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Sporting Journal.

Official Organ of the League of Motor Sportsmen.

# MOTOR SPORT

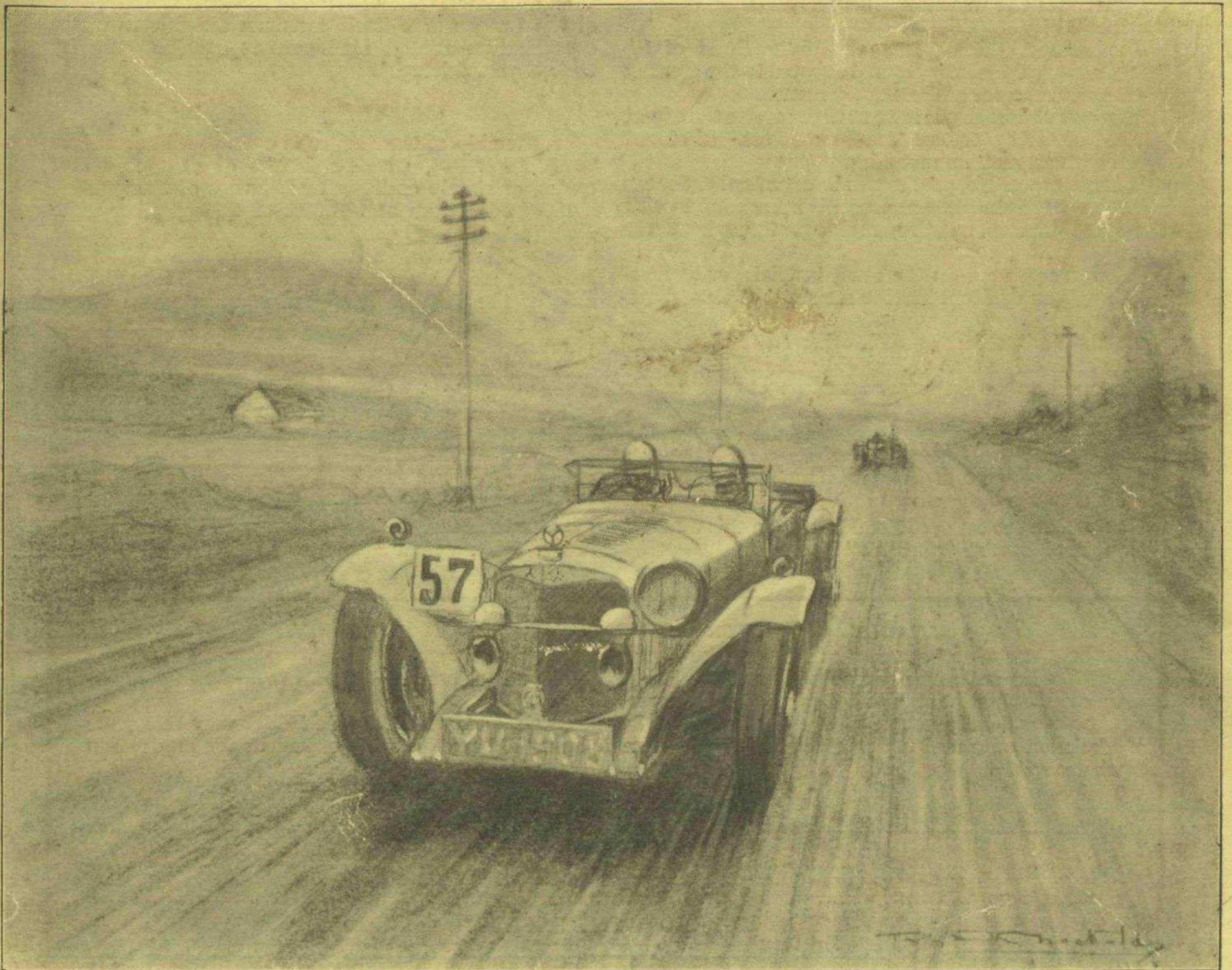
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The Brooklands  
Gazette





# THE LEAGUE OF MOTOR SPORTSMEN

## THE SPORTING MOTORIST'S NEW LEAGUE OF FELLOWSHIP

Incorporated by *Motor Sport*, the 100 per cent. Sporting Journal, the Organ of Motoring Sport in the British Isles.

The Spirit of the Road is no longer to be a thing of the past. You will be a member of a Fraternity of Good Fellows, the finest company in the world, the Motoring Sportsmen.

Membership of the League of Motor Sportsmen is open to all who take an active and enthusiastic interest in Motor Sport in all its branches.

The League Badge—obtainable on enrolment, price 3/6—initiates the wearer into the new Brotherhood of the Road.

The Annual Subscription to *Motor Sport* of 8/- brings a copy of the only Journal devoted to the greatest of all sports to your address every month.

Members of the League have at their service the expert advice of *Motor Sport* staff, who are in closest touch with all matters motoring.

Whenever possible, parties will be organised under the direction of the staff (themselves all enthusiasts) to visit the more famous sporting meetings throughout the year.

Wherever you go, on the road, in trials, or at race-meetings, you will find brother members of the Sportsmen's League.

Members will recognise each other on the road, and render each other that willing aid and chivalrous help which used to be inseparable from motoring in the old days.

### OBJECTS OF THE LEAGUE.

With the support of sporting motorists throughout the country the League will strive:—

- To promote the cause of Road Racing in this country.
- To foster Motoring Sport in all its aspects.

To combat unjust Police persecution.

To educate Public Opinion, which is so definitely anti-motorist.

To restore the Chivalry and Fellowship of the Road, which, with the increase of purely utility motoring, is fast dying out.

To establish a bond between all owners of sports vehicles, cars or motor cycles.

To show, by example, that the owner of a sports machine is the finest and most competent driver on the road, and by adopting the slogan of "Speed with Safety," show to all other road users that the members of the League of Motor Sportsmen are drivers whose consideration for all road-users is equalled only by their expert driving.

### HOW TO ENROL.

Membership of the League is open to all subscribers to *Motor Sport*, whether drivers of cars or motor cycles, or simply enthusiastic followers of the sport.

Fill in the form at the foot of this page, or write giving the required details.

Only those who, in the opinion of the Editor, are *bona fide* motoring sportsmen, are eligible for membership of the League. State what vehicle you own—car or motor cycle—or what interest you take in the pastime.

If you already are a subscriber to *Motor Sport* remit only 3/6 for the League Badge. If not yet a subscriber, remit 8/- extra to cover twelve months' subscription.

The Badge of the League and Membership Card will then be forwarded post free.

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### LEAGUE OF MOTOR SPORTSMEN—FORM OF ENROLMENT

I desire to become a member of the League of Motor Sportsmen.

I am not\* already a subscriber to MOTOR SPORT, and enclose ..... to cover subscription,\* and Badge of the League.

I will endeavour to further the objects of the League, and agree that the Editor may refuse me admission or cancel my membership at any time if he should consider this expedient for any reason whatsoever.

\* Strike out the word(s) which do not apply.

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## ON ROAD RACING.

THE R.A.C. Ulster Tourist Trophy Race is a thing of the past, and whatever the financial results may be, the race must be counted a great success from the sporting point of view.

However lamentably the lay Press may have "boosted" the event with the usual inaccuracies, and imbecilities, the fact remains that no motor race—not even Le Mans itself—has aroused so great a popular interest. The whole British public was made to realise that a motor road race was to be held, and came to grasp the fact that cars racing on ordinary roads can happen even within our own islands, with perfect safety both to the competitors and the general public.

Despite the fact that the inhabitants of Ulster were quite unused to car road-racing, and that the competitors were all strangers in their midst, and notwithstanding the fact that motoring in Northern Ireland has not reached such an advanced stage as in Southern England, yet the whole populace, from the Governor downwards, was heart and soul in favour of the race, and full of exuberant Irish enthusiasm.

The organisers discovered that they met with ready help on every side, particularly from the police, and that, far from any hostile feeling, the general public desired the furtherance of the scheme, realising the great advantages accruing from the race, with the corresponding influx of visitors and business.

The question now arises: *why* should it be impossible to hold such an event in England itself?

The advantages of such a scheme are overwhelming and obvious, and if the R.A.C. can organise a race with success in Ulster, they are perfectly able, and we feel sure, willing, to do the same in this country.

The choice of a course presents no difficulty save that of an *embarras de choix*, but the seemingly insuperable barriers are hostile feeling—the motorphobia which seems inherent in the English mind—police indifference, and, above all, the legal side of it all. Why on earth Parliament cannot pass through a perfectly simple Bill which would render possible the holding of road races in this country we fail to see.

It is incredible to us that racing on roads is impossible from this cause, and inconceivable that what would prove beneficial to the nation, to a national industry, and to a fine sport, should be disregarded in this bland and blatant manner.

A Bill dealing with horse-racing and betting can go through without a hitch, but when it comes to motoring, the eighteenth-century mentality of our ruling classes is invincible.

Before anything savouring of Modernity and Progress can be made law, years of increasing agitation are necessary. We all know that a road race can be held with safety to entrants and public alike, without inconveniencing anyone, and with great commercial advantage to many. Yet the realisation of this dream is as far off as ever.

Let there be a tremendous campaign, from the vast body of motorists, from the Motor Press, and from all who have an interest in the future of motor-racing, and in perhaps ten years' time, Parliament will realise that this is the twentieth century, that motoring is not a nefarious pastime of the rich, that motor racing is not rampant murder, and then, perhaps, we shall have legalised road-racing.

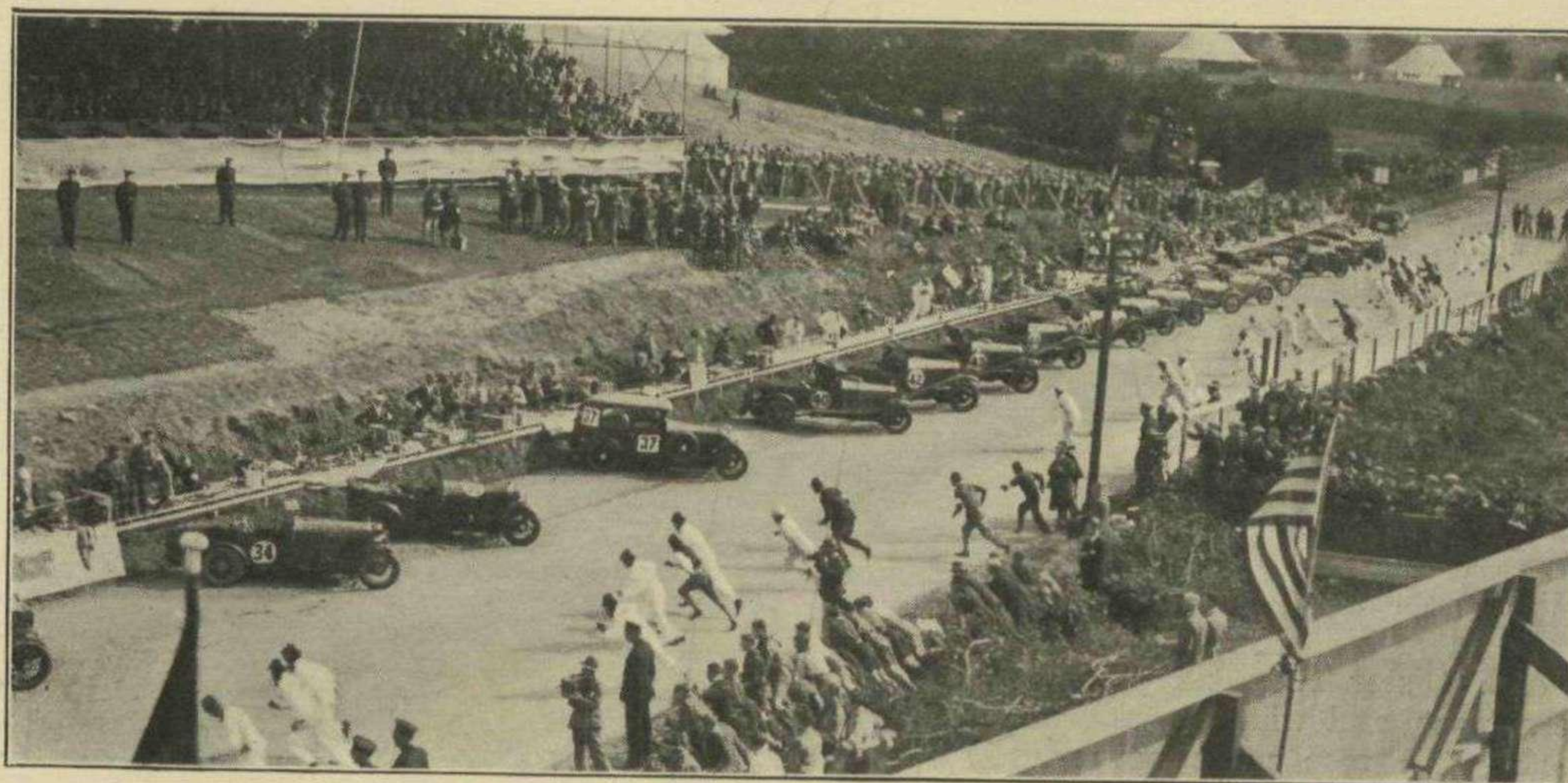
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## THE ULSTER TOURIST TROPHY.

LEA FRANCIS, DRIVEN BY KAYE DON, SCORES ITS FIRST BIG WIN IN RACE PACKED WITH EXCITEMENT.



DRIVERS AND MECHANICS SPRINTING TO THEIR CARS AT THE START OF THE R.A.C. T.T.

**A**UGUST 18th, 1928, is a date that should rank high in the history of Motor Car Racing for, as everyone knows, it marked the revival of that one and only British Road Race, the Tourist Trophy.

The entries were, considering the circumstances, large, but the withdrawal of the Bentley team was a disappointment to many, especially when one considers the very good chance they had of winning the race, despite the handicap. The withdrawal of the Salmson team caused a certain amount of sorrow to other manufacturers of cars of this size; the Riley people, in particular, were very interested to see how their cars would compare with the French 1,100 c.c. products. For this reason the absence of Scott's Amilcar was regretted. However, from an entry list of 57, 44 starters cannot be considered bad.

At 10 o'clock the road was closed to traffic, and, amid the gentle noise of warming of engines, K. Lee-Guinness started off, with a "Road Closed" notice back and front, to lap the course. A full five minutes before 11 a.m. drivers and mechanics had started to line up on the other side of the road opposite their cars. "One minute!" "30 seconds!" "Go!" Drivers and mechanics rushed for their cars and, amid the clicking of hood catches, an engine broke out with a roar; then another and another, till the whole air was filled. Off streaked the Bentleys and with them Campbell, in his 2261 c.c. supercharged Bugatti; close behind were the Austro-Daimlers and Alvises; Thistlethwayte (Mercedès) was also in the fore. When the crowd had disappeared, the dust cleared and revealed Aldington still endeavouring to start his Frazer Nash saloon. He worked quickly but calmly; at last, after losing nearly five minutes, the engine sprang into life and the car got

away. Shortly after this we heard that Cook (Bentley) led at Newtonards, and that the Mercedès had stopped at Bradshaw's Brae. Plunket Green also had trouble on the Newtonards straight, causing him some seven minutes' delay.

By this time the excitement in the pits was increasing, and one realised that it was now a good 12 minutes since the start. Who would be round first? This question was soon answered by Birkin, who roared past the pits 12 min. 35 secs. after a standing start, an average of over 65 m.p.h. Close behind was Curzon (Bugatti), followed by Cook (Bentley). A first F.W.D. Alvis followed, driven by Purdy. Then came Campbell (Bugatti); close behind him were Kaye Don (Lea Francis) and Harvey (Alvis). Cars were still flashing past the stands when Thistlethwayte shot into his pit; he had outlapped many of the smaller cars in spite of his stop. Great excitement was caused by Aldington, who, despite his very bad stop, overtook Barnes' Austin Seven just past the pits. In under 25 minutes Birkin came round on his second lap, let his hood down in one movement, and was off again in a flash; after him came Curzon, Cook and Purdy. Then came a Bugatti (49), followed by a large sheet of flame. It was Campbell! Out jumped Villa, his mechanic, and started to detach the hood fastener, apparently regardless of the danger; Large fire extinguishers were brought in numbers, but from the first the task of saving the vehicle looked hopeless. Gallons of liquid were pumped over the tail of the Bugatti. Dense tetrachloride fumes drove the near-by spectators back. Soon the air was black. By this time Birkin was round again, scattering Campbell's helpers as he roared through the dense black cloud. Car after car followed, and many a driver



## THE ULSTER T.T.—continued.

must have had an exciting moment passing the blaze. The car was later dragged away to the competitors' enclosure, where it burnt itself out. During this excitement most of the drivers had slid into the pits unnoticed, taken down their hoods and shot off on their third lap. W. N. G. Phillips, with the Riley Monaco Saloon, had the misfortune to burst a cylinder head gasket, but with grim determination got down to the job of fitting another. After a delay of a little more than an hour, however, he continued. Maclure (Riley) skidded into a bank, broke his back axle casing, and was forced to retire.

### Early Troubles.

Baron d'Erlanger came into the pits with a broken rocker. The Tracta, the French front wheel drive hope, retired with engine trouble, having run two laps. J. Martin was also another early retirement with his Salmson; this was due to damage sustained as a result of a skid in Comber. At the end of the fourth lap everyone was surprised to see Birkin slow down and stop at his pit—a broken oil pipe was his trouble; certainly bad luck. With great skill he quickly fitted a piece of "flex" tubing and roared off once more. Barnes' Austin was reported to be boiling at Dundonald; shortly after this he turned over, and, in spite of slight injuries, continued; this action gained him a cheer as he passed the grand stands. The Stutz, driven by Watney, which had been going well, caused a certain amount of excitement at Ballystockart by climbing a hedge. At this point Hayward, on the F.N., returned to the pits with a broken valve spring and cotter and was forced to retire. Wilday, on an Alvis, burst a tyre, changed his wheel on the course, and returned to the pits at the end of the lap to collect another spare. Next to draw into the pits was Cook, with his Bentley; he had suffered the same trouble as Birkin, his oil pipe having broken. Luckily he had a spare, so that the delay caused was small. The repair was effected and replenishment of oil made in four minutes.

No sooner had this Bentley left than Birkin slid in again with the other one, his second stop; this time to tie up a front lamp which was dropping off. Thistlethwayte now stopped at Dundonald to adjust a shock absorber. In one way and another the big cars seemed to be having trouble. Harvey, who was now running fourth, came into the pits to replenish with oil, petrol and water; this cost him two places, but that did not matter when hardly a third of the race had been run. Staniland was the next to fall out; he was leading, and had completed nine laps on his Riley when his oil filler cap sprung open and a stream of oil gushed out; his engine ran dry and seized before he reached the pits. V. Balls (Amilcar) then slipped up to first place until he was overtaken by Gallop. Another retirement was registered by G. C. Strachan, whose Gwynne returned to the pits with engine trouble. Wilday made another journey to the pits to change his plugs, as did Plunket Green with his Frazer Nash, complaining at the same time of an absence of third gear chain. At ten laps

Gallop was maintaining the lead from V. Balls (Amilcar) by only 12 seconds. The positions were:—

1. Gallop (Riley).
2. V. Balls (Amilcar).
3. Davis (Riley).
4. Noble (Riley).
5. Peacock (Riley).
6. Harvey (Alvis).

The race was certainly looking well for Rileys, although the bigger cars were gradually working their way up through the handicapping. It was interesting to note that Thistlethwayte was making up for lost time by lapping consistently in about 11½ minutes, nearly 73 m.p.h., and incidentally setting up the fastest lap at over 74 m.p.h. Paul (Austro Daimler) hit the barrier at Comber, burst a tyre, changed a wheel and carried on, his reserve driver taking over.

