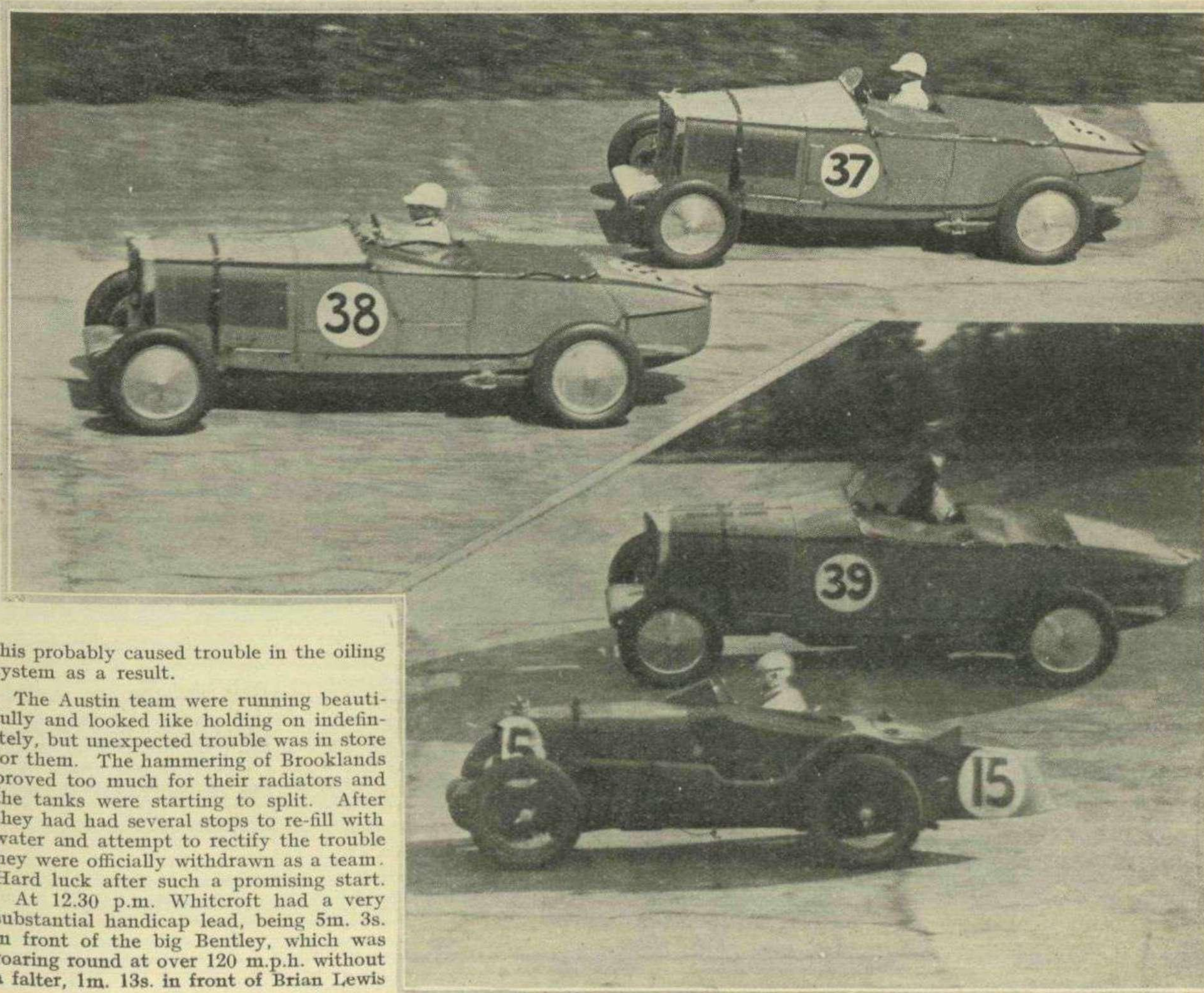
Above—Zehender's white Mercedes passing Cuthbert's Riley. Below—Our picture shows Hindmarsh and Rose-Richards keeping their Talbots in close company on the banking, and to the right is seen E. R. Hall's M.G. being overtaken by J. R. Cobb (Talbot).

and the Talbot, who was in turn 1m. 2s. ahead of Widengren's O.M.

The Talbot was averaging close on 115 m.p.h. while the leading Riley had averaged 104 m.p.h. from the start, and seemed to be going better than ever. This order was maintained with Whitcroft building up an increasing lead, till 1.30 p.m., when Lewis took second place from the Bentley.

Then came a complete change in the state of the race. Whitcroft's Riley which had covered over half the required distance at nearly 104 m.p.h., struck clutch trouble, and the driver pushed the car to the pits and retired after a wonderful opening.

Brian Lewis now held the lead for the first time but the Bentley was not to let him hold it, and took the lead at 2 p.m. at 118.3 m.p.h. Hindmarsh, on another Talbot, one of the normal 4-seaters of the official team, had been actually flagged down by his pit for going too fast, as he had been lapping at times at 113 m.p.h. He now pulled up to third place ahead of the O.M.



this probably caused trouble in the oiling system as a result.

The Austin team were running beautifully and looked like holding on indefinitely, but unexpected trouble was in store for them. The hammering of Brooklands proved too much for their radiators and the tanks were starting to split. After they had had several stops to re-fill with water and attempt to rectify the trouble they were officially withdrawn as a team. Hard luck after such a promising start.

At 12.30 p.m. Whitcroft had a very substantial handicap lead, being 5m. 3s. in front of the big Bentley, which was roaring round at over 120 m.p.h. without a falter, 1m. 13s. in front of Brian Lewis

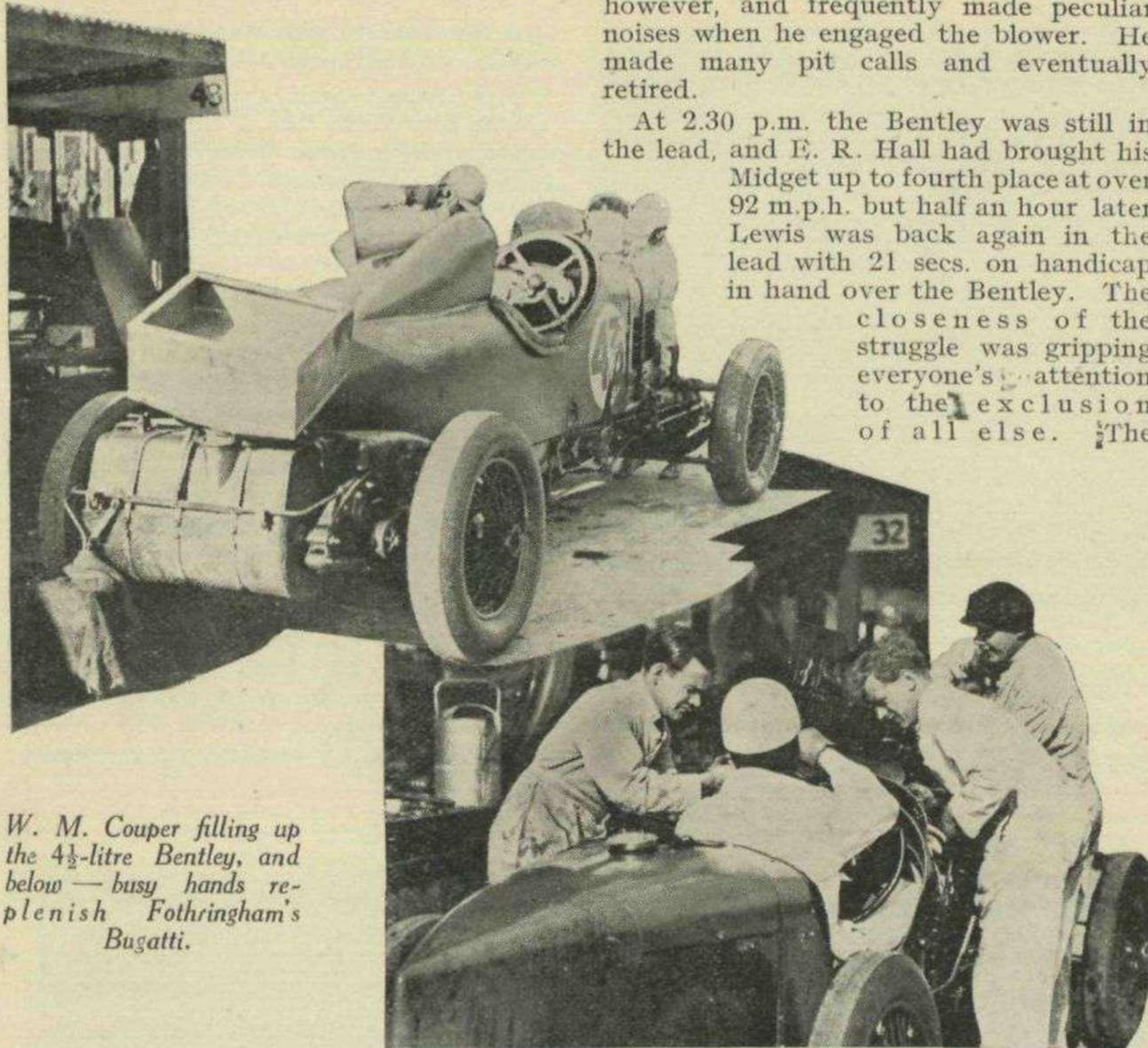
THE B.R.D.C. "500"—continued.

however, and frequently made peculiar noises when he engaged the blower. He made many pit calls and eventually retired.

At 2.30 p.m. the Bentley was still in the lead, and E. R. Hall had brought his Midget up to fourth place at over 92 m.p.h. but half an hour later Lewis was back again in the lead with 21 secs. on handicap in hand over the Bentley. The closeness of the struggle was gripping everyone's attention to the exclusion of all else. The



Involuntary spectators, but still cheerful. Earl Howe and Zehender watch from the pit counter.



W. M. Couper filling up the 4½-litre Bentley, and below—busy hands replenish Fotheringham's Bugatti.

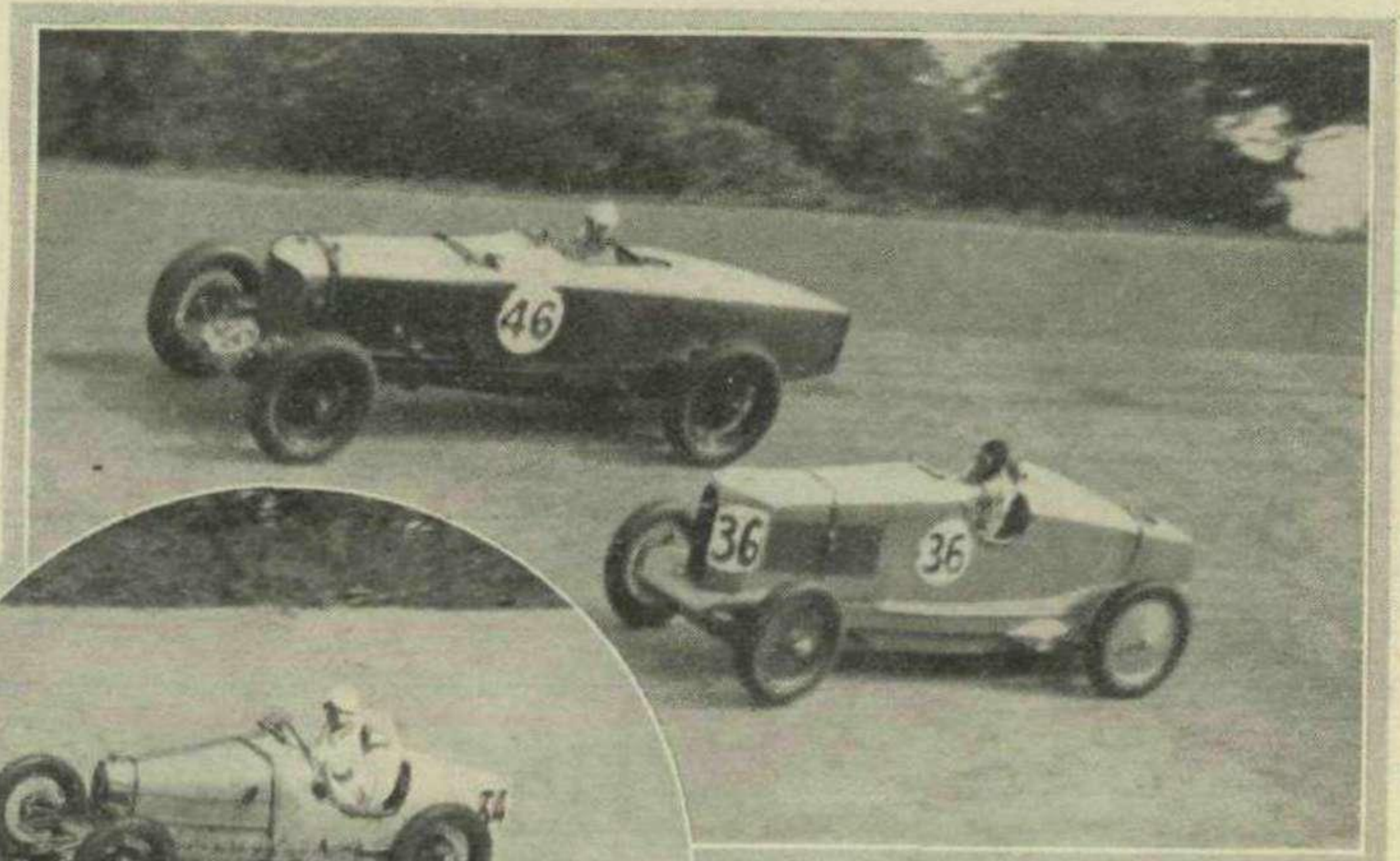
track was almost empty in comparison with the morning, and the few remaining cars roared on to try and attain the honour of a finish in this gruelling race.

Lewis was now travelling faster and had enough fuel to last without a stop.

On this occasion, though, a non-stop was not to be, as it was considered unwise

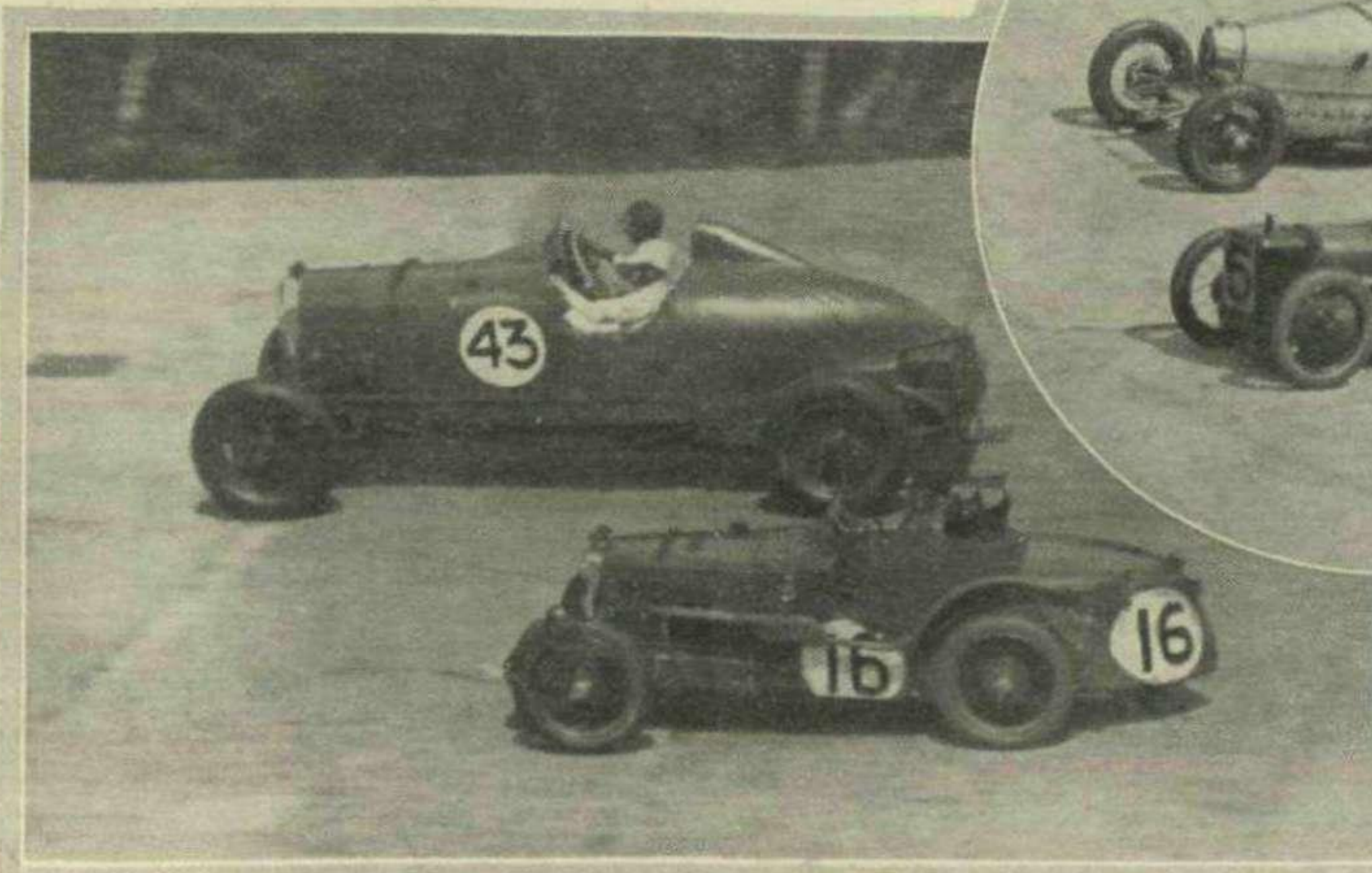
The latter had been running finely, but suddenly a trail of blue smoke burst from it and it proceeded to spread a smoke screen over the track, although still going well. It will be remembered by many readers that this was a trouble peculiar to this particular veteran some seasons back, and Oates was in those days pulled out of an event owing to the smoke obscuring other drivers' vision. History repeated itself on this occasion and he was stopped by the stewards. The trouble could not be cured and he had to join the ever swelling crowd of "dead" cars.

Zehender's Mercedes was remarkable for its amazing steadiness on the track and he frequently pulled down to pass smaller cars on the inside as though dodging obstacles on a road. The car was dogged with some mysterious trouble,



[Motor Sport Photographs

Three duels on the banking. (Top) Dunfee's Bentley passing Lewis's Talbot; (centre) Fotheringham (Bugatti) and J. D. Barnes (Austin) and (left) Bevan (4½-litre Bentley) passing Crabtree's M.G.



to go on without a tyre change, so he came in and had all wheels changed and Saunders-Davies took over. This stop cost them the race, for at 3.30 p.m. Jack Dunfee was once more in the lead, never to lose it again.

THE B.R.D.C. "500"—continued.



Cyril Paul and Jack Dunfee at the conclusion of their great drive.

Fourth man was now Humphreys and his wonderful little Amilcar, by no means new but outlasting the majority of its rivals. He was putting on speed towards the end and had averaged 97 m.p.h. when he was overtaken by the worst bit of luck in the race. Only 3 laps from the end, and running as well as ever, a stub axle broke and the car ploughed along the concrete and came to rest, fortunately without harm to anyone. The roughness of Brooklands surface had added one more victim to the long list. This let Miller and Eggar, on their Riley, into fourth place.

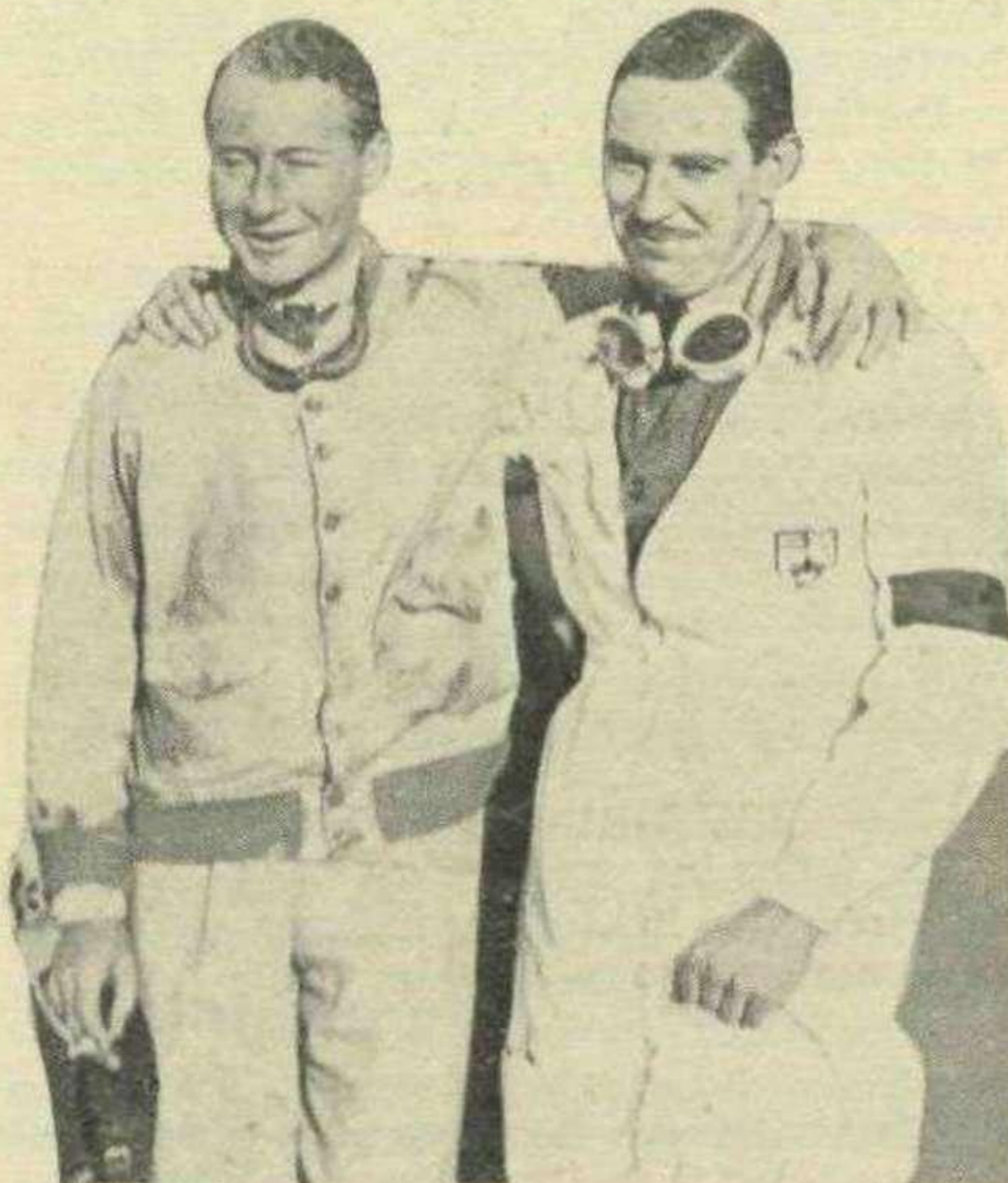
Hindmarsh's Talbot had gone on to five cylinders, and after a pit council he was sent on to tour round, and he was still running at the end. This broke up the Talbot team, and although three Talbots finished, the finishing three were not all those of the team, Lewis's single-seater not being included.

