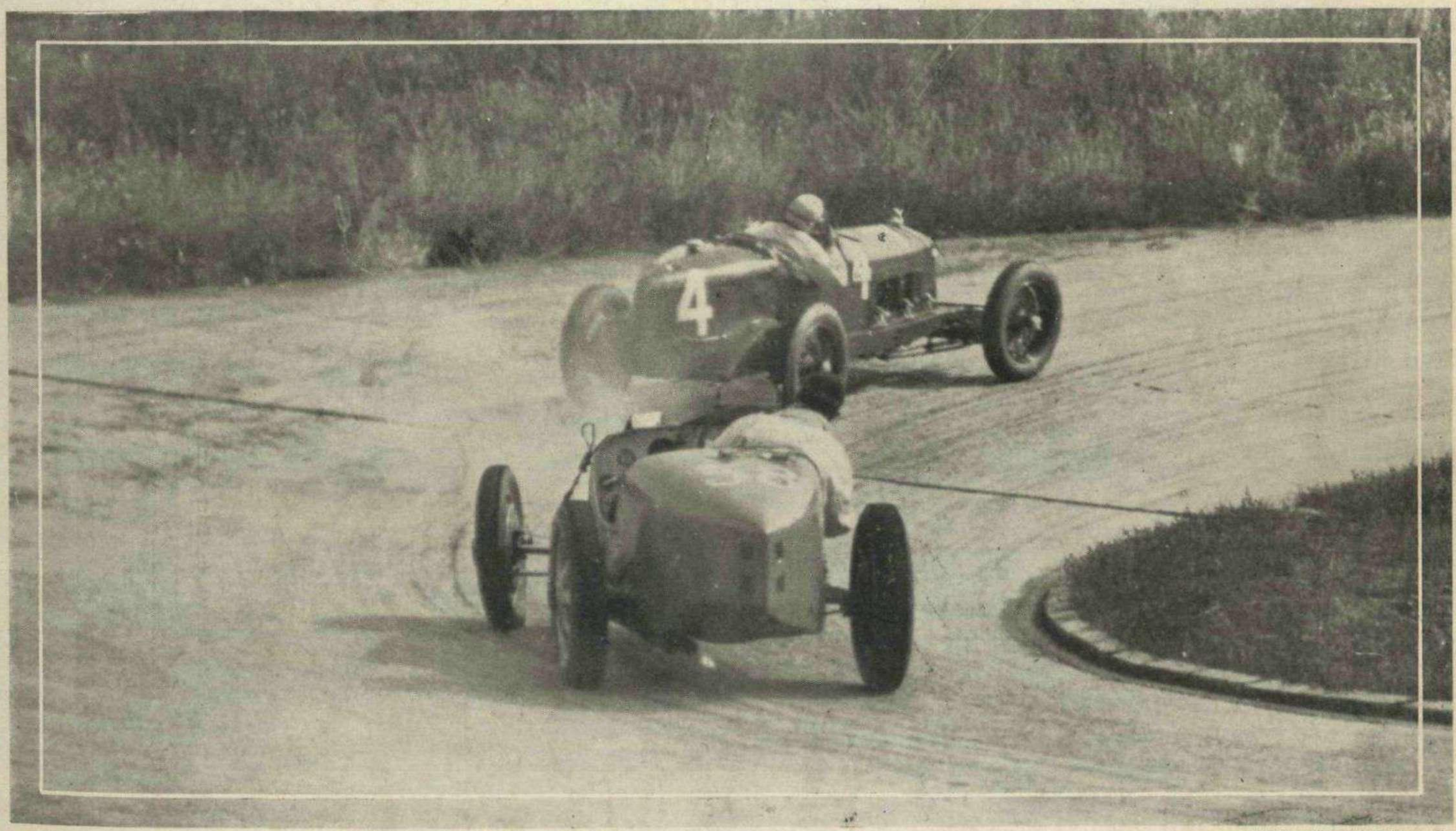
Vol. VIII. No. 5 *March, 1932*

MOTOR SPORT

LAND - AIR - WATER

SIXPENCE MONTHLY



LE CHASSEUR. [*Motor Sport Photograph*

A Bugatti—Alfa-Romeo tussle caught by the camera in last year's French Grand Prix.





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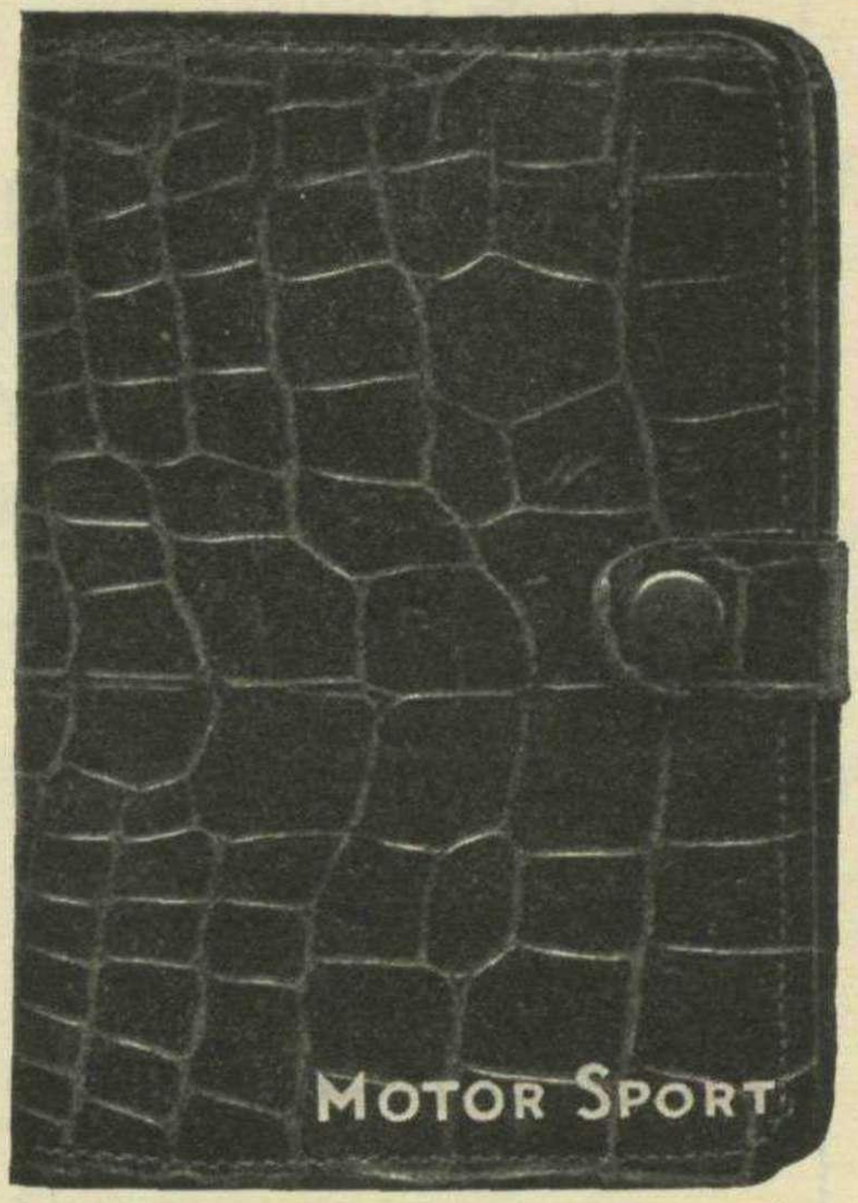
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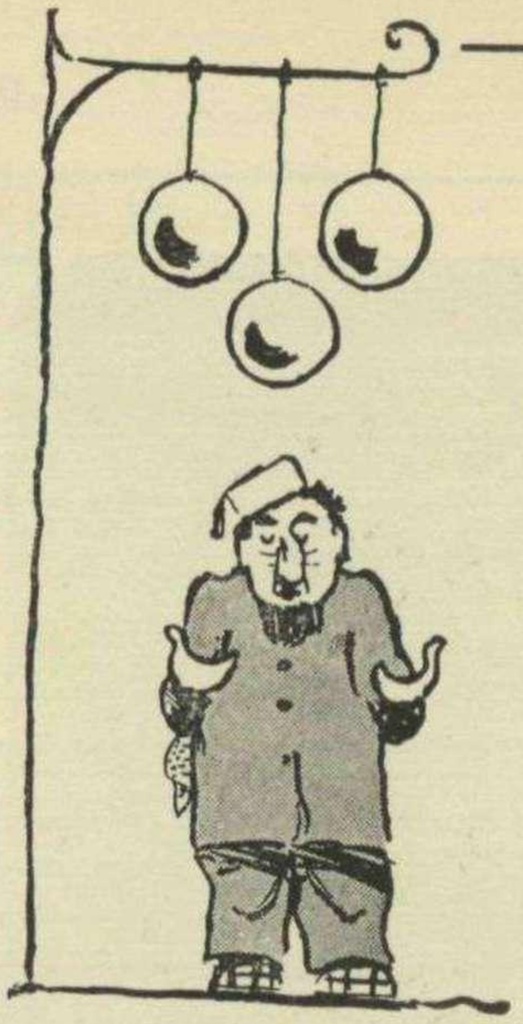
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VOL. VIII. No. 5.
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Published 1st Month

MOTOR SPORT

INCORPORATING THE BROOKLANDS GAZETTE

JOINT EDITORS { *GRENVILLE G. O. MANTON.*
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Editorial, Publishing & Advertising Offices
39, VICTORIA STREET, LONDON, S.W.1
Telephone: Victoria 5218.

The Way of Things

IT is already well known that under the present laws of this country the only hope of running a road race in Great Britain lies in the use of some park or private estate. Every sporting motorist hopes that some suitable place may be found where a small road racing circuit on private ground may be discovered, and the permission of the owner obtained for it to be used for such a purpose.

While this search is going on, the motoring fraternity must not lose sight of the fact that the owner of such an estate must have the first consideration, and that in the event of such a person being kind enough to put his grounds at the disposal of a club, that club must see that his interests are fully protected.

The recent Intervarsity speed trials held at the Manor House, Hexton, near Hitchin, by kind permission of Sir James Hill, provided an unfortunate example of the result of such consideration being lacking. In this case damage was caused by competing cars, and was entirely due to the behaviour of one or two competitors who apparently failed to realise that the fact of competing in a motoring event gives no exemption from the common need to act as responsible and thoughtful citizens.

Although the organising club has to see that proceedings are conducted in an efficient and orderly manner, it seems hard to blame them for the thoughtless and totally unnecessary actions of irresponsible competitors. They had on this occasion arranged a straight course on which there was ample room for the fastest machine to slow down after the finish. In spite of this, one driver of a comparatively slow car continued after the finishing line at an entirely unnecessary speed, resulting in damage to property. The obstruction of the course by his own car, and the breakage of the telephone line to the start, rendered the next driver unable to avoid a slight accident in consequence.

Failing to take warning from this, another car later increased the damage, and the meeting was abandoned. The furtherance of the sport depends largely on the support of owners of private roads, and if this is to continue, strong measures will have to be taken to exclude those who have shown themselves incapable of responsible behaviour.

CONTENTS

	PAGE
The Way of Things	195
LAND.	
The Intervarsity Speed Trials	196
The Colmore Trial	199
The Midget's 119 m.p.h.	200
Essentials of Supercharging	202
Motoring Sportsmen III—Kaye Don	205
The Three-Litre Lagonda	209
Present-Day Racing Cars II—The National Pescara ...	213
On the Road with a "Gamecock"	215
Rumblings	217
Club News	220
Records up to Date	221
Some Braking Problems	225
AIR.	
Aircraft for the Private Owner	227
After Fifteen Years	233
Slipstreams	234
WATER.	
The Sport Afloat	235

THE INTERVARSITY SPEED TRIALS

COMPETITOR'S CARELESSNESS CAUSES ABANDONMENT

THE first, and we may safely say, the last speed trial ever held at Hexton Hall, Hitchin, took place on Saturday, February 20th, by kind permission of Sir James Hill. Nominally an Intervarsity event, it was almost entirely composed of Cambridge entries, there being only 7 Oxford car drivers and 4 Oxford motorcyclists out of an entry of about a hundred.

The event was marked by chaotic organisation, which caused considerable delays in starting and no mean confusion in the order of running, but, being used to these events, we arrived an hour or so after the advertised starting time, and had plenty of time to assist in the stripping and preparation of a friend's car before the start.

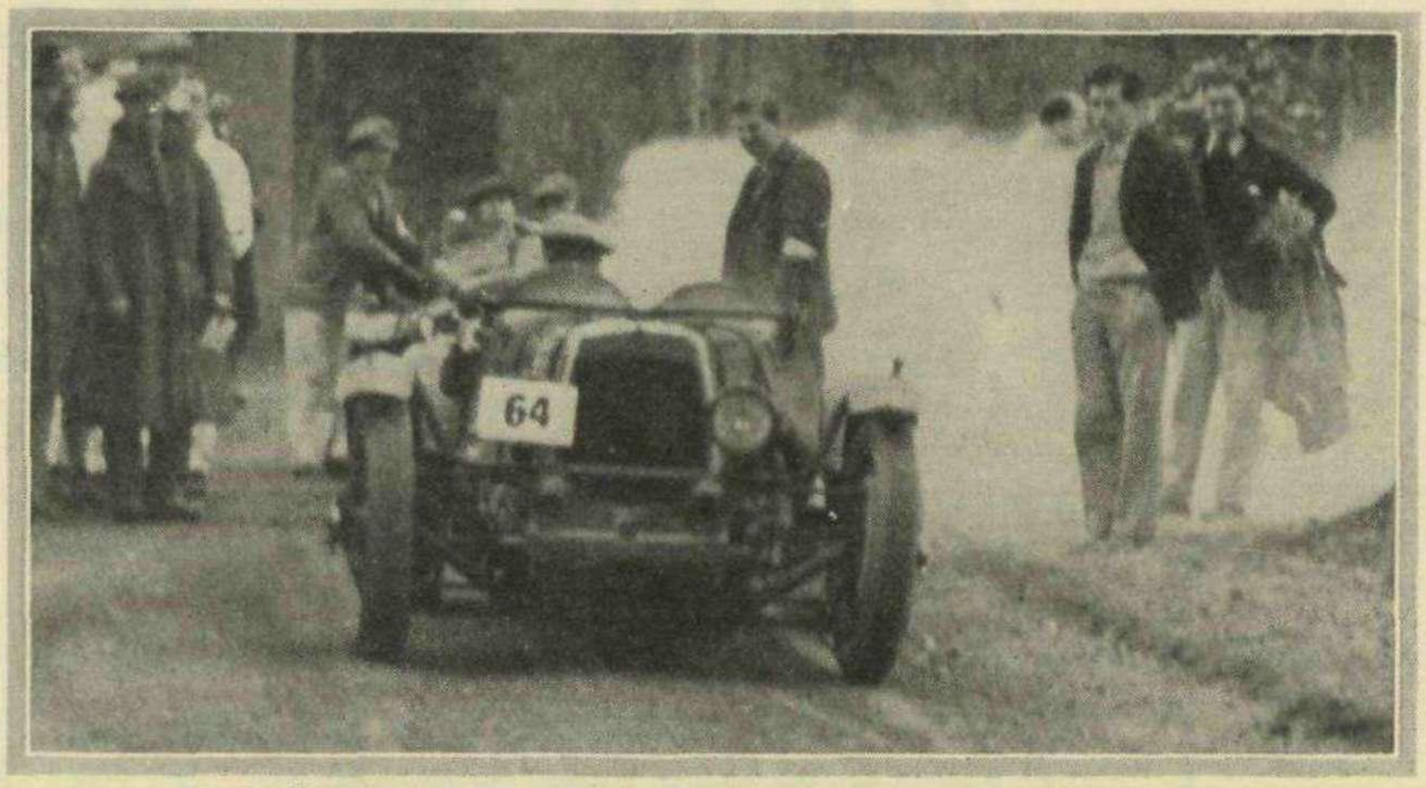
All that is quite normal practice in these events, but what seriously marred the whole proceedings, and will make sure that this estate will never again be lent for a special speed trial, was the damage caused to the very fine box hedge beyond the finish, by one or two competing cars.

The trouble first started when Conan-Doyle (Austro-Daimler), after a mediocre run up the course, continued beyond the finishing line without shutting off, and completed an almost unique display of lamentable incompetence by failing to negotiate the bend some distance after the finish, and ending up broadside across the road.

Before warning could be conveyed to the start, Rothschild's 38-250 Mercédès was screaming down the course at terrific speed to make fastest car time of the day. Shooting over the finishing line and through the narrow gateway at the end he was confronted by the other car across his path.

He did his best, and succeeded in skilfully avoiding Conan-Doyle's car, but to some extent at the expense of the landscape, turning right round in the process. He pointed out afterwards that there was nothing else for it if the other car was to be avoided. Which was perfectly true, and only reminds us what golden opportunities are daily cast aside!

It has now been decided by the Stewards that the brothers Conan-Doyle are not eligible to compete in C.U.A.C. events, and their entry will not in future be accepted. The only thing wrong with this decision is the fact that it was not arrived at long before.



G. K. Hartwell won the 1,500 c.c. sports class on his Aston-Martin.

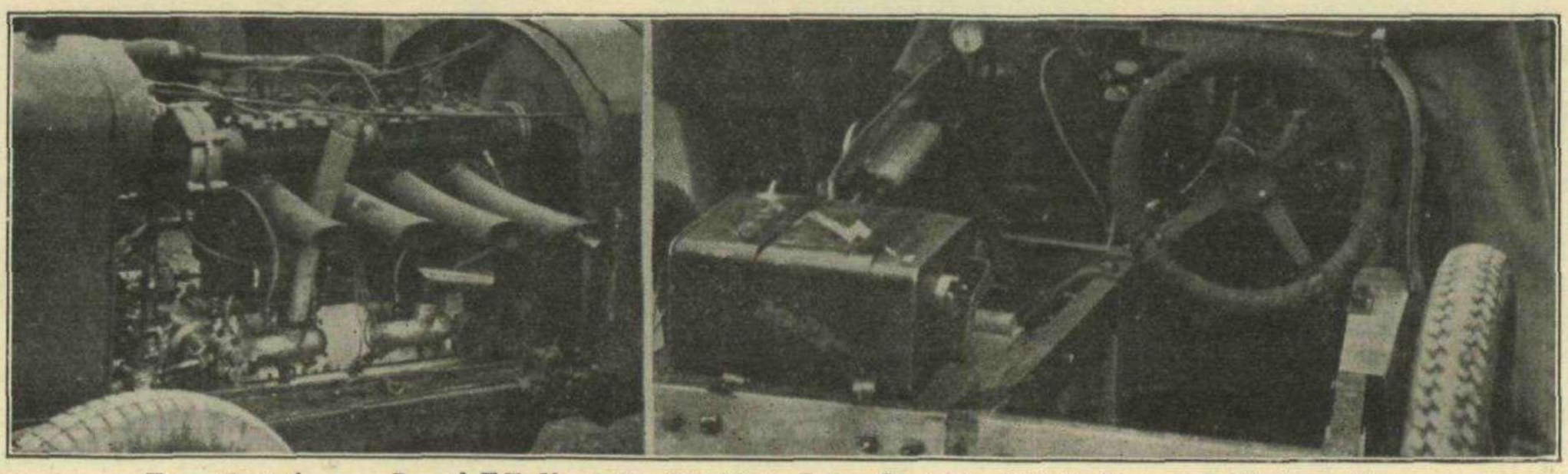
To return to the actual progress of the "racing." As soon as the forgotten portions of the timing apparatus had been collected and assembled, the motorcycle classes commenced, and were run off without incident, riders in general performing in an unostentatious and business-like manner, which might with advantage be more generally copied.

E. C. Fernihough—250 c.c. Excelsior J.A.P.—was the star performer in this class, while Malcolm Muir went very well indeed on his Norton and Velocette, both now fitted with 4 speeds. As he had been informed by the preliminary regulations that the course was 880 yards instead of the actual 600 yards provided, he had neglected to bring any spare sprockets and was rather overgeared. M. N. Mavrogato once again proved himself an artist with the rather temperamental Scott engine, and gave a very pretty, and quick, exhibition. M. Leitch quite surprised himself and his friends and went better than ever before on his Rudge.

The car entries, which incidentally were run off with an intermediate sprinkling of motorcycles, and in no particular order of classes, produced a variety of performances, many being spoilt by indifferent tuning, and those of which most was expected falling considerably short.

The "sports 850's" were hardly thrilling, but in the racing class R. R. Jackson's blown Monthlery Midget was well tuned and rapid.

Anderson's old Akela type G.N. was fitted with a blower, but is not right yet, apparently, being a trifle difficult on this occasion. R. V. C. Bolster had a normal G.N. with the vertical O.H.V. twin engine, which went quite well. He also represented the "home-made" brigade with a peculiar device which bore some relation to a G.N., but which wore a twin J.A.P. engine, motorcycle fashion on the near side, driving by chain, via m/c gearbox to solid axle. The driver occupied a parallel coffin on the offside.



Two enthusiast's cars. Baynes' T.T. Vauxhall and (right) the Bolster Special in which the driver sits beside the machinery.

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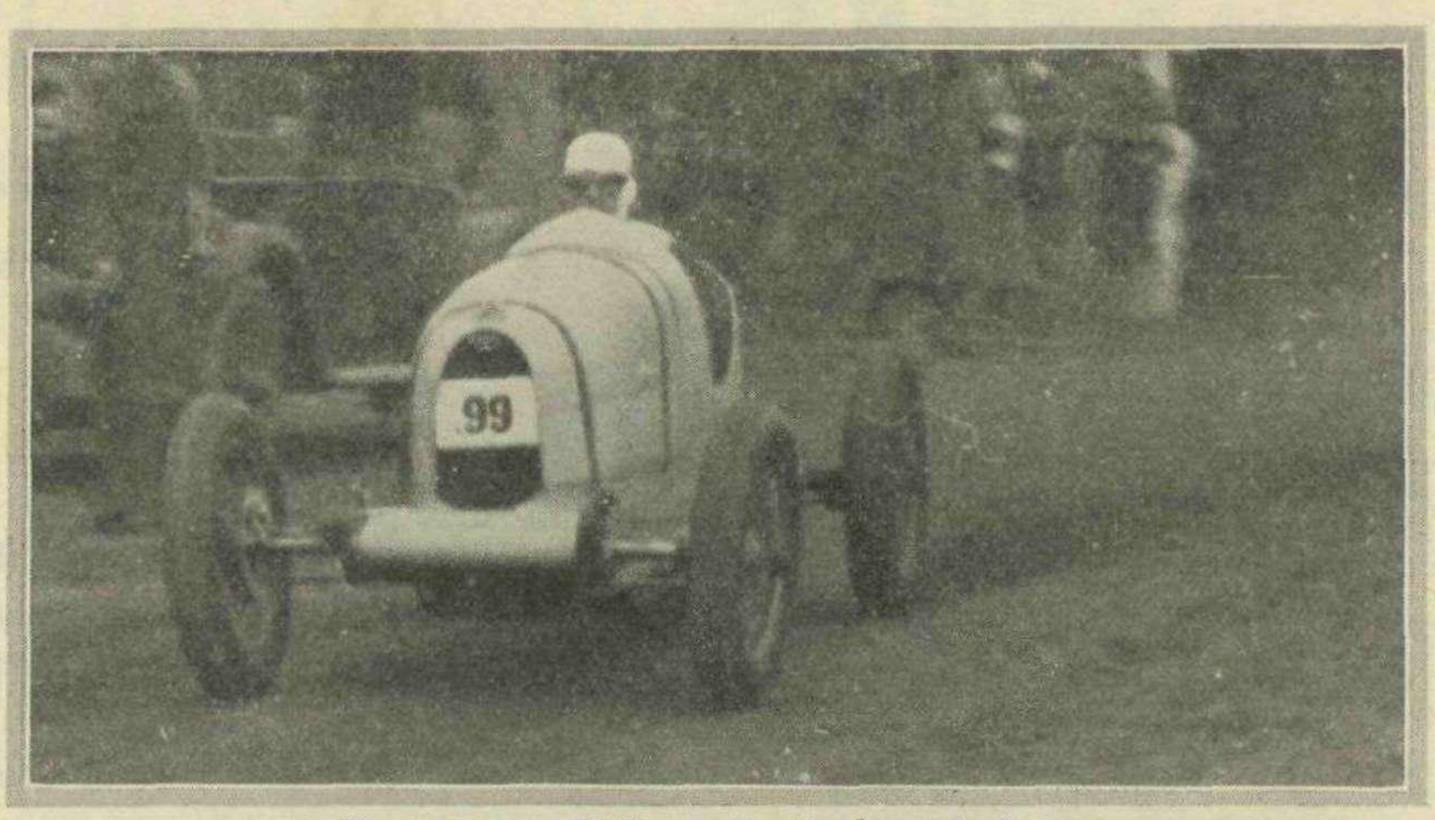
INTERVARSITY SPEED TRIALS—continued.