The O.M. came into the pits to refill, while Erlanger's Lagonda was giving more rocker trouble. Oil had made the road slippery on the second turn in Comber, and Gallop skidded wildly on his Riley. Mason (Austro Daimler) did the same. Gallop still held the lead, but Davis had wrested second place from Balls, and Harvey was now running fourth again. The positions at 15 laps were:—

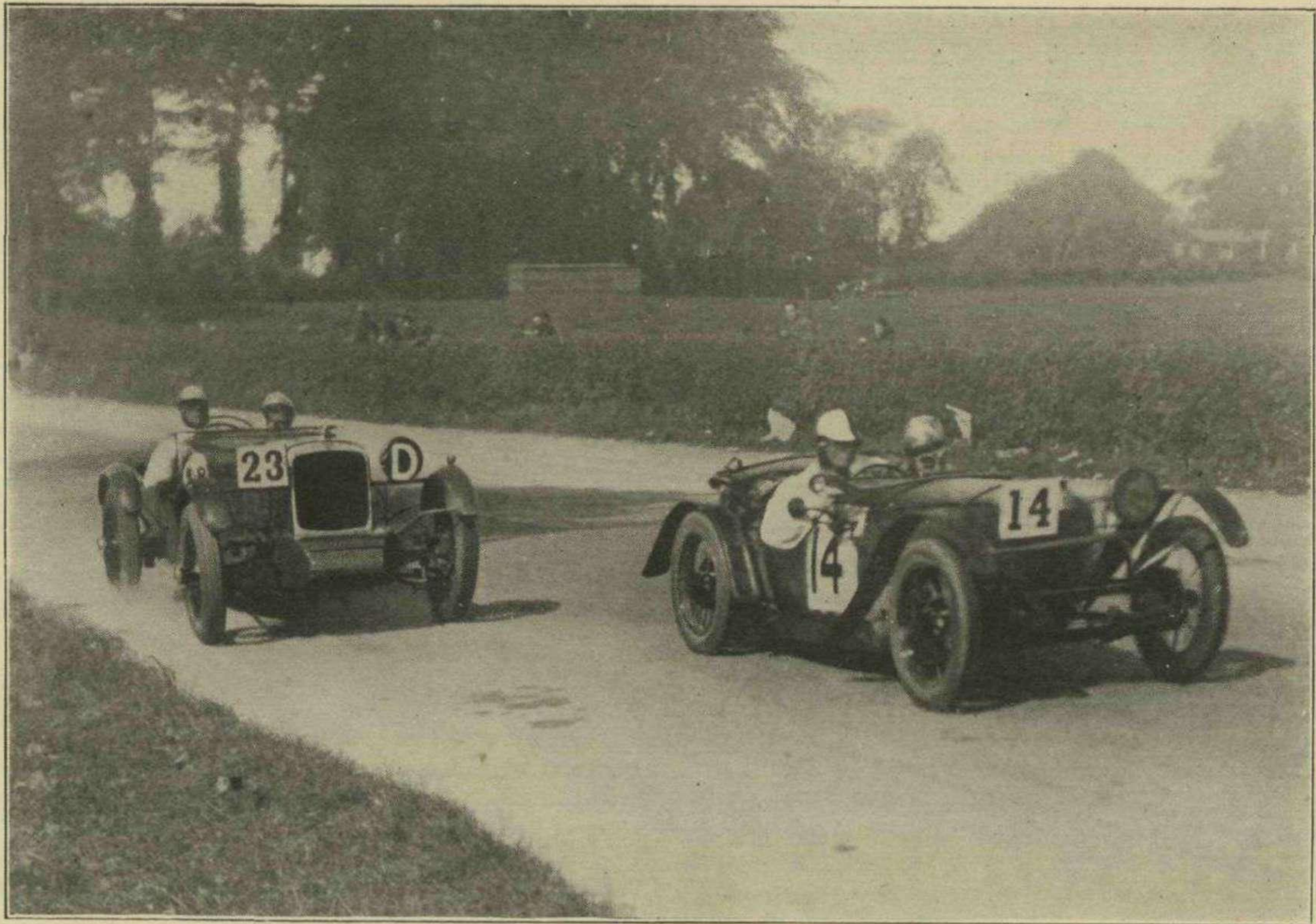
1. Gallop (Riley).
2. Davis (Riley).
3. Balls (Amilcar).
4. Harvey (Alvis).
5. Noble (Riley).
6. Dykes (Alvis).

### General Post.

Such were the leaders at 15 laps; yet, before the twentieth lap, the whole aspect of the race had changed; only one of these "first six" were still running. The first victim of this run of fate was Gallop. While at speed on the Comber-Dundonald section he hit a gully; the car swerved, and skidded, crashed into a telegraph pole and was thrown backwards over a 5 ft. bank. Gallop's mechanic was flung some 25 feet. Both occupants of the car may be considered to have had a miraculous escape. Balls, who had, in the meantime, overtaken Davis, now took the lead. Harvey was a close third. Davis then came into the pits and Harvey took second place, the Riley getting away again just after the Alvis had passed. Near Ballystockart there was a local sharp shower. Harvey came into the wet patch fast, skidded and crashed. Newsome (Lea Francis) made an endeavour to avoid the Alvis, but skidded broadside across the road and crashed into a ditch. Both cars were damaged beyond repair. Davis then came on the scene. With a bit of superb driving he managed to get through the two gyrating cars, but he then found himself going too fast, and in the wrong position to negotiate the next bend, and he fell into the ditch. He and his mechanic worked feverishly and managed to get the car back on the road again, but a piece of rock in the pit of the ditch had bent his steering arm and he found himself with no lock. Slowly he made his way to the pits, where he had to retire. Noble



## THE ULSTER T.T.—continued.



AN ANXIOUS MOMENT—DYKES (ALVIS) PULLS OUT TO OVERTAKE WILKINSON (RILEY) SHORTLY BEFORE HE CRASHED.

was the next unfortunate; after attaining second place he crashed his Riley at Newtonards, breaking its back axle. Balls still led, but Dykes (Alvis) and Kaye Don were rapidly overhauling him, while Purdy was close on their heels with another Alvis. Dykes took the lead when Balls stopped to refill, but he did not keep it for long. Travelling fast at Bradshaw's Brae he hit the bank and overturned. A certain amount of anxiety was felt at first at the pits as he was reported to be badly injured, but his injuries were not so serious as was first believed. Kaye Don then took the lead, which he held till the end. The Mercédès caused the next excitement by skidding backwards into the ditch at Mill Corner and partly overturning. Thistlethwayte and Kindell got it back on to the road, however, and continued, but they were well behind the Bentleys, which, after their minor troubles, were now going splendidly. The positions after 20 laps were:—

1. Kaye Don (Lea Francis).
2. Purdy (Alvis).
3. Balls (Amilcar).
4. Hall (Lagonda).
5. Cushman (Alvis).
6. Hayes (Lagonda).

Certainly a great change had taken place in five laps.

Even now the leaders were dropping out. Purdy's Alvis broke a piston and he was forced to retire. While coming down into Newtonards, Balls skidded at full speed and hit the barricade, wrecking his Amilcar.

Hall's Lagonda developed trouble and caused his retirement, thus putting Cushman's Alvis second, with Haye's Lagonda third. Dutilleux (Bugatti) was now seventh, but Curzon had retired since his Bugatti tank had started leaking, and he wisely did not risk sharing Campbell's fate. Mason and Paul were now fourth and fifth with their Austro-Daimlers. Peacock, who had made a good steady run, was now leading the 1,100 c.c. cars on his Riley, and was seventh in the race. Haye's Lagonda was now out, and Dutilleux had worked his Bugatti up to third place. At 25 laps the positions were:—

			H.	M.	S.
1.	Kaye Don (Lea Francis)	...	4	56	17
2.	Cushman (Alvis)	...	4	56	57
3.	Dutilleux (Bugatti)	...	5	0	21
4.	Mason (Austro-Daimler)	...	5	5	30
5.	Paul (Austro-Daimler)	...	5	8	22
6.	Eyston (Lea Francis)	...	5	13	17

Birkin and Cook were ninth and tenth, respectively, with their Bentleys, Birkin being as much as nineteen minutes behind the leaders. And so it developed into a match between Don and Cushman, a few mere seconds keeping them separated for some seventy miles of corners, bends and grades. With little fuel and oil Cushman hounded after his rival, but for ever with him was the thought of his shortage of supplies. By the end of 20 laps he had reduced Kaye Don's lead to  $26\frac{2}{5}$  seconds. Don received the "all out" signal from



THE ULSTER T.T.—concluded.



KAYE DON, ON THE WINNING LEA FRANCIS, SWINGING ROUND THE DUNDONALD HAIRPIN.

his pit. Dutilleux was dropping back as fast as the Bentleys were pushing forward. The Austro-Daimlers were holding third and fourth places, Callingham, with the remaining car of the team, being now tenth.

The last lap! Could Cushman catch Don? It seemed unlikely considering how long Don had held the lead. As the minutes passed the excitement in the pits grew tenses. At last—Don was leading at Dundonald. Directly after this was announced the Lea Francis rounded the bend, streaked up the grade towards the pits, and over the finishing line. Scarcely had the cheering started than Cushman flashed past, a loser by only 13 seconds. A mile up the road after the finish he ran out of petrol. The excitement was so great that the crowd hardly noticed Mason bring his Austro-Daimler into third place some ten minutes later. Paul was fourth with the second "Austro." Birkin had snatched fifth place from Eyston (Lea Francis), doing the total

distance of 410 miles (from scratch) in 6 hours 13 minutes 5 seconds, an average speed of 65.76, the highest for the race. Cook, with the other Bentley, was seventh. The final order was:—

	No. of Laps Credit.	Time. h. m. s.	Average Speed. m.p.h.
1. Kaye Don (Lea Francis) ...	2 ...	5 58 13 ...	64.06
2. L. Cushman (Alvis) ...	2 ...	5 58 26 ...	64.02
3. H. Mason (Austro-Daimler) ...	1 ...	6 7 38 ...	64.65
4. C. Paul (Austro-Daimler)...	1 ...	6 10 10 ...	64.21
5. H. R. S. Birkin (Bentley) ...	0 ...	6 13 5 ...	65.76
6. G. E. T. Eyston (Lea Francis) ...	2 ...	6 15 4 ...	61.14
7. H. W. Cook (Bentley) ...	0 ...	6 19 35 ...	64.77
8. R. F. Oats (O.-M.) ...	2 ...	6 23 23 ...	59.83
9. L. Dutilleux (Bugatti) ...	1 ...	6 25 1 ...	61.73
10. L. G. Callingham (Austro-Daimler) ...	1 ...	6 26 36 ...	61.48
11. K. S. Peacock (Riley) ...	3 ...	6 28 22 ...	56.98
12. R. Watney (Stutz) ...	0 ...	6 34 6 ...	62.39

THE LEVIS FOUR-STROKE.

Considerable interest is being focussed at the present time on the four-stroke Levis, on which P. Hunt led the Junior Amateur T.T. until only three miles from home, and I hear that the manufacturers are making arrangements to produce it in larger quantities than in the past. This machine is comparatively little known, except in the Midlands, owing to the fact that its output has been hindered by production of the popular Six Port Levis two-stroke.

The four-stroke Levis, however, has been used extensively in competitions, and for the last two years has won gold medals in the International Six Days Trial.

MOTOR CYCLES ON THE STAGE.

Horses have been seen on the stage in many dramatic productions, but an Ariel "horse" (as the modern medium-weight Ariel motor cycle has been nick-named) is a rarity in such a setting. Bobby Howes, the well-known comedian, however, is riding one on the stage in the new musical comedy "Mr. Cinders," now running in the provinces prior to its London production.

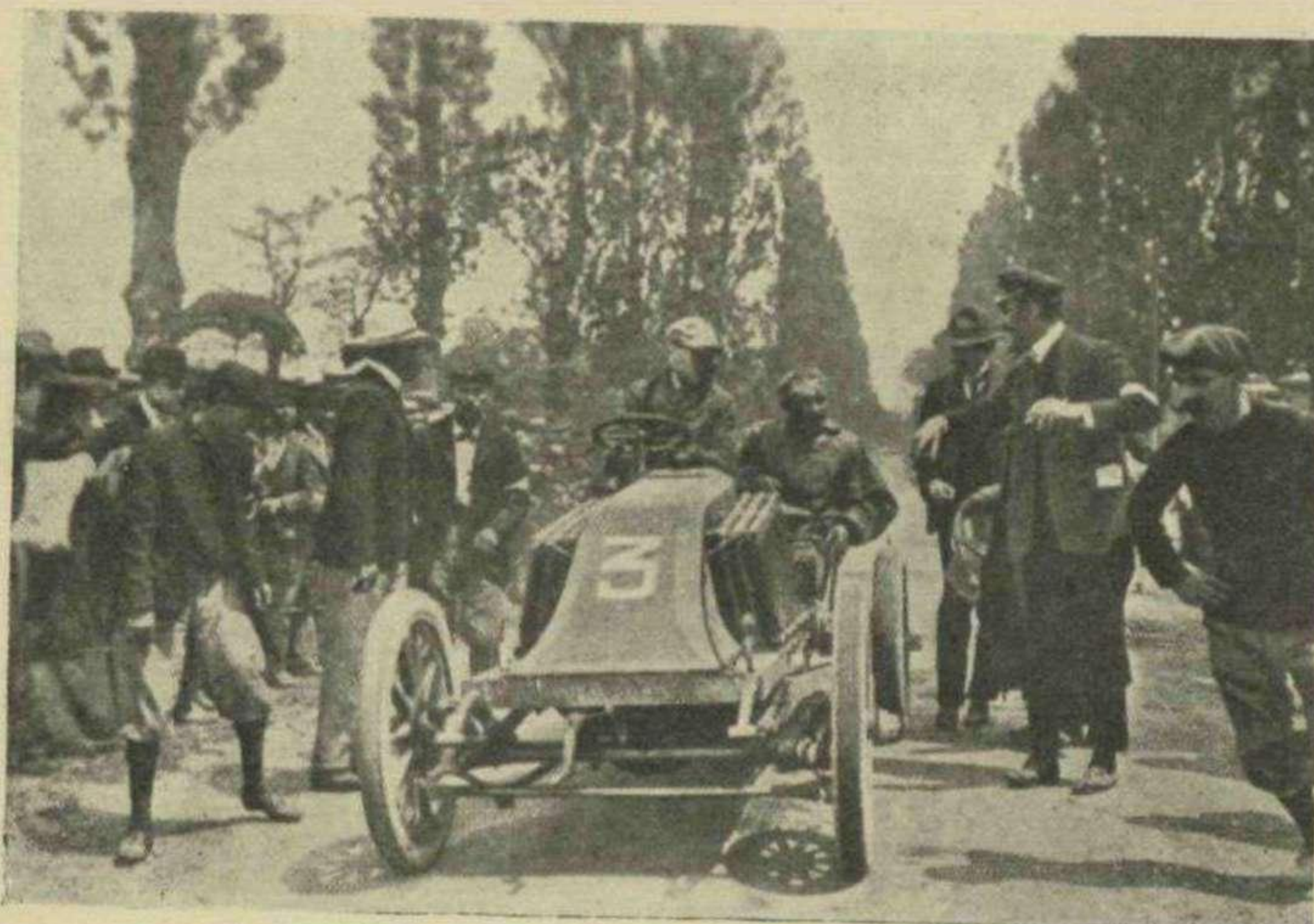
This is probably the first time that a motor cycle has actually been ridden in a theatre, other than in certain variety turns. Fluid petrol is, of course, barred on the stage, but the difficulty is overcome by the use of cotton-wool saturated with "juice."



# GREAT RACING MARQUES.

## XIV.—RENAULT.

By E. K. H. KARSLAKE.



LOUIS RENAULT ARRIVING AT BORDEAUX IN THE PARIS—MADRID RACE, 1903.

It was towards the end of last century when the two brothers, Marcel and Louis Renault, began to build motor cars, and founded the firm which has now become one of the most famous in the whole French industry. In those days, however, the Renault brothers had very distinct ideas about the lay-out of cars, and when they began to race, it was with small light machines fitted with quite small engines, in sharp contradistinction from the prevailing practice of that time, when engines were tending to become larger and larger.

It was in the Circuit du Nord Race of 1902 that the Renault began to be noticed as a redoubtable competitor in the big races. This event was actually organised by the French Government, and its object was to prove that motor cars could be run on ordinary home-grown alcohol as a substitute for petrol. The course was round the Northern provinces of France, starting at Champigny, and going to Arras, where a stop was made for the night, and thence back to St. Germain, and among the starters was Louis Renault on one of his 16 h.p. light cars. During the first day's racing, he made it quite clear that his car was seriously to be reckoned with, and he finally arrived in Arras third. On the second day, he again started off in good style, but before very long he came to grief on a corner, and the race, as far as Renault was concerned, was over.

The Circuit du Nord, however, was merely the prelude to greater things, for a month later the great Paris-Vienna race was run. Marcel and Louis Renault were once more at the starting line, and again they were setting out to race with their 16 h.p. Voiturettes. The race will go down to history as something of a romance, for the fastest time to Vienna was made by Marcel Renault, who

averaged 39.2 m.p.h. for the 620 miles, and arrived 39 minutes ahead of Maurice Farman, who won the big car class on a 70 h.p. Panhard. Renault's victory, if anyone had understood it at that date, was strangely prophetic; but it took many years more before the world understood that, with a small engine and a light car, it is possible to defeat heavy, powerful machines.

It was a magnificent victory, and the next year the two brothers again started in the great event of the season, the Paris-Madrid race. Louis Renault had drawn the number three, and his car was, therefore, the third to be dispatched from the park of Versailles on its long journey to Bordeaux, which was the finishing point of the first day's racing. Twenty miles from the start, however, he had passed the two cars which had started in front of him, and from Rambouillet onwards he was right ahead of the pack.

The fastest time from Paris to Bordeaux was made by Gabriel, who was driving a 70 h.p. Mors, but the second place was gained by Louis Renault, who, on his light car, had succeeded in beating all the other big racers. It was another magnificent performance, but unfortunately Louis' victory was marred. The number of fatal smashes in that race has become proverbial, and in fact, they were so numerous that the contest was stopped at Bordeaux by order of the French Government; and among those who were fatally injured was Marcel Renault. The Paris-Madrid race was the last event in which the brothers Renault were to prophesy to the world the advent of the light car.

Three years later the firm of Renault returned to motor racing, but the cars which were entered for the first Grand Prix in 1906 bore no resemblance to the 16 h.p. Voiturettes, which had startled the world in



## GREAT RACING MARQUES—concluded.

1902 and 1903. The 1906 racing Renault was rated at 105 h.p. and had a 4-cylinder engine with a bore and stroke of 165 × 150 mms., giving a stroke-bore ratio of 91.1 and a capacity of 12,975 c.c. This engine size was, however, comparatively moderate for this race, the largest engine in the event having a bore and stroke of 185 × 175 mms. (18,286 c.c.).

### Advanced Design.

But the power-weight ratio of the Renault was low in comparison with its competitors, for the car weighed 19½ cwts., as against only 19<sup>4</sup>/<sub>5</sub> for the 18-litre Panhard. The cars, however, had a number of unusual features, including high-tension magnetos, which were by no means general, three-speed gear-boxes, and propeller-shaft drive, which had been a special Renault feature ever since the days of the old Voiturette racers. Another feature which has become a Renault tradition was that the radiator was placed behind the engine and the cars were almost unique in their employment of thermosiphon cooling. Most important of all, however, was an innovation in motor racing in the form of the detachable rim, which only two other firms had learnt to use in 1906.