The rest of the race was without change and after 5 hrs. 32 mins. 13 secs. running the Bentley completed the race, at the highest speed for the distance ever recorded in the history of motoring. Six

minutes later the Talbot followed, at a speed equal to the fastest time in last year's race by a supercharged car 1½ times the capacity, and then came the little M.G. 92 m.p.h. for 500 miles on Brooklands in a 750 c.c. is a fine finish to a fine season for this marque.

So ended the fastest race ever staged on any track in the world, and our thanks are due to the B.R.D.C. for conceiving and organising this fine event three years ago, and making each race better than the last.

The prize for the first car with all British components and equipment was



[Motor Sport Photographs] Brian Lewis and Saunders-Davies, who finished second on the Talbot.

won by E. R. Hall's M.G. Midget which, in common with the winning Bentley, used K.L.G. plugs.

RESULTS.

1. Bentley (6,597 c.c.), driven by J. Dunfee and C. Paul. 5h. 32m. 13s. 118.39 m.p.h.
2. Talbot (2,970 c.c.), driven by B. Lewis and A. O. Saunders Davies. 5h. 38m. 28s. 112.93 m.p.h.
3. M.G. Midget (746 c.c., S.), driven by E. R. Hall. 5h. 50m. 10s. 92.17 m.p.h.
4. Riley (1,089 c.c.), driven by A. G. Miller and K. Eggar. 5h. 53m. 53s. 92.83 m.p.h.
5. M.G. Midget (746 c.c., S.), driven by S. Hailwood and S. A. Crabtree. 5h. 58m. 39s. 89.82 m.p.h.
6. Talbot (2,970 c.c.), driven by J. R. Cobb and H. F. Wolfe. 5h. 59m. 25s. 104.70 m.p.h.
7. Talbot (2,970 c.c.), driven by T. E. Rose Richards. 6h. 0m. 42s. 104.23 m.p.h.

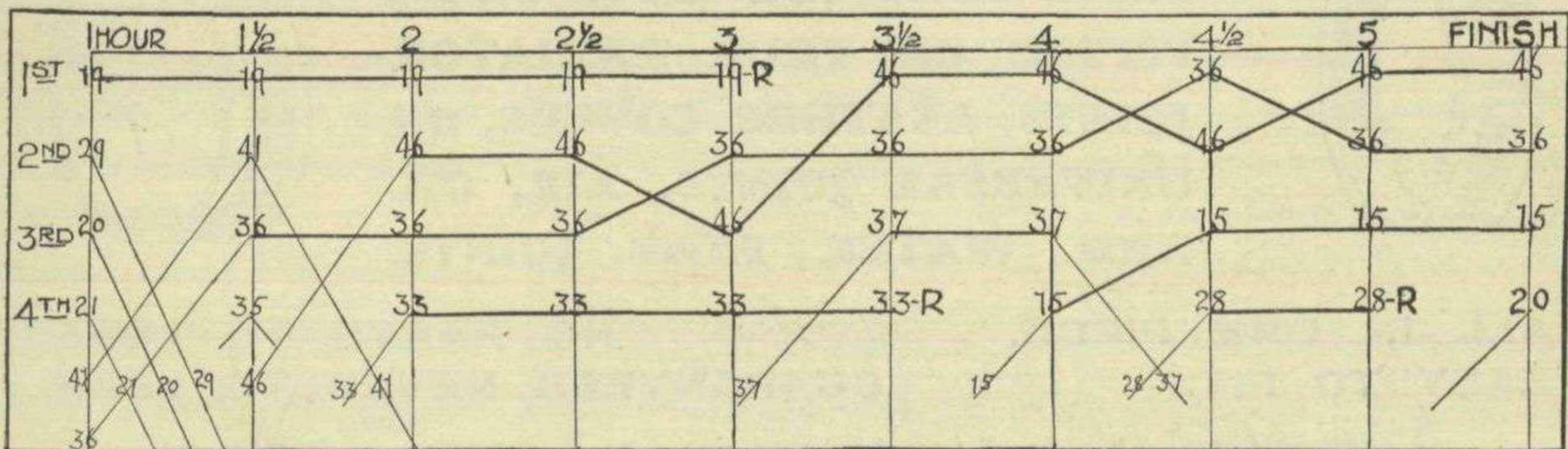
Still running at finish:—

M.G. Midget, F. Kindell, 149 laps; Bugatti (1,990 c.c.), T. S. Fotheringham and A. S. Llewellyn, 171 laps; Bentley (4,398 c.c.), A. Bevan and W. M. Couper, 167 laps.

CLASS WINNERS.

- CLASS B.—5,000 c.c. to 8,000 c.c.
Bentley (6,597 c.c.), J. Dunfee and Cyril Paul. 5h. 23m. 13s. 118.39 m.p.h.
- CLASS D.—2,000 c.c. to 5,000 c.c.
Talbot (2,970 c.c.), B. Lewis and A. O. Saunders Davies. 5h. 38m. 28s. 112.93 m.p.h.
- CLASS G.—750 c.c. to 1,100 c.c.
Riley (1,089 c.c.), A. G. Miller and K. Eggar. 5h. 53m. 53s. 92.83 m.p.h.
- CLASS H.—Not exceeding 750 c.c.
M.G. Midget (746 c.c.), E. R. Hall. 5h. 50m. 10s. 92.17 m.p.h.
- TEAM PRIZE: M.G. Midgets, nominated by E. R. Hall, driven by E. R. Hall, S. A. Crabtree, F. Kindell.

HOW THEY FARED.



In this graph are shown the leading cars every half-hour on a handicap basis.

The cars corresponding to the numbers shown on the graph are as follows: No. 15—E. R. Hall (M.G. Midget); No. 19—C. R. Whitcroft (Riley); No. 20—A. G. Miller (Riley); No. 21—W. A. Cuthbert (Riley); No. 28—W. E. Humphreys (Amilcar); No. 29—H. W. Purdy (Thomas-Special); No. 33—H. Widengren (O.M.); No. 35—Noel Carr (Bugatti); No. 36—Brian Lewis (Talbot); No. 37—J. S. Hindmarsh (Talbot); No. 41—Sir Henry Birkin (Alfa-Romeo); No. 46—Jack Dunfee (Bentley).

As can be seen, the leader during the first three hours was Whitcroft; he retired with clutch trouble. His place was then taken by the winning Bentley, which 30 minutes after the fourth hour, gave way to Lewis's Talbot, to again assume premier place in the last hour.

Club News

THE LIGHT CAR CLUB.

ON Friday next, 6th November, the Light Car Club will hold their annual dinner and dance at the Park Lane Hotel, London.

The President of the Club, the Earl of March, will be in the chair, and Lady March will present the M.G. Trophy. The Chairman will be supported also by Sir Malcolm Campbell, Professor A. M. Low and Mr. H. F. S. Morgan.

The occasion, it is hoped, will mark the re-union of the teams who took part in the recent Relay Grand Prix, and separate tables, identified with the team numbers carried in the race, will be reserved. Tickets for this function are available at 15s. and may be obtained upon application to Mr. John Yule, "Kirkney," High Road, Whetstone, N.20.

BERKHAMSTED AND DISTRICT CLUB.

There were over eighty entries for the speed trials which the Club held in the grounds of the Aston Clinton Country Club some time ago, and all the events were run off successfully. There were classes for both cars and motor cycles, and the fastest times for each type of vehicle were made by H. Blaw on a

Frazer-Nash and J. H. Fell on a 494 c.c. Douglas.

Sunday, the 1st of this month is the date of a solo motor cycle scramble, the course being over a 1½-mile circuit at Radnor Farm, Chesham, Bucks.

JUNIOR CAR CLUB.

The following is the list of results of the recent Lynton Trial which was held by the South-West Centre of the J.C.C. :—

Perrins Trophy: A. Negal (Morris Major). G.F.S. Trophy: G. Knight (Austin 7).

First-class Awards: C. P. Lambert (Austin 12-6), O. Bottacchi (Ceirano), W. J. Haward (Bayliss-Thomas), R. C. Player (Riley), R. Morley (A.C.).

Second-class Awards: H. P. A. Peaty (Frazer-Nash), A. C. Fairtlough (Austin 7).

Bronze Plaques: J. A. Andrews (O.M.), Mrs. Jardine (Morris-Oxford), J. Robbins (Ford).

MID-BUCKS M.C.C.

The following are the results of the open rally recently held at Aylesbury, together with marks lost :—

Beaumont Cup: S. W. B. Hailwood

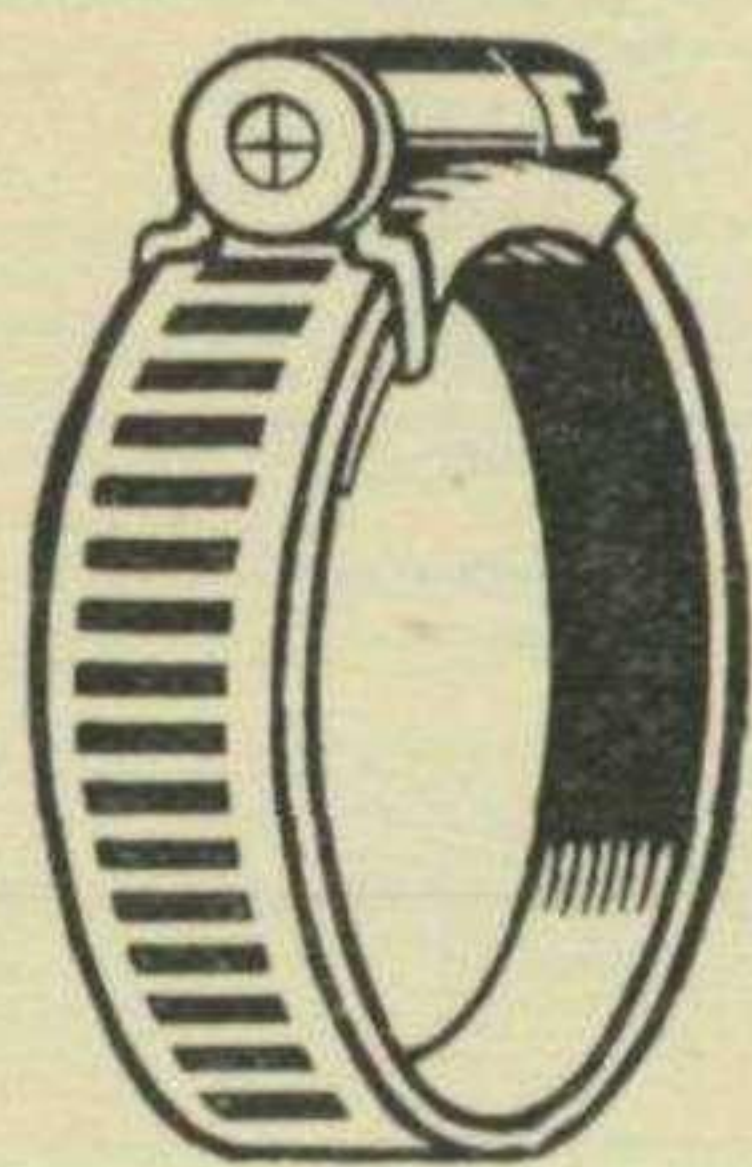
(M.G. Midget), 4 marks; Gargini Cup: Mrs. E. R. Riley (Singer 10), 5 marks; Murray Cup: J. C. Riley (Hillman), 6 marks; Kesley Cup: C. A. Elliott (Singer 8), 7 marks; Bowyer Cup: G. H. Walton (Amilcar), 8 marks; Eborn Cup: N. C. White (Morris Cowley), 8 marks; Clarke Cup: Major D. E. M. Douglas-Morris (Wolseley Hornet), 8 marks; Hales Cup: F. J. Hall (Morris-Cowley), 9 marks; Richings Cup: Miss B. Bates (Austin 12), 9 marks.

ENFIELD AND D. M.C. AND C.C.

The annual "open-to-Centre" Guy Fawkes Trial will be held on November 8th. The course will be about 70 miles in length and will include no secret checks. Intending entrants should communicate at once with Mr. W. E. Todd, 39, Holtwhites Hill, Enfield, Middlesex.

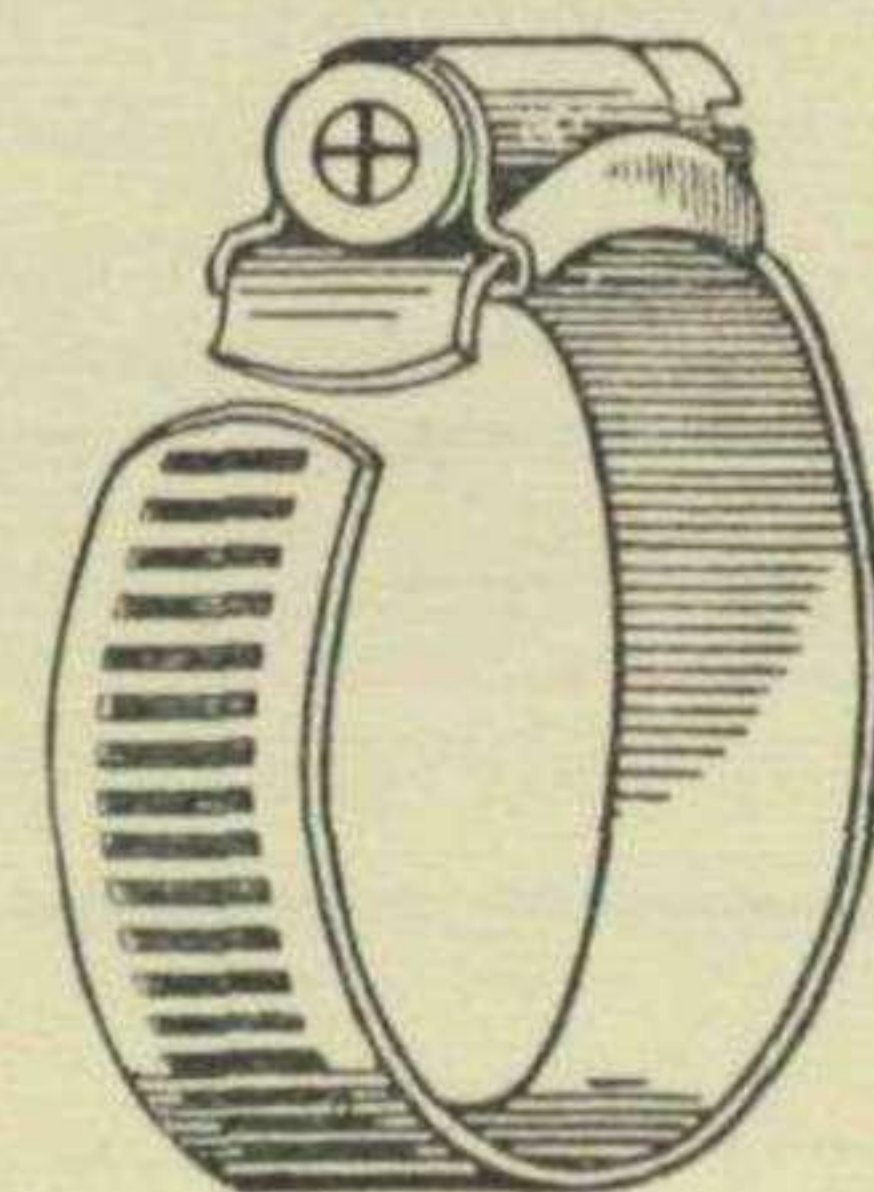
The Editor invites Club Secretaries to send details of their fixtures, sporting and social, for publication in these columns. These items should be sent to reach this office not later than the 16th of the month.

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BROOKLANDS.

THE M.C.C.'s TRACK MEETING

ONE-HOUR HIGH-SPEED TRIAL AND SCRATCH RACES IN WELL-PLANNED : : PROGRAMME : :

THOSE of us who are interested in the performance of normal sports cars in their owner's hands could not do better than go to one of the club meetings at the track such as the M.C.C. affair held on the 26th of September.

The programme included one-hour trials and 2 lap scratch races, so that disputes between rival makes could be settled over short or long distances.

The proceedings opened with a 1 hour high speed trial in which minimum speeds had to be maintained for gold medals, but which in the usual manner of such events turned into a race immediately.

A 3-litre Bentley, Patrick's Alfa-Romeo and Marriott's "blown" Frazer-Nash soon got ahead and started a dog-fight among themselves. The aspect of the event being a trial was soon forgotten, and the racing atmosphere was shortly enhanced when Hutchings' 3-litre Sunbeam shed a tyre on the Byfleet banking, fortunately without serious results.

The highest speed of this event was recorded by Patrick's Alfa (a 2-litre supercharged) which averaged 81.11 m.p.h. for the hour, being chased home by T. Harris' Bentley at 78.31. Two Frazer-Nashes driven by Marriott and Scott recorded 76.51 m.p.h.

Particularly good performances among the "not-so-sports" type of vehicle were Bolton's Morris-Minor's speed of 63.48 m.p.h. and 62.75 by a "Little Nine" Standard.

The 2-lap scratch races were run off next to find the cars which were to make up the 2-lap handicap to be run at the end. The first three cars in each race were taken for the final, and one or two drivers bore this in mind and did not hurry to win, but trickled gently in, in the first three, thereby hoping that their handicap would be the easier in the final. This did not work in all cases, however, as although H. J. Aldington only came in second in his heat on the unsupercharged Ulster Frazer-Nash, he was duly put on scratch in the final along with Patrick's "blown" Alfa.

The first race saw the winner of the final, Seyd's supercharged Austin, beaten by Chetwynd's M.G. Midget, so perhaps in this case it did work! The Midget's speed for the standing two laps was 64.36.

A Veteran's Victory.

Watt's Fiat won the next race at 65.35, very good for such an old car, while Marriott's recorded 76.97 in the next heat, beating Aldington by a few yards. The next heat also for cars up to 1,600 c.c. went to J. D. Windle's Frazer-Nash at 66.58 with Farley's 12-60 Alvis and Ponting's Frazer-Nash close behind.

Major Gardner won the first unlimited race at 74.44 in his Rover "Speed Tourer" from Cookson's Lagonda, and Patrick's Alfa won the next heat at 78.92 with Raymond Way's Rover and R. J. Munday's Rover both averaging over 78 m.p.h. behind him.

The second hour event provided a most inspiring sight when about 50 cars roared away together in the best 200-miles race tradition.

The first car round was May's Vauxhall, but he was not allowed to stay first for long as a terrific tussle started between Munday's Rover, Aldington's Frazer-Nash, and Gilbert's "90" Talbot. These speedily drew ahead but kept changing order among themselves. Couper's 12-60 Alvis was late at the start and arrived from the finishing straight after the rest had started. He soon started to overhaul the field, however, and travelled really well.

A Good Scrap.

The Aldington-Gilbert scrap finally terminated with the Frazer-Nash receiving a lump of concrete on the windscreen, which was smashed, the said lump rebounding into Aldington's right eye, starring his goggles and cutting his face. By the time he had collected fresh goggles and seen that he had no glass in his eye, he was too far behind to worry about racing and finished quietly to win his "gold."

Gemmell's Lagonda was suffering from some carburation trouble which slowed him down, and his splutterings were echoed by Robinson's M.G. and Mitchell's Vauxhall. The Rovers ran beautifully and put up a fine show without noise or fuss.

Giles' Bugatti was actually the fastest at 84.41 m.p.h. with Munday's the fastest Rover at 84.27 m.p.h.

The chief interest in the final of the 2-lap events lay in the scratch cars, as Seyd's Austin, by putting up a speed 6 m.p.h. faster than the heat in which he finished second scored, an uninteresting runaway win. Baker's Minerva went well at 74.89 to take third place behind Cookson's Lagonda. Aldington and Patrick came round wheel to wheel but in the second lap the Frazer-Nash drew ahead and shot into 4th place. Altogether an interesting afternoon.

Results of the 1-hour trials :—

FIRST ONE-HOUR TRIAL.

F. E. Elgood (Bentley), 64.59 (S); T. Harris (Bentley), 78.31 (G); M. Harris (Stutz), 75.11 (G); J. A. M. Patrick (Alfa-Romeo), 81.11 (G); H. F. Burt (Rover), 62.2 (B); E. A. Siday (Frazer-Nash), 66.94 (G); K. N. Hutchison (Frazer-Nash), 69.85 (G); G. K. Marriott (Frazer-Nash), 76.51 (G); R. L. Bellamy (Frazer-Nash), 64.5 (G); D. R. Scott (Frazer-Nash), 76.51 (G); W. A. Ponting (Frazer-Nash), 66.94 (G); J. D. Windle (Frazer-Nash), 64.26 (G); E. Farley (Alvis), 64.39 (G); H. Westbrook (Alvis), 64.95 (G); G. E. Took (Lea-Francis), 56.15 (B); H. H. S. Keogh (Riley), 63.96 (B); M. G. Randle (Riley), 59.5 (G); V. H. Tuson (Fiat), 62.4 (G); G. W. Olive (Standard Avon), 62.75 (G); J. A. Driskell (B.N.C.), 61.57 (G); R. C. Mouat (Austin), 54.38 (S); D. Clare (Austin), 49.82 (S); W. J. Watson (Austin), 62.96 (S); G. H. R. Chaplin (Austin), 59.49 (G); D. A. Finch (Austin), 47.07 (B); G. A. Thomas (Midget Mark II), 67.44 (G); P. R. M. Waterfield (M.G. Midget), 57.64 (G); W. W. Whitnall (M.G. Midget), 59.43 (G); J. M. Toulmin (M.G. Midget), 57.38 (G); H. J. Ebbutt (Triumph), 48.08 (B); F. W. J. Bolton (Morris Minor), 63.48 (G).

G=Gold. S=Silver. B=Bronze.

