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SUBSCRIPTION RATE 8 - PER ANN. POST PAID
Published 1st Month

MOTOR SPORT

INCORPORATING THE BROOKLANDS GAZETTE
EDITOR: W. S. BRAIDWOOD, B.A. (Mech. Sc.) Cantab.
Editorial, Publishing & Advertising Offices
34 DUKE STREET, ST. JAMES'S, S.W.1

Telephone: { REGENT 1937. / GERRARD 3436. *Cables:* AGREYNOL, LONDON. *Telegrams:* AGREYNOL, PICCY, LONDON.

The Way of Things

A Great Feat.

IN flying from England to Australia in nineteen days Miss Amy Johnson has accomplished a feat which is indeed unique in the annals of aviation. That after only about one hundred hours flying experience she should have completed this arduous journey, of which the actual particulars are given on another page, speaks volumes for her personal courage, and remarkable quickness in adapting herself to this newest form of transport.

Bert Hinkler, whose record of fifteen and a half days she was attempting to lower, was a pilot of great and varied experience, and his feat showed the possibilities of the light plane for such a trip.

Miss Johnson's feat brings this even more prominently into view, and shows that the modern light plane has been brought to a pitch of reliability unsurpassed in any other form of transport.

From this it is clear that, great as the personal triumph of the pilot must be, even more far-reaching must be the effect of her flight on the progress of aviation. It is but a few short years since many aeroplanes were only fit to be flown by very skilled pilots, and their reliability was negligible. Steady development in the way of ease of handling and reliability have made possible the feat which all the world is still acclaiming. During her flight she met some very difficult weather, and was forced to fly low over the sea, a most unpleasant experience. These are conditions under which reliability must be absolute down to the smallest detail, and had the power of the engine fallen off, even momentarily, had a plug failed, or an oil pipe choked, triumph would have given place to disaster.

It is therefore all the more gratifying that this country supplied not only the gallant pilot, but also her machine, the fuel, oil, and every component used for the flight.

CONTENTS

PAGE
The Way of Things 3

LAND.

Italy regains the Targa Florio 6
Racing car development, by Capt. *Gordon Aston* ... 9
Sporting cars on the road, The Silver Eagle Alvis ... 13
Continental Racing News 15
Six days in Scotland 18
Ellan Vannin 20
Men and Machines in the Island 23
Club News 25
A Double Twelve M.G. Midget on the Road 28
The J.C.C. Double Twelve 31
Entries for Le Mans 42
The Grand Prix of Algiers 43
The Development of a Thoroughbred 45
Here and There by "Camshaft" 66

AIR.

A New Trainer 53
Slipstreams 55
A £17 *Monoplane* 56
Gliding Gossip and News 58

WATER.

The Sport Afloat 60
The B.O.R.C. Return to Hendon 61
Water v. Concrete, by J. Philip Turner 62
Racing at the Welsh Harp 63
A *One-piece Metal Hull* 64

The I.O.M. Tourist Trophy.

THIS month everyone with any interest in the sport of motoring will turn their attention to the scene of the greatest motorcycle race of the year, and all who can, will visit the Isle of Man for the event. It is significant that many of the greatest car drivers to-day first gained their experience on two wheels, and proof of the efficacy of this training is to be found in the fact that Achille Varzi, who has done well in the Island for some years, this year won the coveted Targa Florio.

ENGLAND TO AUSTRALIA

PARTICULARS OF AMY JOHNSON'S GREAT FLIGHT

THERE have been several flights to Australia during the past few years, all of them examples of pluck and skill, but none is more deserving of the general acclamation that has been accorded than the nineteen-days trip of Miss Amy Johnson on a D.H. Gypsy Moth.



Amy Johnson and the Gipsy Moth on which she flew to Australia.

When Miss Johnson set out from Croydon on May 5th, she expressed the intention of breaking Bert Hinkler's record of 10,400 miles in 15½ days, and while she failed to do this, she set up a new record by covering the 4,140 miles to Karachi, India, in 6 days (Hinkler took 8 days).

On the first day she reached Vienna (780 miles) without incident ; on the next, she arrived at Constantinople (790 miles). From this capital, after a delay through a minor defect to her machine, she set off for Aleppo, 550 miles distant, in bad weather. A difficult task faced her on nearing the Taurus mountains where visibility was very bad, and she was compelled to fly through dense clouds. On the following day she had another trying time on her hop of 470 miles to Baghdad, when weather conditions were so bad that she had to put her " Moth " down in the desert. The next day (May 9th), saw Miss Johnson continuing to Bandar Abbas, and on the next, she reached Karachi.

In spite of the strain which she had undergone during the six days, she set off again on the morning of May 11th, this time escorted by an R.A.F. machine and another " Moth," piloted by Wing-Commander Crosbie. She landed at Jhansi *en route* for re-fuelling and later reached Allahabad. From there she went on to Calcutta, and thus completed a round 6,000 miles in eight days.

It was after this that the plucky girl-pilot met with her first piece of really bad luck. When some ten miles from Rangoon she was unable to pick up the aerodrome and landed at Insein. She got down safely but, in taxi-ing, ran into a ditch, and turned her machine up onto its nose, with the result that the propeller and one wing was damaged ; this mishap took two days to rectify. On May 16th, after her " Moth " had been taken to Rangoon, Miss Johnson took off once more with the intention of flying to Bangkok, Siam. It was raining heavily at the time and general conditions were bad ; and when the Dawna Range was reached, she had the greatest difficulty in picking up her course owing to thick clouds. Eventually, after several hours, a railway junction was sighted, which ultimately put Miss Johnson on the right course for Bangkok. Thereafter she aimed for Singapore but bad weather again delayed her and she had to land at Singgora ; on May 18th, however, she arrived at Singapore, landing O.K. on Seletar Aerodrome, where a new wing was fitted in place of the one damaged at Rangoon. Monday, May 19th, saw Miss Johnson in Java, after a perilous flight over the sea, sometimes at an altitude of only 6 feet from the shark-infested waters.

She was now nearing the final stages of her journey, with 950 miles separating her at Surabaya from Port Darwin. The 750 miles hop from the former stopping place to the island of Timor, occupied twelve hours and after landing at Atambua she prepared for the last stage to Australia.

With the weather threatening and 500 miles of open sea ahead, she took off and reached her goal on Saturday, May 24th—19 days after leaving Croydon.

THE SOUTHPORT "100."

ONE of the features of the Southport M.C.'s 100 mile race on May 24th was the introduction of the modern system of handicapping, on a capacity basis, by giving the smaller cars credit for a certain number of laps at the start. The handicapping was well calculated and produced a good finish.

T. Thistlewayte in his big Mercédes led off the mark and proceeded to give an exhibition of very fast but steady cornering. The field contained several Brooklands habitues who had ventured northwards to see what they could collect, including J. H. Bartlett and A. F. Ashby who collected first and second places respectively in the 1100 c.c. class. Bouts on his white 2-litre track Sunbeam started well but retired before half distance. The ultimate winner proved to be T. G. Selby on a 2-litre Bugatti, who was just able to get home before being caught by the Mercédes, after a really good race.

The organisation in spite of the enormous crowds of spectators was first-class, and showed again that the Southport M.C. know their job.

RESULTS.

750 c.c. Class.—P. Stephenson (Austin 7).

1100 c.c. Class.—1, J. H. Bartlett (Salmson) ; 2, A. F. Ashby (Riley).

1500 c.c. Class.—B. H. Davenport (B.H.D. Special).

2000 c.c. Class.—T. V. G. Selby (1995 c.c. Bugatti).

Unlimited Class.—T. Thistlethwayte (7100 c.c Mercédes).

THE CLUBS AT BROOKLANDS.

A CHEERFUL lack of formality was the keynote of the meeting of May 24th last. A varied and interesting programme was open to the members of any recognized motor club. Teams from the J.C.C., the M.C.C. and the Brighton and Hove M.C. competed for the Stanley Cup for the highest aggregate marks of the meeting.

The M.C.C. team consisting of H. J. Aldington, T. H. Wisdom, and E. J. Kehoe proved victorious and hold the cup for a year. The other two teams tied for second place.

Other events included a Morris-Cowley Handicap and a hill-climb.

Miss Amy JOHNSON

on her great flight
to Australia in a
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MOTH

used

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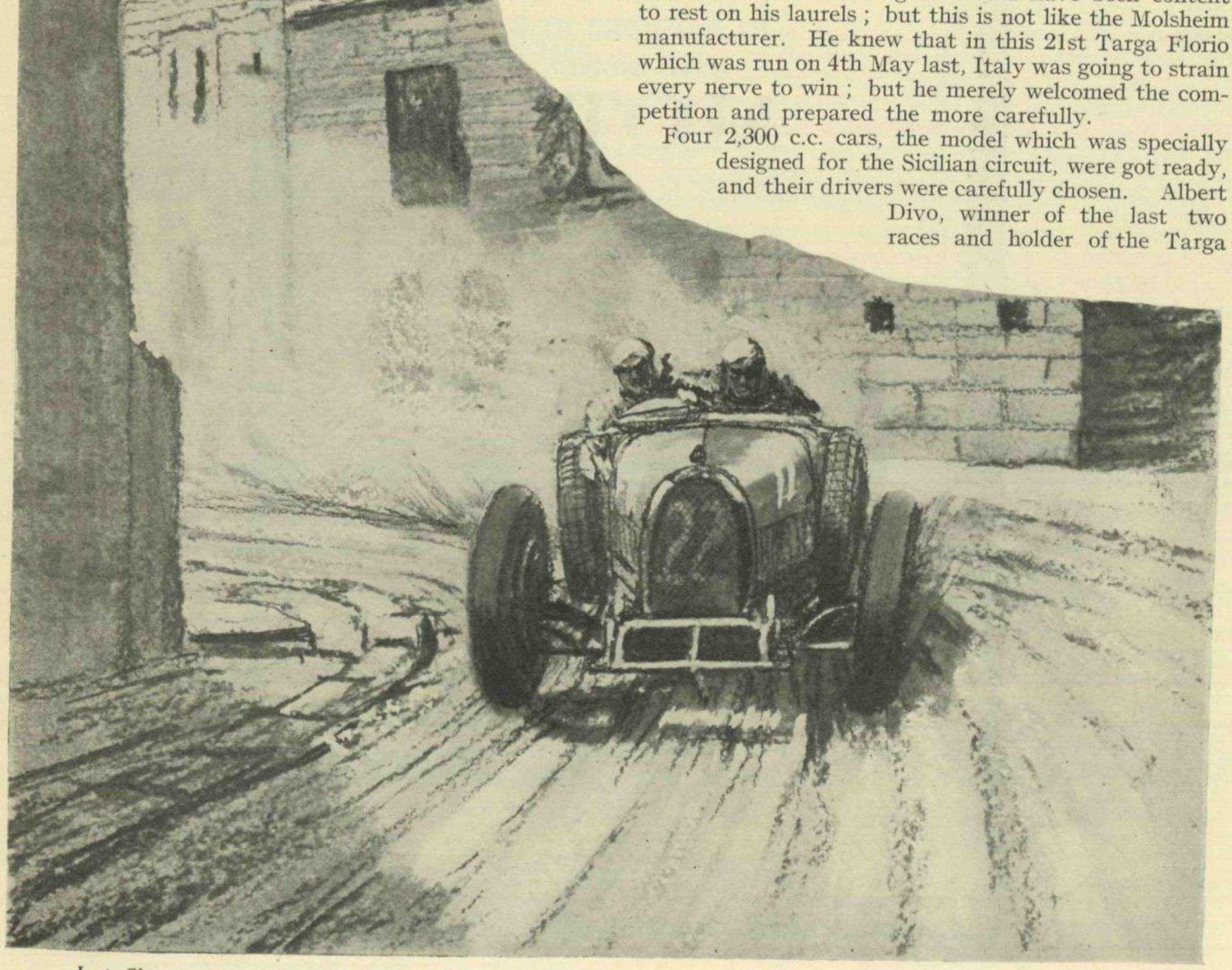
ITALY REGAINS THE TARGA FLORIO

Achille Varzi, on an Alfa-Romeo, wins by a narrow margin. Bugattis second and third.

FIVE years ago, in 1925, Ettore Bugatti decided that he would run his cars in the Targa Florio, and having come to Sicily and seen the classic road race, he very definitely conquered. For two years, in 1925 and 1926, Constantini, that Italian wizard of the Madonie circuit, drove a 2-litre Grand Prix type Bugatti to victory; then in 1927 Bugatti decided to build a special model for the race, the 2,300 c.c. type, and another Italian, Emilio Materasi, carried off the trophy; again in 1928 Albert Divo, who although a Parisian is often claimed as of Italian origin, won the race on the same type of car, and repeated the performance last year on a 2-litre model. Thus for five long years Bugatti had won, and in spite of the fact that Bugatti himself is an Italian who merely decided to build his car in Germany and now finds himself doing it in France, and that all his victorious drivers were more or less Italians, it was felt in the peninsular that while the cars carried the French colours to victory every year, the national prestige was suffering. After six years of defeat (for a German Mercédès won in 1924), Italy had got to win her own great road race!

It might have been supposed that after his long succession of victories Bugatti would have been content to rest on his laurels; but this is not like the Molsheim manufacturer. He knew that in this 21st Targa Florio which was run on 4th May last, Italy was going to strain every nerve to win; but he merely welcomed the competition and prepared the more carefully.

Four 2,300 c.c. cars, the model which was specially designed for the Sicilian circuit, were got ready, and their drivers were carefully chosen. Albert Divo, winner of the last two races and holder of the Targa



Louis Chiron cornering in his Bugatit in a desperate attempt to gain the lead from Achille Varzi. A skid causing a smashed wheel spoilt his chance, however, and he lost by less than two minutes. (Drawn for Motor Sport by R. H. Nockolds).

THE TARGA FLORIO—continued.

record, had one car, Count Conelli, who has had experience of many Targas, the second, Louis Chiron, the Monégasque driver who has so often proved invincible on Bugattis, the third, while the fourth car was entrusted to Williams, who although having no previous experience of the Sicilian circuit is famed for his versatility, and could be counted on to adapt himself to this course over mountain roads, which is quite unlike any other racing circuit in the world.

Against this formidable team Italy had made her preparations. Alfa-Romeo, the great national champion, was of course her chief hope. In 1928 the Milanese firm had attacked Bugatti with the 1500 c.c. 6-cylinder model, but Campari had only been able to finish second ; last year the 1,750 c.c. model had been entered for the fray, but the late Count Brilli Peri, the first home of the team, had been beaten by two of the Bugattis ; this year it was felt that something more must be done. Signor Jano decided that he would use two of the veteran Grand Prix racers, the cars which first made the name of Alfa-Romeo famous by their victories in 1924 and 1925 at Lyons, Spa, and Monza. Two of these straight-eight 2-litre racers were therefore rebuilt and fitted with lower gear ratios and standard type radiators to give the extra cooling necessary for several hours of low-gear work under the fierce Sicilian sun. These racers were to be driven by Campari and Varzi, while Nuvolari, Maggi and Ghersi were to handle 1,750 c.c. machines.

When the Grand Prix racers arrived in Sicily, however, they were found to be too fast for the circuit, very difficult to handle and liable to become unbearably hot owing to the gear ratio being too high. No lower ratio was available, and Campari declared that on the Sicilian circuit these cars were impossible. Not so Varzi, however. This young and determined driver was of the opinion that he was cheated out of victory in the recent 1,000 Miles Race, because in order to prevent internecine strife, Signor Jano, head of the Alfa-Romeo team, had told him that his team-mate Nuvolari could not possibly catch him, whereas in fact he had a lead of several minutes. Now he saw a chance of getting a car for the Targa which was capable of nearly 120 m.p.h., and he did not care if he did get roasted. Signor Jano agreed with Campari that no man could stand five laps of the Madonie Circuit on such a car, and it was finally decided to hand Ghersi's 1,750 c.c. car over to Campari and to keep Ghersi in reserve to take over from Varzi when the latter was forced to give up. Thus in the end the Alfa-Romeo challenge to Bugatti took the form of one Grand Prix racer and three 1,750 c.c. cars.

As well as Alfa-Romeo, Maserati had entered a team of cars for the Targa. These were straight-eight racers of a new type, the engine size having been increased to 2,400 c.c., and the cars were driven by Ernesto Maserati, Borzacchini, Arcangeli and Fagioli, the Maserati "aces."

The third Italian team for the race consisted of three O.M. cars, one of which was driven by Minoia, the holder of the lap record for the circuit, and the other two by his famous team-mates Morandi and Balestrero. These cars were of the quite normal 2,200 c.c. supercharged 6-cylinder type, and their performance in the race was one of the surprises of the event.

The remainder of the entries were of a more or less amateur character and consisted of Bittmann (Bugatti), Ruggeri (O.M.), Ippolito (Alfa-Romeo) and Neuzioni (Maserati). Nineteen starters is not a great number for the Targa Florio, but it was obvious that the struggle was going to be as keen as any in former races.

Thus on the morning of the 4th May these nineteen cars were drawn up by the starting point near Termini, ready for the fray. The starter dropped his flag and Borzacchini, who had drawn Number One in the race, shot off on his 8-cylinder Maserati. The others followed at minute intervals, and the Twenty-First Targa Florio had begun.

Three kilometres from the start Fate overtook Maggi's Alfa-Romeo, and Balestrero apparently never got further than Polizzi ; thus two of the Bugattis' adversaries were out of it already. The latter team, however, realised that they were not going to have things all their own way, and decided to make an early bid for victory. The lap record for the Madonie curcuit stood on the morning of the 4th May at 1 hour 25 minutes 15 seconds, a time achieved by Minoia on a Bugatti last year. On the first lap of this year's race Louis Chiron, Albert Divo and Count Conelli all proceeded to beat Minoia's record, and the race seemed to be theirs. What was the surprise of the Bugatti team therefore when it was found that all three of the remaining Alfas had beaten Chiron, their best man ? Italy was triumphant. Six cars had beaten the lap record on the first circuit ; this was going to be a race indeed !

1ST LAP LEADERS.	h.	m.	s.
1. Varzi (Alfa-Romeo)	1	21	21 3/5
2. Nuvolari (Alfa-Romeo) ...	1	22	53 3/5
3. Campari (Alfa-Romeo) ...	1	23	18 2/5
4. Chiron (Bugatti)	1	23	27 4/5
5. Divo (Bugatti)	1	24	1
6. Conelli (Bugatti)	1	24	43 1/5
7. Morandi (O.M.)	1	26	10
8. Maserati (Maserati)	1	26	27
9. Borzacchini (Maserati) ...	1	26	39
10. Williams (Bugatti)	1	26	50
11. Ippolito (Alfa Romeo) ...	1	28	37
12. Minoia (O.M.)	1	28	47
13. Arcangeli (Maserati)	1	29	33
14. Ruggeri (O.M.)	1	31	58
15. Bittmann (Bugatti)	1	36	49

The performance of Varzi on the big Alfa-Romeo was truly marvellous, and on the first lap he had broken the record for the circuit by nearly 4 minutes. Too late the Bugatti team realised that the Alfa-Romeo threat was very real indeed. But his initial eclipse only spurred Chiron to greater efforts. Setting out on the second lap at great speed, he succeeded in passing both Campari and Nuvolari and improved on his time for the first lap by 48 seconds. Varzi with marvellous regularity did not vary in his time by as much as 6 seconds.

2ND LAP LEADERS.	h.	m.	s.
1. Varzi (Alfa-Romeo)	2	42	48
2. Chiron (Bugatti)	2	46	6 2/5
3. Nivolari (Alfa-Romeo) ...	2	46	30
4. Campari (Alfa-Romeo) ...	2	47	0 4/5

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1,000 Miles.
12 hours.
500 Kilos.
3 Hours.
Class "B" 200 Kilos.
200 Miles.
Class "B" 200 Kilos.
200 Miles.
2,000 Kilos.
3,000 Kilos.
2,000 Kilos.
2,000 Miles.
24 Hours.
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3,000 Miles.
5,000 Kilos.
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3rd ,, 36th ,, ,,
3rd ,, 38th ,, ,,
2nd ,, 42nd ,, ,,
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2nd ,, 34th 90 m.p.h. Handicap.
3rd ,, 35th ,, ,, ,,
3rd ,, 36th ,, ,, ,,
3rd ,, 49th 75 ,, ,,
2nd ,, 37th 90 ,, ,,
1st ,, 49th 75 ,, ,,
2nd ,, 38th 90 ,, ,,

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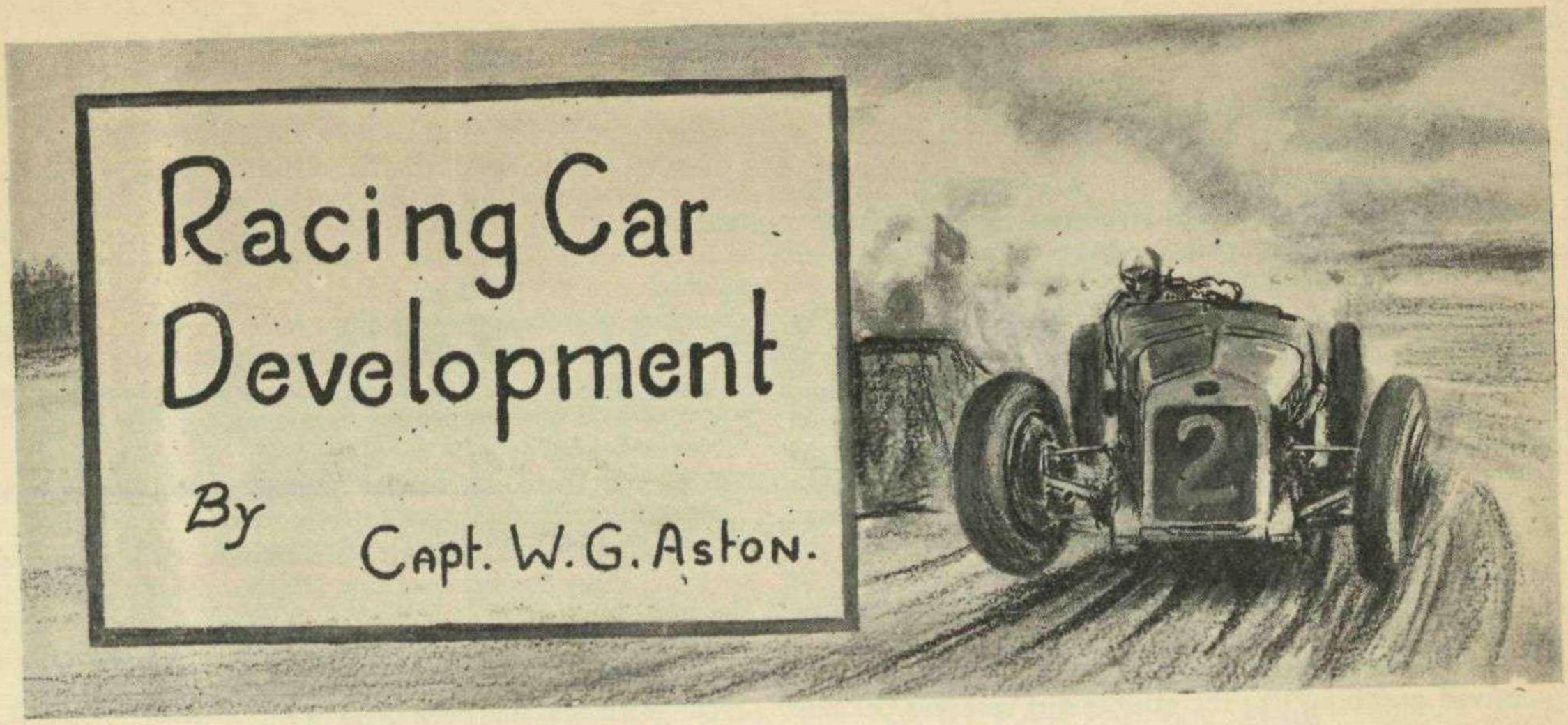
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AN ATTEMPT TO PEEP INTO THE FUTURE

RACING cars are of so many categories that it is necessary before entering upon a consideration of their future development to define the type of vehicle to which that development will more immediately apply.

Broadly speaking, the racing vehicle designed and constructed either for sport or profit (and this word may embrace many different commercial phases) is one of three things—1, a machine of unlimited power ; 2, an ultra specialised machine of limited capacity ; and, 3, a " hotted-up " standard model. To this might be added a class of car which is a racer pure and simple, and which has done much interesting work at Brooklands, but has to be dismissed from the consideration because it belongs to the past.

As to the above, I will frankly say that I see no future whatever for the unlimited powered racer. It may or may not be a good advertisement for its makers, but it is hardly to be pretended that it serves a useful or practical purpose except to demonstrate that something approaching its theoretical maximum speed can be obtained under very exceptional conditions.

The sort of vehicle that can only show its paces in one place in the world is not very long going to engage the attention of serious engineers. May I be pardoned for putting here a view that extreme speed records might well be confined to engines having a definitely limited capacity, as for example, 7 litres, which at all events would bring them into a closer relationship with existing touring cars.

When we turn to the second class, we find a type of vehicle in which very few car constructing firms are now interested since the races in which they formerly engaged have, through lack of entries, largely fallen into disfavour.

The reason for this is not far to seek. To build a team of $1\frac{1}{2}$ litre vehicles is a very costly proposition, especially having regard to the very minute miscalculations which may cause them to score a hopeless failure instead of a triumphant success. Nevertheless, it must be conceded that what I may call the Grand Prix type of machine has done much to encourage progress in touring car design, and it has therefore served a very valuable purpose, I doubt very much whether we should have seen the present movement in favour of the multiplication of cylinders, even in quite cheap cars, attain so great a vogue had it not been that road racing cars proved so conclusively the advantage of that principle.

Mark that I say " road racing " : mere track work would never have called for 12 cylinder motors of 1,500 c.c. capacity. It was only when turns had to be negotiated, gradients climbed, and the conditions demanded a high degree of controllability, that the multi-cylinder motor came into its own.

In these circumstances it is good that at our own Brooklands some of the greatest events are decided upon a course which to a certain degree approximates to the road.

Then we have the specialised touring car warmed up by various means, and even possibly denominated as a standard product in the catalogues of its makers. In the developments of these various types the conditions are somewhat similar to those which exist between the designer of big guns and the producer of armour plate.

Directly an automobile engineer ascertains some method of obtaining unheard of power from his machine, racing authorities devise some system whereby his efforts will be to some extent defeated. They give him a very twisty course to run upon. They insist upon him using a certain kind of fuel, and so forth. It may be that in course of time they will forbid supercharging.

Their restrictions in the matter of fuel, that is to say, insisting upon racing vehicles consuming what is normally known and bought as " petrol," is, in my judgment, a very good thing for all concerned.

In automobile engineering many unexpected things can happen, but I do not think there is very much probability of engines with a compression ratio of over

RACING CAR DEVELOPMENT—continued.

10 to 1 being employed for ordinary purposes for many years to come. Such a ratio demands a very specialised and a very expensive form of fuel.

I would not go so far as to say that we ought in racing to get as near as we can to stock car competitions, but it is no great hardship if we have to use stock fuels, stock oils and stock tyres.

Allowing for these factors, what, then, can be done to get higher speeds? There are many legitimate means which assert themselves. If a race involves turns and corners, obviously something can be done in the direction of improved performance by enhancing the power weight ratio. There are three ways of doing this. One is to enlarge the power and keep the weight the same. Another is to lighten the weight and keep the power the same. The third, and manifestly the most effective, is to enlarge the power and simultaneously lighten the weight.

I am quite certain that the second method has not received anything like the attention it deserves. There are few racing cars to-day in which a certain amount of weight could not be shaved off by intelligent methods.

Can it, for example, be for a moment pretended that an adequate springing system could not be made very much lighter than it is at present. Here the aeroplane designer gives a tip which I am rather surprised to see has not been followed.

Then with regard to the engine, what possibilities present themselves—one at least is prominent enough! It is the use of a super discharger, which from every point of view is as logical a development as the employment of a supercharger. The latter is used because, normally, something less than 15 pounds to the square inch is all that is available to drive the gas into the cylinders, but when the greatly expanded gases have to make their exit to the atmosphere they meet with the same 14.7 pounds to the square inch. By some means or other this resistance must be decreased. An immense amount of additional power could be got if it were reduced to, say, 5 pounds, and this could undoubtedly be done by the application of a super exhauster, the function of which would be to create a partial vacuum, thus encouraging the burnt gases to leave the combustion chambers as rapidly as possible.

It is conceivable that a supercharger and a super discharger could be united in one component. True, certain problems would be introduced by heat distribution, but no one who looks into this proposal would for a moment claim that such problems were insoluble.

Next there is the further multiplication of cylinders. The object aimed at in this case being the reduction in the weight of reciprocating parts in relation to the cubic capacity, or if you prefer it, to the power developed and to minimise fluctuations in load. Here, of course, the principal objection to be met with is expense. Twelve cylinder motors are not cheap to manufacture, and 24 cylinder motors, which are by no means beyond the scope of practical realisation, are even less so.

Nevertheless, even if we restrict our thoughts to sixes and eights, there are, in the phrase of the politicians, "other avenues ready to be explored."

Beyond question an addition of power can be obtained by using some cooling medium, which, whilst not having the same specific heat as water, boils at a much higher temperature, and thus increases the working temperature of the engine.

The work that has been done in this direction, particularly in America in connection with aircraft motors, is extremely promising, and indicates the strong probability of further big developments along this line.

In motors capable of very high speeds, and it is clear that that is the type which must come into greater and greater vogue, it might be feasible to economise quite a measurable amount of power by introducing into the crank chamber an atmosphere of helium. This being of very much lower density than air, would considerably reduce the resistance to rotation imposed upon the crankpins, webs, and connecting rods and to the movements of the pistons.

The idea may seem at first blush fantastic, but when one considers the speed of these components, one has no difficulty in perceiving that the atmospheric resistance which they have to overcome is quite substantial.

With regard to transmission, it can reasonably be said that there are no developments which are likely to offer themselves for immediate adoption. Perhaps the most promising, however, is that type of differential which embodies a free wheel principle, and which is therefore capable of reducing the slip of the driving wheels. It is, of course, well known that at high speeds this reaches a formidable percentage. Such a thing would be desirable also from the point of view of saving wear and tear on tyres, which in themselves exercise so profound an influence upon the performance of a racing car.

THE EUROPEAN GRAND PRIX.

THIS year the Automobile Club of Belgium is being entrusted with the organisation of the Grand Prix of Europe. The event is due to take place on the well-known Spa circuit on the 30th July, and will of course be run on the limited fuel consumption basis—14 litres of oil and petrol per 100 kilometres—decided on by the International Sporting Commiss'on for 1929 and 1930.

The first entry to be received by the Club is that of a team of three Imperia cars, and this firm is to be heartily congratulated on entering the lists of the real Grand Prix races. It is to be hoped that some competition will materialise, and probably Peugeot and Bugatti will enter teams.

The Imperia Company has doubtless been encouraged to run by the fact that the club's sporting commission has decided to present a cup in memory of their colleague Jacque de Liedekerke, which is to go to the first Belgian car to finish in the Grand Prix of Europe.

As well as the European Grand Prix, the Belgian 24-hour Grand Prix for touring cars will be run at Spa as usual, the dates being 5th and 6th July.

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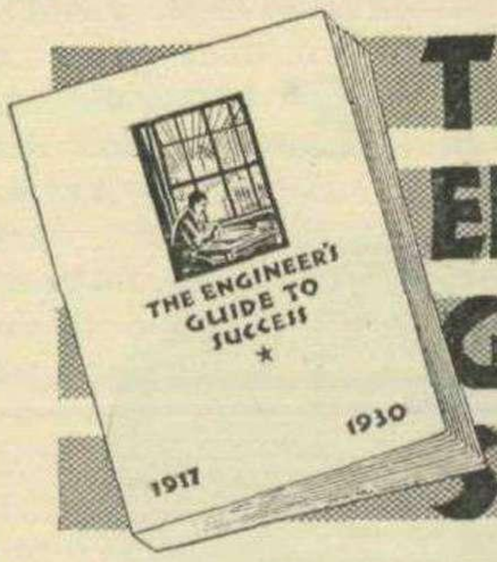
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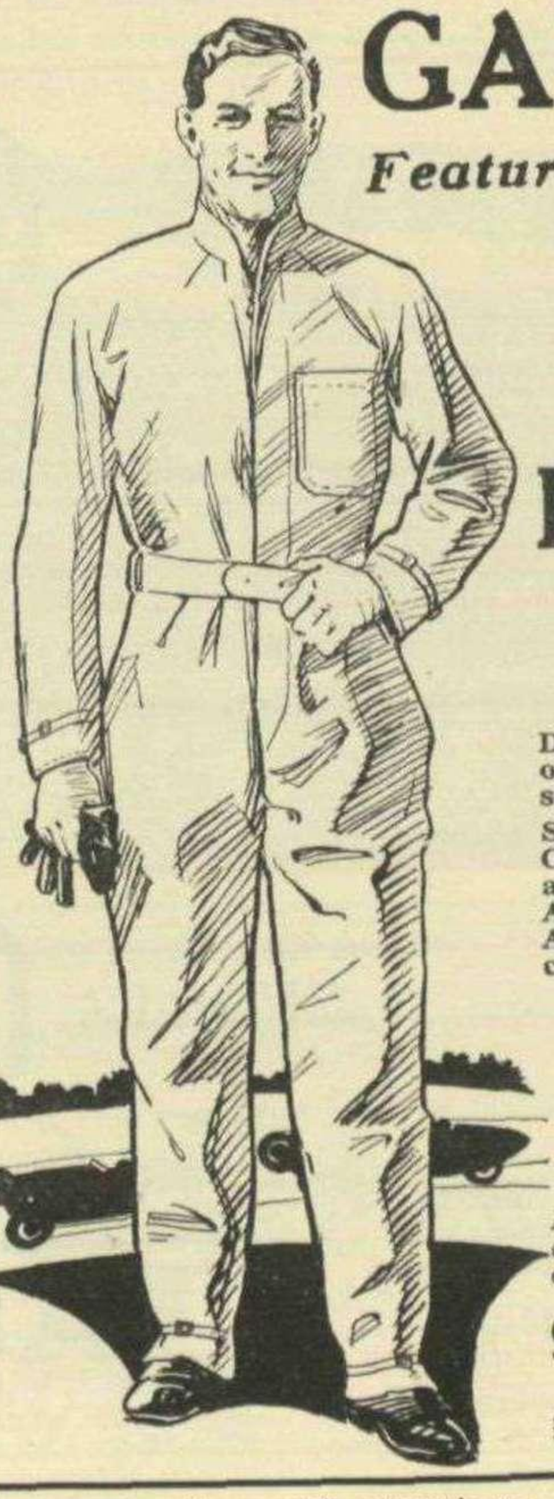
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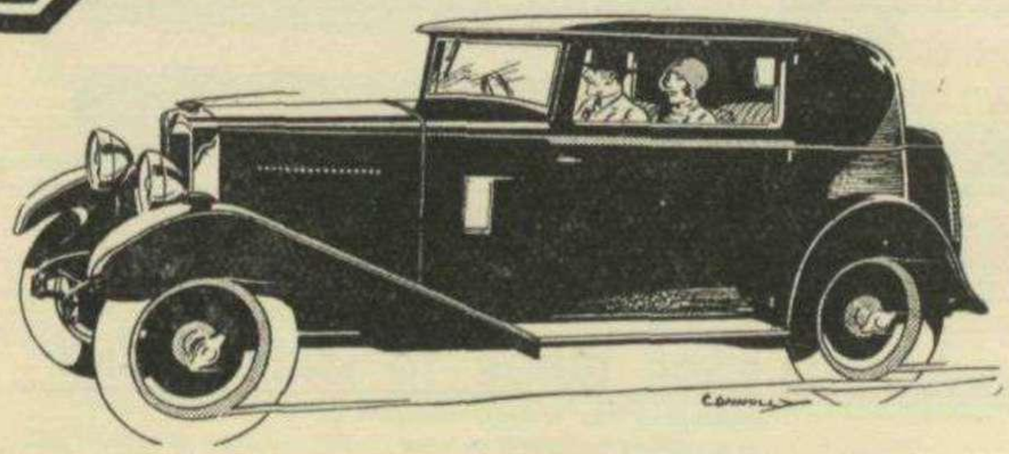
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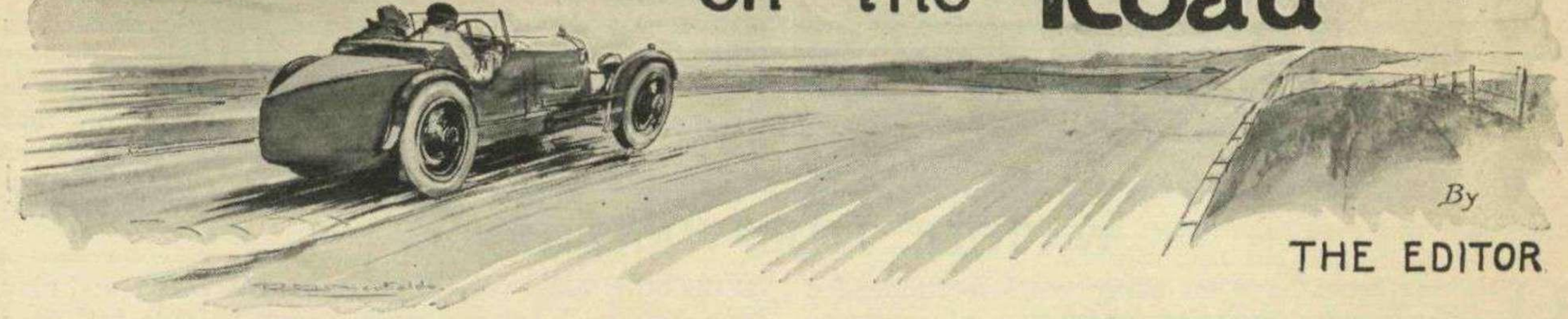
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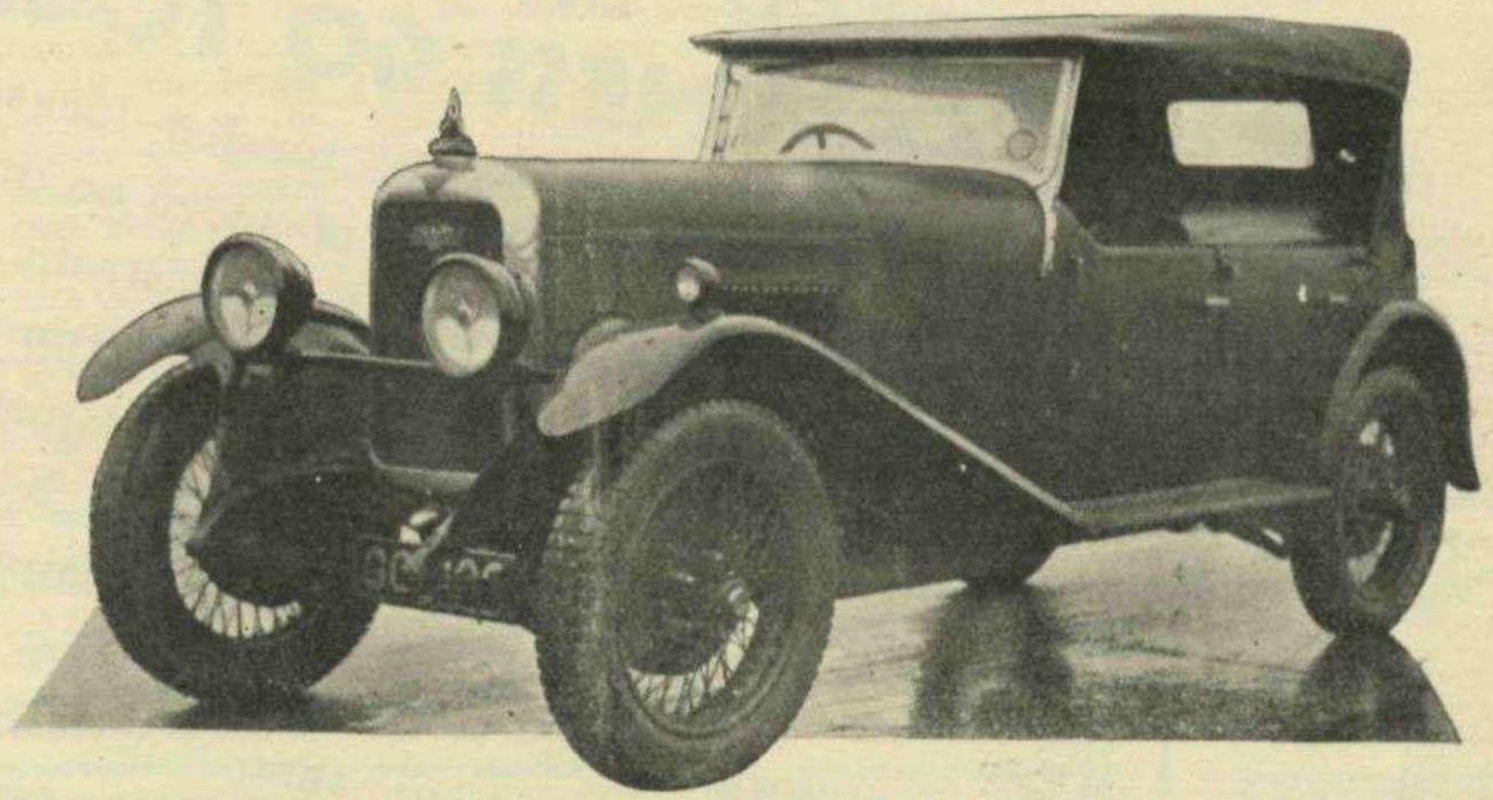
Sporting Cars on the Road



By THE EDITOR

THE ALVIS SPORTS "SILVER EAGLE."