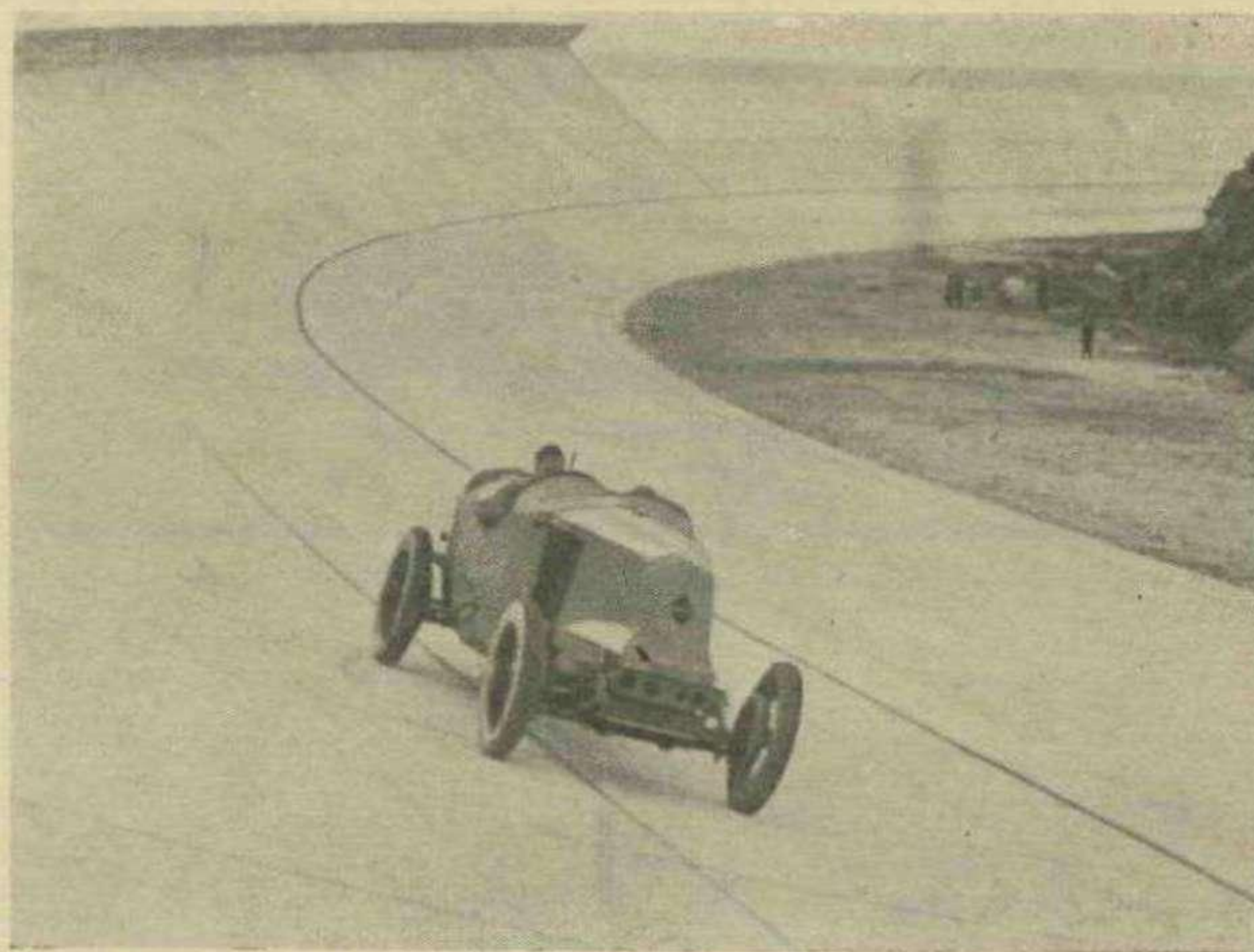
Three cars started in the hands of Szisz, Edmond and Richez, and by the end of the first circuit, Szisz was in the lead, with an advantage of two minutes over his nearest competitor. The race was for 759.9 miles, over a circuit near le Mans, the distance being covered in two days, but the circuit being a long one, the race only consisted of twelve laps in all. The weather was swelteringly hot, and it soon became apparent that tyres were going to be an important factor, and the Renaults were going to score heavily with their detachable rims. Szisz ran with the greatest regularity, and finally finished the first day's racing in first place with a lead of 24 minutes. In the meantime, Edmond had been put out of the race owing to the fact that he had lost his goggles and the tar dust had had such an effect on his eyes that he was unable to continue. Richez, the driver of the third Renault, however, finished sixth.

### A Great Triumph.

On the second day, Szisz started off once more in magnificent style and, never allowing himself to be headed, finally finished first over half-an-hour ahead of his nearest competitor, having averaged 63 m.p.h. for the full distance.

Thus, Renault had won the great event of 1906, and the first Grand Prix race ever run, from a field of 39 competitors; and three cars were again entered for the event in 1907.

This year the race was run on a fuel consumption basis, but the Renaults entered were of exactly the same type as those which had run the year before, though they were not the identical cars, which had been sold. The race was run at Dieppe, and the Renaults again had Szisz and Richez as two of their drivers, but the third car was now entrusted to Farman.



THE EARLY 45 H.P. RENAULT, WHICH AVERAGED 87 M.P.H. FOR 24 HOURS.

Once more it was soon apparent that, in spite of their comparatively small engines—for although fuel was limited, one of the competing cars had a 19½-litre engine—the Renaults were among the fastest cars on the course. Szisz completed the first of the ten laps in third place, and, after running with great regularity, finally finished second, only six minutes behind the winner, which was a very narrow margin in those days of easy victories.

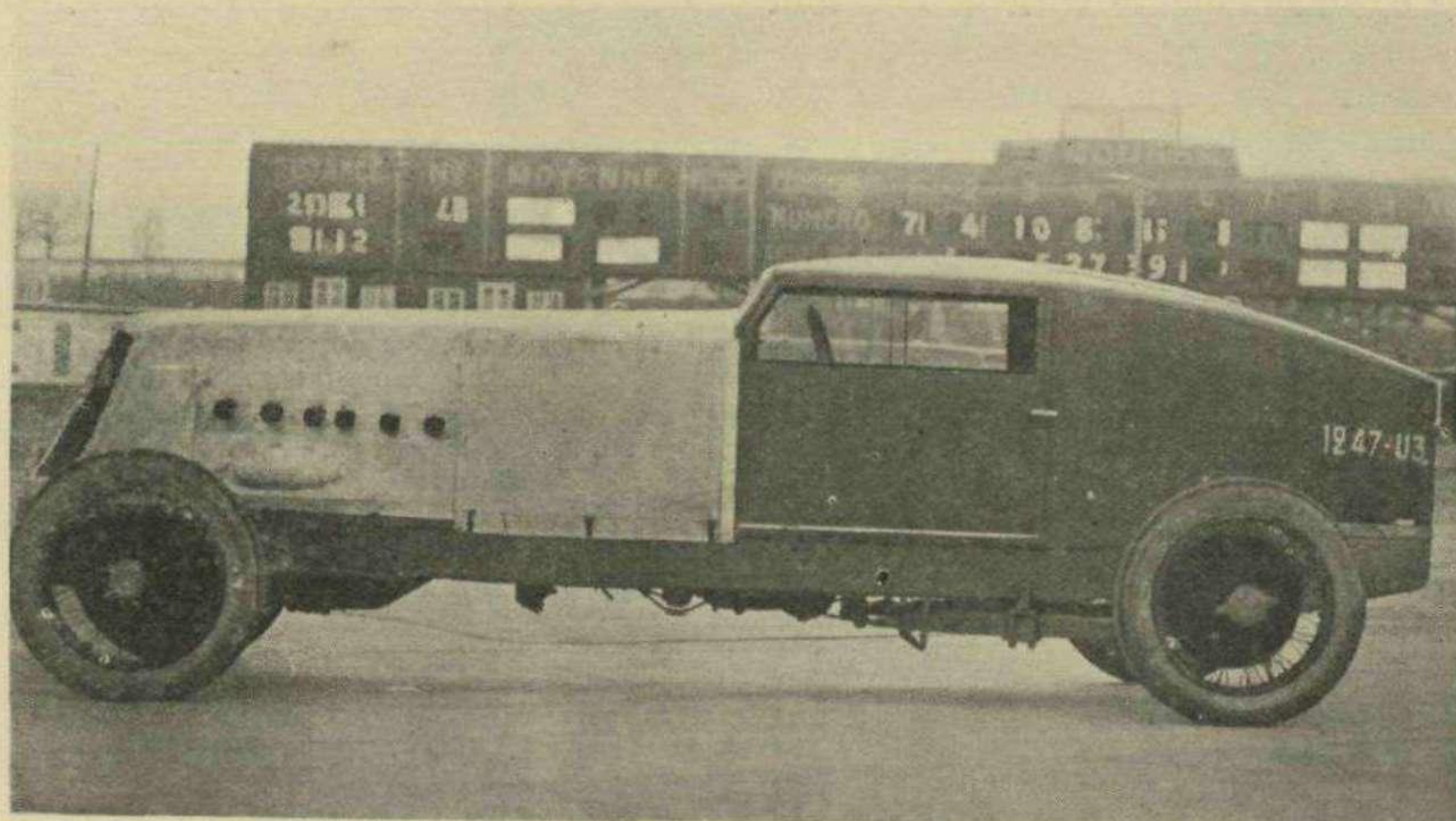
For the 1908 race, which was again run at Dieppe, the fuel consumption limit was dropped and instead the bore of the cylinders was limited to 155 mms. Most manufacturers, therefore, took the line of building long stroke engines for the race, but the Renault people preferred to get their power from high-engine speeds, and built a set of cars with 4-cylinder engines of 155 × 160 mms. bore and stroke (12,081 c.c.) with what was then a very high maximum speed of about 2,000 r.p.m., and carefully designed hemispherical cylinder heads. In other respects, the cars were built to the same specification as in the previous two years, but in order to make sure of adequate cooling for the high speed engines, their bonnets were simply made of wire gauze.

Szisz again captained the Renault *equipe*, but his team-mates this year were Caillois and Dimitri. There was a field of 49, but at the end of the first lap Szisz appeared in fourth place, and it seemed as if he was going to repeat his performance of the last two years. But it was not to be, for on the second lap one of his back wheels collapsed, and, in those days of detachable rims and fixed wheels, this caused his retirement.

Caillois continued well, however, until he, too, was forced to retire on the last lap, and left Dimitri to finish alone in eighth place.



## GREAT RACING MARQUES—concluded.



THE REMARKABLE SINGLE SEATER SALOON WHICH PUT UP SUCH FINE SPEEDS FOR 24 HOURS AT MONTLHERY.

The race was won in overwhelming fashion by the German cars, and the effect on the French was so great that after 1908 motor racing suffered an eclipse. About this time Renault Frères began to concentrate largely on closed cars, and when motor racing was finally revived, they evinced no interest in it. After the war, however, they began to build a big six-cylinder model with a bore and stroke of 110 × 160 mms. (9,123 c.c.), which has been the largest engine in a really standard chassis for some years now. It was soon found that this model was distinctly fast, and the firm therefore began to think of attacking records. A chassis fitted with a stripped and carefully streamlined four-seater body was, therefore, prepared, and in May, 1925, it appeared at Montlhéry, and proceeded to capture no fewer than 17 records at the first attempt, from 500 kilometres to six hours at speeds of 100 to 112 m.p.h.

### High Speed Endurance.

Garfield and Plessier, who had driven the car during these records, set out again in June, this time with the intention of capturing the 24-hour record, which at that time stood at about 83 m.p.h. For the first round of the clock the car ran at very high speed, and for 12 hours it averaged 97.94 m.p.h. Then, however, a nut from an exhaust pipe joint fell off and hit the fins of the flywheel fan, breaking some of them and causing the car to overheat, so that frequent stops had to be made for water. Worse was still to come, however, for a little later on the timing chain broke, and two whole hours were wasted in fitting a new one which had to be taken off another car. In spite of all this, the Renault succeeded in averaging 87.63 m.p.h. for the 24 hours, and thus captured the record. After this performance, Louis Renault had the car compared with a standard model picked at random, and the only departures in the record-

breaker that the scrutineers could find were bigger jets with the mouth of the air intake facing forward and a higher back axle ratio.

The record, however, was beaten by the 3-litre Bentley, but, nothing daunted, Louis Renault fitted a single-seater streamlined saloon to the 9-litre car in place of the 4-seater body which had been used before, and in 1926 the car proceeded to give a taste of its quality by taking the 100 kilometre record at 117.36 m.p.h. In July, however, a new attempt was made on the 24-hour record, and with Garfield, Plessier and Guillon as its drivers, the big Renault proceeded to capture the record at 108.3 m.p.h., as against the previous figure of 95.03 m.p.h., and covered its last lap at 119.2 m.p.h.

### The Small Renault.

While the big Renault was thus acquiring the honour of being the first car to average 100 m.p.h. for 24 hours, the *marque* was gaining honours with a very different model. At the other end of the Renault scale to the big 9-litre machine is a small car with a 4-cylinder engine of 58 × 80 mms. (951 c.c.), and it was decided to capture some really long-distance records with this little car. The Renault was, therefore, run for 10,000 miles at Miramas, and succeeded in averaging 49.17 m.p.h., for this distance, and ran for six days at an average of 50.4 m.p.h.

This year Renault has again shown the world the value of his standard models by the double victory in the 3-litre and 1,500 c.c. classes of the Moroccan Grand Prix with his Vivasix and Monasix models; and now that touring car races have become so important, there is not a racing enthusiast who would not like to see the *marque* which won the first Grand Prix distinguishing itself in the great events of the season.



## THE TYPE XII 14/35 STEYR WEYMANN SALOON.

### AN INTERESTING SMALL CAR WITH SOME UNCONVENTIONAL FEATURES.

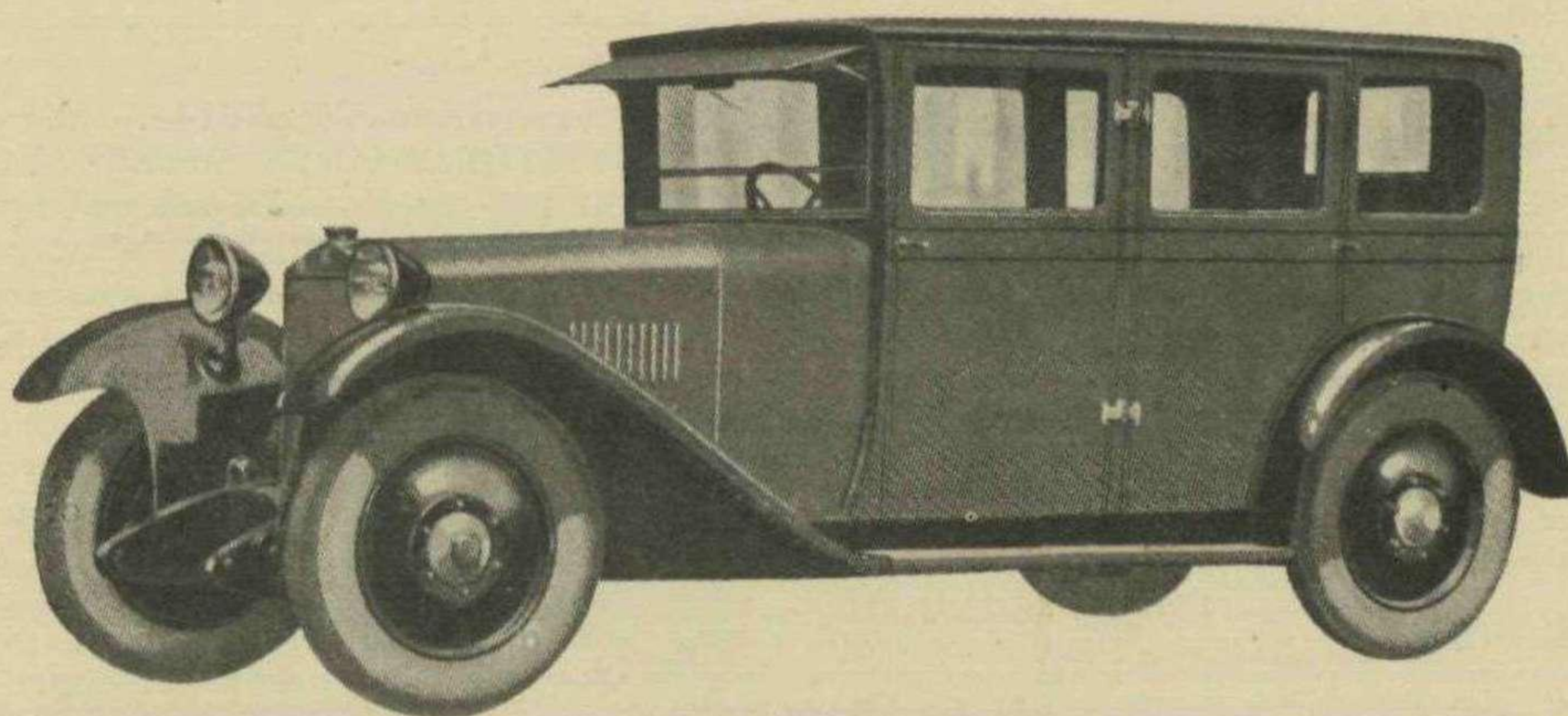
STEYR cars have long enjoyed a high reputation on the Continent as examples of sound construction and first-class design, and the Alpine Steyr has been renowned even in this country as a high-powered car with a splendid sports performance.

It was therefore with great interest and no little pleasurable anticipation that I took over a model of the Type XII 14/35 Weymann Saloon, which Mr. A. S. Forsyth, the Steyr representative for this country, kindly placed at my disposal one week-end.

There is something about the very appearance of the small Steyr which exudes an air of breeding, and a glance at the accompanying illustration of the model in question will convey something of the appeal this

The main feature of the Type XII is, of course, the Articulated Rear Axle, and so remarkable are the results of this lay out that a few words of description will not be out of place.

The drive is taken to the differential via an open propellor shaft, having two fabric universals, providing a transmission untroubled by frame distortion. The independent springing of the rear wheels is arranged by means of universal joints on the inboard side of the differential shafts, and the torque members, of novel design, are anchored at the forward end by ball-joints. The suspension at the rear is by means of a transverse spring anchored in the centre, and shackled to the torque members, thus relieving the spring from any side strain.



THE 14/35 STEYR, FITTED WITH THE WEYMANN SALOON BODY.

handsome car makes to the eye, and will suffice to show that the 14/35 is a worthy small sister of the famous Alpine Steyr.

Wherein lies this unmistakable air of distinction it is difficult precisely to say, and the features which immediately strike one are probably the very fine example of M. Weymann's art, the handsome bonnet—so different from the old high prow-shaped one—and the double row of louvres on the bonnet sides. Even the disc wheels, so often unpopular in England, do not detract from the imposing appearance of the car. Indeed, it is difficult to realise, by just glancing at the saloon, that it is a small car of but 1½-litres capacity.

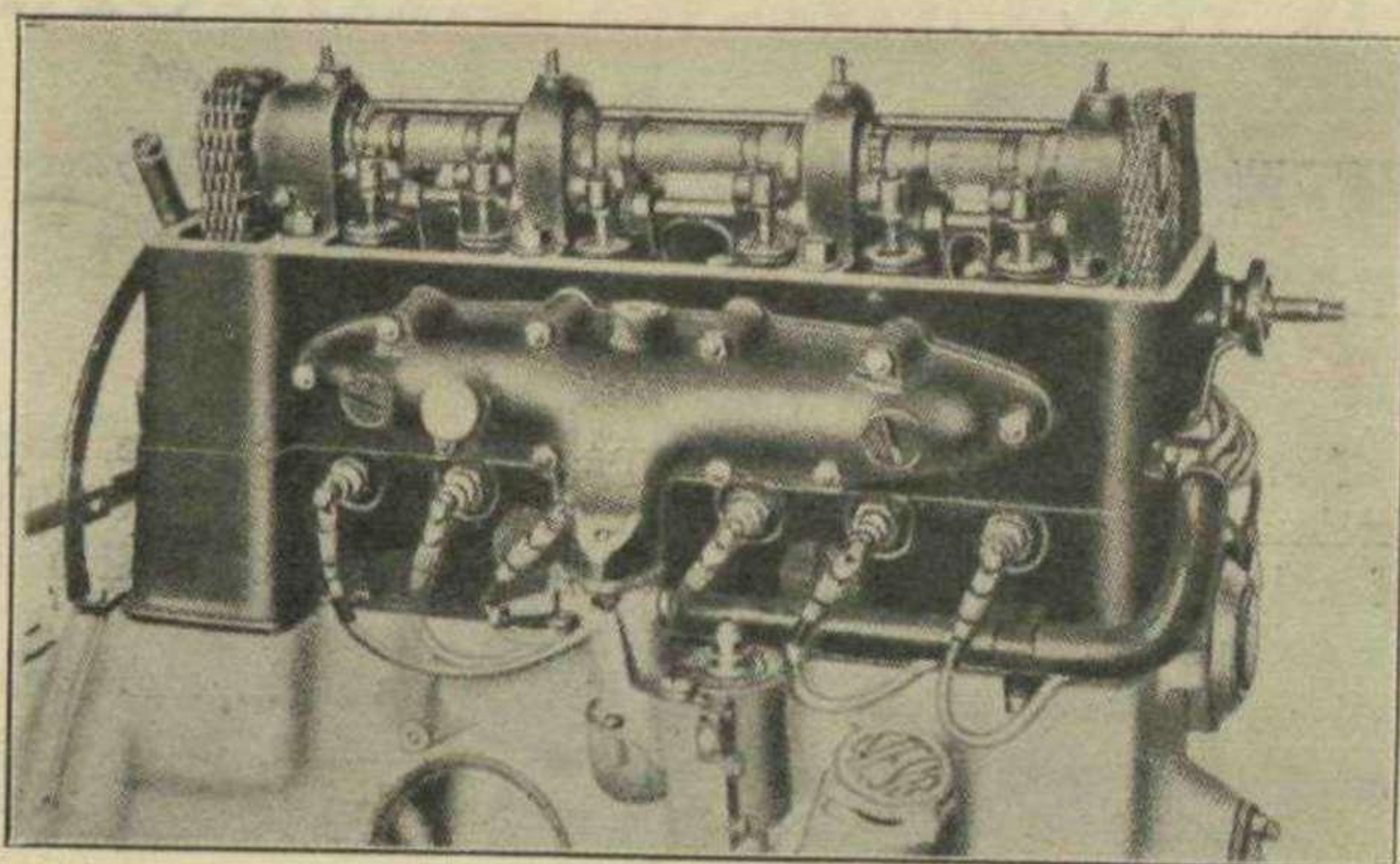
However, it is not in the appearance of the Type XII Steyr that interest centres, but rather in the very unconventional and clever design of the rear axle and transmission lay-out.