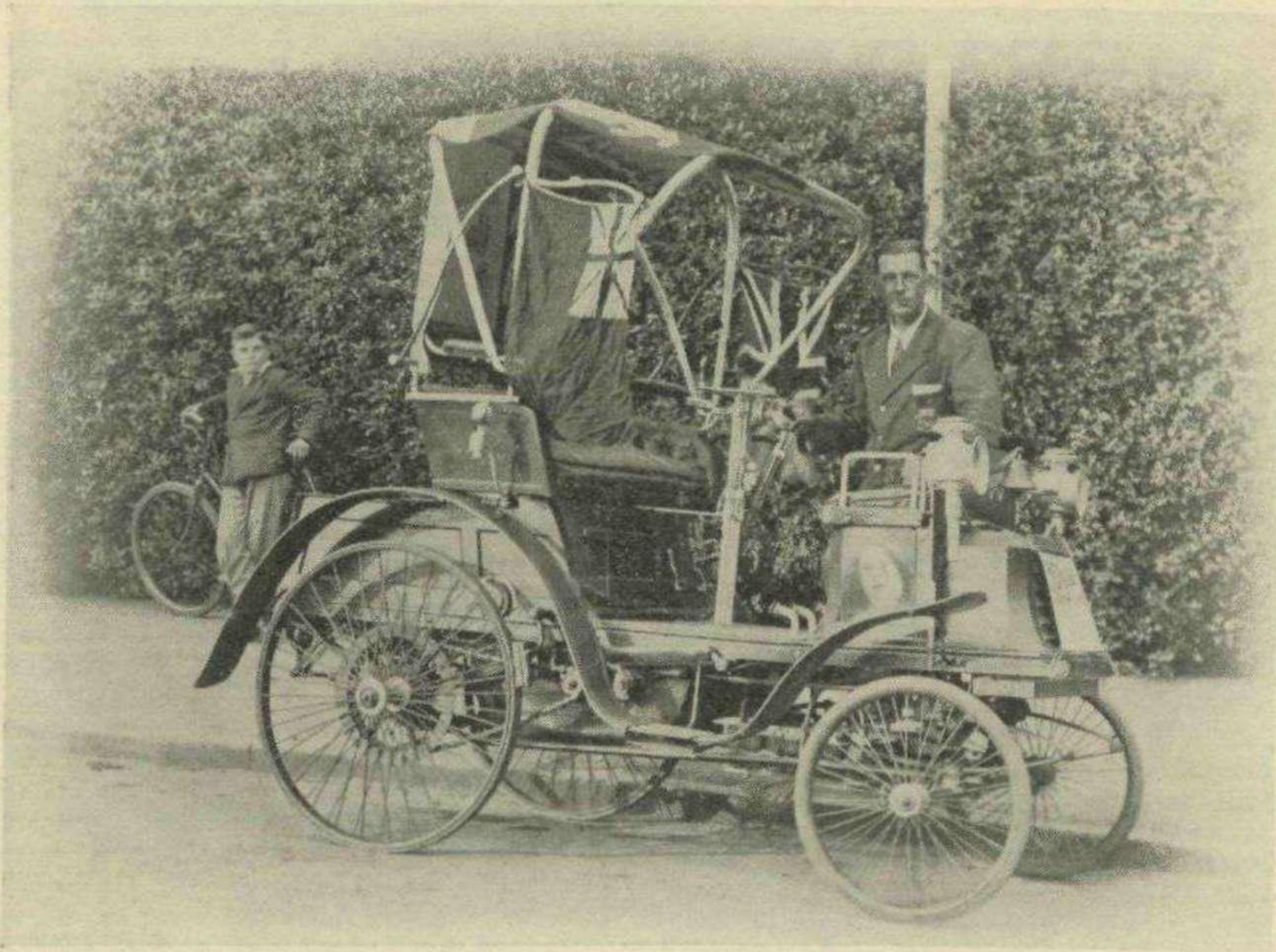
SECOND ONE-HOUR TRIAL.

A. Powys-Lybbe (Alvis), 70.95 (G); W. M. Couper (Alvis), 72.81 (G); A. May (Vauxhall), 81.77 (G); R. A. Cookson (Lagonda), 79.30 (G); R. Lester-Williams (Lagonda), 62.09 (S); C. H. Fish (Lagonda), 58.25 (B); R. J. Munday (Rover), 84.51 (G); Raymond Way (Rover), 75.86 (G); A. T. G. Gardner (Rover), 83.56 (G); G. M. Giles (Bugatti), 84.41 (G); W. K. Faulkner (Bugatti), 76.45 (G); A. B. Gilbert (Talbot), 82.45 (G); G. L. Baker (Minerva), 81.37 (G); C. G. Fitt (Sunbeam), 72.81 (G); W. G. Wolff (Lea-Francis), 75.46 (G); W. R. Nimmo (Frazer-Nash), 72.60 (G); H. W. Blaw (Frazer-Nash), 65.18 (G); H. J. Aldington (Frazer-Nash), 71.05 (G); M. H. Morris-Goodall (Aston-Martin), 78.55 (G); C. L. Guiver (Salmson), 68.41 (G); C. A. Biddle (Salmson), 67.48 (G); N. H. Weddle (Salmson), 56.56 (S); W. E. C. Greenleaf (Riley), 65.26 (G); H. W. Stonard (Riley), 75.74 (G); J. R. Lines (Riley), 59.65 (G); E. V. Frye (Riley), 58.40 (B); C. W. D. Chinery (Riley), 70.14 (G); V. L. Seyd (Austin), 68.53 (G); T. M. Forrest (Austin), 59.39 (G); J. O'Donnell (Austin), 48.33 (B); L. F. Robson (M.G. Midget), 68.74 (G); H. J. Rance (M.G. Midget), 59.36 (G); C. I. Robinson (M.G. Midget), 44.47 (B); C. F. Armstrong (M.G. Midget), 56.66 (G); G. E. Taylor (M.G. Midget), 59.57 (G); E. A. Denton (M.G. Midget), 56.15 (G); Leslie Gardner (M.G. Midget), 59.64 (G); Hon. A. D. Chetwynd (M.G. Midget), 71.76 (G); G. H. Symonds (Morris Minor), 55.89 (G).

G=Gold. S=Silver. B=Bronze.

VETERAN TYPES

IX.—A 1900 SINGLE-CYLINDER BENZ.



All dressed up and ready to go. The thirty-one year old Benz be-flagged for a procession. Both chassis and body remain in a remarkable state of preservation.

NO one who ever looks at the daily papers can have failed to notice some little time ago a series of photographs of a Plymouth doctor, who as a protest against paying the rates on his garage had decided to avoid payment by burying his thirty-one year old motor car—also seen in the photographs. The more discerning, too, will have recognized the automobile as an early Benz, and will have reflected that it was a pity that such an interesting relic should meet the pointless fate of interment. Actually, however, their regrets were unnecessary as the doctor apparently never progressed further with his plan than its discussion; and the car finally passed into the sympathetic hands of Mr. C. S. Burney of Veteran Cars Ltd. When therefore during a recent visit to his premises at Brooklands he offered to take me for a run on the old car, I gladly accepted and decided to add a description of it to the "Veteran Types" series.

Electric ignition.

An inspection of the mechanical features of the car quickly reveals that as a type the early Benz is one of the most interesting of really old motor cars. It is not in reality anything like so much the direct ancestor of the modern automobile as is say the Panhard et Lavassor of similar date, but in certain respects it is remarkably much ahead of its time, as for instance in the matter of electric ignition, which it must be remembered figured on

Benz cars some fifteen years before the appearance of the present example.

The frame of the car is made of wood, reinforced with iron and braced by cross-stays to which the mechanism is attached. The engine is at the back of the car, under the main seat, and consists of a single horizontal cylinder, with its head pointing forward, the dimensions being approximately 115 x 120 mm., and the capacity therefore about 1,250 c.c. Although larger than a modern Riley, for instance, the power developed is only about 4½ h.p. which however is given off at the modest speed of 600 r.p.m. The crankshaft is also horizontal and by the first year of this century had come to be so highly regarded as to be provided with a crankcase.

A novel carburettor.

On the near side of the car at the very back is an imposing looking vessel which is nothing less than the carburettor, and which is fed from the petrol tank under the seat in the centre of the car. This carburettor is warmed by the exhaust gases, and contains a float which maintains a constant level by the rather interesting method, not of lifting or letting fall a needle valve, but by resting on a pivoted plate, the other end of which prevents petrol entering when the float rises by resting on the orifice of a nozzle. The carburettor is of the surface type, and on each induction stroke of the engine air is drawn in through a gauze-covered orifice

at the top, passes down a central pipe or chimney which ends just above the petrol level, and after licking the surface of the spirit passes out again through another vertical pipe in the form of a very rich mixture. This mixture then has to traverse a pipe some 2ft. in length, running forward to a chamber containing two valves, one of which admits the mixture and the other pure air, the relative quantities being controlled by a lever operated by the driver. The weakened mixture then has to pass a throttle, also controlled by the driver, and then, after less than another foot's travel it at last reaches first a cleaning chamber full of discs of wire gauze and then the valve chamber of the engine.

The inlet valve is of the automatic type and is opened by the suction of the engine on the induction stroke against the pressure of a light spring. The combination of an automatic inlet valve and a throttle was found in the case of the Benz however, to introduce certain difficulties owing to the fact that when the throttle valve was partially closed so small an amount of gas was admitted that the compression stroke began with a considerable vacuum in the cylinder. In order to obviate this, therefore, a second automatic valve is arranged in the head, with a spring nicely calculated to be a little more powerful than that of the inlet valve. It only opens, thus, when the inlet valve is incapable of filling the cylinder, and then it admits pure air.

The valve gear.

Opposite the inlet valve is the exhaust valve which is operated through a rather complicated system of pivoted levers from the camshaft which is driven parallel to the crankshaft through 2 to 1 gearing. On the camshaft is a double sliding cam, one half of which is used in ordinary running, while the other half is so designed that when brought into operation it prevents the exhaust valve from closing fully and so provides a half-compression device for starting.

An extension of the camshaft carries a vulcanite disc which has fixed on a portion of its circumference a metal piece which is electrically connected to the induction coil. Bearing against this vulcanite disc is a flexible metal arm, which is connected to the batteries so that when it comes in contact with the metal portion of the circumference of the vulcanite disc, the circuit between them and the coil is completed. At its other end the flexible metal arm is attached to the movable end of a pivoted lever, and by rotating the pivot the position where the flexible arm bears on the vulcanite disc may be altered, and thus the point at which contact is made and the charge in the cylinder fired through the sparking plug determined.

The cylinder is water cooled from two large tanks carried one on each side of the

VETERAN TYPES—continued.

car and a radiator slung underneath, circulation being on the thermo-syphon principle. On the opposite side to the camshaft, the crankshaft is extended to carry a pulley which drives a belt to a fast and loose pulley forward about the middle of the car. Unlike earlier Benzes this machine has only one belt and relies for its various speeds on an ordinary 3-speed gearbox. From this is driven a countershaft carrying a differential gear, and connected to the back wheels by chains. The wire wheels are fitted with carriage type solid rubber tyres and those at the back are considerably larger than those in front, suspension fore and aft being by full elliptic springs.

Steering is by means of a hand lever mounted on a vertical column having at its lower end a pinion engaging with racks on the ends of two rods. The forward ends of these rods are connected to the ends of a crosshead which at the lower end of its spindle carries a V-shaped piece, each arm of which is connected through a link to one stub axle. By this method, it will be noted, each front wheel is directly steered, and the system should be free from shimmy even if balloon instead of solid tyres were fitted!

While we were making our inspection of the mechanical features of the Benz, Mr. Burney had set about putting the machinery in motion. First of all he turned on the petrol and watched the rod which it is attached to the float and projects through the lid of the instrument slowly rise until the correct level was reached. This Benz is very de luxe, for instead of pulling over the flywheel to start the engine, one has a starting handle under the driver's seat, which operated through a series of shafts and finally engages with the crankshaft by means of a bevel gear. By means of this the engine was turned over a great many times on half compression, while, I suppose, mixture was pumped along those yards of induction pipe; then the full compression cam was slid into place, the engine turned over once or twice, and a husky coughing preceded its first firing. Now it was running, and its owner was making shrewd adjustments to the controls while the engine speed rose and fell to such an incredibly low number of revolutions that

one felt that each "turf" must be its last. Such was not the case, however, and Mr. Burney merely called for a tin of oil, while somewhat to our modern amusement, he opened a flap door in the crankcase and inspected the big-end in action. Oil was poured in until the cup was dipping nicely, and the car was ready to take the road.

The steering gear is arranged exactly in the centre of the machine, but all the other controls and consequently the driver are situated on the left. In the illustration the steering control looks rather like a wheel to which is attached a vertical handle, traction engine fashion, but actually, as we have seen, it is a horizontal lever on the top of a metal ring, one end of the lever carrying the hand grip and the other consisting of a pointer which the driver has only to set in the direction whither he would wish to go. One feels that the system would be fittingly completed by the inclusion of a compass in the centre of the steering arm!

A tricky gear-change.

However, by now we were seated in the car with the engine running and all ready to set off. Just below the steering lever is a horizontally disposed quadrant carrying a lever which may be placed in any of four notches, corresponding to the three forward speeds and neutral. To see the lever moved from the last named into the first speed position without any preliminary step is a little disconcerting at first, and one is relieved when the matter is explained by the driver pulling over yet another lever which shifts the belt over from the loose to the fast pulley. Meantime he had also made sundry adjustments to the throttle, ignition advance and mixture controls situated on the vertical board beneath his seat, and with the engine chugging merrily the car got under way. Second gear was engaged, the belt made fast again, and we went a bit faster, then top speed was put in and we were soon bowling merrily along at 20 m.p.h. All this time I may say the driver had been using exactly three pairs of hands, one of which was required to steer, one to operate the gear-lever, one the belt shift, and the other three the throttle, mixture and ignition controls, to say nothing of the fact that he yet

found an extra one with which to give traffic signals to the driver of a saloon car who appeared to be too amused at our equipage to steer rationally.

At 20 m.p.h. the car is remarkably comfortable and gives one to a pleasant degree the exhilaration of speed. The body is of dog-cart type, with the main seat at the back, on which we sat, of most comfortable proportions, and a little seat in front facing the other. As we bowled along I, who had thought myself free from all such heresies, could not help reflecting how much we have since sacrificed to speed. The Benz has a seat cushion stuffed with horsehair but containing no springs and solid rubber tyres, but on its flexible full-elliptic springs it "rides" delightfully. To-day we have to put springs or air or rubber in seat-cushions and pneumatic tyres on the road wheels in order to make it possible to stay sitting in a car which has hard semi-elliptic springs, bound with cord to take the spring out of them, and in case there is any left, fitted with shock absorbers screwed up nice and tight to prevent them working!

However, to return to the Benz, another point which struck us was the great advantage of having the engine at the back. With this arrangement one gets no impression of the thumping and the clatter which is inseparable from an elderly single-cylinder motor, for apart from a pleasant "turf-turf" the engine is most subdued. All too soon the moment had come to return home, and the driver applied his brakes, the hand lever operating the spoon brakes on the back tyres and the foot pedal the contracting bands on the chain sprockets. Turning round called for the use of reverse, which is engaged by pedal, and then we were away once more, headed for home. We drew up outside the works and the motor, switched off, slowly gave forth its dying chugs.

We said good-bye and climbed into our 1924 machine to return to London. "If one bought an early Benz from Mr. Burney's stock," so ran our thoughts as the top-gear dogs were pulled home, "one would soon learn what controlling an automobile meant." "It would take a bit of practice," we continued as we nosed our way through Kingston on market day.

A YEAR OF RECORDS.

C. C. WAKEFIELD & CO. have produced an attractive little booklet entitled "Achievements of 1931" which tells of the achievements of British drivers and pilots, and of British enterprise during the year.

Greatest among our achievements on land, of course, is Sir Malcolm Campbell's world's speed record of 246 m.p.h., which he secured in the "Bluebird" at Daytona last February.

Many successes have been gained by G. E. T. Eyston in this year's baby "war." He was the first to exceed 100 m.p.h. in a car of under 750 c.c.—an M.G. Midget; and lately, again in a Midget, he averaged over 100 m.p.h. for a whole hour, one of the most difficult feats yet performed in a car of this type.

No woman has ever yet exceeded the speed of 140 m.p.h. attained by Mrs. G. M. Stewart in a record-breaking run at

Montlhéry early in the year. Mrs. Stewart, incidentally, is the only woman driver to hold a world's record. She holds two and during the year has twice bettered her own record for 100 kilometres.

Every race in the Isle of Man T.T. was won at record speeds by British riders on British machines. In addition, they have been almost invariably successful in the four Continental classics.

In the air no record has been so frequently attacked as that for the flight from Australia to England. It has been broken twice, by C. W. A. Scott in May and a month or two later by J. A. Mollison; whilst the former still holds the record for the flight from England to Australia.

In "Achievements of 1931" are described the successes on land, in the air and on water in which Wakefield Castrol oil has played a part. It is attractively illustrated with photos of the drivers and

of their machines and can be obtained from their head office in Cheapside, London, E.C.2.

EASIER FOREIGN TRAVEL.

A VERY important step forward in the proposed international road from London to Stamboul with simplified customs formalities between London and the Near East, was taken in London last month. Twenty delegates from the Alliance Internationale de Tourisme, representing five million members, were the guests of The Automobile Association to discuss this new project and generally to devise ways of simplifying customs documents for motorists.

When the scheme has been completed there will be a great new arterial road starting at London and ending at Stamboul and such formalities as are necessary at each frontier will be reduced to an absolute minimum.

CARE OF THE CAR.

LOOK AFTER YOUR ELECTRICAL

MANY and furious are the arguments which develop among owners as to what is the most troublesome item of the modern car, and there is no doubt that the electrical equipment comes in for a deal of abuse. Actually the modern car is a very remarkably reliable piece of mechanism, and the real answer to the above argument can probably be summed up as that part which the owner most neglects.

The keen owner usually takes good care of his engine and chassis, for he can immediately notice any falling off in performance and wishes to get the best out of his car. In the matter of the dynamo, battery, etc., he is often not so careful, and is inclined to think that as long as they work, all is well. Then one day—or more likely one night—something goes wrong, and he is left cursing the manufacturers of these items when the fault is mainly or entirely his own.

If you are just taking delivery of a new car there is little to be done beyond looking after the level of the electrolyte in the battery, but if you are just finishing a summer's hard motoring, and intend to have a trouble-free winter's driving, there is quite a lot of work to be done, especially if it is not the car's first season.

If you have plenty of money you can, of course, run the car into the maker's service station and say, "Make this electrical gear as new." The result will be (a) (we hope) complete reliability, (b) (we fear), a large bill and (c) (quite definitely), no more interest in this part of the equipment.

If, on the other hand, you wish to make your money go as far as possible, the service station can be kept as a resort for essential jobs that are outside your scope, and most of the work done at home.

Battery Neglect.

Probably the most sensitive and the worst treated object on the car is the battery. If the starter has been getting sluggish during the summer months it almost certainly means that the battery has seen its best days and requires renewing or at least overhauling. As the effects of this will be become far more marked as the cold weather comes on, with consequent gumminess in the engine of a morning, it is very unwise to postpone attention to this point.

Batteries are often much abused, and it says a great deal for their maker's skill and the quality of their material that they stand up as well as they do.

The average sports car is subjected to vibration and hammering far beyond that of a gently-used town carriage, and therefore the battery cannot be expected to give the same length of service. Another thing about a sports car which gives the battery a harder job is the fact that a high compression engine takes a lot more turning over than its more "woolly" brethren.

One of the best points in the regulations for the sports car races which are now such

EQUIPMENT

A little attention to details obviates many common troubles.

a feature of the international calendar, is the necessity for starting the engine on the starter at all times. This has meant that batteries have to be built to stand very severe vibration and the benefit has been passed on to the private owner. Therefore when buying a new battery, an essential expense in the case of any sports car of more than a season or two's service, be sure to go for a well known make, with a reputation to keep up, and beware of "cheap lines." Several of the leading makes have recently been reduced in price and this makes this renewal easier on the pocket than it was.

Having got the battery in good order the next thing is to see that the means of charging the same is also in good condition.

In a car which has seen much service it is often the simplest part of the system, that is the actual wiring, which is the chief source of trouble. Much of the wire is led under the bodywork and exposed to all the mud and water available, and although of good quality, may eventually perish and break at one of the clips. The practice of leading wires through gaps at the edge of the floor boards or valances is also one not to be encouraged, as the chafing effect usually causes trouble before long.

The best thing to do before any trouble starts is to trace out the complete wiring system of the car, and make a real note of it, so that in an emergency you know where to get at any part. This job entails a good deal of contortion and crawling under the car but it is worth it when you have to trace out some broken connection on a dark night.

To avoid as much as possible any of this night work, any doubtful wiring should be replaced with really good quality wire, great care being taken to avoid chafing or long unsupported sections which can flap in the breeze. Also avoid leading wires near the exhaust system. There is a great feeling of satisfaction in carrying out a neat piece of wiring, and a little thought will make for symmetry and accessibility, as well as avoiding those mysterious short circuits and breaks which occur after much use.

The Dynamo.

Having verified the condition of the wiring the dynamo should be looked over. The few drops of thin oil which are supposed to be inserted in sundry bearings every few hundred miles—but so rarely are—may be dealt with, and the brushes and commutator examined and cleaned with a rag dipped in petrol, and the brushes replaced if much worn. Apart

from this the dynamo needs no attention, or if it does it should be taken to the maker's service station or some firm who specialise in this class of work, as rewinding etc., is beyond the scope of the amateur mechanic. The switch gear and cut out must also be treated with respect and although the mechanical details of the switches can be attended to by any intelligent owner, the remainder should be left alone. In any case, no work on these parts should be required if they are well made, and if the charge rate suddenly falls or ceases, it is usually a case for the service station unless the owner is an electrician.

Focussing Methods.

There are many drivers who prefer travelling by night rather than by day, and there is a great fascination in a long run on a fine night. The first essential for this is first class head lamps correctly focussed, and once the rest of the system is in good order a few hours spent in getting the head lamps just right will be well repaid. For those who can afford it, special head lamps, such as the big Lucas, are well worth buying as an extra if not already fitted to the car, and always new bulbs should be fitted before the winter comes on, as although the old ones may still work, they are certain to have deteriorated after many months hard driving, and some illumination will be lost.

With regard to size of bulbs, that is their current consumption, there is always a temptation to get the largest possible type without making certain that the dynamo output is equal to the load. The lamps should never take so much current that the ammeter is registering even the slightest discharge with everything turned on and the engine running.

Apart from the fact that the battery will gradually become exhausted on a long run, such as a night trial, the actual brilliance of the light is markedly greater if the dynamo output is slightly greater than the current required. This is due to the fact that a battery actually "on charge" has a slightly higher E.M.F. than the normal figure when in use. Therefore, if you have set your heart on some outsize in lamps you may have to exchange the dynamo for one of greater capacity. The actual charging rate can be altered slightly by rotation of the brushes relative to the pole pieces, but this is only available for small adjustments. Any attempt to get much more than the designed output from any dynamo is almost certain to lead to trouble.

The starter, being comparatively little used, should require nothing beyond cleaning, and oiling of the bendix pinion, with a very light oil to prevent gumming.

The above jobs have none of the interest or excitement of engine tuning, but when your car is humming along on a frosty night behind a healthy beam of light, the feeling of confidence that the beam will not fail is well worth a little trouble and expense.—B.