THE actual car tested by MOTOR SPORT was the same vehicle that had earlier in its life been used as an effective, and as it proved very speedy, substitute for the famous Blue Train. Without wishing to enter into any discussion on the relative merits of cars and trains, which have lately been occupying the attention of various manufacturers, it must be obvious that a car used as this was, had been through a fairly rough time. Continuous high speed demonstration work in the hands of many drivers, for many thousands of miles is much more likely to find out any weakness or liability to wear, than a similar period in the hands of one owner, who, however hard he might drive, would be certain to take more care of it. Therefore, when we took over the car from Henlys Ltd. for a few days we were particularly interested to observe the manner in which it had stood up to its work.



Pleasing lines together with comfort typify the four-seater model.

It has always been characteristic of the standard Alvis product, that it has never led one to expect a performance which is not forthcoming. Rather it is the opposite that one finds. The Silver Eagle sports 4-seater, as will be seen from the photograph, is a thoroughly good looking but modest motorcar ; a car that anyone would be pleased to be seen in, and at the same time one that will not attract unwelcome attention by "looking fast."

Its manners from the point of view of other road users and the public in general are beyond reproach, while from the driver's point of view, a car which is quiet and smooth running is much pleasanter to handle on the road, and enables higher speed to be indulged in without annoying anyone.

All these points became immediately evident as we took the car out of London, but when we reached the open country we were genuinely surprised to find how its smoothness was combined with real speed capabilities.

The makers' claim is that the car is capable of 85 m.p.h. With many firms, this would mean that, given everything in its favour and time to get to it, such a speed is possible.

With the Alvis it means that it will at any time *on the level* reach and hold 85 m.p.h. and any stretch of a mile is sufficient distance to reach it. At this speed, which was attained quite a score of times in a couple of days of using the car as a fast hack, the control was all that could be wished, while even when taking really atrocious surfaces at well over 60 m.p.h., there was never the least difficulty in holding it on the required course. Cornering is good, but it would seem that the chassis could be lowered slightly with advantage. The ground clearance is remarkably large for a sports car, and it should be possible to reduce it without difficulty.

The only sign we could detect of the hard life the car had led was the fact that the hum of the indirect gears was slightly more pronounced than on a new model,

SPORTING CARS ON THE ROAD—continued

but when it is considered how many different hands must have tried their strength on that gear lever, it is a great tribute to the wearing qualities of the gear box that the change still functioned perfectly, was easy to manipulate, and free from any special tricks.

The brakes came up to expectations and no difficulty was experienced in bringing the car to rest in 65ft. from 40 m.p.h. on a good surface.

Bottom gear was used but little under ordinary driving conditions, starting on the level in second being common practice. This gear gives a maximum speed of 40 m.p.h., while 60 m.p.h. in third is attained without fuss.

The engine is free from any vibration period in its speed range, which is remarkably good.

Although the gears were used liberally and continuously in the open country, as we were frequently in a hurry, when in traffic top gear could be used almost exclusively if required.

The six cylinder engine is only 2,100 c.c. which makes its performance with such a generous sized body rather remarkable. Mixture is supplied by three S.U. carburettors, and this arrangement undoubtedly contributes greatly to the very smooth behaviour of the engine at all speeds. On one occasion with rather favourable circumstances we reached 90 m.p.h. which shows that the makers' claim of maximum speed is by no means exaggerated. The price is £675.

WATCH THE WEATHER.

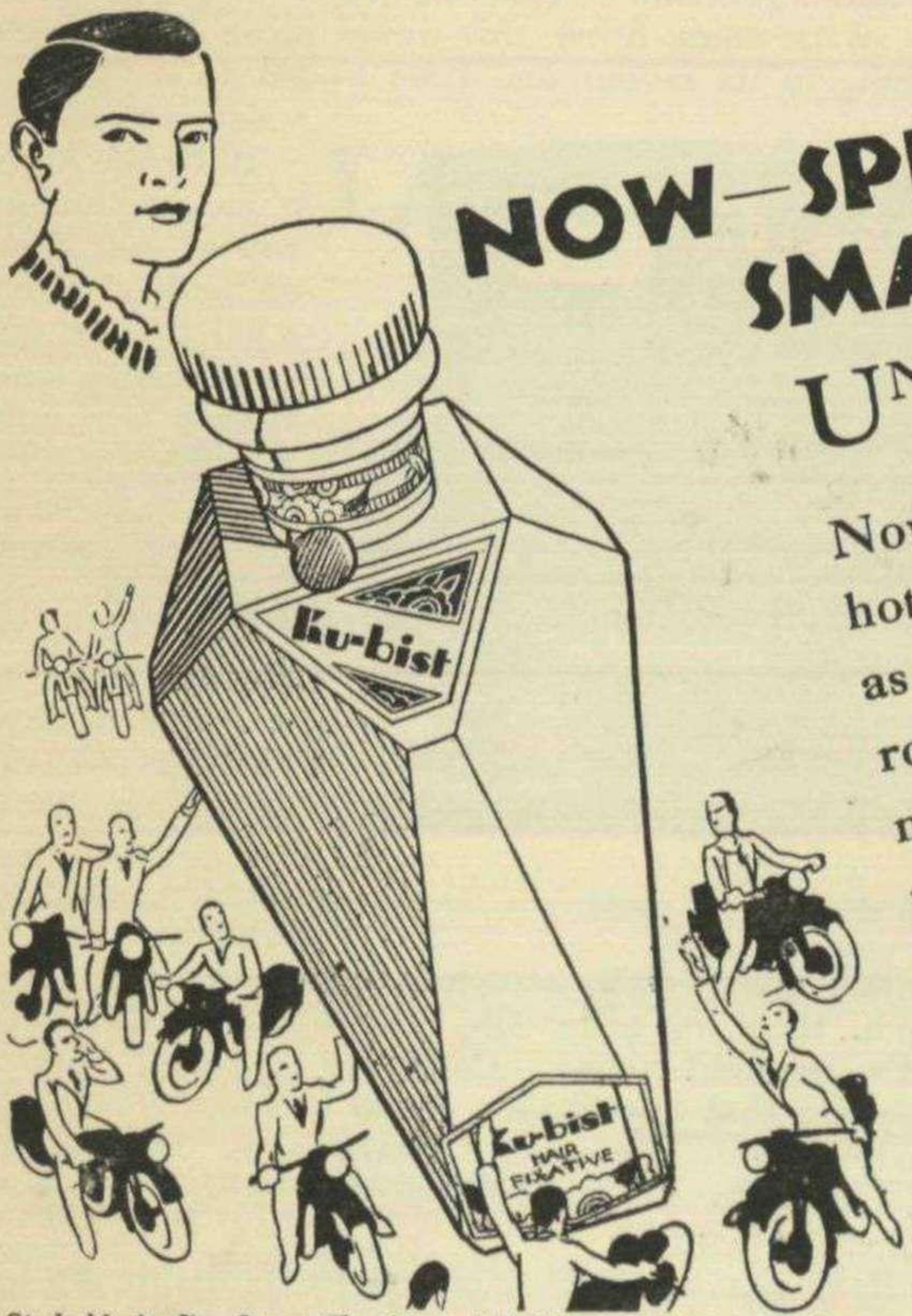
OIL companies have for many years recommended changing the grade of lubricating oil according to the season; but in announcing a new blend of No. 1 petrol, called "Summer Shell," the Shell people are the first in the field to provide alternative fuels for winter and summer use.

In a climate which shows a variation of about 40 deg. between the average winter and summer temperatures it is obviously extremely difficult to prepare a single blend which will satisfy the very different needs of cold and hot weather motoring. The motorist has but to compare the routine of starting in January, say, and in June to appreciate how wide that difference is.

In winter the ideal fuel should contain a big proportion of volatile elements to ensure quick starting. In summer on the other hand volatility is not so necessary and may be a definite drawback, since a very volatile fuel on a hot summer day would waste away far too quickly with a consequent serious reduction in mileage.

In blending Summer Shell, therefore, the aim has been to subtract the superfluous, volatile quick-starting elements from "winter" Shell and to replace them with those which will maintain the mileage, and balance with the rest of the blend to give the utmost pulling power, ensure easy, rapid acceleration and be proof against "knocking."

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CONTINENTAL RACING NEWS

THE GRANDS PRIX OF ORAN

A Double Bugatti Victory

Results of the racing car event :—

1. De Maleplane (2-litre Bugatti), 2h. 48m. 32s. Average speed, 70.87 m.p.h.
2. Dupont (1100 c.c. Amilcar), 2h. 49m. 8s.
3. Michel Doré (1500 c.c. Bugatti), 2h. 54m. 51s.
4. Pelegri (1100 c.c. Amilcar), 3h. 19m. 48s.
5. Hiercourt (1500 c.c. Bugatti), 3h. 20m. 30s.
6. Madame Itier (1100 c.c. Rally), 3h. 43m. 32s.
7. Bychanski (1500 c.c. Bugatti), 3h. 48m. 53s.

The year 1930 marks the centenary of Oran as a French province, and naturally enough it was decided that the fact must be duly celebrated., What more fitting, therefore, than that the colony should organise some motor races? A circuit was chosen near the town of Arcole measuring about 5¾ miles round, of which one leg was a excellent road, two other sides of the quadrangle were passable, while the fourth was frankly bad and provided an excellent test of suspension and steering systems. This circuit had to be covered 35 times by the racing cars, making a total of 196.88 miles.

The event attracted a total of twenty cars, not a bad number for these days. In the 1100 c.c. class Madame Rose Itier, who distinguished herself recently in the Grand Prix of Morocco, matched her Rally against five Amilcars. All the bigger cars, with the exception of one of the famous beetle-backed Chenard - Walckers, were Bugattis, among the best known drivers taking part being Michel Doré with a 1500 c.c., Lehoux with a 2-litre, and Dreyfus with a 2300 c.c. machine.

As soon as the signal to start was given on the morning of Sunday, 27th April, Lehoux shot ahead on his Bugatti and took the lead, hotly pursued by Etancelin, de Maleplane and Zehender, while hot on their heels of the Bugattis came Dupont on the little single-seater Amilcar which has become famous in the hands of Morel. For the first nine laps there was no change in the order, and then Etancelin burst a tyre, ran off the road and had to withdraw. In the meantime Dupont, going like fury on his little Amilcar passed Zehender and de Maleplane and got into second place.

Lehoux however had a very comfortable lead and it looked as if he had the race well in hand, when suddenly his Bugatti came to a standstill with a broken propeller shaft. This let the Amilcar gain the lead, and shortly afterwards one of the fastest Bugattis was eliminated when Zehender had to retire with the same trouble which had proved Lehoux's undoing. De Maleplane, however, was still running second with Michel Doré on the 1500 c.c. Bugatti third.

While Dupont was thus showing a clean pair of heels to all the bigger cars, the other Amilcars were not so fortunate. Scaron's car was going very slowly, obviously suffering from trouble with the petrol supply, and after a number of stops to rectify the matter, the driver decided to retire, while his team-mate Cloitre was put out with a broken connecting rod at about the same time. Dreyfus, the winner of the Grand Prix of Monaco, was not fortunate in this race, for his Bugatti, which belonged to Lehoux, suffered from continuous misfiring and was finally withdrawn, presumably with magneto trouble, a like fate also overtaking Joly's car of the same make.

While these various troubles were overtaking the field, Dupont continued to hold the lead, followed by de Maleplane and Michel Dore. Close behind them came Longueville, the Belgian driver of a 2-litre Bugatti, who was running very well until a flying stone pierced his radiator and he was forced to retire. Madame Itier was also causing much favourable comment by her skilful handling of her little Rally, which is becoming well-known in North Africa.

The tale of withdrawals was not yet fully told, however, for Count Czaikowski, the winner of the sports car race on the previous day had to retire with a broken piston, and the same trouble overtook de l'Espée and Gaupillat. Shortly before the end, Dupont found himself running short of fuel and had to stop and fill up, thus losing much of his lead on de Maleplane. When he set off on his penultimate lap, however, he was still well ahead, and seemed to have the race well in hand. And then suddenly to the consternation of his supporters he reappeared with a flat tyre. The wheel was rapidly changed, but during the operation de Maleplane flashed by to win the race by less than two minutes. Poor Dupont was terribly unlucky, and his little car having led for most of the race, his victory would have been very popular. De Maleplane, however, drove a fine race, and thoroughly deserved his victory, while Michel Doré gained third place after a very regular run.

Result of the sports car event :—

1. Count Czaikowski (2300 c.c. Bugatti), 2h. 41m. 13s. Average speed, 63.12 mpth.
2. Vincenti (2998 c.c. Bugatti), 2h. 45m. 2s.
3. Mollar (2998 c c. Bugatti), 2h. 47m. 4s.
4. Moll (3003 c.c. Lorraine-Dietrich), 2h. 57m.
5. Mazzorcoati (3740 c.c. Fiat), 3h. 6m. 44s.
6. Lancry (1496 c.c. Chenard-Walker), 3h. 15m. 52s. Winner of 1500 c.c. class. Average speed, 51.96 m.p.h.
7. Veyron (1497 c.c. E.H.P.), 3h. 21m 32s.

The sports car race, which was run on the day preceeding the racing car event, united fifteen starters. As usual, Bugattis were in force, Count Czaikowski having a 2300 c.c. machine, while the other six were 2 and 3-litre cars. Two le Mans type cars were the Lorraine-Dietrich and the beetle-back Chenard-Walcker, while Mazzocorati drove a sports type 20-70 h.p. Fiat, and Bilela a 6-cylinder Citroen. In the 1500 c.c. class were a B.N.C. and an E.H.P., while Madame Itier's Rally was matched against an Amilcar in the 1100 c.c. division.

The race was over 30 circuits of the Circuit of Arcole, making a total distance of 168¾ miles. When the signal to start was given at 2.30 p.m. all the engines had to be started with their starters, and this proved Rollo's undoing, for his 2-litre Bugatti's starter jammed and he was unable to take part in the race. Count Czaikowski, however, shot off on his supercharged car, and immediately took the lead. Joly, a local driver of considerable repute, was not so fortunate for he had to stop twice in the first three laps to change plugs, and although he afterwards broke the lap record at 68.14 m.p.h., he was never able to catch up with the leaders. Some of the other Bugattis were little more fortunate, for Gallay's 3-litre car broke its oil pump and Rizzo was held back by plug trouble.

Czaikowski, however, was never headed and finally finished an easy winner with Vincenti and Mollar's Bugattis second and third. Madame Itier looked a certain winner of the 1100 c.c. class when Pad's Amilcar had to retire with a burnt-out magneto, but 25 miles from the finish, she too was forced out with ignition trouble. The famous Chenard-Walcker driven by Lancry, added yet another to its many laurels by winning the 1500 c.c. class.

THE GRAND PRIX OF CZECHO-SLOVAKIA.

THE Automobile Club of Czecho-Slovakia has decided to organise a Grand Prix for cars this year on 28th September. The race will be over the Masaryk circuit, near Brno, which is an extremely difficult course, having 119 corners in its length of 13¾ miles. This circuit will have to be covered seventeen times, giving the race a total distance of just over 310 miles.

Those interested should apply to the Automobile Club Tzechoslovaque, Brno, Czecho-Slovakia.

CONTINENTAL RACING NEWS—continued.

THE GRAND PRIX OF MOROCCO.

RACING CAR RESULTS.

1. Charles Bénitah (1100 c.c. Amilcar), Handicap Time, 6h. 21m. 55s.; Real Time, 6h. 21m. 55s.; Average Speed, 69.8 m.p.h.
2. Lehoux (2-litre Bugatti), Handicap Time, 6h. 35m. 41s.; Real Time, 4h. 45m.; Average Speed, 93. 1 m.p.h.
3. Hiercourt (1500 c.c. Bugatti), Handicap Time, 6h. 44m. 51s.; Real Time, 5h. 59m. 51s.; Average Speed, 73. 8 m.p.h.
4. Mme. Rose Itier (1100 c.c. Rally), Handicap Time, 6h. 48m. 52s.; Real Time, 6h. 48m. 52s.; Average Speed, 65.1 m.p.h.
5. Zehender (2,300 c.c. Bugatti), Handicap Time, 7h. 21m.; Real Time, 5h. 31m.; Average Speed, 84.0 m.p.h.

SPORTS CARS RESULTS.

OVER 3-LITRES.

1. Liocourt (Renault "Nevastella"), 5h. 50m. 26s.; average, 76.0 m.p.h.
2. Garfield (Renault "Nevastella.").
3. Barthez (Renault "Nevastella").
4. Albert Bénitah (Graham Paige).
5. Mazacorato (Fiat).
6. Corbelloni (Delage).

3-LITRE CLASS.

1. Maurice (Citroen), 7h. 15m. 4s.; average, 61.2 m.p.h.
2. Delabarre (Citroen).
3. Levecque (Citroen).

2-LITRE CLASS.

1. Domenici (Bugatti), 9h. 14m. 2s.; average, 49.3 m.p.h.

1500 C.C. CLASS.

1. Fourny (Chenard-Walcker), 6h. 24m. 15s.; average, 69.1 m.p.h.
2. Martin (Chenard-Walcker).

1100 C.C. CLASS.

1. Saint-Geines (Amilcar), 9h. 12s. 37m.; average, 50.5 m.p.h.

The Grand Prix of Morocco, which was originally fixed for the 13th April, and was put off on account of the bad weather, was finally run off on Easter Monday, 21st April. In spite of this delay of a week, however, quite a good field presented itself at the start in Casablanca, the drivers having spent the intervening time in touring around Morocco.

The event, which should have taken place at the same time as the Italian 1000 Miles Race, was also a town-to-town race. Starting from Casablanca, the competitors had to go by Azenmour, Mazagan, El Ileta, El Had, Marakech, Settat, Mediouna and so back to Casablanca. the total distance being 443.5 miles.

The five finishers in the racing class represented the only survivors out of fifteen starters. The fastest cars in the race were the four big Bugattis, Lehoux and de Maleplane having 2-litre machines and Etancelin and Zehender 2,300 c.c. models, all of which were supercharged, while Carboune drove a 2-litre unsupercharged car. After these came three 1500 c.c. Bugattis driven by Foc, Hiercourt and Bonelly, of which Foc's car only was supercharged. The small cars were represented by Namount, Mario and Toroiz on Salmsons, Bénitah and Kotchine on Amilcars, and Madame Itier and Dourel on Rallys. The race was run on a handicap basis, the competitors being divided into four classes, each of which was started off some minutes after the previous class. The big supercharged Bugattis thus had to cede no less than 1 hour 50 minutes to the 1100 c.c. machines, and the efficiency with which the handicappers did their work may be judged from the fact that the first three cars to finish all belonged to different classes.

At 9.45 a.m. on the Monday the 1100 c.c. cars were started off, and the other classes went off at their stated intervals. Meyer, last year's winner, and a general favourite, was among the absentees, having a bad cold, which caused considerable disappointment among the Moroccan connoisseurs. Etancelin, however, had set his heart on winning this race, and went off at a great speed. He soon outdistanced the other big Bugattis and covered the first 60 miles at very nearly 110 m.p.h., but this effort proved too much for his car, and he was thereupon forced to retire.

In the meantime Bénitah was travelling with clockwork regularity, and it soon became apparent that any of the bigger cars would have to put up a very high average if they were to catch him. News of withdrawals came to hand continually, although it was hard to discover the cause in most cases. De Maleplane on one of the 2-litre supercharged Bugattis ran into a wall and crumpled up both his front wheels, and although he fortunately escaped personal injury, another of the fastest cars was eliminated. Zehender, too, was held back as his foot-brake gave out almost at the start and he was forced to rely entirely on his hand-brake thereafter. This left only Lehoux's Bugatti as a possible winner among the big cars.

Bénitah continued serenely although hard pressed by Namont's Salmson until it had to retire, while Foc's 1500 c.c. supercharged Bugatti was also eliminated when its time suggested that it had a chance of victory. Madame Rose Itier in the meantime was driving a most courageous race alone in her little Rally, and had to contend with tyre trouble and an exhaust pipe which had to be removed after half falling off.

Soon after four o'clock in the afternoon Bénitah arrived back in Casablanca, the winner of the race. Lehoux was less than a quarter of an hour behind him, having driven a very fine race and averaged over 93 m.p.h. on his 2-litre Bugatti, which must be a record for a road race of nearly 450 miles. The other three finishers arrived at short intervals, and were all given a great ovation.

In contrast to the racing class, nearly all the cars which started in the sports car division, which was run at the same time, finished the course. The race proved a triumph for the Renault "Nevastella" cars, all three of which took the lead at the outset and finished in the first three places, the winner Liocourt putting up the truly remarkable average of 76 m.p.h. This a new Renault model, having a straight-eight engine of 4270 c.c.

Almost equally meritorious was the performance of the team of 6-cylinder Citroens which were fitted with saloon bodies, while the little Chanard-Walckers added yet another win to their many laurels. Altogether the Automobile Club of Morocco is to be congratulated on providing an excellent day's sport.

THE CIRCUIT OF SICILY.

A FEW years ago the Targa Florio used to include classes for touring cars, but of late years Cav. Vincenzo Florio has organised a separate event for cars in this category. This is known as the Circuit of Sicily, the cars racing round the island, the total distance of the circuit being about 609 miles.

This year the event attracted nearly forty entries, divided into cars with engines of less than 1100 c.c., and cars with engines of greater capacity. The small class was composed entirely of Model 509 Fiats, ten of these cars being entered. In the larger class there were entered seven O.M.'s, eleven Alfa-Romeos, four Lancias, two Bugattis, a Diatto, a Hupmobile, two Maseratis and a Bianchi.

The race, which was run a week before the Targa, on the 27th April, was unfortunately marred by an accident in which Silitti was killed. The race was won by Rosa and Morandi on an O.M., the final order being as follows:—

	h.	m.	s.
1. Rosa-Morandi (O.M. ... ... Average speed 48.94 m.p.h.	12	27	1 3/5
2. Gasparin-Arcangeli (Alfa-Romeo)	13	1	49 3/5
3. Magistri-Guidotti (Alfa-Romeo)	13	7	4
4. Strazza-Vigo (Lancia) ...	13	9	39 1/5
1100 c.c. CLASS.			
1. d'Anico-Finocchiaro (Fiat) ...	18	7	40
2. Jacono-Corsi (Fiat)	18	47	45
3. Giardina-Cottone (Fiat) ...	18	48	43
4. Vanucci-La Rosa (Fiat) ...	19	21	15

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RUSSIAN OIL PRODUCTS LTD., MOORGATE HALL, LONDON, E.C.2

SIX DAYS IN SCOTLAND

Some Experiences of an Amateur in his First "Scottish."

IT is a cynical saying that anticipation is better than realisation. The 1930 Scottish Six Days' Trial exceeded my expectations considerably. The event, aptly described as "A Sporting Holiday in the Highlands," surely cannot be excelled as a holiday for a keen motor cyclist.

I had my full measure of anticipation, too, in preparing my motor. The work occupied my spare time very fully for ten days or so. A series of misfortunes and misfits delayed the work seriously, culminating in the fracture, the night before I was due to start, of the saddle frame. Frantic telephoning raised a saddle, and on Friday, May 2nd, I set off. The late start and foul weather enabled me to get no further than Stamford (90 miles). Next day the remaining 320 miles were covered in good time, and I adjusted the tappets and chains, and fitted a new plug in readiness for the "weighing-in" on the Sunday.

The models having been duly daubed with yellow and green paint, Edinburgh Zoo claimed the attention of quite a number of competitors.

An event such as the "Scottish" brings together a band of men and women, who by reason of their common interests and appreciation of the sport of motor cycling, are like members of one big happy family. The newcomer senses this, and quickly feels at home. Of all the events the "Scottish" is the most "social," and in the hotels of an evening there is opportunity for reminiscences of the past and rumours of the future. The accents of Lancashire and Yorkshire, the Midlands and the South, mingle with the prevailing Scotch burr, soft and pleasing to the Sassenach ear.

Monday dawned dry but dull, and it was with relief that we started the week's work. The four hills caused very little trouble, but they would have been different propositions had they been wet. Wakem, a long level section with two boggy patches, was cut out of the results, because a slab of stone had been placed in the fairway, and one or two crankcases came to rest on it.

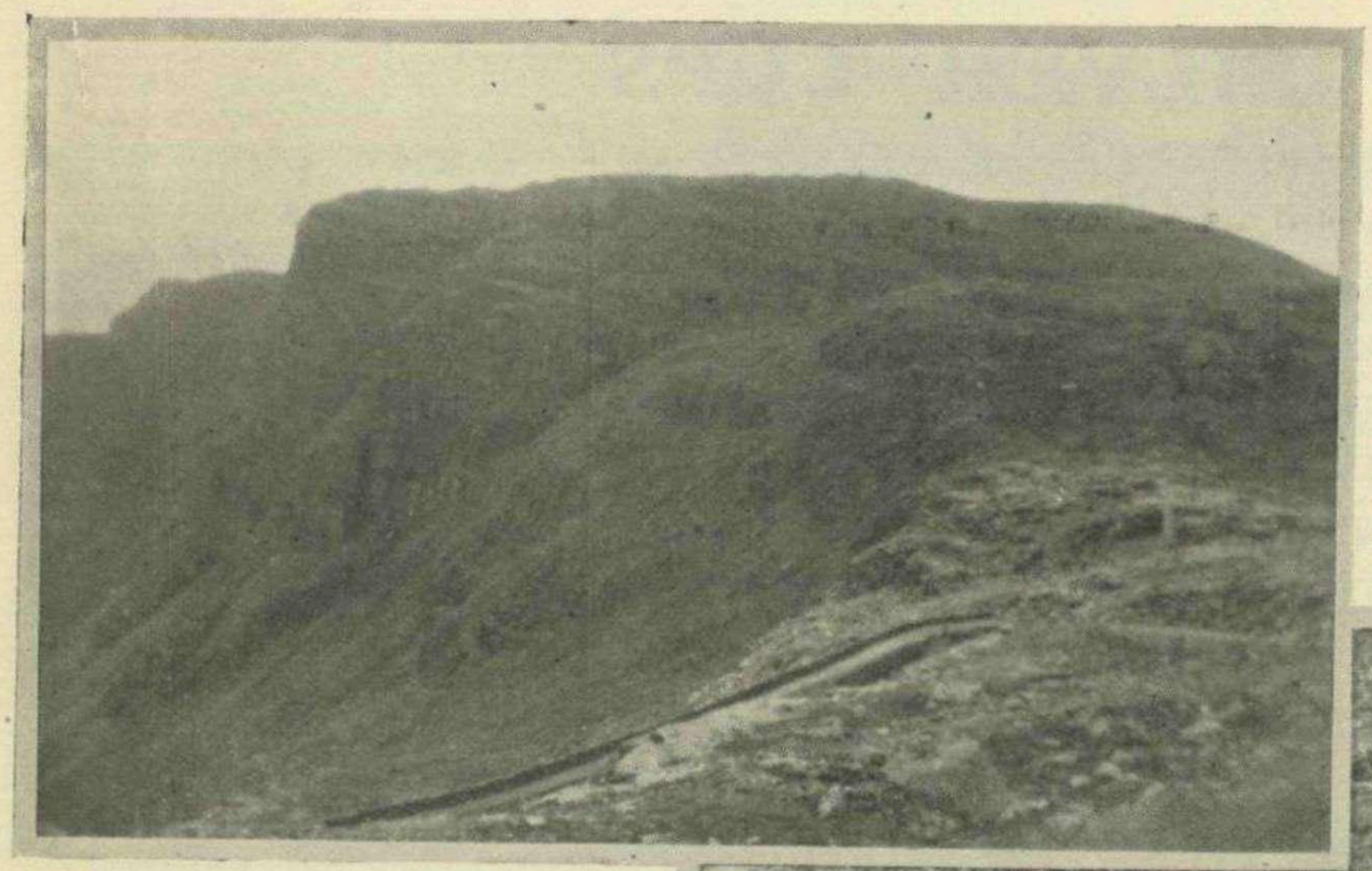
Ford winds up a rough grassy track for about a mile. At the bottom there is quite a sizeable splash, which had been dammed. I should say that in the 29 miles which follow to the next check, there are more twists and dips than in any other road in the country.

One breasts a sharp rise at 30 m.p.h., hoping the track continues straight, and leaving the ground in a Ballig Bridge leap, swoops down like a scenic railway car. Many of the corners curve round more than is expected. On one such corner I approached much too fast, saw Graham Goodman picking pieces of his license holder out of the heather,—and just saved my bacon.

One-day trials are becoming more and more a test of the man rather than the machine, but the Scottish Six Days stands alone as a real searching test of machines. The Ford New York section, is an example of the reason: one is continually accelerating and braking, and every component is subjected to stress. The Scottish roads, too, are guaranteed to shake anything to pieces. My speedometer shed some screws for the first time in its life; nuts came loose which had never offended before, and a fibre attache case on my carrier was ruined. The tracks which wind over mountains and round lochs are invariably stony, rough and loose, with potholes which "bottom" front forks and dent wheel rims. The roads seem to be cut out of rock, for besides the loose stones, there are rocky outcrops protruding everywhere, such as would only be found on a test hill in England.

Your competition rider always likes to keep time in hand for making adjustments, so the effect is that one hurries over this sort of stuff, and probably averages 30 instead of 20 m.p.h. It is necessary to hurry in the "Scottish" too, for the distances are often more than the route card says. My Bonniksen showed 976 as the total mileage, which was officially 942. Those who hold that trials are no longer of value should take a machine through the "Scottish": it would be an education.

Scottish scenery is unequalled in England, and it has an atmosphere of its own. There are the black-faced sheep which infest the roads, the shaggy long-horned Highland cattle, the lochs, the snow-capped mountains, the burns, the heather and gorse, the ever-changing hills, sometimes sweeping upwards in gentle undulations, sometimes beetling up stark and forbidding, making a narrow winding defile through which we ride.





Above: Tornapress and (right) F. Whitworth (New Imperial) on Shepherd's Hill.

SIX DAYS IN SCOTLAND—continued.

Monday ended in a blaze of sunshine at Oban, and Tuesday kept up the good work, quite unusual for a "Scottish." Leaving Oban, there were many herds of cows being driven in to market. While passing one of these, one of the animals put its helm hard-a-starboard, with the result that its stern swung out and caught my handlebars, knocking me off.

Tuesday included Mamore, probably the fiercest hill in the British Isles. It winds up a spur by the side of a loch, has half-a-dozen hairpins, a surface of loose powdery shale, rocky outcrops and stones, and a gradient of about 1 in 3 for a considerable distance.

Tuesday found out my two big mistakes. Owing to lack of time, I had not lowered my gears, and committed the grave indiscretion of coming up to Scotland with a standard close-ratio gearbox, giving ratios of 4.2, 6, and 10.8 to 1. I therefore approached the hill with very considerable palpitations, and a tow-rope handy in my pocket.

It was hard work, but by the grace of God and my clutch, I scrambled up nonstop. In reality the hill is neither so long nor so fearsome as rumour has painted it. "Wind-up" and the fact that it is climbed but once a year accounts for its ill-repute. It is a hill that very quickly becomes cut up, and for this reason and because of the number of failures, the top portion was "washed out" of the results.

My second big mistake lay in trusting to a tyre pressure gauge which was later proved to be registering about 50% too high. My unfortunate rear tyre, with practically no air in it, crept and crept, till the tube was folded over on itself, and finally punctured—in the Mamore section! This 12-mile section, reduced to 15 m.p.h., includes a river bed with boulders the size of a man's head, and for the rest consists of a series of violent acceleration and braking, coinciding with the rocky gullies—over 70 of them—where streams cross the road. I suppose a combination of a good rider and quick mechanic could change a tube and check in on time at Fort William, but I could not; not by 24 minutes. That dud gauge cost me a gold medal.

Rather tough luck, but it was no good letting it spoil the trial. Actually being out of the running so early enabled me to enjoy myself rather more than some people as I did not approach each hill knowing my cup depended on it.

Wednesday's route is perhaps the most picturesque. The 7 mile climb of Tornapress, up which we had to average 20 m.p.h. (or less according to class), winds up between frowning battlements of rock 700 or 800 feet high, standing like grim sentinels at the entrance to the pass. The summit is breasted by a series of hairpins, then follows the drop to Applecross. The village consists of a cluster of whitewashed cottages, nestling by the blue sea, with the mist-shrouded mountains of Skye in the distance.