There is no doubt that the theoretical advantages of this arrangement are fully proved in practice, the absence of roll, whether riding light or four-up, being remarkable, while the insulation from road shock is noteworthy; only at speed over very rough roads is there a certain amount of movement discernible, when each rear wheel bounces independently.

The overhead camshaft six-cylinder engine is of but 1560 c.c. capacity, with a bore and stroke of 61.5 mms. and 88 mms., and is exceptionally silent in operation, there being a complete absence of valve clatter or other mechanical noise. The maximum speed was not found to be phenomenal, being in the region of 60 m.p.h., but an easy cruising speed of 45 to 50 is the feature of this car. Speeds on indirect gears I found to be about 10 m.p.h. on first, 25 m.p.h. on second and 40 on third, but there is little doubt that the engine could



## THE TYPE XII STEYR SALOON—concluded.



THE STEYR POWER UNIT, SHOWING THE CHAIN-DRIVEN CAMSHAFT.

develop much higher speeds were the gear ratios slightly raised.

Getting into the driving seat at the Upper St. Martin's Lane Showrooms, a touch of the starter button woke the six cylinders into purring activity, and, without perceptible sound, I glided into the maelstrom which is Trafalgar Square.

Rapidly slipping through the gears, I found myself bowling along the Mall at an easy 45 m.p.h. on top without the faintest indication that I was doing more than twenty; the engine was silent and silky, the body was silent, there was just a faint hum from the wheels, while the speedometer registered 45.

Indeed, if I were asked to give in one phrase the outstanding feature of the 14/35 Steyr, I should unhesitatingly say, "Effortless cruising from 40 to 50."

In dense traffic the 14/35 was a joy to handle, owing to the excellence of the brakes and the very useful third gear ratio. It was easily possible to start from rest on this gear without undue clutch slipping or manipulation of controls.

The Perrot Servo brakes on all wheels I found required rather more foot pressure than I should have liked, and betrayed a tendency to squeal. However, as they certainly stopped the motor car, there seems little to grumble about.

The four speed gear-box with centre ball-joint change provided ample acceleration, which was particularly gratifying in third, while the whine, inseparable from indirect gears, was never unpleasant or too audible. Indeed, for a continental box, the Steyr was notably praiseworthy. The lubrication of both gear-box and multi-disc clutch is effected in one with the engine and is purely automatic.

Out on the open road I began to feel the true worth of the Steyr. Without any sign of fuss or suggestions of engine noise, the speedometer needle leapt up to 50 and stayed there for as long as traffic permitted. Brockley Hill, near Edgware, was ascended in fourth at never less than 35, which is quite extraordinarily good for a car of this size, fitted with so large a saloon body. The top gear hill-climbing of the Steyr is very good indeed, due to the somewhat low fourth ratio of 5.8 to 1, and 30 to 35 can be maintained on almost any ordinary gradient on the very useful third.

While on the subject of gears, I must put in a plea for a rather higher first speed, the existing ratio being much too low. Something giving a maximum of 12 to 15 m.p.h. seems strongly indicated.

On the by-pass road I pushed the Steyr along to the maximum, and in the absence of a stop watch, I should estimate that the car passed the mile a minute mark, for the speedometer, which was undoubtedly slow, registered 58 m.p.h. Now, I consider a genuine mile a minute—it was probably more—is not to be scoffed at in what is undoubtedly an undergeared car with a heavy body, and a 1½-litre saloon which will carry on absolutely without fuss or noise or any indication of speed whatever at a solid 50 until further notice (and this the Steyr revelled in doing) is to be highly praised.

It is not, however, on wide, straight roads that the Steyr shows its true colours. Get on top the ordinary winding main road, and then the extraordinarily fine road holding and cornering of the Steyr becomes impressive. The Steyr can be taken round corners in a manner not discreditable in a "pukka" sports car, and is outstandingly good in a car of this type. Perfectly safe cornering was indulged in at speeds varying between 40 and 50 without a trace of side roll.

### High Average Speed Possible.

It was obvious that in the Steyr I had a car which was capable of putting up some astonishing averages over give-and-take roads, without the least danger, and without indulging in "road-hogging."

During the whole of the 300 miles of the test I drove the Steyr over all kinds of going, varying from by-passes to very tertiary country lanes, and there was no sign of mechanical noise, or of body rattle. The fabric saloon was quite silent, not a creak or a groan coming from any part thereof.

The body work was quite first-class, the upholstery being carried out in Bedford cord, while the large window area can be seen from the illustration. A large rear light is provided with a curtain.

A very useful feature of the body was the adjustable visor over the windscreen, which rendered driving against sun or headlights perfectly comfortable.

Altogether I found the Steyr to be a very interesting small car, which, if not capable of a highly sporting performance, could put up some remarkable cross-country averages. It is an outstanding example of "breed" in automobile design, and a worthy product of the famous Viennese factory.

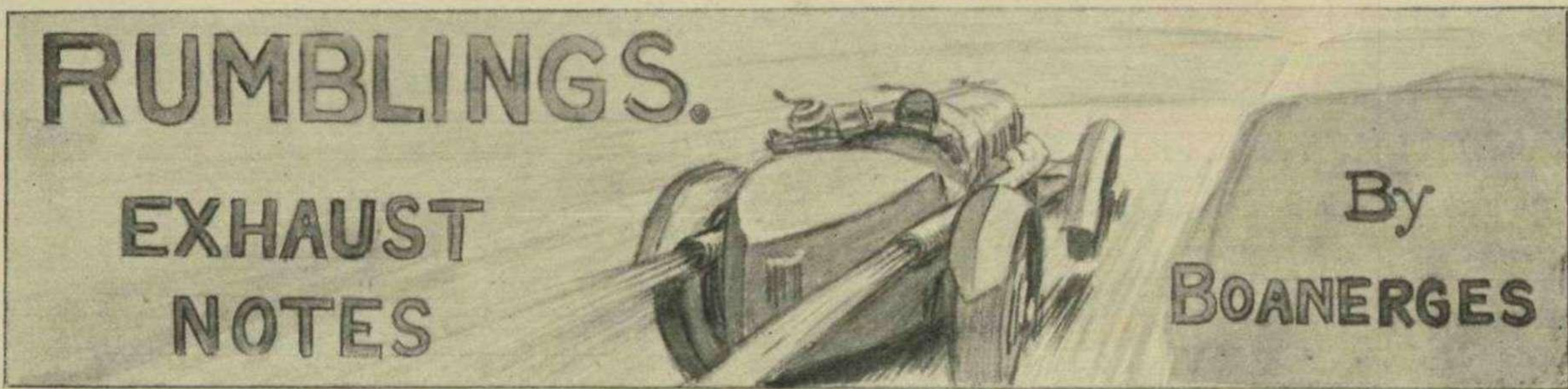
The Weymann Saloon on test is priced at £470, the chassis price being £325.

All particulars and demonstration runs can be had from Mr. A. S. Forsyth, 6, Upper St. Martin's Lane, W.C.2.

### OUR COVER.

This month our cover illustration depicts T. Thistlethwayte competing in the R.A.C. T.T. in Ulster on his Mercedes. Readers are, no doubt, aware that this car made the fastest lap in the race at an average speed of over 74 m.p.h.





Well, the great Ulster T.T. is a thing of the past, and much that was said and written before the event has been shown to be ridiculous, while many warnings and forebodings uttered before the race are now seen to have been superfluous. It was *not* dangerous to start so many cars together, the course was *not* too tortuous, nor was it too fast for safety. The handicapping seems to have been remarkably efficient, and it looks as though one firm, who abstained from racing, owing to the system of handicapping, and one thing and another, might have won quite nicely, so near did a private entry of this *marque* arrive to that desired end.

\* \* \*

My most outstanding impression of the whole race was the tremendous speed, tremendous size and almost incredible acceleration of Thistlethwayte's big white Mercédès. There seems little doubt that this huge car was rather unsuited to the Ards circuit, and it speaks volumes for Thistlethwayte's sportsmanship that not only did he enter and drive his car, but that he proceeded to put up the fastest lap of the race. From my own experiences of the 36/220 Mercédès, that lap cannot have been a dull business, on the whole. No, *Sir!*

\* \* \*

One is inclined to speculate as to what would the race have been like had the official team of Mercs. been running. I think the spectacle of four or five thundering white monsters, with shrieking chargers, roaring upon my tail would have scared me into the nearest ditch, had I been at the wheel of another car.

\* \* \*

I see that the Shell people have put on the market small phials of petrol for the replenishing of one's cigarette-lighter, the phial to fit the waistcoat pocket.

I am able to state, however, that there is no truth in the rumour that pocket Pyrenes will shortly be available for the other waistcoat pocket, in case of emergency.

\* \* \*

When I was at the Press View, on September 4th, of the forthcoming products of the Hillman factory, the one item of the 1929 range which excited my interest was not on show, but the announcement was made that a 18 h.p. straight eight would be at Olympia, and at a price lower than any other eight-cylinder so far on the market. Well, we shall see what we shall see.

The nearest approach to a sporting car, which I did see, was the new Husky (what a name!) Tourer, which looks very "Le Mans" in a Lagonda-cum-Hadfield-Bean sort of way. It has fine lines, an imposing bonnet with lamps fixed to a cross bar between wings, a cut-away side for the driver's elbow, a flexible steering wheel,

and a side valve engine of 1954 c.c., with a four-speed box. The whole sells at £385, and quite nice, too.

\* \* \*

I was interested to hear Major Segrave holding forth in the train going down to the Hillman View, on the subject of traffic conditions and motoring progress in general. You may remember that in his book, "The Lure of Speed," the Major put forth the somewhat unorthodox doctrine that it is better to negotiate cross-roads at 60 rather than 15 m.p.h., owing to the considerably less time in the danger zone at the former speed.

Well, he was saying—among other things—that England is the most backward of all countries in the matter of traffic control, and that England lacked the motor-mentality. He pointed out that in this country the constant cry of the police is, "Stop that car!" while in every other European country it is, "Get on with it, don't cause a block!"

During eight years' residence in Paris, Major Segrave said he had never once been held up in a traffic block.

And when you come to think of it, who *has* seen a "block" in Paris?

He also pointed out that New York has employed mechanical traffic signals for years and years with perfect satisfaction, while London still relies on the hard-worked constable.

Another interesting statement the famous driver made is that, in ten years' time, there will be hundreds of cars on the road capable of 100 m.p.h., and *doing it!* There's a good time coming, boys.

\* \* \*

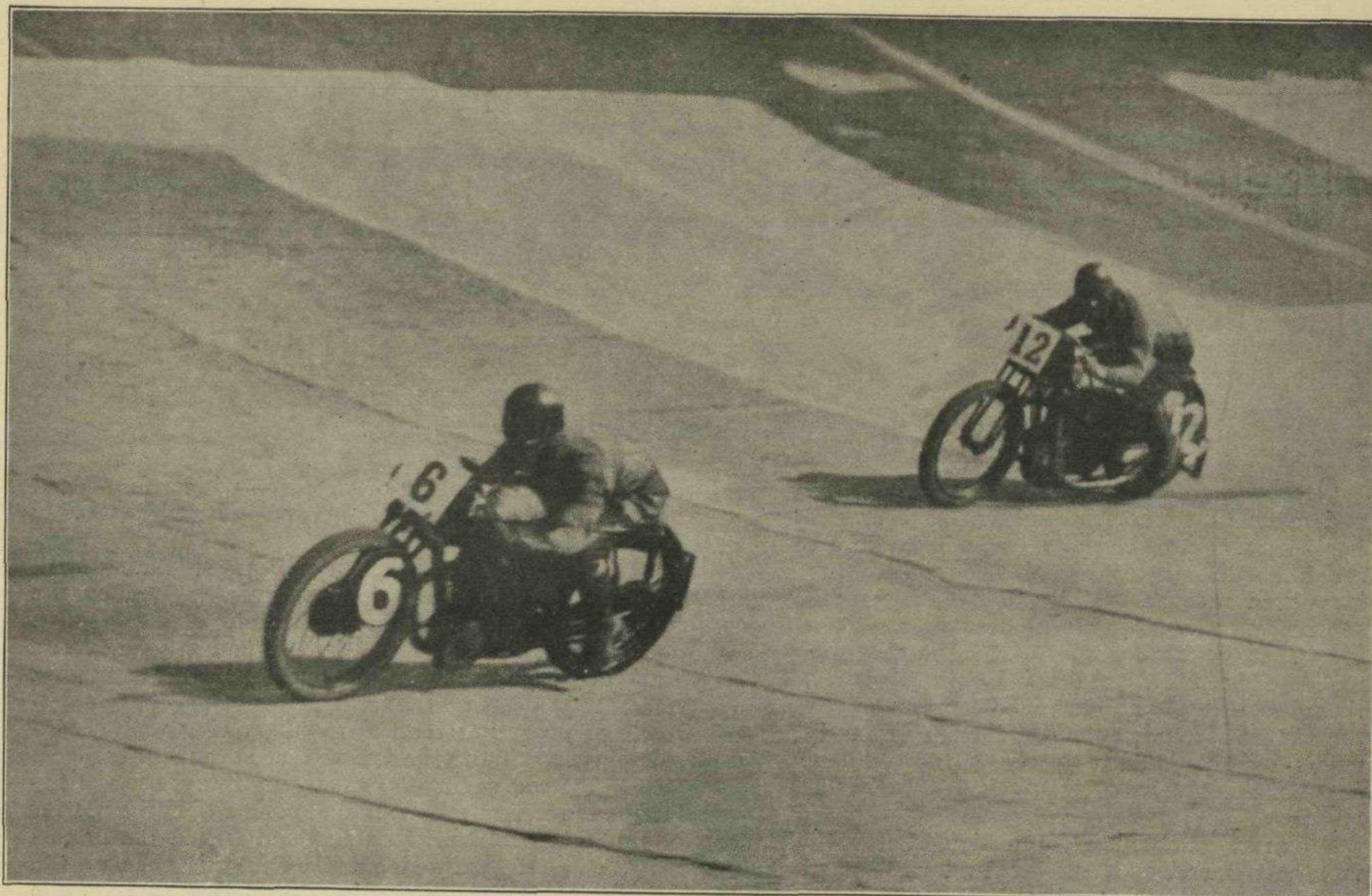
On the subject of the motor-mentality I am in complete agreement with Major Segrave. In England the motorist is still a creature apart. He is never a bank clerk or a stockbroker, or a business man of any sort. It is always "a motorist," and, as such, a creature whose habits are the special study of the police, not for his benefit, but for his persecution.

Whereas, across the Channel, what a contrast! Who has not noticed in Boulogne Week the fever of automobile enthusiasm on the part of the populace, the peasantry and the gendarmerie? I have seen a police officer on point duty, who heard the scream of a Bugatti approaching, instantly alter point, holding up the traffic while the blue streak flashed past, smiling benignly after the retreating dust-cloud and murmuring, "Ah! *mew enfants,*" or words to that effect.

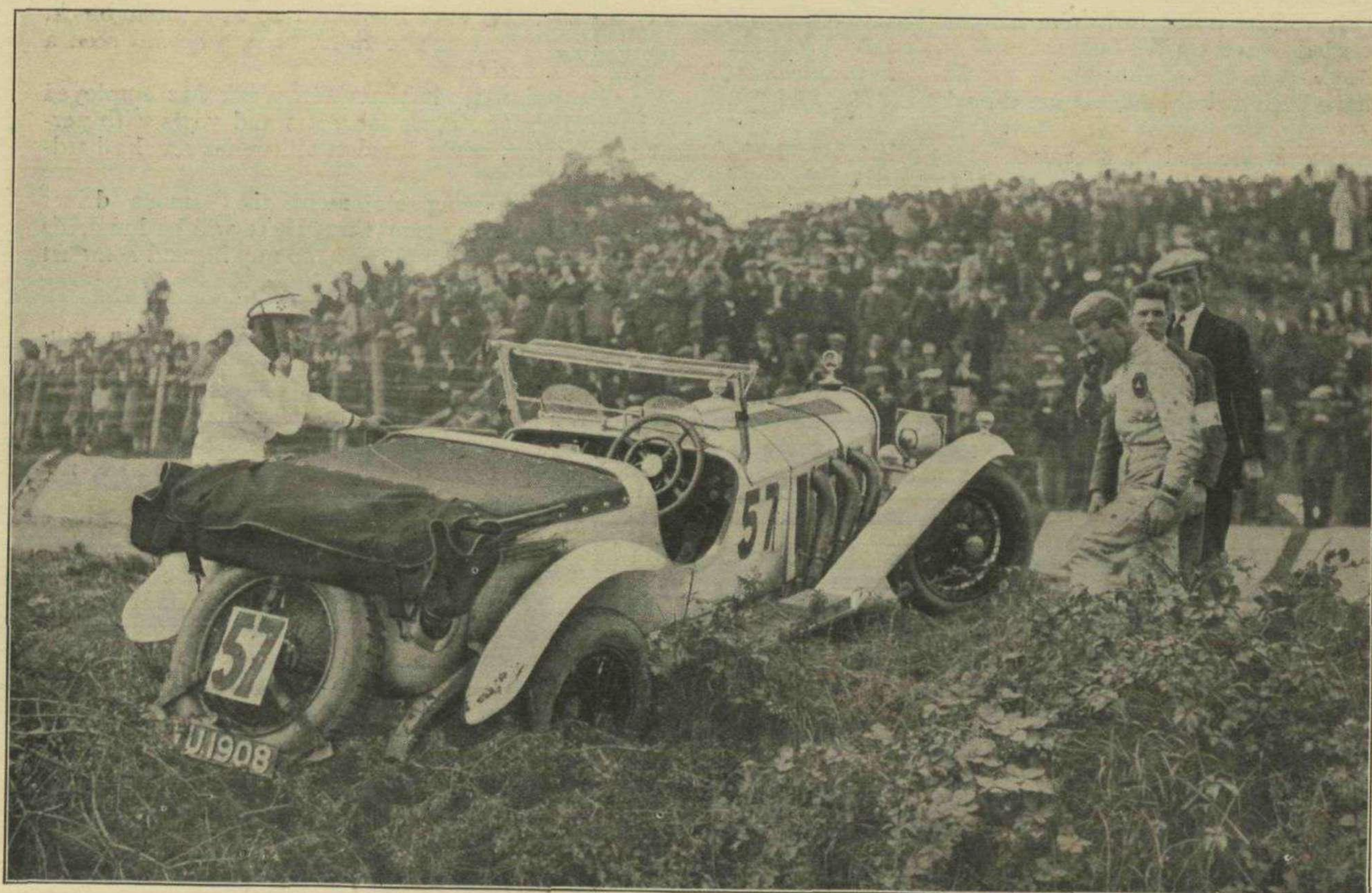
While even in Fascist climes, the meteoric passage of a Lancia and beret-ed driver through a narrow Via della Something-or-other is greeted with shrieks of joy by the scattering multitude. While over here . . . . .