Owing to incorrect caster or front wheel tracking, or both, the performance of this machine was hair-raising to a degree.

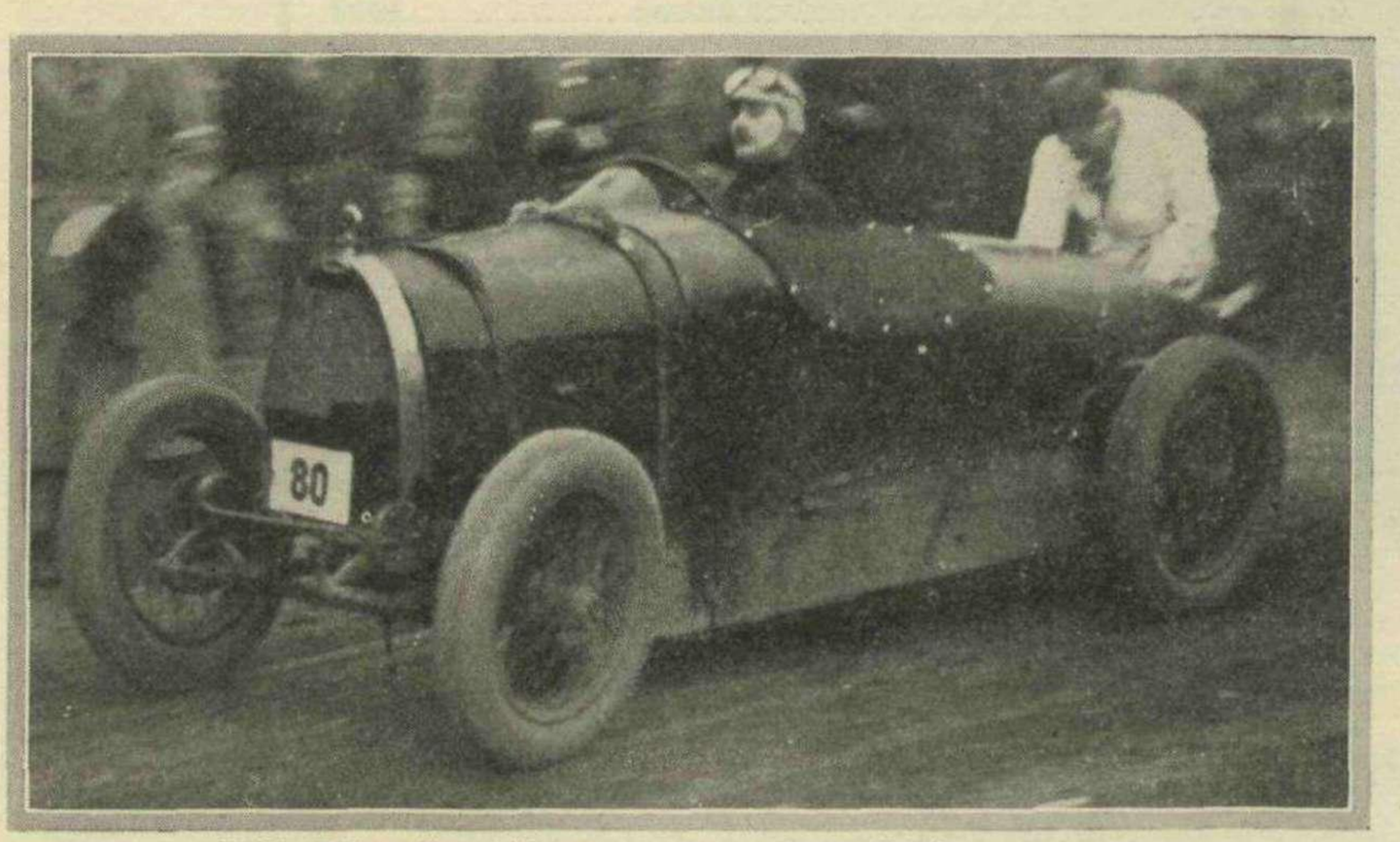
In the 1,500 c.c. sports the most consistent shows were those of the many Frazer-Nashes of varying vintage and appearance, but almost uniformly snappy performance. The fastest car in this class was the T.T. Aston-Martin driven by Hartwell, this car being one of the Ulster team cars of this year. Hutching's was the best sports Frazer-Nash. In the racing class, R. J. G. Nash did not appear, as the Terror is having a new body fitted. Incidentally its engine is now giving 105 b.h.p. at 4,500 r.p.m., which looks useful for Shelsley. J. A. Robinson's Brescia Bug was in good form as usual.

The unlimited class produced a very snappy single-seater 2,300 c.c. Bugatti in the hands of Bertram, but after a good getaway he had difficulty in sorting out the ratios, and might have been quicker. Baynes in a really delightful old T.T. Vauxhall with a most remarkable overhead camshaft machinery showed that enthusiasts still exist. Rothschild's Mercédès was terrific, as already related, while W. M. Couper, relegated to the racing class by reason of the blower, went very nicely on a very standard and fully equipped 2-litre Lagonda. The proceedings were finally stopped as a result of further contact between some careless competitor and the hedge, as a result of wnich several competitors whose first times had been missed had their day's trouble for nothing.

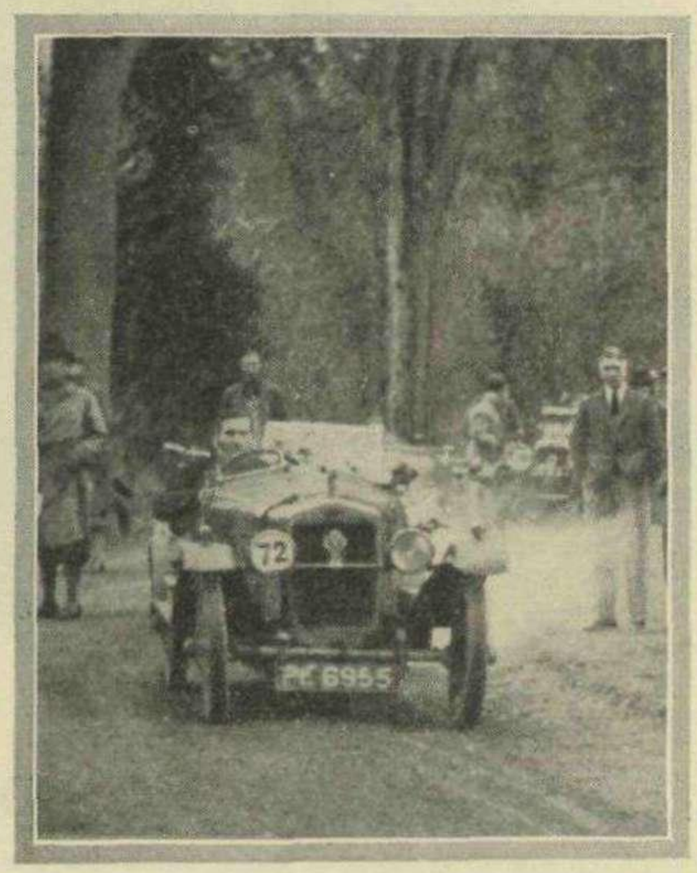
Thus ended a not-too-fortunate day, and we must live in hopes that further events of this type will be marked by a little more control over the proceedings.



The single-seater 2,300 c.c. Bugatti driven by Bertram.



J. H. Robinson's old Brescia Buggatti won the 1½ litre racing class.



M. E. King's Frazer-Nash went well.

RESULTS.

MOTORCYCLES.

250 c.c.

1st, E. C. Fernihough (Excelsior J.A.P.), 19.8 secs.

2nd, J. Sargeant (O.K. Supreme)—O., 22.3 secs.

3rd, B. B. Atherton (Ariel J.A.P.), 24.7 secs.

350 c.c.

1st, J. M. Muir (348 c.c. Velocette), 19.3 secs.

2nd, J. H. White (348 c.c. Velocette), 19.4 secs.

3rd, J. Jeffe (348 c.c. Velocette), 20.8 secs.

Our April Issue.

In order to include full illustrated reports of the Easter motoring events at the end of March, the April issue of MOTOR SPORT will be published on the 7th of the month instead of the 1st.

500 c.c.

1st, E. C. Fernihough (498 c.c. Excelsior J.A.P.), 17 secs.

2nd, S. B. Darbishire (490 c.c. Norton), 17.9 secs.

3rd, J. M. Muir (490 c.c. Norton), 18.2 secs.

UNLIMITED C.C.

1st, J. H. Fell (746 c.c. Douglas), 17.6 secs.

2nd, S. B. Darbishire (490 Norton), 17.9 secs.

3rd, J. M. Muir (348 c.c. Velocette), 18.2 secs.

3-WHEELERS.

1st, J. F. Vaux (348 c.c. Velocette S/C), 20.9 secs.

2nd, J. D. Gardner (493 c.c. Sunbeam S/C), 25 secs.

3rd, S. L. Grubb (588 c.c. Norton S/C), 25.5 secs.

[Remainder of results are given on page 238.]

The Colmore Trial

A DAY or so before the "Colmore" was run on the 13th of last month, it looked as if the hard frost was going to make the course fairly simple. However, the organisers were lucky, and a thaw made conditions decidedly more difficult than was expected, the result being a very successful trial.

The start was from the Unicorn at Stratford-on-Avon, and the first incident of importance was the driving test, which in this trial plays the chief part in finding a winner.

The test consisted of a start with engines dead, then a stop between marked lines. From here the cars were timed from a standing start, round a hairpin bend, to a stop between further marks.

The organisers had salted the snow, and as a result the road was in good condition for the test, which produced some very neat driving. Magnas, Frazer-Nashes, and Hornets showed up particularly well, Langley and Barnes on the first-named being particularly fast.

Evidently the Sutton Coldfield and Birmingham Club believed in getting the special tests over early, for a few miles further on the brake test was held. Two lines seventy-five yards apart were marked on a hill, and the cars stopped with engines dead, in neutral. The test consisted of coasting down to the second line and stopping as soon as possible, a formula having been decided on to give a figure of merit. Thorpe's M.G. showed up well as did Langley (M.G.), and Raymond Way (Rover), R. W. Johnston (Wolseley Hornet), and Mann and Lees (Frazer-Nashes).

The first hill was Blockley, which had a long water splash at the foot, but which otherwise caused no particular trouble. There was a halt at Winchcombe, and after this Bushcombe, which had caused unexpected trouble in the Gloucester, was tackled. On this occasion, no special tests being included, the hill was successfully dealt with by nearly all competitors, Langley and Barnes on M.G. Magnas being closely followed by Lawford's Riley for the best climbs, and Cowcill's Frazer-Nash being very fast.

Piccadilly was the next hill, and the surface was sufficiently tricky to require considerable care in driving. The best climb of the day was undoubtedly that of H. W. Blaw's Frazer-Nash, H. J. Aldington on a similar car also being very quick The M.G. Magnas were mainly good again here, though Watkinson blotted his copy-book by nearly wiping off his battery on a rock, which in no way assisted his coil ignition and caused his failure.

The task of finding a winner was not left to the early tests, and the next affair was a stop and restart on the very "shotaway" surface of Stanway. Here Mrs. Vaughan was very good, while the best times were put up by Patrick's and Wardle's Hornets and Barnes' M.G. Magna, their rather low bottom gears proving very useful on the getaway.

A further stop and restart was held on a slightly lesser gradient on Atherstone hill. Barnes again shone, as did H. J. Aldington's Frazer-Nash, but many of the sports cars were unexpectedly slow off the mark on this occasion.

This being the last special test, there was nothing to do but get back to the finish and tea, and speculate on the results.

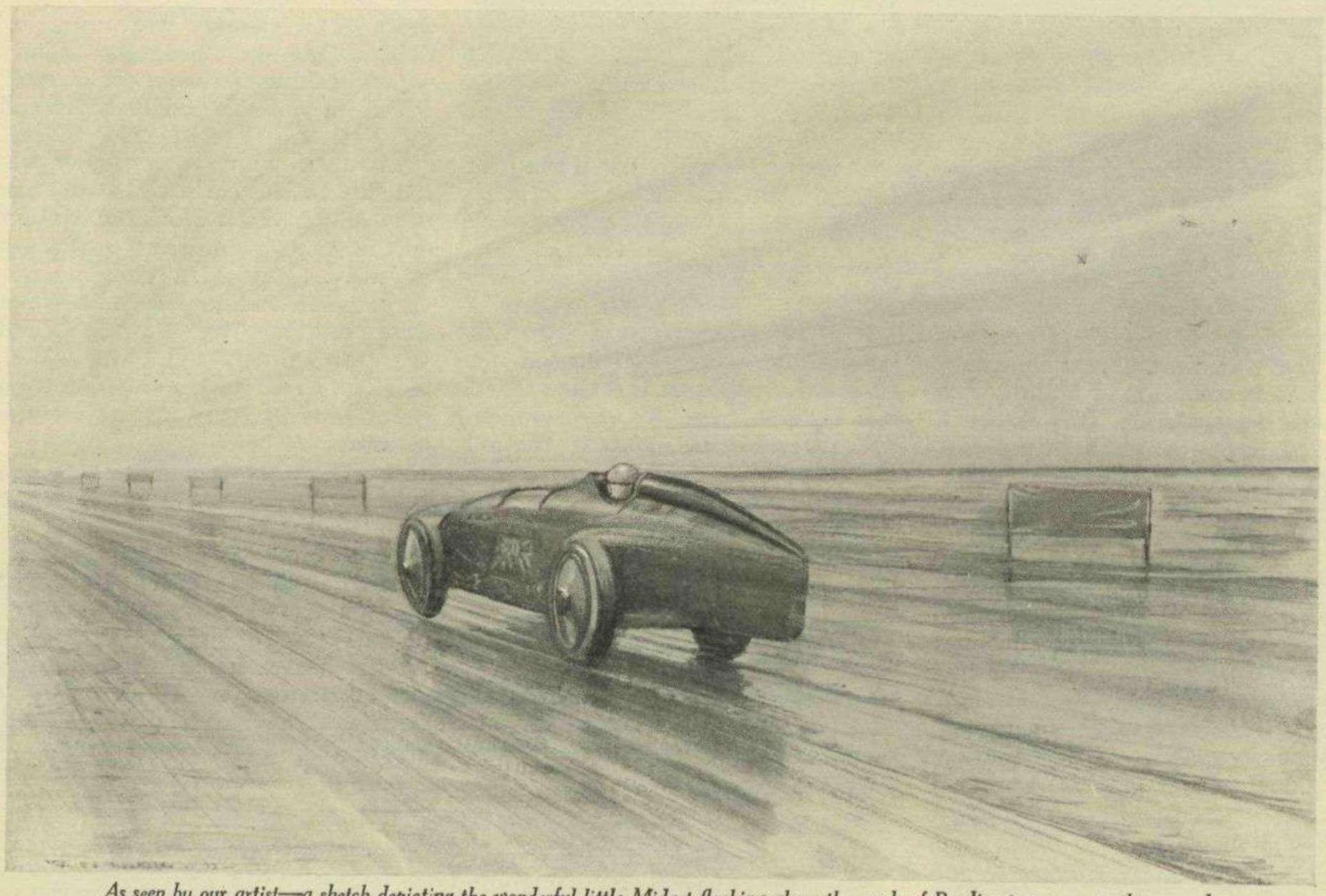
[*For these see page 238*].



Two scences in the classic "Colmore." The picture above shows G. B. Goodman ("£100" Morris Minor) wending his way up Piccadilly, and on the left is seen a Morgan competitor churning the waters of Blockley splash.

THE MIDGET'S 119 M.P.H.

EYSTON'S CROWNING ACHIEVEMENT AT PENDINE



As seen by our artist—a sketch depicting the wonderful little Midget flashing along the sands of Pendine to secure another record.

ONE of the most remarkable things about the latest M.G. effort of reaching nearly 120 m.p.h. for the mile and kilometre, is the fact that the conditions were anything but favourable, and there is little doubt that, given improved conditions, the speed would have been even higher.

As it is, the performance is one of which anyone interested in the progress of engine design must be very proud to see accomplished by a British car and driver.

Also in this case the driver has had so much to do with the technical side of the record, that it is a two-fold triumph for him.

Let us hope that the enterprise of the M.G. Car Company, in developing their product by an intensive racing programme will inspire those makers who do not race to take up the sport and reap the benefit which successful entry to the competition world would bring with it.

The car was a specially built single-seater with offset transmission, arranged with the axle gearing on one side, so that the driver could sit between the cardan shaft and the frame of the car.

A solid axle was employed to reduce wheelspin, and the car gave no trouble. Weather conditions were bad, and the sand was heavy in parts, causing some drag in certain places on the car's record runs.

Talking it over with Eyston after the event, we asked him if the heaviness of the sand would not be worse for actual speed on such a small car than on a good hard track. His opinion, however, is that the advantage of the flat level surface of the sand outweighs the disadvantage of its rather higher resistance to the car's progress. He explained that although when resting on a wet beach the car tended gradually to sink in, when at speed it was on each part of the surface for too short a time for the drag to be appreciable.

His chief troubles were caused by the temporary failure of the electrical timing apparatus, which meant that Eyston had to wait three hours in the car while things were put right, during which time it was very trying having to keep the car warmed up, waiting for the start.

Then the first run was completed and the apparatus failed to register owing to lack of oil. However, all was well at last, and the highest speeds ever made with a 750 c.c. engine were officially recorded.

The actual mean speeds were :—

Mile : 118.39 m.p.h.

Kilometre : 118.36 m.p.h.

A very wonderful achievement.


The Midget Record
FASTEST SPEED
Mr. G. E. T. EYSTON
drives MG "midget"
AT 119 MPH
(Subject to official confirmation.)
SPECIAL
"BP"
PLUS

G. E. T. EYSTON DISCOURSES ON—

ESSENTIALS OF SUPERCHARGING

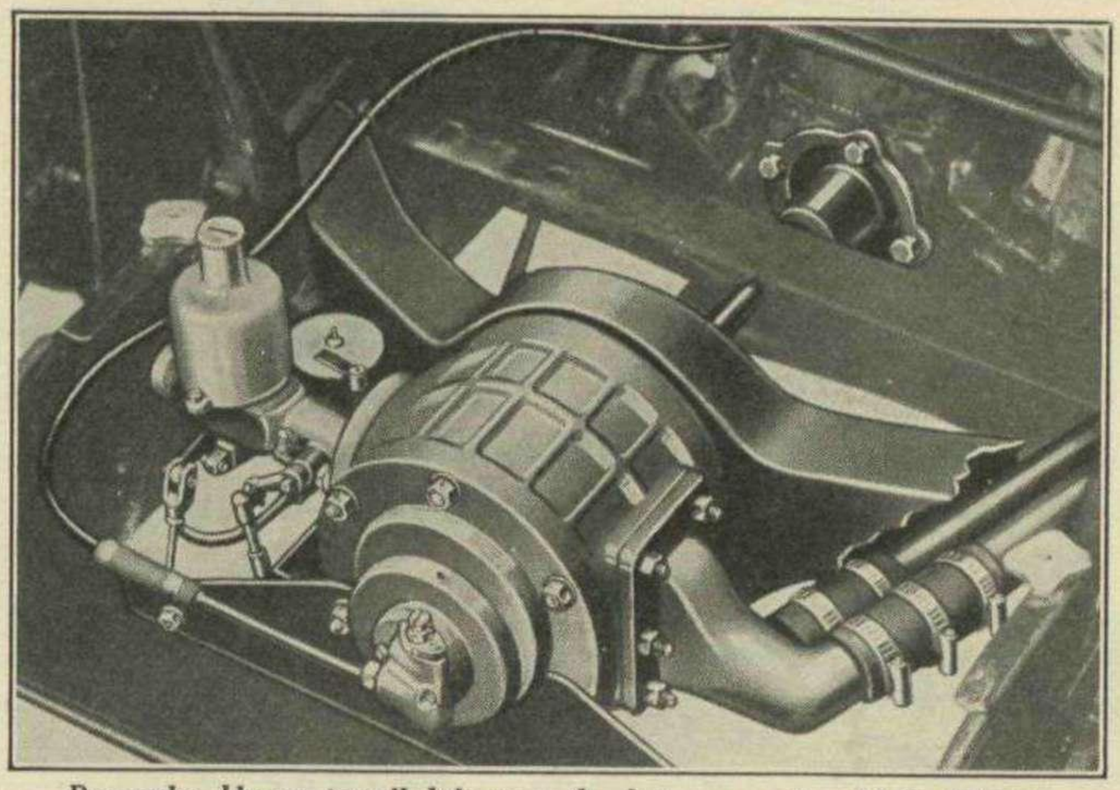
IT is interesting to study the application of "boosting" to high performance cars, and the methods employed to effect this with maximum efficiency. The choice of the blower unit is, of course, the primary consideration, and with this end in view it is necessary to examine the considerations leading to the selection of the best type of compressor.

It must be compact, light in weight, and absolutely reliable. Silence is also of primary importance, and although a slight whine is sometimes fascinating to some owners, in principle this should be eliminated as far as possible. For this purpose the drive for the blower should be direct off the crankshaft, without either right angle drive, chain, or spur wheels. It is only on "conversion" installations that this has to be done, or where length of power unit is definitely restricted by important considerations.

If the blower is mounted on the front end of the crankcase, the pipe line to the induction ports is still of satisfying length for the purpose of obtaining the necessary velocity of flow at low engine speeds. If anything but a direct drive is utilised, then an additional source of noise has to be faced by the designer.

As far as the blower is concerned, there are two sources of noise, one pneumatic and the other mechanical. A blower which does not compress in the casing before delivery is at a disadvantage as compared with one in which the pressure rises to that required in the discharge pipeline.

Balance of all the rotating parts and careful workmanship and design will look after the mechanical side. It is absolutely necessary to guard against any distortion of the mechanism or casing when functioning at maximum output. The lubrication of the machine must be well thought out and, as in an engine, directed to those parts only which are comparatively highly stressed.



Powerplus blower installed between dumb-irons on the M.G. Midget.

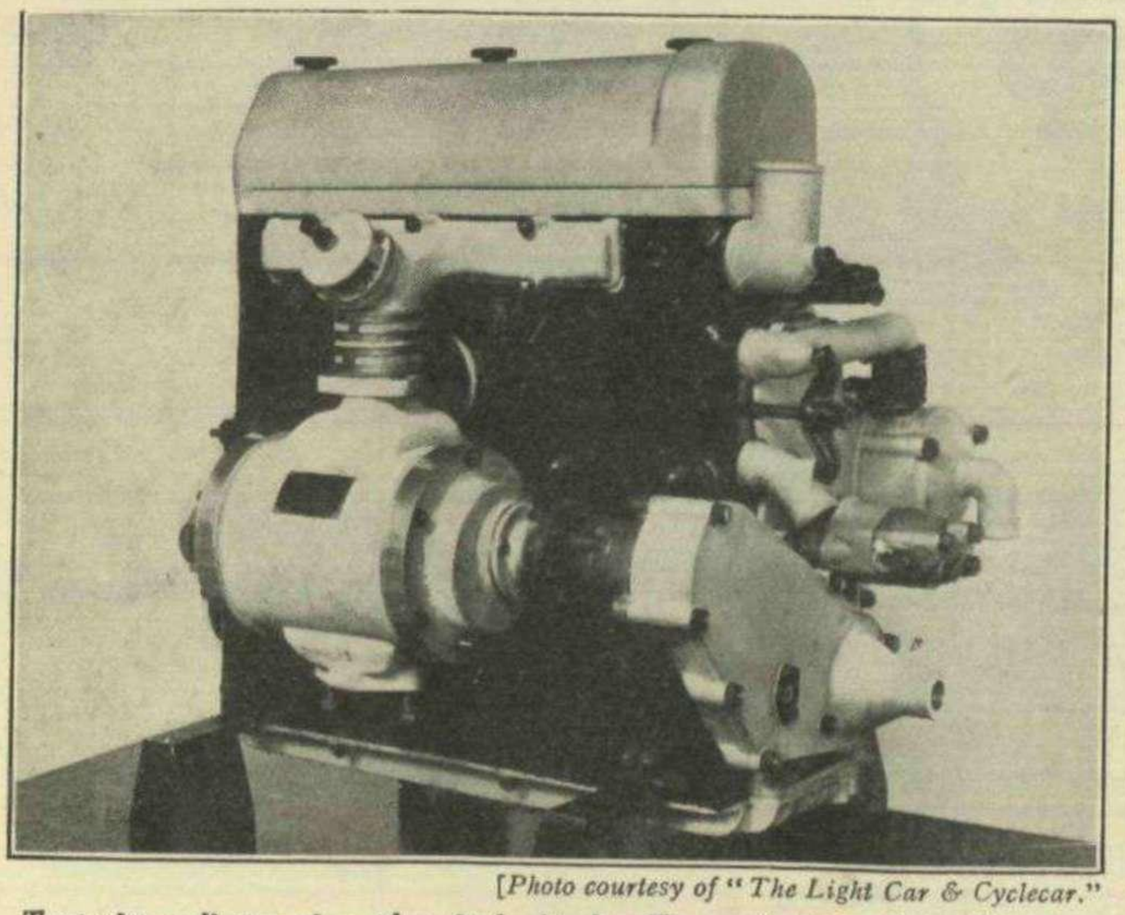
The blower has to handle not only the normal air requirements of the engine, but supercharge in addition, so that the duty is heavy for so small a device, and selected materials are essential.