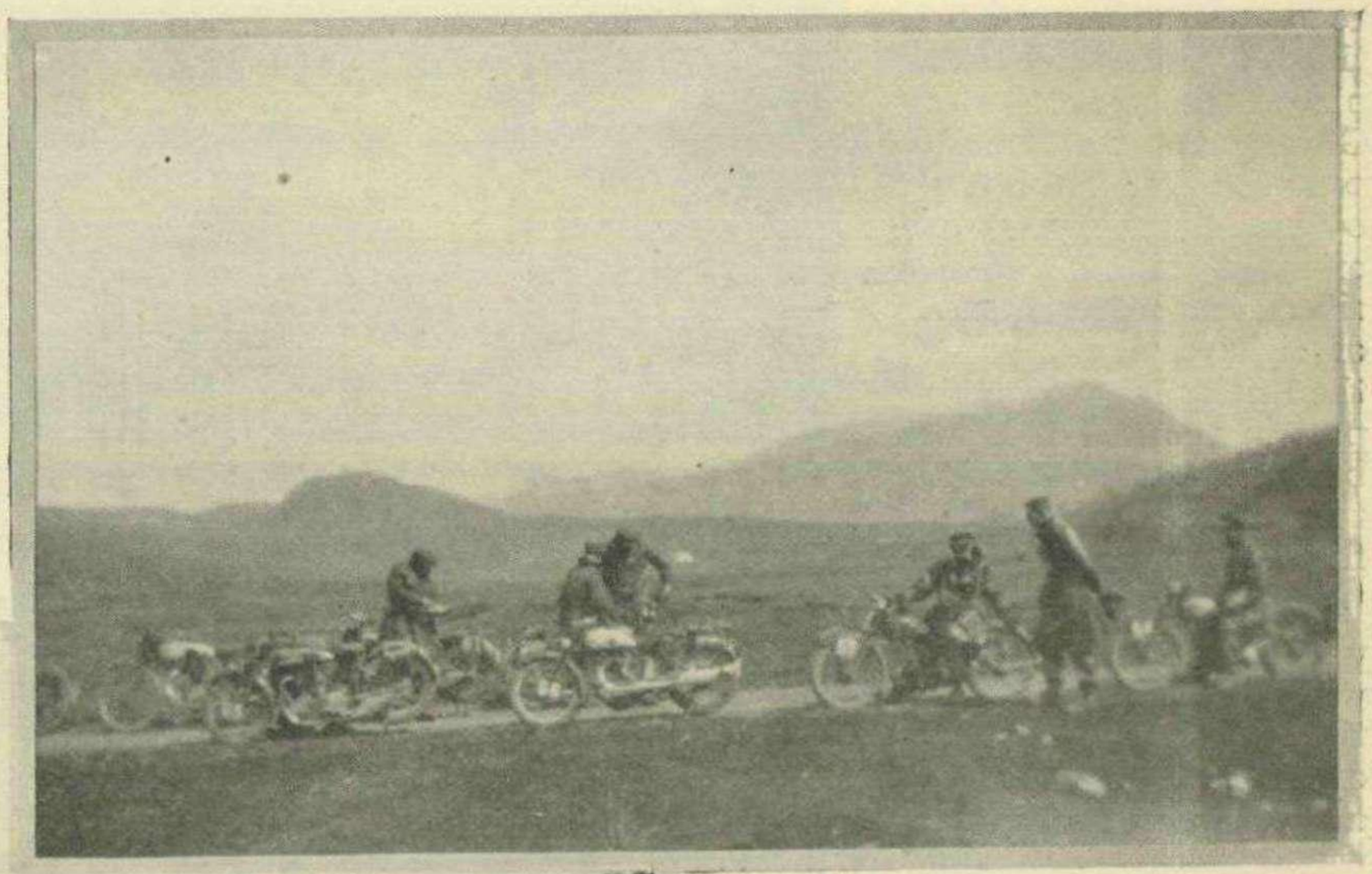
Here we lunched—save the name—on sandwiches, scones and tea, and followed the usual custom of sending postcards home. A steamer calls daily for mails: the only other communication is the road, 19 miles to Jeantown. Even out here one of the cottages bore the legend "Lyons cakes," while the Post Office girls were after the fashion of their kind, haughty and silk-stockinged, but, sufficiently human to show undisguised interest in the trial.

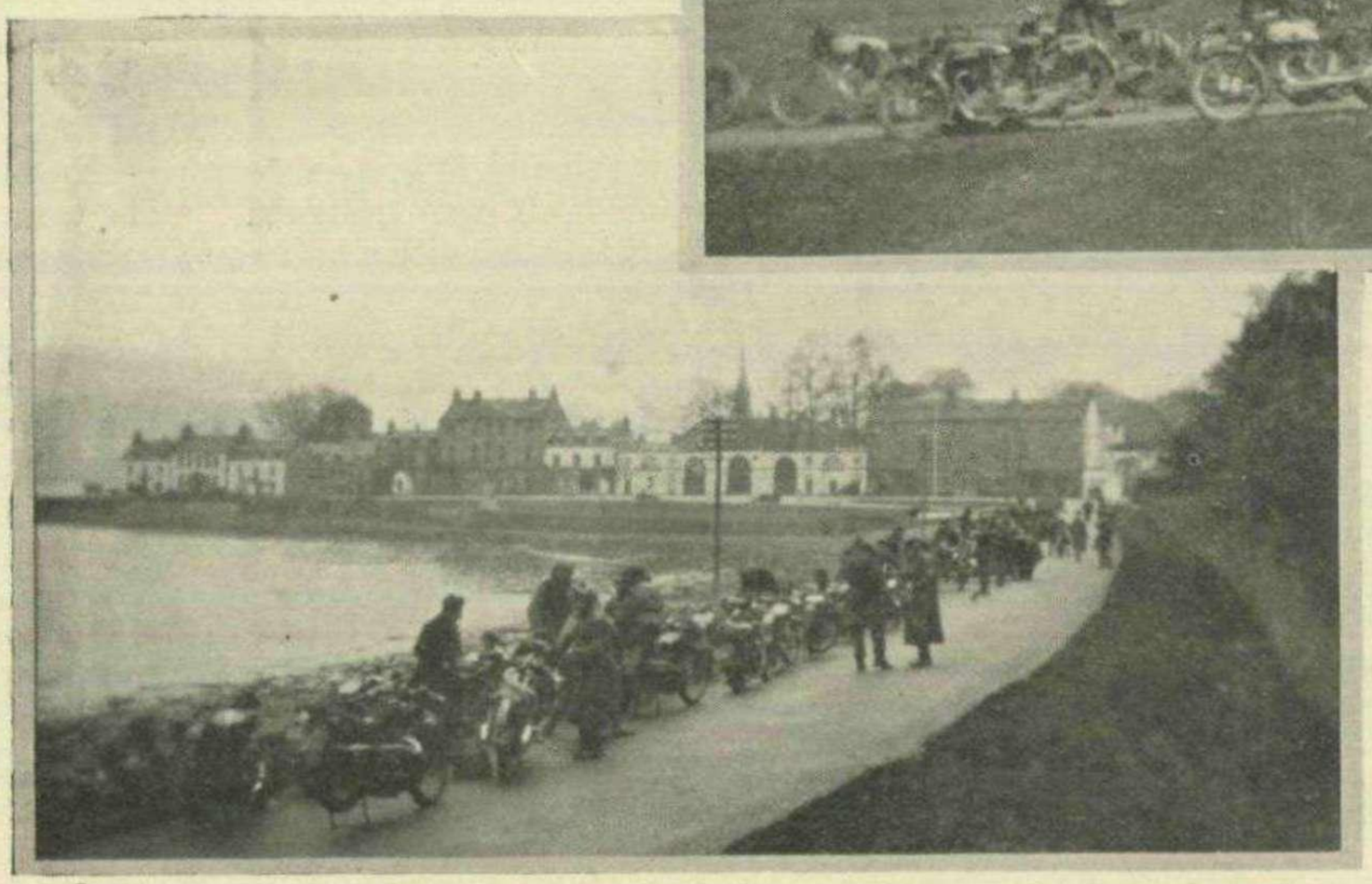
Coming back over Tornapress we met a stinging hailstorm, and the descent seemed interminable.

Abriachan gave quite a nasty combination of mud, boulders, bends and gradient. Here I registered my only hill failure, through taking it too fast.

I found my high gears a pestilential nuisance throughout the week. Scottish hills are generally steep, and have hairpins, and invariably rocks, both the fixed and the loose variety, so that it is essential to be able to go slowly and pick a careful course.

Thursday distinguished itself by providing heavy snowstorms and rain on and off all day. Hudson's Hill and Weem, tackled in rain during the afternoon, proved very unpleasant, though the new edition of Weem was very much milder than that used last year. Both these hills





Above: waiting at the foot of Tornapress and (left) outside the check at Inverary.

wind up between banks, with a rough muddy surface punctuated by huge outcrops of rock. My ascents of this type of hill were wild in the extreme. Being unable to progress otherwise than in a "blind" I seemed to hit every rock plumb with both wheels, and explored both banks, making good use of my feet the while.

At Perth that evening, a most excellent musical party presided over by the inimitable "Nobby" Clark, lasted from 9 p.m. until past midnight.

Friday's run was very enjoyable, with fine weather, a short mileage, and an hour's wait at the top of Shepherd's Hill. From here there was a marvellous view over Loch Earn, and an opportunity of going down to watch other competitors.

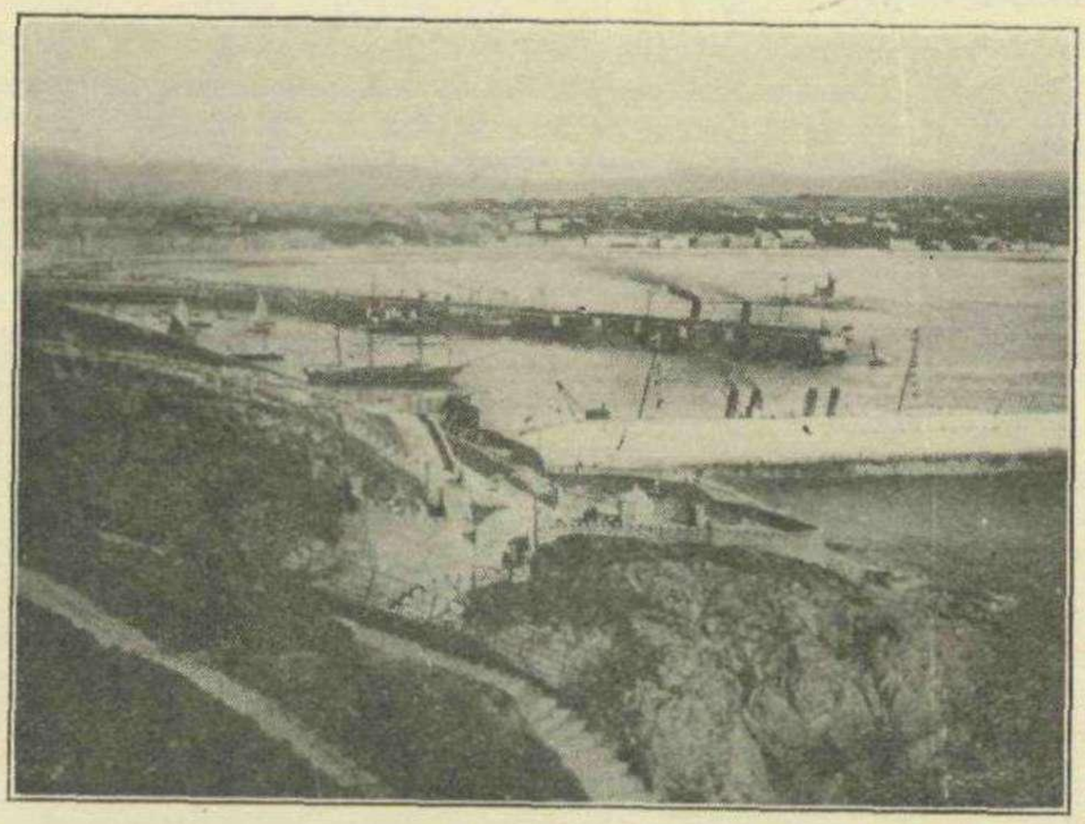
Fearnan was one of the usual rough hills, but for sheer frightfulness, the 5 miles which followed, surpass anything I have previously encountered. Running along the side of a Loch, high up on the steep hillside, is a narrow grassy ledge,

Continued on page 25

ELLAN VANNIN

A SPORTSMAN'S PARADISE

By "ISLANDER"



IN Spring the young man's fancy turns to thoughts of love, but assuming that he has managed to avoid this distressing complaint thus far, in June it will probably turn to the Isle of Man, where the T.T. races are taking place. This year the Manx Government has tried to provide additional interest by making grants and offering prizes to foreign riders, and representatives of eight countries outside the British Isles are taking part in the races. It will be particularly interesting to watch the progress of Franconi, who is one of the finest riders that Switzerland has produced.

Naturally the races are one of the principal things which draw the sportsman to the Island, but the visitor will not get full benefit from his holiday if he neglects the other attractions which are to be found there. One often meets acquaintances who know the Island only as a place where motor cycle races are held, but, proud as we are of this distinction, we pride ourselves that there is no ingredient for an amusing holiday which cannot be found in our little territory.

June is the best month as regards weather and accommodation, a full service of steamers is then running, and the places of amusement are alert once more after their winter sleep. There are nine golf courses in different parts of the Island, and besides being sporting in their arrangement, are set in natural surroundings of great charm, and have the advantage of being laid out on springy turf such as no inland course can show. There are tennis courts on every side, while the convivial will find in close proximity bowling greens and cosy parlours where the wine of the country can be drunk at all hours!

We are fortunate, too, in our 400 miles of good roads, which compare favourably with any in England. Car and cycle races have undoubtedly encouraged the resurfacing and widening which has taken place, and so it happens that even on the more remote west side a first class highway exists. As long ago as 1904 the Eliminating Trials for the Gordon Bennett Races were held in the Isle of Man, but on a course which ran from Quarter Bridge to Castletown, then over the shoulder of South Barrule down to Ballacraine. From here the route went to Ramsey and back over the Mountain Road, but deviated from the present track by turning off at Ballaugh and proceeding to Ramsey by Sandygate. A race over the old course in modern cars would be very exciting, and it is alarming to think of the speed down through Foxdale, and the subsequent scramble to get under the railway bridge at the bottom!

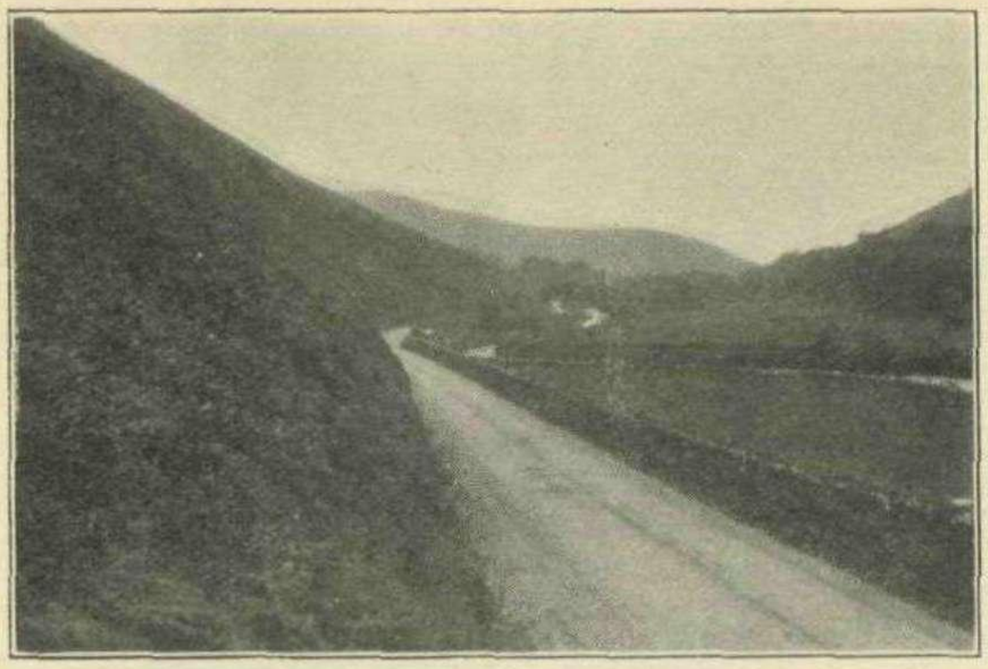
The lack of sheltered water has prevented the general use of outboard craft in the Island, but last summer saw the introduction of speed boats in Port Erin and Douglas. The Harbour Board are very jealous of the reputation of Douglas as a safe holiday resort, and insisted that the boats they licensed should be capable of being brought to land if the engines should fail; to meet their requirements a remarkable craft was designed. This was a speed boat 30ft. by 8ft, fitted with a half keel and capable of sailing. Built by Osborne of Littlehampton and fitted with a Scripps 210 h.p. engine, it proved capable of 35 m.p.h., showing that the modification had not affected its performance seriously. This type of craft is eminently suited to northern waters, and vessels of similar design are being made for Sweden and Finland.

An additional attraction this year is the Motor Boat Meeting being held in Douglas Bay in June. Judging by the entries, we should have an event worth watching, and the presentation of a trophy by MOTOR SPORT will be of material assistance in getting us good support.

As yet there are no light aeroplanes in the Island, since a stretch of land 30 miles by 10 is soon covered at 80 m.p.h., but with the development of such amphibians as the Saro Cutty Sark, we are looking forward to having aerial visitors from the mainland. It is interesting to learn that aeroplanes will be run between Southport and the Island during T.T. week.

Manxmen claim with justice that there is no part of the world which holds so many attractions in such a small compass, and anyone who visits the Island can hardly fail to agree. If you don't believe it, come over and see.

BRING YOUR MOTOR CYCLE OR CAR OVER TO THE ISLE OF MAN THIS YEAR

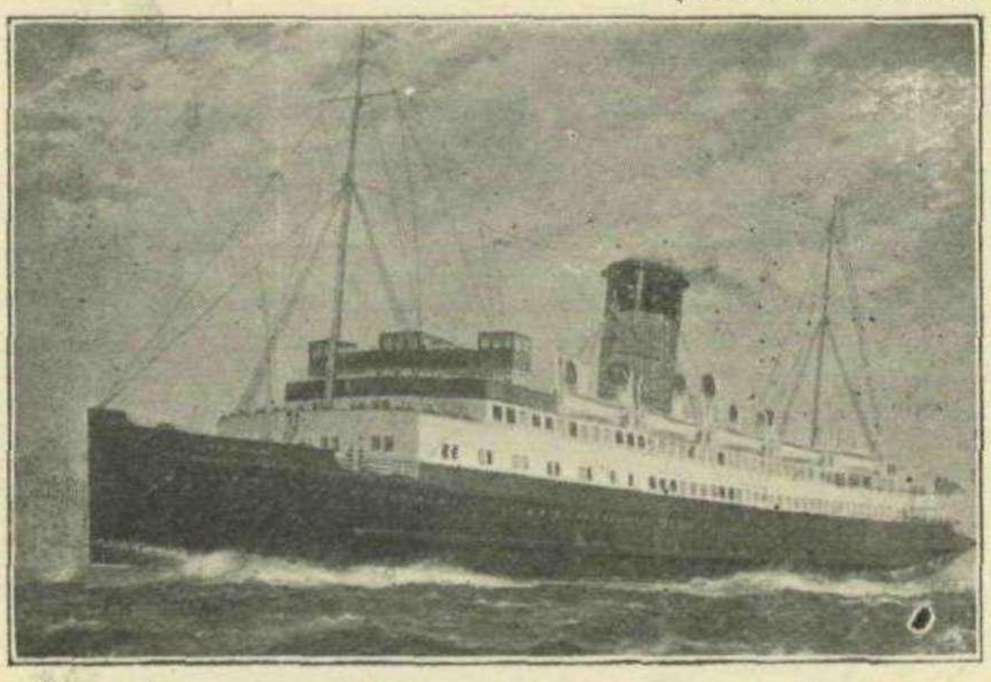


and have a run round the classic T.T. Course. In addition there is a network of 400 miles of good roads through as varied and beautiful scenery as you will find in any other equal area in the world.

Full particulars from M. S. Clague, Publicity Dept., Isle of Man.

THE ISLE OF MAN STEAM PACKET CO. LIMITED.

(INCORPORATED IN THE ISLE OF MAN)



- THREE ROUTES TO -
- THE ISLAND BY LARGE -
EXPRESS PASSENGER STEAMSHIPS

LIVERPOOL and DOUGLAS (in 3½ hours).
Double Daily Service commences May 30th.

FLEETWOOD and DOUGLAS (in 2¾ hours).
Service commences June 4th.

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Service commences June 27th.

Particulars of Services, rates for Motor Cars and Motor Cycles from :—

The Isle of Man Steam Packet Co., Ltd., Water St., Liverpool, or Douglas

TOURIST TROPHY WEEK———OUTBOARD BOAT RACING

FIRST MANX OPEN RACE MEETING.

On THURSDAY, JUNE 19th, 1930. Outboard Racing will be held at DOUGLAS, ISLE OF MAN, under the auspices of the Mersey District Speed-boat Club and Lytham St. Annes Motor Boat Club.

M.M.A. RULES.

A. B. & C. & UNLIMITED SOLO & PASSENGER EVENTS.

50 guinea CHALLENGE CUP presented by "Motor Sport."

25 Guinea CHALLENGE CUP
Presented by E. R. FODEN, Esq.

GOLD MEDAL
Presented by His Worship the Mayor of Douglas W. QUIRK, Esq., J.P.

AND £50 CASH PRIZES.

TWO GOLD MEDALS presented by Messrs. Hyman Bros.

Entries 2 6 each event, to be sent to J. CONRADI ANSONIA, Esq., 5, Rialto Buildings, Upper Parliament Street, Liverpool, not later than first post on Monday, the 16th June. Arrangements have been made for outboard boats to be carried from Liverpool to Douglas and vice versa £1 each way. Further particulars may be obtained from THOMAS E. KELLY, Secretary, June Effort Committee, Town Hall, Douglas, Isle of Man.

HOTEL MAJESTIC

DOUGLAS, ISLE OF MAN.

UNDER ENTIRELY NEW MANAGEMENT.

Personal Supervision of Proprietors: Mr. and Mrs. FRANK SHORROCK

Telephone: **593.** Telegrams: "Majestic," Douglas."

HOTEL MOTOR BUS MEETS ALL STEAMERS.

Beautiful Lounges. Orchestra. Magnificent Ballroom. Hot and Cold Water in every Bedroom. SEVERAL SUITES WITH PRIVATE BATHROOM. **130 Rooms. Electric Light Throughout.** Eight Acres of Lawns and Gardens. Sea Bathing. Lawn Tennis Courts (hard and Grass). Clock Golf Course. Bowling and Putting Greens. 18-Hole Golf Course adjoining.

FULLY LICENSED.

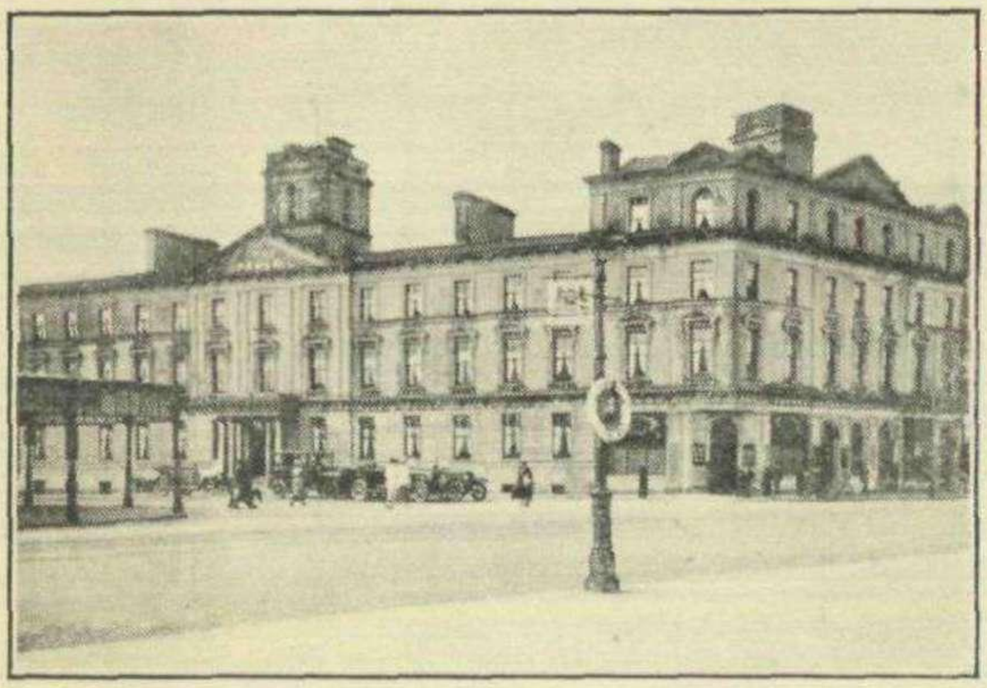
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SPECIAL ATTENTION TO SERVICE AND CUISINE. **Extensive Garage Accommodation.**

Electric Cars pass entrance and stop on request. Illustrated Booklet free on Application.

PEVERIL HOTEL

Victoria Landing Pier, DOUGLAS



THIS First-Class Hotel is in every way fitted up for the comfort and accommodation of Families and Tourists, and replete with every convenience. Situate on the base of the Victoria Landing Pier, it commands extensive views of the town, both headlands, and the whole of Douglas Bay.

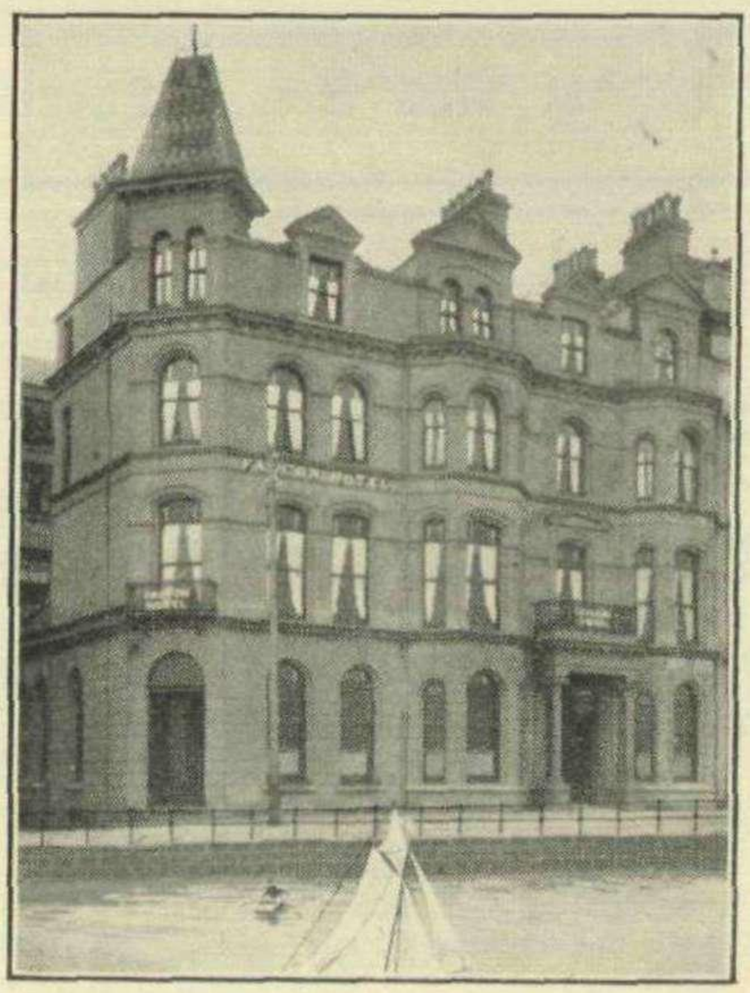
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FALCON HOTEL

DOUGLAS

A HIGH-CLASS FAMILY HOTEL

Situated on the LOCH PROMENADE 5 mins. from Landing Stage

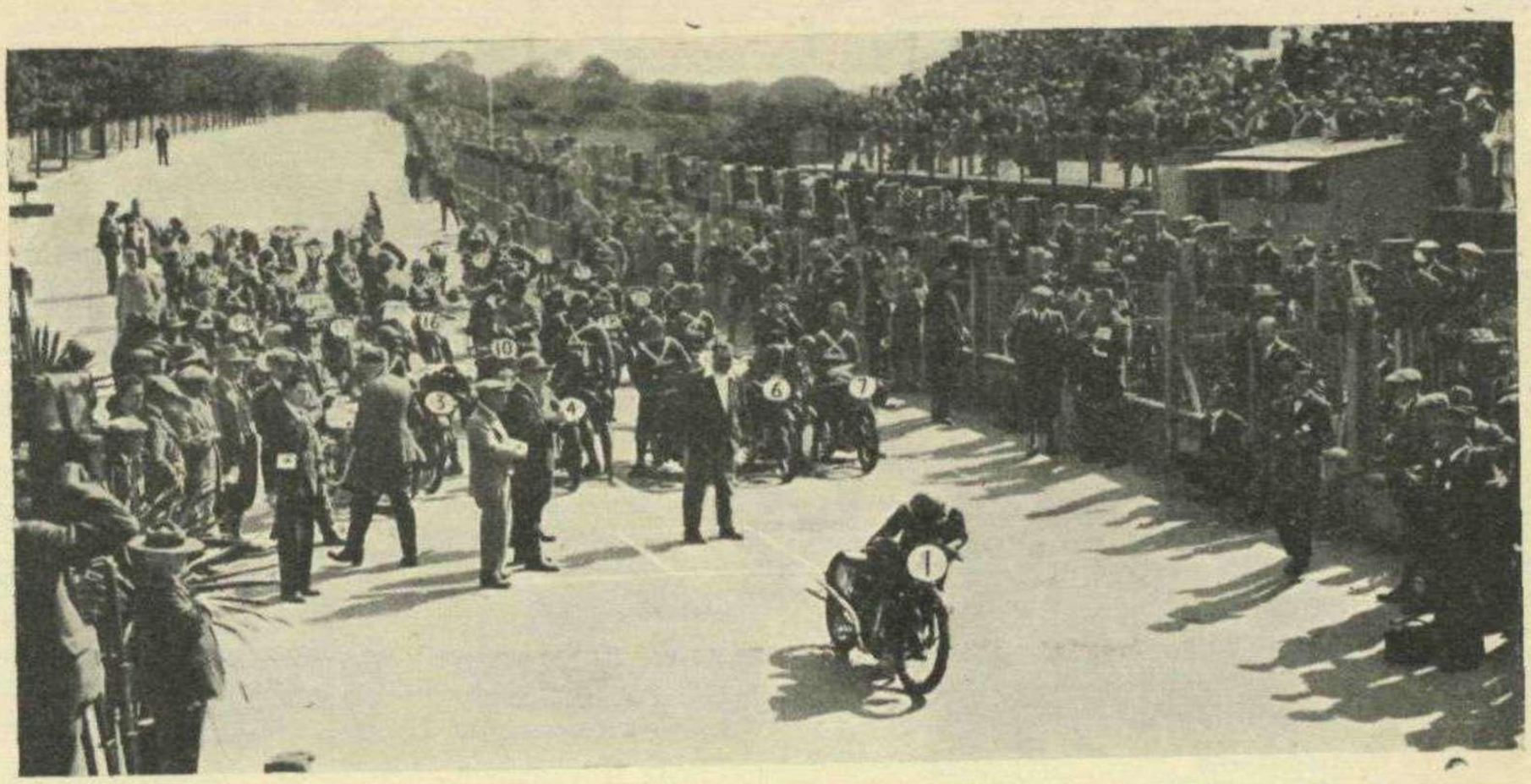


Well-appointed Lounge, Dining and Reception Rooms overlooking the Bay. Elevator to all Floors. Electric Light throughout.

TEN MINUTES' WALK FROM FORT ANNE GOLF LINKS

Excellent Cuisine **Terms on Application**

MEN & MACHINES IN THE ISLAND



SOME NOTES ON THE 1930 TOURIST TROPHY.

EACH year as T.T. machines make their appearance, it becomes increasingly difficult to find points in which they differ from the standard productions. Larger petrol tanks, of course, are usual, and occasionally the handlebars are of some special shape. The mudguards, too, may be non-standard in that they conform to the minimum dimensions permitted by the International Regulations. But these are fairly obvious and uninteresting alterations.

* * *

RALEIGHS are yet another firm whose entries are little changed from last year. The changes consist chiefly of general lightening of the machine which is said to greatly improve the handling. Foot gear change of the latest type introduced by Sturmey Archers will be used. Foot change will be seen on more mounts than ever this year as its great advantages have been well proved in recent races.

* * *

VELOCETTE has only one official entry, H. J. Willis, who has been twice second in the Junior and is out to go one better this time. The reputation of this make in the island has, however, caused several private owners to enter and they should still be in a position to trouble other competitors very seriously. Whether they will have any chance of repeating their "grand slam" of last year remains to be seen, but they have not been idle this winter, and it is certain that Willis will be astride more "horses" than he has ever had in the past.

LAST year Levis machines were showing promise of very useful speed, and it is therefore only to be expected that this year's entries do not depart notably from standard practice. Two separate camshafts operate exposed push rods set fairly wide apart. C. S. Barrow will again ride one of these machines in the Junior Race.

* * *

WILL a spring frame machine ever win the T.T.? Many famous riders regard this as the racing machine of the future, and the handling and performance of the spring frame machines in this year's races will be watched with interest. J. Petrie who will represent the Straits Settlements will be on an O.E.C., while Ventura's Rex Acme, and possibly some other machines will be using the Almack spring frame Velocettes have also carried out experiments with spring frames in recent years but have not as yet adopted them on any of their products.

* * *

WHAT has happened to the T.T. Douglas which showed such promise in the hands of Freddie Dixon in 1928? Their production was held up by the results of the fire, and also by the enormous demand for dirt track machines. There is no official entry from this factory again this year but it is to be hoped that more will be heard of the famous twin in road races.

There were rumours that the redoubtable Freddie was quite recovered from his crash in 1928 and would be seen again in the Island this year. Apparently he has at last decided to settle down after a long and spectacular racing career.

He will always be remembered and missed, as one of *the* features of the Tourist Trophy.

THE T.T. Rudges follow closely the lines of the Ulster models as did their 1929 predecessors. In fact there is very little difference between the 1929 and the 1930 racing machines—except in the matter of performance.

The most obvious of the changes to the engine is that the carburetter stands farther back from the cylinder head, a suitably shaped distance piece about 1½ in. thick being interposed between the face of the inlet port and the flange of the carburetter. The latter has two (float) chambers and is, practically speaking, a 1927 type of instrument.

Other changes to the power unit include the adoption of a slightly longer connecting rod and the use of plain straight-through exhaust pipes of 1½ in. diameter instead of the "stepped-up" pipes of last year which, starting with 1½ in. in diameter at the port, increased first to 1¾ in. and then to 2 in. at the outlet end.

The foot-operated gear-changing device which was used with such success in 1929 is, of course, retained for 1930 and has been improved in detail. The double pedal by which it is actuated is now located on the near side, a cross shaft being used to transmit the motion to the pawl mechanism on the off side of the machine. As a result of the alterations, the mechanism is less likely to be put out of adjustment in the event of a minor crash.

The only other change refers to the rear tyre which will be 3.25 in. section instead of the 3.00 in. used in 1929. The front cover is 27 in. by 3.00 in. as before.

* * *

The dates of the races are as follow:—
Junior Race, Monday, June 16th.
Lightweight Race, Wednesday, June 18th.
Senior Race, Friday, June 20th.

THE ENTRANTS, RIDERS AND MACHINES FOR THE T.T. RACES.

SENIOR RACE (35 ENTRIES).

Entrants.	Machine and Capacity.	Rider.
G. E. Meade	493 B.S.A.	Entrant.
Norton Motors (1926), Ltd. ...	490 Norton (3) ...	J. H. Simpson, S. Woods and P. Hunt.
Rudge-Whitworth, Ltd. ...	499 Rudge (3) ...	G. W. Walker, H. G. Tyrell-Smith, and G. E. Nott.
The Raleigh Cycle Co., Ltd. ...	495 Raleigh (3) ...	C. J. Williams, J. Duncan and R. Hanson.
Excelsior Motor Co., Ltd. ...	— Excelsior ...	S. A. Crabtree.
John Marston, Ltd.	493 Sunbeam (4) ...	C. J. P. Dodson, A. Simcock, A. Varzi, and V. N. Brittain.
Universal Motors	497 Universal... ...	F. Franconi.
George Himing, Ltd.	499 Rudge	G. E. Himing.
Bowden Wire, Ltd.	498 A.J.S.	——
Fabrique Nationale	498 F.N.	W. L. Handley.
Stuart M. Williams	498 A.J.S.	Entrant.
O.K. Supreme Motors, Ltd. ...	497 O.K. Supreme (2)	F. A. Longman and J. Sarkis.
Eric S. Myers	493 Sunbeam ...	——
A. J. Stevens (1914), Ltd. ...	498 A.J.S. (2)... ...	J. Guthrie and F. G. Hicks.
Gleave Eng. Co.	493 Sunbeam ...	S. Gleave.
O. Lind (M.U. of S. Africa) ...	——	——
Jim Whalley	——	Entrant.
Scott Motor Cycle Co., Ltd. ...	498 Scott (2)	——
A. E. Reynolds (Liverpool) ...	498 Scott	E. Mainwaring.
Cotton Motor Co.	— Cotton (4) ...	C. W. Johnston, E. Twemlow, B. Hieatt, and G. Emery.
C. W. H. Merrill	——	Entrant.
Jamaica M.C.A.	490 Norton	F. C. Isaacs.
Selangor A.A.	——	F. V. Ruston.