*Vive le sport!*



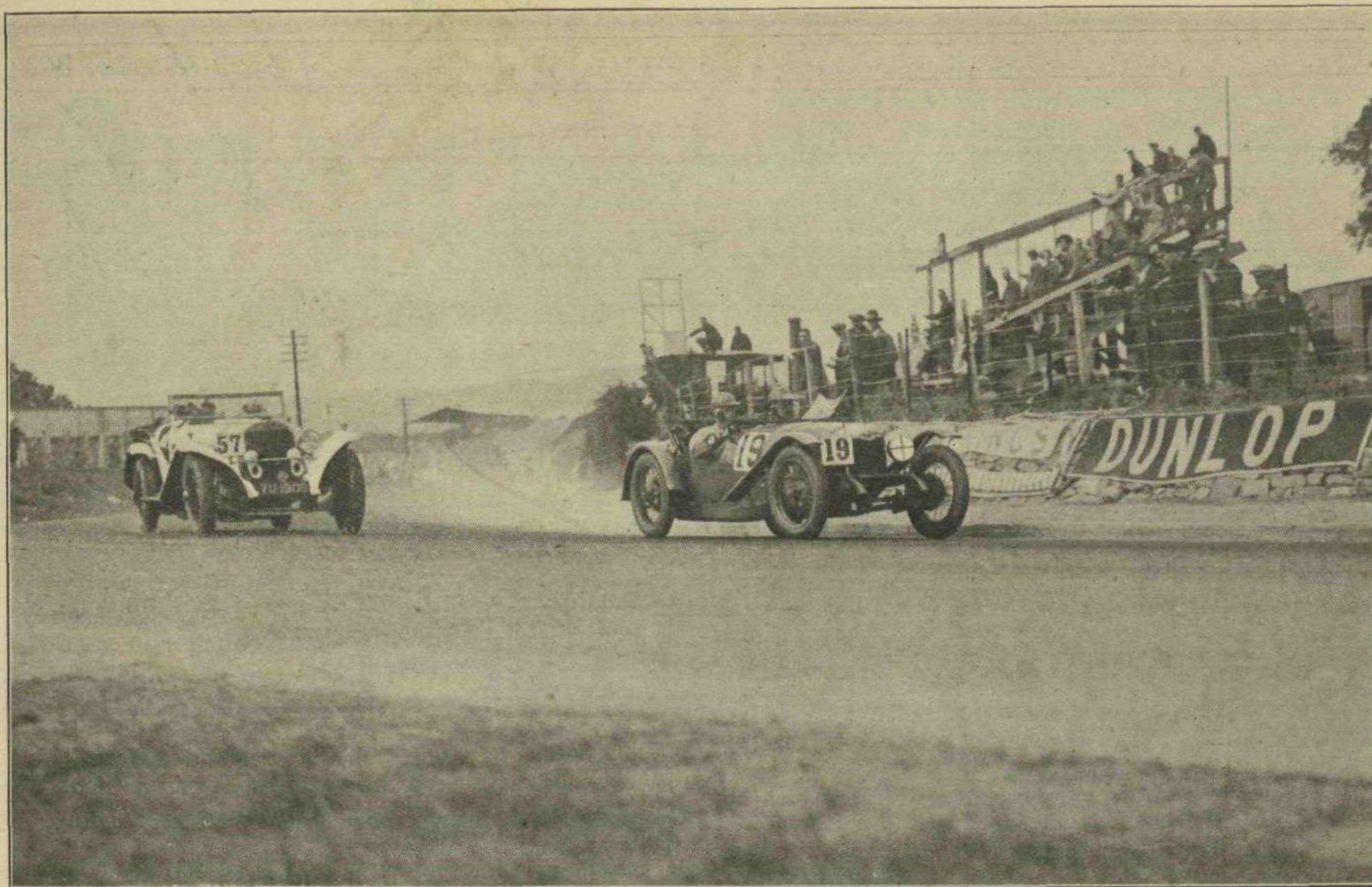


THE CHALLENGE.—P. BREWSTER (MATCHLESS), THE WINNER OF THE HUTCHINSON HUNDRED, ABOUT TO OVERTAKE H. J. WILLIS (VELOCETTE), WHO WON IN 1927.

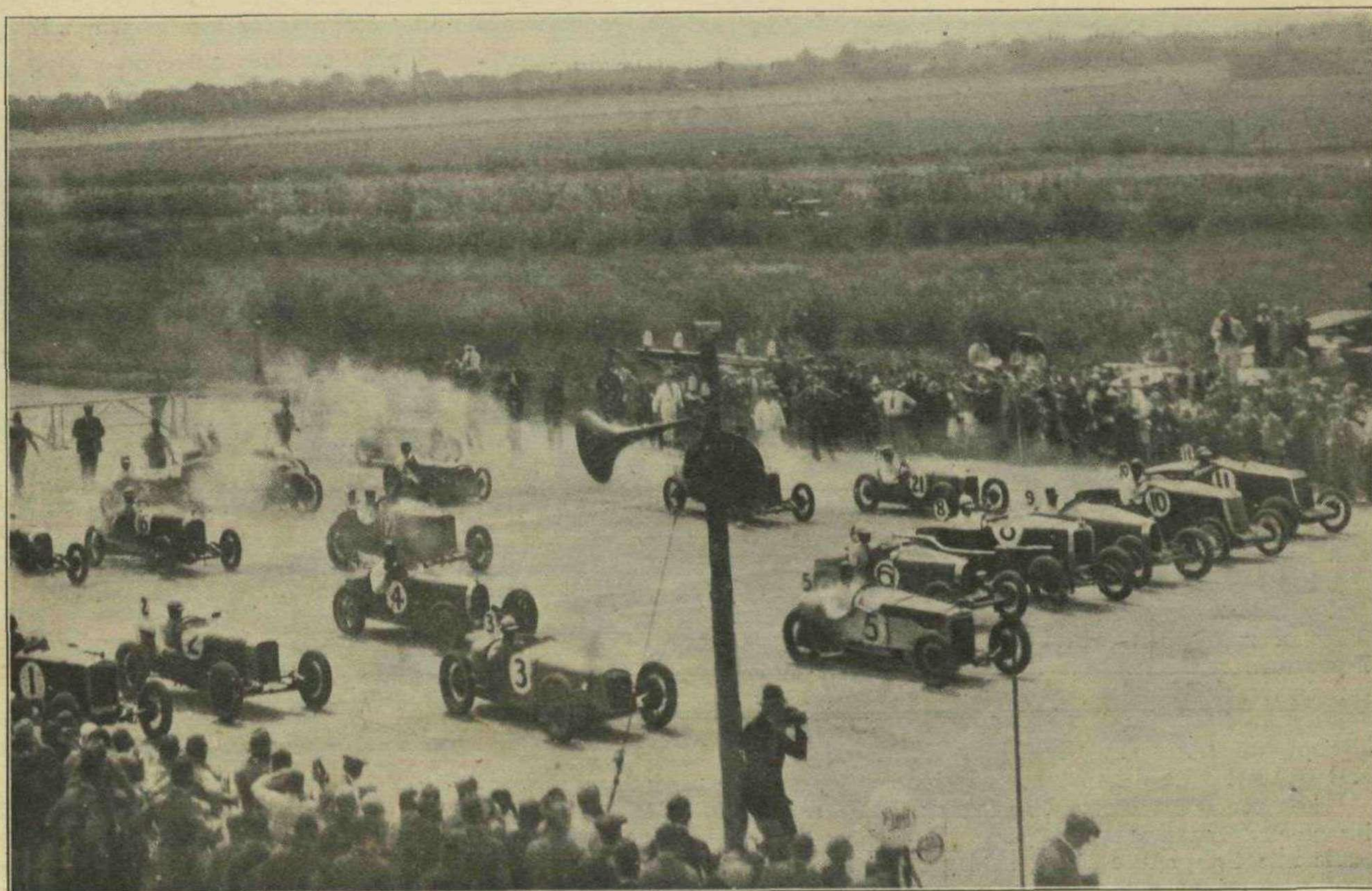


HARD LUCK!—THISTLETHWAYTE AND KINDELL RUEFULLY SURVEY THE MERCEDES AFTER DITCHING IT IN THE R.A.C. T.T. THEY WERE ABLE TO PROCEED EVENTUALLY.





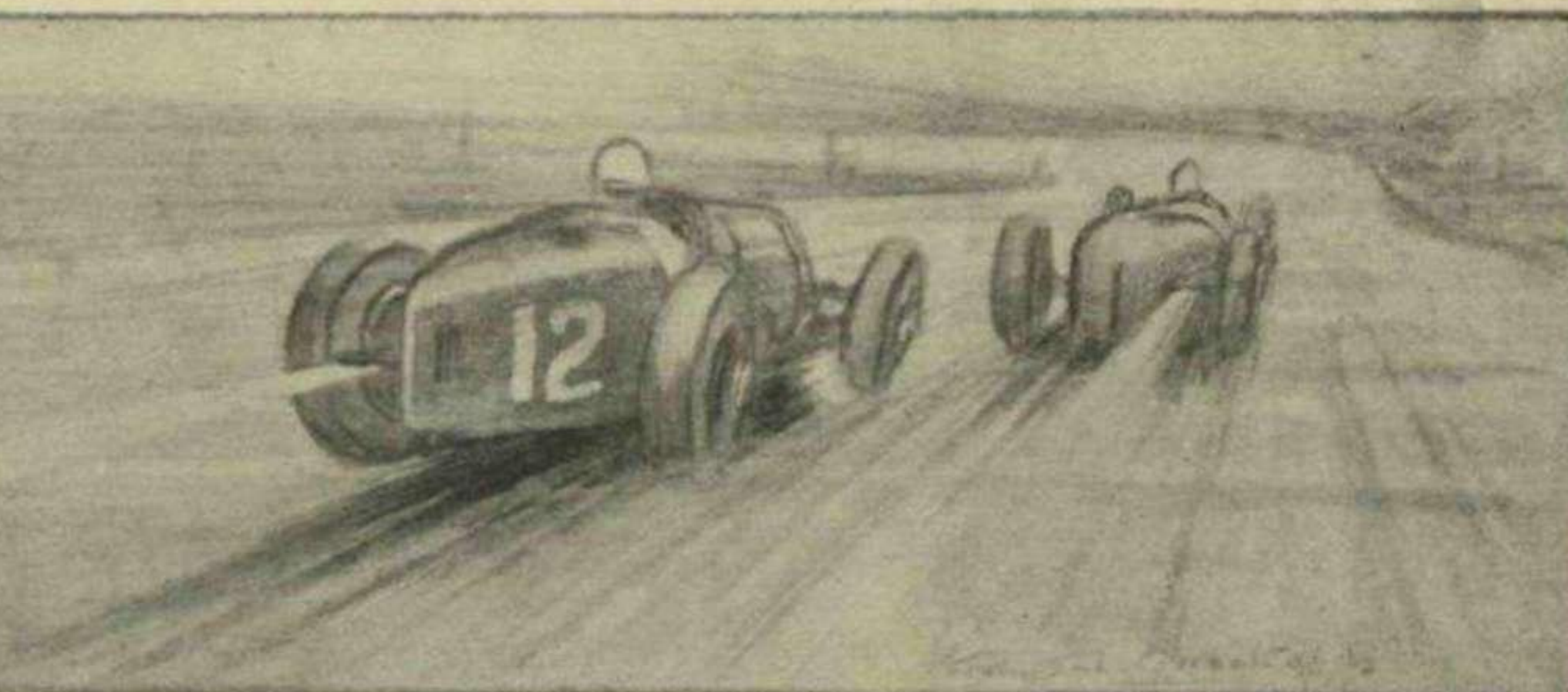
THE MERCEDES OVERTAKING DAVIS (RILEY) DURING THE R.A.C. TOURIST TROPHY IN ULSTER.



THEY'RE OFF! THE MASSED START FOR THE J.C.C. 200 MILE RACE WON BY MALCOLM CAMPBELL (DELAGE), NO. 3.



# RACING NEWS.



## THE J.C.C. TWO-HUNDRED MILE RACE.

**A** BLAZING sun beat down on the scene, and the heat shimmered from the concrete as the cars lined up, on July 21st, for the Junior Car Club's star event, the 200 Miles Race. The race may be said to have been a foregone conclusion, for, barring accidents, Capt. Malcolm Campbell had easily the fastest car in the 1½-litre Delage.

He took the lead after the first lap—during which he was lead by B. E. Lewis, driving instead of "Archy" Nash—and thereafter was never challenged.

Incident occurred early when, on his first lap, Purdy had the tail of his "Special" pushed round by B. Eyston (Bugatti), resulting in Purdy's hitting the fence backwards and his retirement, unhurt.

While Campbell calmly went on lapping round about 78 m.p.h., trouble began among the rest.

Oats (O.M.) retired, while Eyston took Lewis' second place, with Benjafield (Bugatti) lying fourth. At about 50 miles, Vernon Balls took the lead in the 1,100 c.c. class, lying fifth in actual order, despite turning round after hitting his usual sandbank.

"Taylor" (Lea-Francis) retired with no oil pressure, Forrest (Marendaz) with carburation trouble, Walker (Austin) with engine trouble, and R. R. Jackson (Frazer-Nash) had two pit stops. Casse's Salmson was not delivering the goods, the old Talbot stripped its driving bevel, and "Bug." Lewis fell out with a burst oil pipe.

W. B. Scott was being delayed with oil—Casse's trouble, too—and Wood's Amilcar was very hot and bothered.

Spero (Austin) was now heading the 850 c.c. class, and leading not a few 1,500 c.c. cars.

After about 100 miles, Campbell called at his pit and was away in a flash, stopping only to verify his speed and laps. He was eight miles ahead of Eyston.

When his clutch gave up, Casse followed its example, and withdrew his Salmson, and his team mate, Clarke, followed suit with a broken supercharger coupling. Denham's retirement on the Marendaz left sixteen cars in the field.

At 150 miles, Campbell was fourteen miles ahead of Eyston, running easily with throttle in hand, Eyston and Benjafield battling for second place.

When the latter stopped for water, Balls snatched his place. At this point Kaye Don (Lea-Francis) came into the picture and gained ground, lap by lap.

Plunket-Greene stopped with his Frazer-Nash engine in a horrid mess. Vernon Balls was leading the 1,100 c.c. class by 56 miles from Scott, who was being boiled in oil; next came Spero. Dingle's Austin was coming to bits, a great patch of undershield waving in the air.

Balls had a qualm just before the end, for he had just caught Benjafield after a pit stop, when he had to pull in again to cure misfiring. This done, he got away again, going faster than ever.

Just about this time, Campbell finished, seventeen miles ahead, and seemed highly pleased with a delightful afternoon's motoring. His car looked as if it had done one or two laps, was as clean and polished as ever, and whereas nearly every other car looked very battered, his Delage was perfect. His average was 78.34 m.p.h.

Eyston took second place in due course, averaging 72.61 m.p.h., and Kaye Don ran in third (68.9 m.p.h.).

Vernon Balls also won his class easily at 66.78 m.p.h. and T. E. Rose Richards (Bugatti) took fifth position.

Dr. Benjafield pulled in with another lap to go, had his error pointed out, and proceeded to do another three, in his enthusiasm.

Scott arrived second in the 1,100 c.c. class, smothered in oil, and Spero took first place in the 850 c.c. class.

### Results:—

	m.p.h.
1. Malcolm Campbell (Delage) ... ..	78.34
2. B. and G. E. T. Eyston (Bugatti) ... ..	72.61
3. K. Don (Lea-Francis) ... ..	68.93
4. V. S. Balls (Amilcar) ... ..	66.78
5. T. E. Rose Richards (Bugatti) ... ..	65.12
6. J. D. Benjafield (Bugatti) ... ..	63.32
7. W. B. Scott (Amilcar) ... ..	62.04
8. H. C. Spero (Austin) ... ..	59.95
9. W. V. Dykes (Alvis) ... ..	57.82
10. A. E. S. Walter (Austin) ... ..	55.90

### CLASS WINNERS.

#### 1,500 c.c.

1. Malcolm Campbell (Delage).
2. B. and G. E. T. Eyston (Bugatti).
3. K. Don (Lea-Francis).

#### 1,100 c.c.

1. V. S. Balls (Amilcar).
2. W. B. Scott (Amilcar).

#### 850 c.c.

1. H. C. Spero (Austin).
2. A. E. S. Walter (Austin).



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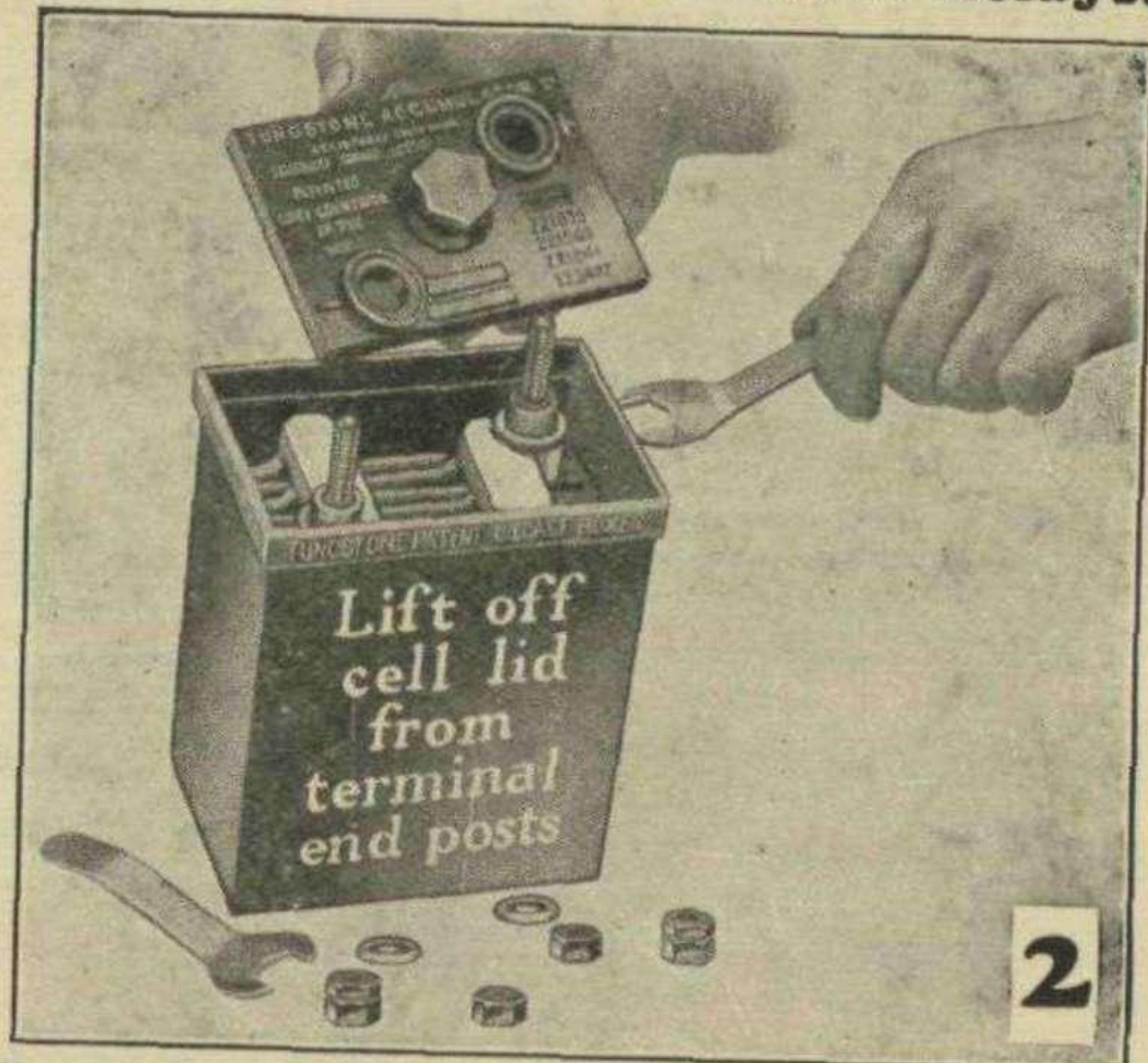
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C.F.H. 277



These **SIX** movements conclusively prove that **TUNGSTONE** Battery is **NOT** a "Sealed-up Mystery" to be solved only by the Maker at the Owners' expense. **TUNGSTONE'S** Accessibility "Opens the Door" for anyone to learn how and why

**TUNGSTONE** gives to the owner-user absolute **Security** and **Reliable Service** with **Freedom** from **Excessive Repair costs** and **Vexatious delays**.



TUNGSTONE CAN BE "RE-PLATED" WITHOUT REMOVING BATTERY FROM VEHICLE



"RE-PLATING" MAKES TUNGSTONE A PERMANENCY. TRANSFERABLE TO A NEW CAR





## WHY DEFECTIVELY CONSTRUCTED BATTERIES CONSTANTLY FAIL!

# Tungstone Securely and Perfectly Solves Mysterious and Extraordinary 'Insulation' Problems

**Tungstone Research Workers The First to permanently fix Vulcanized Rubber on Metal.  
Tungstone Indestructible Anti-Corrosive Metal, Not Porous, Acid Resisting, Dissipates Heat.**

The practical and valuable results by Tungstone Patent Process are that each 2-Volt Metal Cell is Reliably and Perfectly **Externally Insulated on all sides.**

**External Insulation** is increased a second time, by each 2-Volt Cell standing independently on a rubber mat, leaving a space for free air constantly to circulate on all sides—the best form of Insulation.