The 'Powerplus' design has been chosen for the M.G. Midget, which has been consistently successful, both in International races and record attempts. The engine is only 750 c.c.'s capacity, so there is nothing to give away when, say, achieving a speed officially timed over the measured mile of 119.48 m.p.h. Apart from this sprint, winning the Tourist Trophy and covering over 101 miles in the hour are proofs of reliability. There is, in fact, no doubt that for all purposes it is possible to construct a blower to-day which will give equal or better service than the engine and transmission. The method of mounting on the front end of the crankcase by spigot will be obvious, such as has been done by Sunbeam, the old racing Talbots, Alfa Romeo, Maserati, etc. The drive is taken from the crankshaft direct in prolongation with same. If it is required to insert a reduction gear so that the blower can run at less than engine speed, this can easily be arranged by means of an internal toothed wheel and pinion, which does not take up much space, since one element slides in the other, and, as is well known, this form of gearing is one of the most silent.

Further, it is possible easily to arrange for the reduction gear to run in an oil bath at the front end of the crankcase. If in the case of engines which develop their power at low revolutions an increasing gear for the blower is required, then it is clear that this can be incorporated in the system with equal facility.

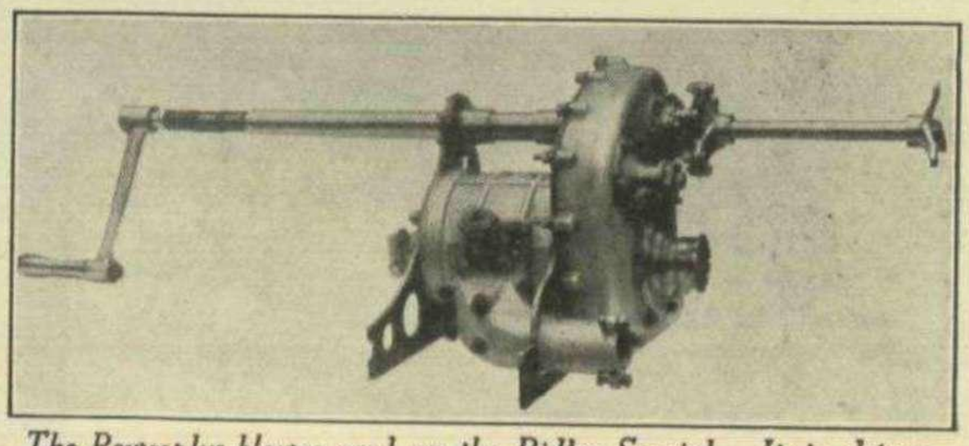
With the supercharger there is always a certain maximum speed which should not be exceeded from the point of view of obtaining the highest volumetric efficiency. The volumetric efficiency falls off with the degree of back pressure or boost, but particularly in positive displacement rotary types such as are required for automobile work, the drop in volumetric efficiency with boost is about constant in a good machine. At the point where it starts to sag the speed should be noted, and the blower geared to the engine, so that this speed coincides with maximum permissible engine revolutions and efficiency. The cause of this sagging is, of course, the inability to aspirate and discharge air or mixture in the short time available when running at high speed—with the porting available it is only possible to draw and discharge air or mixture in unit time.

Unless a car is laid out on the drawing board for a blower fitted to the nose of the engine to be driven in prolongation of the camshaft, it is unlikely that space will be available between radiator and front of engine on a conversion. Then recourse has to be made to methods of



[*Photo courtesy of "The Light Car & Cyclecar."*

Typical installation alongside cylinder block. The engine is an Aston-Martin.



The Powerplus blower used on the Ridley Special. It is driven through a chain with jockey spocket.

ESSENTIALS OF SUPERCHARGING—continued.

drive shown in the accompanying photographs. One shows the installation of a Powerplus blower on the Ridley Special, with which Lord Ridley took various 750 c.c. records last season at Brooklands. In this case a shaft with flexible coupling drives a sprocket at the top of the chain-case shown in the photograph. From this the blower itself, which is slung below crankshaft level, is driven by roller chain. This system makes changing of the gear ratio very simple by the use of alternative sprockets on the blower driving shaft. The tensioning of the chain is dealt with by a jockey sprocket, the bearing of which can be seen in the illustration. Other details of the layout can be seen. Another shows the layout of the Powerplus on the latest 850 c.c. M.G. Midget, which sells at £250. Here the drive is direct from the crankshaft, and the blower is rigidly mounted on two cross-frames. The twin pipes for the induction can be plainly seen.

The third photo shows a typical example of a layout alongside the cylinder block. In this case the drive is by chain from the front end of the crankshaft, and makes a very neat layout. The only disadvantage is the noise of the drive, but the short induction pipe is a decided advantage.

The application of supercharging of sports cars seems likely to become more general, as the improvement in performance is accompanied by improved distribution and consequently greater smoothness of running at lower speeds.

—G. E. T. EYSTON.

[Mr. Eyston, as most readers will be aware, is the designer of the Powerplus supercharger—Ed.]

A Sports Coupé Magna.

NEW ABBEY MODEL.

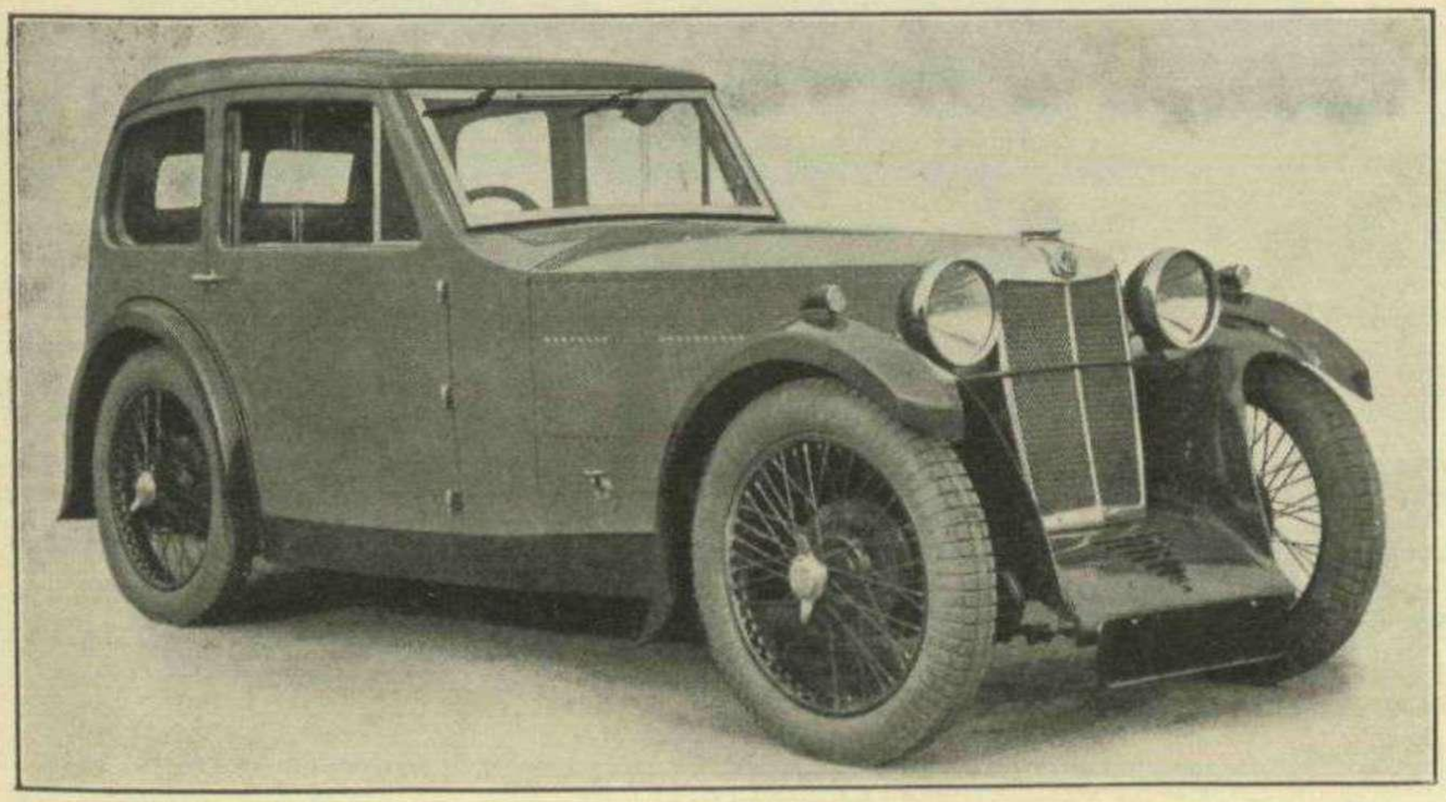
A VERY smart and attractive sportsman's coupé is now being produced by Abbey Coachworks, Ltd., mounted on the M.G. "Magna" chassis.

It is a two-door four-light four-seater, and apart from its general lines, it is extremely striking in being very low built, its total height being no more than 4ft. 6 inches. In spite of this, comfort in the way of head-room has not been sacrificed, and every means has been employed to avoid cramping of the occupants. For example, armrests are fitted to recesses in the doors, which give a considerable increase in elbow-room.

As can be seen in the accompanying photograph, the windscreen has a pronounced rake; it is fitted with twin wipers and is hinged at the top, so that it may be opened to any degree. The spare wheel is carried at the rear, secured on a bracket by a neat lock ring. A special 8-gallon fuel tank is also fitted at the rear, and this has an extra large filler cap. The tank is so made as to blend well with the general lines of the back of the car.

Both externally and internally, the finish is of a high order; in the case of the latter, real hide is used for the upholstery, with pneumatic cushions, and a walnut facia board.

The equipment includes interior light, silk rear blind, roof ventilator, pockets in doors and special bonnet. The price is £345. The address of Abbey Coachworks, Ltd., is Minerva Road, Chase Estate, North Acton, London, N.W. 10.



The new Abbey—M.G. Magna coupe has, as this photograph shows, ultra-modern lines. The driver's window is of the sliding type, and not as illustrated.

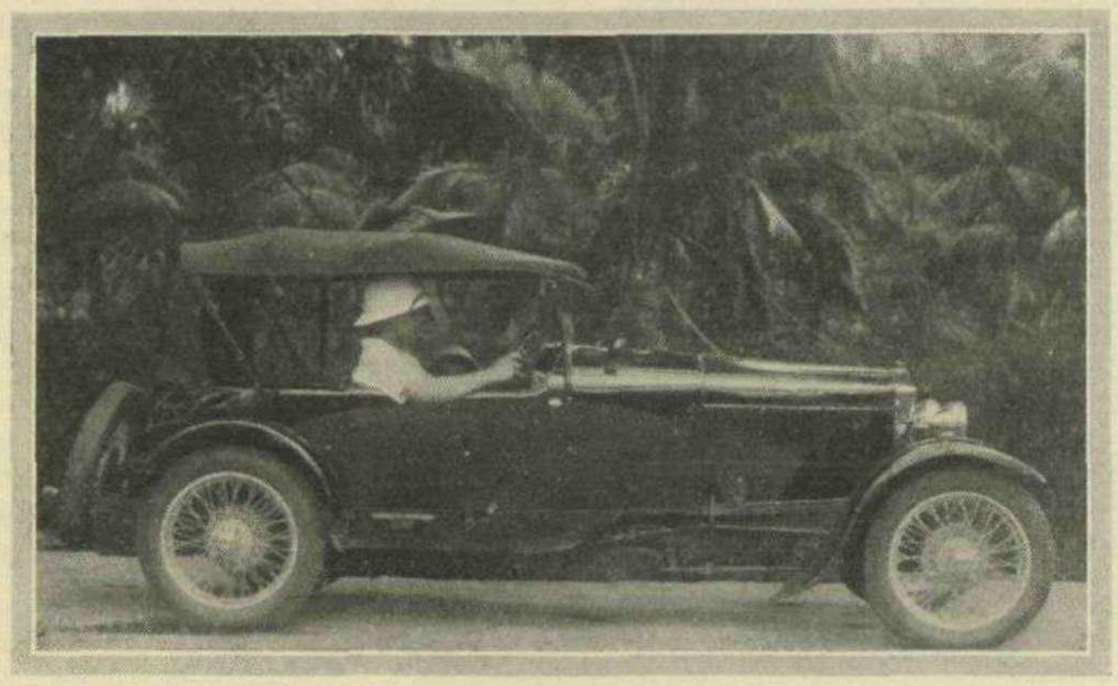
AN OIL TEST.

THROUGH the courtesy of Messrs. Shell-Mex we received for test a drum of Aeroshell oil. The makers claim that this oil is capable of withstanding the same loads as oils of vegetable origin, together with freedom from gumming-up and deposit. Racing successes obtained in 1931 have shown its capabilities in the first direction, so our test was made simply to find out its suitability for ordinary sports car use.

The car used for the test was a supercharged 4½-litre Bentley. The sump was drained and then filled with Aeroshell. Judging from the reading of the oil-pressure gauge, the oil appeared to have much the same viscosity when cold as the one usually used, but maintained its body better when hot. The car was run for 746 miles, mostly on fast main road work, and the oil-level was then restored to its former height by the addition of more oil. The quantity required was three quarts, giving a consumption of just under 1,000 miles per gallon. The Bentley oil consumption is always fairly heavy, as the sump also lubricates the blower, but the Aeroshell figure showed an improvement of about 15%.

No trouble with gumming was experienced, the engine starting freely in the coldest weather without recourse to cranking. There was no exhaust smell or other drawbacks that we could find, so that the oil appears to combine successfully, touring qualities and racing performance.

FROM ZANZIBAR



"I Have Nothing but Praise for my Frazer Nash which Has Never Once Let Me Down On The Road."

Mr. R. R. Crarey, the owner of a 1926 Frazer Nash (now in its fifth year of service in Zanzibar) has sent us the snap reproduced above with an enthusiastic letter in which he says, "*The car is running as well as ever and gives no trouble despite her age. The chain-drive—often objected to—has never given trouble, while the chains and sprockets have not needed renewal. Again, the lack of a differential does not affect tyre wear, as I obtained* 15,000 *miles from one set of covers—the new ones being still on the car. I have found a Frazer Nash, with its fascinating gear change and exceptional acceleration a delightful car to drive, and my next car will undoubtedly be a new model of the same make. You may expect an early visit from me when I get back to England in* 1933."

Another owner, Mr. Stewart MacLeod, in British Columbia, writes, "*Thought it might interest you to know that my Frazer Nash has run well over two hundred thousand miles now, and is still going strong.*"

Once you have driven a Frazer Nash, you will not be content until you have one yourself, and you will never get the same fun out of driving any other make of car. It is an amazingly fascinating car, and characteristically English in its individuality as compared with the mass-production models of today. It is probably the easiest car on the road to drive, perfectly safe under any conditions, genuinely fast, uncanny acceleration, and with efficient transmission incorporating silent and direct drive on all gears.

The practical experience gained in years of racing and competition work has played an important part in influencing the design of the Frazer Nash, and the latest models are worthy of the marque in every way.

One of our old owners (in the Royal Navy) has recently returned from the Far East after an absence of several years and within a few hours of his arrival placed an order with us for a new Frazer Nash.

Another owner, with the R.A.F. armoured cars, left his Frazer Nash with us when he was transferred to Iraq a year ago as deposit against his order for a new model to be ready for him on his return to England in 1933.

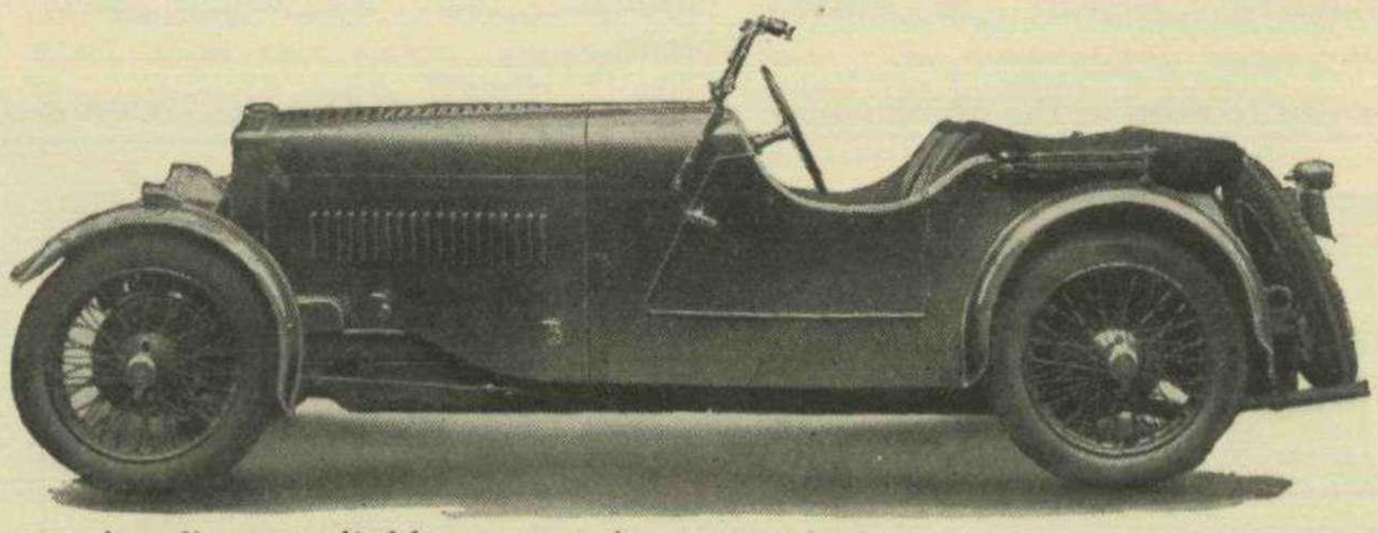
It is definitely unusual in these days to find enthusiasm as keen as this, but our cars have always aroused in their owners an amazing degree of confidence which is probably unequalled.

This enthusiasm is shared by the experts—"THE AUTOCAR," November 6, 1931, said "*latest models so far in advance of anything previously achieved that a run is an experience to be remembered,*" and "THE MOTOR"—"*The exhilaration of driving a Frazer Nash must be experienced to be believed.*"

★The EXETER Model

Brief Specification: two-three seater panelled body, with rear compartment; short chassis; 8 gallon rear petrol tank; o.h.v. engine. An unusually comprehensive equipment includes Lucas 12v. lighting and starting (with dip and switch), chromium plating of all bright parts, flat folding screen, safety glass, Rudge Whitworth wire wheels, Dunlop tyres, etc. Leather upholstery with pneumatic cushions. Colour scheme to choice.

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MOTORING SPORTSMEN

(NEW SERIES).



III.—KAYE DON.

AT Brooklands during the past decade there has been no more conspicuous figure nor live personality amongst the leaders of the sport than Don.

Invariably cheerful, always keen and alert, he appears to be endowed with a temperament which, one might say, is essential to a man who is engaged in those pursuits in which Kaye Don has made his name. In demeanour and conversation he does, as a rule, convey the impression of light-heartedness and an abundance of optimism, and one has only to watch him "on the job"—say in the process of setting up a new lap record—to see that this is reflected in his driving. But Don is not just a dashing performer who can be relied upon to thrill the crowd. He is a man of tremendous experience with a cool, calculating mind, and these qualities, balancing up with others, combine to make him a first-rate driver, be it on road or track.

Versatility has always been most marked in Don; in fact it is safe to say, without reservation, that he has had a more varied career in the world of motoring sport than any other man.

Early days.

It was in 1912—exactly twenty years ago—that Don first tried his hand at the game. And as a motor-cyclist in a hundred and one reliability trials he consistently showed his ability. Then came the War, and rather naturally he joined the Royal Flying Corps. In point of fact, it was while in the Service that the writer first became acquainted with him, and one has a very clear recollection that he was in those hectic days just as keen on his job, just as jovial and just as masterly in the handling of his machine (in his case an R.E.8, so dreaded and cursed by many pilots) as he is to-day. Don must have piled up a good many hundred hours in the air, for in addition to serving in an artillery observation squadron on the Western Front for a considerable period, he was for about six months a pilot attached to headquarters, which entailed flying to and from France on all kinds of special missions. He was also attached to a squadron stationed in Ireland, and after the War he still wielded the stick in the R.A.F. Reserve.

In 1919, he appeared once more in motor cycle trials, then two years later he caused a stir when he obtained the Hour Record at Brooklands on an A.C. at a speed of over 90 m.p.h. He also secured many International records with the same car.

To detail all his successes would result in a formidable and lengthy list, and space does not permit. But to recall a few—In 1923 he won the President's Gold Plate on a Deemster; in 1925 and 1926 he secured sundry awards with that monstrous motor, the Wolseley Viper, and in the following year—at the Easter Meeting—the Founder's Cup fell to him, after he had driven a wonderful race with his 2-litre Sunbeam, winning at a speed of 105.03 m.p.h. A little later, at the Whitsun Meeting, Don won another coveted Brooklands award—the Gold Star, again with the Sunbeam (speed 118.9 m.p.h.).

In the following year he repeated this success, winning the 1928 Gold Star Race at the phenomenal speed of 128.36 m.p.h. This was the fastest speed at which any race had ever been won at the time from a standing start, and during the event Don broke the lap record at 131.76 m.p.h. The car was the renowned Sunbeam "Tiger," which had a 12-cylinder 4-litre engine.

During the season of the same year, successes came to him thick and fast; at the August Bank Holiday Meeting he won the President's Gold Plate, was the winner of the Ulster T.T.—on each occasion, it will be remembered, with a Lea-Francis—and he held the record for the 1½-litre class for the Ards Circuit. Add to these the fact that during the year he had broken between 30 and 40 records, World's, International and British, and it becomes easy to understand why he was elected British Champion for 1928.

The proficiency with which he had carried out his racing programme during that year, and the good fortune which had seen him through that strenuous time was not lacking when the 1929 season was under weigh, and the Don-Sunbeam combination proceeded to annex premier awards at Weybridge with a regularity which the Brooklands crowds had, by now, grown to expect.

The lap record, which had become a sort of Don speciality, was raised to 132.46 m.p.h., at the Easter Meeting, the Gold Vase went his way at Whitsuntide, and at the August Bank Holiday Meeting he astounded everyone by once more smashing his own record for the lap by putting it up to 134.95 m.p.h. This was when he was competing in the Gold Star Race, in which event he ran home into second place. On 1st July, 1929, Don made the highest officially recorded speed at the track—a cool 140.95 m.p.h. for one kilometre. When the season closed he was again elected Champion.

Triumphs afloat.

As all the world knows, the year 1930 saw the opening up of a new sphere for Kaye Don's activities, and following the lamentable death of Sir Henry Segrave, he was

MOTORING SPORTSMEN—continued.

chosen by Lord Wakefield to pilot his speed boat "Miss England II." Those who had watched him on wheels and wings were now keenly interested to see how he would shape in this new enterprise. And, to be sure, we were not disappointed.

But before he temporarily abandoned the car for the boat he rounded off his multitudinous Brooklands achievements by *again* breaking his own lap record, and this still stands—the figure? 137.46 m.p.h. That was at the Whitsun Meeting. His bad luck in the R.A.C. T.T., when he skidded, overturned and caught fire, will be well remembered by those who saw the incident, and if it was rough that he was thus put out of the running, it was, on the other hand, fortunate that the injuries he received did not permanently place him on the retired list.

And so we come to the year just past. On 2nd April at Buenos Aires Don gained his first victory on the water by capturing the World's Water Speed Record, at 103.49 m.p.h., with the now-famous "Miss England II." On 9th July, at Lake Garda, Italy, he eclipsed this performance by increasing his speed to 110.28 m.p.h. Two months later he went to Detroit, and won the first heat in the Harmsworth Trophy Race, and set up a new record for the course (93.017 m.p.h.). Small wonder, after these successes, that he was awarded the International Motor Yachting Union Medal of Honour for the world's best motor boat performance of the year.

At the commencement of this article we wrote of the versatility of Kaye Don; it will be realised from the foregoing that it would be difficult to exaggerate upon this point. Motor cycles, cars, aeroplanes and boats—it is obvious that he has in the past, and still can pilot any of these with an ease and skill which is altogether exceptional. And with fresh achievements and new developments he retains an affection and keenness for his earlier mounts.