JUNIOR RACE (36 ENTRIES).

E. A. Mellors	346 New Imperial ...	Entrant.
V. Naure	348 Velocette ...	Entrant.
Norton Motors (1926), Ltd. ...	348 Norton (3) ...	J. H. Simpson, S. Woods, and P. Hunt
Veloce, Ltd.	348 Velocette ...	H. J. Willis.
G. L. Boudin	346 Royal Enfield ...	Entrant.
Rudge Whitworth, Ltd. ...	340 Rudge	——
C. S. Barrow	346 Levis	Entrant.
The Raleigh Cycle Co., Ltd. ...	348 Raleigh (3) ...	C. J. Williams, J. Duncan and R. Harrison.
Excelsior Motor Co., Ltd. ...	346 Excelsior (2) ...	L. Higson and L. C. Crabtree.
John Marston, Ltd.	348 Sunbeam (4) ...	C. J. P. Dodson, A. Simcock, A. Varzi, and V. N. Brittain.
Anderson and Olsson	348 Velocette ...	T. Oscarsson.

JUNIOR RACE—*continued.*

Entrants.	Machine and Capacity.	Rider.
George Himing, Ltd.	348 A.J.S.	G. Himing.
Bowden Wire, Ltd.	348 A.J.S.	——
H. E. Edwards	346 Royal Enfield ...	Entrant.
C. Hayward & Son (Ashford)	348 Velocette ...	J. Hanson.
Fabrique Nationale	348 F.N.	W. L. Handley
Stuart M. Williams	348 Velocette ...	Entrant.
J. Hemmings & Sons	346 Excelsior ...	——
A. J. Stevens & Co. (1914), Ltd.	346 A.J.S. (2)... ...	F. G. Hicks and J. Guthrie.
Hirst Mitchell	348 Velocette (2) ...	Hirst Mitchell and A. Mitchell.
O. Sebessy	——	——
Lind	——	——
Hall	——	——
Somerville Sikes	348 Velocette ...	Entrant.
Cotton Motor Co.	Cotton (4)	C. W. Johnston, K. Twemlow, B. Hieatt, and G. Emery.
F. A. Longman	——	Entrant.
J. Shaw	348 Norton	Entrant.
Davie Boag Co., Ltd. (Singapore)	348 O.E.C.	J. Petrie.

LIGHTWEIGHT RACE (27 ENTRIES).

E. A. Mellors	246 New Imperial ...	Entrant.
O.K. Supreme Motors, Ltd. ...	246 O.K. Supreme ...	T. Runtsch.
Rex Motor Manufacturing Co., Ltd.	246 Rex-Acme ...	C. E. Needham.
Excelsior Motors, Ltd. ...	246 Excelsior (3) ...	J. H. Blackburn, S. A. Crabtree, and L. C. Crabtree.
New Gerrard Motors	246 New Gerrard ...	J. A. Porter.
Universal Motors	247 Universal... ...	F. Franconi.
George Himing, Ltd.	246 Rudge	G. E. Himing.
Bowden Wire, Ltd.	248 A.J.S.	——
P. Ghersi	— Guzzi	Entrant.
V. Anstice	246 Excelsior ...	Entrant.
Jack Adams Motors, Ltd. ...	246 Montgomery ...	J. Adams
Stuart M. Williams	246 New Imperial ...	Entrant.
O.K. Supreme Motors, Ltd. ...	247 O.K Supreme (5)	C. W. Johnson, C. S. Barrow, F. A. Longman, D. Hall, and J. Sarkis.
A. J. Stevens & Co. (1914) Ltd.	248 A.J.S.	F G. Hicks.
Gleave Eng., Co.	— S.G.S.	S. Gleave.
Jim Whalley	——	——
Chris Tattersall	——	——
Rex Motor Manufacturing Co.	——	——
Cotton Motor Co.	— Cotton (3) ...	E. Twemlow, K. Twemlow, and G. Emery.
Jamaica M.C.A.	245 Excelsior ...	A. Enmoor.
Panella Alfredo	250 Guzzi	Entrant.

Isle of Man June Effort and Season Extension Committee.

The following events have been arranged for the coming Season:—

June 12. Crowning Rose Queen.
,, 16, 18, 20. Tourist Trophy Races.
,, 19. 1st Manx Open Meeting for Outboard Boats.
,, 16-21. Bowling Tournament.
,, 21. Five-aside Football Tournament with 8 Scottish First League Teams.
,, 22. Arrival of "Homecomers" from America.
,, 23-26. I.O.M. Dancing Tournament. Semi-Final and Final of contests held in 24 North of England and Midland towns.
,, 24. Horse and Motor Parade.
July 21. Famous Highland Gathering. Scotland's premier Athletes and Pipe Bands will compete.
,, 24-25. Military Tournament by the 16/5th Lancers (as staged at Wembley during years 1925-1929).
Sept. 9, 11. Manx Grand Prix Races.

"Douglas in June will put you in Tune."

G.W.R

Tourist Trophy Races

ISLE OF MAN - JUNE 16, 18 & 20

Excursions to Douglas

AS UNDER:

FRIDAY, SATURDAY and MONDAY JUNE 13, 14 and 16

PADDINGTON depart 9.10 a.m. and 1.30 night on Friday and Monday, June 13 & 16; and PADDINGTON depart 9.10 a.m. on Saturday, June 14.

RETURN FARES:

3rd Class and Steerage	44/6
3rd Class and Saloon	52/-

Period Excursion Bookings to Douglas (Isle of Man) are also given from all principal G.W.R. Stations on certain days each week.

SPECIAL ! !

CHEAP ONE DAY EXCURSIONS TO DOUGLAS, as under:
From CHESTER DISTRICT on June 15, 17 & 19
From GLOUCESTER & HEREFORD Districts on June 19.

All information obtainable at G.W.R. Stations & Offices.
JAMES MILNE, General Manager.

Club News

SOUTH-MIDLAND CENTRE CHAMPIONSHIP TRIAL.

Saturday, July 12th, is the date chosen for this event, which will be open to solos, sidecars and cyclecars.

BRINSLEY AND D. M.C.C.

Results of the 45-mile reliability trial held recently were :—1, C. Atkin, Nottingham (New Imperial) ; 2, H. Wagstaff, Brinsley (B.S.A.) ; 3, Shared between J. Pace, Langley Mill (Norton), and W. Isaac, Nottingham (New Imperial).

Nearly 1,000 people enjoyed a programme of thrills at Eastwood on May 10th, and there was an excellent entry. The results were : Novices, 350 c.c. : 1, E. Harrison (Calthorpe) ; 2, B. Woodcock (Matchless). Novices, 500 c.c. : 1, L. Johnson (Norton) ; 2, H. Morton (James). Experts, 350 c.c. : 1, T. A. Wilde (Raleigh) ; 2, C. Smithem (A.J.S.). Experts, 500 c.c. : 1, C. Smithem ; 2, D. Smedley (Raleigh). Experts, Unlimited : 1, T. A. Cockerill (A.J.S.) ; 2, C. Smithem.

ILFORD M.C. AND L.C.C.

Results of the Margaretting-Braintree Trial held on May 11th are as follow :— Solo Cup : L. J. Foley (990 Matchless), Passenger Cup : A. H. Finch (Austin 7). Silver Medals : H. H. Fuller (349 B.S.A.), H. Wood (499 P. and M.), L. A. Horton (Austin 7). Bronze Medals : C. W. Ball, W. J. Cullington, Miss I. Crow, R. M. Ascoli, H. Irwin, D. F. Gadsdon, C. E. Cook, H. Coker.

NORTH LIVERPOOL M.C.

Sand racing was held near Harrison Drive, Wallasey, on Saturday, May 10th. The afternoon was dull but the racing attracted about 3,000 people, who took advantage of the promenade as an ideal grand-stand.

LONDON DOUGLAS M.C.C.

The trial for the Glover Cup was run on Sunday, May 11th, under the worst weather conditions, hard rain prevailing and washing out most of the dye. In spite of this there was a good turnout. The cup was won by D. L. Dixon riding a 600 o.h.v., with sidecar, who put up a magnificent performance. The silver medal was won by J. May, riding a 600 s.v. solo. Bronze medals were won by E. W. Snow and A. G. Barber, riding a 600 s.v. with sidecar and a 350 s.v. respectively.

BEAR'S HEAD M.C.C. (GLASGOW).

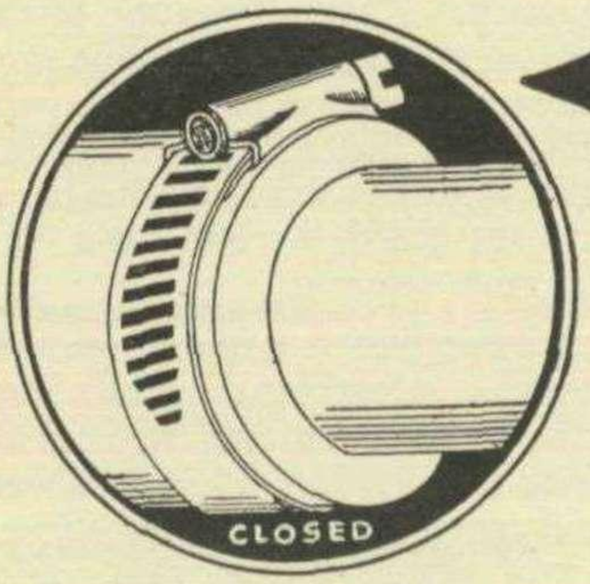
The annual trial for the James Cup was held on Saturday, May 10th, over a 60-mile course. Seventy-five per cent. of the riders finished and the first place was gained by J. Geddes Troup (490 Rudge), while last year's winner, T. Duncan Fletcher (499 Ariel) and J. Taylor (Coventry-Eagle s.c.) tied for second place, with Norman Mackenzie (B.S.A.) third man.

SIX DAYS IN SCOTLAND

Continued from page 19.

along which we were asked to conduct the models. The surface consisted of gullies, holes, boulders, logs of wood, and bogs, but the whole lot was hidden by the long coarse grass, so that one progressed to a series of resounding clashes from the forks, and agonised "ouches" from the rider, but quite unable to see anything!

One can always be assured of a "square deal" in the Scottish Six Days. The officials are friendly and helpful, the hills fair, and with footing penalised only on the easiest, it is not really difficult for a private owner to get round.



Tight with equal pressure all round

THIS JUBILEE WORM-DRIVE CLIP

Will always stop the leak or drip

MAKE SURE YOU HAVE THEM ON YOUR RADIATOR JOINTS, LEATHER COVERS ON UNIVERSAL JOINTS, AIR, OIL AND WATER HOSE JOINTS, AND FOR ALL OTHER PURPOSES WHERE CLIPS OR WIRE ARE REQUIRED

ALL IN ONE PIECE NO PARTS TO LOSE
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A KEEN MOTORIST WRITES : *" I cannot understand anyone using any other pattern, as yours are the last word in satisfaction and efficiency."*

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SEND FOR A FREE SAMPLE CLIP FOR TEST.

THE TARGA FLORIO—continued from page 7.

5. Divo (Bugatti)	2	47	50
6. Conelli (Bugatti)	2	49	11 4/5
7. Borzacchini (Maserati) ...	2	52	15 4/5
8. Williams (Bugatti)	2	52	30
9. Morandi (O.M.)	2	52	46
10. Ippolito (Alfa-Romeo) ...	2	56	46
11. Minoia (O.M.)	2	58	55
12. Maserati (Maserati)	3	1	40
13. Arcangeli (Maserati)	3	2	15
14. Ruggeri (O.M.)	3	4	43
15. Bittmann (Bugatti)	3	14	20

Thus the initial Alfa-Romeo advantage had been somewhat diminished, for Chiron was now in second place, and Divo was dangerously near Campari. Just as the hopes of the Bugatti team began to rise however Fate overtook one of its fastest cars. Albert Divo, after crossing a narrow bridge, missed the second curve of a short S-bend and his car shot up a stone wall which was inclined at 45 degrees and flanked the outside of the road. The wheel hit the top of the wall and was shattered, and the car then slid back onto the road. Nothing daunted Divo and his mechanic hastily changed the wheel and got going again. But it soon proved that the impact had also bent the stub axle, and the car was almost unsteerable. Divo finished the lap, but by the time he reached home he had fallen from fifth to twelfth place, and his Bugatti was withdrawn.

On this lap also Arcangeli met with an accident which fortunately caused no injuries. A brake on his Maserati seized on a bend, the car left the road and turned several somersaults. Luckily neither Arcangeli or his mechanic were injured, but soon afterwards the car had to retire.

The positions at the end of the third lap were as follows :—

	h.	m.	s.
1. Varzi (Alfa-Romeo)	4	7	52 4/5
2. Chiron (Bugatti)	4	9	45
3. Campari (Alfa-Romeo) ...	4	12	18
4. Nuvolari (Alfa-Romeo) ...	4	12	30
5. Conelli (Bugatti)	4	15	0 4/5
6. Williams (Bugatti)	4	19	45 1/5
7. Morandi (O.M.)	4	23	7 3/5
8. Ippolito (Alfa-Romeo) ...	4	28	34
9. Borzacchini (Maserati) ...	4	28	54 3/5
10. Minoia (O.M.)	4	31	32 1/5
11. Maserati (Maserati)	4	32	15
12. Divo (Bugatti)	4	38	51
13. Bittmann (Bugatti)	4	53	1 3/5
14. Ruggeri (O.M.)	5	0	25

Thus although Bugatti had now lost Divo, the position of the team did not look so bad. Chiron was closing up on Varzi, and on the third lap Nuvolari had fractured a front spring eye, and had been passed by Campari. Then on the fourth lap Campari found that his third speed would not stay in engagement, and this hampered him considerably with the result that he was repassed by Nuvolari, and also by Conelli on the second of the Bugattis.

Setting out on the fourth lap, Varzi was covering a stretch of extremely bad surface, when suddenly his spare wheel came adrift and fell off. He had now to cover two laps with no spare, knowing that Chiron was less than two minutes behind him. A single puncture and the Targa was lost to Alfa-Romeo, and worse still the wheel had knocked a slight hole in the petrol tank. At the end of the lap the Alfa-Romeo dashed into the depot, all four tyres were hastily changed, the mechanic seized a can of petrol, and the car got away again.

FOURTH LAP LEADERS.	h.	m.	s.
1. Varzi (Alfa-Romeo)	5	31	13
2. Chiron (Bugatti)	5	31	36
3. Nuvolari (Alfa-Romeo) ...	5	38	36
4. Conelli (Bugatti)	5	39	14 1/5
5. Campari (Alfa-Romeo) ...	5	39	14 3/5
6. Williams (Bugatti)	5	48	19 2/5
7. Morandi (O.M.)	5	50	37 3/5
8. Ippolito (Alfa-Romeo) ...	5	57	50
9. Maserati (Maserati)	5	59	47 4/5
10. Minoia (O.M.)	6	0	44
11. Borzacchini (Maserati) ...	6	2	24
12. Bittmann (Bugatti)	6	32	56 4/5

At the conclusion of the fourth lap Williams was so exhausted that he was unable to continue, and his car had to be taken over by Divo. The excitement was now intense for Varzi had a lead of less than half a minute over Chiron, and while the Bugatti was quite sound, the Alfa had no spare wheel and a leaking petrol tank.

As he set off up the mountain it became clear that the leak had done its work, for the engine started to pop back and it was obvious that the fuel was low. But Varzi would not stop. Kneeling on the seat his mechanic proceeded to pour petrol into the tank out of the can which they had taken on board, while the car was racing round the Targa circuit. Naturally much of the spirit was spilled, some fell on the hot exhaust pipe, and in a moment flames began to play round the back of the car. They reached Varzi's neck, but still he would not stop. Beating wildly with the seat cushion his mechanic managed to get them out, but the delay had been considerable, and Chiron was now leading.

Moreover Chiron was driving like a demon, unaware of the fate of the Alfa-Romeo. Howling downhill from Polizzi on second gear, the Bugatti entered a bend on which the surface was very loose, while the tyres were now nearly smooth. The Bugatti skidded all four wheels and with a crash went into the retaining wall. Both near side wheels were smashed, and Chiron and his mechanic leaped out and changed them. Then the Bugatti shot away again ; but the delay had been too long, and Varzi using his full 120 m.p.h. along the sea-front, the only fast stretch on the circuit, had dashed home, winner of the Twenty-First Targa Florio by less than two minutes. Italy had won!

Behind Chiron came Conelli, having passed Nuvolari on the last lap, and the two 1,750 c.c. Alfa-Romeos were fourth and fifth. Sixth place was captured by the 6-cylinder O.M. driven by Morandi, a truly wonderful performance for what is after all really a sports car. Divo brought Williams' Bugatti into seventh place, and Maserati on the car bearing his name was eighth. Of the nineteen starters, twelve finished, and of those no less than five bettered the record time set up by Divo last year.

Continued on page 39

FIRE REGULATIONS FOR CAR OWNERS

THE PETROLEUM SPIRIT REGULATIONS—STATUTORY RULES and ORDERS No. 952

YOUR CAR TANK IS A "STORAGE PLACE."

HOW ORDER OPERATES.

A private garage is a " storage place " under the above Regulations. Even when the only petrol " stored " is that in the car tank or the spare can on the car, the garage is still a storage place when the car is in it.

Fire Protection Necessary.

Regulation 5c provides that " in the storage place or as near thereto as is reasonably practical there shall be kept fire extinguishing apparatus of a type capable of extinguishing fires occasioned by petroleum-spirit or a supply of sand or other effective means of extinguishing such fires."

Penalty for Contravention.

The Regulations which have now come into effect are made under Section 10 of the Petroleum (Consolidation) Act, 1928, under which it is laid down that " if any person contravenes or attempts to contravene any Regulation made under this Section he shall be liable on a summary conviction to a fine not exceeding £20 for every day on which the offence occurs or continues."

How to Comply.

When no petrol is stored apart from that in or on the car the Home Office requirements are met most conveniently and usefully by carrying " Pyrene " Fire Extinguisher on the car itself as at all material times the garage is thus protected. If additional cans of petrol are stored in a private garage the " Phomene " Foam Type Fire Extinguisher is recommended for the garage. Sand is unreliable, difficult to apply and damaging in its effect, particularly where the car is concerned.

Reasons for Regulations.

The Regulations have been laid down to meet the growing public fire danger incurred by the modern practice of building private garages, etc., near to or as a part of dwelling houses and business premises.

Your Garage must now be protected



THE easiest and most serviceable means of meeting these Regulations, if you do not store petrol apart from that on your car, is to fit a " Pyrene " Fire Extinguisher to the car. You will then have the advantage of this protection for a fire emergency on the road as well as at your garage.

The alarming increase in motor car fires has already impressed thousands of motorists with the necessity or providing such protection. The " Pyrene " Fire Extinguisher is always ready for instant use. It operates at any angle and with any side up. Its continuous jet commences with the first upstroke of the double-acting pump and it does not have to depend upon any air or gas pressure. No more liquid than is necessary to put out the fire need be used and the remainder is effective for future application. The Extinguisher is easily filled up by pouring in more " Pyrene " fire extinguishing liquid.

If you keep additional cans of petrol in your garage, instal the " Phomene " Foam Type Extinguisher, as advised in the preceding column, but do not neglect to protect your car with the " Pyrene " Extinguisher.

Get one from your Dealer to-day.

PRICES FROM - **35/-**

IMPROVED Pyrene TRADE MARK FIRE EXTINGUISHER

For any further information you require, please write to Department " MS/PR"

THE PYRENE COMPANY, LIMITED, GREAT WEST RD., BRENTFORD, MIDDLESEX

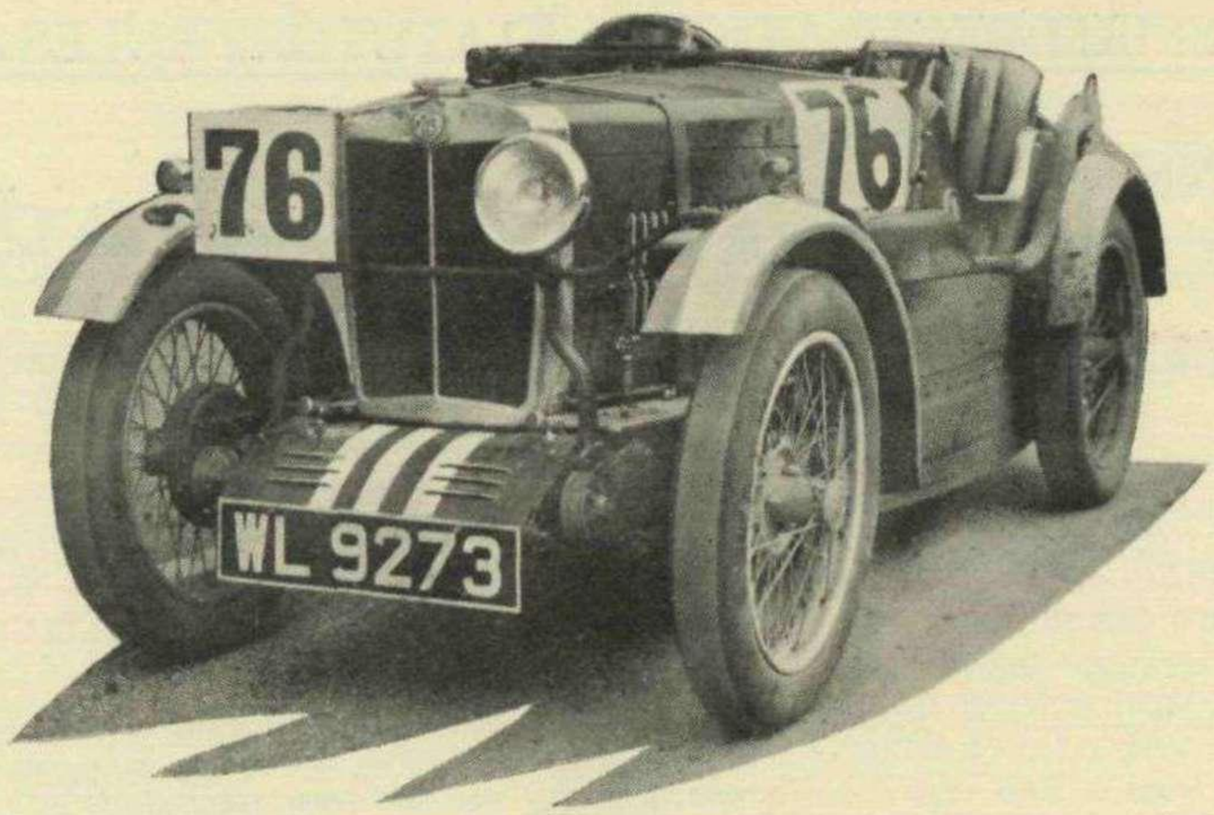
Telephone : EALING 6012 (7 lines) **(Note this New Address).** **Telegrams: " PYRENE, BRENTFORD."**

Makers of 'Pyrene,' 'Conquest' and 'Phomene' Fire Extinguishers, 'Pyrene' Bumpers, and 'Pyrene' Non-Skid Chains

Please mention MOTOR SPORT when corresponding with advertisers.

A "DOUBLE TWELVE" M.G. MIDGET
ON THE ROAD.

WHEN a make of car at its first appearance in a big race, not only carries off the team prize, but is, moreover, the only complete team to finish the course, it is evident that something remarkable has occurred. It is therefore of special interest to be able to give our first-hand impressions of the behaviour under ordinary road conditions of one of the successful cars.



Ready for action. The Midget in "Double Twelve" trim.

Owing to the kindness of Mr. Randall, the entrant and owner of the M.G. Midget team in the Double-Twelve hour race, and of Mr. Kimble of University Motors we were able to take over No. 76, which was the first car of the trio home in the race, and give it a fairly extended test on the road.

One day a party consisting of Mr. Kimble, an assistant, and two members of MOTOR SPORT staff, set out for Waltham Cross to collect the winning cars and bring them up to London. On arrival they were filled up with fuel and oil and forthwith started up. Only one of the cars had had the engine running since being driven down after the race, but all three cars started at once on the starters and we purred merrily off to London. The first part of our run being in dense traffic gave us a chance to appreciate the extreme handiness under such conditions of a small car with real acceleration.

Having left two of the team at University Motors, we set off in No. 76 to find out what effect 24 hours of almost continuous all-out running had had on the behaviour and performance of the 850 c.c. engine.

We had originally intended to do only a short run, but we became so intrigued with the performance of our tiny steed, that we were well down towards the West country almost before we had decided where to go, and the same evening saw over 200 miles more registered on the clock!

The Hartford shock absorbers were, naturally, set for high speed work and made the springing a little hard at low speeds. This is, of course, only what is intended, and once in open country they made the car ride perfectly smoothly and steadily over all sorts of roads.

The engine, although quite untouched since the race, gave an absolutely effortless cruising speed of 60 m.p.h. on about half throttle, and a good 70 m.p.h. maximum. On one occasion under favourable conditions we reached and held 75 m.p.h., and the road holding was still excellent.

Naturally on such a small engine the gears must be used well if the best performance is to be maintained, but, the running at low speeds was perfectly smooth, and there was absolutely no sign of pinking or roughness when picking up from this speed. This pleasant state of affairs was largely due to the R.O.P. benzole mixture which was used throughout our run, and the next morning the engine started from cold at the first touch of the starter button without even flooding the carburettor. Verb. sap!

The K.L.G. 268 plugs, although of the distinctly warm variety functioned well under different conditions, and it was only by allowing the engine to tick over too long that we once contrived to oil up No. 1 cylinder a trifle. This gave an opportunity of proving the accessibility of the unit and a new one was fitted in a matter of seconds.

Naturally, the brakes were ready for slight adjustment after their hard time in the race, but were still adequate. The car as a whole seemed to us a very attractive proposition, which would be economical to run, and after the Double Twelve race, any further comment on its reliability would be superfluous.

THE GRAND PRIX BORDINO.

THIS event which is organised in memory of the great Pietro Bordino was run this year on 20th April over the circuit of Alessandria. The race was won by Varzi on an Alfa-Romeo, who covered the distance of 160 miles in 2 hours, 21 minutes, 42 seconds, an average speed of 67.7 m.p.h. Zanelli on a Bugatti was second and Ferrari on another Alfa-Romeo third.

UNIVERSITY MOTORS - - LIMITED

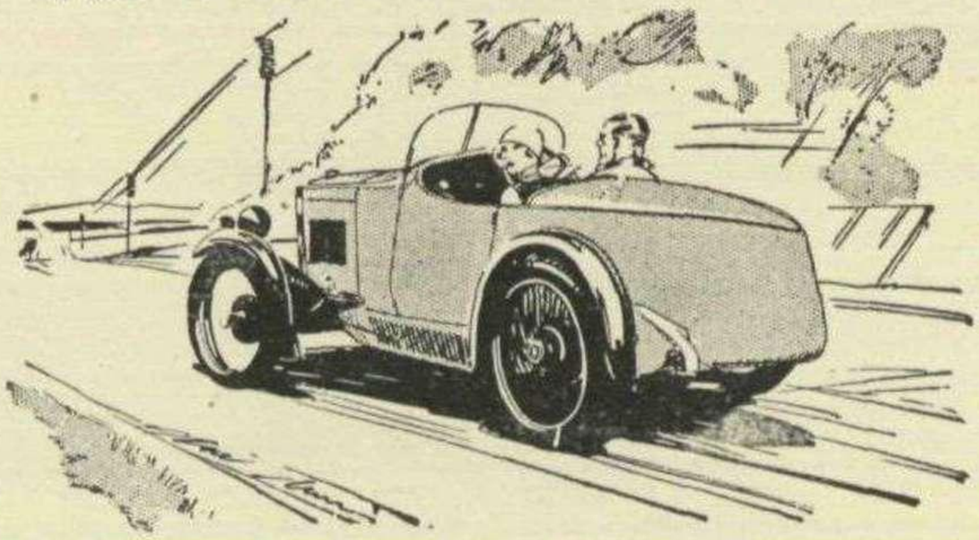
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60·23 M.P.H. was averaged (including all stops) for 24 hours
in the **BROOKLANDS DOUBLE-TWELVE**
by the M.G. Midget driven by Randall and Montgomery.

M.G. Midgets Won the Team Prize

All models in stock | Price from **£185** | Come and drive one yourself

We have just produced an Art Book (in 7 colours) dealing with these cars.
May we send you a copy?

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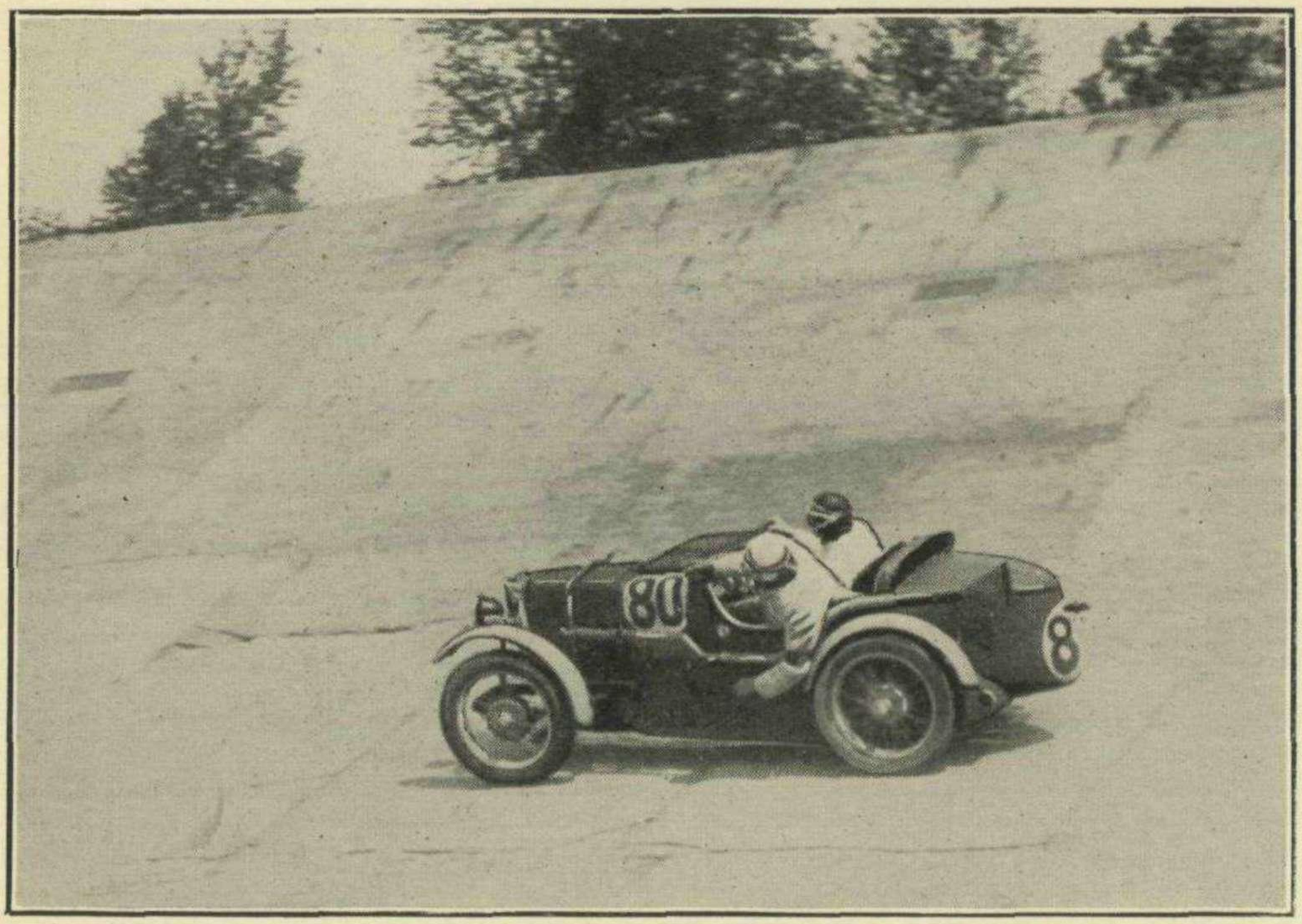
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EROS

Established in 1911

J.C.C. Double Twelve Hours Race



The coveted team award
was won by

The MG Midgets

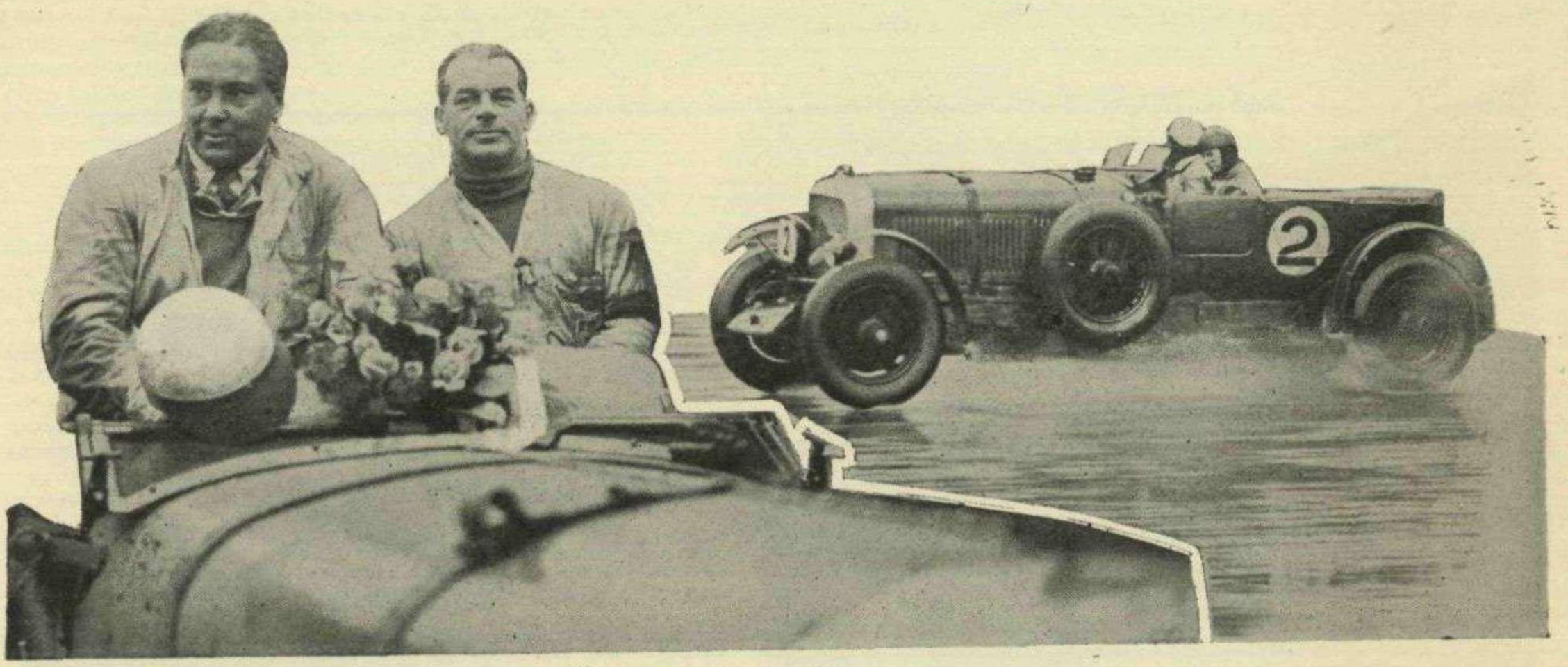
The Amateur Team entered privately
by Mr. C. J. Randall.

(Subject to official confirmation)

ISSUED BY THE PUBLICITY DEPT. OF THE M.G. CAR COMPANY, PAVLOVA WORKS, ABINGDON-ON-THAMES

THE J.C.C. DOUBLE TWELVE

WELL ORGANISED EVENT PROVES A TRIUMPH FOR BRITISH CARS



Woolf Barnato and F. C. Clement who drove the winning Speed Six Bentley and (right) the car at speed in the rain. S. C. H. Davis and Clive Dunfee were second on another Bentley.

THIS year's Double Twelve was chiefly remarkable for the overwhelming triumph of the British sports car. In every class, both of price and engine size, British cars put up wonderful performances, and produced a welcome answer to the pessimists who have been complaining that we cannot hold our own with continental manufacturers. It is true that in some cases the foreign cars were put out by minor troubles, but the fact that these were avoided by the successful makes reflects great credit on the organising ability, and attention to detail, of those who prepared the cars.