**Internal Plate Insulation** is a third increase, as each plate in the Cell is separately fixed and widely spaced, therefore cannot internally short, buckle or distort.

**Tungstone "Air Spaced" Assembly Guarantees Low Air and Acid Temperatures.**

A Sure-Preventative against Self-Discharge from Cell to Cell when working or standing. The Revolutionary Improvement is the impossibility to get on the **outside of the Cell by liquid connection a "Short-circuit" or Discharge.**

**Tungstone is the only Portable Battery in the World with a  
"Triple and Independent Insulation" of each Plate and Cell.**

Impossible from any cause, for a Single Plate or Group of Tungstone Plates in any Cell, to partially or wholly destroy the Complete Battery or any Section.

By Re-arranging the "Removable and Interchangeable" Cell Connector, any Cell in a few minutes can be disconnected or taken out. *The remaining Cells will continue to function correctly and reliably.*

**WORLD'S MAKERS CANNOT AND DO NOT ISOLATE 2-VOLT CELLS OR PLATES.**

All makers Celluloid or Compound 2-Volt Cells (only exception Tungstone) as assembled in a Portable Battery are closely wedged together into a Monoblock.

No Portable Battery is Externally Isolated. Free air cannot circulate between individual Cells.

**This faulty assembly—an inherent basic defect—in case of Electrolyte sprayed outside the Cell, or porosity through a single weak cell wall, allows the Electrolyte to flow uninterruptedly through the entire Battery converting it into a "ONE" 2-Volt Cell.**

**Additionally, all other makers' 2-Volt Cells are immovably held together by Cell Connectors permanently burnt on, and can only be removed or replaced by the Makers' expert Lead Burners.**

**No Single Cell can be disconnected or removed from the complete Battery, therefore any failure or "Short" of any Single Plate in any one Cell causes immediate failure of the whole Battery with the liability of permanent destruction.**

**ALL MAKERS' PLATE ASSEMBLY IN CELL MAKES A "SECOND MONOBLOCK."**

Their thin Plates are interleaved with an equal number of Wood Separators, and tightly packed into each Cell, making a second Monoblock assembly, which is a permanent Internal Cell Obstruction preventing the free Circulation of the Electrolyte. This creates Internal Resistance and excessive overheating of the Acid Solution which quickly damages the Plates and forces out the Paste.

**THESE FACTS PROVE THE NECESSITY FOR A CHAIN OF SERVICE STATIONS.**

Answering the owners oft repeated question why continual repairs are necessary with total costs often higher than the original price of a Cheap Battery.

There is a cute money-making wisdom in fixing a low first cost with an assured business to the maker for repeated and expensive repairs.

Tungstone with its exceptionally low Plate costs and Four Years' Guarantee to Replace Free component parts of the 2-Volt Cell makes Tungstone the Cheapest and Longest Life Battery in the World

Also is the Safer purchase as the risk of "shorts" and repeated repairs do NOT exist in the Engineer's construction of the Tungstone All-Metal Battery.

**Re-plating by New Plate Sections. Time and Money Saved.**

Re-plating takes place at different periods, as and when each Plate Section completes its Fuller Life. Either Section can be Independently Re-plated.

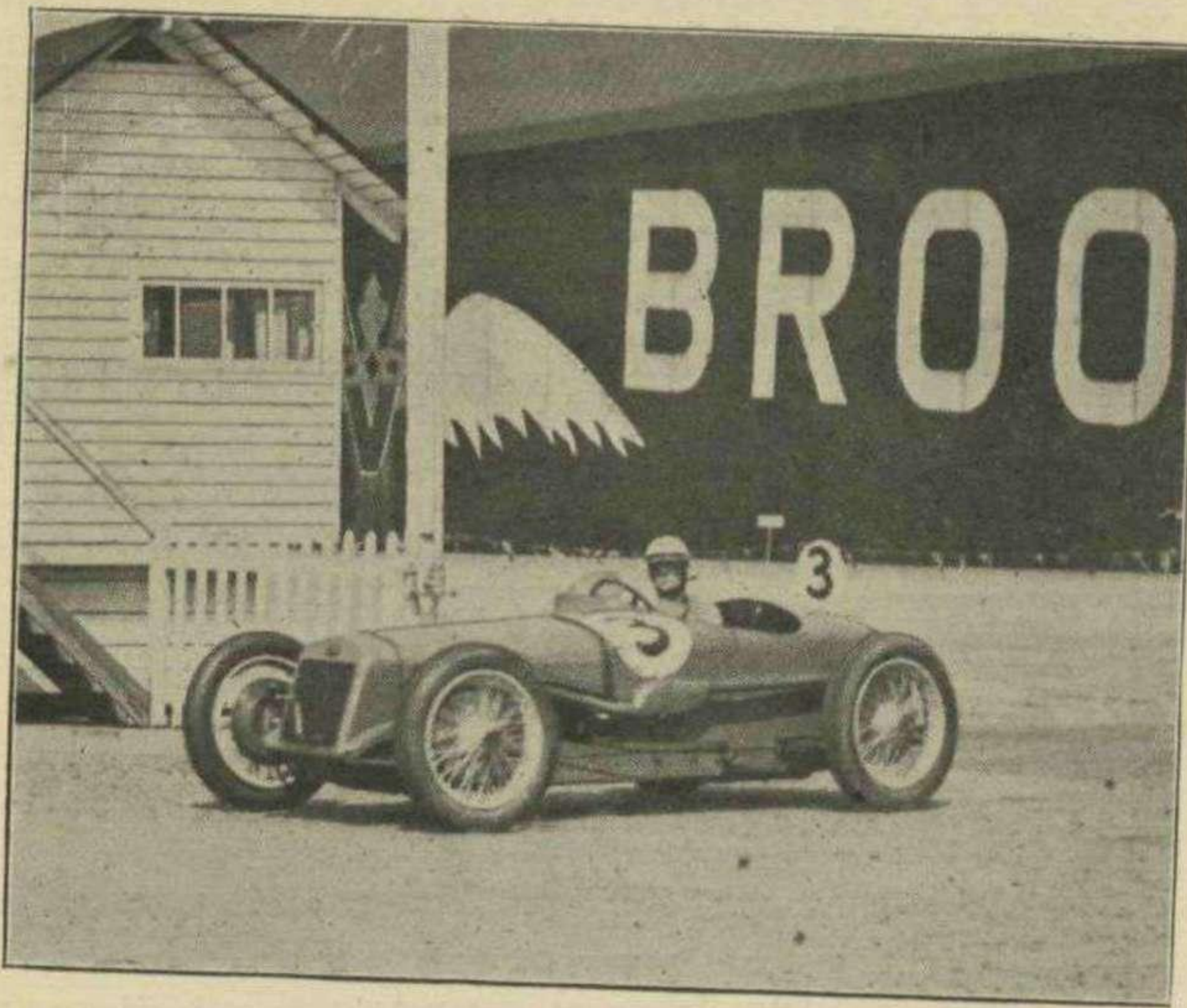
**THE FIXED PRICE FOR NEW PLATE SECTIONS IS THE ONLY REPAIR COST.**

Tungstone is the Only Portable Battery in the World with Positive Plates completely separated from the Negative. Each Plate Section has a separate existence and Distinct Working Life. The Longer Life of the Tungstone Negative will not Earlier terminate the Life of the Positive. *Other Makers' Monoblock Plate and Wood Sections simultaneously and Earlier destroy each other.*

Tungstone Re-plating of one or more Cells, as required, compares in all respects to the accepted and economical practise of Re-plating a Planté House Lighting.



RACING NEWS—continued.



【CAPTAIN CAMPBELL ON THE VICTORIOUS DELAGE IN THE 200 MILE RACE.

The Hutchinson Hundred.

A fine afternoon of sport was provided at Brooklands on August 11th, when the members of the B.M.C.R.C. competed for the £200 Hutchinson Challenge Cup. The afternoon was rendered the more pleasant by perfect weather, and some high speeds and close finishes were to be seen.

As a kind of overture to the 100 Miles Race, four handicap events were run off, and it was during the first of these that F. G. Hicks (Velocette) proceeded to take his 350 c.c. machine round the track at a lap speed of 101.3 m.p.h.! A magnificent performance.

It was also in this first event that C. S. Staniland put in laps close on the 80 m.p.h. mark on a 175 c.c. Excelsior! He was passed by a wheel on the line, Hicks winning at 96.15 m.p.h. for the three laps.

Five men started in the next event—a three-lap handicap between 350 c.c. and 1,000 c.c.—all on 500's, which was won in easy fashion by R. E. Dicker (499 Rudge) at 91.89 m.p.h.

Hicks was re-handicapped in Event 3 (five laps, 90 m.p.h.), but this made no difference, for he shot off after the other three starters, overhauled them in the third lap, lead on the fourth, and came in a quarter of a mile ahead, at an average of 97.65 m.p.h.

A 5-lap All-comers Sidecar event followed, and Hicks nearly won this also, but unfortunately he thought the course was but three laps, and stopped two laps before the end. E. C. E. Baragwandth (Brough-Superior-J.A.P.) lead in Tucker (588 Norton) and Horsman (599 Triumph), and won at 84.84 m.p.h.

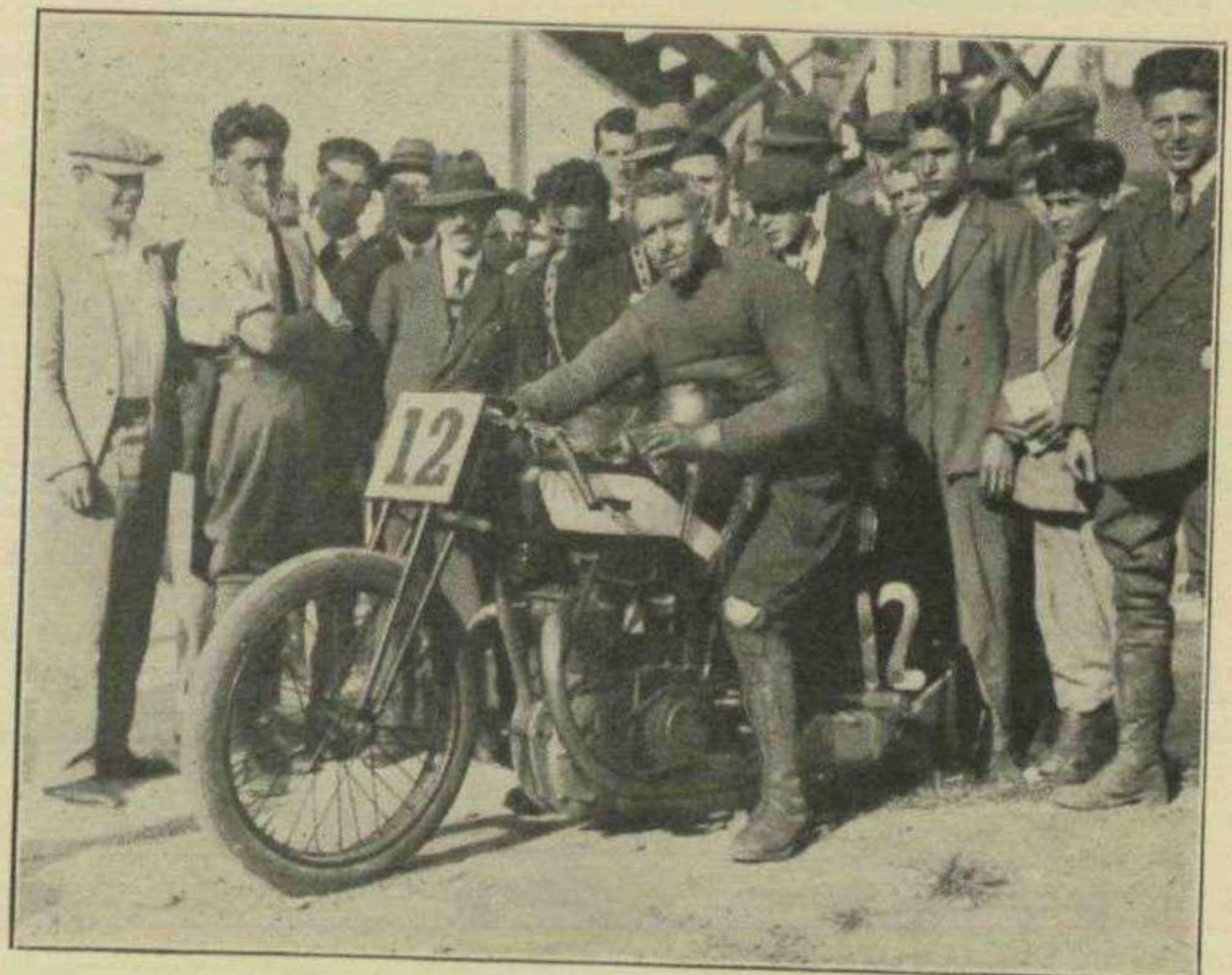
The curtain now went up on the *pièce de resistance* of the day, when thirty-six machines lined up for the "Hundred." The only sensation was the discovery of two spots of oil on Lacey's Grindley-Peerless crankcase. Brewster started with a damaged finger, and Cobbold also had a broken digit, just out of splints.

An early incident was provided by R. R. Barber (495 Matchless) being called off, as his machine seemed unmanageable.

At half-distance, Hall (246 New Imperial), the limit man, was still in the lead, but Fernihough (Excelsior) was rapidly closing on him. Hicks, Willis and Brewster were also moving up rapidly, Hicks lying fourteenth, Willis eleventh, and Brewster twelfth. Fernihough took the lead after 23 laps. Lacey had not been travelling too well, and retired with a defective oil pump.

Next, Willis was eliminated, and two laps before the end Brewster passed Fernihough, with Hicks just behind, and then Brewster flashed over the line, having averaged 93.52 m.p.h. The win was deservedly popular, for the veteran rider had put up a splendid show, despite his damaged finger, which it seems he had caught in the fan belt of his car on the morning of the race. Results:—

	h.	m.	s.	m.p.h.
1. P. Brewster (495 Matchless), 6 m.	1	19	14	93.52
2. F. G. Hicks (348 Velocette), 6 m.	1	20	31	92.57
3. E. C. Fernihough (246 Excelsior-Jap.), 19 m.	1	20	33	77.45
4. L. J. Archer (246 New Imperial), 19 m.	1	22	3	76.03
5. F. L. Hall (246 New Imperial), 20 m.	1	22	44	74.22
6. F. L. Taylor (248 O.K.-J.A.P.), 19 m.	1	22	49	75.34
7. G. H. Tucker (348 Chater-Lea), 10 m.	1	22	54	
8. M. Wright (246 New Imperial), 19 m.	1	23	6	
9. R. V. Packman (248 Zenith-Blackburne), 19 m.	1	24	30	
10. M. McCudden (348 Chater-Lea), 10 m.	1	25	30	



P. BREWSTER, THE WINNER OF THE HUTCHINSON HUNDRED, ON HIS MATCHLESS.

R.A.C. Guides in the Isle of Man.

The R.A.C. has received a letter of thanks from the Manx authorities for the services rendered by the eleven R.A.C. Guides who were stationed in the Isle of Man to control and direct motor traffic during the summer months. The letter states that the men carried out their duties with the utmost efficiency and conducted themselves in a most exemplary manner whilst in the Island.



## RACING NEWS—continued.

## THE FREIBURG HILL CLIMB.

The Fourth International Schauinsland Hill Climb was run off near Freiburg on August 5th, and some very excellent speeds were put up. The chief interest centred in the Bugatti-Mercédès due', following the German car's victory at the Nürburg Ring.

Owing to the appalling state of the road, the "flat" events had to be abandoned, but the hill climb attracted a good entry, in which the names of Chiron, Heusser and Carraciola are well known.

The hill is over a length of 12 kilometres, and, varying in gradient, it provides a very sporting course with many fast bends. The event is rapidly becoming a classic, ranking with the Nürburg Ring as one of the most important motoring events in Germany.

A car made the fastest time of the day, Heusser's Bugatti putting up 74.009 k.p.h., the fastest motor cycle being Stegmann's D.K.W., at 69.6 k.p.h.

Carraciola, the Mercédès crack, made a sensational climb in the over 2-litres Racing Class, in which he had a walk-over by clocking 73.2 k.p.h.—an awe-inspiring sight with the huge car.

British motor-cycles made an excellent impression, although not winning in the solo classes. A Scott and a Sunbeam, however, were first and second in the 600 c.c. sidecars, although fastest sidecar time was put up by Thumshirn on an Ardie. Below are the full results:—

## MOTOR-CYCLES UP TO 250 C.C.

1. Gerlach (Standard), 64.8 k.p.h.
2. Brand (Hecker-J.A.P.).
3. Geiss (D.K.W.).

## MOTOR-CYCLES UP TO 350 C.C.

1. Frentzen (U.T.), 64.9 k.p.h.
2. Blind (U.T.).
3. Bussinger (A.J.S.).

## MOTOR-CYCLES UP TO 500 C.C.

1. Stegmann (D.K.W.), 69.6 k.p.h. (fastest time of the day).
2. Bussinger (A.J.S.).
3. Scherrer (N.S.V.).

## MOTOR-CYCLES OVER 500 C.C.

1. Franconi (Standard), 67.7 k.p.h.
2. Ley (Harley-Davidson).
3. Baumann (Harley-Davidson).

## SIDECAR CLASSES. UP TO 600 C.C.

1. Stärkle (Scott), 60.7 k.p.h.
2. Heck (Sunbeam).
3. Zimmermann (Victoria).

## OVER 600 C.C.

1. Thumshirn (Ardie), 63.3 k.p.h.
2. Dobler (Ardie).
3. Frey (U.T.).

## SPORTS CAR CLASSES. BETWEEN 750 C.C. AND 1,100 C.C.

1. Van Morgen (Amilcar), 66.8 k.p.h.
2. Meyer (Opel).
3. Hercher (Opel).

## UNDER 750 C.C.

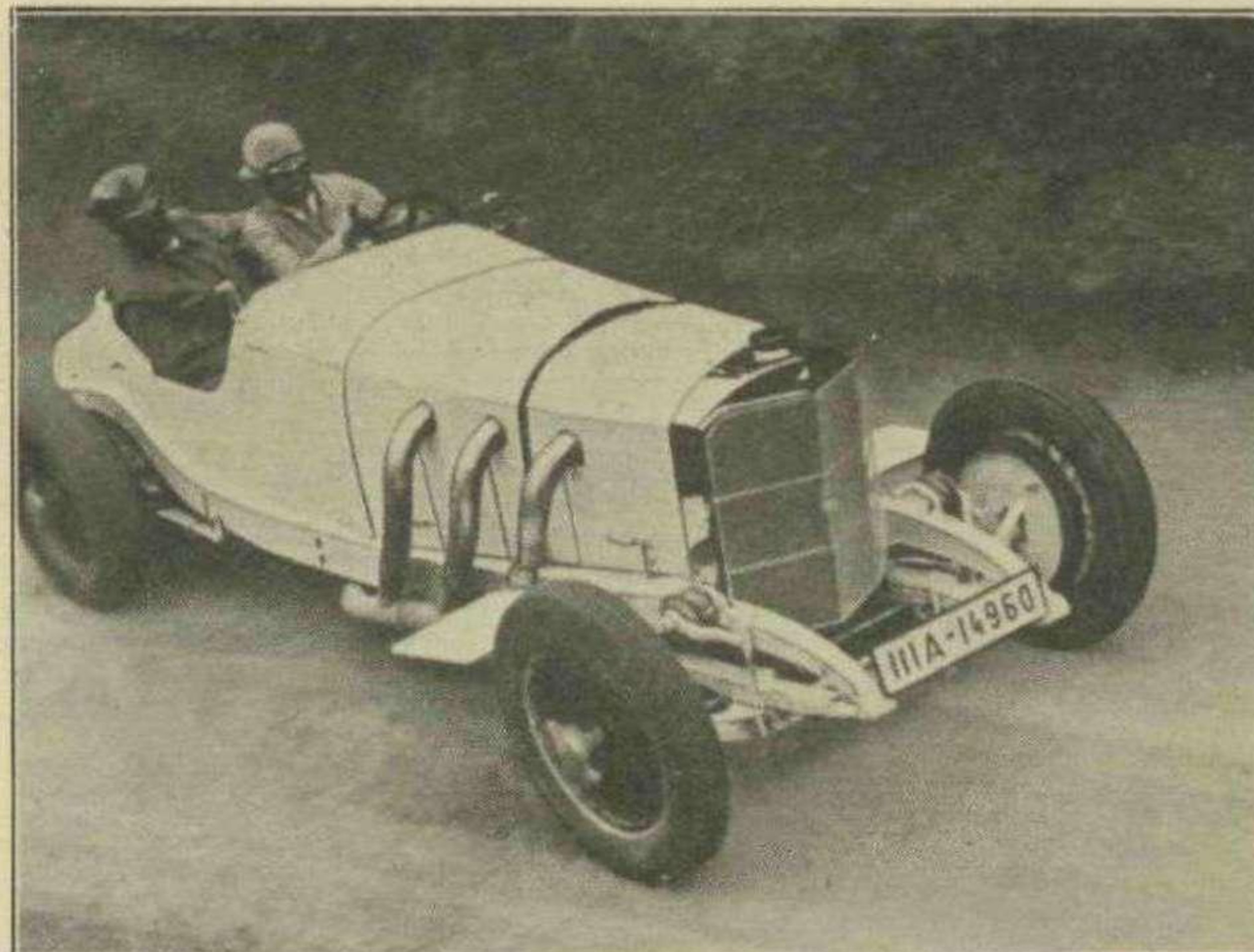
1. Macher (Dixi), 55.5 k.p.h.
2. Büchel (Dixi).
3. Wagener (Dixi).