Of his intentions for the coming season Don is a little reticent. But in our interview he told us that he plans to take "Miss England III." (now in course of construction) to Lake Garda in May. There he will take part in the race for the D'Annunzio Trophy, and around that time he also anticipates an attack on the Water Speed Record; then, if all goes well, he will compete in the Harmsworth Trophy Race at Detroit.

The sport afloat will not, however, occupy the whole of his time, and we may hope to see him at the track again—in all probability at the wheel of a 5-litre Bugatti—while he will use also two British cars which are at this moment being prepared.

And knowing Don, we may rest assured that things will happen.

THE R.A.C. 1,000-MILES RALLY.

THE first event of its type run by the R.A.C. has certainly proved successful from the point of view of entries, and by the time these words appear some 367 motor cars, less any non-starters, will be progressing round England from the various starting points.

The majority of cars are in the large class, Class II. up to 1,100 c.c., having 88 cars. The large cars have to average 25 m.p.h., and the "1100's" 22 m.p.h. All routes are approximately the same length, 1,000 miles. Starting to-day, the cars are due to finish on the 5th, the Torquay Headquarters being at the Palace Hotel. There are 20 control points to take care of the 9 routes, namely, Bath, Buxton, Cambridge, Carlisle, Cheltenham, Chester, Droitwich, Eastbourne, Edinburgh, Harrogate, Kendal, Leamington, Llandrindod-Wells, London, Newark, Newcastle-on-Tyne, Norwich, Nottingham, and Peebles.

Each competitor will have to report at four of these controls on his way.

There has been a great deal of controversy over the regulations, owing to the fear that the Monte Carlo business of changing gear ratios before the flexibility test might occur in some cases. Actually we think the possibility of such a thing, which is against the spirit of the rules, is very remote, and, in any case, the R.A.C. amendment, stating that all wheels carried must be the same size, and that axles, gearbox, and induction pipe may be officially marked before the start, puts the matter in order.

Further argument was caused by the admission of fluid flywheels, but it would have been against the interests of mechanical progress to exclude them. The majority of entrants for this event will be in for it chiefly for the fun of the thing, and therefore are not unduly worried about the actual finding of a winner, and it is due to the fact that the routes are comparatively simple that finding a winner is a somewhat invidious business.

On the other hand, to start with a very stiff event would tend to reduce the entry seriously, and so reduce its interest to the public as a whole. What we should like to see as a successor to this event would be a rather longer route, including the tit-bits of all the well known trials courses in various parts of Great Britain, including the famous hills used in the Scottish Six Days, the Lake District, Peak District, and finishing up with some of the Land's End hills. It would naturally be harder to run, and the R.A.C. are doubtless wise in starting with something easier.

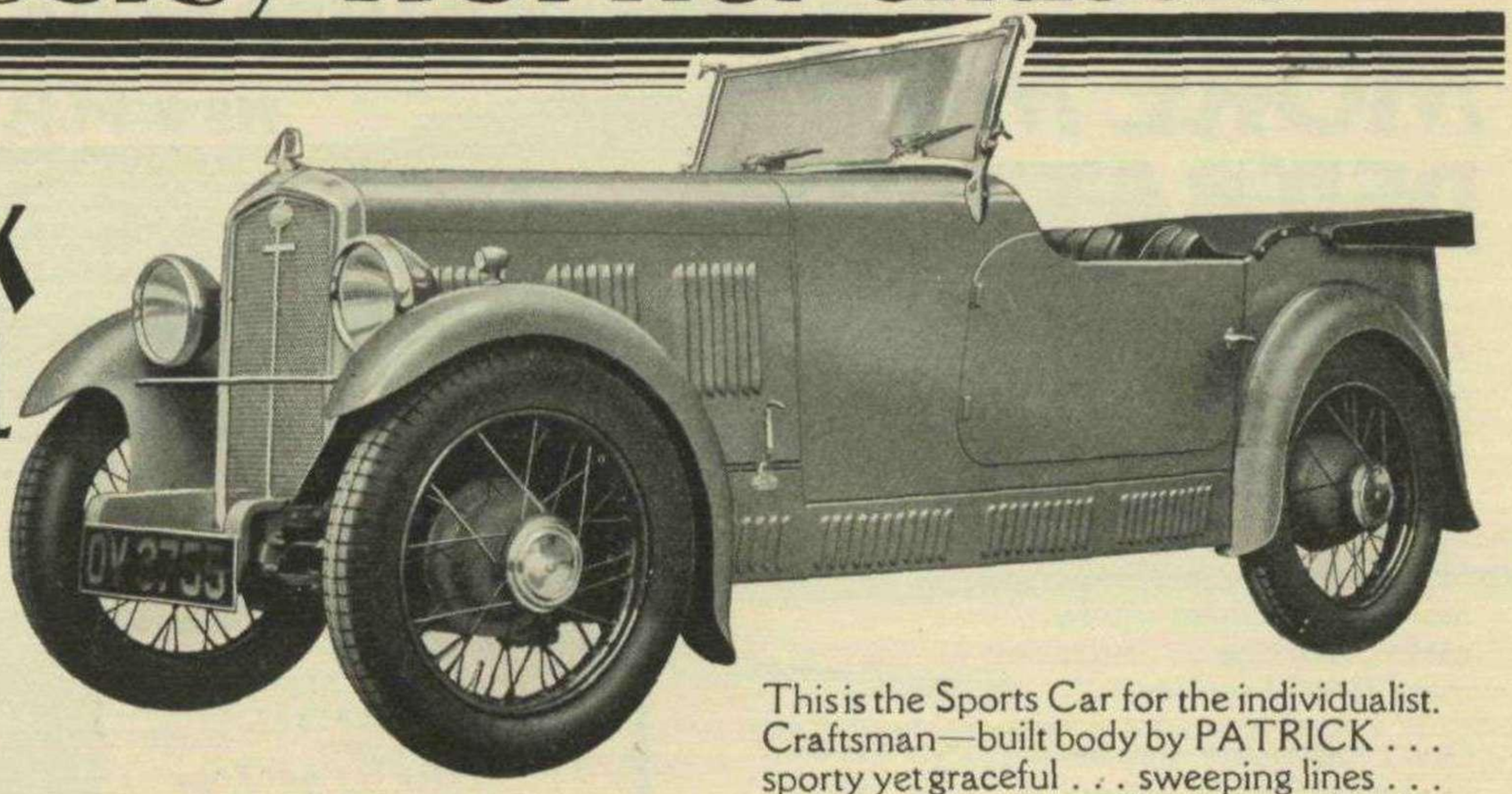
Most of the cars in for the Rally are of normal type, but there are a few interesting departures which may be forecasts of future design. Of these the Gardner engined Bentley is probably the most practical demonstration yet conceived of the progress which has been made in Diesel engine design in the last few years.

There will also be one or two cars with free wheel devices, while the regulations have proved a great encouragement to the fluid flywheel contingent.

A description of the event by one of the MOTOR SPORT staff who is going through the event in a Talbot will appear, with the results, in our next issue.

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The PATRICK SPECIAL



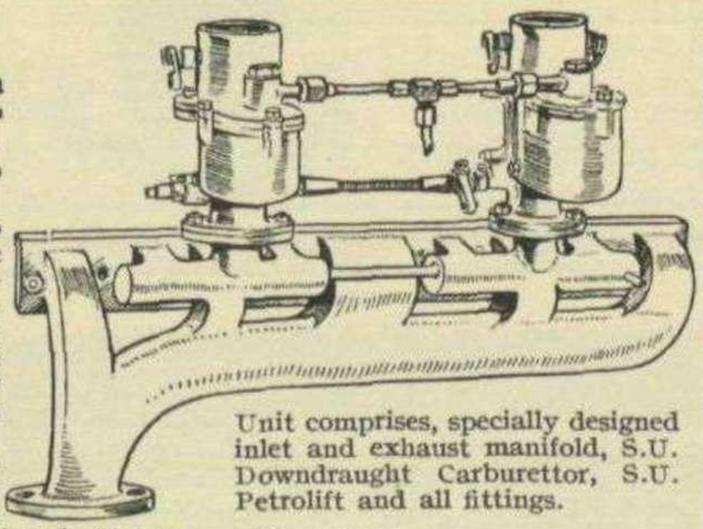
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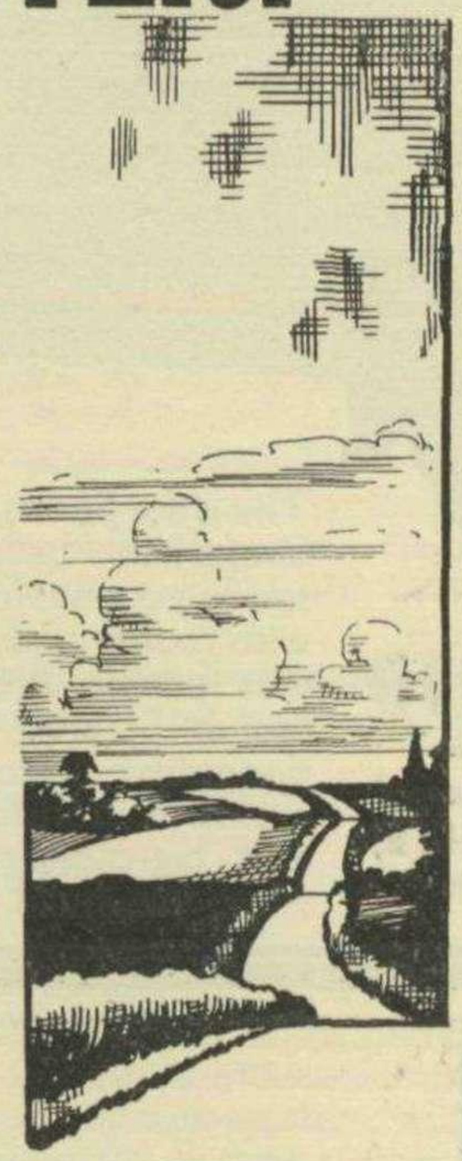
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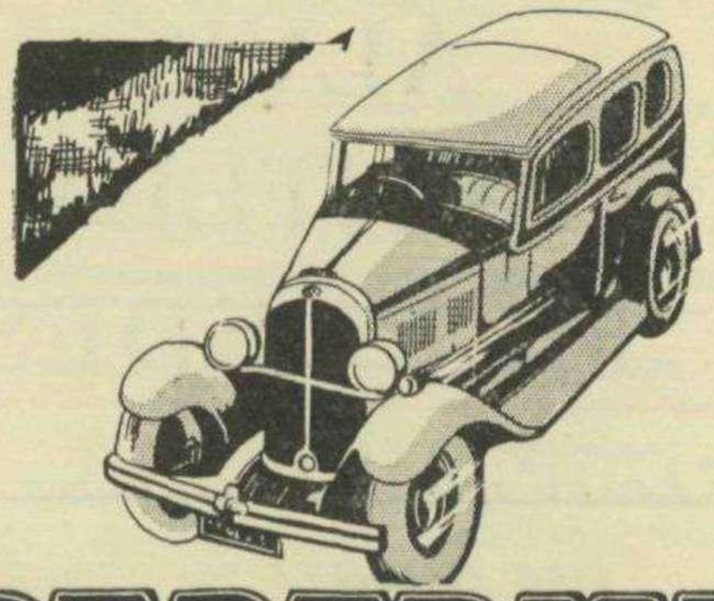
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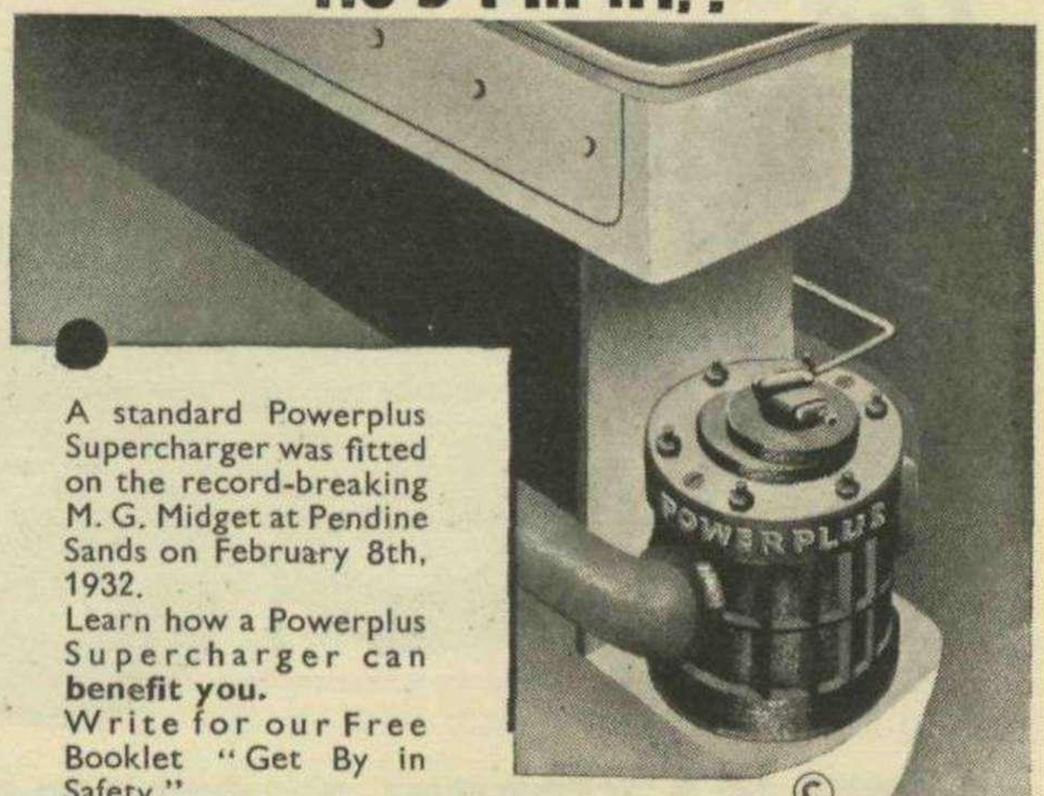
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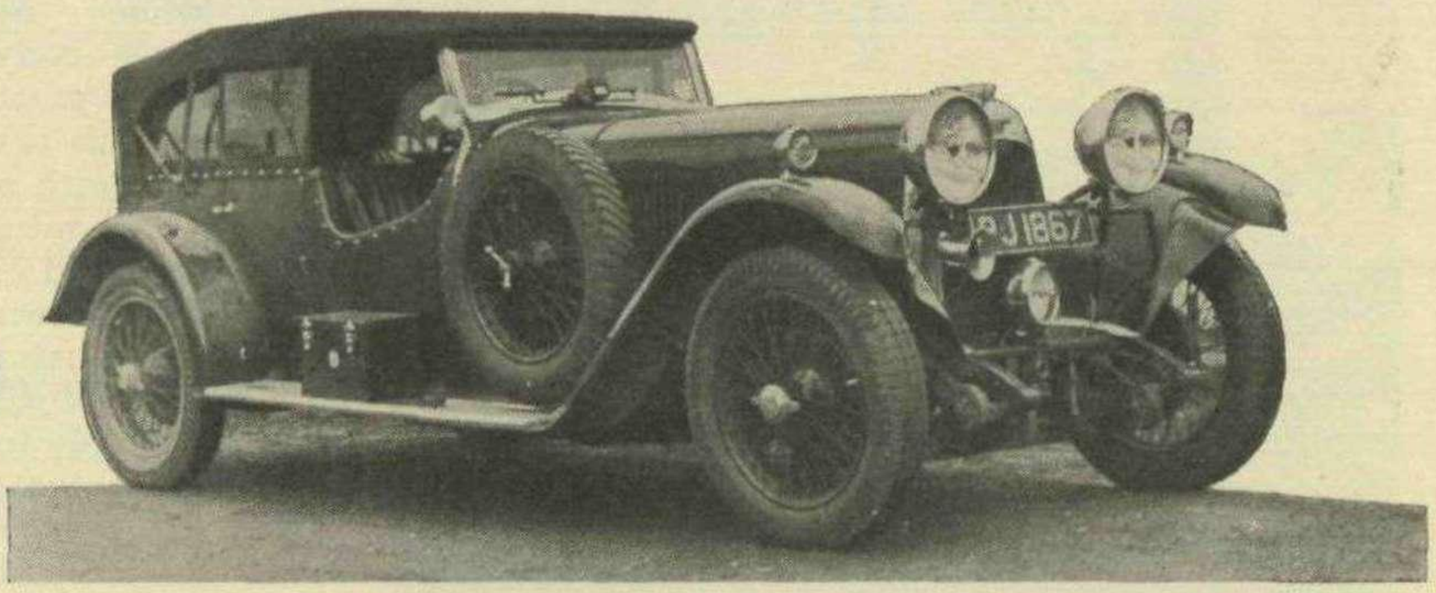
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THE THREE-LITRE LAGONDA

A FAST AND COMFORTABLE SPORTS CAR.

IN these days of low price regardless of everything, it is encouraging to remember that there are still concerns who carry on the engineering traditions of an earlier age, and combine the results of modern knowledge with first-class craftsmanship and materials.

Among these the firm of Lagonda Ltd., of Staines, have always been to the fore, and a fine example of their latest product was the 3-litre car which they recently placed at our disposal for the purpose of a road test.



Lord de Clifford's car which was loaned us for our test.

This car afforded special interest as being the actual vehicle which recently took part in the Monte Carlo Rally, and in the able hands of Lord de Clifford and his crew, came successfully through that most exacting and strenuous affair.

Following the remarkably interesting account of this event in our last issue, by H. B. Browning, a member of the said crew, some notes on the performance of the car under normal road conditions will have an added interest.

The car in question is identical with the standard 3-litre " Selector " model, except for the substitution of the normal 4-speed gear-box for the pre-selective type.

The engine is a six-cylinder unit of 2,931 c.c. and subject to a tax of £20 per annum. The overhead valves are operated by push-rods from a single camshaft in the base of the engine. The whole layout of the engine is designed for smooth running with long wear and absolute reliability, the massive crankshaft being carried in seven bearings, and the camshaft in four bearings.

Brief Specification.

Engine: 6-*cyl.* 72 x 120 *m.m. bore and stroke,* 2,931 *c.c. R.A.C. rating* 19.28 *h.p. Detachable head.*
Clutch: Single dry-plate with adjustable clutch-stop.
Gear-box: 4 *speeds,* 17.3, 10.8, 6.4 *and* 4.7 *to* 1.
Suspension: Semi-elliptic springs.
Dimensions: Wheelbase 10 *ft.* 9 *in., track* 4 *ft.* 8 *in., ground clearance* 8 *in.*

The 12-volt dynamo is driven from the crankshaft, and the electrical system is highly ingenious. The dynamo has an output of full 15 amperes when required, but to avoid the evaporation of the electrolyte, inevitable with such a high rate, the full current is only utilised when required to balance the output of the powerful lights.

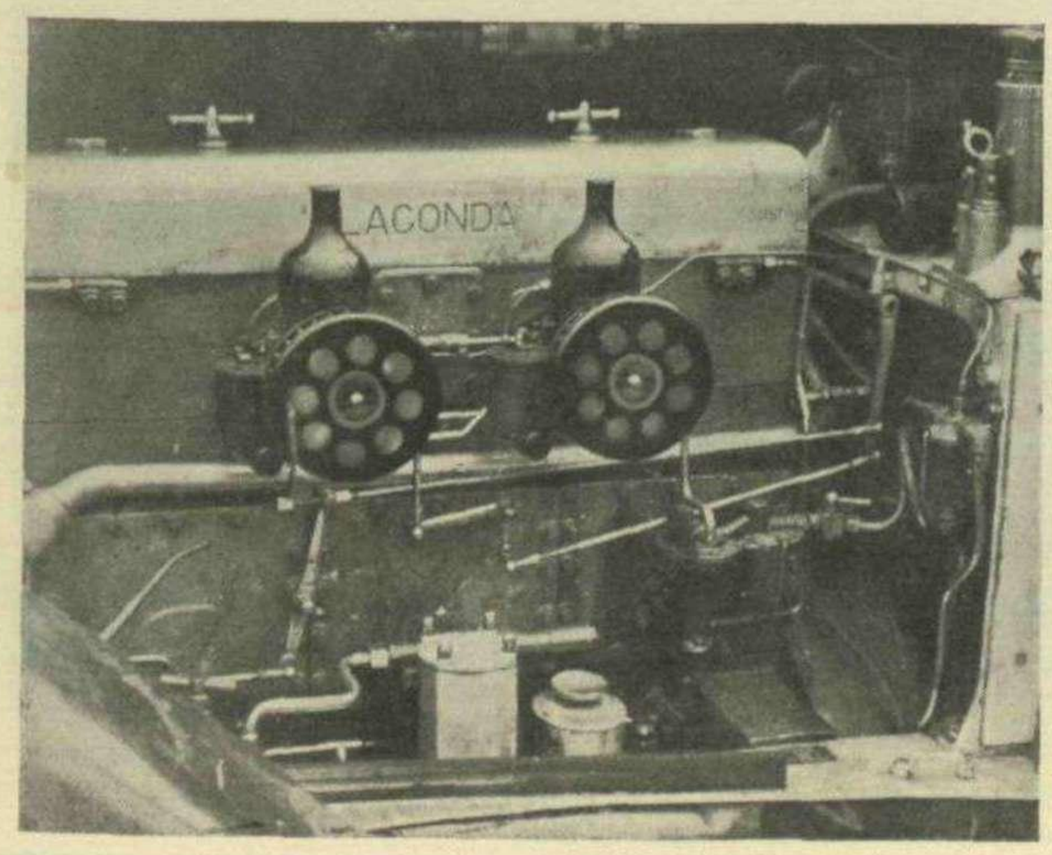
At normal speeds the charge rate is 5 amps, which is automatically increased to about 10 when the side lamps are switched on, and to 15 when further lights are in use.

Coil ignition is normally fitted, but the actual car we tried had a Scintilla magneto fitted, while for the purposes of the Rally a spare magneto was carried on the dash. It was not required, however.

Cooling is by pump and fan, controlled by a thermostat, so that although the system is equal to the hardest possible work, the engine is never overcooled in normal use and warms up to working temperature in a few minutes.

The two S.U. carburettors are fed by a pump from the 20-gallon rear tank, and a two level tap provides a reserve supply.

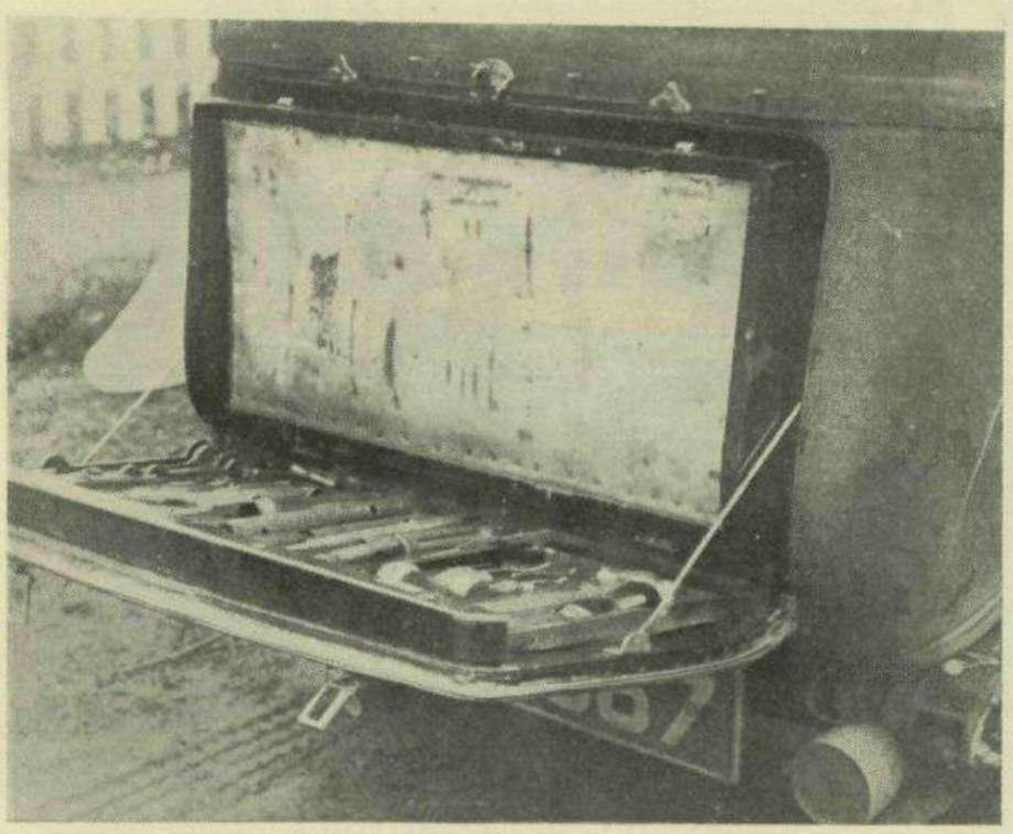
The oil sump holds no less than three gallons, and all bearings are pressure fed from this, giving further indication of this car's suitability for really long distance work under the hardest conditions.