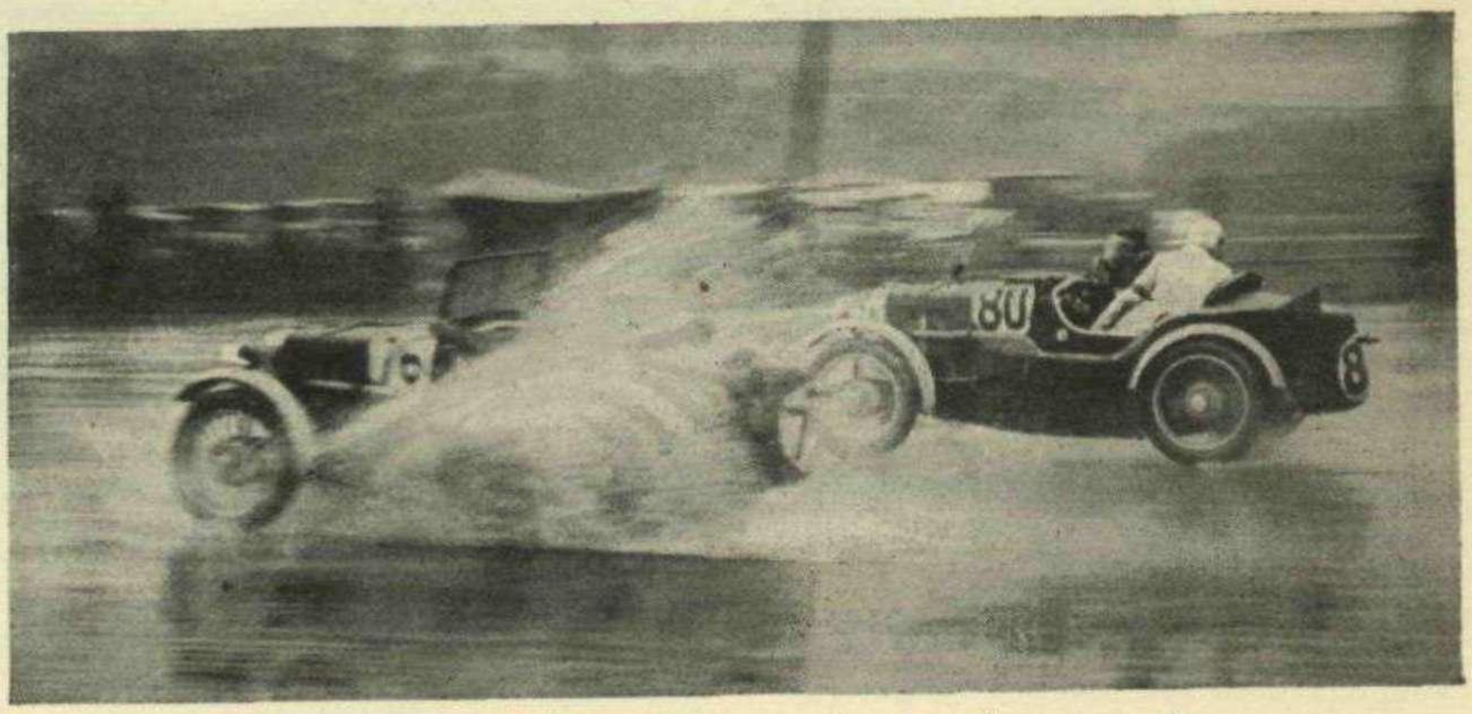
In the large class it was evident from the start, that the Bentleys would, barring accidents, have it their own way, and with a large entry they could afford to set a cracking pace, and establish such a lead as to give them a fairly easy race towards the end. This policy proved successful, and though their ranks suffered considerable casualties, the leaders at the end of the first day were never seriously challenged, and took things comparatively easily for the latter half of the race—that is if consistent lapping at well over 80 m.p.h. can be called taking things easily!

Unfortunately the Mercedes which was to have been driven by Malcolm Campbell could not be got over in time for the race, so he drove the 2,300 c.c. supercharged Bugatti in turn with Earl Howe. A race between the Mercedes and Bentley would have been indeed worth watching.

Small Cars Do Well.

In the smaller classes the success of the British cars was even more marked. Here they were competing against the cream of continental makes and although they were small in actual numbers their reliability was remarkable in a race of many failures. Whitcrofts' Riley, which finished third in the race and first in the 1100 c.c. class ran with perfect regularity throughout, as did Bertelli's Aston Martin, which ran into fourth place after a well judged race.

Another make to put up a really good show were the Frazer-Nashs. Two started and both finished without trouble; the merit of this effort being more apparent when it is considered that out of 59 starters, only 29 finished the race, many of them only after considerable delays. The cars had been prepared at the last minute, as the original two cars which had been earmarked for the race had been delivered to customers, and Aldington cheerfully proceeded to build two more cars for the event at a few days notice,—a very sporting effort.



Two of the M.G. Midgets having a shower bath on the afternoon of the second day.

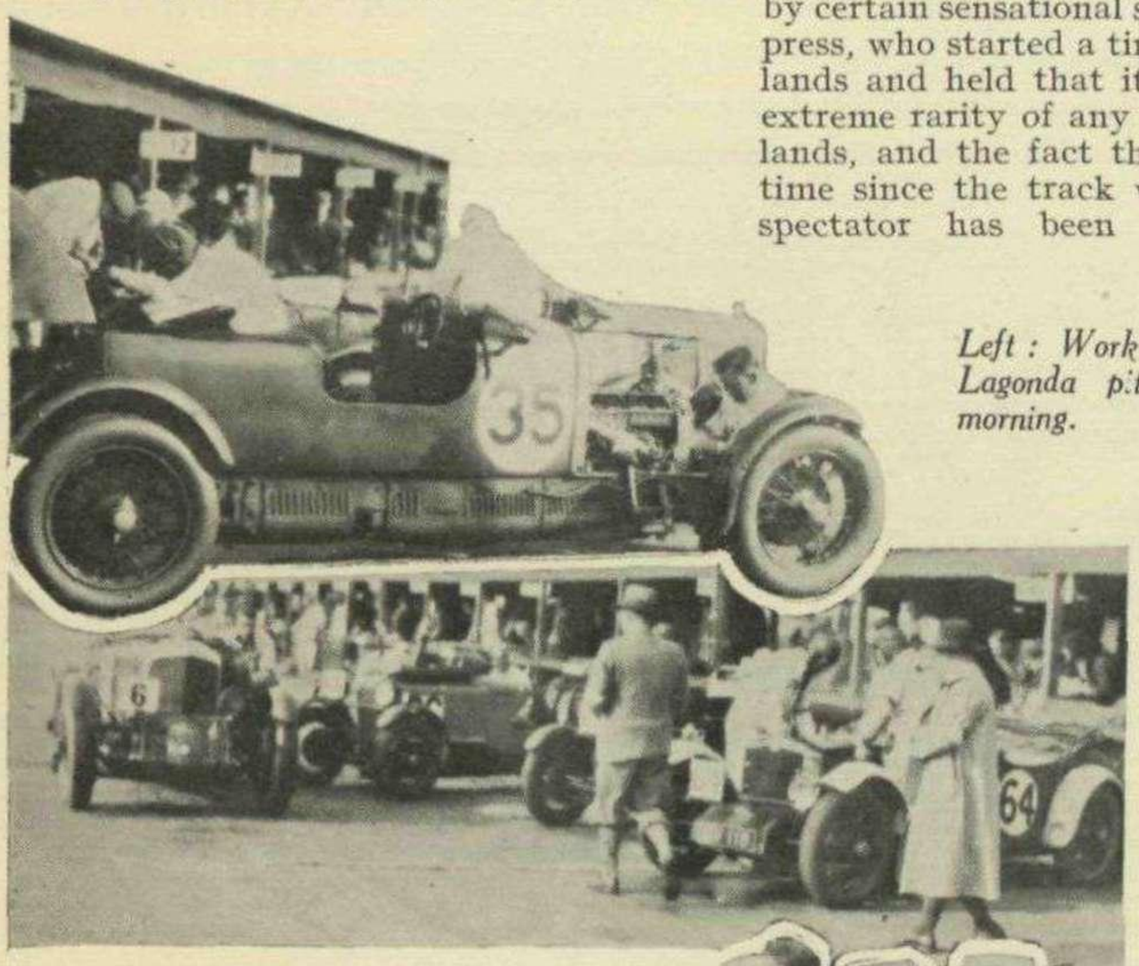
THE DOUBLE TWELVE—continued.

M.G. Midgets surprised everyone by their turn of speed, and their winning of the team prize was as popular, as it was well deserved. Five out of their six starters finished the race.

The supercharged cars were not seen to advantage in this race owing to troubles quite unconnected with the superchargers, and although the 4½ litre supercharged Bentleys set a terrific pace at the outset and were lapping at over 99 m.p.h. they were unfortunately compelled to retire with various troubles; two were withdrawn owing to valve breakage, and damaged pinions in the rear axles caused the retirement of another. The supercharged Austin 7 put up a remarkable performance for its diminutive size, but did not have a trouble-free run as it was necessary to change the supercharger thereby losing considerable time. The ordinary un-supercharged Austin 7, however, driven by Captain Waite and the Earl of March won the *Autocar* award for the chassis price handicap. The arrangement of this price handicap was certainly a brilliant idea, as the average man who buys a sports car is not usually in a position to spend a great deal on it, and a race of this calibre can act as a guide to the best "value for money" sports car.

This year's Double Twelve was probably one of the best organised international car races that has ever taken place. The scoring and announcing arrangements were well nigh perfect, and thanks to the excellent Phillips loud speaking equipment, the pleasant voice of Professor A. M. Low could be heard in every corner of the track, giving up-to-date information of the position. Results were issued every hour with the minimum of delay and it was very easy for everybody to follow the progress of the race on handicap, which in most long distance handicap events is far from being the case. The ingenious arrangement in the programme also made it quite simple to ascertain at any time from the car's lap speed whether it was gaining or loosing on another car in a different class.

The accident to the two Talbots which unfortunately resulted in the loss of two lives, and injuries to some others, cast a certain amount of gloom over the proceedings at the end of the first day. It was, however, one of those events which are bound to occur on occasion in almost every sport, and it is regrettable to note the unreasonable view of the mishap taken by certain sensational sections of the daily press, who started a tirade against Brooklands and held that it was unsafe. The extreme rarity of any accident at Brooklands, and the fact that this is the first time since the track was opened that a spectator has been seriously injured, actually goes to show how safe Brooklands really is in comparison with any road or track in the world. Great credit is due to the authorities for the way in which the situation was dealt with, and for the excellent and efficient attention given to all concerned. It was doubly unfortunate in it that eliminated from the race the team of Talbot cars, which on their first appearance were putting up a performance which astounded everybody, and they had not experienced the slightest trouble. This augurs well for the success of this model in production.



J. D. Benjafield (Bentley No. 6) pushing in to his pit, while S. D. Marr (Tracta) is getting away on the second morning.

Left: Work in progress at the Lagonda pits on the second morning.



The winning Bentley changing a wheel at the pits and (right) L. G. Callingham working on the carburettor of his M.G.

Right: Mrs. Worsley (M. G. Midget) calls for replenishment.



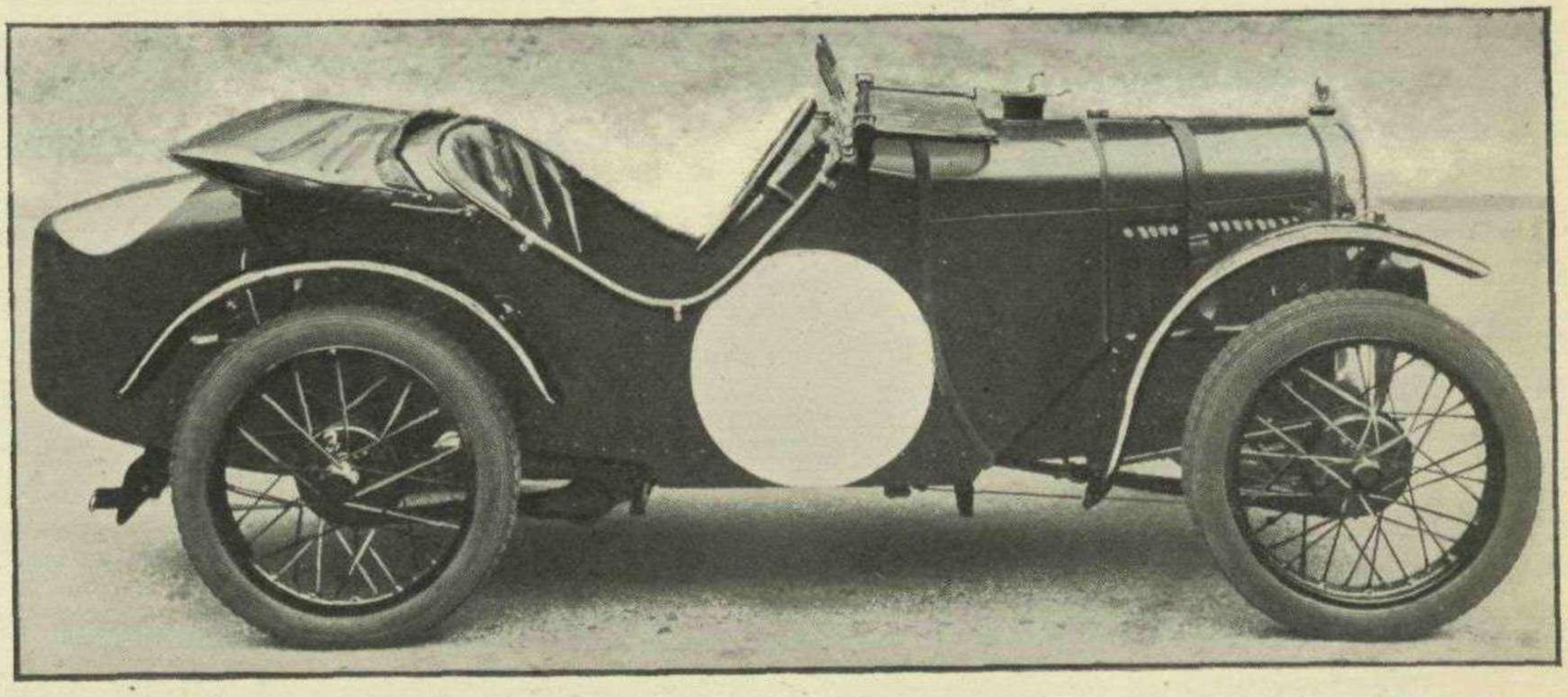
The Start.

The regulations for the start were changed slightly this year, and instead of having to run across the track and lower hoods, the drivers stood by the cars, which were ready to start. At the maroon, 59 riders leapt into their cars and almost simultaneously the whole bunch were roaring down the finishing straight for the first corner with the Bentleys in the van. It was one of the most impressive sights ever seen at the track, and in spite of the enormous number of cars entering the corner togther, there were no untoward incidents. Within a few laps the leading Bentleys had lapped the majority of the smaller cars. There were many surprises in the way of speeds, and the Talbots and Alvis' were setting an astonishing pace for their size. Mrs. Bruce in one of the "Silver Eagle" Alvis' was among the very fastest at the corner, and looked like being placed high up, but later her car suffered from valve trouble and she was compelled to slow considerably, but managed to finish well in spite of this.

The pits soon became a centre of activity, among the first to come in being Mrs. Scott and Ashby on their Rileys to attend to the oil pressure. Ashby certainly believed in preparing for everything, and had a complete portable welding outfit in his pit. With it he soon repaired the leaking oil pipe and got going again. A. S. Watt (Fiat) came in after ¾ of an hour with two broken pistons. He repaired them, however, by working nearly all day and managed to get going again in the afternoon. Another example of an almost complete overhaul was provided by Burt (Austin 7) who had the bad luck to shed a crankcase stud, lose his oil, and run two big ends. Nothing daunted he dismantled the connecting rods, sent them over to Thompson & Taylor's works by the aeroplane sheds

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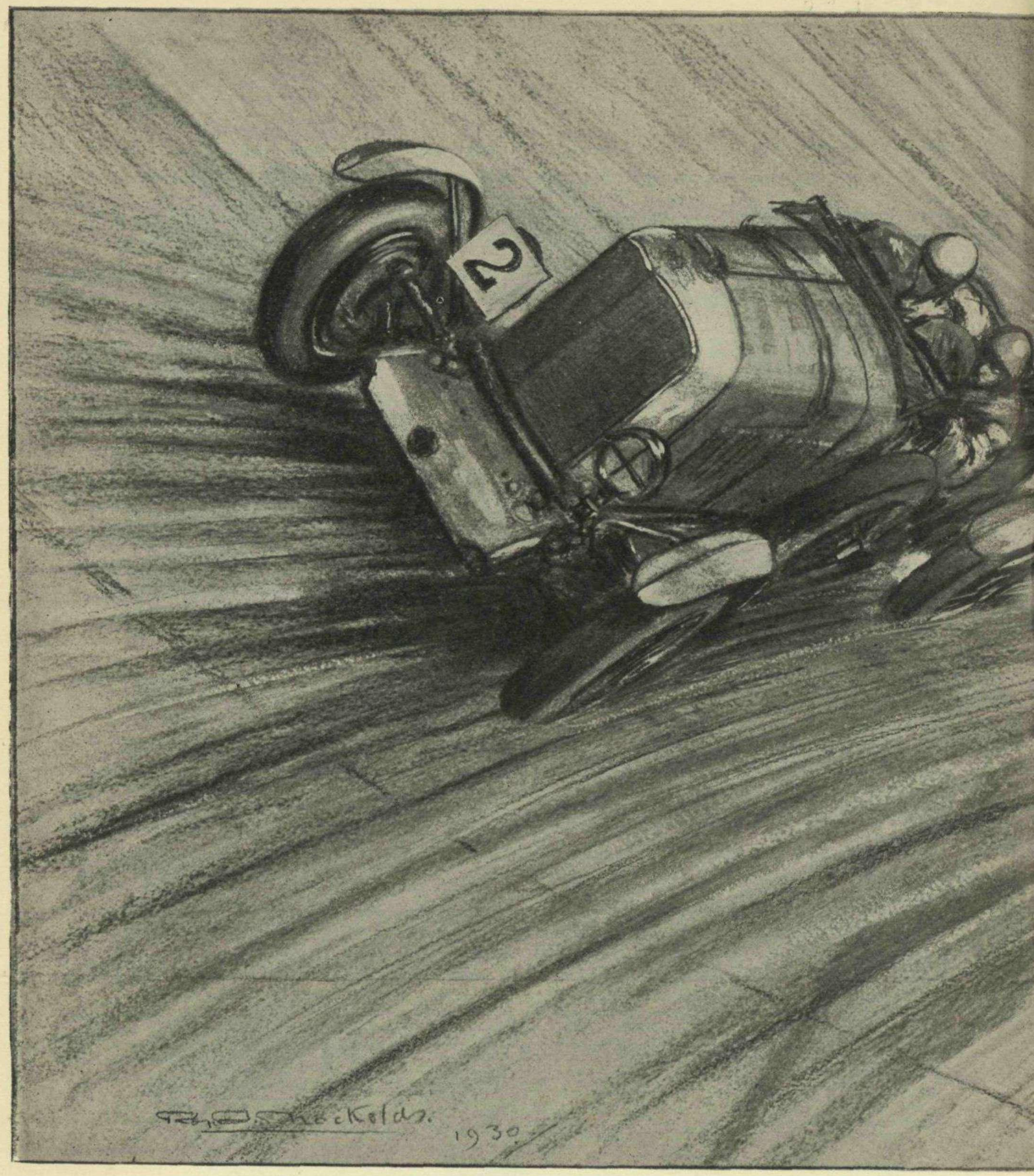
Wins the "Autocar" Trophy in the Classic Brooklands event— the "DOUBLE-TWELVE"!

THE outstanding dependability of the Austin Seven and its remarkable value for money were again vividly demonstrated at Brooklands on May 10th. In the first classic race of the season—the "Double-Twelve"—the Austin Seven won the "Autocar" Trophy *for the best performance on price* and also gained first and second place in its class. The average speed was 64.9 m.p.h. This victory was scored by *cars modelled on the standard design of 7 h.p. chassis.*

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THE DOUBLE TWELVE.—This shows Woolf Barnato's Speed Six Bentley a
The former finished first and the small car fourth



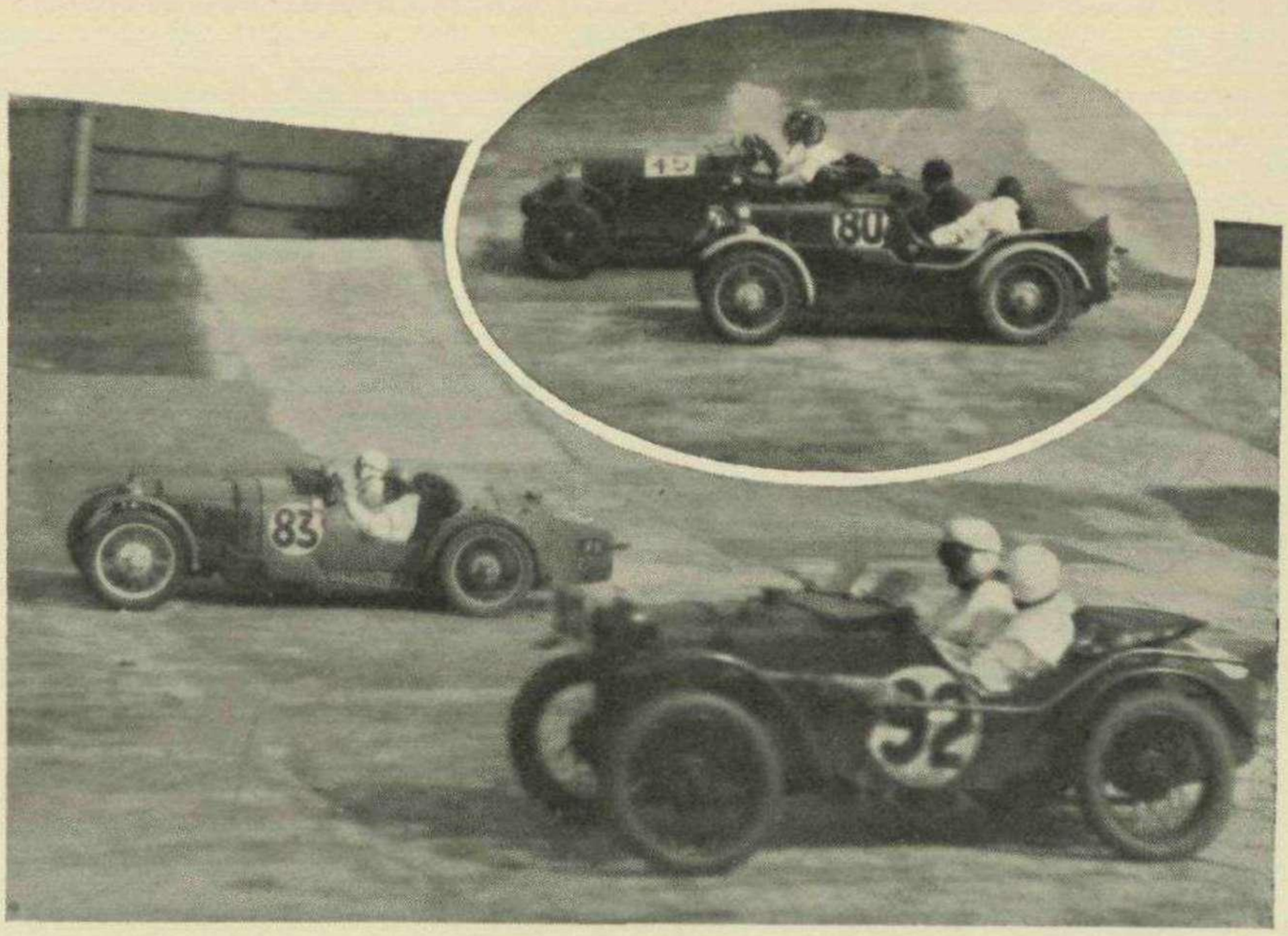
nd A. C. Bertelli's Aston Martin going on to the banking after taking the corner.
after one of the most gruelling races ever held in this country.

THE DOUBLE TWELVE—continued.

to be re-metalled, and later in the afternoon reassembled the engine and got going again just before the end of the first day. Very smart work on the part of all concerned!

Capt. Frazer Nash had early trouble with the blower on his Austin, but set to work to change same with great rapidity, and after some delay eventually got going again and went remarkably well thereafter.

The new M.G., in the hands of L. G. Callingham started off in a very promising manner. It showed a good turn of speed, ran very pleasantly and evidently handled steadily, but had however to come out of the running owing to the butterfly valve of the carburettor coming loose and a screw getting into the works, causing considerable damage. It was certainly hard luck that this entry should be put out of the race by such an unusual trouble. Kaye Don on an Alfa Romeo was soon after in trouble with the wings coming loose; these had had to be modified at the last moment to comply with the regulations, and the extension pieces were breaking away. Don did some quick work in the pits with aluminium sheeting and got away again, and by a really fine display of driving began to catch up again. It was already becoming evident that the Aston Martins were going to be in the picture and their consistent running was very noticeable. The fastest of their team was, however, unfortunately put out of the race owing to a mis-judgment in the oil supply when changing over drivers, and it was left to Bertelli's car of the same make to take up the running. The Talbots were running close together with a lap speed of well over 80 m.p.h. and were able to hold their own with several of the bigger cars.

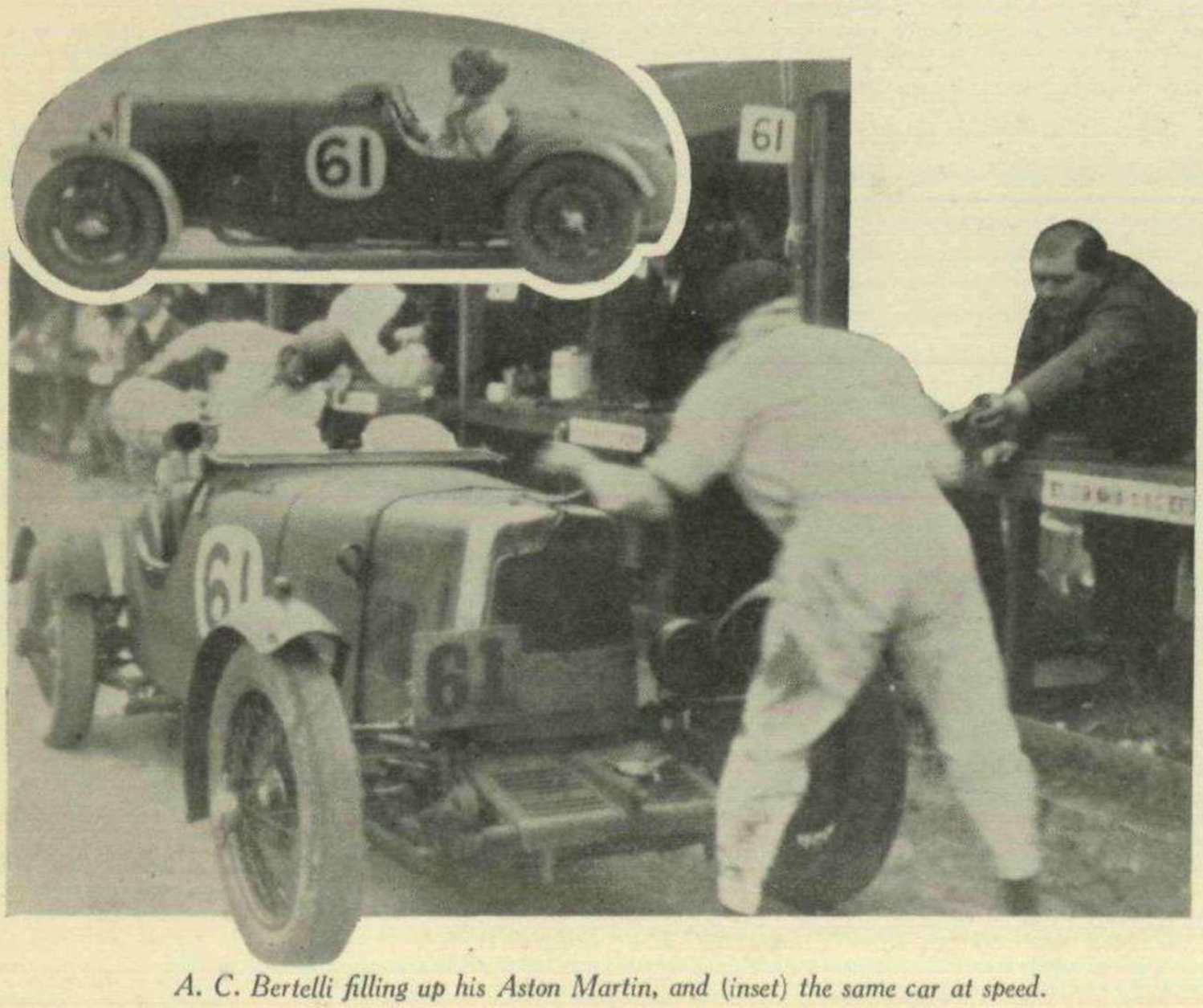


Whitcroft's Riley (No. 83) and A. Frazer-Nash Austin 7 on the banking. Above: Mrs. Worsley M.G. Midget (No. 80) and Jeffress' Alpha Romeo No. 45.

The Alvis were being delayed with valve trouble and Mrs. Bruce dropped from 4th place. In the afternoon Jack Dunfee and Birkin's Bentleys both retired with broken valves after setting a cracking pace at the beginning of the race, and Bertelli moved up to 3rd place with the Hon. Max Aitkin (Talbot) 4th.

Another small car which was going very consistently was Whitcroft's Riley and after a delay to Aitkin's Talbot this car moved up to 4th place.

Just at the end of the first day's running he had gained sufficient on his handicap to oust Bertelli from third position and this, therefore, was the same as that at the finish. Just before 7 o'clock on the Friday occurred the crash which eliminated the two Talbots driven by Col. Rabagliati and Hebeler; the two cars came into contact just after the pits causing Hebeler's car to overturn, fortunately without hurting driver or mechanic, and also causing Rabagliati's car to crash through the railings with much more serious results, the mechanic and a spectator being killed and the driver and several spectators injured. As a result of this race the third Talbot was withdrawn from the race at the end of the first day.



A. C. Bertelli filling up his Aston Martin, and (inset) the same car at speed.

THE SECOND TWELVE HOURS.

8 a.m. on the second day did not see the same willingness to start on the part of the majority of cars, notable exceptions being the Austins and Aston Martins. The latter having dry sump lubrication it was quite an easy matter to fill the tank with hot oil and get off the mark without delay. In this manner Bertelli gained a place from Whitcroft's Riley but was unable to maintain the position against his handicap for more than two hours. At this point the two cars were tying for third position and later Whitcroft's Riley drew ahead, the order remaining unchanged to the end. Lagondas were in trouble at the start Couper having to fit a new timing chain at the pits. This trouble put several of these cars out of

DOUBLE-TWELVE

Riley 9 —— 1st and 2nd, Class G. *3rd to Bentley in whole Race*

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	3 Litre, 8 cylinder, Racing Ballot, Speed 112 m.p.h.	£300
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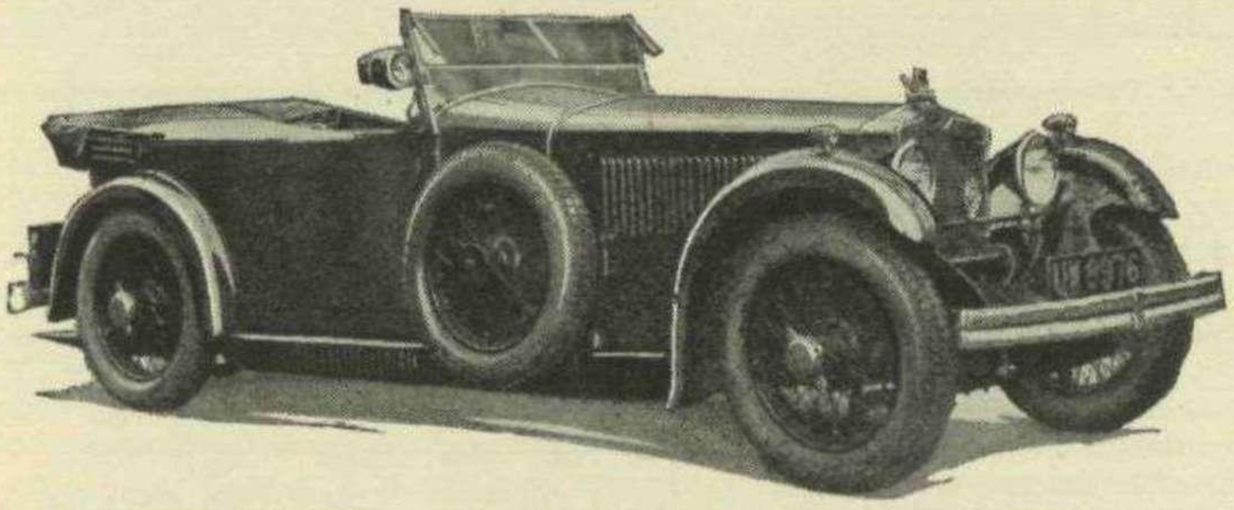
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FRONT WHEEL DRIVE

TRACTA

THE DOUBLE TWELVE—continued.

the race as the delay in fitting the new chain was too great to give them any chance of finishing high up.

Early on Dr. Benjafield arrived pushing his Bentley, which had damaged pinions in the rear axle. As he approached the pits someone called out " Have you pushed it far ? " " Oh, about a mile," was the cheerful reply. He then set to work to dismantle the axle but the car was later withdrawn. The Bentley pit organisation was a model of efficiency, and filling up and changing over of drivers was accomplished with the minimum of delay or fuss. Their experience of long distance races has certainly taught them the great value of " pep in the pits."

Campbell's Bugatti had been suffering from various troubles and Earl Howe had a narrow shave when a hub cap came off on the railway straight and he had to walk all the way back to the pits to collect a jack. Eventually he re-arrived with the car, when it was filled up and Campbell took over and gave a marvellous exhibition of driving in an endeavour to re-gain his lost position. The delays, however, had been too great to give him a chance.

In the afternoon the bright weather gave place to some of the heaviest rain that has ever been experienced at Brooklands, and this made conditions extremely unpleasant for the drivers. The big Bentleys in the hands of Woolf Barnato and S. C. H. Davis were leading comfortably and slowed considerably in the rain. This was not the case with the Alfa Romeo drivers, who were determined to use every opportunity to make up lost ground and their cornering seemed every bit as fast as it had been in the dry. Another driver who kept up to schedule, and if anything gained on it was Mrs. Scott in the Riley who again proved herself a driver of the highest class.

From now until the end of the race there was little incident, the position of the leaders remaining unchanged, and it was not until a few minutes from the finish that anything of interest occurred. Whitcroft's Riley punctured, and he started to change the wheel; finding however, that the jack was not working properly, he continued to the pits on a flat tyre to find that the race had finished, with himself in third position after driving a very well judged race. The tyre that punctured had already done considerably more than its specified distance but he had decided to risk not changing it when advised to, fortunately without serious effect. Both the Aston Martin and the Riley had been travelling considerably faster on the second day than on the first, but within an hour of the finish it became evident that the Aston Martin would not be able to catch up the Riley.

So ended a hard race with British cars occupying the first four positions and also winners of the team prize.

Afterthoughts on the Race.

Of the 30 cars finishing the Double Twelve, 24 were fitted with Ferodo Linings including the first two Bentleys. When one considers the nature of the Race, it is very obvious that the efficiency claimed for Ferodo Lining is well upheld.

* * *



The Hon. Mrs. Victor Bruce taking the corner in her Alvis.

Young Accumulators achieved another success in the Double Twelve being fitted to a large number of cars competing in this event. Both Bentley and Aston Martin teams were Young equipped throughout, also Earl Howe's Bugatti.

A discharge of roughly 850 amps. is necessary to turn over a high compression racing engine such as the Big Six Bentley. When it is remembered that the cars have to be restarted from cold after the previous day's twelve hours continuous running, it is hard to exaggerate the battery's task.