## BETWEEN 1,100 C.C. AND 1,500 C.C.

1. Stumpf (Hag-Gastell), 63.0 k.p.h.
2. Schmidt (Bugatti).
3. Andreae (Bugatti).

## BETWEEN 2 AND 3 LITRES.

1. Heusser (Bugatti), 74.009 k.p.h. (fastest time).
2. Goaf van Kalnein-Domnau (Bugatti).



CARRACIOLA, THE BRILLIANT MERCEDES DRIVER, IN THE FREIBURG HILL CLIMB.

## OVER 5 LITRES.

1. Kinigel (Mercédès), 68.0 k.p.h.
2. Rosenstein (Mercédès).

## RACING CAR CLASSES. UNDER 1,500 C.C.

1. Prince van Leiningen-Amorbach (Bugatti), 67.29 k.p.h.
2. Scholl (Amilcar).
3. Jenter (Chiribiri).

## 1,500 C.C.-2,000 C.C.

1. Chiron (Bugatti), 73.06 k.p.h.
2. Kappler (Bugatti).
3. Probst (Bugatti).

## OVER 2 LITRES.

Walk-over: Carraciola (Mercédès), 73.26 k.p.h.

## A GENUINE T.T. VELOCETTE AVAILABLE.

Many manufacturers have based their "next year's" models on the design of machines which have been successful in the T.T. races, but it is rare for an absolute replica of a winning machine to be produced.

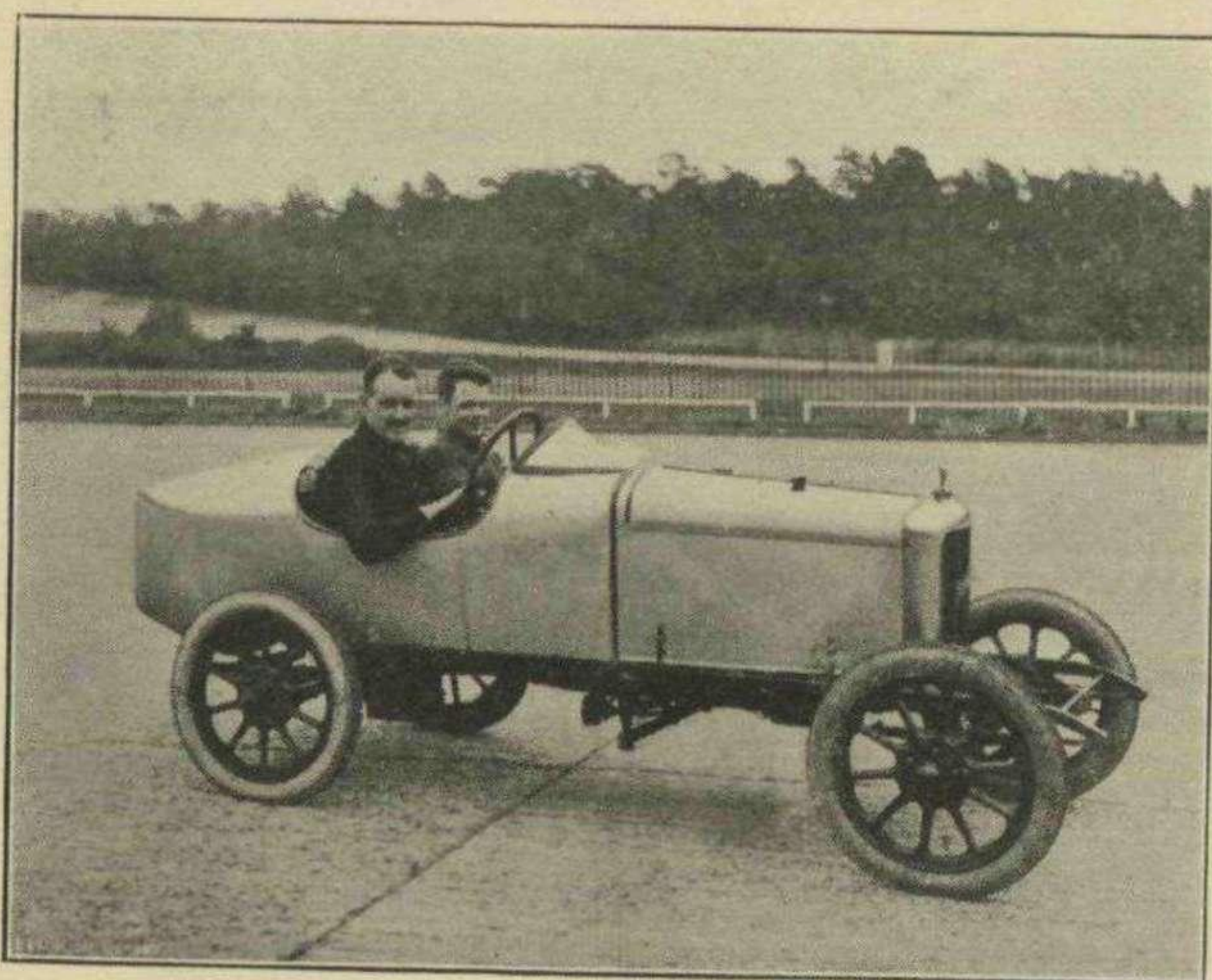
This, however, is being done by Veloce, Ltd., and for £80 motor-cyclists will be able to secure a machine which is identical, both as regards appearance and speed, with that on which Alec. Bennett won this year's Junior Tourist Trophy race at a record speed for the course.

The new Velocette is to be known as the KTT model; it will be on view at the Olympia Motor-Cycle Show, and deliveries will be available shortly afterwards. It has foot-controlled gears, an additional scavenger pump on the overhead cam-box, a heavily ribbed crankcase, special T.T. petrol tank and various other refinements.

It is being made in three different forms, these being suitable for use with petrol-benzole, "PMS II" (alcohol) and "RD I" (alcohol), respectively. In the latter "sprint" form it is capable of speeds well in excess of 90 m.p.h., and is in fact exactly similar to the machine on which F. G. Hicks recently lapped Brooklands at 101 m.p.h.



## RACING NEWS—concluded.



HALL AND GRIMLY WITH THE RECORD-BREAKING JOWETT.

**Two-Cylinder Small Car Breaks Twelve-Hour Record.**

Driven by J. J. Hall and A. H. Grimly, a standard sports model Jowett car, on August 8th, put up new figures for the International Class G Record, previously held by Marendaz and Don.

The Jowett covered 658 miles 1,191 yards in the twelve hours at an average speed of 54.89 m.p.h. The fastest lap was 66.56 m.p.h., and for the last four hours the car lapped at 65, having lost one hour 28 minutes, during which a cylinder gasket was changed, which renders the record figures all the more creditable.

**Arpajon Speed Trials—Capt. O. M. Baldwin's 124.62 m.p.h.**

That well-known Brooklands rider, Capt. O. M. Baldwin, is heartily to be congratulated on his remarkable performance on the big 1,000 c.c. Zenith-J.A.P. at the M.C.F. speed trials this year. His speed for the Flying Mile was 200.67 k.p.h.—124.62 m.p.h. This is the highest speed ever attained by a motor-cycle.

The record speeds have been confirmed by the F.I.C.M.

In the 350 c.c. class, C. W. G. Lacey, on a Grindlay-Peerless-J.A.P., also put up world's record figures in the Flying Mile and Kilo at 104.03 and 104.12 m.p.h., respectively.

In the 500 c.c. class, also, Lacey put up new figures at 112.16 m.p.h. for the Flying Mile. Denly (Norton) broke the 500 c.c. solo and 600 c.c. sidecar world's records.

**The Surbiton Club's Open Meeting.**

Saturday, September 1st, saw the Surbiton Motor Club hold its Summer Open Meeting in glorious weather, with a fairly good crowd of spectators. The meeting was characterised by that enthusiasm which surrounds all such Club gatherings, and the racing was of a high order with some excellent finishes.

The first race was won by T. R. Jeffreys (Bugatti), at 85.57 for the two laps, with Ashby (Riley) and Gillow (Riley) second and third, respectively.

The next race was also over two laps, in which Kaye Don (Bugatti) cleverly passed Warde's big Fiat to win at 111.67 m.p.h.

The Junior Long Handicap was a three lap event, and proved a win for Bout's Sunbeam at 102.27 m.p.h., Hazelhurst (Salmson) and W. B. Scott (Amilcar)—the only other starters—finishing in that order.

Then followed a Senior Long and a One Lap Handicap, the former going to A. G. Miller (Delage) at 113.45 m.p.h. and the latter, after a close race, to Miller, Kaye Don and W. B. Scott, Miller having averaged 103.97 m.p.h. for the lap from a standing start.

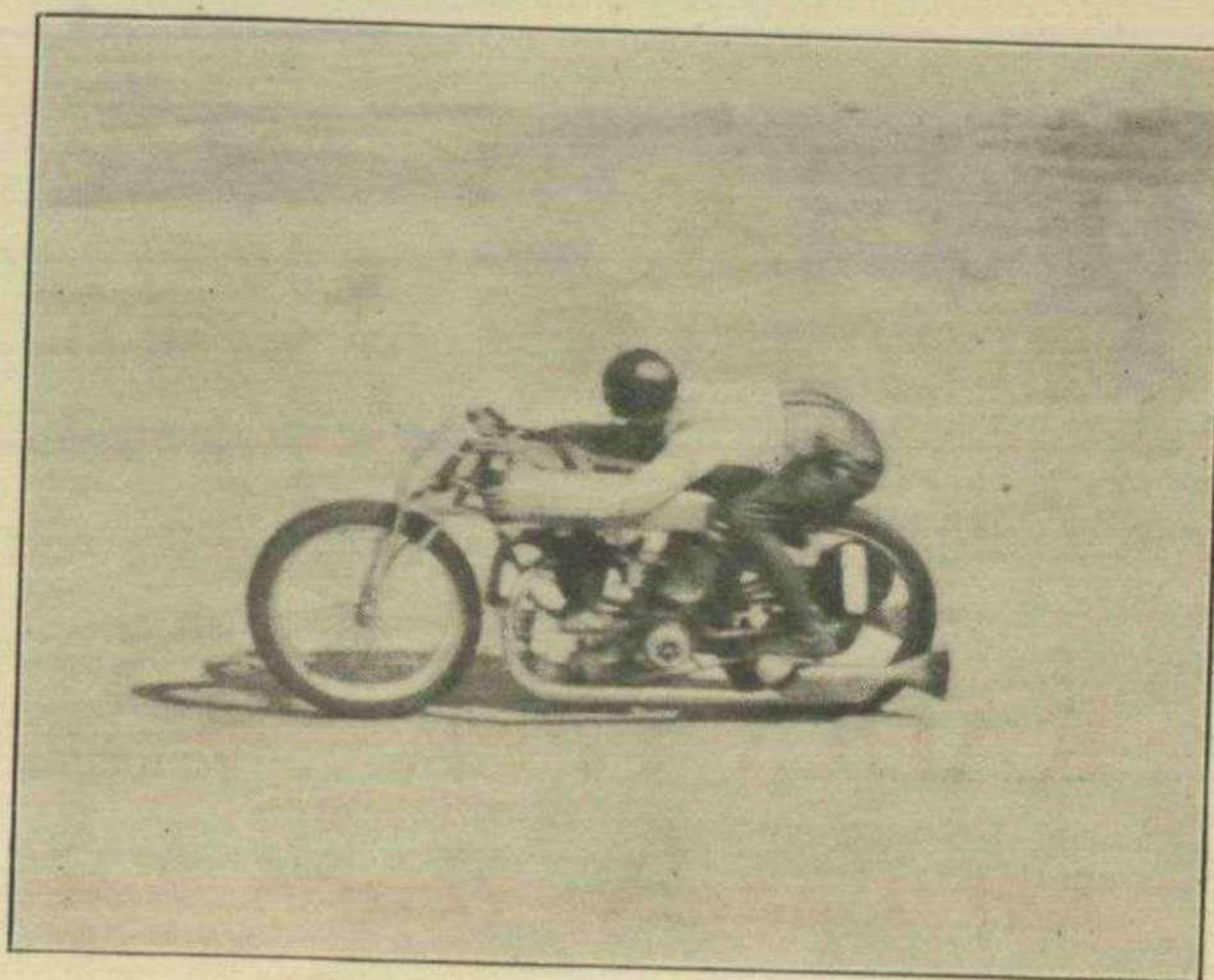
The Fifty Miles Handicap ended the programme, and five starters came to the line, but the race obviously lay between "J. Taylor" on the Delage and Dudley Froy on Barnato's Bentley. The issue was in doubt until the nineteenth (and last) lap, when Froy shot home a few hundred yards ahead of "Taylor," with F. T. Bersey's Laystall-Special in third place.

Thus ended a fine afternoon of high speed motoring, the speeds being remarkably high for the short races from standing starts. The Club is to be congratulated on a splendid effort.

**RECORD SPEEDS IN ULSTER.**

There is more in the success of G. W. Walker (Rudge-Whitworth) in the Ulster Grand Prix than is at first apparent. Walker won at 80.08 m.p.h.—an absolutely record speed for any motor-cycle road race—and he made the record lap on his *last* lap of a gruelling 210 mile event. Rudge-Whitworths also finished third and fourth and secured the Team Prize. It is interesting to note that Walker was also the first man to average over 70 m.p.h. in a road race, which he did in the same event some years ago, on another machine.

The Ulster Grand Prix, like the T.T., enforces the use of standard fuels, and the fact that these terrific speeds were achieved on an ordinary petrol-benzole mixture indicates the great strides which have been made in motor-cycle design during the past twelve



C. W. G. LACEY, WHO HAS PUT UP SOME REMARKABLE SPEEDS RECENTLY ON HIS GRINDLAY-PEERLESS-J.A.P.



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## SPORTING MACHINES ON TEST.

### THE 490 c.c. OVERHEAD-CAMSHAFT NORTON.

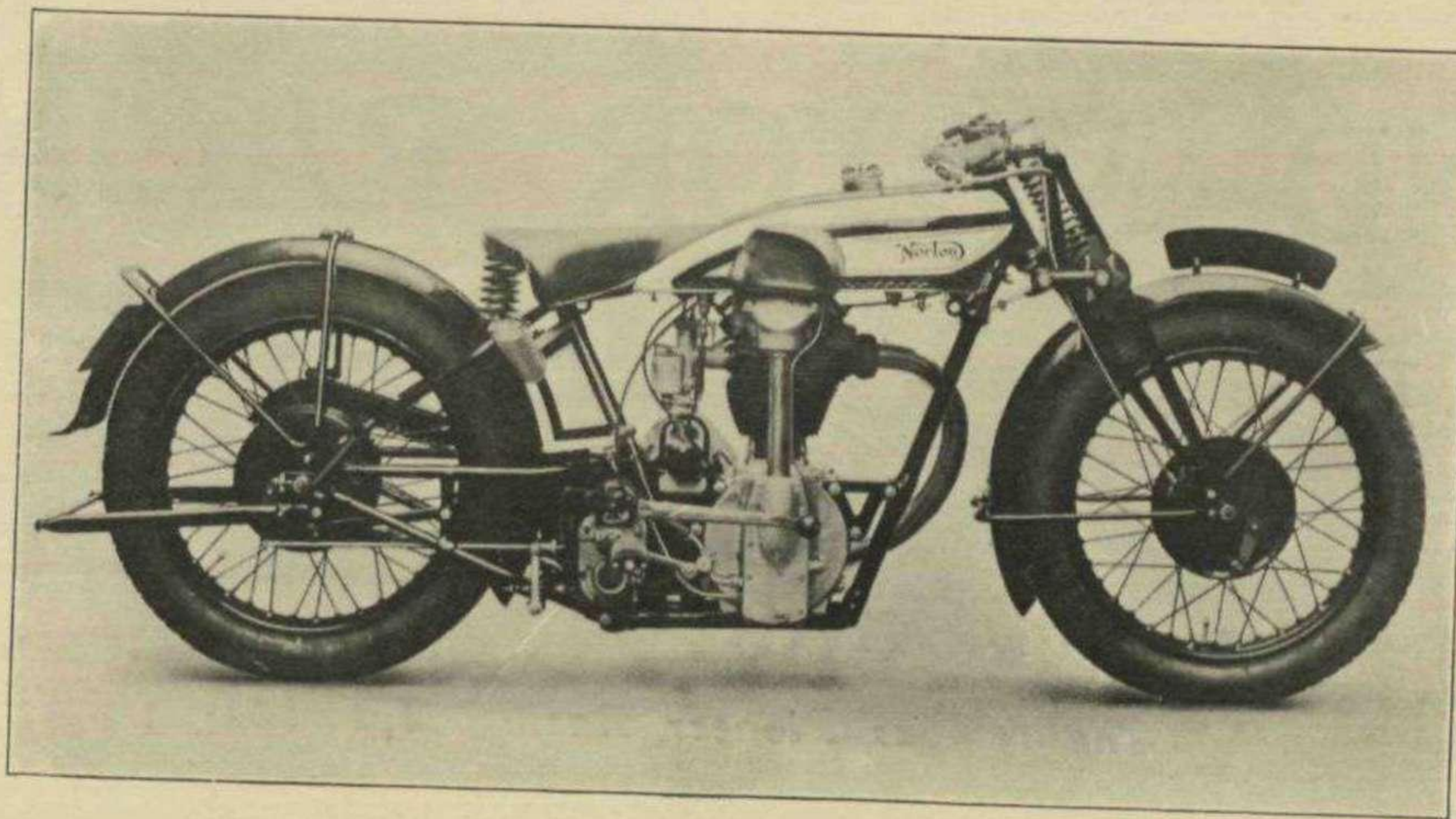
By L. A. H.

FOR many years the firm of Norton have gathered round them an ever-increasing band of enthusiastic devotees, to whom the word "Norton" is synonymous with "motor-cycle."

Supporters of other *marques* might sneer at the Norton policy as conservative and old-fashioned, as for year after year the design remained substantially unchanged, but even they had to admit that the large band of Norton enthusiasts, together with a huge list of successes in open competition, were sufficient proof of the worth of

but even so, we were not attracted by the idea of a throttle lever opening outwards as standardised by Nortons and one or two other "die-hard" firms. We were, therefore, pleasantly surprised to find that the model handed to us was fitted with the more convenient and common-sense system of inward opening levers.

Changing over from a low-g geared, noisy o.h.v. 350 c.c. combination, to the large, comparatively slow-revving and extremely silent Norton, was conducive to a sense of violent contrast and tended to emphasise the latter



THE 1928 OVERHEAD-CAMSHAFT NORTON.

this machine. In 1927 Norton Motors, Ltd., decided to produce a really modern motor-cycle, and appropriately enough the first examples were entered in the Senior T.T. in the Isle of Man. Three laps at 70 m.p.h., followed by a win at record speed, proved the merit of the design, and, at the 1927 Show, Norton admirers were delighted to find the new model on the market. After many years adherence to the normal diamond frame and conventional "push rod" o.h.v. engine, Norton Motors offered an up-to-date cradle frame model fitted with an overhead shaft and bevel driven camshaft—the *tank ensemble* representing the last word in modern motor-cycle design.

There is no doubt that this move satisfied a long-felt (but not often expressed) want on the part of Norton "fans" and at the same time attracted many new followers, who had previously fought shy of this make.