A view of the induction side of the 3-litre Lagonda engine. It will be noted that the twin S.U. carburettors are pump-fed. Smoothness at all speeds, and a steady, sweeping acceleration are marked features of the car, while accessibility is another noteworthy point.

[*Motor Sport photographs.*]

THE THREE-LITRE LAGONDA—continued.



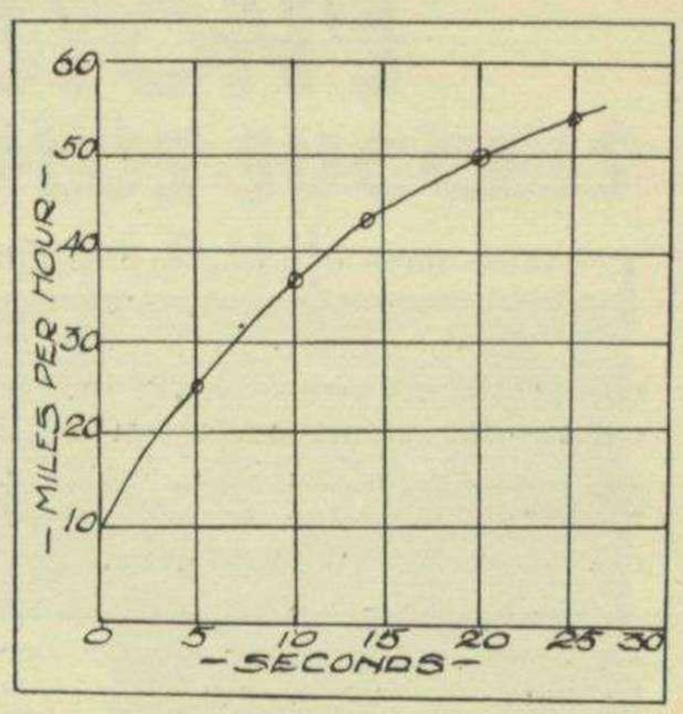
An excellent idea. How the tool kit is carried on the car.

The equipment of the Lagonda is very full indeed, including the large P.100 Lucas headlamps, fog lamp, rev. counter, radiator thermometer, and many items not normally considered part of the standard equipment, together with as fine a tool-kit as any owner could desire.

On the road we were immediately impressed by the comfort and smoothness of running, which confirmed our desire to use such a car for covering big distances. The acceleration is excellent, and although the car appears rather large at first, it is extremely handy, and the road holding, both on corners and on the straight, is really excellent.

The Bishop steering gave light yet positive control, while the truly ample body space is a great blessing. This car was fitted with a 4.7 to 1 axle ratio for the Rally, which cut down the maximum speed, the normal ratio being 3.66 to 1. However, 4,000 r.p.m. on the gear fitted gives just over 78 m.p.h., which is, of course, considerably increased with the normal gear ratio, and with less fuss. As it was, the car would maintain 70 m.p.h. or over up many main road hills, showing that it was undergeared for normal fast touring, though even with this gear, distances of over 55 miles in the hour were covered in the Rally itself when making up time.

The gear change is exceptionally easy, and the gears themselves run as quietly as first-class design and finish can make them. Upward changes can be effected almost without pause owing to the provision of a clutch stop, and although this is a fitting which always requires



A graph showing the Lagonda's acceleration.

getting used to, it has many undoubted advantages.

The brakes were very much above the average, both in power and smoothness of working. They operate direct through rods which gives a very positive control, while the unusual refinement of carrying the operating shafts on self-aligning ball races accounts for the very small effort required to apply them.

On dry tarmac they gave a stopping distance of 48 ft. from 40 m.p.h. Furthermore, they can be applied hard without the least effect on the steering and without any fierceness or tendency to sudden locking of the wheels.



[*Motor Sport photographs*

Offside of the power unit, showing the exhaust manifolds with lagged pipes and method of securing the union nuts. For the Monte Carlo Rally Lord de Clifford carried a spare magneto (seen on the left), but this was not used.

THE THREE-LITRE LAGONDA—continued.

The car had not been touched since completing the Rally apart from being washed, and the only evidence of its strenuous trip was a certain amount of valve noise when ticking over, but which was not noticeable when on the move.

Taken as a whole, the 3-litre Lagonda is a very pleasant car of very high quality, and possessing that indefinable but very definite character which stamps the thoroughbred in every walk of life. Very comfortable, lavishly equipped and distinctly fast, this car at £1,065 should appeal to many who want a luxury car with a sports car performance.

MONT DES MULES HILL CLIMB

BRITISH cars showed up well against their continental rivals at the Mont des Mules hill climb, the last of the events in connection with the Monte Carlo Rally.

The hill has a average gradient of about 1 in 12, is three kilometres in length and includes many dangerous bends. British cars won every class in which they competed, and in each case broke the existing record. Only one category, for cars up to 8000 c.c., went to a foreigner.

The winners in each class were as follows: 750 c.c., J. W. Wright (M.G.), 50.18 k.p.h.; 1100 c.c., C. R. Whitcroft (Riley), 53.25 k.p.h.; 1500 c.c., N. Black (M.G.), 51.42 k.p.h.; 2000 c.c., T. C. Mann (Lagonda), 50.51 k.p.h.; 3000 c.c., H. Widengren (Alvis), 51.67 k.p.h.; 5000 c.c., D. M. Healey (Invicta), 55.44 k.p.h.; 8000 c.c., Prince Djordjadze (Mercedes-Benz), 60.2 k.p.h. The high speeds obtained in the three smaller classes are particularly noteworthy.

CAR LICENCE CONCESSIONS.

REPRESENTATIONS were recently made by the Automobile Association to the Ministry of Transport in the interests of motorists who have laid up their cars, but propose using them during the Easter Holidays.

As Good Friday coincided with the first day (March 25th) of the new licensing quarter, in the absence of an amending regulation motorists who had not licensed their cars this year would have been prevented from taking the road before Good Friday itself.

The A.A. is now informed that to meet this difficulty motorists will be able to take out their licences from the 23rd March instead of the 25th March on payment of a special additional duty. The licences will be issued for the periods :—

(a) March 23rd to June 30th inclusive, or—

(b) March 23rd to December 31st inclusive.

The additional duties payable will be :—

Motor vehicles taxed annually at £30 or over, 10/-. Motor vehicles taxed annually at less than £30, 5/-. Motor Cycles, 2/6.

Motorists who do not wish to use their cars until Good Friday will still be able to obtain their licences at the rates previously existing.

MOTOR SHOW AT JOHANNESBURG.

A CONSIGNMENT of Humber and Hillman cars have been sent from England for the exhibition at the Witwatersrand Motor Show, to be held at Johannesburg commencing 21st of this month. This is a very important event in South African motoring circles and good results are anticipated by the British manufacturers, whose products are already in public favour.

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PRESENT-DAY RACING CARS.

II.—THE NATIONAL PESCARA.

Brief Specification.

Engine : Straight-eight—72.2 × 90 mm. bore and stroke—(R.A.C. rating 26 h.p.)—horse power at 4,800 r.p.m. 110—valves operated by two overhead camshafts—Remy coil-and-battery ignition—Zenith downdraft carburettor.
Transmission : Through single-plate clutch, three speed gearbox, and open propeller shaft to spiral-bevel back axle.
Brakes : 4-wheel hydraulic type fully-compensating.
Suspension : half-elliptics all round.
Wheels : Special disc type (Elektron).
Maximum speed (production model)—100 m.p.h.

If Spain cannot lay claim to having contributed to any appreciable extent to the World's output of motor vehicles she has at any rate built up a reputation for turning out a remarkably fine job on the few occasions when she has entered the automobile market.

In the sports category in the past and the present-day luxury class, the Hispano-Suiza held and holds a prominent position, and even though the modern types are no longer built south of the Pyrenees one instinctively regards the Hispano as a Spanish marque.

The same may be said of the National Pescara, which at the time of its introduction was Spanish-built, but which is now to be manufactured in the factory of Voisin in France.

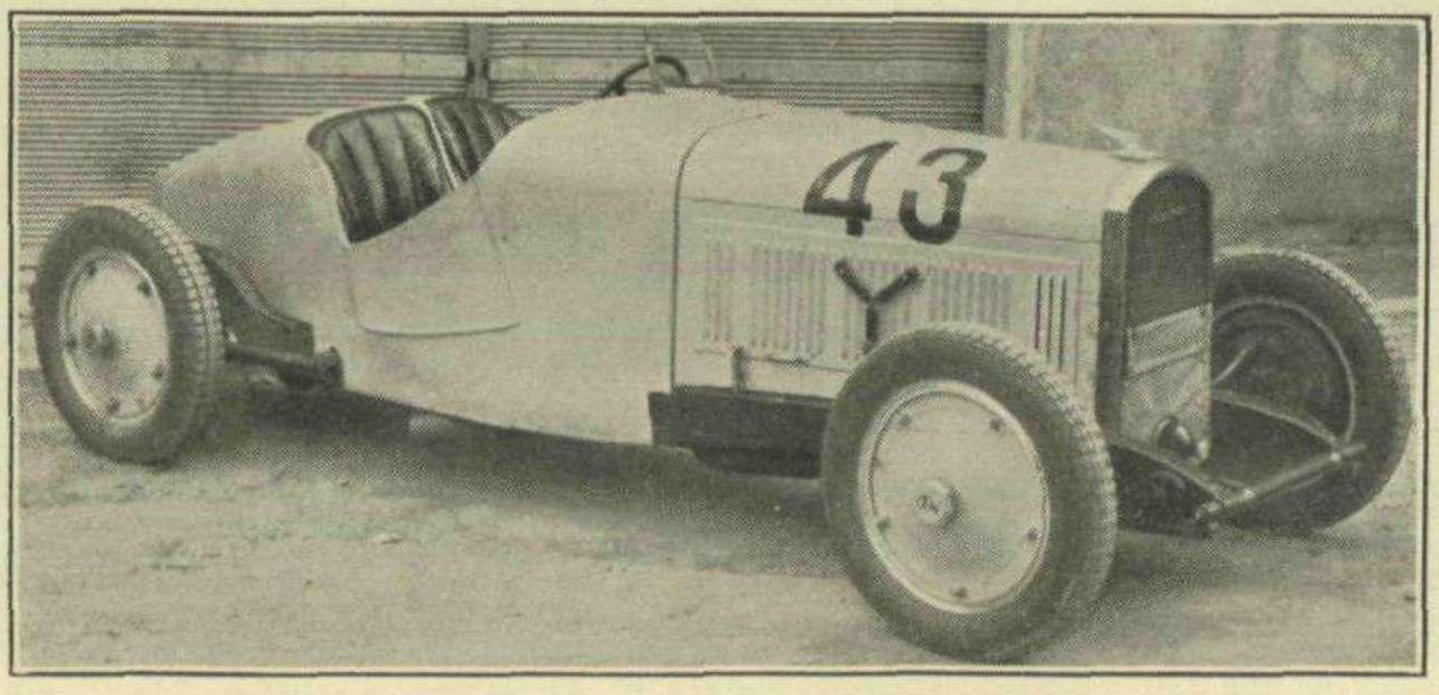
The National Pescara, although a newcomer is not unknown to followers of the sport in this country since two examples were run at Shelsley Walsh last year. On that occasion the cars attracted a great deal of attention not only on account of their being new and coming from a country not usually associated with automobile construction, but because they showed themselves to be true racing machines. Moreover, the National Pescara design is unusually interesting.

A cursory examination of the chassis shows that the designer knew very well what he was about, and the layout as a whole embodiesfeatures which should be, but are not always found in cars designed for speed and high performance.

The side members of the frame are downswept very considerably between the axles, and in addition to being of deep channel section, sundry transverse and intermediate members are interposed which give the whole structure great rigidity.

The power unit of the National Pescara is an eight-cylinder in-line, and light alloys are used extensively in its construction. The cylinder-block is of aluminium with steel liners inserted by a special process, and the pistons are die-cast aluminium, with four narrow rings, and have domed heads. The connecting rods are tubular and have very large big ends. The crankshaft is of chrome-nickel steel, is statically and dynamically balanced and runs on nine main bearings.

The cylinder head, which is detachable, carries two over-head camshafts which operate the single exhaust and inlet valves. The combustion head is spherical in form, and the valves are set at an angle with the plugs interposed between them. As the head is of aluminium, the valve guides and seatings, and plug orifices are all of bronze and they are inserted by a special heat process.



The National Pescara in its original racing guise. The disc wheels are of Elektron.

The camshafts are driven from the front-end of the crankshaft through shafts and gears.

The cylinder heads are very heavily jacketed, and the cooling system includes a pump which takes its drive from the crankshaft through a transverse shaft; a belt-driven fan and a thermostat are also incorporated.

No supercharger is fitted to the National Pescara engine, and it is rather surprising to find that in spite of having eight cylinders, only one carburettor is employed. This is a downdraft racing type Zenith, and it is attached to a four-branch induction pipe, each branch serving two cylinders. The carburettor is mounted in the centre, and a hot-spot which takes its heat from the exhaust system is embodied in the manifold.

The exhaust manifold is on the opposite side of the block; eight stubs merge into a streamlined chamber, and the gases are led away through a single large diameter pipe. The ignition system is Delco-Remy with the distributor and coil mounted in a very accessible position at the front end of the power unit. It has an automatic advance. Lubrication is by a single gear pump which is placed in the usual way in the sump, and special care has been taken to make this readily accessible, as is the case with the oil filter.

The base chamber is made of Elektron, and it is heavily ribbed internally for stiffness, and has cooling fins cast on the exterior.

As in practically all modern cars, the gearbox is built up in unit construction with the engine, and it is also made of Elektron. The gear shafts are short and robust,

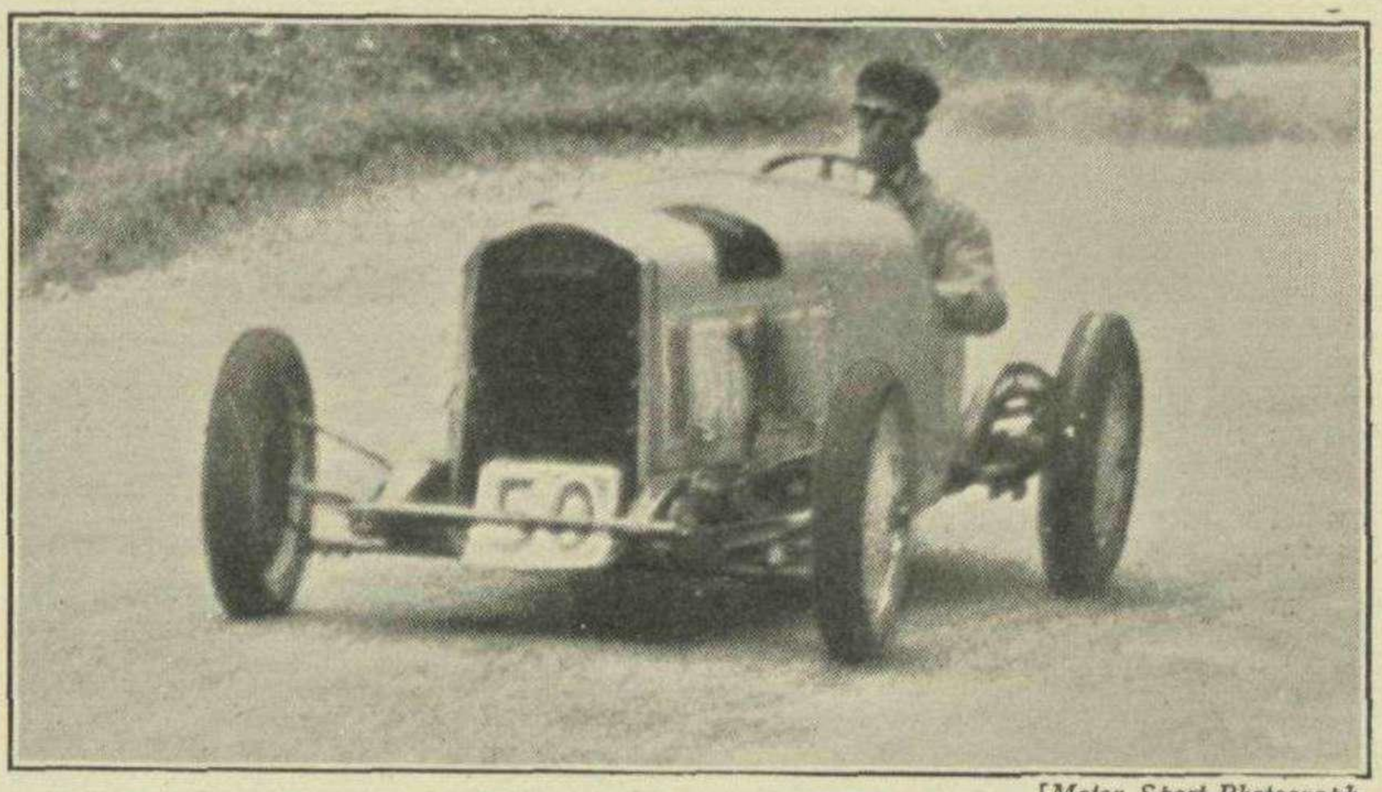
PRESENT-DAY RACING CARS—continued.

and they run on roller bearings. The box provides three close-ratio forward speeds, and, of course, a reverse. A central-lever ball-change is utilised. A single-plate clutch is embodied in the very light flywheel, and the power is transmitted via an exposed tubular propeller shaft (with Hardy-Spicer joints at each end) to a banjo-type, semi-floating spiral-bevel rear axle. The front axle is of orthodox pattern, and the suspension system is half-elliptic all round. A cam type steering box is found in the National Pescara, and the rake of the steering column can be easily adjusted to suit individual requirements. The petrol tank—made incidentally, of sheet Elektron—is disposed between the rear dumb irons.

The four-wheel brakes are hydraulically operated, and one of the most interesting features of the car is that the wheels are built up of Elektron stampings with detachable rims ; these are secured to the inner section by five studs.

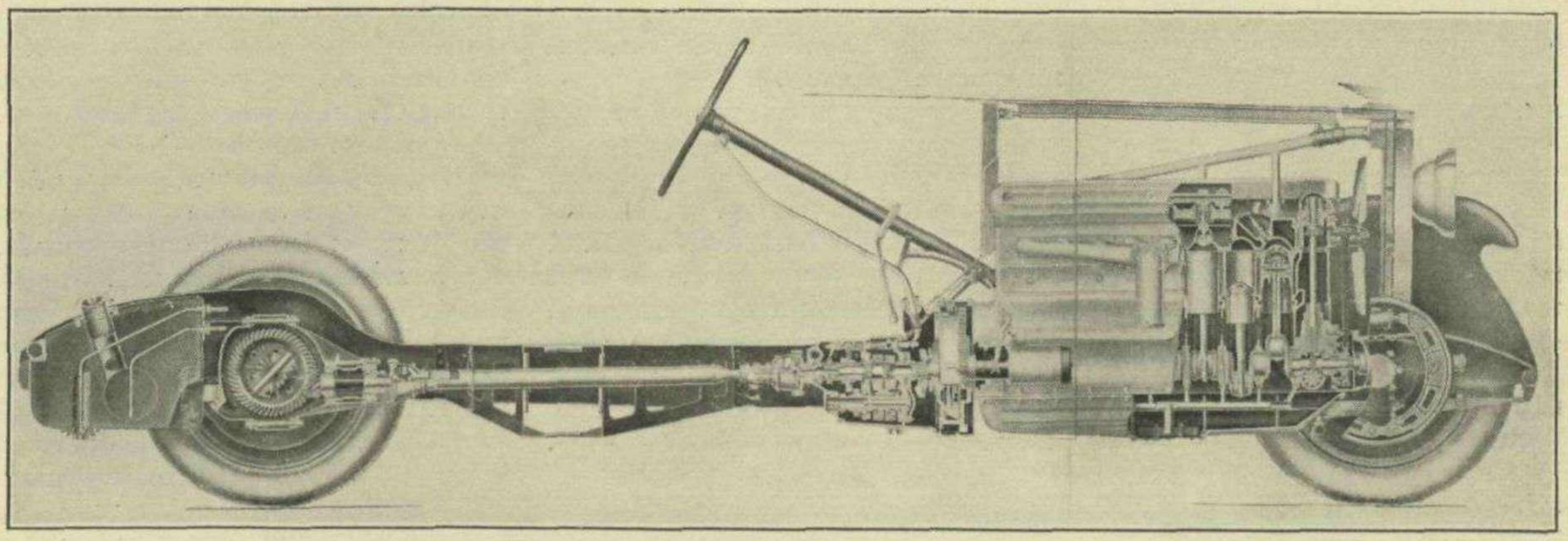
As can be seen from the photographs, the National Pescara is very low in build, and if the body does not conform to English ideas, it is at any rate definitely sporting in appearance.

Followers of the sport, particularly those of us who saw this Spanish marque's speedy and silent behaviour at Shelsley will hope to see it figuring in events again during the coming season, and judging by the way it has so far acquitted itself—it will be remembered that it gained the Mountain Championship of Europe (racing class) last year, as a result of Zanelli's successes in the Kessel climb and elsewhere—it should be well to the fore.



[*Motor Sport Photograph*

The National Pescara in action at Shelsley Walsh, 1931. The driver is Zanelli.



A sectional drawing of the National Pescara.

MOTORCYCLE EVENTS IN THE COMING SEASON.

RUMOUR has been busy recently concerning next season's motorcycle races and the makes which will compete in them. Some manufacturers support races, others do not.

Amongst the former may be numbered the New Imperial Company, who have believed in the racing policy for the past eight years. In 1932 this marque will once again appear in the Isle of Man and the more important Continental events.

Although it has not yet been definitely decided, it is probable that the new spring-frame machines will be used, and the team of riders—not so far quite settled—will almost certainly contain E. A. Mellors, who had such a good season in 1931. Mellors competed in some 17 races, and amongst his best positions were third place in the Lightweight T.T., and first in the 250 class of the Belgian Grand Prix, with a record lap of 70 m.p.h., second in the 250 German Grand Prix and second in the Swiss Grand Prix.

"New Imps" will also be seen in all the prominent trials.

ON THE ROAD WITH A "GAMECOCK."

GOOD ROAD-HOLDING QUALITIES AND HIGH CRUISING SPEED CHARACTERISE NEW RILEY MODEL.

SINCE the introduction of the famous Brooklands model of the Riley "9," which has so many racing successes to its credit, there has been a steadily increasing demand for a model intermediate between this and the more normal touring car or saloon.

What was wanted was a sports model which was not a racing car, but a neat and handy vehicle which combined a lively performance with freedom from constant tuning, and the general ease of upkeep of the touring models.

Following the successful introduction of the "special series" models, which embodied the twin carburettor sports engine, the Riley Company have now met the requirements of a large field of motorists with the "Gamecock." This is a sports 2-seater, of attractive lines and excellent finish, which gives the opportunity of having the chassis with the "special series" engine at the same price as the other models of the range with the single carburettor standard engine, i.e. £298.

Brief Specification.

Engine: 4-*cyl.* 60.3 *x* 95.2 *m.m. bore and stroke, capacity* 1,089 *c.c. Inclined overhead valves, push-rod operated. Fitted twin S.U. carburettors. Two-bearing fully balanced crankshaft.*

Gear-box: In unit with engine. 4-*speeds with silent third. Ratios* 20.37, 13.13, 7.67 *and* 5.25 *to* 1.

Suspension: Semi-elliptic springs.