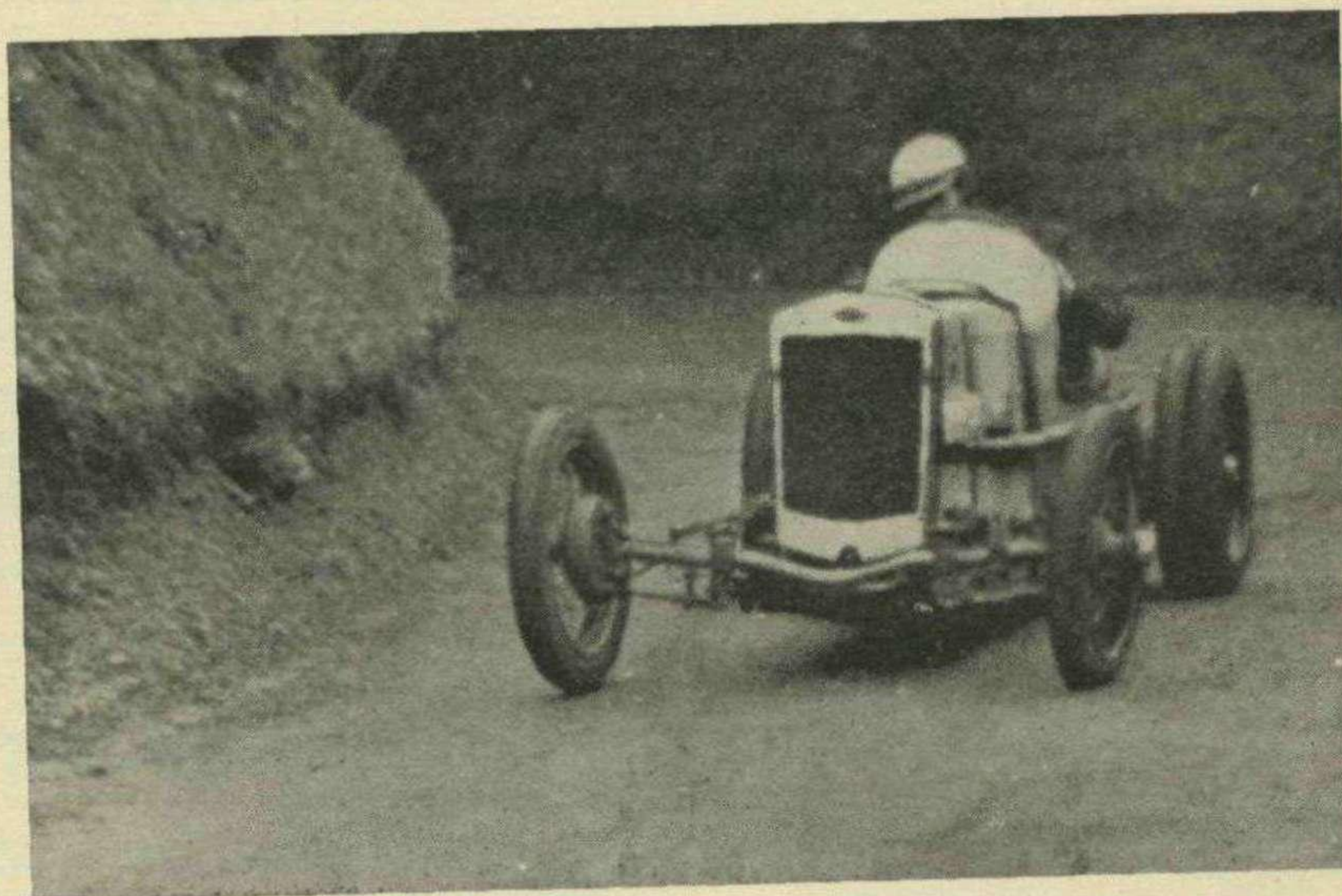
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ITEMS OF INTEREST

FROM VARIOUS SOURCES

Montlhery Challenge Trophy.

IN recognition of the brilliant performance of Mrs. G. M. Stewart, the authorities at Montlhery have awarded their annual Challenge Trophy to Mr. J. D. Hawkes, the owner of the car in which Mrs. Stewart has broken no fewer than four world's records during the past 12 months.

Driving Mr. Hawkes's Derby Miller Special (which was lubricated throughout with Wakefield Castrol oil), Mrs. Stewart in December established a new world's record for 10 miles at 137.21 m.p.h. In the same car she has three times broken the record for 100 kilometres which now stands at 128.16 m.p.h.

In attaining a speed of just under 140 m.p.h. for 5 kilometres, Mrs. Stewart has, of course, secured the fastest record ever made at Montlhery, and during the past year she has broken no fewer than 14 records at speeds in excess of 200 kilometres an hour.

The 500-Miles Race—And After.

THE results of the 500 miles race might be thought by some to prove that modern racing cars are unreliable, for only seven finished out of forty-three starters. Yet as often as not more is learned by failure than by success.

The race is the only one of the year which is a test of speed pure and simple, and in view of its length and the rough nature of Brooklands track, faults which would otherwise only become apparent after years of hard usage are revealed.

It is not too much to say, for instance, that the Riley designers learned more from the race than from any other this year, although, in fact *because*, their cars did not win. They recently succeeded in raising the power output of the Brooklands 1,089 c.c. engine to the remarkable figure of 70 b.h.p. unsupercharged. This enabled C. R. Whitcroft to lap consistently at 104 m.p.h. so that by half distance he had a comfortable lead over the ultimate winner. In fact had Whitcroft averaged 99.6 m.p.h., he would have won the race.

As it was, the clutch proved inadequate for the terrific power of the engine, not only on Whitcroft's but on two of the other Rileys. The 500 miles race enabled the designers to locate the weak spot—weak in view of the unprecedented power output. Knowledge gained in this way is passed on to the public in cars with increased performance and at the same time a greater margin of reliability.

Fastest Air-Mail.

AIR-COMMODORE Kingsford-Smith, although delayed in his recent flight can claim to have established a record for letter delivery from Australia to England.

When they heard of his proposed flight, the Triumph distributors in Sydney entrusted him with an urgent letter to the manufacturers in Coventry. Kingsford-Smith promised to try to get it through in seven days; he failed in this, of course,

but was nevertheless able to deliver it to Col. Holbrook, of the Triumph Co., in a fortnight—weeks earlier than it would have arrived by ordinary air mail.

M.G. "Branch Shows."

DURING the period of the Show, M.G. was one of the few firms who had miniature one-make branch "Olympias" dotted all over London. At 1 and 4, Brick Street, just off Park Lane, at 83, Piccadilly and 46, Knightsbridge, they had the same range of models as they were showing at Olympia—the Midget, the new 12/55 6-cylinder Magna, and the Mark II speed model.

The M.G. people were also running demonstrations from their depot in Milner Street, Chelsea.

New Wheel Fitting.

ONE of the numerous novelties seen at Olympia last month, was the new Snapspokes at the Pressed Steel Company's stand. Snapspokes are "jackets" of stainless and rustless steel which fit over the existing spokes, making them permanently bright. They are a real engineering job and fit perfectly without rattle or noise. Brushing, washing and hosing will not dislodge the spokes.

It is claimed by the makers that, not only do they add to the appearance of the car but, they actually save time and trouble in cleaning; the cost is 35/- for five complete wheels.

100 Points of a Car.

TO select the ten most important points of the car and to place them in the right order is the essence of a competition in which one of the new four-door Wolseley Hornets is the first prize.

For the benefit of competitors, Wolseley Motors Ltd. have produced a folder enumerating a hundred Hornet points. Sir Malcolm Campbell has studied them and, in conjunction with the manufacturers, has prepared a list which has been deposited in the Bank. The nearest forecast to this list will be awarded a four-door Hornet saloon.

At first sight the difficulties of selecting the correct ten—apart from putting them in the right order—might appear almost insuperable, but though each of the points is very real and definite, some are naturally more important than others. Outstanding features, for instance, are the high power-to-weight ratio, the silent third four-speed gear-box, the "super-size" body, the hydraulic brakes and so on.

Unlike some competitions, this one is open not only to owners of the make, but to all motorists in possession of a driving licence. Particulars may be obtained from the manufacturers, at Birmingham, or from any dealer.

The Austin Seven Sports Model.

IN detailing the programme of the Austin Motor Co., for 1932, last month we stated that the popular special sports "7," which was introduced last season, would be no longer marketed.

This statement was made owing to the fact that this particular car was not represented in the list sent us by the manufacturers. Our assumption, however, was incorrect and readers will be glad to learn that the type will be marketed as before, both in touring and racing form, and with or without supercharger. The specification has undergone no change with the exception of an improvement in the cooling capacity and the choice of an alternative type of cylinder-head, and the prices are:—Unsupercharged £185, supercharged £225.

A Champion Gathering.

EARLY last month, at the invitation of the Champion Sparking Plug Company, a large number of members of the automobile industry and kindred trades, together with a group of racing men attended a luncheon held at Claridge's Hotel, Paris.

The function was held primarily to celebrate the year's successful racing season, and it was remarkable for the fact that the guests came from all over the world. So cosmopolitan was the gathering that speeches were delivered in a number of different languages, which included English, French, Italian, Dutch, Spanish and Portuguese.

A novel touch was the singing in French of the Champion Company's "anthem," and during the proceedings the guests were entertained by well-known artists from the Comedie Francaise.

The proceedings were presided over by Mr. Lydy, the European managing director of the Champion concern.

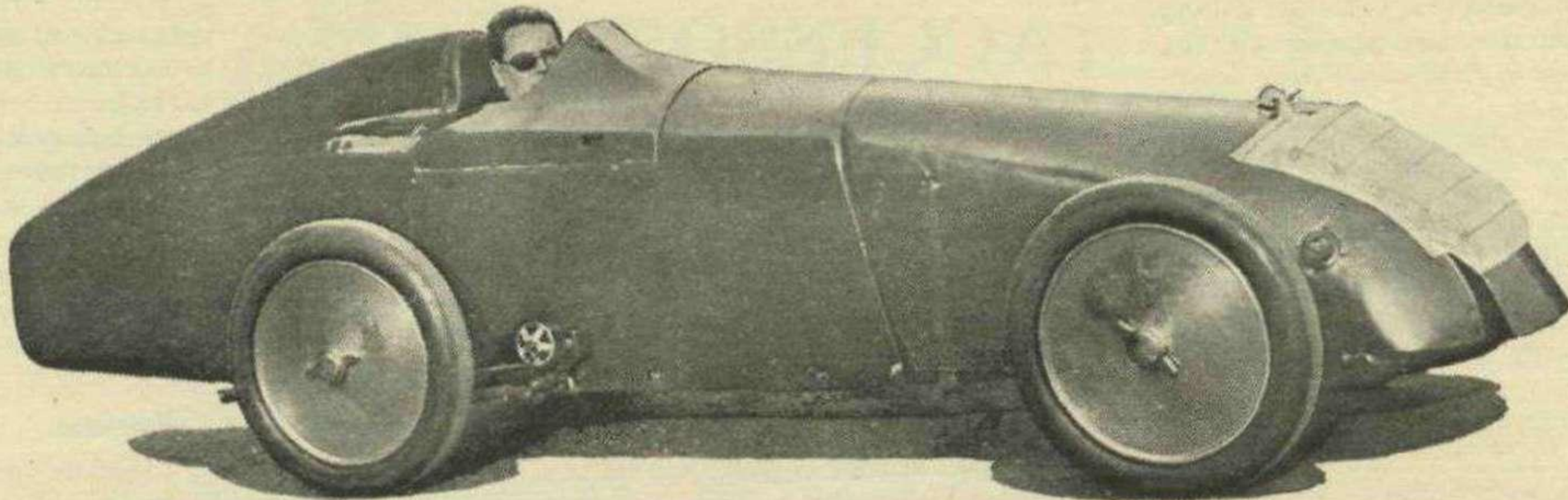
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THE following is a selection from many thousands of peculiar requests for information received and answered by the Automobile Association, during the recent touring season.

1. What is the mean average temperature during the month of August at Biarritz?
2. What is the strength of the current of the Rhine at Godesburg?
3. Is Rugby played at Heidelberg?
4. Are passports necessary for a visit to Scotland?
5. What clothes must I wear for touring in Spain during the month of August, and are woollens necessary?
6. My dog has 'Blank' biscuits. Are these obtainable in France?
7. At what time does the sun set in South-Western Germany, Southern France and Southern Spain during the last week in September and the first in October?
8. What is the cost of running a car from London to India?
9. Should I wear a sun helmet in the Canary Isles?
10. What is the best powder to take with me to deal with vermin in the Balkan States?
11. From what seaside town in France did William the Conqueror set out?

FOR FAST CARS

GO TO JARVIS OF WIMBLEDON



The M.G. Midget in which Mr. E. A. D. Eldridge set up a new world's record of 110.28 m.p.h. for baby cars at Monthlery.

THIS CAR IS OWNED BY Mr. J. A. PALMES, of

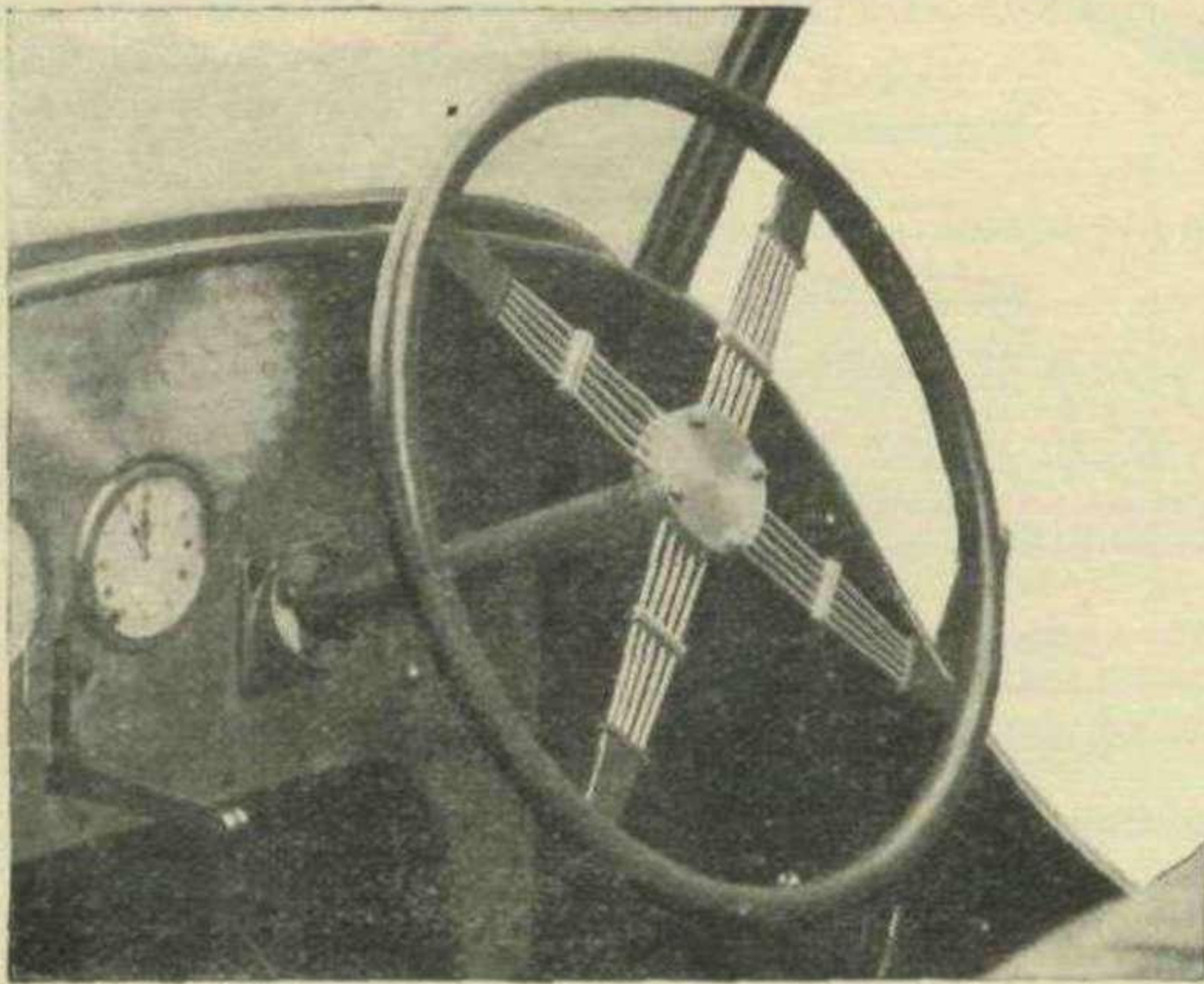
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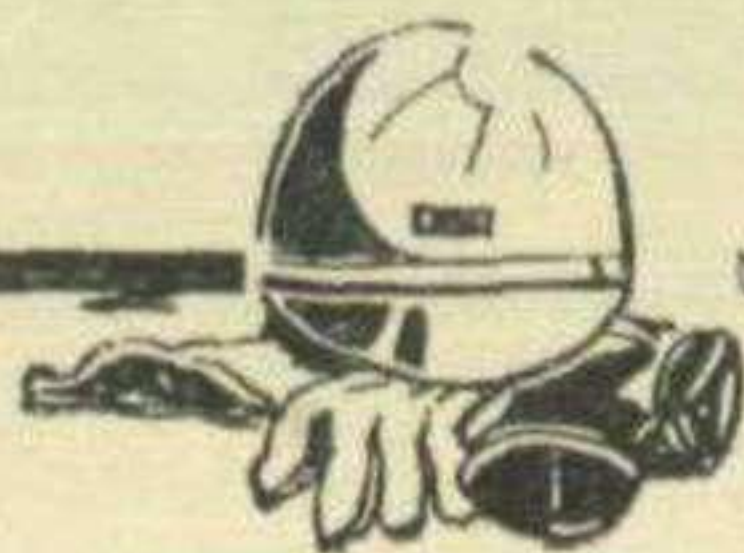


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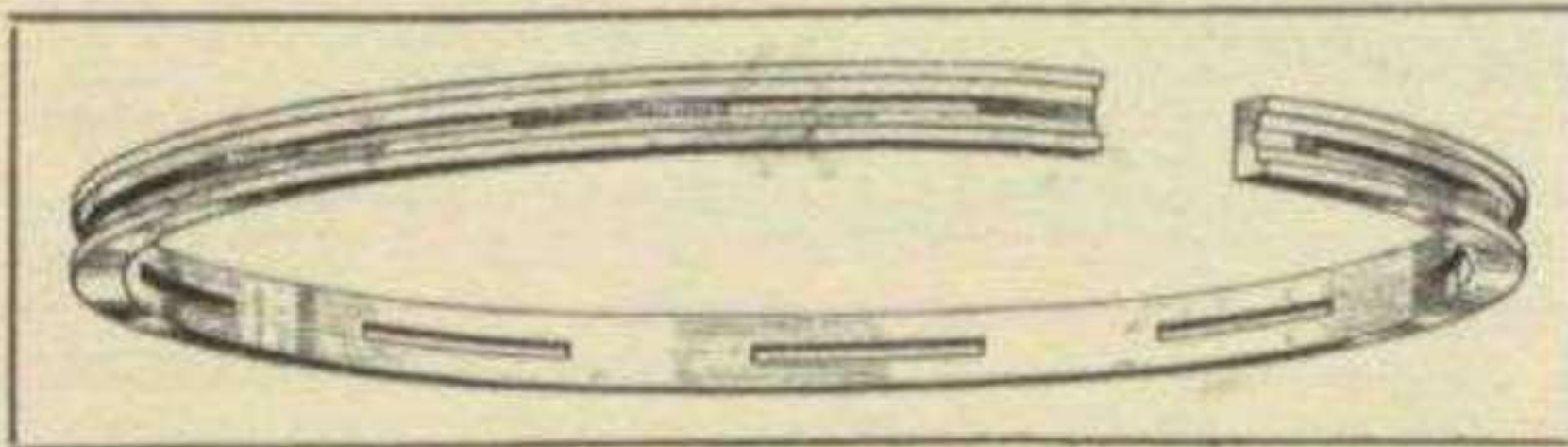
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The Perfect Circle Piston Ring.

PISTON rings are small components which have a highly-important function, and especially in a high-speed high-compression sports or racing engine their influence can make all the difference between a first class and mediocre performance.

The Perfect Circle ring, which is of American design and manufacture is particularly suitable for high-efficiency engines, and indeed since its introduction in Europe it has been adopted on a large number of racing cars, including Sir Malcolm Campbell's Mercedes and Carraiola's racers.



The Perfect Circle piston ring.

Perfect Circle rings are made in two types—compression and oil regulating. Outwardly the former does not differ from other standard patterns, but the material used and the process of manufacture give them exceptional qualities in holding compression, long wear and freedom from edge warp. The oil regulating ring has specially designed slots and grooves in its vertical face, and this feature has the effect of concentrating the ring's tension at the two extreme edges of the face, thus holding these surfaces in firm contact with the cylinder bore walls. The channels collect oil and distribute it around the whole circumference of the ring and make for oil economy and efficient cylinder lubrication. These rings can be obtained from the Perfect Circle Co., Ltd., 10, Store Street, London, W.C.1.

Special Exhaust Systems.

Obviating loss of power through back pressure while at the same time keeping the engine reasonably silent is not too easily carried out by the amateur, and for this reason there is a considerable market for special exhaust systems which enhance a sports car's running and yet make it unobtrusive on the road.

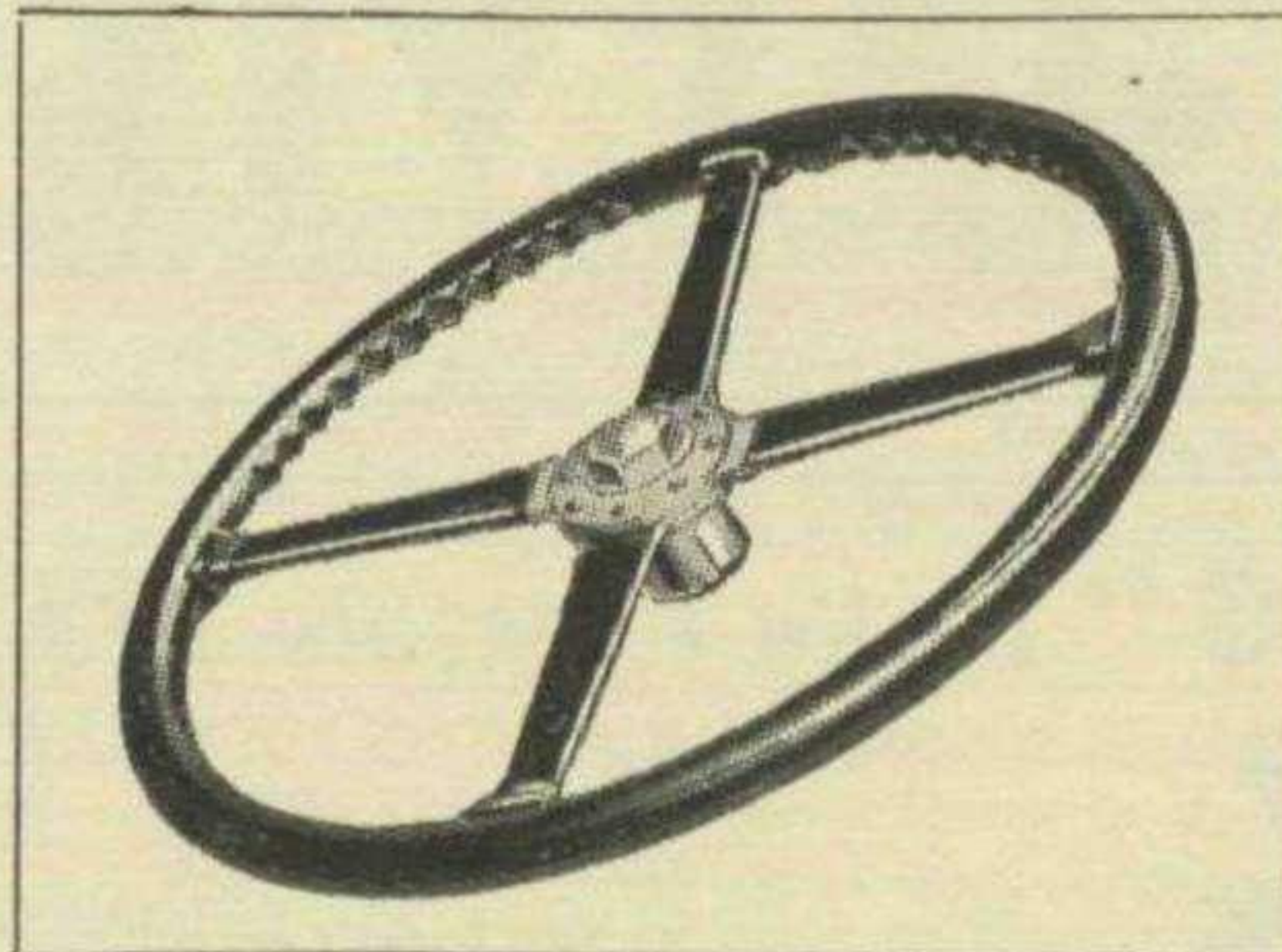
The Sykes silencer and exhaust system is made for attachment to popular standard production cars and it can be fitted with very little trouble. It is of straight-forward design and is available in different sizes to suit cars of various h.p. The prices range from £2 to £2 15s. Makers' address: Sykes' Silent Exhaust, Ltd., 12, Cross Jerry Street, Leeds.