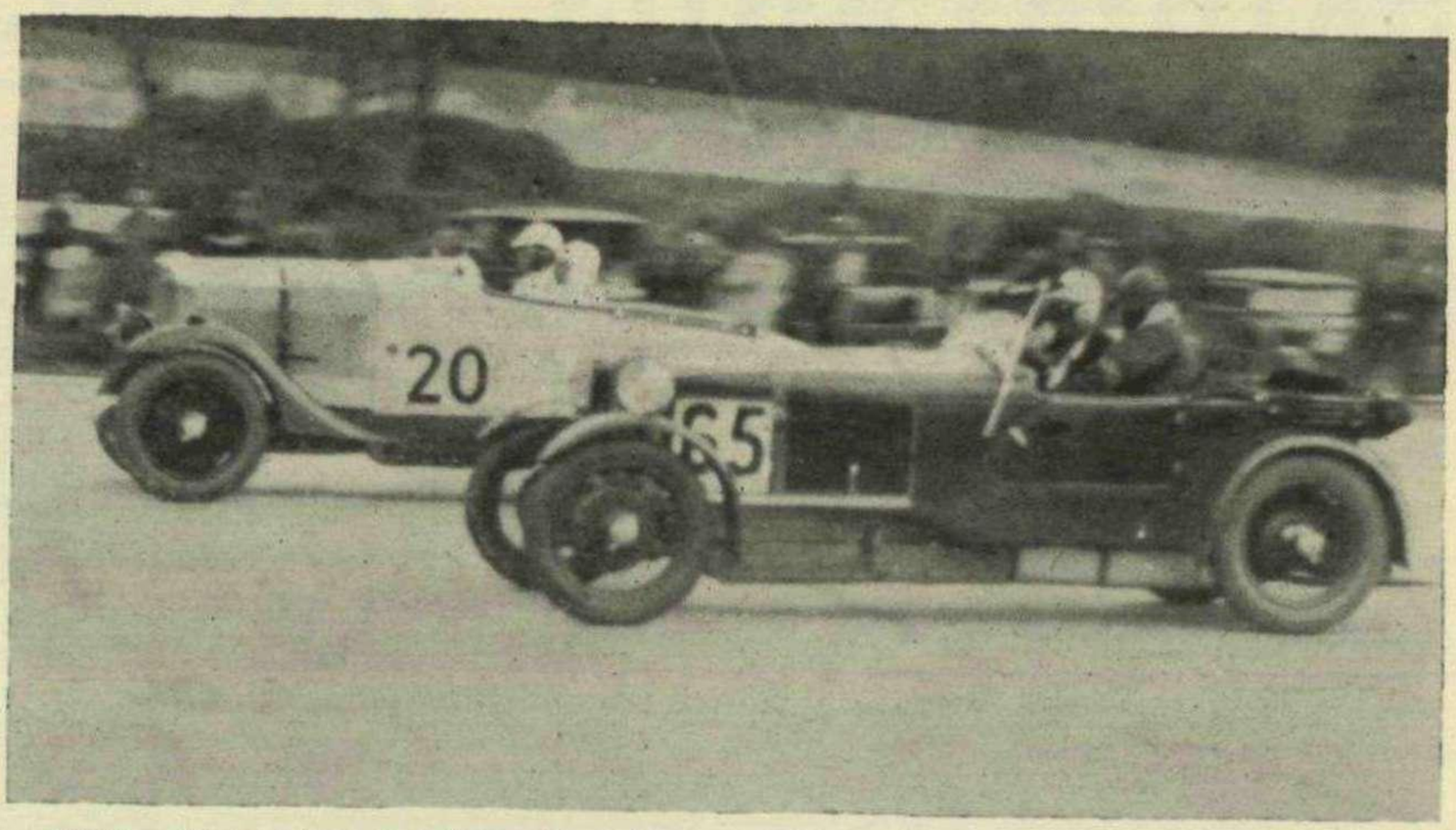
The Young Accumulator is a standard fitting on all Bentley and Aston Martin models.

* * *

An interesting point about the Tracta driven by S. D. Marr in the race is that it was the same car as that tested earlier this year by MOTOR SPORT, in which report we emphasized its sturdy build, and described it as the sort of car on which nothing would ever break. The truth of this is proved by its Double Twelve performance when it had absolutely no mechanical trouble whatever. On the second day however the car grazed the end of the sand bank and lost its fishtail. Not being allowed to continue without it was necessary to find it. By the time this was done and re-fitted a delay of over two hours had occurred which put the car out of the running for a high position, a really atrocious bit of luck, but the sort of thing that is always happening in racing.

* * *

An example of enthusiasm receiving an undeserved rebuff was provided by an incident on the morning of the race before the start. A driver of a certain make was feverishly going over his car seeing to various last minute adjustments, and decided that the model would be better with a fresher set of hub caps. Accordingly a sleepy mechanic was ordered to go and remove the set from a works car outside the depot. At that moment, however, an enthusiastic private owner, anxious to see how his favourite make was faring in the final preparations, drew up outside and went in to look round. The mechanic, coming out and finding, as he had been told, one perfectly good



The Hon. Max Aitken (Talbot) leading H. J. Aldington (Frazer-Nash) down the finishing straight.

motor car, promptly removed the hub caps from same, and fitted them to the racer. Shortly after, our enthusiast returned to collect his model, and was horrified to find the wheels quite unattached. Result—much cursing and recrimination, and, eventually, some more hub caps. After all one car is much like another at 5 a.m., especially when they both have Rudge wheels !

THE DOUBLE TWELVE RESULTS.

GENERAL CLASSIFICATION.

	Drivers.	Car.	Miles.	Average m.p.h.	Fig. of Merit.
1.	Woolf Barnato and F. C. Clement ...	6,597 c.c. Bentley ...	2,080 34	86.68	1 462
2.	S. C. H. Davis and C. Dunfee ...	6,597 c.c. Bentley ...	2,056 34	85.68	1 452
3.	C. R. Whitcroft and H. C. Hamilton	1,089 c.c. Riley ...	1,679.08	69.96	1.428
4.	A. C. Bertelli and N. Holder	1,493 c.c. Aston Martin	1,770.28	73.76	1 418
5.	Count G. Lurani and K. Thom ...	1,487 c.c. Alfa-Romeo	1,778 87	74.25	1.372
6.	Mrs. E. M. Scott and E. M. Thomas	1,089 c.c. Riley ...	1,611 45	67.27	1.370
7.	A. C. R. Waite and The Earl of March	747 c.c. Austin ...	1,556.51	64.97	1 323
8.	B. Ivanovsky and G. E. T. Eyston ...	1,750 c.c. Alfa-Romeo	1,805.03	75.3	1.319
9.	D. R. Sharman and T. E. Stone ...	1,954 c.c. Lagonda ...	1,669.00	69.61	1.287
10	F. S. Barnes and J. D. Barnes ...	747 c.c. Austin ...	1,370.78	57.2	1.269
11	L. P. Driscoll and C. W. G. Lacy ...	1,496 c.c. Lea-Francis	1,634.99	68.17	1.261
12.	J. R. Jeffress and R. Warde	1,487 c.c. Alfa-Romeo	1,629.76	68.03	1.257
13.	Hon V. and Mrs. Bruce	1,991 c.c. Alvis ...	1,616.68	67.54	1.247
14.	H. H. Stisted and N. Black	847 c c. M.G. Midget	1,449.26	59.32	1.232
15.	C. J. Randall and F. M. Montgomery	847 c.c. M.G. Midget	1,444.03	60.23	1.227
16.	C. Paul and H. W. Purdy	1,991 c.c. Alvis ...	1,574.83	65.81	1.215
17.	A. Marinoni and Kaye Don	1,487 c.c. Alfa-Romeo	1,569.60	65.55	1.211
18.	R. R. Jackson and W. Townend ...	847 c.c. M.G. Midget	1,389.09	58.02	1.181
	G. Roberts and A. A. Pollard ...	847 c.c. M.G. Midget	1,389.09	57.96	1.181
20.	Miss Worsley and D. G. Foster ...	847 c.c. M.G. Midget	1,383.86	57.72	1.176
21.	E. J. Kehoe and W. Blackwell ...	1,089 c.c. Riley ...	1,365.55	57.01	1.161
	C. Penn-Hughes and Miss Penn-Hughes	1,496 c.c. Frazer-Nash	1,449.26	60.43	1.161
23.	M. Campbell and Earl Howe	2,300 c.c. Bugatti ...	1,587.91	66.23	1.160
24.	H. J. and D. A. Aldington	1,496 c.c. Frazer-Nash	1,386.74	57.84	1.111
25.	S. D. Marr and J. A. Gregoire ...	1,498 c.c. Tracta ...	1,279.21	52.5	1.025
26.	T. E. Rose-Richards & O. Saunders Davies	2,931 c.c. Lagonda ...	1,386.74	57.84	1.013
27.	G. E. Took and A. M. C. Jameson ...	1,496 c.c. Lea-Francis	1,310.61	54.65	1.011

A. Frazer Nash, Austin (1,153.65 miles), and E. Burt, Austin (695.85 miles), were still running at the end of the 24 hours.

Class B (over 5,000 c.c. and up to 8,000 c.c.).

	Drivers.	Car.	m.p.h.
1.	Woolf Barnato and F. C. Clement	Bentley	86.68
2.	S. C. H. Davis and C. Dunfee	Bentley	85.68

Class C (over 3,000 c.c. and up to 5,000 c.c.).
No finishers.

Class D (over 2,000 c.c. and up to 3,000 c.c.).

	Drivers.	Car.	m.p.h.
1.	M. Campbell and Earl Howe	Bugatti	66.23
2.	T. E. Rose Richards and O. Saunders Davies ...	Lagonda	57.84

Class E (over 1,500 c.c. and up to 2,000 c.c.).

	Drivers.	Car.	m.p.h.
1.	B. Ivanovsky and G. E. T. Eyston	Alfa-Romeo	75.13
2.	D. R. Sharman and T. E. Stone	Lagonda	69.61

Class F (over 1,100 c.c. and up to 1,500 c.c.).

	Drivers.	Car.	m.p.h.
1.	Count G. Lurani and K. Thom	Alfa-Romeo	74.25.
2.	A. C. Bertelli and N. Holder	Aston-Martin	73.76

Class G (over 750 c.c. and up to 1,100 c.c.).

	Drivers.	Car.	m.p.h.
1.	G. R. Whitcroft and H. C. Hamilton	Riley	69.97
2.	Mrs. E. M. Scott and E. M. Thomas	Riley	67.27

Class H (over 500 c.c. and up to 750 c.c.).

	Drivers.	Car.	m.p.h.
1.	A. C. R. Waite and the Earl of March	Austin	64.97
2.	F. S. and J. D. Barnes	Austin	57.2

TEAM PRIZE.

M.G. Midget (G. Roberts and A. A. Pollard, 1,389 miles; R. R. Jackson and W. Townend, 1,389 miles; and C. J. Randall and F. M. Montgomery, 1,444 miles).

PRICE HANDICAP.
For best performance on chassis-price classification.

1. A. C. R. Waite and the Earl of March, Austin (chassis price £190).

THE TARGA FLORIO—continued from page 26.

The final placings were as follows :—

		h.	m.	s.
1.	Achille Varzi (Alfa-Romeo) ... ... Average speed 48-76 m.p.h. Record for the race.	6	55	16 4/5
2.	Louis Chiron (Bugatti)	6	57	5 3/5
3.	Count Conelli (Bugatti)	7	3	13
4.	Guiseppe Campari (Alfa-Romeo)	7	3	54
5.	Nuvolari (Alfa-Romeo)	7	13	1 4/5
6.	Morandi (O.M.) ...	7	18	31 1/5
7.	Williams-Divo (Bugatti)	7	19	51 1/5
8.	Maserati (Maserati) ...	7	29	12 1/5
9.	Ippolito (Alfa-Romeo)	7	29	18
10.	Minoia (O.M.)	7	32	13
11.	Borzacchini (Maserati)	7	35	21
12.	Bittmann (Bugatti) ...	8	17	16

As a matter of interest for those who are not familiar with the history of the event, previous winners of the Targa Florio have been as follows :—

LONG MADONIE CIRCUIT (One lap = 93.7 miles).

1906 Cagno (Itala), 281 miles in 9h. 32m. 22s.
1907 Nazzaro (Fiat), 281 miles in 8h. 17m. 36m.
1908 Trucco (Isotta-Fraschini), 281 miles in 7h. 49m. 26s.
1909 Ciuppa (S.P.A.), 93.7 miles in 2h. 43m. 19 2/5s.
1910 Cariolato (Franco), 187 miles in 6h. 20m. 27 1/5s.
1911 Ceirano (S.C.A.T.), 281 miles in 9h. 32m. 22s.

TOUR OF SICILY (656 miles).

1912 Snipe (S.C.A.T.), in 23h. 37m. 19 4/5s.
1913 Nazzaro (Nazzaro), in 19h. 18m. 40 1/5s.
1914 Ceirano (S.C.A.T.), in 16h. 51m. 31s.

SHORT MADONIE CIRCUIT (One lap = 67.5 miles).

1919 Boillot (Peugeot), 270 miles in 7h. 51m.
1920 Meregalli (Nazzaro), 270 miles in 8h. 27m. 33s.
1921 Masetti (Fiat), 270 miles in 7h. 25m. 5 2/5s.
1922 Masetti (Mercédès), 270 miles in 6h. 50m. 50s.
1923 Sivocci (Alfa-Romeo), 270 miles in 7h. 18m. 0 1/5s.
1924 Werner (Mercédès), 270 miles in 6h. 32m. 37s.
1925 Costantini (Bugatti), 337½ miles in 7h. 32m. 27s.
1926 Costantini (Bugatti), 337½ miles in 7h. 20m. 45s.
1927 Materassi (Bugatti), 337½ miles in 7h. 35m. 55 2/5s.
1928 Divo (Bugatti), 337½ miles in 7h. 20m. 53 3/5s.
1929 Divo (Bugatti), 337½ miles in 7h. 15m. 41s.
1930 Varzi (Alfa-Romeo), 337½ miles in 6h. 55m. 16 4/5s.

Thus Italy won every one of the nine events run before the war, while of the dozen races since France has won six, Italy four, and Germany two. It is a great pity that England has never won the race or made any determined effort to do so, although two Sunbeam racers did compete in the 1922 Florio Cup race over the same course. Bugatti of course is the most successful marque, with five wins to its credit, the next best being the S.C.A.T., of which the modern version is the Ceirano, which has won three times, while Fiat, Mercédès, Nazzaro and Alfa-Romeo have each scored two wins.

With regard to the winners of the early post-war races, it is interesting to note that Boillot's Peugeot was built for the 1914 Grand Prix des Voiturettes, and Meregalli's Nazzaro and Masetti's Fiat and Mercédès were all built for the 1914 Grand Prix. The tale of victory for old racers is completed this year by Varzi's win on his six year old Alfa-Romeo.

The average speeds of the winners in recent years are as follows :—

1919 Boillot, 34.394 m.p.h.
1920 Meregalli, 31.425 m.p.h.
1921 Masetti, 36.46 m.p.h.
1922 Masetti, 39.432 m.p.h.
1923 Sivocci, 36.986 m.p.h.
1924 Werner, 41.261 m.p.h.
1925 Costantini, 44.756 m.p.h.
1926 Costantini, 45.944 m.p.h.
1927 Materassi, 44.415 m.p.h.
1928 Divo, 45.919 m.p.h.
1929 Divo, 46.475 m.p.h.
1930 Varzi, 48.762 m.p.h.

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YOUR SECURITY IN EVERY EMERGENCY...



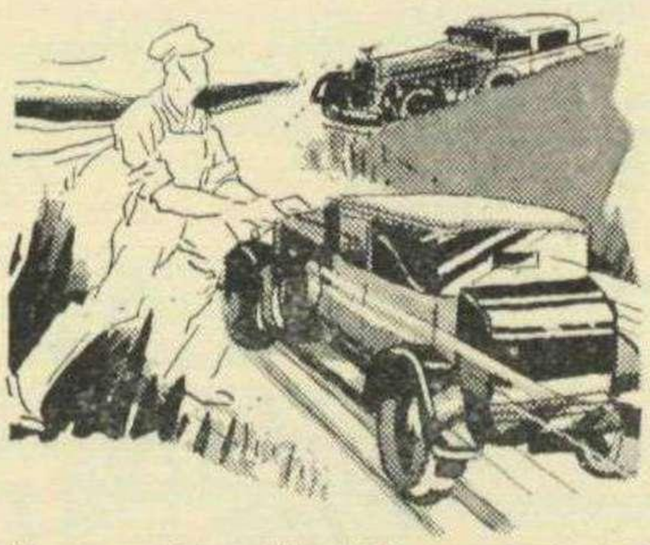
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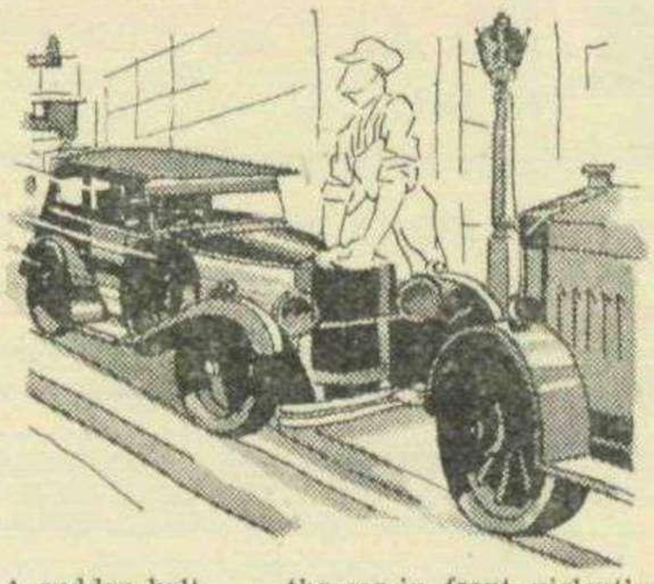
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THE ENTRIES FOR LE MANS

THE entry lists for the famous Grand Prix d'Endurance, to be run at le Mans on 21st and 22nd June, were definitely closed on 3rd May, with thirty-three entries.

In the final of the Sixth Biennial Rudge-Whitworth Cup there are three 6-cylinder Bentleys, a Lea Francis and a couple of Tractas. These cars are also entered for the Eighth Grand Prix d'Endurance and the eliminating test for the Seventh Rudge-Whitworth Cup, in which, of course, the entries are considerably more numerous. As well as the big Bentleys, there are H. R. S. Birkin's team of three 4½-litre supercharged cars, and the other large cars entered are Caracciola's Mercédes, and a team of four 4-litre Spanish Nacional Pescaras. These latter cars, which have ten cylinder in line engines are very interesting, but unfortunately it is almost certain that they will not be ready in time to start in the race. Parks also has entered a 5-litre car of which the make is not disclosed, while another "mystery" car has been entered by Brisson.

In the 2-litre class there are two Alfa-Romeos and two Talbots with the Scotsman-Sara and an M.G. the Alvis's which are entered having been withdrawn. In the 1500 c.c. class the Lea-Francis will be matched against a Bugatti, to be driven by two French lady amateurs, while the small cars consist of the Tractas, a B.N.C. and an M.G. Midget.

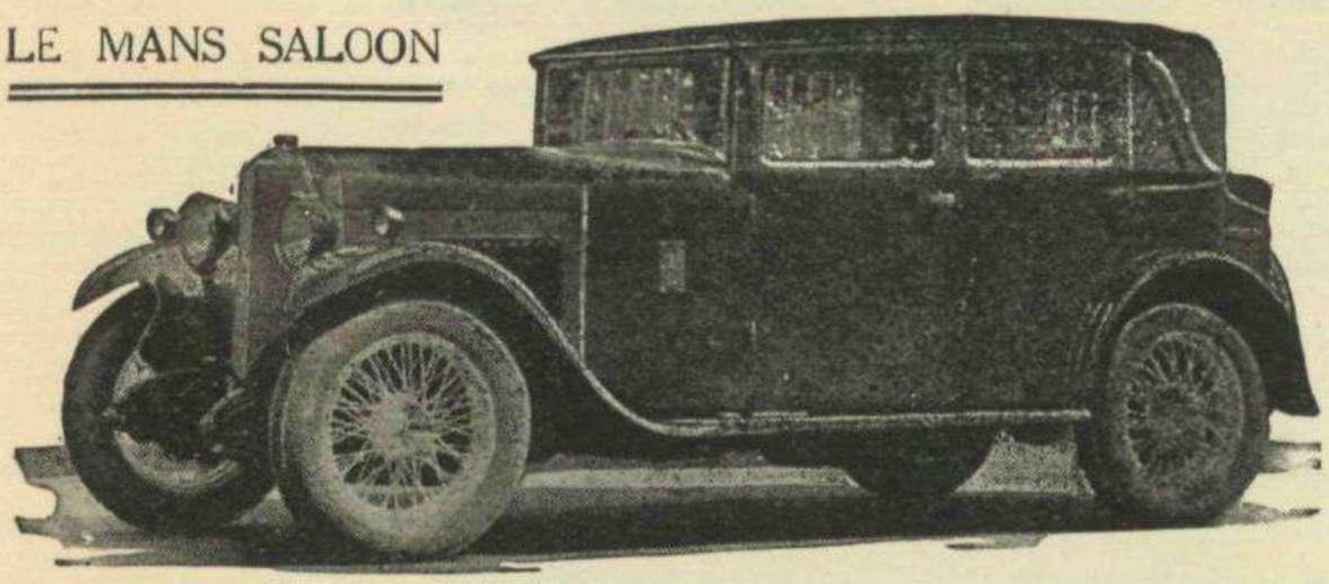
This entry list discloses the curious fact that the race, which is by way of being the classic French road race of the moment, has been entirely neglected by the home manufacturers. There are plenty of firms in France such as Lorraine-Dietrich, Delage, Bugatti, Voisin and the rest who have the sporting spirit all right, but who do not appear to be interested in the Grand Prix d'Endurance. The French usually set the fashion in motor racing, and it looks very much as if the swing of the pendulum had set in again, and that that country's manufacturers are again going to turn their attention to the real Grand Prix races. The rules governing these races for 1931 stipulate that cars shall have engines of under 5 litres capacity, unsupercharged except in the case of 2-strokes, and with a minimum weight varying with the capacity of the engine. This formula seems to be finding considerable favour, and we should not be surprised to see a recrudescence of interest in these races next year.

In the meantime the curious situation has arisen that in the Grand Prix d'Endurance this year there are entered 14 British cars, 4 Spanish, 2 Italian, 1 German and only 4 French, while the only real competition for the six Bentleys may be expected to come from the single Mercédes to be driven by Caracciola.

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THE GRAND PRIX OF ALGIERS.

Bugattis fill First Three Places.

Results of the final handicap :—

1. Etancelin (2,300 c.c. Bugatti) (4m. 20s.), 171.71 miles).
2. Lehoux (2,300 c.c. Bugatti) (scratch), 166.89 miles.
3. Dreyfus (2,300 c.c. Bugatti) (scratch), 165.77 miles.
4. Scaron (1,100 c.c. Amilcar), (17 minutes), 159.56 miles.
5. De Maleplane (2,000 c.c. Bugatti) (11 mins.), 158.50 miles.
6. Czaikowski (1,500 c.c. Bugatti), (13 mins.).
7. Hiercourt (1,500 c.c. Bugatti), (31 mins.).
8. Madame Itier (1,100 c.c. Rally), (44 mins.).
9. Avon (1,500 c.c. Bugatti), (12 minutes).

HOWEVER much one many deplore the lack of the sporting spirit in motoring elsewhere, no one can deny that North Africa is anything but lacking in this respect. Morocco and Oran have already run their Grands Prix, and now that of Algiers must be added to the list. The event for racing cars was run on 11th May, and consisted of an eliminating test, and a handicapped final, which were run over the Circuit of Staoueli, measuring four and a half miles to the lap. The cars had first of all to run for an hour, after which the first six in the 1,100 c.c. class and the first ten of the bigger class were eligible for the final. This consisted of a three hour event over the same course, the cars receiving a handicap based on the judgment of the organisers. This system was freely criticised before the race, and was stoutly defended on the grounds that it worked well enough at Brooklands, a defence which we must admit did not impress us greatly.

The event attracted in all twenty-four entries. In the 1100 c.c. class seven Amilcars were matched against a couple of Rallys, one of which was driven by Madame Itier, and a Salmson. The larger class, as seems usually to be the case nowadays, consisted almost entirely of Bugattis of the 1500 c.c., 2-litre and 2,300 c.c. types, the only other car entered being a 1500 c.c. supercharged Bucciali. Incidentally every car entered was supercharged with the exception of a Bugatti driven by Sciry.

The day of the race was gloriously fine, and the proceedings started with the eliminating test for the 1100 c.c. class. This event terminated in a win for Dupont, the fierce but effective driver of an Amilcar, who had to contend with a broken front wheel after missing a bend, but who managed to cover 74.35 miles in the hour. Second place looked for long as if it would fall to Scaron, also on an Amilcar, but he was held back with plug trouble, and it was finally captured by Marret on the Salmson. The others in this class finished in the following order : Mamur (Amilcar), Scaron (Amilcar), and Madame Itier (Rally).

The eliminating test for the bigger cars proved more exciting, and soon developed into a terrific duel between Dreyfus and Lehoux, both on 2,300 c.c. Bugattis, while close behind them came Etancelin, also on a car of the same type, in spite of the fact that he was handicapped by a broken rib, which he got in the Grand Prix of Oran. Lehoux covered a lap in 3 minutes 16 seconds, but Dreyfus proceeded to clip a second off this record, and finally covered 80.4 miles in the hour, one mile more than his rival. The others in this class finished in this order :— Etancelin (2300 c.c.), de Maleplane (2-litre), Czaikowski (1500 c.c.), Doré (1500 c.c.), Avon (1500 c.c.), Hiercourt (1500 c.c.), Zehender (2000 c.c.), Pisella (Bucciali) and the Baroness Elern (2000 c.c. Bugatti).

As a result of his hard driving in the eliminating test, Dreyfus found on finishing that his car had suffered a cracked water jacket. There remained however three hours before the final, and nothing daunted therefore, Dreyfus proceeded to change his cylinder block during the interval. Unfortunately the start of the final was marred by a fatal accident to the Baroness Elern. She had just started, and had hardly attained maximum speed when while passing another competitor, her car got into the ditch, hit a telegraph pole and the unfortunate driver was killed.

In the meantime Madame Itier had gained the lead on her Rally, which however she lost after turning round completely twice on corners. Michel Doré then proceeded to take the lead until he was put out by a broken valve. Meanwhile Lehoux and Dreyfus were enjoying a magnificent dog-fight, the two cars often racing neck and neck, until a flying stone broke Dreyfus' goggles, and delayed him for about a minute. Etancelin however was also going great guns, and at the end of the three hours he had covered the greatest distance, having had 4 minutes 20 seconds start on Lehoux and Dreyfus who finished behind him in that order.

By his victory in this event Dreyfus secured for Bugatti the permanent possession of the Repusseau cup. This trophy was competed for last year in the Bungundian Grand Prix, and was won by Bugatti. The rules for the cup state that it is to become the permanent possession of any manufacturer whose cars win it two years running, and Etancelin's victory thus assured it for good to Bugatti.

J.C.C. DOUBLE TWELVE

AGAIN

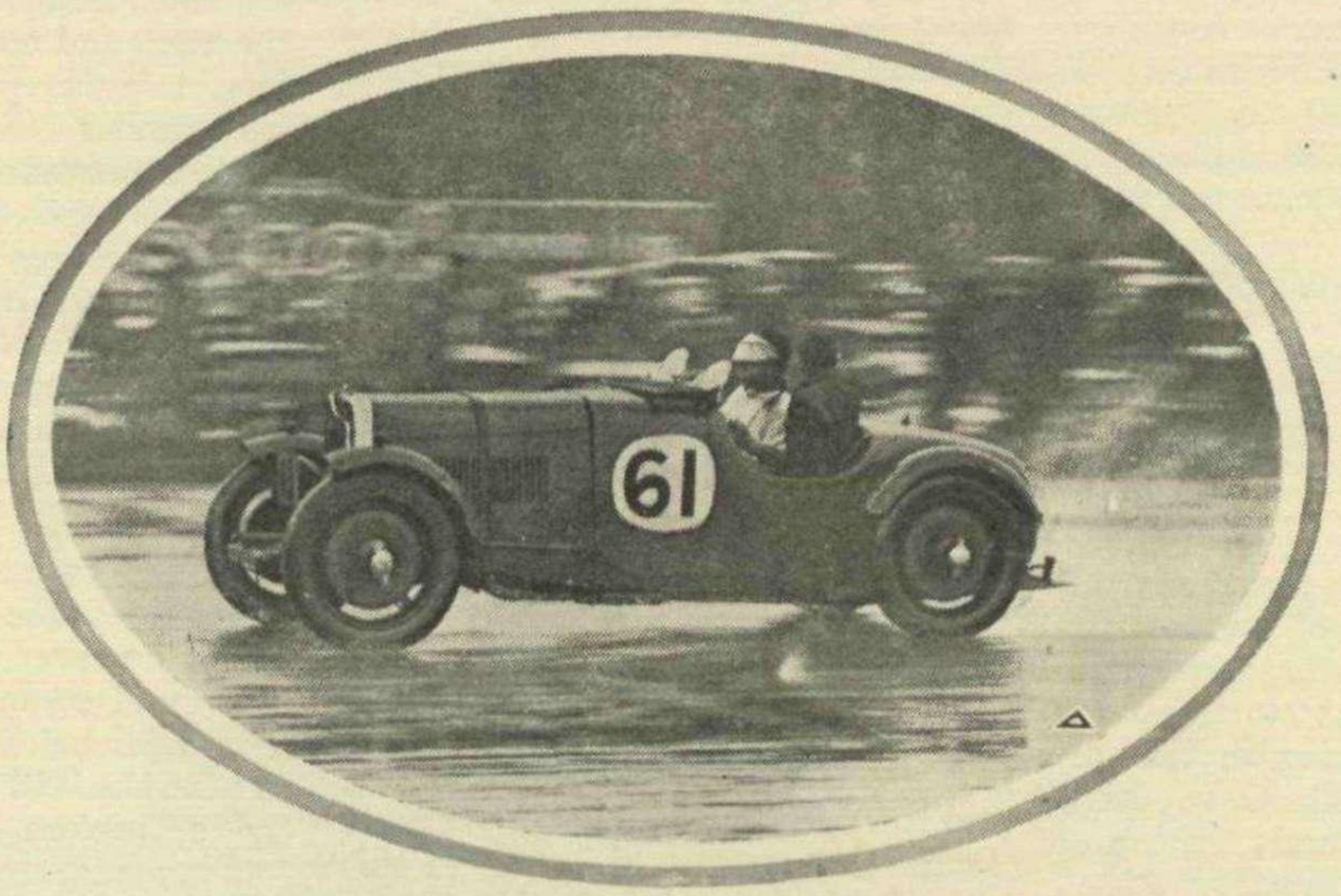
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A THOROUGHBRED WITH A HISTORY

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"RACING Improves the Breed." This is a very old saying, but like many such is an extremely true one, and it would be hard to find any case in which it applied more strongly, or in which the results were more evident, than in the case of the Aston Martin car. The majority of motorists have long been aware of the good qualities and fine workmanship which have always characterised this product, and its merit has now been brought into well deserved and fuller notice by the outstanding success of this make in the Double Twelve hour race of last month.

In this race Mr. A. C. Bertelli, the designer, driving in turn with Mr. Holder, after a trouble free run for the whole distance, finished fourth in the general classification of the race. At the end of the race the car, which had been going faster in the later stages than at the beginning, finished in perfect condition. Such results are not achieved without wide knowledge and careful preparation, and their success is mainly due to Mr. Bertelli's great experience of motorcar engineering, and to his ability as a designer. It is indeed rare that one finds a designer with sufficient grasp of his subject to be able to follow the construction of his car from the drawing board, through all the stages of experiment and manufacture, until he finally drives it to success in an important event; and when one finds such a man, his products are bound to be something to reckon with in competitions.

Sometimes one finds that manufacturers, in producing a sports model, skimp matters in regard to equipment, fittings and subsidiaries either on the score of economy or, one assumes, because their concentration does not extend to further than the main units—the engine and transmission—of their car. No such ill-advised methods can be traced in the Aston Martin, and the *tout ensemble,* from the raw material used to the smallest auxiliary incorporated, is of the highest grade. This policy is the direct outcome of years of intensive experience in racing which can alone show up latent weakness in any part or component.

In the light of the recent performance of the Aston Martins it is interesting to trace its history and the various trials through which it has gone to achieve its present standard. The first appearance of this make in an important race was when one Aston Martin, manufactured by Mr. Lionel Martin, and driven by the late

Continued on page 49.

The J.C.C. Double-Twelve Hours Race

The ASTON-MARTIN

driven by Messrs. A. C. Bertelli and N. Holder which covered 1770.28 miles, averaging 73.76 m.p.h., finishing **FOURTH in Race and SECOND in Class F,** was lubricated with

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was also used by the FIRST, SECOND and THIRD in the 750 c.c. Class, the FIRST in 1,100 c.c. Class, the THIRD in Race, and by the Winner of the AUTOCAR Trophy for best performance on a price basis.

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Also on the Bentley driven by Mr. H. R. S. Birkin which recently broke the Brooklands Lap Record at 135·33 m.p.h.

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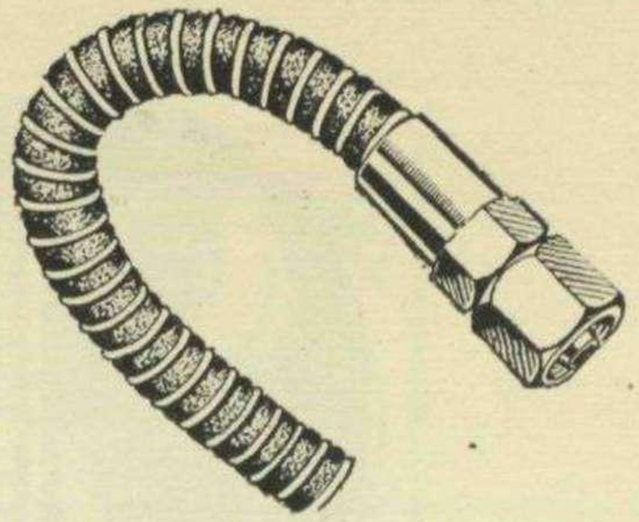
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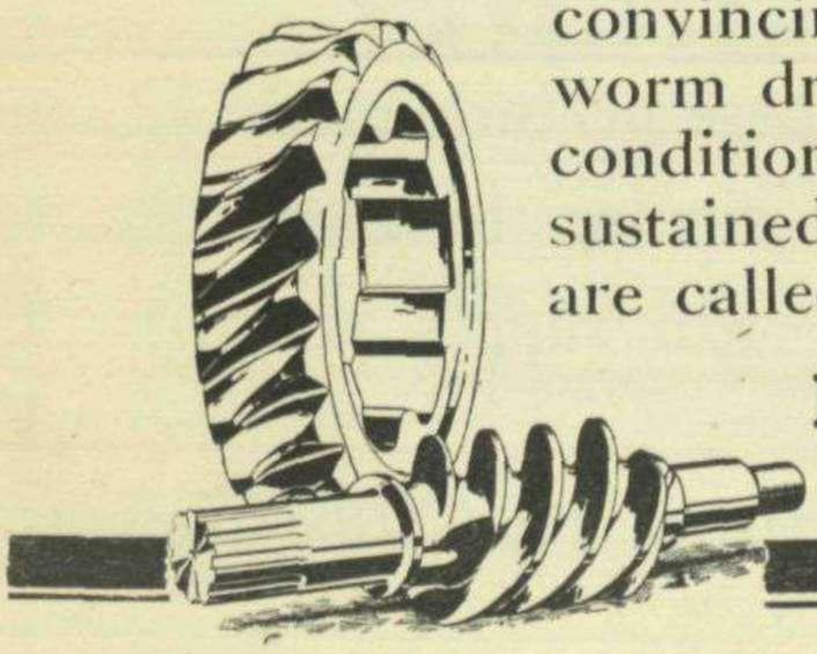
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A THOROUGHBRED WITH A HISTORY—continued *from page 45.*

Mr. B. S. Marshall in 1921 finished sixth in the Grand Prix des Voiturettes at Le Mans. The same year saw four Aston Martins entered in the first 200 mile race, and their experience in this race enabled them next year to set up records in the light car class for 800 and 1,200 miles and 12 hours, driven in turn by Clive Gallop, H. Kensington Moir, and S. C. H. Davis. Next year's 200 miles race again saw Aston Martin among the entry with Zborowski and R. Kensington-Moir as their drivers and then when George Stead on the old Aston Martin "Bunny," which was a side valve machine, and which in spite of its age ran perfectly regularly and eventually finished second at 86.33 m.p.h. against a field of specially built cars of that year.



A. C. Bertelli in the car in which he finished 4th in the Double Twelve.

The same year two Aston Martins were entered for the Grand Prix de Penya Rhin and Zborowski drove a fine race and brought his car home second at 63 m.p.h. In 1923 the Grand Prix of Boulogne again showed them formidable competitors, and running with perfect regularity for the whole of the distance, R. C. Morgan and G. E. T. Eyston finished 2nd and 3rd respectively. In August of this year a slightly modified car with a narrow chassis with no differential was prepared for records, and in the hands of F. B. Halford annexed the half-mile, kilometre and mile records at 62.8, 66.5 and 74.12 m.p.h. The next 200 mile race gave another example of Aston Martin reliability and Eyston, Morgan, and Hall finished fourth, sixth and ninth, and were the only complete team to finish the race.

At the same time as the 200 mile race, Zborowski took a car to Spain for the Penya Rhin race and after a great struggle with Dario Resta on one of the famous Darracqs, eventually finished in front of him and gained second place. The same driver followed this by finishing third in competition with the formidable Darracqs in the race for 1500 c.c. cars on the Sitges track.