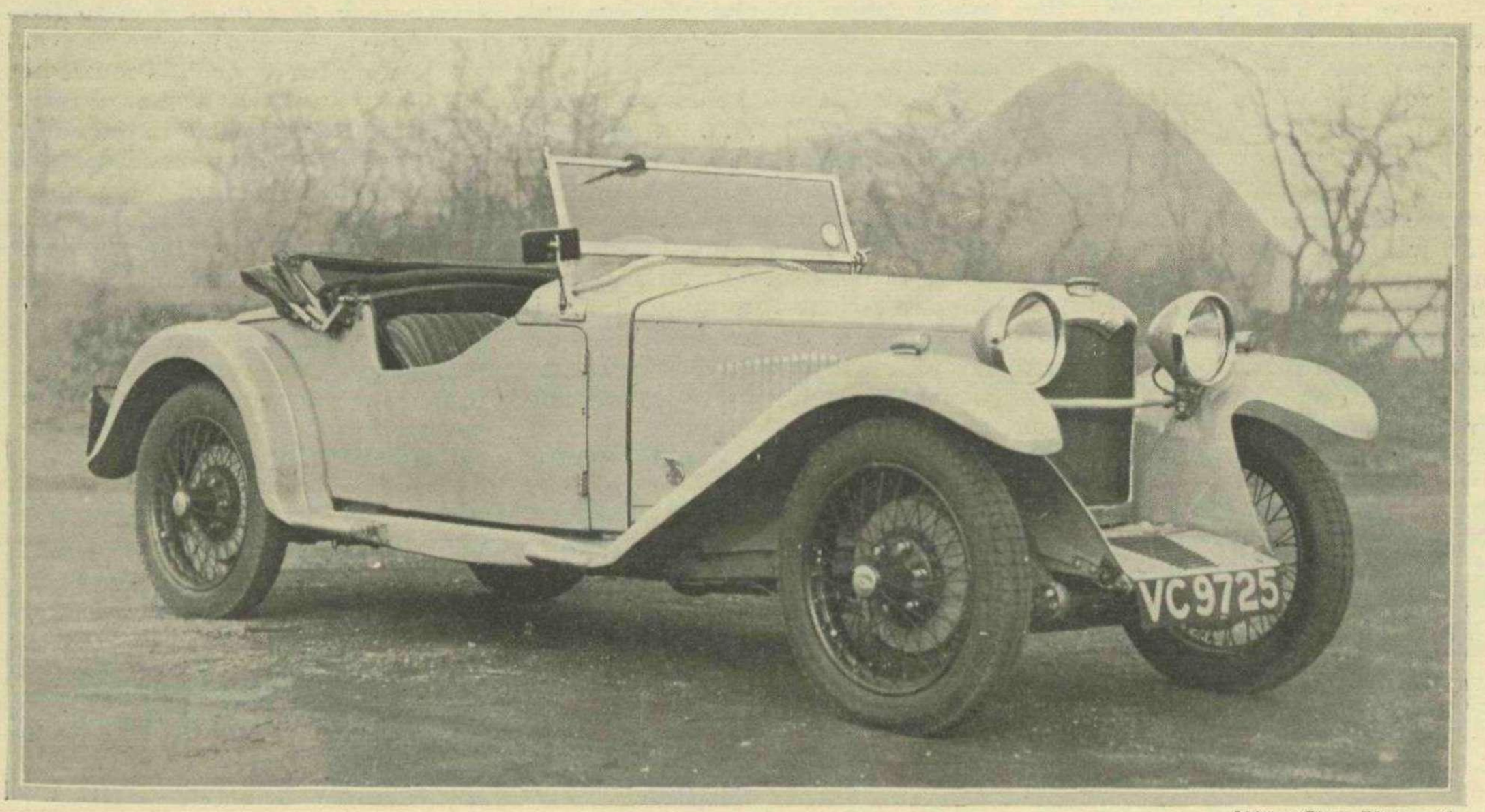
Brakes: On all wheels, adjustable from driving seat.

Price: £298.

The main features of the Riley engine include the special cylinder head and valve gear arrangement, by which overhead valves inclined at 90° in the hemispherical head are operated by means of push-rods from the camshafts situated at the side of the engine. This gives the main advantages of an overhead camshaft design of the very high efficiency type without the corresponding disadvantage of limited accessibility. Lubrication is by pressure to all bearings and also to the rocker gear. The drive is taken by a single plate clutch to the special Riley 4-speed gearbox, which incorporates a silent third constant mesh gear with helical toothed pinions.

On taking over the "Gamecock" from the Riley showrooms in North Audley Street we first inspected the body, and found a very sensibly arranged and strongly built piece of coachwork.

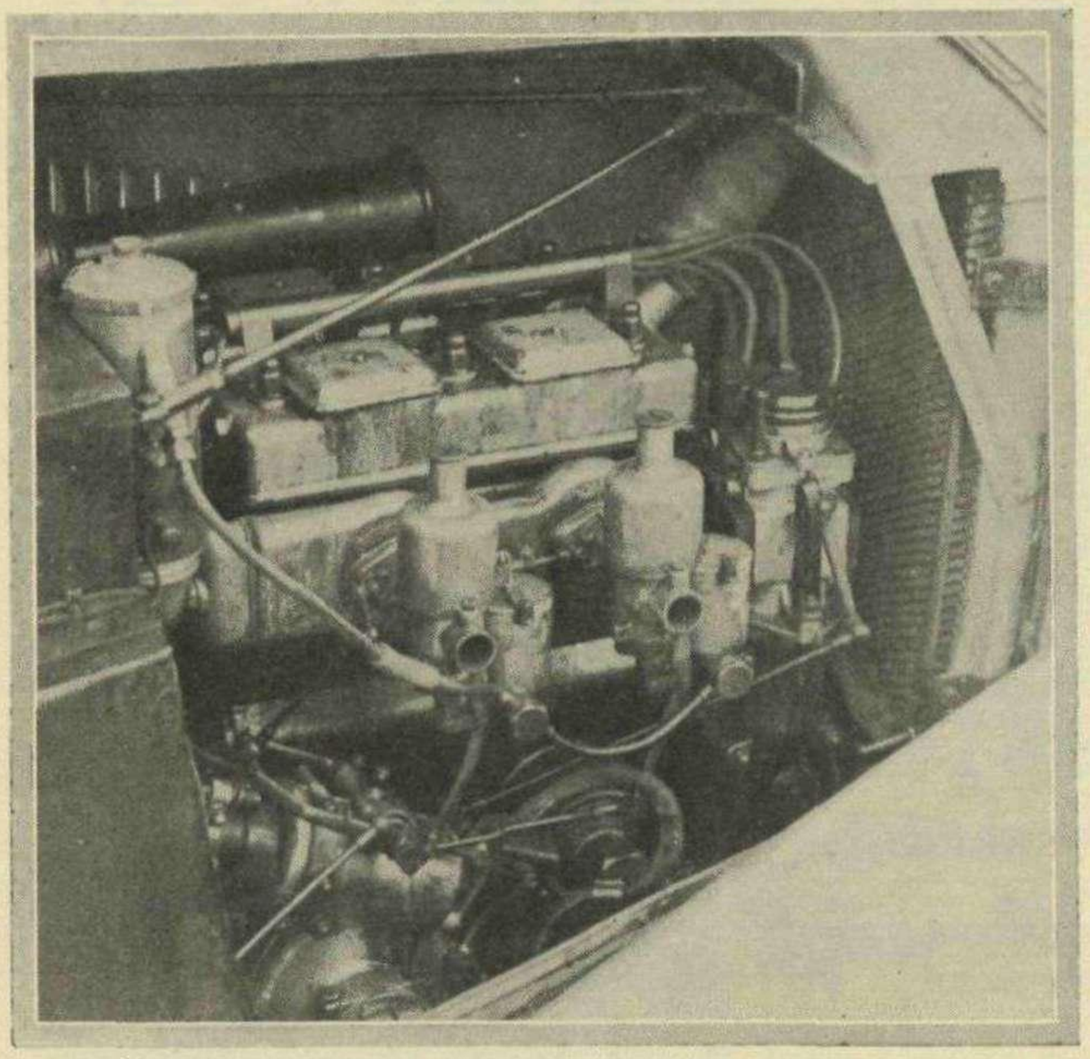
Simplicity is the keynote of this model, and the car is not fitted with a dickey seat, which will be no loss to the man who purposely buys such a car in preference to the normal tourer. On the other hand, the rear of the car forms a really capacious locker, with ample room for two or three suitcases as well as the various minor items which one often requires to carry.



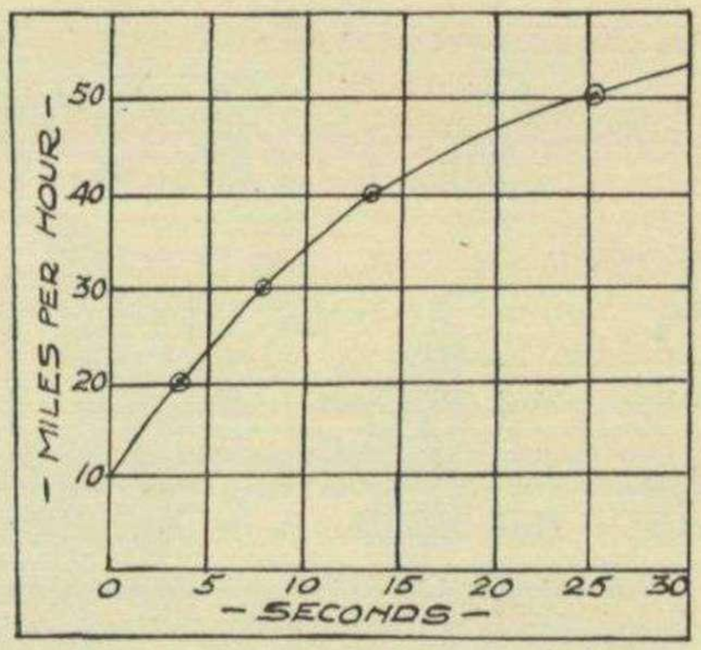
[*Motor Sport Photograph.*

Low built and with well-balanced body lines, the "Gamecock" has all the goodlooks of other Riley models.

ON THE ROAD WITH A "GAMECOCK"—continued.



The magneto as well as the twin carburettors is placed on the offside of the engine. The unusual mounting of the former provides exceptional accessibility to the contact-breaker and the distributor.



Acceleration graph of the "Gamecock."

The seating, which is fitted with pneumatic upholstery, gives ample leg room for the tallest driver, and the controls are excellently placed.

An outstanding feature of the engine we tried is its remarkable mechanical silence, which, even in these days when it is so much in demand, is far above the average. Moreover, this is not merely the attribute of a new engine, for the car we tried was the first "Gamecock" to leave the works, and has since covered an enormous mileage on demonstration work in many hands.

This property of mechanical silence is carried right through the car, and makes it very pleasant to drive, as there is never any feeling that the car is being stressed. The engine balance seems perfect, and it revels in high revs. The only slight "period" occurs when accelerating from comparatively low speeds in the form of a slight rumble, which we have noticed on other cars with two-bearing crankshafts. Under all other conditions, however, the smoothness of the engine is exceptional.

The gear box is a delight to handle at all speeds and under all conditions, the short gear lever being perfectly placed, and the change being as easy as any on the market.

Although the Riley is only of 1,100 c.c. capacity, it is not really a small car, and when travelling fast it has a wonderful feeling of reserve strength and extreme stability, which make it one of the best *average speed* cars we have tried.

The maximum speed which we obtained, of 71 m.p.h. on the level, takes a considerable stretch of road to attain, but its excellent performance over all sorts of runs is chiefly due to its easily maintained cruising speed of between 50 and 60 m.p.h., coupled with steering and road-holding of a very high order, judged by whatever standards, the former being thoroughly "live," yet absolutely positive.

The very efficient and powerful brakes—the drums are 13 inches in diameter—further enhance the roadworthiness of this model, and it is certainly in this feeling of absolute control and safety that the great charm of the car is found.

There are cars with better actual acceleration, probably due to the fact that the "Gamecock" weighs slightly over a ton, but it is just this which gives it that strength and rigidity which is so desirable, and which more than compensates in actual average speed for any slight loss in getting off the mark.

The braking distance from 40 m.p.h. is 55 feet on tarmac, the effort necessary being in fair proportion to the braking required, and never excessive.

The robustness which is found in the chassis and body of the "Gamecock" is also noticeable in the car's equipment, the screen, hood, lamps, and so forth, all being of very sturdy build.

The success of the Riley "9" in such arduous competitions as the Monte Carlo Rally has proved its reliability, and we can thoroughly recommend this latest sports model to the man who requires a distinctive and roadworthy, yet really economical car.

A SOUTH-AFRICAN RECORD.

BRITISH light cars continue to set up notable performances abroad in the way of reliability and speed. Driving a 9 h.p. Riley tourer, Gordon Collins, the well-known South African racing motorist, has now broken the Durban to Johannesburg record once again.

On the first occasion he knocked 71 minutes off the light car record, covering over 400 miles of very bad roads at 45 m.p.h. On the latest attempt he averaged no less than 55 m.p.h. and thus acquired the record for cars of unlimited size. Until Collins showed what could be done with a 1,100 c.c. British car, this record had stood to the credit of high-powered American cars tor many years.

A novel feature of the attempt was that the motorist's progress was observed the whole time from the air. At the conclusion of the trip the aeroplane went ahead and the aviators landed and officially recorded the time of the car's arrival.

Rumblings



Monte Carlo Arguments.

FOLLOWING the Monte Carlo Rally there was some argument about the way certain cars were equipped near the finish with special gear ratios to get a good performance in the flexibility test. What is more, people were not too specific about which cars employed these tactics, and the winning Hotchkiss firm decided to point out that their own performance was not thus gained.

They therefore submitted the winning car to the Automobile Club de France for a test to show that the flexibility was genuinely due to good design and careful tuning, and not to an absurd ratio.

The results of this test are really amazing, and certainly set an entirely new standard of flexible performance. The car was officially timed over the 100 metres on top gear in 3 minutes 10 seconds, a speed of 1.18 m.p.h., and straightaway accelerated and covered 4 laps of the Monthléry track at 67 m.p.h. !

This, incidentally, is the same 3-litre type of car as tested by MOTOR SPORT recently.

Rileys and the Rally.

British cars, although not actually gaining first places in the Rally, put up a very fine show indeed, and it was a very happy idea on the part of the Riley Motor Club to give a luncheon to the various successful British competitors, of whom the majority used Riley cars for the job. Among distinguished drivers of other makes present at this very cheery affair was Donald Healey, who was second to Vaselles' Hotchkiss in the large car class, on his Invicta, having won the event last year, and also Mrs. Vaughan, who won the Ladies' Cup on her Triumph. An amusing item of the function was the series of two-minute reminiscences by competitors, with Earl Howe at the watch to censor or suppress where necessary. For the first time in the history of the event the route from Athens was conquered, and if any further proof of the suitability of British light cars for overseas is required, Rupert Riley's fine effort from this difficult district ought to supply it.

The B.R.D.C. Relaxes.

Another good show which helped to fill in the gap before the real business of the racing season starts again was the B.R.D.C. dinner. Here everyone was glad to see once again our friend Sammy Davis, attending a public function. He was looking quite fit and as cheerful as ever.

Incidentally, the various amusing sketches in the menu of a racing driver's existence were drawn by him, while the coloured cover of the same was from a painting by R. A. Nockolds, whose work is so well known to MOTOR SPORT readers.

Earl Howe drew emphatic attention in his speech to the great benefit of racing to the car manufacturer who has the initiative to partake in it. He pointed out the tremendous advertisement for the British motor industry which would result from successful entry in Continental events by British makers. We can only hope that some of them will do something about it. At least, we shall have Brian Lewis in the Italian Thousand Miles race, and perhaps others will follow his lead.

Land's End Changes.

The Land's End Trial this year, of which entry forms and particulars are now available, is altered in one or two respects from last year's event. Doverhay and Lyn Hills are included for motorcycles, both solo and sidecar, and Grass Park Hill, near South Molton, for all vehicles.

From Penzance to Land's End the main road will be followed, which will please the later numbers. Hustyn, which caused such a lot of bother last year will be included once more, but as MOTOR SPORT suggested in its report of last year's event, very special steps are to be taken to avoid the delay of that occasion being repeated.

The start will be from the Virginia Water Tea House, at Virginia Water. Supplies for the car as well as a hot meal can be obtained there. Zero hour is 10 p.m.

Racing Prospects.

At this time of the year people are notoriously reticent about their plans for the season, nevertheless there seems to be plenty of interest in what is already being done. I was having a chat with Vernon Balls the other day about the new sports Crossley, which are to be raced by him this season. I have already heard some splendid reports of the Standard small Crossley, and the sports edition, in which Vernon Balls has had a considerable hand, is a very snappy little vehicle.

The chassis is very neat, being downswept from the front and passing under the rear axle, giving a ground clearance of about 6½ inches. The engine is a three-bearing job,

RUMBLINGS—continued.

and this type should give excellent smoothness and reliability with a small four. The 4-speed box has a silent third. An outside racing brake lever is fitted in addition to the standard one inside, and the slightly V radiator has the familiar Crossley badge, and the body is rather like a small edition of a short chassis 2-seater "Merc." The tank and spare wheel are housed in the tail.

Its first appearance in racing will be at the B.A.R.C. opening meeting, and Balls is highly enthusiastic about his latest protegé, and hopes to run in everything except Le Mans, where the number required to be in production is rather too high to allow the Crossley to be entered as yet.

In all considerations of the season's plans the name of Earl Howe is very much to the fore as one of our greatest enthusiasts, and he is planning a full and strenuous season's racing for himself. He is getting one of the new 2,800 c.c. Alfas, which will be this year's racer, while he has also the 2,300 c.c. job with which he and Birkin won the 24 hours race at Le Mans last year. He recently acquired the 1,750 c.c. Alfa which was third in the 1930 Ulster T.T. In the British Empire Trophy he will run his Grand Prix Delage, in which he lapped at over 126 m.p.h. last season. This will save a lot of moving cars to and from abroad.

When he was talking over his plans he mentioned that he had seriously gone into the matter of racing British cars. As no British road racer suitable for Grand Prix work was available, something would have to be produced, and he had tried to get makers to co-operate with him. However, nothing came of his offers so he has gone back to his old love. He also tried one of the 5-litre Bugatti racers when over at Molsheim and expressed himself very delighted with it.

He hopes to be running one of these cars at the Easter Brooklands meeting, and later, on the Continent.

Kaye Don is hoping to run one of these in the British Empire Trophy. Other machines in the big class of this event will probably be J. R. Cobb's big Delage, Sir Henry Birkin's single-seater 4½-litre Bentley, and, if it is ready, Sir Malcolm Campbell's Sunbeam "Tiger."

Major Gardner is to run a single seater M.G. Midget, which should stand a chance if enough cars break up.

So that the public may have a chance to see work in progress on the cars, the finalists from each heat will be retained at the pits in the finishing straight, and will do their tyre changing, etc., there, while for the actual races the pits at the fork will be used.

One of the snags in the way of fixing up racing programmes at present is the fact that manufacturers in this country are, with a very few exceptions, incredibly reluctant to take the plunge and go in for even a mild racing programme. Therefore, all honour to those who do, and make much better motor cars in consequence.

Not having heard much of the Alta lately, I dropped in there the other day to see what was doing and found a considerable amount of activity.

Mr. Taylor tells me that several private owners are going to race it this year, and states that the engine is giving 50 h.p. in standard form.

The parts are certainly remarkably light, and the unit only weighs 120 lbs., so the power-weight ratio should be good. I hope we shall hear more of this make.

ANOTHER NEW ROVER.

A NEW sports saloon, with striking lines and embodying several unique features, has been announced by the Rover Co. Ltd. It is known as the "Ultimax"—a combination of the words "ultimate" and "maximum"—and may be obtained on three different chassis, one of 16 h.p. and two of 20 h.p.

Streamlining of the bodywork has been carefully carried out, and smoothness of exterior characterizes the whole car. The bonnet is very long, extending from the radiator to the windscreen and thus dispensing with the scuttle. The spare wheel is concealed in the rear of the body, which is low swept and of graceful appearance. A single panel sloping screen is used, whilst the rear window is divided; the rear quarter lights conform to the curve of the roof. There are no external nooks and crannies, so that the car is particularly easy to clean.

Although the "Ultimax" is of sporting appearance there is ample accommodation for persons of any height. Comfort, indeed, is the interior key-note and in addition to luxurious upholstery and central arm rests, front and rear, there are side arm rests in both compartments, those in front being embodied in the doors. The additional comfort thus provided for the driver is marked.

The specification includes a sliding roof, dual electric screen wipers, interior lamps, one of which lights when either rear door is opened, direction indicators concealed in the front door pillars, and a detachable luggage grid.

On the 16 h.p. chassis, the Ultimax costs £495 and on the standard 20 h.p. chassis £525. When the speed model "Gazelle" chassis is used the price is £635, and in this form the car, it is claimed, is capable of approximately 90 miles per hour. The first two types have speeds of some 70 and 80 m.p.h. respectively.

AMONG many services rendered by The Automobile Association to motorists, not the least interesting is that which simplifies the journey through London for the owner driver unaccustomed to heavy traffic.

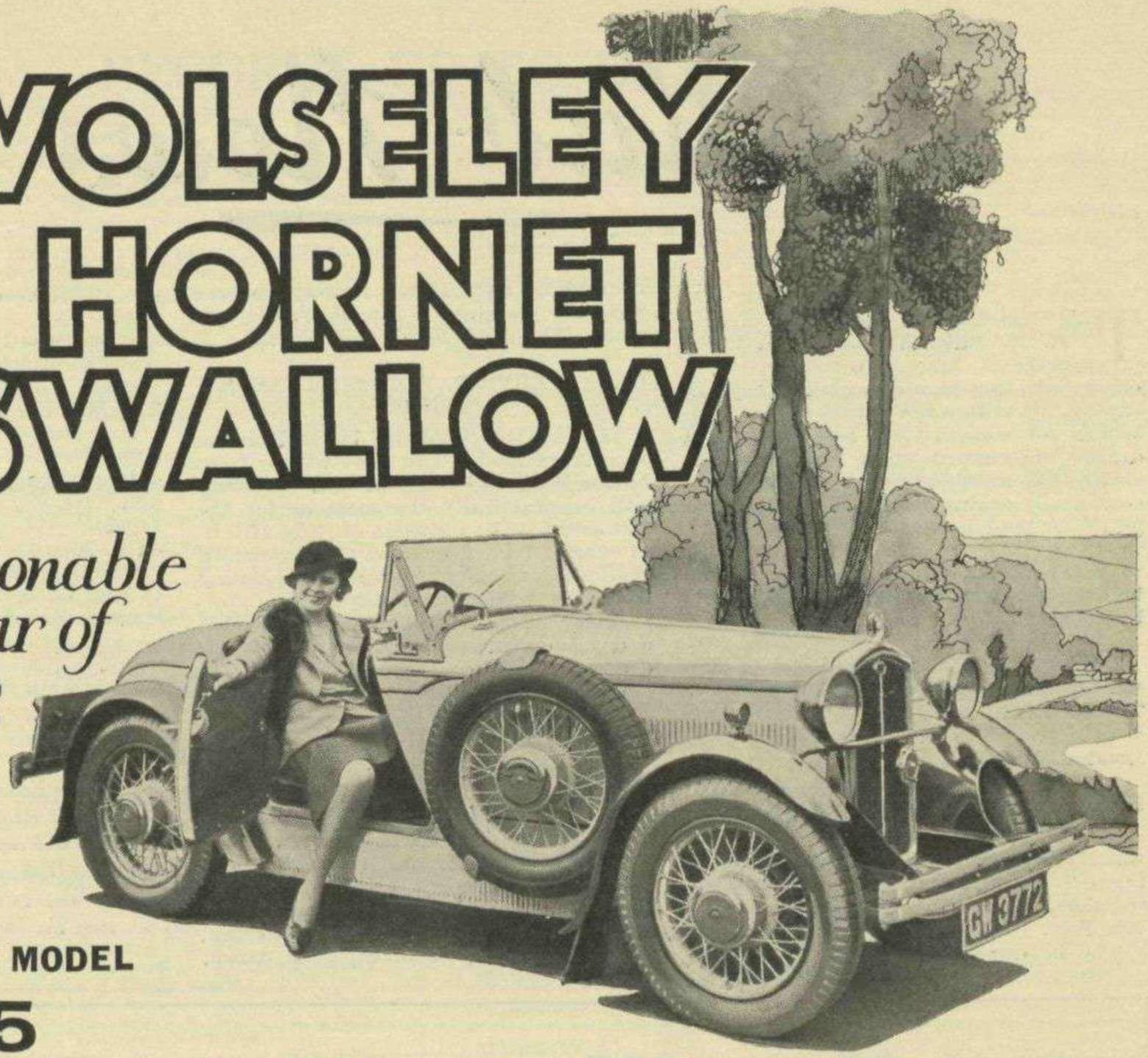
By request an A.A. pilot meets the member at an appointed rendezvous on the outskirts of the Metropolis, and directs him to any point desired, either in London or beyond.

That this service is appreciated, is indicated by the many demands received for A.A. pilots.

Similar service is also rendered to motorists wishing to pass through large provincial cities.

The WOLSELEY HORNET SWALLOW

The Fashionable Sports Car of 1932



2 OR 4-SEATER MODEL

£225

The Wolseley Hornet Swallow is a combination of high-class distinctive coachwork and modern superior engineering design and construction ; built to meet the most exacting requirements of discriminating motorists.

Outstanding Features of this remarkable production include :—

● EXQUISITE SENSIBILITY OF CONTROLS.
Finger-light steering, column anchored at 3 points. Change speed lever convenient to driver's hand. Spring steering wheel. Single plate sensitive control clutch, etc.