Another concern who market an attractive exhaust set is Cheswick and Wright, of Gladstone Street, Blackpool. This is supplied with all necessary clips, hangers, etc., for attachment to Austin Seven, Morris and other popular makes. The price is 50s. complete.

SOME USEFUL EXTRAS AND ACCESSORIES

Special Steering Wheels.

The steering wheels fitted as standard to a good number of cars do not always suit the individual taste of the owner, and for these the products of various accessory makers are of interest. Bluemel Brothers, Ltd., have for many years made a varied range of steering wheels, and their latest spring spoked model is already extremely popular. There is no doubt that these special wheels make long spells of fast driving far less fatiguing, and at the same time their excellent finish enhances the general appearance of one's vehicle.



Bluemel spring-arm steering wheel.

Another steering wheel produced specially for sports and racing cars is the "Brooklands" made by F. Ashby and Sons, Ltd., of Stirchley, Birmingham. This wheel is unique in that the rim itself is flexible, as well as the spokes, and the former is covered with a special rubber coating which is impervious to petrol, oil, etc., and is guaranteed not to split or crack. It is sold in two sizes—16 inch from 36s., and 18 inch from £2. Messrs. Ashby also make stone guards, ribbed brake drums, mudguard grilles and other fittings and parts of interest to the sports enthusiast.

For Hotted-Up "Hornets."

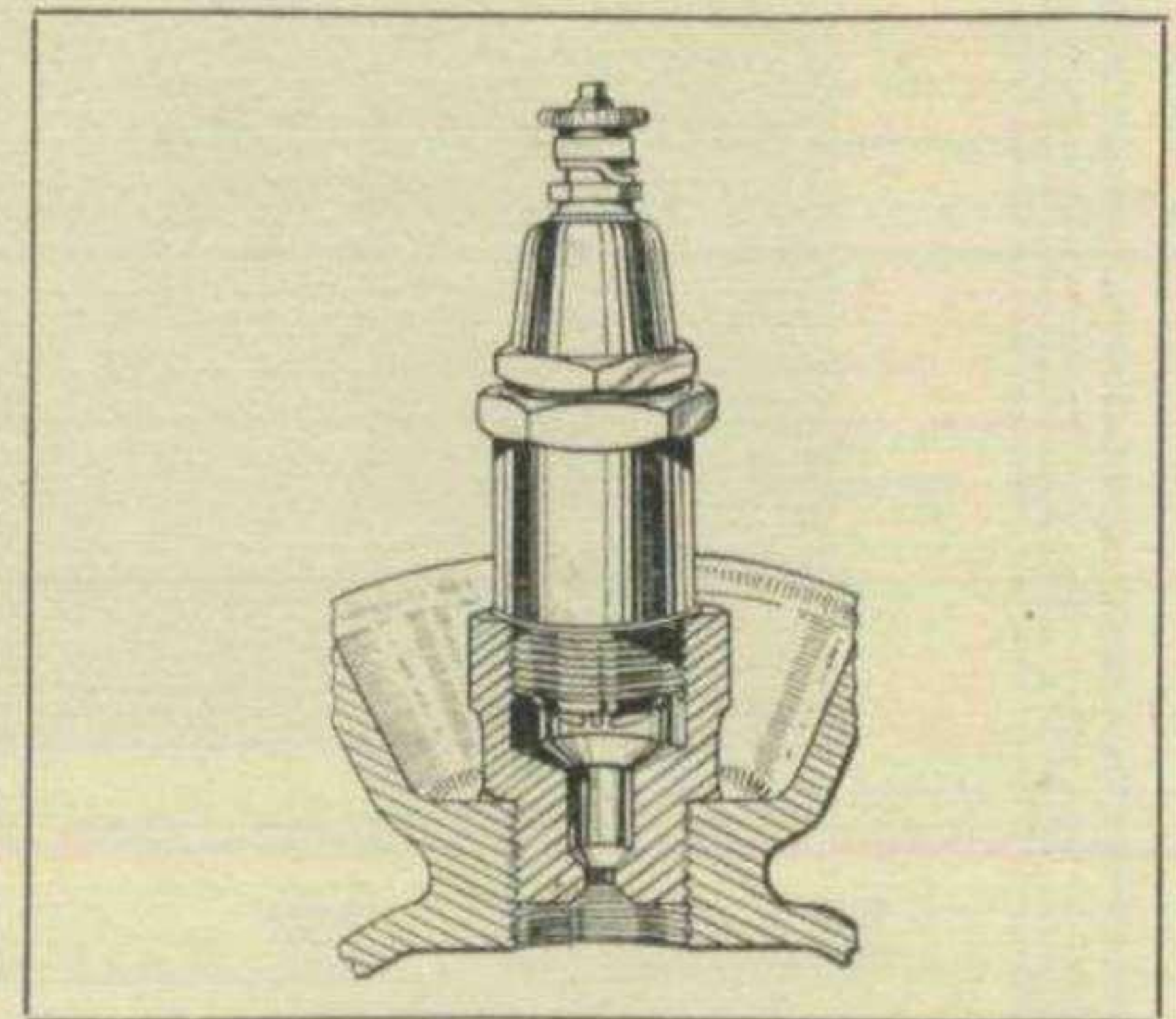
The popular Wolseley Hornet is admirably suited for modification for sporting purposes, and the owner who is anxious to do so will have no difficulty in finding firms who specialise in the supply of modified parts and accessories which will increase the standard "Hornet's" performance.

With a small "six" correct gas distribution is of paramount importance, and when well-designed, a twin carburettor arrangement will add greatly to the "pep," flexibility and other qualities for which the sporting driver looks. The

firm of V. W. Derrington market such an induction system, which incorporates two S.U. downdraught carburettors attached to a special manifold with polished internal surfaces. The manifold has a very hot "impact hot spot" so that only a very dry mixture is used, and drain pipes are fitted so as to prevent the cylinders from being flooded with petrol should the carburettors ever leak or seep. The exhaust branches of the manifold are of large diameter to reduce gas restriction. The price of this fitting is £15 10s. Maker's address:—159, London Road, Kingston-on-Thames.

For "Oily" Engines.

Oiling up troubles are not infrequent on sports engines especially after lengthy service, and the F.E.W. Plug Adaptor has been designed to overcome this difficulty. This device consists of a suitably threaded holder into which the plug is screwed and the whole is then screwed into the usual plug orifice in the cylinder. Thus, the plug points and centre electrode are masked, and it is impossible for any surplus oil which may have got into the combustion chamber to reach them. It might be assumed that the use of this adaptor would interfere with the combustion of the gases, but in actual practice, according to the makers, such is not the case. On a high-speed engine, however, it is necessary to slightly advance the ignition setting owing to the slight ignition "time lag" which occurs. The price of the F.E.W. Adaptor is 10s. for a set of four, or 15s. for a set of six. The manufacturers are Amalgamated Accessories, Ltd., of 7, Tavistock Place, Russell Square, London, W.C.1



F.E.W. Plug Adaptor.

Checking the Battery.

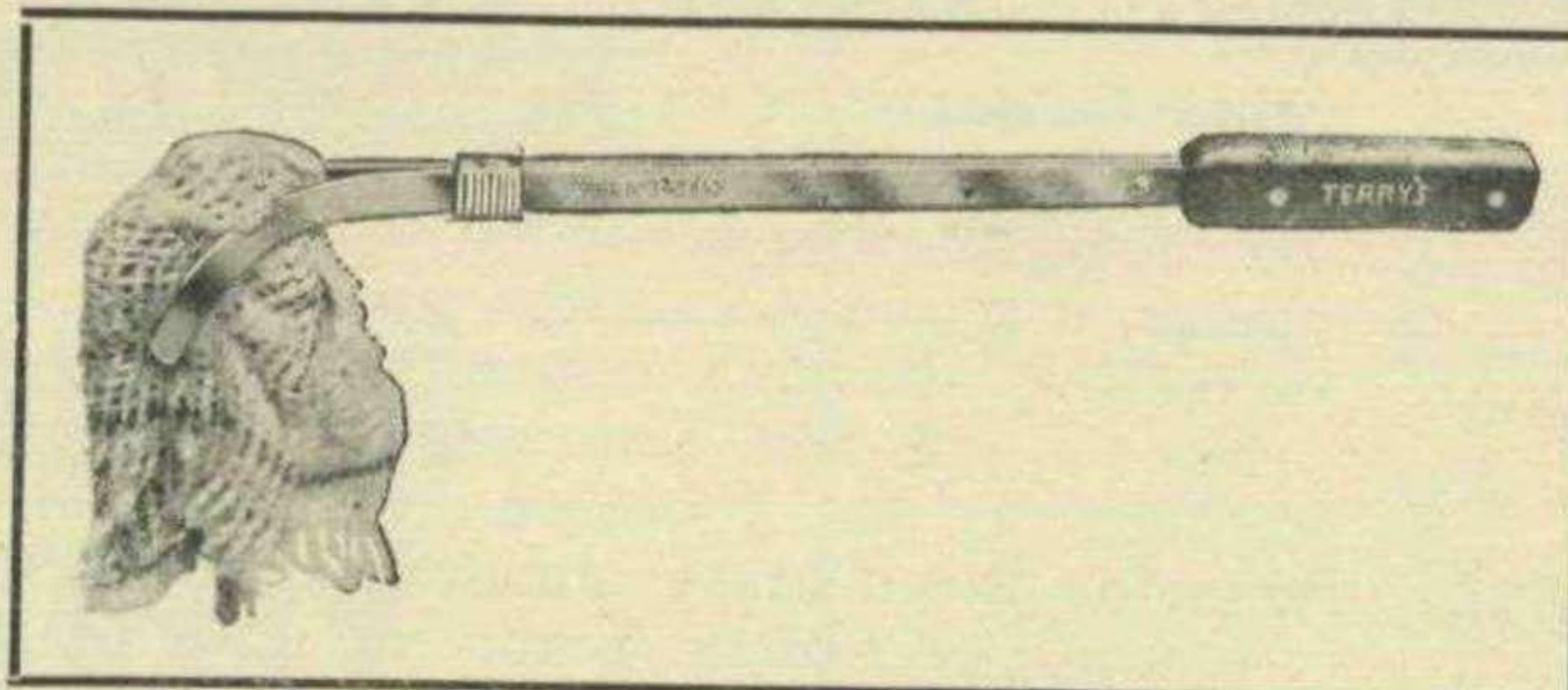
Stadium, Ltd., the well-known manufacturers of accessories have recently introduced a useful additional fitting for the lighting and starting equipment of a car. This is a small meter suitably graduated to indicate the condition of the battery, and it shows at a glance whether it is fully charged, overcharged, or not charged enough. No special wiring is

SOME USEFUL EXTRAS—continued.

required and it is made to plug into the usual inspection lamp sockets to be found on the switch board. The price of this indicator, which functions accurately and is obviously a useful gadget, is 12s. 6d.

Protecting the Radiator.

Stone guards are becoming increasingly popular, for besides serving the very useful purpose of protecting the somewhat vulnerable part of the radiator, they improve the appearance of a car. The B.S.S. stoneguard is made in different forms to suit sundry makes, such as the Austin Seven, Morris Minor, Wolseley "Hornet" and Rover. Made



Terry's Cleaning Tongs.

of solid brass it is smartly finished in chromium plate, and the price ranges from £1 7s. 6d. to £1 15s. 6d. Makers' address:—B.S.S. Manufacturing Co., 55,

Kew Bridge Road, Brentford Middlesex.

A Cleaning Aid.

A new and useful device has lately been placed on the market by the firm of Herbert Terry and Sons, Ltd., of Redditch, which aids considerably in the work of cleaning a car. It consists of two parallel spring-steel blades so formed that they will grip firmly a swab, sponge, duster, etc., and by using it, the cleaning of awkwardly-placed parts becomes a simple and easy process. Known as the "Avecta" cleaning tongs it can be obtained for 2s. 6d.

A Veterans' Event.

ON the 15th of this month the popular and amusing London to Brighton run for ancient motor vehicles will take place and from the entry list it seems likely that this event will be even better supported than on previous occasions.

At the time of writing nearly twenty cars have been entered, and it is expected that there will be some additional participants on the day of the run. The event, which is limited to cars built prior to 1905, always causes great interest; the start will be from Moon's Super Service Garage, Buckingham Palace Road, and the first veteran is scheduled to start at 9 a.m.

The route will be over Westminster Bridge and through Brixton to the Croydon by-pass, and then on through Redhill, Reigate, Crawley and Bolney to the finish at the Brighton Aquarium Garage.

Veteran Cars, Ltd., the new concern which specialises in really old machines, are now busy tuning up several old stagers for this annual jaunt.

British Cars in Australia.

AN arrangement that may have far-reaching effects on the British motor industry has been completed between Colonel Searle, managing director of the Rover Co., and Mr. W. H. Cam-

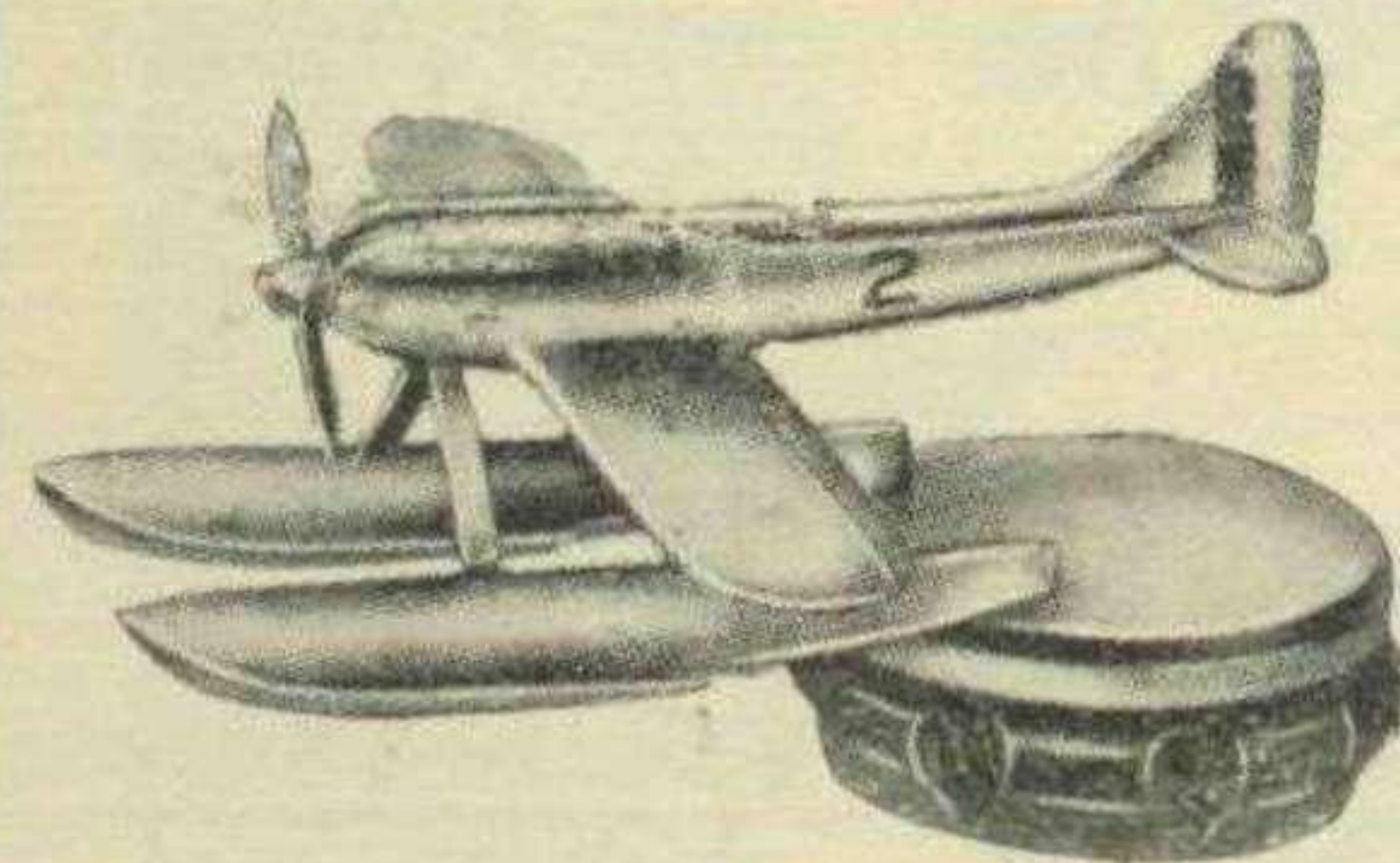
eron, managing director of Williams, Hill & Cameron of Sydney.

Under the scheme formulated, certain units of Rover cars will be shipped to one centre in Australia where they will be assembled together with other units manufactured in Australia, such as bodies, springs, shock-absorbers, bonnets, wings, tyres, etc. This will be the first effort of its kind to reverse the percentage of car sales in Australia, at present in favour of America, to the extent of 85 per cent.

According to Mr. Cameron, the Australian public generally realise that in the past, trade has been wrongly distributed, and that there is now definitely a growing preference for the British car.

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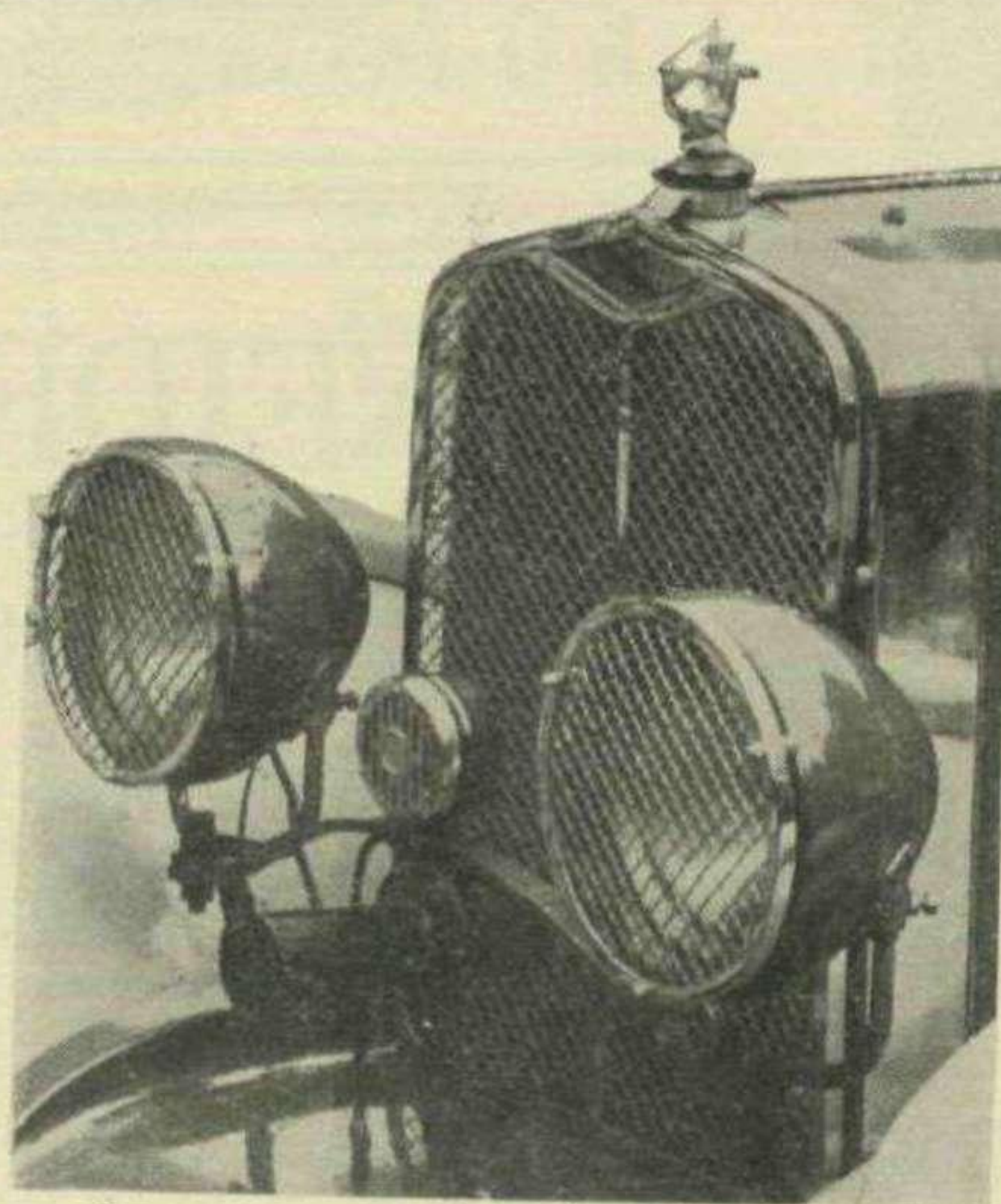
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Letters from Readers.

Value of Racing.

DURING the past few months there have been keen discussions as to the value of racing to the motor car industry. Now that the season is ended I offer my views.

I believe that one big race teaches manufacturers more than they would otherwise learn in months or years of research. In my opinion the manufacturer who races is able to offer the public a more nearly perfect car than his competitors who do not race.

Unless failure is due to carelessness, one often learns more by failure than success. In the case of the recent 500 Miles Race, for instance, our 9 h.p. cars were developing 70 h.p. and lapping at over 107 miles per hour—no mean speed for un-supercharged cars only just outside the "baby" category. The terrific speed and the roughness of Brooklands track revealed a minor clutch defect which otherwise might not have been discovered for years.