After this Aston Martin did not appear so much in the big races as they were going through a period of modification and re-organisation of their concern, and it was not until the appearance of the present car, designed by Mr. Bertelli that they have really come into their own, and the manner in which they have done so shows that his ability, supporting the traditions of this make in the past, has enabled them to overshadow their old succeses with those of the present, giving proof, if proof were needed, of the truth of the opening words of this article.

J.C.C. "DOUBLE 12"

THE ASTON MARTIN

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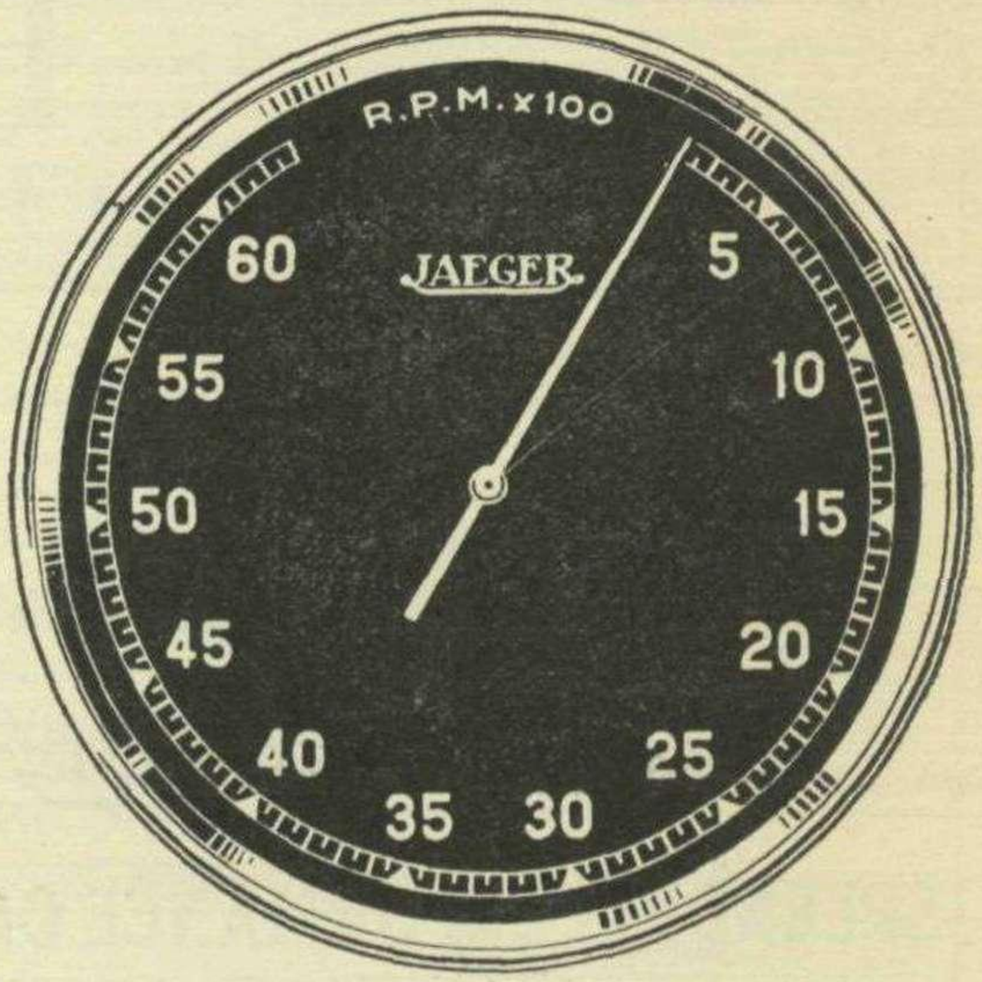
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Last year Aston Martin's tried the Bishop gear in the "Double Twelve" race and were so satisfied with the result that they adopted it as standard, and in this year's "Double Twelve" race all their cars were fitted with it, and although not supercharged, they came in fourth in the whole field (including much more powerful cars), and were second in Class F., being beaten only by a supercharged car.

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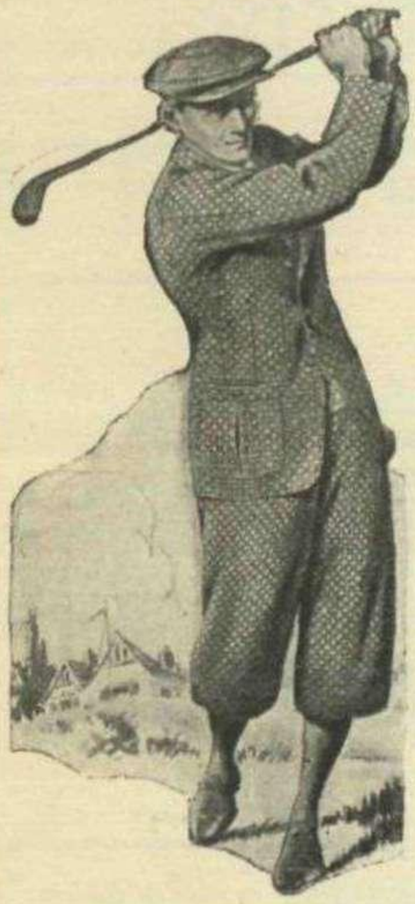


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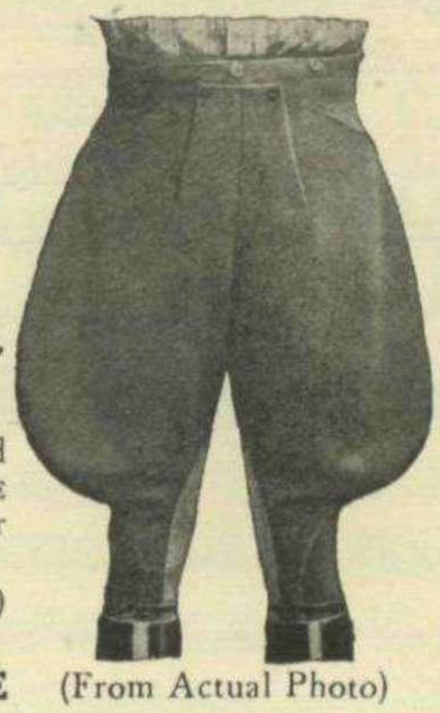
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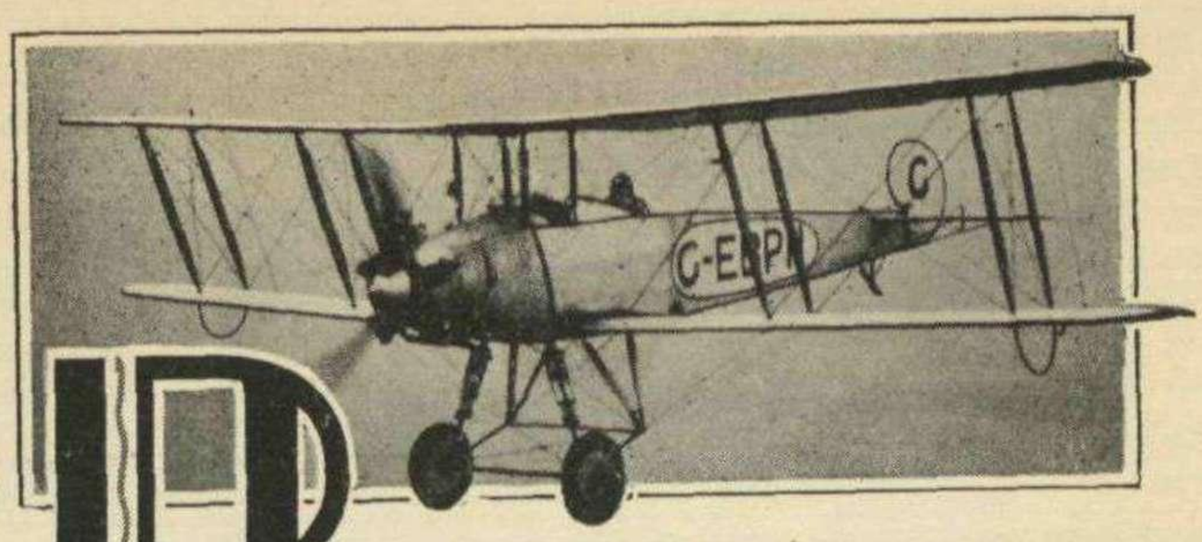


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AIR

A New Trainer.

The D.W.2 with Cirrus Mark III. Engine.

A DISTINCT breakaway from the conventional is represented in the D.W.2., a new light two-seater biplane constructed by the D.W. Aircraft Co. of Weybridge, Surrey. Primarily evolved as a training machine it has been designed by Captain K. N. Pearson, M.C., A.F.R.Ae.S., to the ideas of Captain Neville Stack.

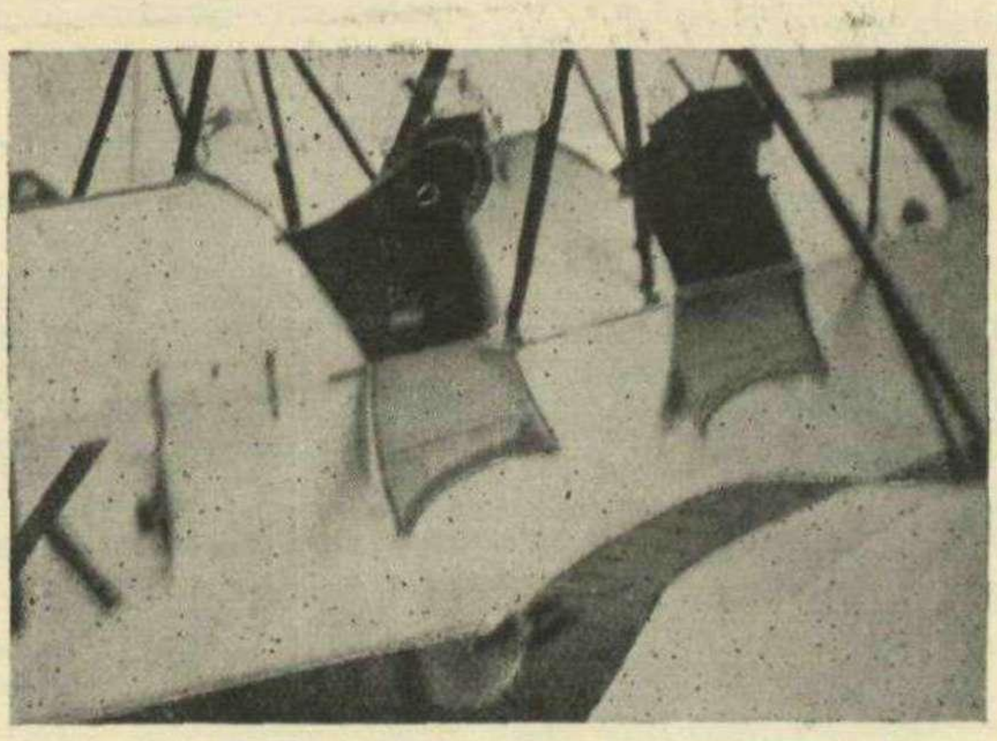
The qualities which have been aimed at in the D.W.2 are a quick take-off combined with a high degree of manœuvreability in the air and a really low landing speed, features which are essential to an aeroplane used principally for training purposes.

This has called for a low wing loading and the first thing that strikes one on inspecting this new machine is the rather exceptional span of the main plane which is 38 feet. It is also unusual in having a Warren girder system of interplane bracing, which is not often seen in this country although popular in the U.S.A. The advantage of this arrangement is obvious in that no truing up is necessary as with a wire-braced biplane, and as the machine has folding wings the use of jury struts when the wings are folded back is obviated.

The wings are of wood with an orthodox system of construction, the spars being spindled spruce with wire cross bracing and ply and spruce form and compression ribs. The fuselage is also of wood and is built up in semi-monocoque fashion with spruce longerons and struts, stiffened with three-ply gussets and covered mainly with ply wood. The frontal area of the fuselage is small even for a light plane, but, on sitting in the machine one found that this has not been acquired at the expense of general roominess of the cockpits which are quite snug and free from draughts. The two cockpits are unusually close together and one was interested to discover that conversation could be carried on between pilot and passenger with very little difficulty without the use of speaking tubes.

Another good point is that, owing to the position of the C. of G., the machine can be flown solo from the front seat without the use of ballast. The cutting away of the trailing edge of the centre section and the lower wing roots gives a visibility both above and below which is very good. The chord of the top plane is 6 feet and that of the bottom is 4 feet 9 inches and ailerons are fitted only to the top planes. The empennage is of the usual type and the rudder is partially balanced and blends well with the general outline of the fin. The tailplane is braced above and below with streamlined wires.

The engine fitted to the D.W.2, is a Cirrus Mark III. and the whole unit has been carefully cowled so as to minimise drag to the utmost, and the appearance of the nose is very neat. The petrol tank is situated in the centre section, feed to the carburettor, being of course, by gravity. The undercarriage, which is of the axleless type, has the exceptionally wide track of 7 feet. The shock absorbing units consist of rubber rings in compression, enclosed in metal sleeves, and the tail skid, which is fixed, is damped by rubber rings in tension. A feature of the D.W.2 which is not found on a good many light planes is that access to both the front and back cockpits does not call for any awkward contortions on the part of the occupant, the incorporation of hinged decking round the top making for ease of entry and exit. Dual control, of course, is fitted,



The hinged fairing and position of the centre section struts make access to both cockpits an easy matter.

A NEW TRAINER—continued.

and the stick, rudderbar and engine controls are placed so as to give a very comfortable position. At the moment of writing, the D.W.2 is passing through its preliminary tests and so far it has shown up extremely well; it has no peculiar vices and one highly desirable quality is that it refuses to spin even when completely stalled and recovers flying speed in a remarkably short time. Its top speed is in the neighbourhood of 85½ m.p.h., and its landing speed is about 30 m.p.h., and though it is a very safe and comfortable machine to fly, it is quite capable of being stunted. Altogether the D.W.2 appears to be not only an excellent machine for training purposes but equally so as a private owners' plane.



Though somewhat unusual in design, the D.W.2. has a pleasing and thoroughly workmanlike appearance.

The following are the dimensions and principle data of the D.W.2. :—

Span, top wing	38ft.
,, , bottom wing ...	32ft.
Length	24·6ft.
Height	9ft.
Weight (empty)	990 lbs.
,, (fully loaded) ...	1,500 lbs.
H.P. loading	15·8 lbs. per h.p.
Wing loading	4·6 lbs. per sq. ft.
Wing area	340 sq. ft.

Coincident with the production of this interesting craft, the D.W. Aircraft Co is undergoing re-organisation and they have removed to an aerodrome at Ford, near Bognor Regis. It is the intention of Mr. Dudley Watt, principal of the Company to establish a school there and training will be carried out exclusively with, D. W.2's as soon as they have been built in sufficient numbers; in the meantime, training is being carried on with Moths. There will be a staff of some five instructors under the leadership of F./O. W. A. Rollason, and the standard of training will be of a very high order. In addition to flying instruction, the Company has made plans to undertake aero repairs and overhauls of every description, and as they have two large permanent hangars they can offer visiting pilots excellent accommodation for machines.

Another branch of their business will be joy-riding and for this purpose they will have several Avro 504's in commission at numerous holiday resorts during the coming months. It is also understood that a gliding club may make Ford Aerodrome its headquarters so that it seems likely that the D.W. Company's new home may shortly become one of the busiest and most interesting aviation centres in the country.

G. G. O. M.

A FLYING BRANCH FOR B.A.R.C.

A SCHEME has been lately drawn up by the Brooklands Automobile Racing Club for the formation of an associated flying club through which members will have the use of machines at a low rate of hire.

Membership with these flying facilities will be confined to people with "A" or "B" licenses only and it is stipulated that pilots, when joining, shall undergo an examination flight with an instructor from the Brooklands School of Flying. A new metal, H.P.-slotted "Moth" has already been acquired for the club, and this will be available for solo flying at £2 per hour. In addition to flying membership, admission will be open to associate members who will be allowed full use of B.A.R.C. premises, the aerodrome clubhouse and bar; this membership is for the convenience of those who are in the habit of visiting the track by air, and it should be noted that there will be no landing fee.

The annual subscriptions will be as follow :—

For existing B.A.R.C. members—£1 1s. no entrance fee. Full membership with flying facilities—Subscription £6 6s., entrance fee £5 5s., or subscription £7 7s., and no entrance fee. Flying members—Subscription £4 4s., entrance fee £3 3s. Associate members £1 1s., entrance fee 5s. Subscriptions will date from January to December.

All those interested in the project are invited to communicate with Mr. A. Percy Bradley, the Clerk of the Course, in the first place, and if sufficient support is forthcoming the Club will immediately commence operations with Mr. C. S. Burney as secretary.



SLIPSTREAMS

Continental Touring.

THE collective tour by air which was carried out by private owners from Heston aerodrome some little time ago, was quite a unique event in the history of private flying and goes to show to a considerable extent the degree of development which private aviation has now reached. Altogether twenty machines took part in the tour and the majority carried passengers. No untoward event occurred and on their return all were enthusiastic about the venture. This tour, which was the outcome of a casual suggestion, is likely to be repeated, and as an indication of the growth of aerial continental touring, it is interesting to find that the Royal Aero Club have now opened a touring department for members. This department will supply all information necessary or likely to be of use in any contemplated flight or tour, and assistance is available as to air routes, aerodromes or landing-grounds, prohibited areas and air corridors. The Royal Aero Club, as the sole authority recognised in this country by the Fédération Aeronautique Intérnationale, issues Customs Carnets together with the necessary Customs forms. The Carnet, of course, enables the holder to travel without having to make payment for Customs dues on aircraft on arriving in a foreign counry. The charge for the Carnet is by no means excessive ; to members of the Royal Aero Club and associated light plane clubs it is £1 5s. for aircraft not exceeding £1,000 in value and £1 11s. 6d. for aircraft valued at over £1,000. An additional guinea is charged to non-members. The inauguration of this special department of the Royal Aero Club is an excellent move and one which will undoubtedly be availed of by private owners. Full details may be obtained from the Royal Aero Club, 3, Clifford Street, London, W.1.

The " Tailless " Type.

Like the front wheel drive in the motor world, the " tailless " type of aeroplane constantly attracts designers, and periodically one finds experiments being carried out with machines of this type. The most remarkable effort of recent years was, of course, Captain Hill's " Pterodactyl." This machine is still being experimented with by the Westland Co. and before very long one may expect a rather startling second edition. Another tailless aeroplane which is now under construction is the Halton " Meteor," which has been designed by Captain Latimer Needham. The " Meteor " is interesting in being a machine planned primarily for use in races and competitions. It is a single-seater and has two " Cherub " engines, one acting as a pusher and the other as a tractor. The wing span is 43ft. 10ins. and, as in most tailless machines, it has a pronounced sweep-back and the chord varies from 7ft. at the wing-roots to 1ft. 9ins. at the tips. It is wire braced and along the leading edge of the wing are pilot planes which are intended to work in the same way as the Handley Page slot. The under-carriage is reminiscent of the old R.E.P. machine of pre-war days in that the wheels are placed in tandem, and in order to make the machine manœuvreable when on the ground the front wheel is made steerable. I am told that the work of building the " Meteor " has been held up from time to time for various reasons but it is hoped that it will shortly be completed and if its performance approaches that estimated, with a speed range of 25-120 m.p.h., it will certainly be one of the most astonishing light planes we have, so far, seen in this country.

Two-Stroke Engines.

Because, for many years, it has been generally accepted that the thermal efficiency of a two-stroke engine of large capacity is far inferior to that of the four-stroke, very little has been done towards the development of the former type. The excellent performances however, both in regard to power output and stamina, of the modern two-stroke motorcycle engine serve as a clear indication that the small valveless engine has now reached a high degree of efficiency, and in view of this fact there would seem little reason for not adopting the two-stroke principle in power units suitable for the smaller class of light plane. Discussing the matter recently with an engine designer, I was interested to find that his views were that before very long a two cylinder two-stroke aero engine will be produced and it was his opinion that owing to its simplicity and consequent low cost of manufacture such an engine may well prove to be the key to really cheap aircraft in the future.

The King's Cup.

Particulars have now been issued regarding the King's Cup Race which will take place on July 5th. The race will start and finish at Hanworth aerodrome and the course will be to Hamble (which will be a turning point), then to Bristol, Castle-Bromwich, Hooton Park, Manchester, Woodford, Sherburne, Newcastle, Hull, Leicester and back to Hanworth. It is interesting to note that a regulation has been introduced which specifies that the race is open only to *bona fide* civil aircraft, that is to say machines which have been originally designed for use in civil aviation only, so that presumably service types will be barred. The entry fee for the King's Cup is £5 and the closing date for entries is Friday, June 6th.

" RUDDERBAR."

A £17 MONOPLANE

AN INTERESTING ATTEMPT AT HOME CONSTRUCTION



AN intense desire to own some sort of aircraft, and the fact that the means at my disposal completely precluded any possibility of purchasing a machine were the two forces which made me decide to do what many people considered foolhardy,—to build a plane myself. I will not pretend that the machine which has now materialised is an absolutely first class job or that it complies in every way with the modern standards of aircraft design, but that it flies and handles quite well, and that its construction entailed a modest expenditure of £17 is, I think, sufficient to give me no regrets that I set myself something which, from the outset, was regarded by others with doubts and disapproval.

On the score of simplicity I decided that the machine I was to build should be a monoplane, and, since I was not able to work out the involved stress calculations necessary for a full cantilever design, I planned a strut-braced high-wing arrangement. At the time when I was about to embark on the task, a large quantity of obsolete aircraft parts were for sale at a local depot. This made me consider the possibility of obtaining a wing about the right size, from a proper machine, in preference to making one. On making enquiries I learnt that there were Sopwith "Snipe" wings to be had, and the size was just what was wanted. Thereupon I fetched about a dozen wings and ailerons, two centre sections, two rudders, two elevators and a tail-plane, all "Snipe" and free of charge. After carefully examining the wings I selected a top pair and centre section, these being 30′ 10″ span by 5′. The remaining wings were broken up for the strainers, bolts and Rafwires, etc.

The fuselage was the next item, and two methods of construction presented themselves, one, cross-wire bracing, like a 504K Avro, and the other, longerons and struts covered with three-ply, as in the "Moth." The former was chosen for several reasons, one of them being there was a plentiful supply of wire and strainers on hand out of the wings which were broken up, whereas with the latter type the plywood would have to be bought. Also, trammelling is easier and quicker than making jigs. I might mention here that no stress calculations were made at all and my method of arriving at the sizes of the parts required was this; I measured the sizes on various machines and added a little.

The four longerons were spruce from a D.H.10, and were 16′ 0″ long by 1¼″ square, tapering to 1″ square. These were cut down to 1¼″ by ⅞″ one end to 1″ by ⅞″ the other. A further 3″ was spliced on the smaller end giving 19′ overall. The inter-longeron struts were ¾″ square of spruce.

With these parts I built up a fuselage rectangular in section, 2′ 6″ deep by 2′ 3″ wide, at the maximum part, the pilot's cockpit, situated 5′ from the front and tapering to a vertical knife edge 1′ high at the rear, and to a rectangular engine bearer at the front. The top longeron, side elevation, was horizontal from front to rear to avoid setting up a datum line for trammelling. The nose, as far as the pilot's cockpit, was covered with glued and screwed plywood and had cross wire bracing to strengthen it up. The end 3′ of the tail was formed with glued and screwed 3 ply. The engine bearer consisted of a rectangular frame 2′ 6″ by 1′ 6″ made from 1½″ by 1½″ steel angle.

The question of a power unit presented certain difficulties since I required one of medium h.p., low-weight and, of necessity, low cost. After much investigation, however, a 45 h.p. 6 cylinder Anzani was secured for £4,

A £17 MONOPLANE—continued.

but it had no magneto, no carburettor, and no airscrew. A magneto was obtained easily and a carburettor, which at one time had done duty on an Armstrong-Siddeley car was unearthed, and adapted for use on the engine. The propeller left me in a quandary, until by chance, I found in a shed at Brooklands a Gnome which had served at one time on a 1912 Short tractor biplane. Having paid the small sum of 1s. for this propeller, I brought it home and experimented by lopping the blades. The engine was mounted on a test frame and started up, I having first cut 12ins. from each propeller blade. I was sure the carburation was practically right because Messrs. Zenith kindly advised me as to the choke and jet sizes necessary. 950 revs. per minute were all I could coax out of her, so a further 8in. was cut off each blade; the propeller was now 6′ 6″ diam., and looking very funny with its square tips. After experimenting with carburation, the revs. crept up to 1300, and, as the normal speed was 1400 I assumed that if the blades were cut to a reasonable shape this would give the extra revs., which it did.

The power plant was next bolted to a circular plate, which, in turn was bolted to the angle iron fuselage front. A tubular strut took the overhanging weight, and two short bracing wires held it at bottom. On running it up it wobbled terribly through the plate being too flimsy. This was substituted by a $\frac{1}{4}$″ plate and everything was then splendidly rigid.

The undercarriage V came off a Sopwith "Camel," and though rather heavy, it was extremely strong. It was fitted to the fuselage with fish plates. A false longeron was placed underneath the main longerons to strengthen them, as the internal bracing did not distribute the load properly. Elastic shock absorbers were used. Stirrup bolts running from top to bottom of the fuselage held the tail plane on to a positive incidence of 1 degree, and the rudder post was simply a piece of steel tube bolted to the end of the fuselage. A leaf from a car spring formed the tail skid.

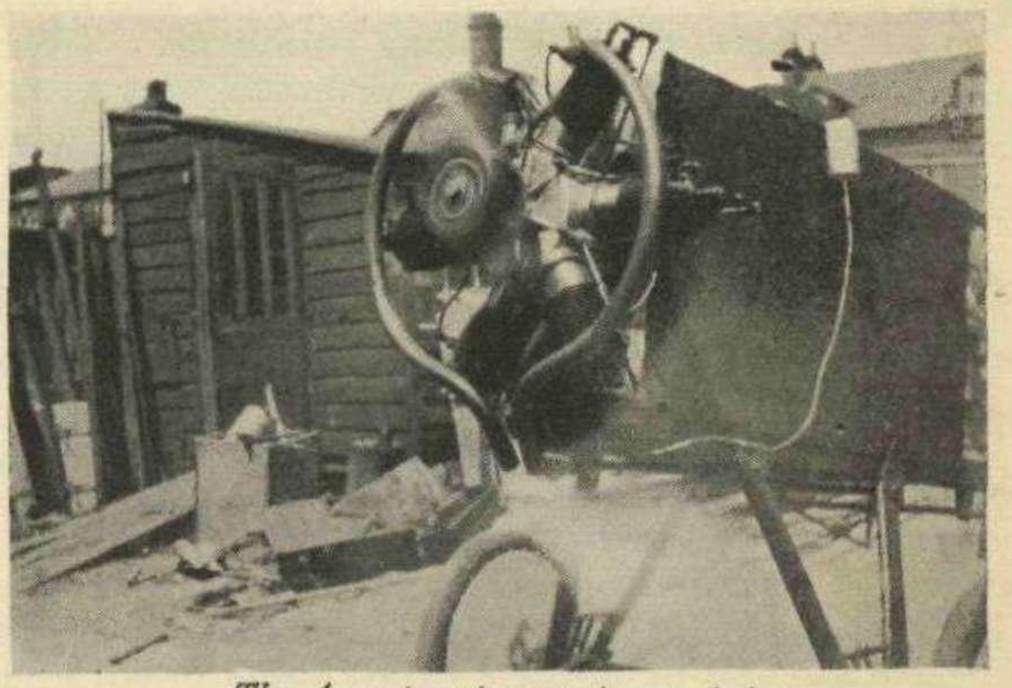
Fabric for covering the wings and fuselage was obtained, and sewn on in the approved manner and a "joy-riding" firm supplied the dope.

At this juncture in the production of my hybrid craft, I was fortunate in obtaining the help of a pilot friend of mine, Mr. J. S. Tanner.

Now came the task of finding the centre of gravity. This was done by balancing the fuselage (with someone in the pilot's seat) across a pole. The centre of pressure was next discussed. In one of the text books we had on the subject was a graph showing the relative position in terms of chord length at various angles of incidence. Having decided on 4 degrees incidence, the centre section was mounted accordingly on four stout spruce struts fixed to the longerons by $\frac{1}{8}$″ plates and braced with Rafwire.

A friendly farmer lent us a field to which we took the machine for fitting the wings. Each has two outer and two inner strut sockets and wiring bars, and to each outer one an oval steel tube was fitted; to each inner one, a cable. The strut and wire attachment underneath the fuselage consists of $1\frac{1}{4}$″ by $\frac{1}{8}$″ steel strip sandwiched between two pieces of $1\frac{1}{4}$″ by $\frac{3}{8}$″ ash, with the wires running to the steel strip; the struts are flattened at their ends, and the whole bolted up together. Two drift wires were fitted, running from the engine plate to the tops of the rear struts to get a large angle. Two more drift wires were taken from the engine plate to the front of the centre section to assist the side panel cross bracing. An Avro centre section tank was fitted, of 4 gallons capacity.

The joystick spent its early days in an Avro, and is connected to the elevator via a countershaft and crossed wires. The ailerons are cable operated.



The Anzani engine running on test.

After a careful examination of everything, the machine was taxied fast up and down the field and found to answer her controls effectively. My friend then entered the cockpit, taxied into position, opened out and did a straight of about 300 yards some 10 feet off the ground. After two more straights, circuits were flown, and up to the time of storing for the winter some $3\frac{1}{2}$ hours were flown, and nothing at all showed signs of stress.

The following are brief particulars:—

Span 30′ 10″. Chord 5′ 0″. Length overall 22′ 0″. Weight 800 lbs. Wing loading $5\frac{1}{3}$ lbs. per square foot. Power loading $17\frac{3}{4}$ lbs. per horse power. Stalling speed, according to pilot, 33 m.p.h.

The cost was approximately as follows:—

Wings and empennage	Nil.		
Engine	£4	0	0
Magneto	1	0	0
Carburetter	0	10	0
Propeller	0	1	0
Fabric and dope	6	15	0
Petrol tank	0	4	0
Wheels, axle and discs	1	0	0
Undercarriage V	0	5	0
Rev. counter	1	2	6
Air speed indicator	0	10	6
Oil gauge	0	4	0
Bolts, steel plate, etc.	1	10	0
	£17	2	0

Steel tubing, struts and fuselage bracing wire came out of the spare wings.

I would like to say how well my friend, Mr. J. S. Tanner flew the machine, especially as he had not flown for some months and that the machine was untried. Some of his banks were nearly vertical. Without him the machine would still be untried as I have only recently gone solo.

S. L. BUCKLE.

Gliding Gossip and News

UPON the invitation made by the B.G.A., Herr Robert Kronfeld has now arrived in this country with his record-breaking sailplane, "Wien." Herr Kronfeld is, of course, world-famous as one of the finest sailplane pilots, his two outstanding performances being a climb to 7,000 feet and a cross-country flight of 89 miles.

During the next few days he will visit various areas in England and, as soon as arrangements are completed in regard to launching grounds, he will make a series of exhibition flights.

There is no doubt that his demonstration will attract a great deal of attention and will considerably increase public interest in gliding, particularly as it will be the first time that soaring will have been witnessed here. His expert opinion on the possibilities offered by the sites selected will also be of the greatest value to our gliding clubs in the future. Herr Kronfeld is expected to remain here for several weeks.

CERTAIN difficulties having arisen in regard to the tenancy of their gliding ground at Albury, the London Gliding Club has now removed to a new site, some three miles distant, at the Beacon, Invinghoe, and pending the completion of negotiations for the erection of a hangar, the club's gliders are being temporarily housed there in a marquee.

At a meeting held last month it was decided that a "Prufling" machine should be purchased and that members should be charged for instruction. New rates of subscription have been introduced also; these are:—flying members, £3 3s. subscription and 10s. 6d. entry fee; associate members £1 1s., no entry fee. The club's membership is still increasing and instruction is being steadily maintained at week-ends.

A GLIDING group which has been operating for some time near Waddington, Lincolnshire, is now to be formed into a club, and affiliated to the British Gliding Association. The activities of the group have been mainly directed by Mr. F. L. H. Searl who designed and supervised the construction of a Zogling type of craft with which 147 successful flights have, so far, been made. The members of this go-ahead group are now busy building a machine of the Schulf type and it is anticipated that it will be in the air during the next few weeks.

THE Model Aircraft Club intends to form a full-size glider section, if support from members and others is forthcoming. Those desirous of helping in its inauguration are invited to write to Mr. John Welding, of 404a, King's Road, Chelsea, S.W.5, who has undertaken the organisation.

FOLLOWING the offer made recently by Mr. Wallace Barr of a prize of £1,000 for the first cross-Channel flight made on a British sailplane, a number of designs have been put in hand and it seems likely that there will be no lack of entrants for the contest.

MEMBERS of the gliding branch of the Lancashire Aero Club have been putting in a lot of time with their "Prufling" during the past month. They have been flying the machine at Woodford Aerodrome and in a series of experimental level ground launches, flights were achieved of up to 50 feet in height, 240 yards distance and 22 seconds duration.

Negotiations are now in progress for a suitable gliding site in the Cheshire Hills, and it is hoped that members will soon be able to take their "A" and "B" glider pilot's licences and make soaring flights, if the area proves satisfactory.

It is interesting to recall that when the Lancashire Club was originally formed in 1924, the organisers started first of all with a glider constructed from Avro 504 parts. This machine was known as the L.P.W., and, towed behind a motor car, it made several successful flights at the Old Alexandra Park Aerodrome, Manchester. Ultimately it was crashed, but was rebuilt and fitted with a 7 h.p. Douglas motor cycle engine which had done service in a Parnall "Pixie" light-plane in the Lympne Competitions in 1923.

A CHEAPER "MOTH."

FOR the past few months the consistent demand for the D.H. "Moth" has necessitated its being turned out in ever-increasing weekly numbers, and at the present time the scale reached approaches mass production.

As a result of this, and by giving the closest attention to every detail of their manufacturing methods, and by adhering to a rigid system of standardization, the De Havilland Company have been able to lower the price of their machine from £675 to £595. This £80 reduction has been made simultaneously with the addition of a number of improvements to the standard equipment of the "Moth," which include parachute type seats, a more commodious luggage locker and a telephone system between pilot and passenger.

Optional equipment can be supplied at an extra cost; this includes Handley Page slots (with or without locking device), compass in rear cockpit, 15-gallon auxiliary fuel tank, metal airscrew, dual ignition switches, instrument board clock, and aerobatic harness for both pilot and passenger.

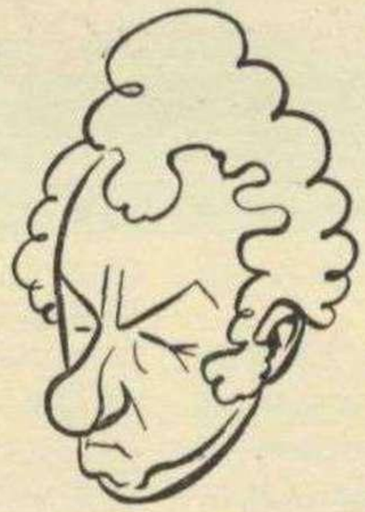
In addition to the lowering of the price of the standard model, revisions have been made throughout the entire "Moth" range, and the special model (landplane), with metal fuselage is now listed at £675 and as a seaplane at £935.

THEY ALL AGREE

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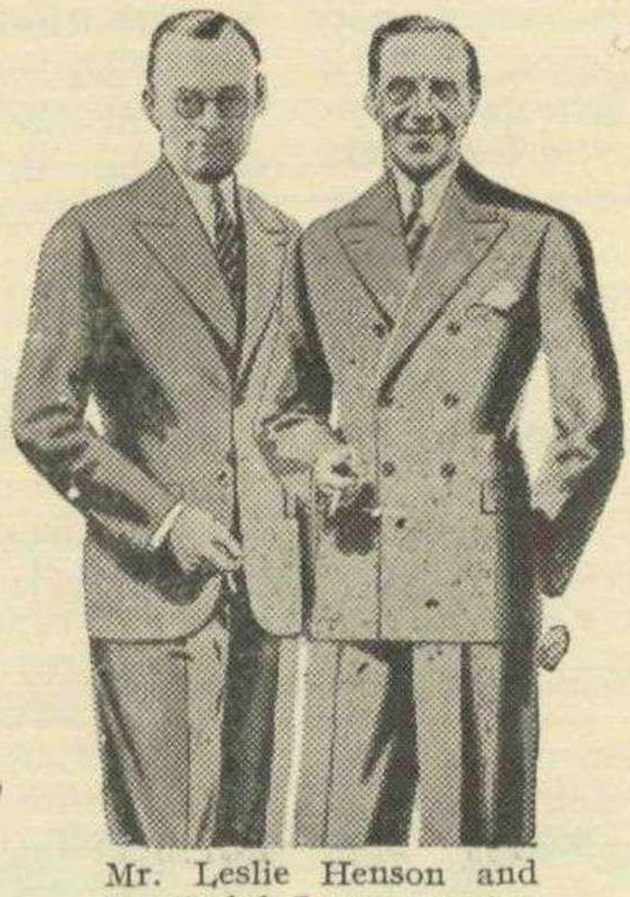
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THE SPORT AFLOAT



Manx Motor Boat Racing.