It was with genuine interest, therefore, that we accepted the offer of a day's run on the C.S.I. model in the Birmingham district, some weeks before the 1928 T.T.

A pressman must naturally accustom himself to driving machines with varying arrangements of controls,

desirable qualities, which otherwise might not have become apparent so rapidly. Slipping through the Birmingham traffic, we were at once charmed by the uncanny silence of the engine and the exhaust—quite a new thrill in store for those who surreptitiously revel in a hearty crackle—if such a paradoxical enjoyment is possible. The only circumstances under which mechanical noise became apparent was when the bicycle was over-running the engine, when a slight, but quite unobjectionable, clicking proceeded from the valve gear. Even on full throttle the latest duplex Norton silencer subdued the exhaust to a thoroughly respectable note.

The massive saddle tank and long wheelbase do not allow one to forget that the Norton is a large and heavy machine, so that on comparatively empty but twisty roads we felt that a certain amount of concentration and restraint was necessary when motoring fast. We have little doubt that this feeling of slight unwieldiness was partly due to the aforementioned sense of contrast with our previous mount, and that it would soon disappear on longer acquaintance with the machine. On the straighter main roads this very same feeling of solidity proved a great comfort and enabled us to open



## SPORTING MACHINES ON TEST—concluded.

the taps with confidence, secure in the belief that the model would proceed in a straight line without a flicker.

Even on so brief a trial as we enjoyed, we did not find cornering difficult on the Norton, merely the strangeness of the machine made it necessary to exercise some determination in "laying it over."

After several interruptions by thoughtless traffic (!), we were able to extend the Norton for a short while; short, but long enough for a reliable speedometer to register 70 m.p.h. on second gear and just over 80 m.p.h. on top. Valve bounce seemed to prevent a higher speed on second, but was not in evidence at full speed on top, thus suggesting that, given more time, a still higher speed could have been attained on this gear.

At 80 m.p.h. on an indifferent surface the steering was perfectly safe and there was no necessity to "clutch on" unduly. The machine held the road extremely well, and was noticeably free from bounce of any sort, though, strangely enough, a strong application of the back brake produced that curious hopping of the rear wheel, which so minimises the effective stopping power. It is difficult to explain this fault, which is common to many modern machines whose weight distribution is not quite right, but on the Norton it may have been due to a special competition tyre, which is not particularly

suitable for fast road work. Nothing else about the behaviour of the Norton suggested faulty weight distribution, which is usually betrayed by bouncing or tail wag at speed or a tendency to skid on loose corners.

The Norton front brake is of such a size and has such a long operating lever that it obviously could be very useful, though on the machine we tried it had no apparent effect at all. It is only fair to state that the machine was only hurriedly prepared for us, at very short notice, and so could not be expected to be in perfect condition as to details.

Acceleration was rousing, and more rapid than the silence and high gears seemed to suggest, in spite of the weight of the machine, which, incidentally, was fully equipped with electric lighting set and dynamo.

As with most high powered and high grade machines, riding comfort and absence of fatigue are prominent features of the Norton, largely due to big tyres, spring top saddle and very thick pneumatic footrest rubbers.

Altogether the new Norton impressed us as a really first class machine, silent, fast and comfortable, not cheap when compared with many quantity produced models, but backed by a firm with a reputation for reliability and with a list of competition successes absolutely "unapproachable."

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- (a) Between Stations in Great Britain.
- (b) Between Stations in Great Britain and ports in Ireland served by railway-owned steamers.

The arrangement will not apply to local steamboat journeys.

Arrangements for the conveyance of motor cars by train can be made at any L.M.S. Station. Early notice is desirable so that necessary Motor Car Trucks may be provided.

Euston Station,  
London, August, 1928.

J. H. FOLLOWS,  
Vice-President.

H. H. BEACH  
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## HERE AND THERE.

### CAR PARKING AT THE MOTOR SHOW

The R.A.C. announces that it has made the following arrangements for the parking of cars and motor cycles belonging to visitors to the Motor Show, which takes place at Olympia between October 11th and 20th, inclusive. For Members and Associate Members of the R.A.C., there will be a park in Addison Road Station, the charge for which will be 2s. 6d. per car per day. The entrance to this park is in Russell Road, and Olympia can be reached direct by crossing the railway footbridge, tickets being provided for the purpose.

For the convenience of the general public, there will be a garage, car park and petrol filling station with an entrance at the end of Addison Bridge Place. Accommodating 104 cars in lock-up garages and 50 cars in the open, this is situated about 300 yards from the main entrance to Olympia. The charge for a lock-up for the period of the Show is £2 2s., payable in advance, or 5s. per day, the charge for garaging being 2s. 6d. per day.

Full information regarding the facilities available, together with a map showing the positions of the Members' Car Park and Garage, can be obtained from the Secretary, R.A.C., 83, Pall Mall, S.W.1.

### THE SHELL STAND AT OLYMPIA.

There are two particular reasons why motorists should visit the Shell Stand at Olympia this year.

The first is a unique working model of an engine specially designed to show what "body" lubrication really means. Thermometers connected to exposed cylinders, bearings and sump show the different extremes of heat to which these parts are subjected. It is a demonstration of the danger of using either oils with wrong "body" or oils which, though heavy in appearance, actually create an excess of carbon.

The second reason is that every visitor may have, on application, one of the most useful booklets on the care of a car which has come to my notice. It has been written by fourteen authorities and contains a wealth of pertinent information, which even non-technically minded motorists will appreciate.

Amongst the contributors are Captain Malcolm Campbell, who supplies the article on "Driving"; Mr. F. T. Burgess, Chief Engineer of the Makers of Bentley Cars, who gives advice on care of the engine; and Mr. Oliver Thorncroft, of the famous Ricardo Engineering firm, who writes understandably on such a scientific subject as modern lubrication.

To those readers who will not be able to attend the Motor Show, Shell-Mex Limited will gladly send a copy of this valuable booklet, post free, on receipt of a post-card to their head offices at Kingsway, W.C.2.

### BARIMAR'S EXHIBIT AT OLYMPIA.

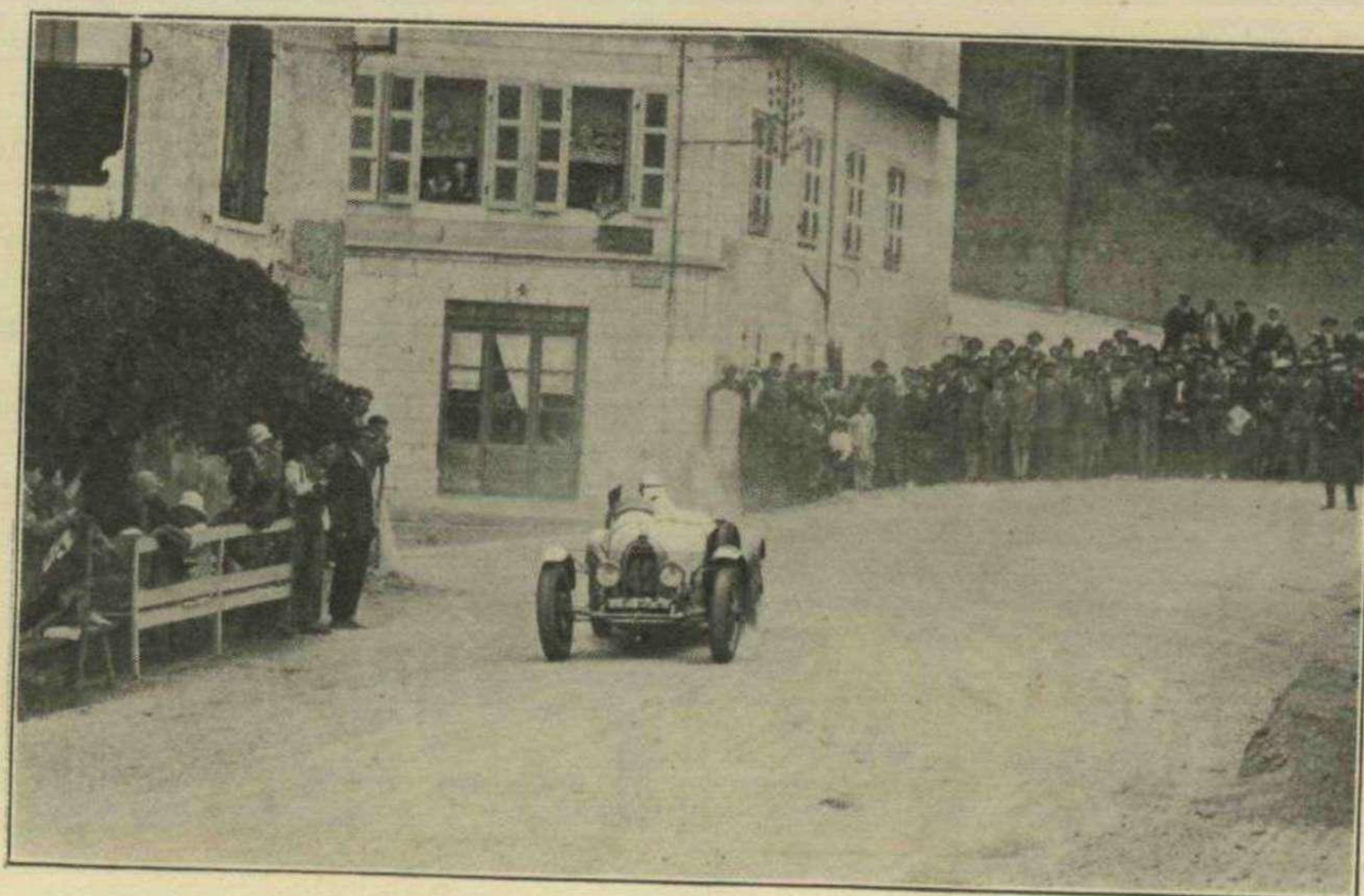
Experts in scientific welding, this concern show samples of their work in the form of cylinder blocks, aluminium crankcases, and so on, which were badly broken, and have since been welded and strengthened under guarantee. It is demonstrated that parts broken owing to faulty design are often stronger after repair by Barimar. Another speciality of this concern is repairing scored cylinders by a patented process which does not enlarge the cylinder bores, thus saving considerable expense, and examples of scored cylinders repaired in this way are shown by means of a working model. Repaired radiators and lamps are also shown.

### A.J.S. IN THE INTERNATIONAL SIX DAYS TRIAL.

Of the five A.J.S. (1929 Model) motor cycles entered for the International Six Days Motor Cycle Trial extending over the week ended September 15th, all were awarded Gold Medals.

After negotiating the 160 miles of more than one in seven gradients encountered in the 880 miles course, each of the A.J.S. machines came through perfect, and not a single mark was lost on final examination.

The machines entered comprised four 3.49 h.p. overhead valve Model M6 machines, ridden by Messrs. C. W. Hough, G. E. Rowley, J. Healy and H. V. der Veen, and one 4.98 h.p. and Sidecar, ridden by Mr. Frank W. Giles.



WILLIAMS WINNING THE GRAND PRIX DE L'A.C.F. ON HIS BUGATTI.



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HERE AND THERE—concluded.

INDIAN ANNOUNCES NEW FOUR-CYLINDER MOTOR CYCLE.

The Indian Motor Cycle Company, of Springfield, Massachusetts, U.S.A., announces this week a new four-cylinder motor cycle, the Indian 4, which is ultra-modern in its construction, appearance, and operation. This new model is the result of many months experimenting in the four-cylinder line and fills a long-felt need in the motor cycle field.

Ruggedness, simplicity and accessibility are combined in the construction of the new model. A 100 lb. force feed oiling system provides lubrication at all motor bearing points at the pressure proportionate to riding speeds and the needs of the motor. Adjustment of the generator belt is simplified by a movable generator bracket, while its removal is facilitated by means of the magneto universal joint. The one piece rear mud-guard is pivoted by a specially adapted bracket to frame to allow easy removal of the rear wheel. The regular Indian front fork with patented spring suspension is adapted to the new machine. Front and rear wheel brakes, acting independently of each other, are provided with extra large braking surfaces, making for extreme safety. A multiple disc clutch, running in oil, is operated by a spring lever on the left footboard. A unique foot pedal arrangement allows simple and permanent disengagement of the clutch while driving in traffic.

In appearance, the new machine resembles the Indian Scout Series 101, which was announced recently. Its long, low construction prominently displays the streamline effects of the unit, while the highly-polished aluminium exhaust manifold and tail pipe sets off to perfection the well known Indian red enamel.

Quick, easy starting, is assured by a high tension magneto which produces an intense spark even at slow speeds. Difficulties of operation are eliminated by the use of a right hand gear shift lever and left hand throttle control. The rear wheel brake is operated by a foot pedal near the right footboard, while the front wheel brake is operated by a conveniently placed lever on the right handlebar. Graceful, smooth operation is made easy by the centrally-located, low-hung centre of gravity. The smooth, silent, lightning-quick acceleration of the new Indian 4 sets it apart from other motor cycles and already has occasioned the hearty endorsement of some of the most critical police officers for use in their work.



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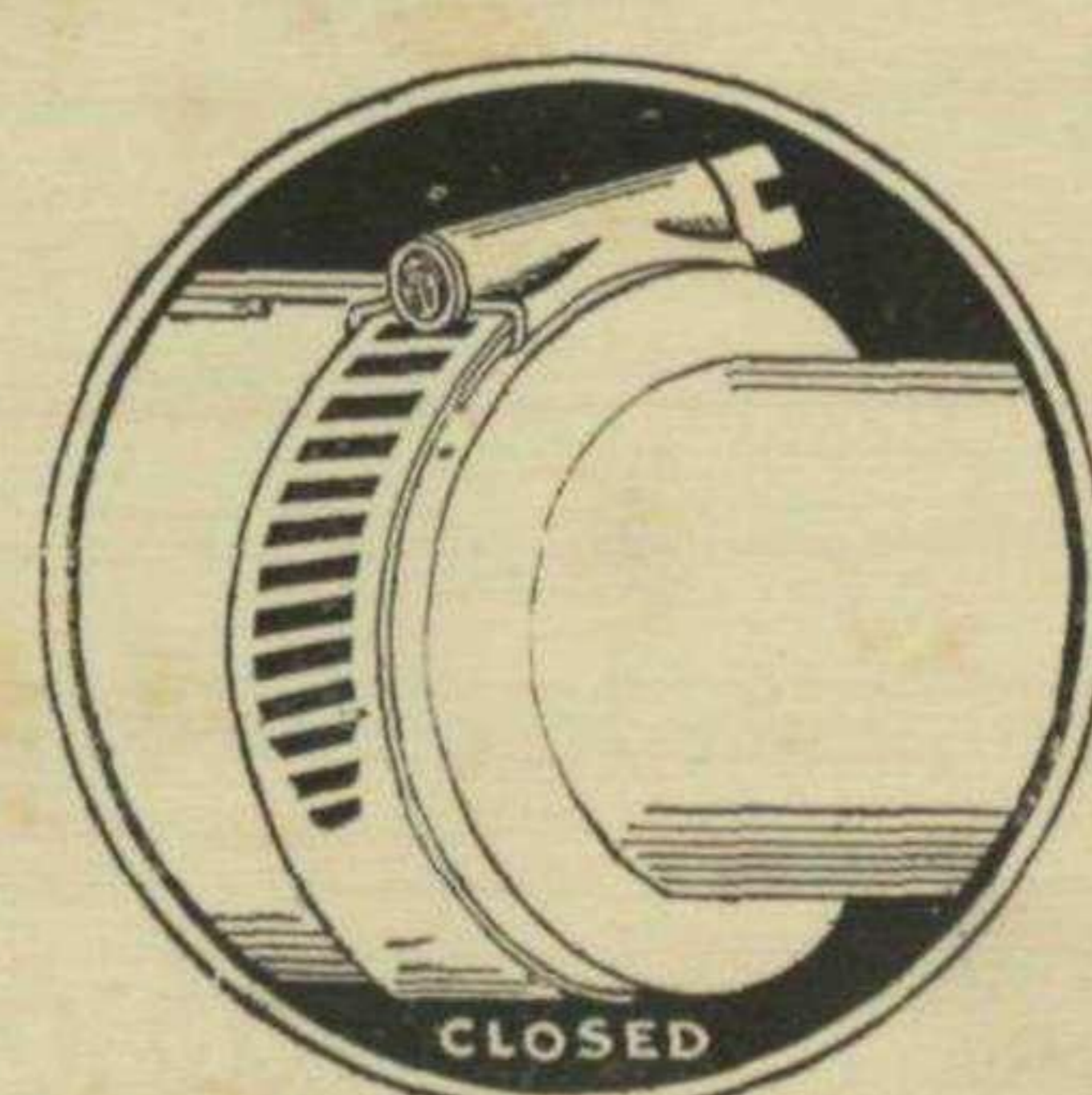
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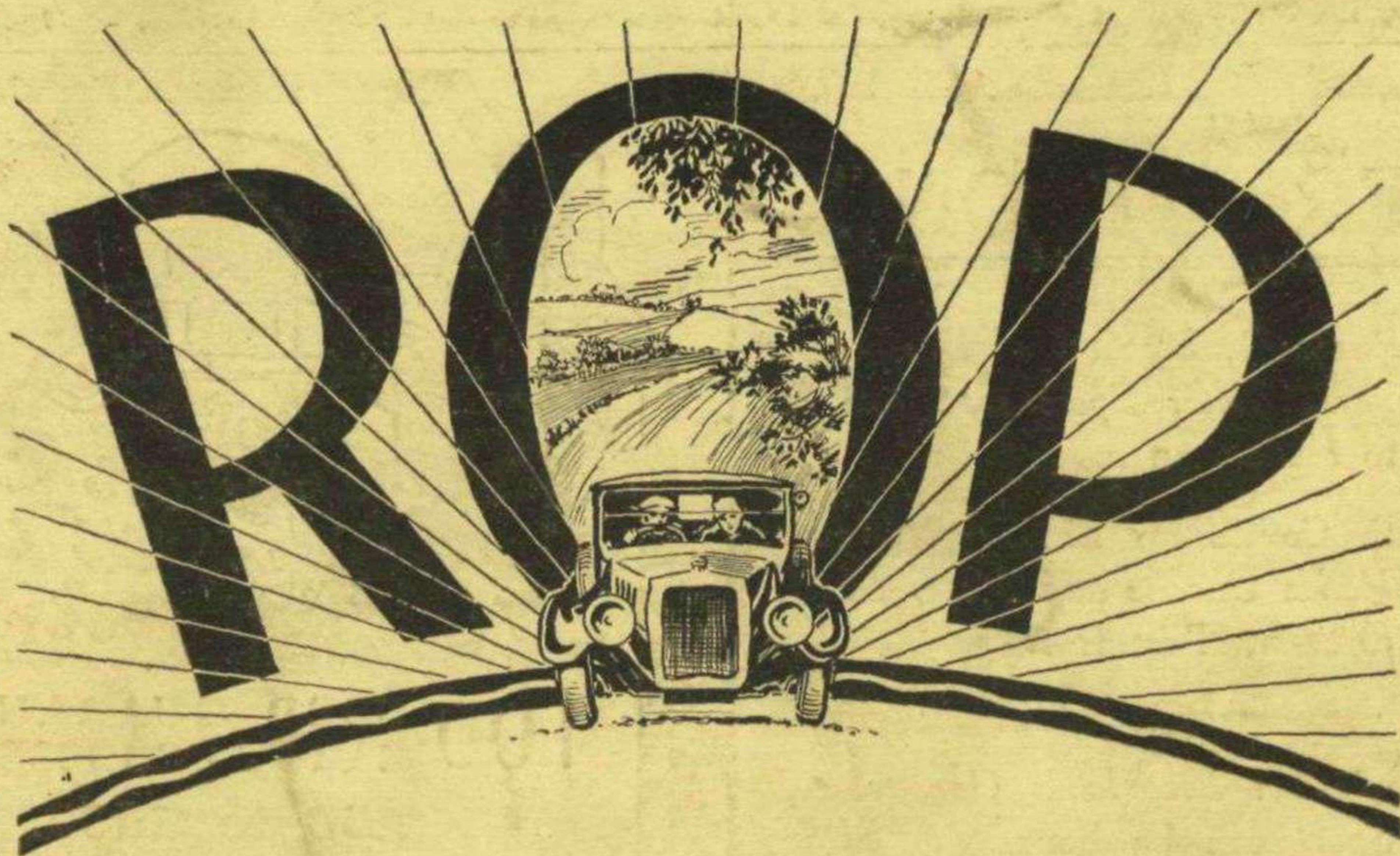
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