Every part of the engine and chassis of every racing car, no matter

what the make, is similarly tested. The result is that when a car based on racing practice is offered to the public, it is as good as it is possible to make it. Racing is responsible for many of the best features of the modern car and I believe that to abandon it would be almost disastrous to the British motor car industry.

Victor Riley.
[Riley (Coventry) Ltd.]

A Rolls "Special."

AFTER reading about the magnificent performance of the Rolls-Royce aero engines in the Schneider Trophy Contest and the recent world's record achievement, one is tempted to regret that the same designing genius cannot be applied to the production of a British racing car.

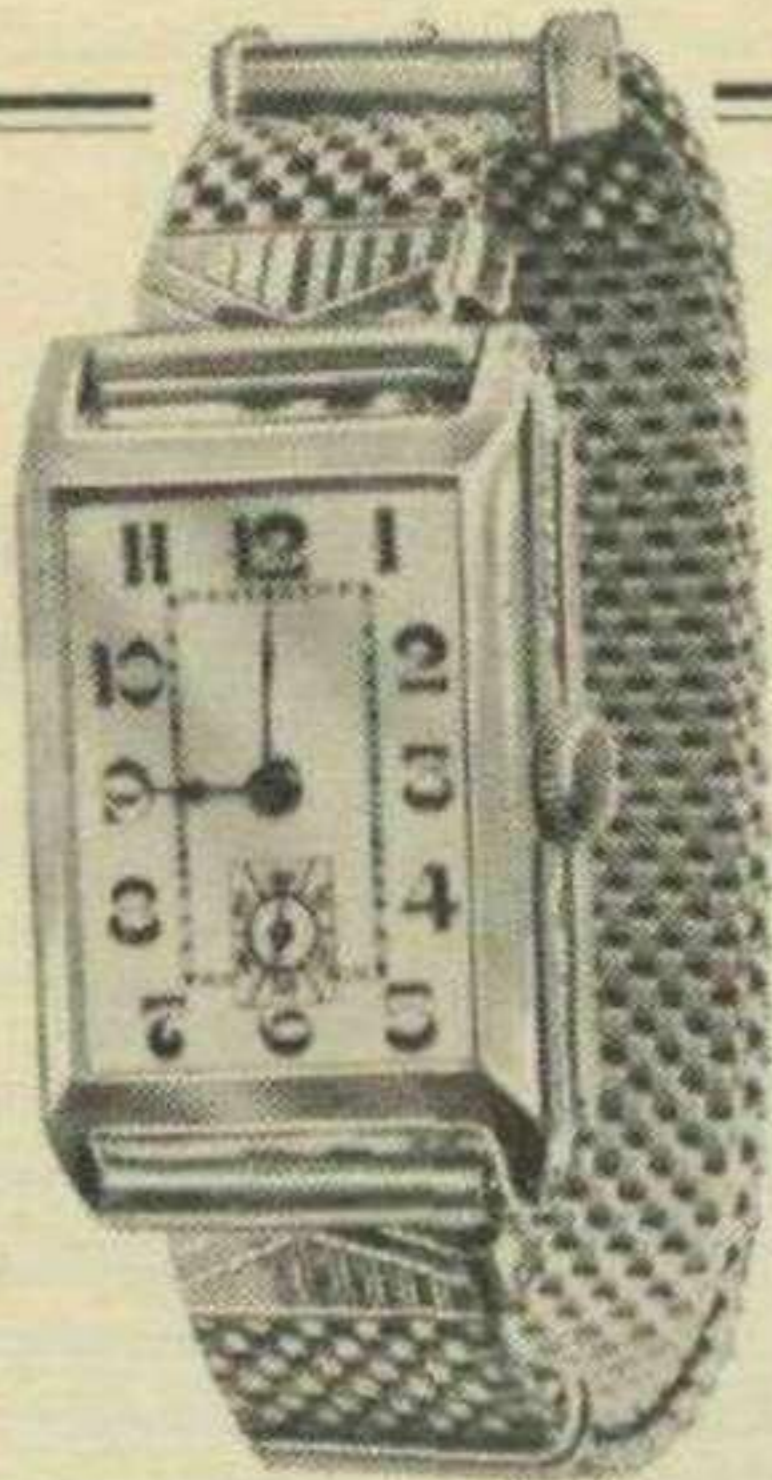
The supremacy of such makes as Alfa-Romeo and Maserati is due, I understand, to the fact that they are subsidised by the Italian government, and the manufacturers are therefore free from financial restrictions. Under present conditions it

is admittedly impossible for our Government to subsidise such an enterprise of this nature, but could not some wealthy individual or group of individuals (Lady Houston has done her share!) raise a certain sum of money to be placed at the disposal of Messrs. Rolls-Royce, Ltd., with instructions to build a team of three racing cars, and a spare car for practice? The engine size chosen could be that found most suitable from the point of view of power-to-weight ratio, controllability, and minimum wear of tyres.

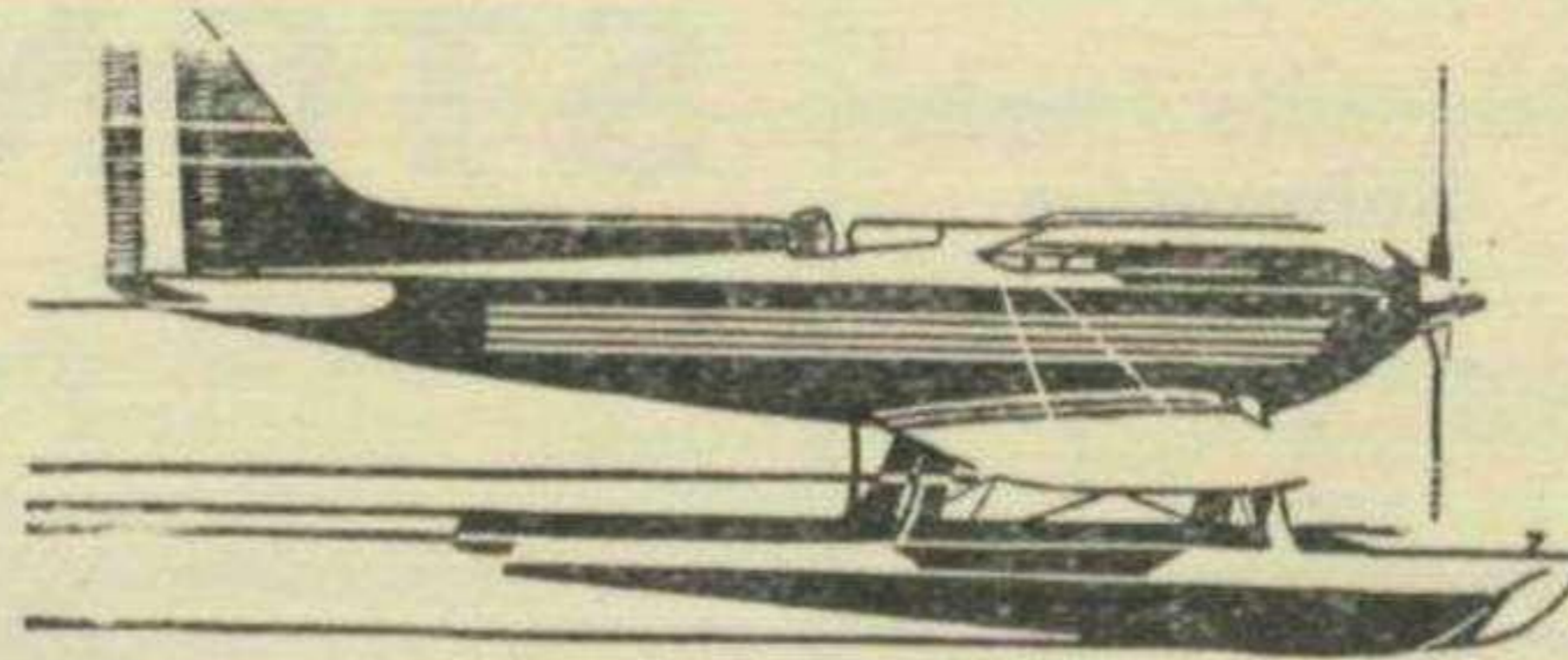
I for one feel confident that if such a team could be entered for the principal free-for-all Grand Prix races next year, the result would be a season of undisputed supremacy. As for drivers, I would suggest a carefully picked team from the following, Birkin, Campbell, Earl Howe, Brian Lewis, Penn-Hughes, Staniland and W. B. Scott.

I should be interested to hear if other readers have any suggestions to make about this proposal.

K. Leatham.
London, S.W.18.



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De Luxe Model S.P. 55. Cash 55/-, C.O.D., or 5/- with order and balance of 50/- by monthly instalments of 5/-. Luminous dial 5/- extra.

No longer need you break into those precious savings to buy yourself a really good class watch that will give you precision service for years. The movement is proof against all vibration. The fully compensated split balance wheel incorporates a shock absorber which stands up to the worst of jolts and jars. **MILANESE or LEATHER STRAP OPTIONAL.**

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Please send me Gent's Model No. S.P.55, 55/- Wristlet Watch Models No. S.P. 40 and Square Case No. S.P.45, 49/6. Strike out Models not Required. Luminous Radium Dials 5/- extra All Models.

For which I enclose Postal Order for 5/- and the balance I agree to pay at 5/- per month. Cash, C.O.D. or 5/- with order.

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PLEASE WRITE IN BLOCK LETTERS.

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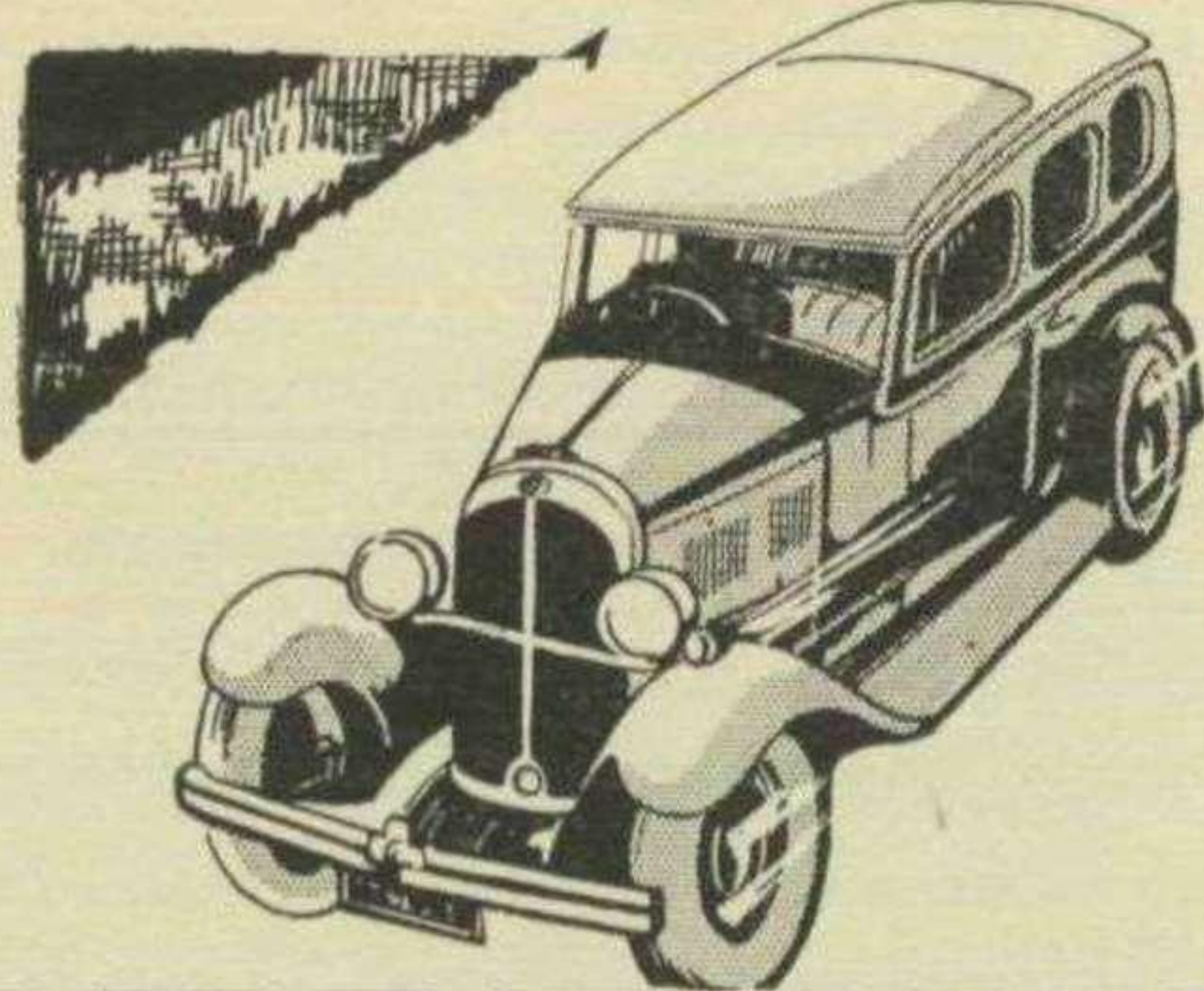
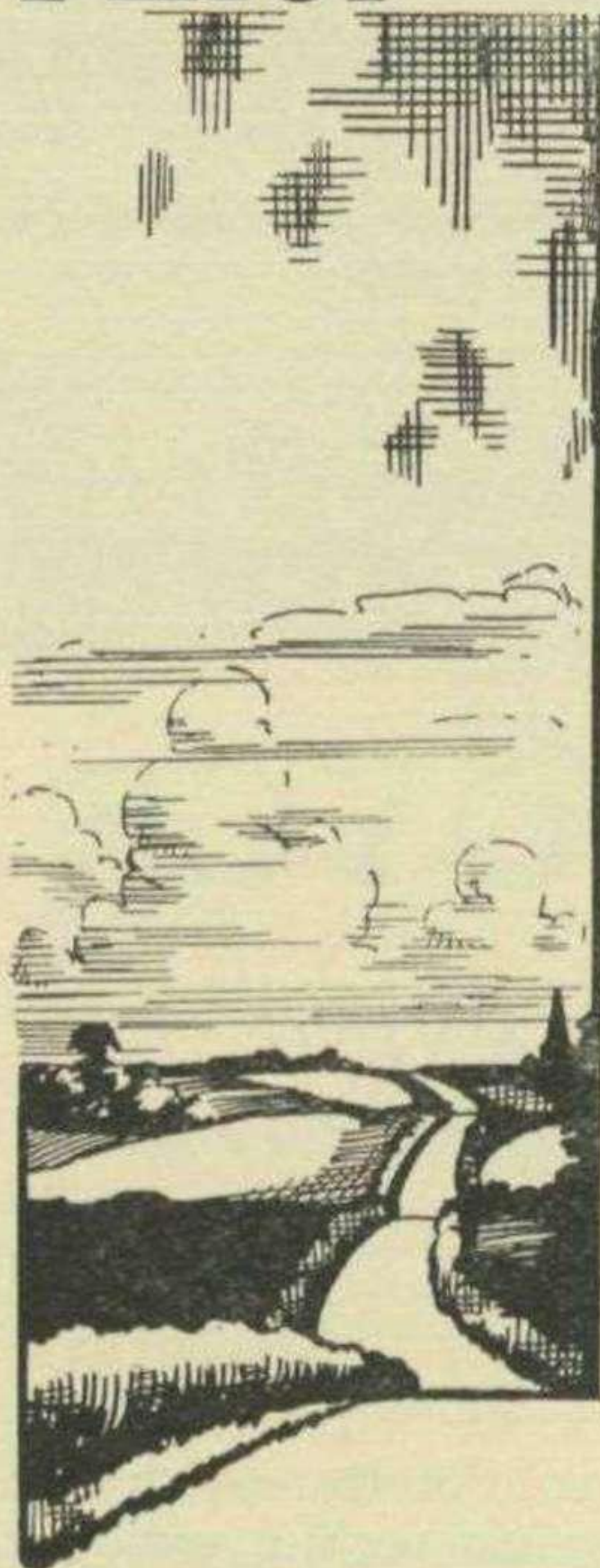
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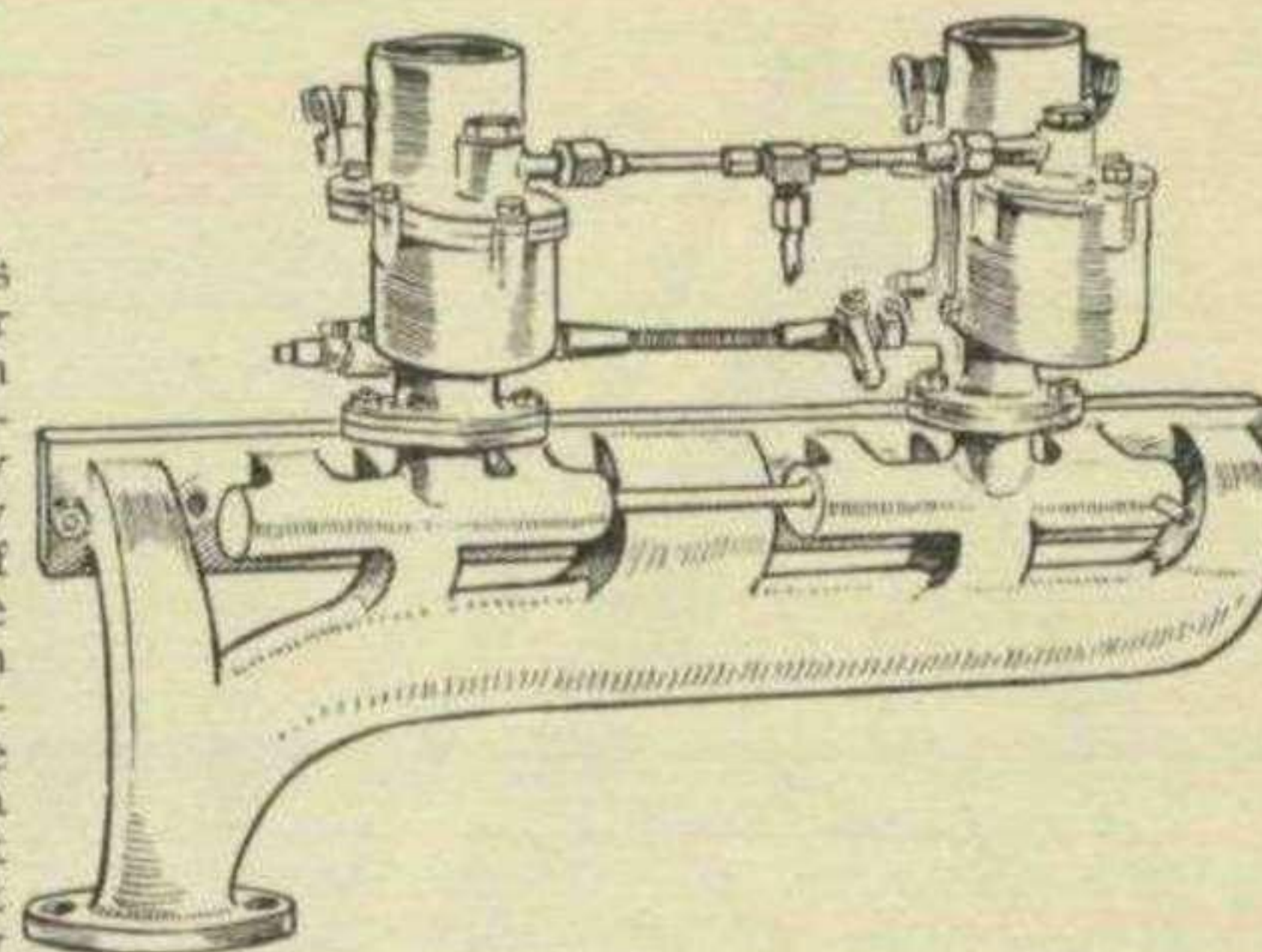
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THE ROLLS-ROYCE "R"

SOME FACTS CONCERNING ITS EVOLUTION AND PREPARATION

WHILE modern progress in internal combustion engine design and construction results in record eclipsing record with confusing frequency, whether it be on land, water or in the air, there is no doubt that the performance of the Supermarine seaplanes whereby the Schneider Trophy was won for all time by this country and the world's speed record established at the astounding figure of 408 m.p.h. will remain for a long time to come as a high-water mark in the history of aviation and speed attempts. And even when Stainforth's record is attacked and beaten, the story of the great endeavour which was put out by all those connected with the production of that wonderful aircraft, the S.6.B., will stand always as a remarkable accomplishment. Particularly is this so of the power unit of the craft, the Rolls-Royce "R."

Rolls-Royce, Ltd., in producing this engine started at a disadvantage. They were pressed for time; and time, as every amateur tuner knows, is a matter of great importance in preparing a racing engine, if success is to follow. That it did follow, is proof that the world-famous Derby firm can combine hustle with perfect craftsmanship to an extent which must surely have surprised even the Americans.

In the first instance the "R" engine was developed from the Rolls-Royce "Buzzard," a twelve-cylindered water-cooled unit of 825 h.p. The cylinders in both cases are arranged in banks of six, set at an angle of 60 degrees to each other, and each block carries a camshaft driven by bevelled shafts. The bore and stroke dimensions are 152.5 mm. by 169 mm., and it measures in length 7 feet 7 $\frac{3}{4}$ inches, in height 3 feet 4 inches, and the

over-all width is 2 feet 6 inches. The air screw is geared. It will be remembered that the "R" engine was first used in the 1929 Schneider Contest. The weight of this unit is 1,530 lbs. and with a power output of 1,900 h.p. the weight per h.p. ratio is thus but .805 lbs.

Even in the light of present day knowledge and rapid progress it would seem a well-nigh impossible task to improve on this remarkable figure, yet the Rolls-Royce people decided that for the last race still more power should be obtained from the engine, and in order to secure this they concentrated on boosting up the engine to an even greater degree. An entirely new form of supercharger was designed, therefore.

In building a power unit for the Schneider machines it was highly important to reduce the bulk and frontal area to the lowest limits; this meant that the supercharger had to be reasonably compact, and to enable them to build this unit of small diameter and yet get it to cope with the enormous quantity of air induced, it was designed so as to take in air at both sides of the rotor. The difficulties to be overcome were numerous; unless a blower is efficient the fuel-air charge will reach an excessive temperature, and there will be a serious loss of power. The stresses imposed on every part of the engine (already tuned to an intense degree) are magnified; the lubrication system may be affected, and the cooling also. Higher temperatures and higher revs, may be too much for plugs, piston rings and valve springs.