SOME interesting motor boat racing should be witnessed in Douglas Bay in June if the conditions are good. The Manx Amusement Committee, in conjunction with the Mersey District Speed Boat Club, have decided to organise a number of events, which will take place on either June 17th or 19th, and a permit from the Marine Motoring Association has been applied for. A fifty-guinea challenge cup has been presented by Mr. Tom Moore, on behalf of MOTOR SPORT, and a good entry is assured.

The suggested events are for Class " B " engine solo race; Class " C " solo and unlimited engine, and the same three classes with a passenger. The dates provisionally agreed upon are in the motor-cycle T.T. week, so the races will doubtless be witnessed by a large number of Britain's Speed " kings."

Douglas Bay is said to lend itself admirably to motor boat races, owing to the stretches of water free from rocks, and the absence of treacherous currents. From the promenade, there is a full view of the whole of the Bay, and the races will probably be watched by thousands of spectators. Indications point to the events being highly successful, and the organisers are hopeful that it may become an annual event in the Isle of Man.

World's Record Attempt.

It is understood that detailed arrangements are now completed for Sir Henry Segrave's attempt on the world's speed record on water. The boat, of course, is " Miss England II.," and Lake Windermere will be the venue of the trials. There is no doubt that big crowds will be attacted to watch Sir Henry, and probably by the time this is in print he will have already carried out preliminary tests.

Those who have been associated with the design and construction of " Miss England II.," and are confident that she will reach the cherished 100 M.P.H. mark, and when it is realised that her predecessor, " Miss England I." did 93 M.P.H. with only a quarter the horse-power, it does not seem unreasonable to suppose that the additional speed necessary should be forthcoming from the new boat. If all goes well, Sir Henry will take his craft to America early next month.

A Thames Demonstration.

A step in the right direction was made last month, when a demonstration was carried out at Syon Reach, Kew, with outboard-engined boats fitted with different makes of silencers. The tests were carried out before a number of official of the Port of London Authority, and five boats took part.

The arrangements were in the hands of Mr. Arthur Bray, secretary of the Permanent International Racing Committee. The craft passed a P.L.A. launch at full speed and careful note was made of the varying degrees of silence. Later, Mr. Bray held a conference with Commander Shanklin of the P.L.A., and, as an outcome, it is hoped that satisfactory arrangements may be brought about in regard to outboard racing on the Thames in the future.

A New Runabout.

The finest example to arrive from the U.S.A. of a new outboard runabout is now on view at the premises of Arthur Bray at 114, Baker Street, London, W.1. This is Johnson Aquaflyer, a high class and attractive displacement boat, powered with a Johnson Sea-horse " 32." The hull is of " Sealite " construction and the detail finish throughout is very good. It has two double cockpits and very complete equipment is embodied with the seats upholstered in green leatherette. The engine controls are grouped behind the steering wheel, close to the instrument panel. An electric starter is incorporated as standard and the installation includes stern and running lights. The power unit is completely enclosed, and with an under-water exhaust, the running is exceptionally quiet; an emergency 15-gallon petrol tank is situated amidships. The boat weighs 450 lbs., and measures 17ft. 6ins. in length and 5ft. in beam. The manufacturers state that the speed of the Aquaflyer is 25 m.p.h.

Rickmansworth Improvements.

Visitors, on occasion of the opening meeting of the Amateur Outboard Club last month found that a number of improvements had been made at Rickmansworth. An excellent new clubhouse has now been built on the lakeside; this is for the use of members of the A.O.C., and the Rickmansworth Sailing Club, and the premises carry a full licence. A terrace has also been laid out where visitors may have refreshments, and the whole surroundings are now exceedingly pleasant. One noticed too, that loud-speakers have been permanently installed for announcing the results of events and a new starting " clock " has been put into use. These additions have greatly enhanced the " Ricky " aquadrome which will no doubt be a most popular rendezvous for boating enthusiasts during the coming season. Meetings will be held on the following dates:—
7th June, 21st June, 12th July, 19th July, 4th August, 23rd August, 13th September and 27th September.

THE B.O.R.C. RETURN TO HENDON

Successful Opening Meeting at the Welsh Harp

AFTER a lapse of two years, the Welsh Harp, Hendon, once more contained sufficient water for racing and the inaugural meeting of the season took place on April 26th, and produced an interesting entry of 44. The arrangements, both as regards the racing and the provision for spectators were excellent.

The course was triangular, and one nautical mile in length, the races being over 3 laps.

The majority of competitors seemed to be using last season's craft and engines and there was a lack of 1930 models, the Dunelt being an exception. It was however a new motor and not yet properly run in, so its speed was not high. Silencers were much in evidence to comply with the latest regulations. These were mostly Vortex or Derrington, and were a great improvement, and showed that racing without undue noise can be every bit as interesting as with it.

Mr. Weatherell turned up with a very natty outfit, consisting of a Chevrolet van containing a young boat-house cum workshop. He won the Class C open race in "Itsit VII" with an Evenrude engine. Comic relief was provided by Mr. Shillan in a 200 h.p. Dart speedboat being chased by Tommy Rose in a Moth, and being bombarded with bags of flour which he managed to avoid successfully.

The fastest lap of the race was made by C. T. Lewis' "Meteor" with a Johnson engine, at 35.29 knots, while the best time over 3 laps was achieved by H. J. P. Bomford in "Seahopper V," also with a Johnson engine. This make won 4 out of the 6 races, and made fastest time of the day, also the fastest time in Class "B."

RESULTS.

Class B, Open.—F. R. Thornton, "Star I" (Johnson), 27.69 knots; Rex Bigg's "Cherub" (Johnson), 27.27 knots; H. J. P. Bomford's "Seahopper V" (Johnson), 26.08 knots.

Class C, Amateur.—Rex Biggs's "Cherub" (327 c.c. Johnson), 27.91 knots; G. E. Marr's "Tegenacco" (486 c.c. Dunelt), 25.71 knots; A. Lanfranchis's "Babouche" (327 c.c. Johnson), 25.35 knots. No third prize.

Unlimited Class, Open.—C. T. Lewis's "Meteor" (Johnson), 33.64 knots; G. V. Bridgewater's "Astevensa" (Johnson), 32.73 knots; "Seahopper V" (655 c.c. Johnson), 31.03 knots.

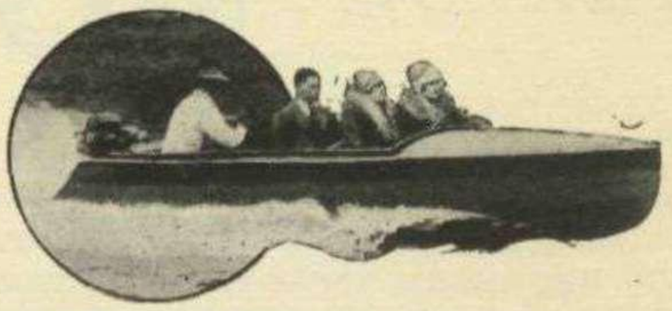
Class B, Amateur.—"Cherub," 27.27 knots; Peter Godfrey's "Blue Peter IV" (Watermota), 25.25 knots; "Babouche," 25.17 knots.

Class C, Open.—R. D. Weatherell's "Itsit VII" (Evinrude), 28.57 knots; "Cherub" (327 c.c. Johnson), 27.48 knots; C. J. Turner's "Itisntit" (327 c.c. Johnson), 25.20 knots.

Unlimited Class, Amateur.—"Seahopper V," 33.75 knots; "Astevensa," 29.79 knots; "Cherub" (327 c.c. Johnson), 27.69 knots.

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WATER v. CONCRETE

A Comparison of Motor Boat and Car Racing by P. J. TURNER.

WHEN discussing the relative merits of car racing and boat racing I like to consider the matter from the point of view of the ordinary man who takes up a sport for its own sake, and not from the point of view of a manufacturer who looks on the commercial side of things. Looked at in this way I find that the water has many attractions for me which I find lacking in motor racing to-day.

There are two chief headings under which I think motor boat racing scores, and by this I am talking of outboard boat racing; these are safety, and cost. I don't suppose there is any safer sport in the world, and yet at the same time it is really thrilling and above all gives scope for genuine skill in handling the craft. All races are confined to standard engines, and this means that you are up against people using the same weapons as yourself, whereas in car racing this is not the case. Car racing is a magnificent and interesting sport, but it is now becoming so specialised that it is the field for the manufacturer or the millionaire, not for the ordinary man.

Outboard racing is very different. For a matter of a hundred pounds a man can get a complete craft with engine, which will give him a season's sport with the chance of winning some valuable prizes, and still be of considerable value at the end.

Nearly every week-end there are meetings in various parts of the country, in which he may compete for an entry fee of a few shillings, another point where car events are at a disadvantage.

I still meet many people who will not believe that there is any real excitement to be gained from racing on the water, but I find that in every case they are people who have never tried it. I have driven racing cars at over two miles a minute at Brooklands, and I have raced on the continent and in hillclimbs, so I can claim experience of most forms of motoring. Against this I have raced boats and have travelled on the water at nearly 50 m.p.h., and I know that for me the water holds the greatest fascination.

It will not be long, I think, before outboard boats will do over 70 m.p.h. Another development I expect in the near future is the introduction of 24 hour races for the utility type of boat, on the lines of the recent 100 mile race at Poole. This was one of the most enjoyable events in which I have ever competed, and though I had to retire towards the end when I was second, that does not worry me in the least. I find that for keeping really fit it is hard to beat this sport, and provided you really enjoy yourself, whether you win or lose is a small matter!

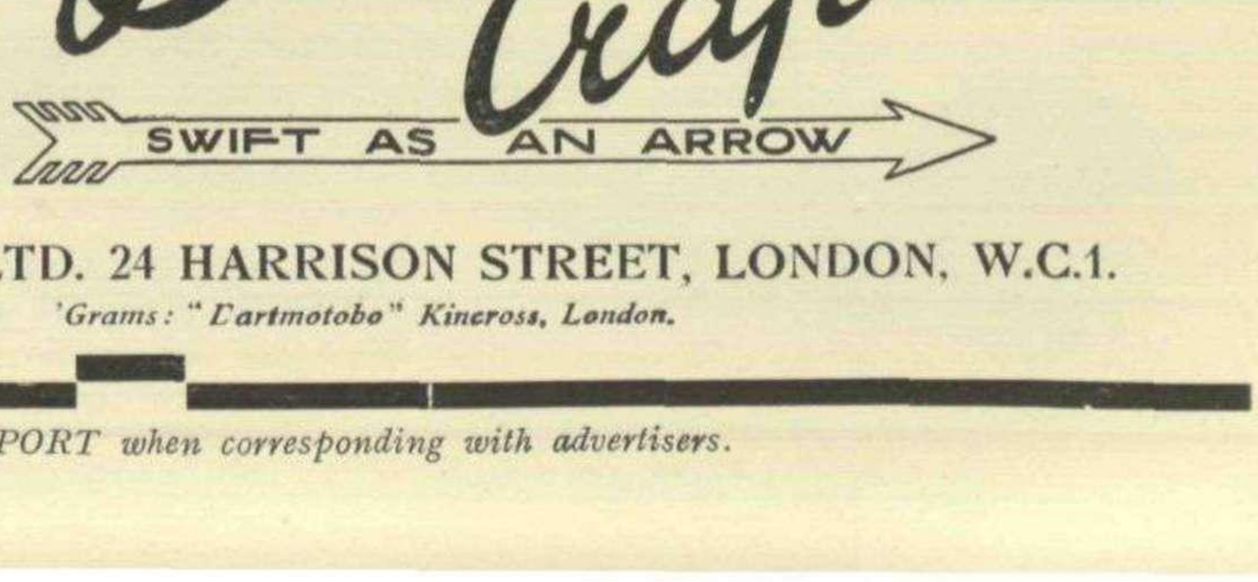
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WELSH HARP RACING.

Lap Record Broken at B.O.R.C's Second Meeting.

IT might have been either the second half of the "Double 12," being held on the same day, or perhaps, the leaden skies and chill wind, that kept people away from the British Outboard Racing Club's meeting at the Welsh Harp, Hendon, on Saturday, the 10th May; nevertheless, whatever the reason for the poor attendance, those present, both spectators and competitors, thoroughly enjoyed the afternoon's sport. The enjoyment of those who watched the proceedings from the bridge—and others—was enhanced by the excellent loud speaker installation which announced the results of the races within a very short time of their having been completed, and which played a good selection of the latest dance music to enliven the few short pauses between the races.

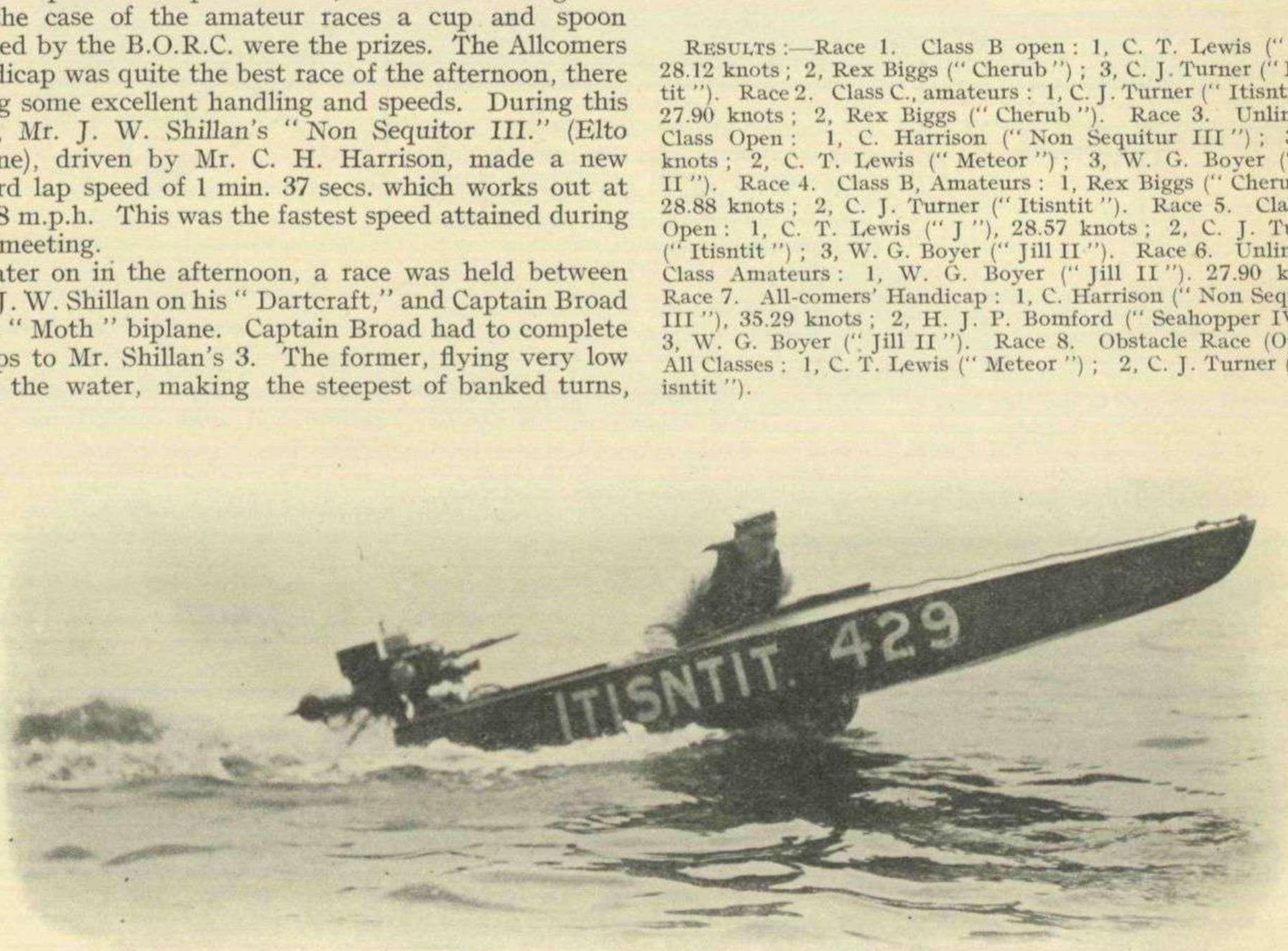
Quite a good number of entries were received before the race, but a marked feature was the absence of class "C" boats—boats with an engine capacity exceeding 350 c.c. but not exceeding 500 c.c. The races were run over a course of three nautical miles, and for those races run as open events prizes of £3, £2 and £1 were given. In the case of the amateur races a cup and spoon offered by the B.O.R.C. were the prizes. The Allcomers handicap was quite the best race of the afternoon, there being some excellent handling and speeds. During this race, Mr. J. W. Shillan's "Non Sequitor III." (Elto engine), driven by Mr. C. H. Harrison, made a new record lap speed of 1 min. 37 secs. which works out at 42.68 m.p.h. This was the fastest speed attained during the meeting.

Later on in the afternoon, a race was held between Mr. J. W. Shillan on his "Dartcraft," and Captain Broad on a "Moth" biplane. Captain Broad had to complete 6 laps to Mr. Shillan's 3. The former, flying very low over the water, making the steepest of banked turns, was thought to have won, but after the race it was announced that the "Dart," had gained first place. Later Captain Broad gave a thrilling exhibition of aerobatics, with loops, inverted flying, rolls, spins, etc.

The obstacle race which followed was somewhat spoilt by the rain which had begun to fall heavily and the strong wind prevailing. After the firing of the starting gun, the competitors had to start their engines and complete a course round the obstacles which consisted of five poles decorated with flags and forming four avenues through which they had to thread their way. They then had to return to the pontoon, pick up their lady passengers, complete a second circuit of the course with them and return to the pontoon to deposit their passengers and return a last time on the course. The embarking and dis-embarking of the passengers was a tricky matter, as much valuable time would be wasted had the engines to be stopped during the process. Soon afterwards the heavy rain made proceedings impossible and the meeting broke up.

M. E. S.

RESULTS:—Race 1. Class B open: 1, C. T. Lewis ("J"), 28.12 knots; 2, Rex Biggs ("Cherub"); 3, C. J. Turner ("Itisntit"). Race 2. Class C., amateurs: 1, C. J. Turner ("Itisntit"), 27.90 knots; 2, Rex Biggs ("Cherub"). Race 3. Unlimited Class Open: 1, C. Harrison ("Non Sequitur III"); 33.96 knots; 2, C. T. Lewis ("Meteor"); 3, W. G. Boyer ("Jill II"). Race 4. Class B, Amateurs: 1, Rex Biggs ("Cherub"), 28.88 knots; 2, C. J. Turner ("Itisntit"). Race 5. Class C, Open: 1, C. T. Lewis ("J"), 28.57 knots; 2, C. J. Turner ("Itisntit"); 3, W. G. Boyer ("Jill II"). Race 6. Unlimited Class Amateurs: 1, W. G. Boyer ("Jill II"). 27.90 knots. Race 7. All-comers' Handicap: 1, C. Harrison ("Non Sequitur III"), 35.29 knots; 2, H. J. P. Bomford ("Seahopper IV"); 3, W. G. Boyer ("Jill II"). Race 8. Obstacle Race (Open). All Classes: 1, C. T. Lewis ("Meteor"); 2, C. J. Turner ("Itisntit").



C. J. Turner travelling well in his Johnson-engined "Itisntit."

A One-Piece Metal Hull.

LOW WEIGHT AND SIMPLICITY AIMED AT IN UNCONVENTIONAL DESIGN.

AN interesting departure from orthodox boat construction is shown in a hull designed by Mr. Villa Gilbert, who is well-known as a pioneer both of aviation and of the production of heat treated steels.

The principal features of his design lie in simplicity and cheapness though the attendant graces of lightness and robustness are also considerably in evidence. The hull is made in one piece from a single rectangular sheet of metal, first curved so as to form a semicylindrical trough, and then pressed into a transverse dent near the middle. The forward end is then drawn to a vertical edge to form the cutwater, and is welded up, and the stern closed with a welded-in metal plate forming the transom. The gunwale is formed either by rolling over the edges of the metal to form a lip, or by reinforcing the edge with a metal or wooden strip. In the original form which was intended primarily for a small dinghy, the bow and stern were identical, and the hump or dent formed the seat, but for faster moving boats the square stern is generally supposed to be the more efficient shape.

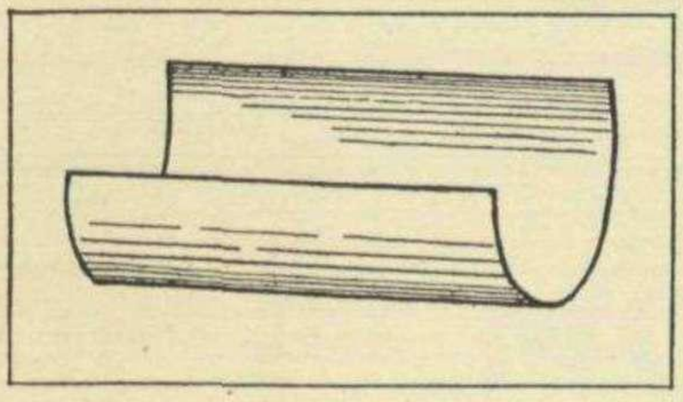


Fig. 1.

Sketches 1, 2 and 3 show clearly the general form of the hull, and though these diagrams are not necessarily to scale, the proportion will ordinarily come fairly near to those shown. As already stated the original idea was to use this form of construction for small dinghies, and it was shown that a 7 foot boat 3 feet wide, in aluminium would weigh only 15lbs., and would cost little over two pounds to make.

One or two small models made by the writer, in thin sheet metal, indicate that a surprising degree of rigidity, both in bending and torsion, results from this shape, while the absence of biplanar curves does away with the need for elaborate press tools or dies.

Turning to the question of applying this method of construction to light speedboats, our first concern is to know how the hull will ride at speeds of 30 to 40 miles per hour. Unfortunately there are no definite data to hand, either for full scale trials or model tests, so one must look only to theory for information, exercising proper caution in view of the unconventional forms of the immersed bodies.

Considering first the static stability, it is evident that the flatter cross section of the after part will, by increasing its displacement, enable most of the weight to be placed aft, as is usually required with outboards. Lateral stability appears from the model to be good if the hull is fairly wide, though the double ended hull had a tendency to roll unless deeply immersed. Calculation of the metacentric heights may well be left to some very idle mathematician, and experiment would be tedious in view of the infinite variety of shapes produced by altering the shape of the transom piece from a vertical line almost to a horizontal line. A rectangular transom about equal in width to the

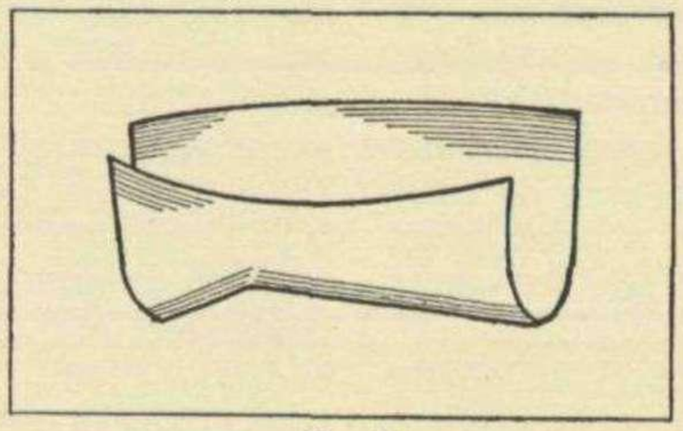


Fig. 2.

"dent" seems to give the most satisfactory shape to the after section, though it would be extremely interesting to study the performance of a hull with a vertical knife edge stern under high speed conditions.

Treating the boat so constructed purely as a displacement vessel, the form would not appear by any means ideal, one's first impression being that considerable eddying might be set up between the two sections. Further, when one comes to consider the waterline plan, and the other sections parallel thereto, one grows very dubious as to the performance at high speeds.

Fig. 4 indicates the approximate waterline plan of the square stern variety, but it must be borne in mind that the sides are inclined outwards and upwards at small angles to the water surface, so that the streamline displacement is by no means as abrupt as would appear from this figure. In fact, considered alone, the after section offers a very good form, owing to the small angles of incidence and smooth contours.

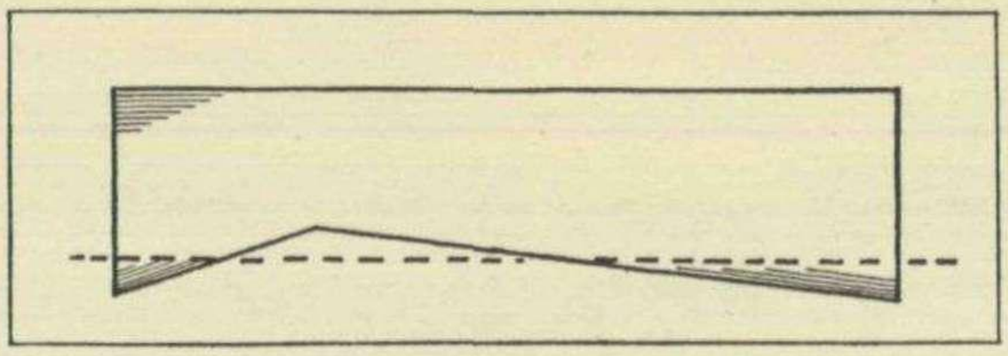


Fig. 4.

One's doubts remain, however, centered on the forward body, as its fairly deeply immersed and wedgelike form certainly appears likely to set up diverging waves, while the down pull due to the upward sweep of the back of this section, although making for excellent steadiness and controllability, may result in considerable loss of power. It is possible that much of this power may be recovered in the form of lift on the afterbody, though the changes of direction of the slipstreams are certain to involve a certain amount of waste of energy.

Calculation is difficult where inclined curved surfaces are concerned, but it is fairly evident that all the "paths of minimum curvature" backward from the cutwater, end in an inward and upward curve too sharp for eddyless motion at 30m.p.h. for instance. Only experiment can show the extent and relative importance of these possible causes of power loss, and to judge from the flexibility of the design, such experiment should not prove either difficult or costly to carry out.

For the rest, steering should be good, probably better than in ordinary skimmer hulls as the semi-displacement type is much less prone to skidding and the deep cutwater would maintain a steady course. Fairing of the upper part of the boat, in addition to being easily carried out, should give a good shape so far as air resistance is concerned, particularly if it is taken into consideration when the metal hull is being constructed.

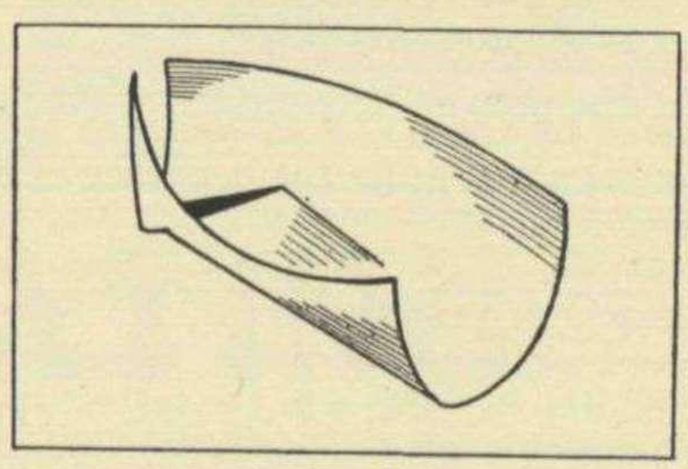


Fig. 3.

In this connection it has also been suggested that such hulls would be very suitable for seaplane floats, and flying boats, both on the score of rigidity and lightness and good aerodynamic characteristics.

However, the very feature which renders them stable on water, namely the down pull of the forward body might seriously impede rising off the water, and the lack of lift of the forward part would tend to "trip up" the aircraft when descending steeply onto the water.

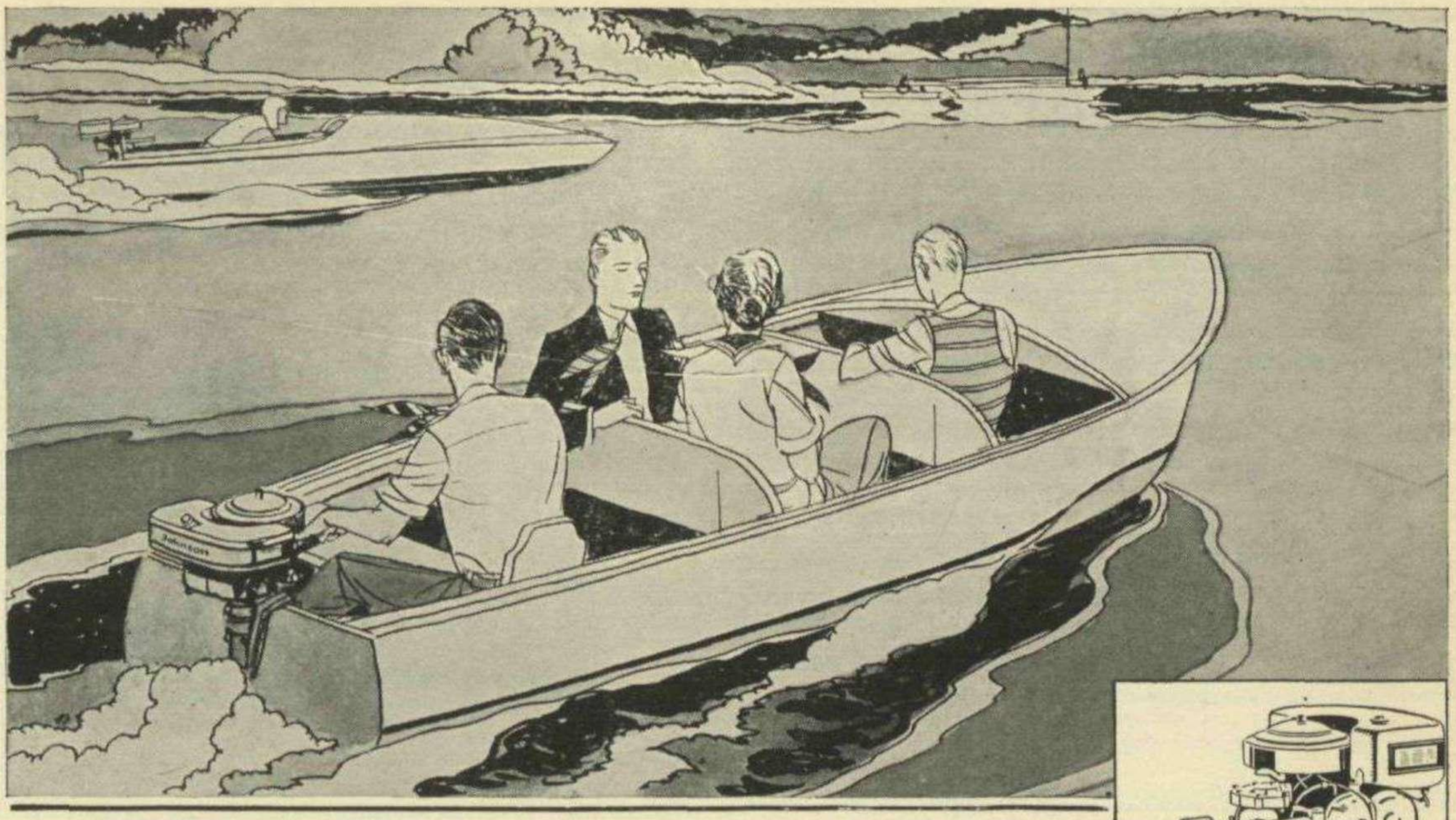
It is reasonable to suppose that some modification of this design incorporating an outward flare of the bows might rectify this objection.

It is understood that hulls of this type are shortly to be produced on a commercial scale, in sizes up to some 12 or 14 feet in length, suitable for carrying outboard engines, and one looks forward to seeing the early practical application of this very interesting and original type of boat.

(The designer and patentee is Mr. W. Villa Gilbert, c/o Institute of Patentees, Victoria Street.)

R. R. POOLE, B.Sc.

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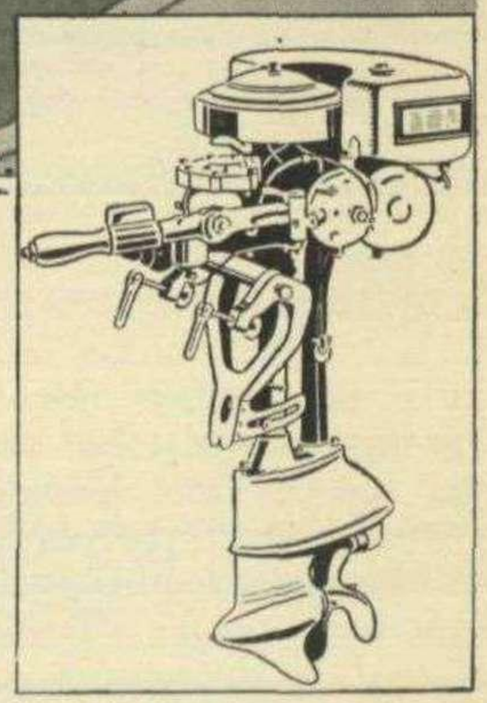
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HERE and THERE

By "Camshaft"

THE new Austin "Seven" Sports which performed so well in the Double-Twelve is one of the most attractive models which has so far been turned out from Longbridge, and in a run round in one of them, though only of brief duration, I found it a great improvement on any earlier listed "7."

This new model has been specially designed throughout as a sports car and is not a standard type faked up. The frame, for example, has been lowered considerably, and the increase in the stability when travelling at speeds of 60-80 m.p.h. is marked; the springs are bound with cord and this also contributes to the general "driveability." It is marketed both with a supercharger and without. The supercharger is gear-driven from the front of the engine and the cooling system incorporates a pump. Other salient features include a special high second gear, which gives the car an astonishingly snappy acceleration. Due consideration has been given to accessibility and a specially long bonnet, besides enhancing the appearance, gives plenty of room for attending to all vital parts in the power unit. At the price—£225—this new "7" will undoubtedly become one of the most popular light, high-speed two-seaters.

Indias of Inchinnan.

THE new factory of the India Tyres, Ltd., at Inchinnan, Scotland, is, now I learn, turning out tyres at the rate of 1,500 per day and friends in the trade tell me that the demand for the make is consistently over-topping the supply.

When the new premises were completed a short time ago, some 5,000 people attended the opening ceremony, from all parts of the country, and special trains were run from London, Bristol, Birmingham, Leeds and Newcastle; while a specially chartered steamer brought visitors from Dublin, and an Imperial Airways liner flew north from London with other guests.

Excursions to I.O.M.

THE Great Western Railway Co., are running a series of excursions from Paddington to Douglas during the period of the T.T. Races. These will run on Friday, Saturday and Monday (June 13, 14 and 16). The return fares will be:—3rd class and steerage, 44/6; 3rd class and saloon 52/-. Times of departures and full details can be obtained at all G.W.R. stations and offices.

Laystalloy Liners.

THE Laystall Motor Engineering Works, Ltd., who specialise in high-class engine overhaul and tuning work, have lately introduced a new method of reconditioning cylinders. This consists of the insertion, by a special means, of hardened steel liners. The process used in the manufacture of these liners is patented, and the alloy steel used in said to have a surface twice as hard as case-hardened steel. For all practical purposes the surface of the liners is unwearable, and having a high degree of polish, friction is appreciably lessened and wear on the pistons (whatever their material may be) is reduced. Owners of sports cars who are contemplating major overhauls would do well to investigate this latest Laystall system.

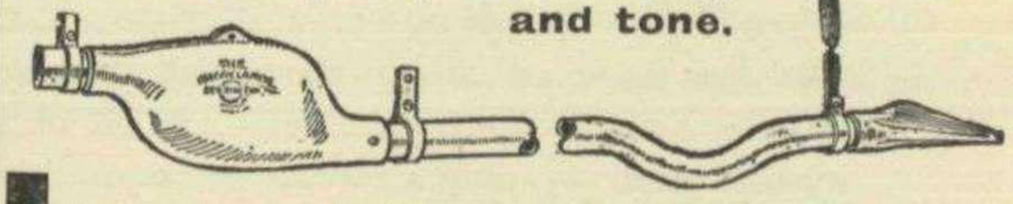


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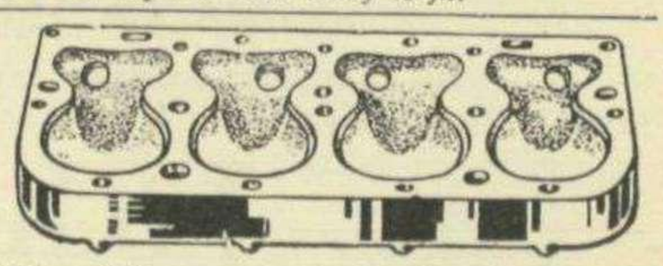


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