● MAGNIFICENT SPEED.
70 m.p.h. maximum. 4 speed G.B. Silent 3rd. Amazingly smooth and silent engine at all speeds. Marvellous Acceleration.

● SUPERIOR BRAKING.
Hydraulic brakes in Lockheed system to all wheels. Brake pressure on each shoe automatically equalised. The most efficient and powerful braking on *any* car.

● EXTREME COMFORT.
Luxurious pneumatic upholstery. Separate adjustable front seats. Ample leg and head room. Long semi-elliptic springs and special rebound springs for smooth riding over bad roads.

Swallow body finishes may be chosen from a marvellous range of distinctive colour schemes. Write for Illustrated Catalogue or better still, call and inspect the actual models in our showrooms.

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Grosvenor 2271.

And at Bristol, Manchester and Bournemouth.

Club News

B.R.D.C.

THE secretary of the B.R.D.C., Mr. H. N. Edwards, has asked us to make it known to secretaries of other clubs that he will be glad if they can supply him with a few copies of the regulations for competitions being organised during the current year. Mr. Edwards states that members of the B.R.D.C. are continually asking for particulars of competitions, and he suggests that if these were available in the B.R.D.C.'s club room it is possible that such events might be even better supported than at present by members of his club.

Correspondence in connection with this matter should be sent to :—The Secretary, The British Racing Drivers' Club, Bangalore House, Newton Street, Kingsway, London, W.C.2.

KENT AND SUSSEX LIGHT CAR CLUB.

The Kent and Sussex Light Car Club, which is responsible for the popular Lewes Speed Trials, inform us that this year these will be held on the following dates :—7th May, 18th June, 10th September.

The headquarters of this club are at the White Hart Hotel, Lewes, and the honorary secretary is Mr. H. V. Warren, of 51, Ringwood Road, Eastbourne.

CIVIL SERVICE MOTORING ASSOCIATION.

The Services Trial will be held on the 30th April next. The start will be from Maidenhead as last year, and the route will be practically the same as for the last event. The inclusion of Alms Hill is, of course, dependent upon the decision of the local authority regarding the closing of the hill to general motor traffic.

Entry forms will shortly be available and all communications should be addressed to : The Organiser, C.S.M.A. Ltd., 11, Victoria Street, London, S.W.1.

HORNET CAR CLUB.

The Hornet Car Club, whose membership has now almost reached the hundred mark, has arranged quite an extensive programme for the coming season.

On Saturday next, 5th March, there is a visit to the offices of the "News of the World," and to their printing press, and it is proposed to hold an Easter Gathering, which will include reliability trial, dance, etc., with headquarters at Stratford-on-Avon.

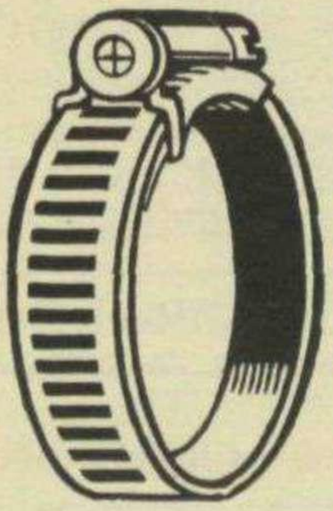
A treasure hunt is to be held on 24th April to which members of the Bugatti Owners' Club have been invited, and on 21st May there is to be a speed trial.

Any Hornet owner, who is not already a member, but would like to receive particulars of the Club, should write to the hon. secretary, 12, Berkeley Street, London, W.1., when these will be forwarded to him.

The hon. secretary would also be glad to hear of any Hornet owner who is, or is not, a member of the Club, who wishes to enter for the Relay Grand Prix, as it is hoped to enter at least three or four teams for this from the Hornet Car Club.

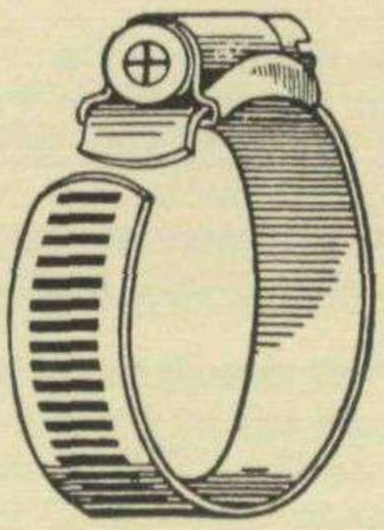
The Editor invites Club Secretaries to send details of their fixtures, sporting and social, for publication in these columns. These items should be sent to reach this office not later than the 16th of the month.

Jubilee Worm-Drive Clips



THE BEST POSSIBLE TO GET.

MAKE SURE YOU HAVE THEM FITTED ON YOUR RADIATOR JOINTS, LEATHER COVERS, ON UNIVERSAL JOINTS, AIR, OIL AND WATER HOSE JOINTS.



ALL IN ONE PIECE. EASY TO FIT.

NO PARTS TO LOSE. GUARANTEED NEVER TO LEAK.

A KEEN MOTORIST WRITES : *" I cannot understand anyone using any other pattern, as yours are the last word in satisfaction and efficiency."*

RECORDS UP TO DATE

WORLD'S RECORDS.

CLASS. A—Over 8,000 c.c.

Record.	Speed.	Car and Drivers.	Track.
	k.p.h.		
1 kilometre (s.)	139.86	Higham (J. G. P. Thomas)	Brooklands
1 „ (f.)	396.04	Napier-Campbell (Sir M. Campbell)	Daytona
	m.p.h.		
1 mile (s.)	100.77	Sunbeam (K. Don)	Brooklands
1 „ (f.)	245.73	Napier-Campbell (Sir M. Campbell)	Daytona
	k.p.h.		
5 kilometres (f.)	347.691	„ „	Verneuk Pan
	m.p.h.		
5 miles (f.)	211.5	„ „	Verneuk Pan
	k.p.h.		
10 kilometres (f.)	246.069	Maserati (B. Borzacchini)	Cremona
	m.p.h.		
10 miles (f.)	137.21	Derby-Miller (Mrs. G. M. Stewart)	Montlhéry
	k.p.h.		
50 kilometres (s.)	211.084	Miller (E. A. D. Eldridge)	Montlhéry
100 „ (s.)	206.147	Derby-Miller (Mrs. G. M. Stewart)	Montlhéry
200 „ (s.)	195.944	„ „	Montlhéry
500 „ (s.)	188.903	Voisin(Marchand and A. Morel)	Montlhéry
1,000 „ (s.)	186.980	„ „	Montlhéry
2,000 „ (s.)	180.662	Voisin (Marchand, Morel and Kiriloff)	Montlhéry
3,000 „ (s.)	181.870	„ „	Montlhéry
4,000 „ (s.)	181.968	„ „	Montlhéry
5,000 „ (s.)	181.744	„ „	Montlhéry
10,000 „ (s.)	147.117	Voisin (Marchand, Morel, Kiriloff and de Presalé)	Montlhéry
15,000 „ (s.)	141.677	„ „	Montlhéry
20,000 „ (s.)	136.937	„ „	Montlhéry
25,000 „ (s.)	137.912	„ „	Montlhéry
30,000 „ (s.)	133.531	„ „	Montlhéry
35,000 „ (s.)	125.960	Voisin (C. Marchand, L. Marchand, Doorninck and de Presalé)	Montlhéry
40,000 „ (s.)	123.364	„ „	Montlhéry
45,000 „ (s.)	121.722	„ „	Montlhéry
50,000 „ (s.)	119.948	„ „	Montlhéry
50 miles (s.)	129.66	Panhard (Breton)	Montlhéry
100 „ (s.)	128.55	Voisin (Marchand)	Montlhéry
200 „ (s.)	117.67	Sunbeam (J. Dunfee and P. Bamber)	Montlhéry
500 „ (s.)	117.72	Voisin (Marchand & A. Morel)	Montlhéry
1,000 „ (s.)	112.34	Voisin (Marchand, Morel and Kiriloff)	Montlhéry
2,000 „ (s.)	112.87	„ „	Montlhéry
3,000 „ (s.)	113.14	„ „	Montlhéry
4,000 „ (s.)	93.97	Alfa-Romeo (Chietti, Zehender and Pesato)	Montlhéry
5,000 „ (s.)	91.17	Voisin (Marchand, Morel, Kiriloff & de Presalé)	Montlhéry
10,000 „ (s.)	85.85	„ „	Montlhéry
15,000 „ (s.)	85.50	„ „	Montlhéry
20,000 „ (s.)	82.73	„ „	Montlhéry
25,000 „ (s.)	76.68	Voisin (C. Marchand, L. Marchand, Doorninck and de Presalé)	Montlhéry
30,000 „ (s.)	74.44	„ „	Montlhéry
mls. yds.			
1 hr. (s.) 128 614	128.35	Voisin (Marchand)	Montlhéry
3 hrs.(s.) 353 720	117.80	Voisin (Marchand & A. Morel)	Montlhéry
6 hrs.(s.) 696 506	116.14	„ „	Montlhéry
12 hrs.(s.) 1353 1606	112.82	Voisin (Marchand, Morel and Kiriloff)	Montlhéry
24 hrs.(s.) 2723 1746	113.50	„ „	Montlhéry
2 days (s.) 4531 128	94.40	Alfa-Romeo (Chinetti, Zehender and Pesato)	Montlhéry
3 „ (s.) 6374 1105	88.54	Voisin (Marchand, Morel, Kiriloff & de Presalé)	Montlhéry
All records up to 10 days.			
10 „ (s.) 19862 272	82.76	Voisin (Marchand, Morel, Kiriloff & de Presalé)	Montlhéry
11 „ (s.) 20283 194	76.83	Voisin (C. Marchand, L. Marchand, Doorninck and de Presalé)	Montlhéry
And all records up to 17 days.			
17 „ (s.) 30386 50	74.48	Voisin (C. Marchand, L. Marchand, Doorninck and de Presalé)	Montlhéry

CLASS B.—5,001—8,000 c.c.

Record.	Speed.	Car and Drivers.	Tr
	k.p.h.		
1 kilometre (s.)	125.239	Panhard (M. Dore)	Arpaj
1 „ (f.)	222.841	Panhard (M. Dore)	Arpaj
	m.p.h.		
1 mile (s.)	90.59	Panhard (M. Dore)	Arpaj
1 „ (f.)	137.61	Panhard (M. Dore)	Arpaj
	k.p.h.		
5 kilometres (f.)	225.056	Panhard (Breton)	Montl
	m.p.h.		
5 miles (f.)	138.78	Panhard (Breton)	Montl
	k.p.h.		
10 kilometres (f.)	223.630	Panhard (Breton)	Montl
	m.p.h.		
10 miles (f.)	126.03	Leyland (J. G. P. Thomas)	Brook
	k.p.h.		
50 kilometre (s.)	206.97	Panhard (Breton)	Montl
100 „ (s.)	201.785	Panhard (Ortmans)	Montl
200 „ (s.)	173.374	Delage (C. Paul)	Brook
500 „ (s.)	179.027	Leyland (J. G. P. Thomas)	Brook
1,000 „ (s.)	176.655	Leyland (J. G. P. Thomas)	Brook
2,000 „ (s.)	140.426	Graham-Paige (A. G. Tulloch, D. Marendaz & E. Veendam)	Montl
3,000 „ (s.)	139.172	„ „	Montl
4,000 „ (s.)	110.374	Studebaker (A. Gulotta, C. Bergere & Kreiger)	Atlant
5,000 „ (s.)	110.590	„ „	Atlant
10,000 „ (s.)	110.784	„ „	Atlant
15,000 „ (s.)	110.684	„ „	Atlant
20,000 „ (s.)	110.412	Studebaker (Stewart, Gleason and Winnai)	Atlant
And all records up to 45,000 kilometres.			
45,000 „ (s.)	109.894	Studebaker (Stewart, Gleson and Winnai)	Atlant
	m.p.h.		
50 miles (s.)	129.66	Panhard (Breton)	Montl
100 „ (s.)	123.690	Panhard (Ortmans)	Montl
200 „ (s.)	101.86	Graham (D. M. K. Marendaz)	Montl
500 „ (s.)	110.04	Leyland (J. G. P. Thomas)	Brookl
1,000 „ (s.)	95.27	Lanchester (J. G. P. Thomas, G. Duller & L. Rapson)	Brookl
2,000 „ (s.)	86.69	Graham-Paige (A. G. Tulloch, D. M. K. Marendaz and E. Veendam)	Montl
3,000 „ (s.)	68.70	Studebaker (A. Gulotta, Kreiger and C. Bergere)	Atlant
4,000 „ (s.)	68.70	„ „	Atlant
5,000 „ (s.)	68.70	Studebaker (Stewart,Gleason and Winnai)	Atlant
10,000 „ (s.)	68.81	Studebaker (A. Gulotta, Kreiger and C. Bergere)	Atlanti
15,000 „ (s.)	68.59	Studebaker (Stewart, Gleason aad Winnai)	Atlanti
20,000 „ (s.)	68.54	„ „	Atlanti
25,000 „ (s.)	68.47	„ „	Atlanti
30,000 „ (s.)	68.36	Studebaker (A. Gulotta,	

CLASS B.—5,001—8,000 c.c.

Record.	Speed.	Car and Drivers.	Tr
	k.p.h.		
10 kilometres (f).	208.599	Delage (J. R. Cobb)	Brook
	m.p.h.		
10 miles (f).	129.29	Delage (J. R. Cobb)	Brook
	k.p.h.		
50 kilometres (s.)	195.082	Delage (J. R. Cobb)	Brook
100 „ (s).	194.624	Delage (J. R. Cobb)	Brook
200 „ (s.)	170.522	Delage (J. R. Cobb)	Brook
500 „ (s.)	178.375	Renault (Garfield & Plessier)	Montl
1,000 „ (s).	176.862	Renault (Garfield, Plessier and Guillon)	Montl
2,000 „ (s.)	173.08	„ „	Montl
3,000 „ (s.)	172.676	„ „	Montl
4,000 „ (s.)	173.692	„ „	Montl
	m.p.h.		
50 miles (s.)	121.28	Delage (J. R. Cobb)	Brook
100 „ (s.)	112.13	Delage (J. R. Cobb)	Brook
200 „ (s.)	107.56	Delage (J. R. Cobb)	Brook
500 „ (s.)	109.60	Renault (Garfield, Plessier and Guillon)	Montl
1,000 „ (s.)	108.31	„ „	Montl
2,000 „ (s.)	107.49	„ „	Montl
1 hour (s.)	112.18	Delage (J. R. Cobb)	Brook
3 hours (s.)	111.16	Renault (Garfield & Plessier)	Montl
6 hours (s.)	110.14	Renault (Garfield, Plessier and Guillon)	Montl
12 hours (s.)	107.49	„ „	Montl
24 hours (s.)	107.90	„ „	Montl

RECORDS UP TO DATE—continued.

CLASS C.—3,001-5,000 c.c.

Record.	Speed.	Car and Drivers.	Track.
	k.p.h.		
1 kilometre (s.)	137.719	Sunbeam (K. Don)	Brooklands
1 ,, (f.)	226.843	Sunbeam (K. Don)	Brooklands
	m.p.h.		
1 mile (s.)	100.77	Sunbeam (K. Don)	Brooklands
1 ,, (f.)	136.98	Sunbeam (K. Don)	Brooklands
	k.p.h.		
5 kilometre (f.)	209.887	Sunbeam (K. Don)	Brooklands
	m.p.h.		
5 miles (f.)	130.28	Sunbeam (K. Don)	Brooklands
	k.p.h.		
10 kilometre (f).	246.069	Maserati (B. Borzacchini)	Cremona
	m.p.h.		
10 miles (f.)	130.	Sunbeam (K. Don)	Brooklands
	k.p.h.		
50 kilometre (s.)	199.04	Sunbeam (K. Don)	Brooklands
100 ,, (s.)	200.28	Sunbeam (K. Don)	Brooklands
200 ,, (s.)	194.60	Sunbeam (K. Don)	Brooklands
500 ,, (s.)	179.859	Delage (Bourlier, Frettet and Senechal)	Montlhéry
1,000 ,, (s.)	176.091	,, ,,	Montlhéry
2,000 ,, (s.)	157.758	Bentley (Mrs. Stewart, R. Norton, D. Froy and Raphael)	Montlhéry
3,000 ,, (s.)	156.457	Delage (Bourlier, Frettet and Senechal)	Montlhéry
4,000 ,, (s.)	134.243	Hotchkiss (Tchernousky and Vasselle)	Montlhéry
5,000 ,, (s.)	134.49	,, ,,	Montlhéry
10,000 ,, (s.)	112.653	Hotchkiss (de Corvaia, Delgutte, Vasselle and Tchernousky)	Montlhéry
And all records up to 40,000 kilometres.			
40,000 ,, (s.)	105.981	Hotchkiss (de Corvaia, Delgutte, Vasselle and Tchernousky)	Montlhéry
	m.p.h.		
50 miles (s.)	124.19	Sunbeam (K. Don)	Brooklands
100 ,, (s.)	123.74	Sunbeam (K. Don)	Brooklands
200 ,, (s.)	115.05	Sunbeam (K. Don)	Brooklands
500 ,, (s.)	111.23	Delage (Bourlier, Frettet and Senechal)	Montlhéry
1,000 ,, (s.)	103.78	,, ,,	Montlhéry
2,000 ,, (s.)	97.43	,, ,,	Montlhéry
3,000 ,, (s.)	83.40	Hotchkiss (Tchernousky and Vasselle)	Montlhéry
4,000 ,, (s.)	82.62	,, ,,	Montlhéry
	m.p.h.		
5,000 miles (s.)	72.32	Hotchkiss (Tchernousky, Vasselle, Delgutte & de Corvaia)	Montlhéry
And all records up to 25,000 miles.			
25,000 ,, (s.)	65.85	Hotchkiss (Tchernousky, Vasselle, Delgutte & de Corvaia)	Montlhéry
mls. yds.			
1 hr. (s.) 120 1408	120.80	Sunbeam (K. Don)	Brooklands
3 hrs.(s.) 334 1484	111.61	Delage (Bourlier, Frettet and Senechal)	Montlhéry
6 hrs.(s.) 653 1143	108.97	,, ,,	Montlhéry
12 hrs.(s.) 1209 1262	100.81	,, ,,	Montlhéry
24 hrs.(s.) 2292 505	95.52	,, ,,	Montlhéry
2 days (s.) 3965 1337	82.62	Hotchkiss (Tchernousky and Vasselle)	Montlhéry
3 ,, (s.) 5192 1022	72.12	Hotchkiss (Tchernousky, Vasselle, Delgutte & de Corvaia)	Montlhéry
And all records up to 16 days.			
16 ,, (s.) 25305 1681	65.90	Hotchkiss (Tchernousky, Vasselle, Delgutte & de Corvaia)	Montlhéry

CLASS D.—2,001-3,000 c.c.

Record.	Speed.	Car and Drivers.	Track.
	k.p.h.		
1 kilometre (s.)	129.264	Bugatti (W. Y. Craig)	Brooklands
1 ,, (f.)	201.511	Bugatti (L. Hartmann)	Tat
	m.p.h.		
1 mile (s.)	90.77	Bugatti (L. Hartmann)	Tat
1 ,, (f.)	123.48	Bugatti (L. Hartmann)	Tat
	k.p.h.		
5 kilometre (f.)	204.36	Sunbeam (J. Dunfee)	Montlhéry
	m.p.h.		
5 miles (f.)	126.85	Sunbeam (J. Dunfee)	Montlhéry
	k.p.h.		
10 kilometre (f.)	223.325	Alfa-Romeo (Brilli Peri)	Cremona
	m.p.h.		
10 miles (f.)	126.48	Sunbeam (J. Dunfee)	Montlhéry
	k.p.h.		
50 kilometre (s.)	189.384	Sunbeam (J. Dunfee)	Montlhéry
100 ,, (s.)	188.222	Sunbeam (J. Dunfee)	Montlhéry
200 ,, (s.)	188.064	Sunbeam (J. Dunfee)	Montlhery
500 ,, (s.)	179.385	Sunbeam (J. Dunfee and D. Froy)	Montlhéry
1,000 ,, (s.)	168.592	Talbot (B. E. Lewis and S. S. Hindmarsh)	Brooklands
2,000 ,, (s.)	161.311	Bentley (W. Barnato, J. D. Benjafield & F. Clement)	Montlhéry
3,000 ,, (s.)	152.656	Bentley (J. F. Duff and W. Barnato)	Montlhéry
4,000 ,, (s.)	115.878	Invicta (Mrs. Hindmarsh, Bing, Garland, Moy, Mills and Macfarlane)	Montlhéry
5,000 ,, (s.)	116.063	,, ,,	Montlhéry
10,000 ,, (s.)	107.967	Citroen (Marchand, Fortin, Delépine & Combette)	Montlhéry
15,000 ,, (s.)	107.286	,, ,,	Montlhéry
20,000 kilometre (s.)	107.70	Citroen (Marchand, Fortin, Delépine & Combette)	Montlhéry
25,000 ,, (s.)	108.511	,, ,,	Montlhéry
	m.p.h.		
50 miles (s.)	117.20	Sunbeam (J. Dunfee)	Montlhéry
100 ,, (s.)	117.02	Sunbeam (J. Dunfee)	Montlhéry
200 ,, (s.)	116.15	Sunbeam (J. Dunfee)	Montlhéry
500 ,, (s.)	105.17	Talbot (B. E. Lewis and J. S. Hindmarsh)	Brooklands
1,000 ,, (s.)	101.561	Bentley (W. Barnato, G. Duller & F. Clement)	Montlhéry
2,000 ,, (s.)	94.83	Bentley (J. F. Duff and W. Barnato)	Montlhéry
3,000 ,, (s.)	72.02	Invicta (Mrs. Hindmarsh, Bing, Macfarlane, Garland, Moy and Mills)	Montlhéry
4,000 ,, (s.)	72.40	,, ,,	Montlhéry
5,000 ,, (s.)	70.70	,, ,,	Montlhéry
10,000 ,, (s.)	66,75	Citroen (Marchand, Fortin, Delépine and Combette)	Montlhéry
15,000 ,, (s.)	67.37	,, ,,	Montlhéry
mls. yds.			
1 hr. (s.) 117 301	117.17	Sunbeam (J. Dunfee)	Montlhéry
3 hrs.(s.) 332 904	110.84	Sunbeam (J. Dunfee and D. Froy)	Montlhéry
6 hrs.(s.) 628 1104	104.77	Talbot (B. E. Lewis and J. S. Hindmarsh)	Brooklands
12 hrs.(s.) 1211 952	100.96	Bentley (W. Barnato, G. Duller & F. Clement)	Montlhéry
24 hrs.(s.) 2280 1113	95.03	Bentley (J. F. Duff and W. Barnato)	Montlhéry
2 days (s.) 3208 124	66.85	Citroen (Marchand, Fortin, Delépine & Combette)	Montlhéry
And all records up to 9 days			
9 ,, (s.) 14537 348	67.30	Citroen (Marchand, Fortin, Delépine & Combette)	Montlhéry

CLASS E.—1,501-2,000 c.c.