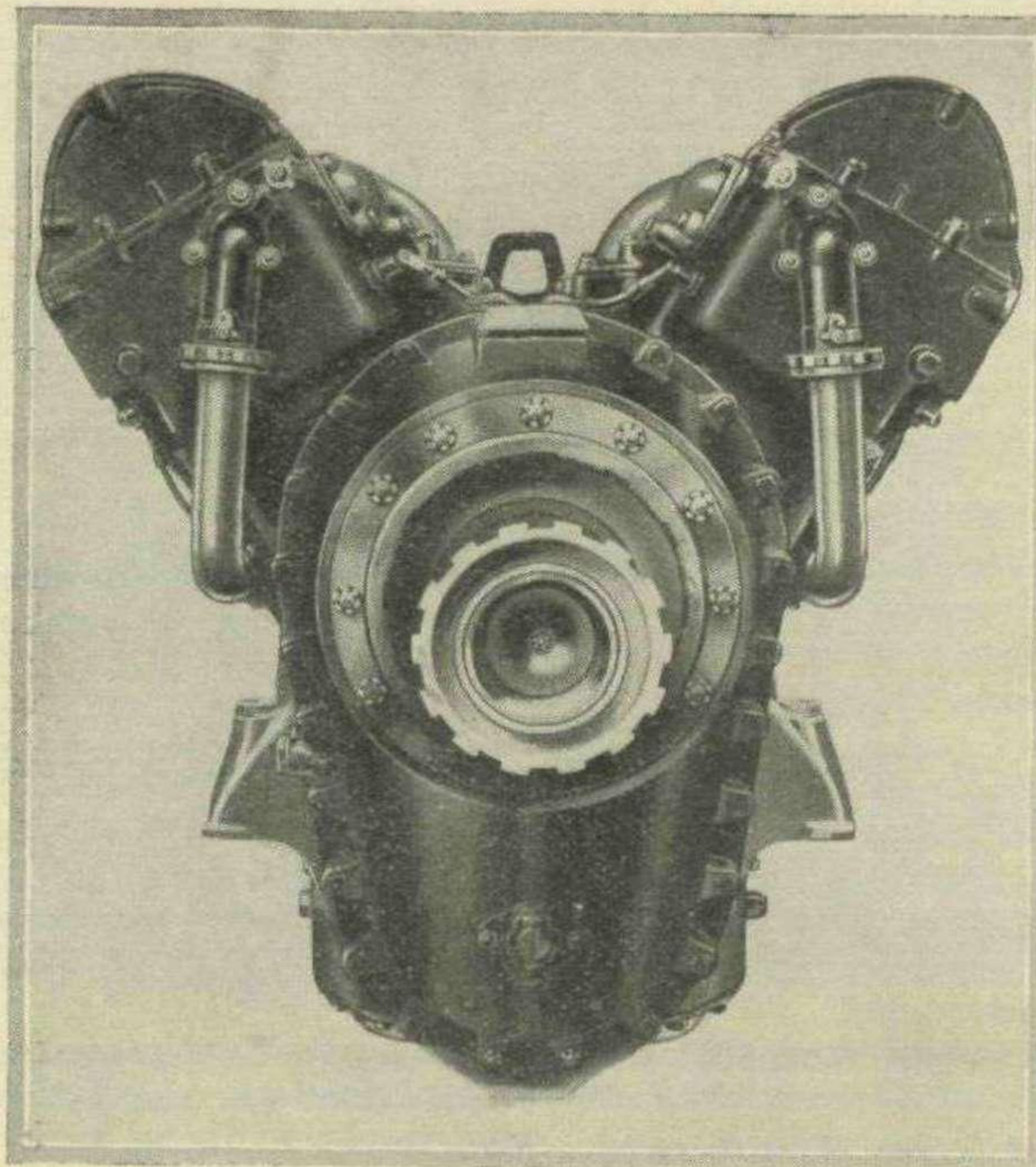
One by one these "snags" were dealt with and solved, and whereas the 1929 "R" engine turned over at 2,900 r.p.m., and gave off 1,900 b.h.p., the 1931 edition revs at 3,200 r.p.m., and produces 2,350 b.h.p.

THE ROLLS-ROYCE "R"—continued

The supercharger having been designed and built, the experimental work was quickly begun on the new type "R"; Heenan and Froude produced a special water-brake for the purpose, a special fan was rigged up to reproduce the conditions of air-flow into the air intakes when the S.6.B. would be in flight, and—after serious trouble had been experienced with the exhaust fumes inside the test house, which not only affected the staff but the engine as well—a "Kestrel" engine was installed with a pusher propeller to send a stream of air through the room to clear the atmosphere. In addition, two electric fans were used to direct a cooling stream of air over the crankcase.

In order to determine the correct speed of the air flow over the engine and air intakes, pitot heads were used, and the blast kept at 400 m.p.h. Normally, engines are run on the brake with silencers, but with the "R," because the actual racing conditions had to be simulated, only short stubs were fitted to the exhaust ports.

One can imagine what indescribable din must have arisen in the test shop when the experimental unit and



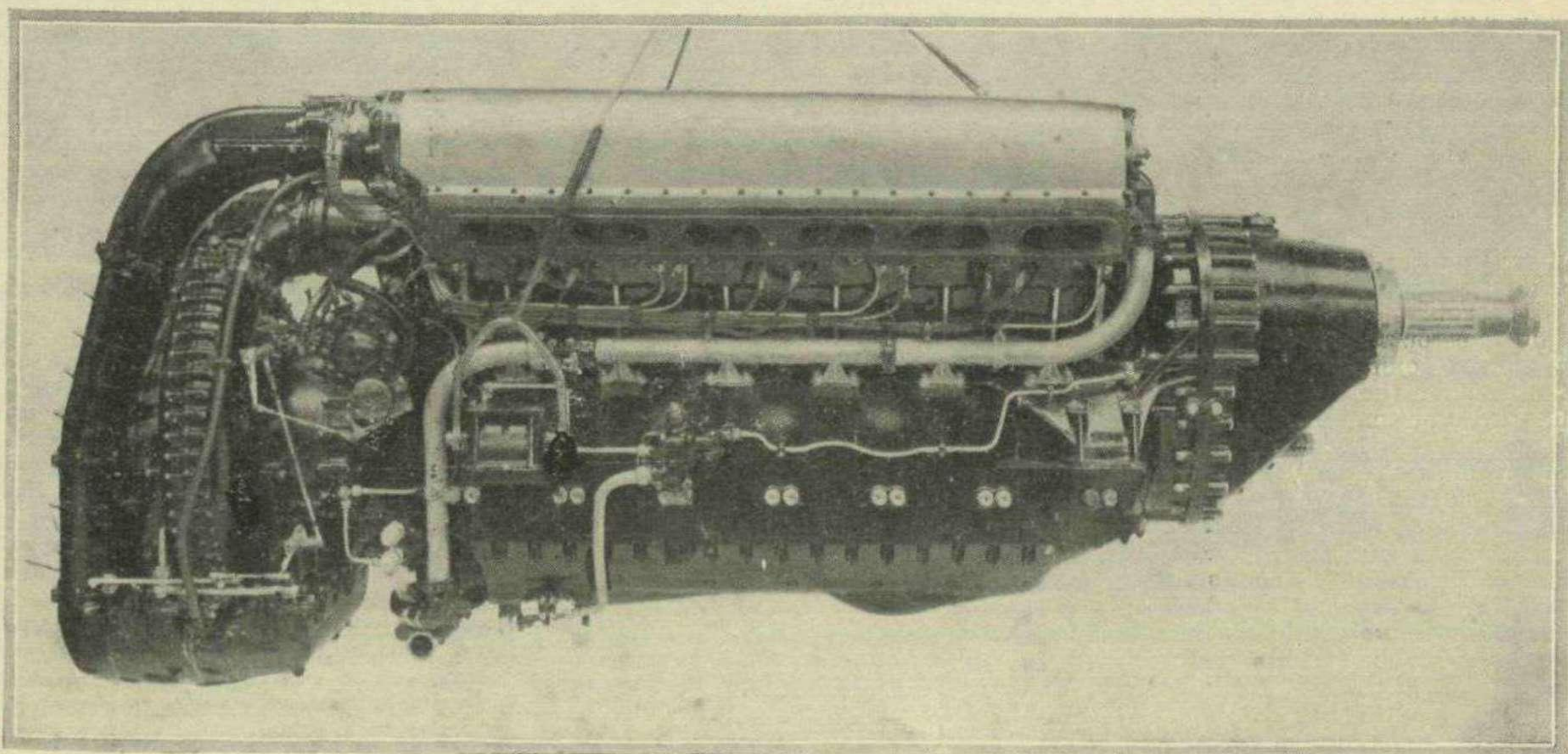
The drive end of the Rolls-Royce racing engine. Great pains were taken to reduce the frontal area to the minimum.

it would seem that they had a very formidable task. But by July a non-stop run for half-an-hour was achieved. As is often the case, minor troubles were most persistent, and fractured valve springs were frequently met with even after only a few minutes of running. As with the connecting rods, crankshaft and other components

the auxiliaries were all in action!

In the test bay was also installed a single-cylinder unit built up of "R" parts; this was intended for trials in connection with plugs, valve-springs, fuels, etc. It is rather interesting that this gave far more trouble than the complete engine, and was in fact very unreliable.

So the development of the new Rolls began. At first, that is to say in April last, and only five months before the date of the Contest, the engine could not be persuaded to run for more than 20 minutes before "something went." Valve springs failed, connecting rods broke, big-ends and other parts collapsed under the terrific strain. The aim of the design and test department was to get the engine to run at full power for one hour; so



Starboard side of the Rolls-Royce "R." The supercharger is mounted at the rear, and the air intake of special patented design is arranged so as to lie between the cylinder blocks.

THE ROLLS-ROYCE "R"—continued.

which broke, these were re-tested and, if considered necessary, replaced with others of modified type, and gradually the troubles due to failure of materials were eliminated. On 3rd August the "R" was induced to carry on at full bore for 58 minutes, then with the scheduled test almost done there was a crash and silence—a broken crankshaft. But without more ado, a modification was carried out in the design of the part, a batch of new shafts turned out, and nine days later the racing unit completed the hour at 2,350 b.h.p.

Thus, the task which had been set was accomplished—and in the space of six months. To produce an engine which weighs but 1,630 lbs. and which has an output of 2,350 h.p. is in itself a triumph of engineering; that it was done in so short a period of time makes it an epic in the annals of aeronautical history. It was not just a matter of manufacture, assembly and trial. The resources of the research and metallurgical departments were continually called into play, and the ingenuity of the designers was required again and again to solve the theoretical problems and practical difficulties which cropped up. As an example, when trouble occurred with the original type of connecting rod, due to the increase in revs and loads, it became obvious that this component would have to be completely altered in design; a variety of alternative types were evolved, calculations made, drawings produced and experimental

parts manufactured, tested, examined and tested again. So with the crankshaft, and in connection with this part, the fact that the inertia and centrifugal forces on the centre bearing when the engine was running at normal revs was no less than nine tons conveys to some extent the nature of the stresses which had to be combated. Mixed up with all these tasks were other matters requiring attention. The oil consumption at first, was impossibly high—at one time as much as 112 gallons an hour! Careful study, scheming and trials gradually got this figure down to about one-eighth of the original figure. Then there were minor troubles with the auxiliaries, such as oil getting into the magnetos, tendency to flood and piling-up in the carburettors, and so forth. There could be no overlooking of even the smallest detail or possible defect in order to get the "R" to give that 2,300 h.p. for one hour.

To some, perhaps, this tremendous concentrated effort may not appear as having been worth while, but there is not the slightest doubt that the knowledge acquired in those crowded six months would only have been gained in the same number of years under normal conditions of working. And besides, it won the Schneider Trophy, gave us the speed record, and has placed Britain and particularly the firm of Rolls-Royce, Ltd., in the very forefront of the world of aero engine production, a position which will long remain unassailed.

Pioneering in the Glider Movement

WHEN the initial steps were taken some two years ago to introduce the sport of gliding into this country, one of the very first clubs to be formed was the Kent Gliding Club, and among the band of enthusiasts who formed it, none was more energetic or go-ahead than Mr. C. H. Lowe-Wylde, who has since become prominent in England as an exponent of motorless flight.

It may be remembered that Lowe-Wylde designed, built and flew the first Zogling or training type glider to appear in this country, and this effort of his was rather remarkable for the fact that the whole job took but five weeks of spare-time working to complete—from the time he drew it out on the drawing board till when he tried it out on its first flight from the top of a hill near Maidstone.

Lowe-Wylde has done a great deal since then, and from July of last year he has been associated with the British Aircraft Co., Ltd., a firm which under his direction is successfully manufacturing and marketing gliders and sailplanes of various types. As far as this country is concerned, the building of motorless aircraft is a branch of the aviation industry which, as yet, has scarcely developed at all, so that it is something of an achievement for his firm that, in addition to having sold machines to a considerable number of individual owners, they have also supplied twenty-two clubs with craft

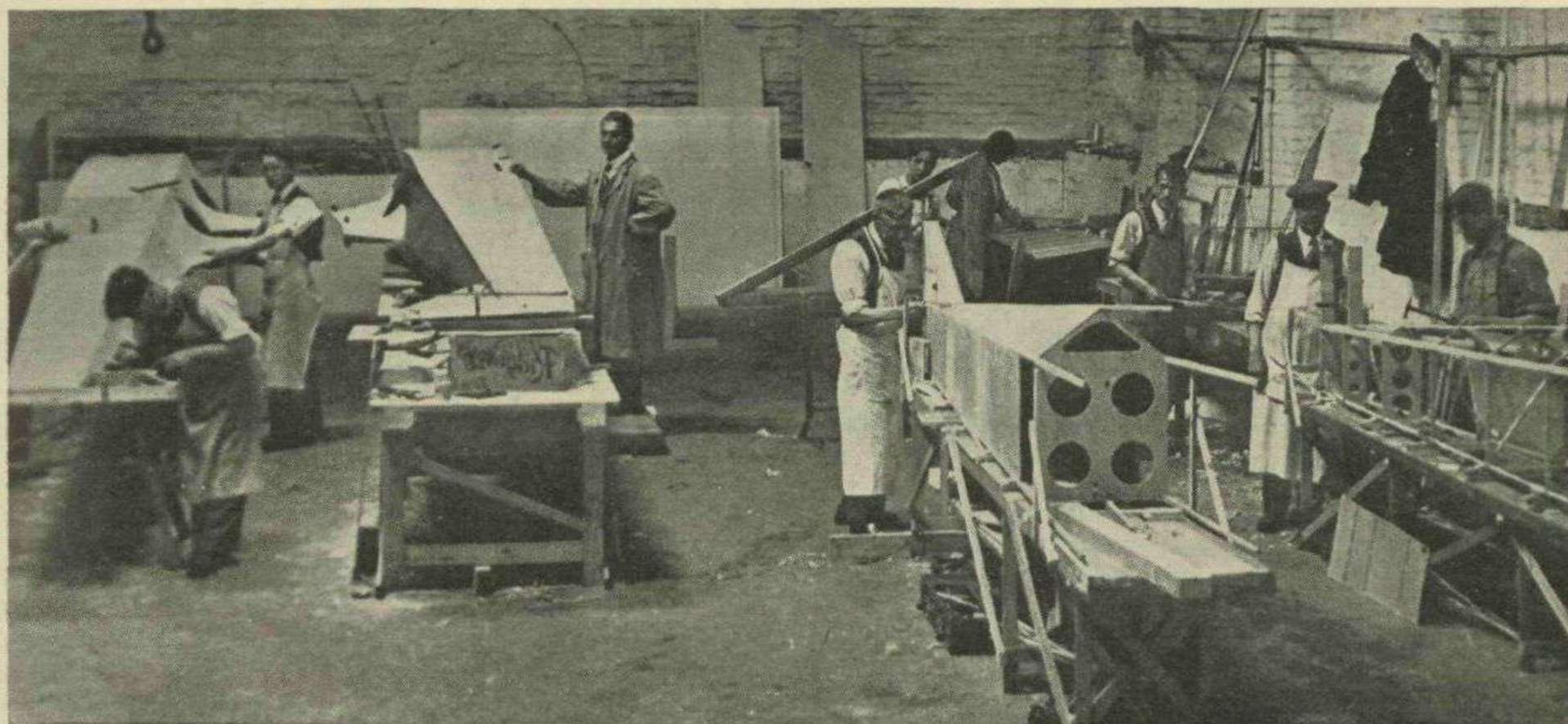
of different types. B.A.C. machines are particularly interesting in that throughout the range of eight models, standardisation and interchangeability of parts and units are arranged for; the wings of the primary trainer, for example, will fit the secondary type, while the fuselage, and tailplane of the latter are identical with those of the soarer. Another feature which has been carefully studied and adhered to by Lowe-Wylde is simplicity. Experience has shown that ease in erection, truing up and dismantling are qualities which are especially desirable in gliders since the majority of clubs have to operate under conditions where the housing of machines fully-rigged is seldom possible, and maintenance and repairs are carried out by amateurs. By eliminating all wire bracing and utilising struts in the wing and tail-unit assemblies of his machines, Lowe-Wylde has rendered these matters very simple indeed; and by incorporating all the best points found in the successful German craft with features of his own, the designer has succeeded in turning out machines of first rate performance.

It is as an exponent of auto-towing that Mr. Lowe-Wylde is, perhaps, best known. In the face of opposing views, he has maintained that this method of launching a glider offers several advantages over the usual catapulting—and by giving demonstrations all over the country and under different conditions, he has shown

that it is safe. In the past, foolhardy and haphazard experiments in towing have unfortunately resulted in a number of fatal accidents, and in consequence an impression spread that it was a dangerous procedure. Lowe-Wylde holds to the view that provided one follows certain rules, there is no risk whatsoever. In the first place, it is essential to use the right type of machine; secondly, the cable should be fitted with an efficient release at both ends, and some other "Don'ts" are:—Don't fail to have an experienced pilot instructor accompanying the driver of the towing car—don't travel at too high a speed—and get the required towing speed by ascertaining the speed of the wind and subtracting it from the flying speed of the machine used—don't use a machine with a skid, but one with a wheel under-carriage. In carrying out an auto-tow take-off it should be borne in mind that immediately the machine starts its climb, its air speed rises, because the length of the inclined path is greater than the distance travelled by the car in the same period of time; any sudden deceleration of the latter should, therefore, be avoided.

As to the advantages, the most apparent is that the disconcerting feeling brought about by the sudden acceleration which one receives in a catapult launch is obviated. One can, also, gain sufficient height for quite long glides without having to take off from high (and sometimes

PIONEERING IN THE GLIDER MOVEMENT—continued.



[Motor Sport photograph]

Making British sailplanes. A view in the fuselage shop of the B.A.C. works. Note the two-seater on the left. Extensive use of jigs and interchangeability of parts simplify the construction and assembly of these machines.

dangerous) sites, and without having to wait for a particular wind. And very little hard work is involved. Pupils can also be taught with more accuracy and with less risk of minor mishaps since they can carry out "rolling" practice and get used to the controls before getting into the air.

Lowe-Wylde has developed auto-towing to a very high degree, and in addition to demonstrating it himself, he and his

assistants have been extremely busy in the past few months with training pupils in the art of soaring with auto-towed craft. And the results have been very satisfactory. It should here be mentioned that Lowe-Wylde has the distinction of holding the first licence to be issued to allow him to carry passengers for "hire or reward" in motorless aircraft, and this he has been doing at various aviation meetings, using a B.A.C. two-seater for the purpose.

Having thus proved the case for the auto-towed glider, the British Aircraft Company are now concentrating on this type of which they are pioneers in this country, and their latest development is the production of a two-seater flying-boat glider which is towed by motor boat. Like all the B.A.C. machines this has been designed by Mr. Lowe-Wylde, and incidentally, it is the first craft of its type to be produced in Europe.

A REDWING DEVELOPMENT.

ALTHOUGH the little Robinson Redwing—which is now known simply as the Redwing—is, comparatively speaking, a newcomer among light 'planes, the go-ahead policy of its manufacturers, The Redwing Aircraft Co., of Stafford Road, Croydon, has resulted in its coming very much to the fore during the past few months.

In spite of the difficult conditions which have prevailed in trade and business generally, sales of this machine have been steadily increasing, and Redwings already form part of the equipment of some of newer flying clubs, including the Wiltshire Light Aeroplane Club, the Eastern Counties Aeroplane Club, the L.G.O.C. Club, and the Scarborough Flying Club. And there are now several private-owners of this make, as well.

The Redwing concern have lately put into operation a very sound sales-and-service organisation with representatives in different parts of the country. The sales manager, Flight-Lieutenant Russell is now stationed at Blue Barns Aerodrome, near Colchester, and using this place as a centre, he will deal with all sales, demonstrations, etc., in the area north of London. In the Southern area the Redwing repre-

sentative will be Mr. Payne who will be stationed at High Post Aerodrome, Salisbury, and the London area will be served by the Company's head office and works at Croydon, with Mr. Pike in charge.

These service depots will be equipped and organised so that Redwing owners will be able to obtain spares or the services of mechanics at very short notice, and when at all possible, these will be sent by 'plane. Should weather conditions prevent flying, mechanics with the spares required will journey to the owner by motor cycle. An important feature of this servicing scheme is that the facilities will be available at night as well as in the daytime.

A SUCCESSFUL TOUR.

AFTER nearly seven months of strenuous work the "air circus" which was organised by Captain C. D. Barnard closed down last month at the conclusion of the summer season.

During its tour of England this enterprise visited no less than 112 aerodromes and towns, and altogether 20,000 miles were flown. Of the 195 days available, the circus functioned on 164, bad weather

preventing flying on the remaining days.

Barnard used the famous Bristol-engined Fokker, "The Spider," and during the tour he carried 43,000 passengers on joy-flights; in addition to the Fokker seven other machines were used, while the services of Mr. Brie were also acquired to demonstrate the Cierva Autogiro. Captain Barnard's venture has been thoroughly successful.

AIR PHOTOGRAPHY IN GREECE.

AS a result of representations made by The Automobile Association through the Greek Automobile and Touring Club, the Greek Government has agreed that pilots and their passengers may use cameras whilst flying over Greek territory.

Greece and Great Britain are the only European countries which allow photography from the air, without a special permit, except over a forbidden area.

In the past few months the Greek Government has done a great deal by removing restrictions on flying to make that country one of the pleasantest and easiest to visit by air.



SLIPSTREAMS

The A.A. and Aviation.

SINCE the Automobile Association has extended its activities into the realm of aviation it has shown itself to be a body which is as helpful to the flying man as it has been to the road user, and the equivalent of those services which motorists have grown to regard as a matter of course are now available for the air pilot. Visitors arriving by plane at a flying meeting, for example, are now ably attended to and assisted by the beretted and overalled members of the A.A. "Air Squad"; the air traveller to the Continent has but to apply to the Touring Department of the Association and he will be supplied promptly with maps, documents, weather reports and all necessary information to aid him on his trip. And a host of other services are at his disposal.

Now the A.A. has issued a booklet for the use of potential pilots, entitled "Learning to Fly." This little publication contains particulars of over forty of the principal schools and flying clubs in England, Scotland and Ireland where flying tuition can be obtained, and each organisation is dealt with very fully. Thus, one can find at a glance the name of the secretary or pilot in charge of a particular school, the entrance fee, subscription and flying rates, the types and number of machines in use, and details of road access. There is also a section devoted to the ways and means of obtaining the "A" or "B" licence, with notes on the Air Ministry requirements and so forth.

Altogether an encouraging and useful booklet, and of particular interest to the man who is contemplating taking up the sport of flying. But undoubtedly, the most up-to-date development on the part of the A.A., is the scheme for establishing wireless stations at all the principal aerodromes from which weather reports will be broadcast regularly. The first one of these has been set up at Heston, and it has naturally created great interest. The station is run under the direction of Mr. T. Herbert.

Single-Seaters.

In spite of the fact that it has been often asserted that there is little or no market for the small single-seater machine, the little Comper "Swift" is making good headway in the light aircraft world. Following its very good showing in the last King's Cup Race, the "Swift" is now to be seen regularly at all aviation events of note, and its very neat lines and extraordinarily good performance always cause favourable comment. The "Swift" was designed by Flight-Lieutenant N. Comper, who besides serving as a flying officer in the R.A.F. for a number of years, has been associated with aircraft design and construction since the War-days, when for some time he was with the Aircraft Manufacturing Co. at Hendon. He first became prominent as a designer when the light aeroplane contests were held at Lympne

in 1923 and subsequent years; in these trials several machines designed by Comper appeared. These were built by members of the R.A.F. at Cranwell when Flight-Lieutenant Comper was on the staff there. And very well-built and nicely finished jobs they were. These early Comper craft were powered with the 32 h.p. flat-twin Bristol "Cherub" engine; the "Swift," of course, has the 75 h.p. Pobjoy power-unit, which is made by the Comper Company's associated concern, Pobjoy Airmotors, Ltd., of Hooton, Cheshire.

Registration Facts and Statistics.

That very interesting book, *A Register of Civilian Aircraft*, which is the work of Mr. W. O. Manning and Mr. R. L. Preston, has appeared in a revised and up-to-date form once more, and the latest statistics show that slowly but surely the number of privately-owned aeroplanes is going up. It was not so very long ago that the total was well under 200; now it stands at 383. And the total number of civilian machines at present registered in England is 958, with 497 firms and individuals owning them.

Apart from these figures, the book is worth studying for the list of machines and the names of owners, and it is rather diverting to consult the pages in order to identify the ownership of a passing plane.

Another fact which is revealed is the large number of concerns who are engaged in joy-riding enterprises, a point which rather proves the inaccuracy of the supposition that the "Five-bob-a-flip" business is fast becoming played out.

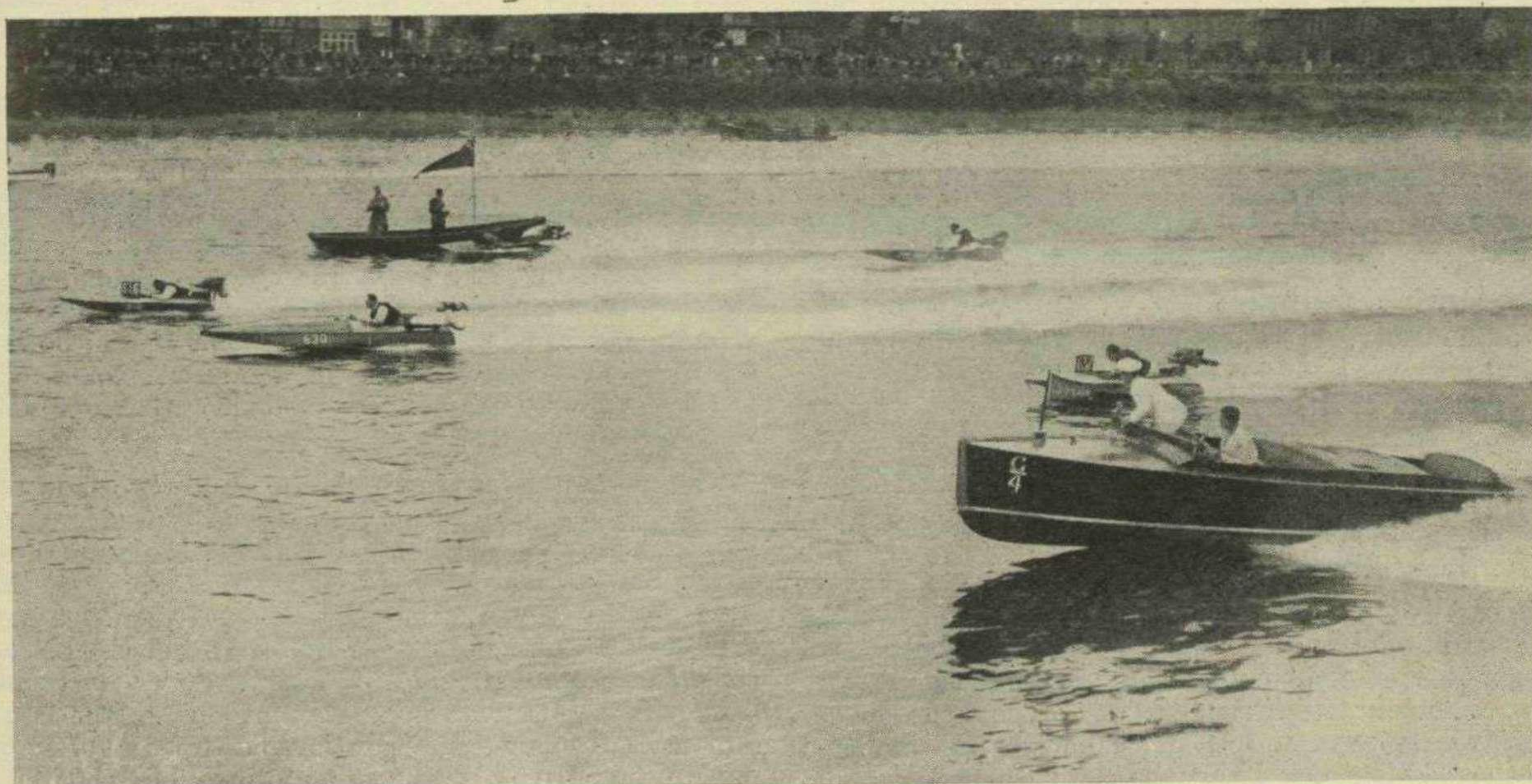
A Trade Tour by Air.

Last month three Blackburn machines set off from Brough aerodrome, Yorks, on a high-speed and extended air tour in order to demonstrate their qualities and capabilities at all the principal centres and capitals in Europe. The craft vary in type considerably, being the "Bluebird" (with Gipsy II engine), the Lincock light single-seater fighter and the Segrave monoplane. The "Lincock" is unquestionably one of the best looking aeroplanes ever built, and its performance is as impressive as its appearance. Powered with a "Lynx" Major it has a top speed at ground level of 162 m.p.h., and a service ceiling of 22,000 feet. Its low power-loading and small span—24 feet—gives a tremendous manoeuvrability, and there is no doubt that foreign observers will be considerably impressed with her speed, climb, and agility. The Segrave is the new improved version of the Segrave "Meteor," which was built in the first place to the specification of the late Sir Henry Segrave.

This Blackburn enterprise is being undertaken under the leadership of Mr. Robert Blackburn, the concern's Managing Director.

"RUDDERBAR."

THE SPORT AFLOAT



MOTOR BOATS AT THE SHOW

A COMPREHENSIVE AND SATISFACTORY EXHIBITION

DURING the past two years there has been a steady increase in the number of owners of "little ships," and these recruits seem to have been drawn largely from motorists. This may be due to the present crowded state of our roads, but more likely to the fact that the designers and builders of motor-craft have undoubtedly become motor car minded, by which it is meant that the motorist on becoming the owner of a motor boat will have to sacrifice nothing in the way of comfort and ease of maintenance. The enthusiast will gloss over and make light of the many little difficulties of handling a boat of just pre-modern vintage; in such craft however, the messiness of dealing with an anchor chain and the acrobatics necessary in the control of a twin engine installation single-handed, were two factors which alone were sufficient to discourage the owner of a car, a vehicle which has to rely on for some years past the excess of its refinements to secure a sale.

That an exhibition is of definite value to the trade is apparent, for while last year's show might have been regarded as something in the nature of an experiment and thus received support on this merit, this year's exhibitor has data to show whether the cost meets the justification, and in spite of the present crisis in trade, particularly the luxury class, there was a good rally

of the motor boating trade at Olympia. Further, there was a gratifying increase in the number of British goods on the stands, which means that manufacturers are optimistic, because the primary expense of a new article is not indulged in, unless a return is expected. Furthermore, this return is expected from a new motor boating public who are now motorists, and that the Motor Boat and Motor Shows should be combined is of the greatest importance, and it is quite reasonable to predict that quite a fair percentage of those who went to see the cars and hardly realised the boats were being shown, will have seen the attractiveness of motor boats, how like cars they are to control, and relatively low prices (twin motor craft, completely fitted out for coastal cruising can be bought for little over a thousand pounds).

As before, the new Empire Hall was allocated to the Motor Boat section, and owing to the comparatively low ceiling there was, as before, only one auxiliary shown. This is a pity, for I think most yachtsmen will agree, that for the "one-boat" man the compromise effected in the auxiliary is the most useful and economical for hard work of a more or less continuous nature. Therefore, it is to be hoped that the organisers of next year's show can be prevailed upon to allocate the National Hall to the Motor Boat section, for the headroom of the Empire Hall is more than sufficient for cars.

MOTOR BOATS AT THE SHOW—continued.

Considering that only one example of a hydroplane was to be found last year, the widely divergent types exhibited this year were something of a surprise. The range extended from the 10ft. racing outboard hydroplane, designed by Capt. Palethorpe and shewn by Sharlands to the world's record holder, Miss England II. the designer being Mr. Fred Cooper, A.M.I.N.A. Although built by Saunders-Roe of Cowes, Miss England II. was not shown on their stand, for together with the Supermarine S.6.B. racing seaplane, and Sir Malcolm Campbell's Bluebird, she formed a trio of speed, the envy of every other nation in the world.

The range of non-speed type of craft was even more extensive, the smallest exhibit being the 9ft. County runabout powered with a 1½ h.p. Villiers engine, and the largest craft shown was a 36ft. twin screw seagoing cruiser, a boat built to luxury standards at a non-luxury price. The only real query the boat section raised is, Why are some cars so expensive?

No demonstrations.

There is only one major respect in which the Show fell far short of that of the previous year, and that was in the absence of a demonstration boat on the near-by Thames. Undoubtedly, bringing craft to the river is a very expensive proposition, but it should be remembered that the yachtsman is a very discriminating person, and will not lightly consider the spending of one or two thousand pounds without ample proof that he is getting value for money, combined in a vessel in which he can trust his life at sea. Furthermore, if new owners are expected from the ranks of present motorists, what more convincing way is there of proving the new thrills and pleasures of motor boating than an actual demonstration run?

This year the express cruiser was conspicuous by its absence, but in one case at least this would not have been so had not a disastrous fire occurred at the British Power Boat Co.'s yard at Hythe, Southampton. Nevertheless, in spite of this handicap, Mr. Scott Paine managed to produce a very attractive stand, the chief exhibit being his famous Panther III., with which he did so well at Venice recently.

The exhibition was open from 10 a.m. to 10 p.m. on each day from October 15th to October 24th, and towards the end of the week the general tone of those showing was decidedly on the optimistic note, and it is to be sincerely hoped that the show will prove a business proposition to the exhibitors, for to increase our overhead charges at the present state of trade is a bold and courageous act, and it is, I am sure, this attitude that will put industry as a whole back on its feet again.

*Various Exhibits Classified as regards type.**—Cruisers.*

The largest exhibit in the Show came under this class, and is a very fine example of a twin screw 36ft. bridge-deck cruiser built by Hyland Ltd., of York Street, Wakefield. The power units, two 20-40 h.p. Hylander marine engines, are housed beneath the floor of the

bridge, and are controlled by the makers' hydraulic remote control unit. The boat's draught of 3ft. 6in. is well over a third of the beam, and the craft should be easy to handle in rough water. Four persons are slept ex saloon. At the modest price of £1,225, the equipment is very complete, including single shot lubrication, hydraulic winch, Vi-spring mattresses, electric light throughout, and complete inventory of crockery, etc., for putting to sea.

The next in size was the well-proved Osborne Everyman cruiser, but which is now a foot longer with 31ft. This boat has a large cockpit aft, and a Morris Commodore is installed at the forward end under a mahogany cover. A large saloon comes amidships, whilst in the bows is a two berth sleeping cabin. A galley and toilet-room separate the two cabins. At £750 this boat represents real value for money.

The only other cruisers exhibited were two shown by Simons, Sons and Cooke, Ltd., of 3, Weekday Cross Nottingham. The smaller boat is the 1932 edition of the Robt. Simons cruiser produced last year, and she has been altered only in minor details since then. A hard drive system of building is employed, and the boat is controlled from a roomy aft cockpit. As a day cruiser it should maintain its popularity at £285. The larger Simons craft follows more conventional lines and favours modern practice by having twin motors under the bridge deck. The dimensions are, 28ft. long, 8ft. 6in. beam and 2ft. draught. Considering the length, the ample accommodation is surprising, there being a large two berth sleeping cabin aft and a roomy saloon galley and toilet room forward. The boat, fitted out and powered with a pair of electrically started 4/17 Thornycroft motors, sells at £750.

Outboard absentees.

These were all the cruisers, and the only strange thing was the complete absence this year of the outboard cruiser, a type much in evidence before, and although stock models are still available around the boatyards, they did not come to Olympia.

—Auxiliaries.

As previously mentioned, there was only one example of this type shown, and that was the popular Hillyard hailing from Littlehampton, Sussex. Hillyard has built up in the last few years an enviable reputation as the constructor of small auxiliaries classed from 3 to 18 tons. The one shewn is the standard 30ft. 9-tonner. The other dimensions are 9ft. beam and 4ft. 3in. draught. This year the boat has been increased 1 ft. in length, but this addition is mostly taken up with a new canoe stern. An unusual feature in a small auxiliary is 6ft. headroom in a saloon capable of berthing four people. Right forward is a two berth sleeping cabin, and between this and the saloon comes the usual galley and toilet-room. The engine, a Thornycroft Handibilly 9h.p., is neatly housed, partly in the cockpit and partly under the companionway into the saloon. The rig is Bermudan, and the price, complete, is only £575. This should make some car purchasers think quite hard.

MOTOR BOATS AT THE SHOW—continued.

Dinghies and Launches.—Boats under this heading constituted the largest show of all, and there was some attraction for every pocket. The smallest boat there was a little 9ft. runabout suitable for inland water and for operation by a juvenile. The power unit is a $1\frac{1}{4}$ h.p. Villiers two-stroke engine which drives the boat along at 7 m.p.h. with two people up. The price is only £55 complete and a feature is the extraordinary robust construction. The Wearside Boat-building Co. had on their stand an 11ft. dinghy powered with the inboard edition of the Turner Bray engine. The boat is quite light and can be handled easily by two persons, yet in spite of this, the strength of the boat has not suffered. The price is £52 10s.

A very interesting exhibit was to be found on the Elto stand. For the first time in this country is shown a 16ft. canoe powered with an electrical outboard motor. The electric motor is itself under water in what is normally the propeller housing. £72 2s. is charged for the boat, outboard, two batteries and a plug-in charger.

The cross-channel 11ft. Tadpole dinghy was again on the stand of Arthur Bray. This is a boat seating four persons.

The most interesting exhibits from the point of view of the student of design were those shown on the stand of Birmal Boats. A comprehensive range of metal hulls were shown, all in Birmabright aluminium alloy the largest being a 25ft. launch powered with a Morris Commodore. This hull can also be used for commercial purposes and is especially suited for tropical use.

Saunders-Roe had a neat little 6-seater 14ft. launch powered with their own 5 h.p. Saro engine, a feature of which was the tunnel stern, enabling the boat to be dragged up a rough beach without damage to the prop.

Hydroplanes.—The most attractive exhibit was undoubtedly the Saunders-Roe 140 h.p. hydroglider, a type of craft which is propelled with an airscrew, and is thus suitable for very shallow and weed-strewn waters. Compared with direct water propulsion, this method appears to be quite efficient for with 6 people up, the boat is stated to be capable of about 34 m.p.h.

On the Vosper stand was an example of a real luxury high speed multi-stepped hydroplane suitable for use as either a runabout or a yacht's tender. The craft is 26ft. long and has four shallow steps. Mr. Fred Cooper has designed a boat for really high-speed for it is quite feasible to fit a Rolls-Royce Kestrel aero engine in which case the expected speed is 70 m.p.h. No engine is fitted as standard, it being left to the owner's choice. The price of the hull is £450.

A centre of attraction was the 10ft. "Dab" type hydroplane, the prototype of that purchased by His Royal Highness the Prince of Wales.

Semi-displacement.—The British Power Boat Co. although handicapped by the recent fire at their yards managed to produce a new model for the show. This boat known at the Sea-King is a replica of that successful racing boat, Panther III, except that she is powered with the new 100 h.p. motor.

Birmal's have produced the first all metal speed dinghy

to be built in this country and although this craft is 13ft. long the weight is only 196 lbs.

There were, of course, on Arthur Bray's stand, typical examples of the Chris-Craft range of passenger carrying speed boats. The larger of the two boats shown was 24ft. in length.

An entirely new boat was the Reindeer, a 20ft. V-bottom runabout, capable of 28 m.p.h., and produced by Simons, Sons and Cooke, Ltd. The price is £375.

A very pretty little sports model was the Wearside 14ft. V-bottom runabout. This boat is designed to carry two passengers at 28 m.p.h. with the Coventry Victor horizontally opposed twin cylinder inboard, installed.

A very fine boat was shown by the Outboard Supply and Boatbuilding Co., of Christchurch, Hants. It is a clinker-built boat engined with a 30 h.p. Gray motor, and it is stated that with four people, 30 m.p.h. is obtained. This boat should have a good market at £195.

Engines.

As before the outboard motors on view at Olympia were numerous, but there was one very gratifying feature of the Show different from that of the previous exhibition, and this was the large increase in the proportion of British-made motors.

Sports and racing models.—The British racing Sharland was, of course, on view, and as will be remembered, it follows as regards the power head, modern motorcycle design. Although a four-stroke the engine peaks at 6,000 r.p.m. where it develops something over 20 h.p., a figure quite good for a 350 c.c. The price is £75 but nowhere on the engine has quality been sacrificed to cost.


Four sports and racing type Laros engines were shown by Arthur Bray, and undoubtedly the F. class 55 b.h.p. model deserved any praise it may have received from visitors to Olympia. The job is a four cylinder horizontally opposed two-stroke and costs £160.

Eltos also had a very complete range, but as the New York Motor Boat Show does not take place until next January anything entirely new for the new year will not appear until then.

Utility models.—John Marston Ltd., makers of the Sunbeam motorcycle, have for some months now been on the outboard market with the 98a Seagull, and for the Show they had another unit in the field. This new motor is a 240 c.c. superimposed alternate firing twin cylinder two-stroke, which develops 10 b.h.p. at 4,000 r.p.m. One model of this motor was fitted with a reverse and neutral gearbox, which should prove a very interesting and useful motor. It is thought that it will be in production by early January. The price of the twin motor is £58 while the 98a model is £26.

A reverse gear motor already in production is the Y.S.L. Bantam. These motors are very neat little 128 c.c. flat twins and can be obtained either with or without the gear at the respective prices of £30 and £26.

Watermotas had their usual range of various types of 350 c.c. two-stroke models, and the miniature 100c .c. Sharland was also attracting attention.

An interesting exhibit on the Wearside stand was the Coventry-Victor inboard engine coupled to an outboard drive, and from its sturdy appearance looked as if it could stand any amount of hard usage. 

HIERIE and THIERIE

By "Camshaft"

Performance Meters and Road Tests.

TAPLEY AND CO., the well-known instrument manufacturers of Totton, Southampton, have just sent me a folder dealing with the various meters which they make specially for use in testing the efficiency of motor vehicles. There is no doubt that these instruments are of high value in checking the behaviour of a car, and it is not surprising that they are being used in the research and experimental departments of the more progressive motor manufacturing concerns. In the past reliance has been placed largely on the judgment of the driver with the result that the information in regard to acceleration and braking is of a more or less vague and indefinite nature.

With these Tapley devices a really comprehensive test of any vehicle can be made in a very short space of time, and with their standard Performance Meter both the maximum acceleration and resistance losses can be obtained. The instrument is made with a clamp so that one can easily fix it on the fascia board. It costs £6 6s.

A Club of Character.

So many motor clubs today do so little for their members that it is refreshing to find one which is an exception to the rule.

At a recent big event, for instance, the Riley Motor Club arranged a special enclosure for its members and, indeed, Riley owners in general. Tea was provided free to members and 215 cars were parked. In all nearly 800 members and friends took advantage of the facilities provided.

The Riley club is, of course, by far the largest one-make club in the country and, with its membership of over 1,000, is one of the largest clubs affiliated to the R.A.C. Apart from the recent very successful 24 hour trial it organises rallies, social meetings, etc., and in every possible way gives its members the full value of their subscriptions. Other motor clubs might well take a leaf from its book.

Busy Bodybuilders.

I hear that so great is the demand for the Avon bodies which are now being fitted to a number of light cars—including the 9 h.p. Standard—that the manufacturers, the New Avon Body Co., Ltd., of Warwick, have their factory going at the limit of its capacity in order to execute the large number of orders which they have received in the past few months.

Lucas's New Premises.

Joseph Lucas, Ltd., are now able to offer motorists increased facilities in London in all sales and supply matters connected with their products and those of

their associated companies since they have opened new premises in Regent Street, W.1.

These showrooms are situated at the corner of Cavendish Place and Regent Street, and henceforward all enquiries should be made there and not at the old Shaftesbury Avenue showrooms which have now been vacated.

Foreign Touring with "Second-Handers."

People who own second-hand cars, which outwardly may appear to have seen their best days, are inclined to hesitate about carrying out a foreign tour, for the prospect of a breakdown when far from home is not pleasant. Not so the owner of a five-year-old Schneider I have recently heard about. This car has just completed 11,000 miles over some of the worst mountain roads in the South of France, and the outward journey from London to Folkestone only occupied 2 hours 5 minutes, although the maximum never exceeded 50 m.p.h. and the journey was done in the pouring rain. Then on the trip from Paris to Lyons an average of 33 m.p.h. was maintained (including stops for meals) and despite the fact that a deal of snow and rain was encountered. Quite a remarkable performance for a second-hander.

Four Women on a World Tour.

Just over a month ago four Australian women set out from Melbourne on an 18,000 mile motor tour which is to be concluded at the Monte Carlo Rally next January. Already an arduous stretch of their long journey has been successfully accomplished—from Melbourne to Port Darwin, which includes some very bad going in the tropical northern parts of Australia.

They have now embarked for Singapore and from there they will drive up the Malay Peninsula to Penang, take a boat to Calcutta, drive across India to Bombay, sail to Basra, drive to Baghdad, Damascus, Jerusalem, Cairo and Alexandria, and then ship to Europe for the start of the Rally.

This is the first time that an Australian team has been entered for this classic event, and the fact that the drivers are ladies makes the entry all the more interesting. Two of the party are noted long-distance motorists already; these are Miss Jean Robertson and Miss Kathleen Howell, who were the first Australian women to make the trip from Melbourne to Port Darwin, and who hold the present record for the run from Perth to Adelaide. A third member, Miss Jean Richmond, is a well-known track motorist.

They are driving Riley Nines of standard type but fitted with special bodies which have been designed to carry full camping equipment for the party and also to comply with the conditions of the Monte Carlo Rally.

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