Record.	Speed.	Car and Drivers.	Track.
	k.p.h.		
1 kilometre (s.)	134.278	Bugatti (Prince F. Liechtenstein)	...Tat
1 ,, (f.)	224.229	Miller (E. A. D. Eldridge)	Montlhéry
	m.p.h.		
1 mile (s.)	94.01	Bugatti (Prince F. Leichtenstein	Tat
1 ,, (f.)	136.27	Miller (E. A. D. Eldridge)	Montlhéry
	k.p.h.		
5 kilometre (f.)	225.0	Derby-Miller (Mrs. G. M. Stewart)	Montlhéry
	m.p.h.		
5 miles (f.)	139.41	,, ,,	Montlhéry
	k.p.h.		
10 kilometre (f.)	224.481	,, ,,	Montlhéry
	m.p.h.		
10 miles (f.)	134.26	,, ,,	Montlhéry
	k.p.h.		
50 kilometre (s.)	204.107	,, ,,	Montlhéry
100 ,, (s.)	206.253	,, ,,	Montlhéry
200 ,, (s.)	195.944	,, ,,	Montlhéry
500 ,, (s.)	176.512	Sunbeam (J. Dunfee and P. Bamber)	Montlhéry
1,000 ,, (s.)	156.283	Alfa-Romeo (M. Benoist, Chinetti and Zehender)	Montlhéry
2,000 ,, (s.)	152.854	Alfa-Romeo (Chinetti, Zehender and Pesato)	Montlhéry
3,000 ,, (s.)	154.317	,, ,,	Montlhéry
4,000 ,, (s.)	150.883	,, ,,	Montlhéry
5,000 ,, (s.)	151.021	,, ,,	Montlhéry
10,000 ,, (s.)	124.551	A.C. (V. A. Bruce and Mrs. Bruce)	Montlhéry
15,000 ,, (s.)	121.889	,, ,,	Montlhéry
20,000 ,, (s.)	107.447	A.C. (V. A. Bruce, Mrs. Bruce and J. A. Joyce)	Montlhéry
	m.p.h.		
50 miles (s.)	127.97	Derby-Miller (Mrs. G. M. Stewart)	Montlhéry
100 ,, (s.)	121.64	,, ,,	Montlhéry
200 ,, (s.)	117.66	Sunbeam (J. Dunfee and P. Bamber)	Montlhéry
500 ,, (s.)	97.99	Alfa-Romeo (M. Benoist, Chinetti and Zehender)	Montlhéry
1,000 ,, (s.)	97.40	,, ,,	Montlhéry
2,000 ,, (s.)	96.04	Alfa-Romeo (Chinetti, Zenender and Pesato)	Montlhéry
3,000 ,, (s.)	94.34	,, ,,	Montlhéry
4,000 ,, (s.)	93.97	,, ,,	Montlhéry
5,000 ,, (s.)	78.13	A.C. (V. A. Bruce and Mrs. Bruce)	Montlhéry
10,000 ,, (s.)	66.44	,, ,,	Montlhéry
15,000 ,, (s.)	68.01	A.C. (V. A. Bruce, Mrs. Bruce and J. A. Joyce)	Montlhéry
mls. yds.			
1 hr. (s.) 121 1324	121.75	Derby-Miller (Mrs. G. M. Stewart)	Montlhéry
3 hrs.(s.) 328 1120	109.54	Sunbeam (J. Dunfee and P. Bamber)	Montlhéry
6 hrs.(s.) 584 482	97.38	Alfa-Romeo (Chinetti, Zehender and Pesato)	Montlhéry
12 hrs.(s.) 1163 873	96.96	,, ,,	Montlhéry
24 hrs.(s.) 2301 417	95.88	,, ,,	Montlhéry
2 days (s.) 4531 128	94.40	,, ,,	Montlhéry

RECORDS UP TO DATE—continued.

Record.	Speed.	Car and Drivers.	Track.
3 days (s.) 4512 1574	62.67	Singer (G. Eyston, E. Eldridge, A. Denly and P. Brewster)	Montlhéry
4 „ (s.) 6001 1559	62.51	„ „	Montlhéry

CLASS F.—1,101-1,500 c.c.

Record.			Speed.	Car and Drivers.	Track.
			k.p.h.		
1 kilometre	(s.)		133.729	Amilcar (A. Morel)	Arpajon
1 „	(f.)		230.621	Packard Cable Sp. (L. Duray)	Arpajon
			m.p.h.		
1 mile	(s.)		92.33	Talbot (A. Divo)	Arpajon
1 „	(f.)		164.009	Miller (F. Lockhart)	Murock
			k.p.h.		
5 kilometre	(f.)		224.578	Packard Cable Sp. (L. Duray)	Montlhéry
			m.p.h.		
5 miles	(s.)		139.22	„ „	Montlhéry
			k.p.h.		
10 kilometre	(f.)		223.574	„ „	Montlhéry
			m.p.h.		
10 miles	(f.)		135.33	„ „	Montlhéry
			k.p.h.		
50 kilometres	(s.)		193.224	Miller (E. A. D. Eldridge)	Montlhéry
100 „	(s.)		197.091	„ „	Montlhéry
200 „	(s.)		190.425	Derby-Miller (Mrs. G. M. Stewart)	Montlhéry
500 „	(s.)		165.394	Delage (W. B. Scott and M. Baumer)	Brooklands
1,000 „	(s.)		158.889	„ „	Brooklands
2,000 „	(s.)		122.399	Aston-Martin (H. K. Moir, S. C. H. Davis and R. C. Gallop)	Brooklands
3,000 „	(s.)		110.00	Delage (W. B. Scott, A. Payn and T. Rose-Richards)	Montlhéry
4,000 „	(s.)		93.052	Singer (G. Eyston, A. Denly, P. Brewster & E. Eldridge)	Montlhéry
5,000 „	(s.)		89.962	„ „	Montlhéry
10,000 kilometres	(s.)		77.836	Fiat (Silvani, Belgis, Botta and Mangerotti)	Monza
			m.p.h.		
50 miles	(s.)		121.88	Miller (E. A. D. Eldridge)	Montlhéry
100 „	(s.)		118.13	Derby-Miller (Mrs. G. M. Stewart)	Montlhéry
200 „	(s.)		110.16	Talbot (L. Arcangeli)	Cremona
500 „	(s.)		98.37	Alvis (L. Cushman and C. M. Harvey)	Brooklands
1,000 „	(s.)		95.24	„ „	Brooklands
2,000 „	(s.)		69.00	Delage (W. B. Scott, A. Payn and T. Rose-Richards)	Montlhéry
3,000 „	(s.)		55.87	Singer (G. Eyston, E. Eldridge, P. Brewster and A. Denly)	Montlhéry
4,000 „	(s.)		46.51	Fiat (Silvani, Belgis, Botta and Mangerotti)	Monza
5,000 „	(s.)		47.24	„ „	Monza
		mls. yds.			
1 hr.	(s.)	118 510	118.29	Derby-Miller (Mrs. G. M. Stewart)	Montlhéry
3 hrs.	(s.)	308 737	102.81	Delage (W. B. Scott and M. Baumer)	Brooklands
6 hrs.	(s.)	589 1105	98.27	„ „	Brooklands
12 hrs.	(s.)	1034 1493	86.23	Alvis (L. Cushman and C. M. Harvey)	Brooklands
24 hrs.	(s.)	1605 662	66.89	Delage (W. B. Scott, T. Rose-Richards and A. Payn)	Montlhéry
2 days	(s.)	2784 880	57.99	Singer (G. Eyston, E. Eldridge, A. Denly and P. Brewster)	Montlhéry

CLASS G.—751-1,100 c.c.

Record.			Speed.	Car and Drivers.	Track.
			k.p.h.		
1 kilometre	(s.)		126.072	Amilcar (C. Martin)	Arpajon
1 „	(f.)		206.895	Amilcar (A. Morel)	Montlhéry
			m.p.h.		
1 mile	(s.)		71.12	Frazer Nash (A. Frazer Nash)	Brooklands
1 „	(f.)		128.02	Amilcar (A. Morel)	Montlhéry
			k.p.h.		
5 kilometres	(f.)		205.408	Amilcar (A. Morel)	Montlhéry
			m.p.h.		
5 miles	(f.)		127.24	Amilcar (A. Morel)	Montlhéry
			k.p.h.		
10 kilometres	(f.)		204.568	Amilcar (A. Morel)	Montlhéry
			m.p.h.		
10 miles	(f.)		126.89	Amilcar (A. Morel)	Montlhéry
			k.p.h.		
50 kilometres	(s.)		175.258	Riley (G. Eyston)	Montlhéry
100 „	(s.)		173.90	Riley (G. Eyston)	Montlhéry
200 „	(s.)		174.257	Riley (G. Eyston)	Montlhéry
500 „	(s.)		167.512	Riley (G. Eyston and A. Denly)	Montlhéry
1,000 „	(s.)		159.756	„ „	Montlhéry
2,000 „	(s.)		107.542	Riley (G. Eyston and E. A. D. Eldridge)	Montlhéry
3,000 „	(s.)		105.868	„ „	Montlhéry
4,000 „	(s.)		104.362	„ „	Montlhéry
5,000 „	(s.)		103.627	„ „	Montlhéry
10,000 „	(s.)		82.409	Renault (Bertrand, Armand, Dupois, Molinier & Aversen)	Miramas
15,000 „	(s.)		78.817	„ „	Miramas
			m.p.h.		
50 miles	(s.)		108.39	Riley (G. Eyston)	Montlhéry
100 „	(s.)		108.03	Riley (G. Eyston)	Montlhéry
200 miles	(s.)		104.20	Riley (G. Eyston & A. Denly)	Montlhéry
500 „	(s.)		98.18	„ „	Montlhéry
1,000 „	(s.)		67.80	Riley (E. A. D. Eldridge and G. Eyston)	Montlhéry
2,000 „	(s.)		65.53	„ „	Montlhéry
3,000 „	(s.)		64.44	„ „	Montlhéry
4,000 „	(s.)		50.80	Renault (Bertrand, Armand, Dupois Aversen & Molinier)	Miramas
5,000 „	(s.)		50.78	„ „	Miramas
10,000 „	(s.)		49.18	„ „	Miramas
		mls. yds.			
1 hr.	(s.)	108 187	108.11	Riley (G. Eyston)	Montlhéry
3 hrs.	(s.)	312 464	104.09	Riley (G. Eyston & A. Denly)	Montlhéry
6 hrs.	(s.)	594 692	99.07	„ „	Montlhéry
12 hrs.	(s.)	913 1601	76.1	Salmson (A. Clerici and J. Luciardi)	Monza
24 hrs.	(s.)	1599 123	66.62	Riley (G. Eyston and E. A. D. Eldridge)	Montlhéry
2 days	(s.)	3089 521	64.36	„ „	Montlhéry

CLASS H.—501-750 c.c.

Record.			Speed.	Car and Drivers.	Track.
			k.p.h.		
1 kilometre	(s.)		104.621	Austin (L. Cushman)	Brooklands
1 „	(f.)		118.36	M.G. Midget (G. E. T. Eyston)	Pendine
			m.p.h.		
1 mile	(s.)		74.12	Austin (L. Cushman)	Brooklands
1 „	(f.)		118.38	M.G. Midget (G. E. T. Eyston)	Pendine
			m.p.h.		
5 kilometres	(f.)		184.38	M.G. Midget (G. E. T. Eyston)	Montlhéry
			m.p.h.		
5 miles	(f.)		114.74	„ „	Montlhéry
			k.p.h.		
10 kilometres	(f.)		184.61	„ „	Montlhéry
			m.p.h.		
10 miles	(f.)		114.46	„ „	Montlhéry
			k.p.h.		
50 kilometres	(s.)		158.853	„ „	Montlhéry
100 „	(s.)		161.436	„ „	Montlhéry
200 „	(s.)		146.014	Austin (L. P. Driscoll)	Brooklands
500 „	(s.)		144.206	Austin (L. Cushman and L. P. Driscoll)	Brooklands
1,000 „	(s.)		133.266	Austin (S. C. H. Davis and C. Goodacre)	Brooklands
2,000 „	(s.)		104.957	Austin (C. Chase, B. Bland and H. D. Parker)	Montlhéry
			m.p.h.		
50 miles	(s.)		99.83	M.G. Midget (G. E. T. Eyston)	Montlhery
100 „	(s.)		101.09	„ „	Montlhéry
200 „	(s.)		90.78	Austin (L. P. Driscoll)	Brooklands
500 „	(s.)		90.11	Austin (L. P. Driscoll and L. Cushman)	Brooklands
1,000 „	(s.)		64.14	Austin (C. Chase, B. Bland and H. D. Parker)	Montlhéry
		mls. yds.			
1 hr.	(s.)	101 191	101.11	M.G. Midget (G. E. T. Eyston)	Montlhéry
3 hrs.	(s.)	271 271	90.38	Austin (L. P. Driscoll)	Brooklands
6 hrs.	(s.)	540 1286	90.12	Austin (L. Cushman and L. P. Driscoll)	Brooklands
12 hrs.	(s.)	980 957	81.71	Austin (S. C. H. Davis and C. Goodacre)	Brooklands
24 hrs.	(s.)	1564 319	65.59	Austin (C. Chase, B. Bland and H. D. Parker)	Montlhéry

CLASS I.—351-500 c.c.

Record.			Speed.	Car and Drivers.	Track.
			k.p.h.		
1 kilometre	(s.)		86.788	de Rovin (de Rovin)	Arpajon
1 „	(f.)		136.131	de Rovin (de Rovin)	Arpajon
			m.p.h.		
1 mile	(s.)		58.19	D.K.W. (V. de Strasser)	Tat
1 „	(f.)		83.79	de Rovin (de Rovin)	Arpajon
			k.p.h.		
5 kilometres	(f.)		135.145	de Rovin (de Rovin)	Montlhéry
			m.p.h.		
5 miles	(f.)		82.49	de Rovin (de Rovin)	Montlhéry
			k.p.h.		
10 kilometres	(f.)		133.155	de Rovin (de Rovin)	Montlhéry
			m.p.h.		
10 miles	(f.)		81.91	de Rovin (de Rovin)	Montlhéry
			k.p.h.		
50 kilometres	(s.)		125.923	de Rovin (de Rovin)	Montlhéry
100 „	(s.)		123.434	Voran (R. Von Koenig-Fachsenfeld)	Montlhéry
200 „	(s.)		110.461	D.K.W. (R. Von Koenig-Fachsenfeld and F. C. Meyer)	Montlhéry
500 „	(s.)		105.495	„ „	Montlhéry
1,000 „	(s.)		102.929	„ „	Montlhéry
2,000 „	(s.)		98.304	„ „	Montlhéry
50 miles	(s.)		77.31	Voran (R. Von Koenig-Fachsenfeld)	Montlhéry
100 „	(s.)		68.56	D.K.W. (R. Von Koenig-Fachsenfeld and F. C. Meyer)	Montlhéry
200 „	(s.)		66.84	„ „	Montlhéry
500 „	(s.)		64.57	„ „	Montlhéry
1,000 „	(s.)		62.56	„ „	Montlhéry
		mls. yds.			
1 hr.	(s.)	74 700	74.404	de Rovin (de Rovin)	Montlhéry
3 hrs.	(s.)	200 923	66.84	D.K.W. (R. Von Koenig-Fachsenfeld and F. Meyer)	Montlhéry
6 hrs.	(s.)	395 273	65.85	„ „	Montlhéry
12 hrs.	(s.)	763 1429	63.65	„ „	Montlhéry
24 hrs.	(s.)	1364 1065	56.85	„ „	Montlhéry

RECORDS UP TO DATE—continued.

CLASS J.—Up to 350 c.c.

Record.	Speed.	Car and Drivers.	Track.
	k.p.h.		
1 kilometre (s.)	85.167	Jappic (H. M. Walters)	Brooklands
1 ,, (f.)	123.520	Jappic (Mrs. Stewart)	Arpajon
	m.p.h.		
1 mile (s.)	58.12	Jappic (H. M. Walters)	Brooklands
1 ,, (f.)	75.44	Jappic (Mrs. Stewart)	Arpajon
	k.p.h.		
5 kilometres (f.)	123.83	H.S. (W. D. Hawkes)	Montlhéry
	m.p.h.		
5 miles (f.)	76.74	,, ,, ,,	Montlhéry
	k.p.h.		
10 kilometres (f.)	123.507	,, ,, ,,	Montlhéry
	m.p.h.		
10 miles (f.)	79.46	,, ,, ,,	Montlhéry
	k.p.h.		
50 kilomerres (s.)	113.06	H.S. (Mrs. Stewart)	Montlhéry
100 ,, (s.)	114.07	H.S. (Mrs. Stewart)	Montlhéry
200 ,, (s.)	101.271	Voran (R. Von Koenig-Fachsenfeld)	Montlhéry
50 miles (s.)	70.73	H.S. (Mrs. Stewart)	Montlhéry
100 ,, (s.)	70.95	H.S. (Mrs. Stewart)	Montlhéry

Record.		Speed.	Car and Drivers.	Track.
	mls. yds.			
1 hr. (s.)	70 1672	70.91	H.S. (Mrs. Stewart)	Montlhéry
3 hrs.(s.)	103 1670	34.65	Antony (Antony)	St. Germain
6 hrs.(s.)	171 1221	28.62	Antony (Antony)	St. Germain
12 hrs.(s.)	312 44	26.0	Antony (Antony)	St. Germain
24 hrs.(s.)	4821 416	20.12	Antony (Antony)	St. Germain

BROOKLANDS.

Fastest Lap.		Mountain Lap.	
m.p.h.		m.p.h.	
137.58	Sunbeam (K. Don)	75.21	Maserati (Sir H. Birkin)

BRITISH DOUBLE-TWELVE-HOUR RECORD.

mls.	yds.	m.p.h.		
2082	1726	86.79	Bentley (J. F. Duff)	Brooklands

TEST HILL RECORD.

Cars.		Cyclecars.	
m.p.h.		m.p.h.	
31.227	Frazer Nash (A. Frazer Nash)	28.31	Frazer Nash (A. Cushman)

Out of the 50 World's Records extant, 35 are held by Voisin.

* * *

The speed for the 500 mi'es record, held by the Voisin at 117.72 m.p.h. was actually exceeded by the winning Bentley in the 1931 500 Miles Race, but the latter car's speed of 118.39 m.p.h. does not count as a record.

* * *

Note the disparity between the world's records for 5 and 10 miles, the speeds being 211.5 m.p.h. and 137.21 m.p.h. respectively.

* * *

Mrs. Stewart is the only woman driver to hold world's records.

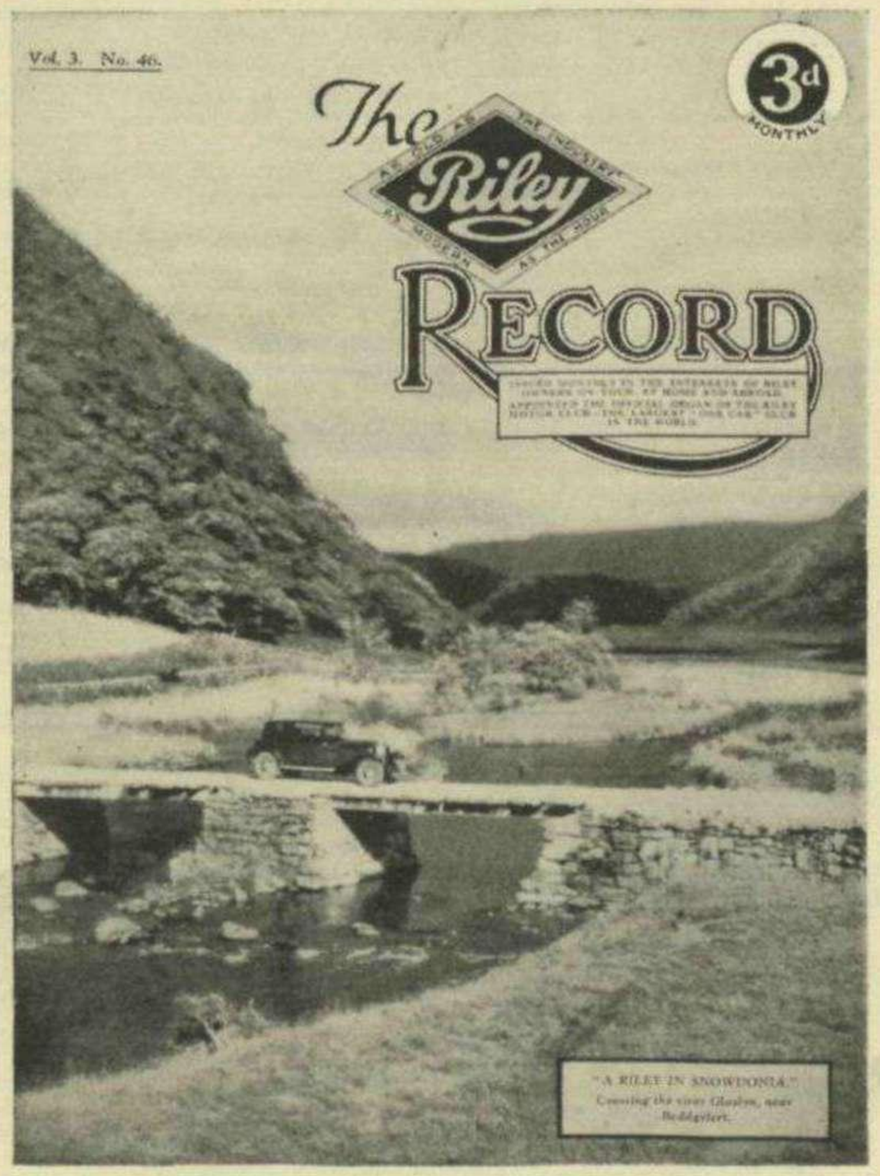
In class A. the records for the standing kilometre and mile made by the old 12 cylinder Sunbeam in the hands of " K.L.G." at Brooklands in 1922, have yet to be beaten.

* * *

Really remarkable efforts are those records held by standard production models (in some cases fitted with saloon bodies) such as Studebaker, Delage, Hotchkiss, Invicta, Citroen, Singer, Riley and others.

* * *

One of the most notable records ever made is the flying mile at 164.000 m.p.h. with a 1,500 c.c. Miller, made by the late Frank Lockhart at Murock. Many years will elapse before this figure will be exceeded.



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SOME BRAKING PROBLEMS

HOW ROAD SURFACES AND CHASSIS DESIGN AFFECT THE BRAKES.

DRIVERS frequently have heated arguments as to the methods of obtaining maximum braking efficiency, with special regard to the amount of braking force which should be applied to each axle for the best results.

Opinions on this subject often have little or no relation to the mechanical facts which govern this problem. In fact, I have had motorists tell me, with as much assurance as they would state the day of the week, exactly what is the ideal ratio of braking force for all cars under all conditions.

Naturally, most sports car owners know a bit more about the matter, and it is well enough known that on a surface which gives a very good grip, such as dry concrete, there is a "piling-up" effect, due to the weight being thrown on to the front axle, which allows a greater force to be applied to the front brakes without locking the wheels.

This gives a very good stopping distance, but cannot be used for normal work, as under conditions where the grip is less, as on a wet road, less weight is thrown on the front wheels, and they will lock before the rear brakes have reached their full useful effect.

It is this piling up effect which I wish to go into, and show how the required ratio varies continuously, and therefore the resulting ratio decided by the makers must be, as with most things in motoring, a compromise to suit the average conditions, with the further provision that the system must not tend to promote accidents when conditions vary from the average.

In my diagram we have an outline of a small racing car with a wheelbase of 9ft., in which the centre of gravity is $x$ft. from the ground when loaded and halfway between the axles. The reactions between the road and the tyres are p_1 and p_2, acting of course vertically and together equal to the weight of the car, which can be W.

When the car is stationary, p_1 will be equal to p_2. We are not concerned with this, but rather with the conditions when the car is being braked to its maximum, when we wish to know the best proportion of braking force for each axle.

This will be shown to depend on three things: (1) the length of wheel base, (2) the position of the C. of G., and (3) on the co-efficient of friction μ between the tyres and the road surface.

Assume for a start that the car in our diagram is being stopped, and that all wheels are just on the point of locking—this being the best possible condition for stopping. What is required is the ratio of braking force for such conditions.

The forces acting on the car under these conditions are: Vertically, the weight of the car W acting downwards through G, and the reactions at the tyres p_1 and p_2 acting upwards and together equal to W; horizontally, the braking forces at the tyres $\mu \times p_2$ and $\mu \times p_2$, equal and opposite to the forward force due to the momentum of the car acting through G. ($W = p_1 + p_2$.).

The next process, referred to in text-books as "taking moments," is to consider the tilting couple acting about various points of the car so as to find the relative values of p_1 and p_2, which, of course, also give us the required relative values of the braking on each axle.

The couples about the point a are as follows:—

Clockwise:
(1) $\frac{9}{2}(p_1 + p_2)$ lbs. ft.
(2) $\mu x (p_1 + p_2)$ lbs. ft.

Anticlockwise:
$9\ p_2$ lbs. ft.

The total couples in each direction are equal to each other.

$\therefore (\frac{9}{2} + \mu x)(p_1 + p_2) = 9\ p_2$.

The couples about the point b are as follows:—

Clockwise:
(1) $\mu x (p_1 + p_2)$ lbs. ft.
(2) $9\ p_1$ lbs. ft.

Anticlockwise:
$\frac{9}{2}(p_1 + p_2)$ lbs. ft.

$\therefore \mu x (p_1 + 9\ p_2) + 9\ p_1 = \frac{9}{2}(p_1 = p_2)$

or $(\frac{9}{2} - \mu x)(p_1 + p_2) = 9\ p_2$.

From this it follows that the ratio of pressure of back and front wheels, which is $\frac{p_1}{p_2}$ which is also the ratio of brake force required, is:—

$$\frac{9 - 2\mu x}{9 + 2\mu x}$$

or for any length of wheelbase the ratio will be

$$\frac{l - 2\mu x}{l + 2\mu x}$$

Where l is the wheelbase, x the height of the C of G from the ground and μ the coefficient of friction between the tyres and the road.

In applying this expression, assume that the car in the diagram, which has a 9ft. wheelbase, has its C. of G. 1ft. 6in. from the ground, and that it is braking hard on a surface where $\mu = \frac{1}{2}$.

We can then find the best arrangement for the brake operating leverages.

The ratio will be $\frac{7.5}{10.5} = 0.71$ approximately.

In other words, the rear brakes

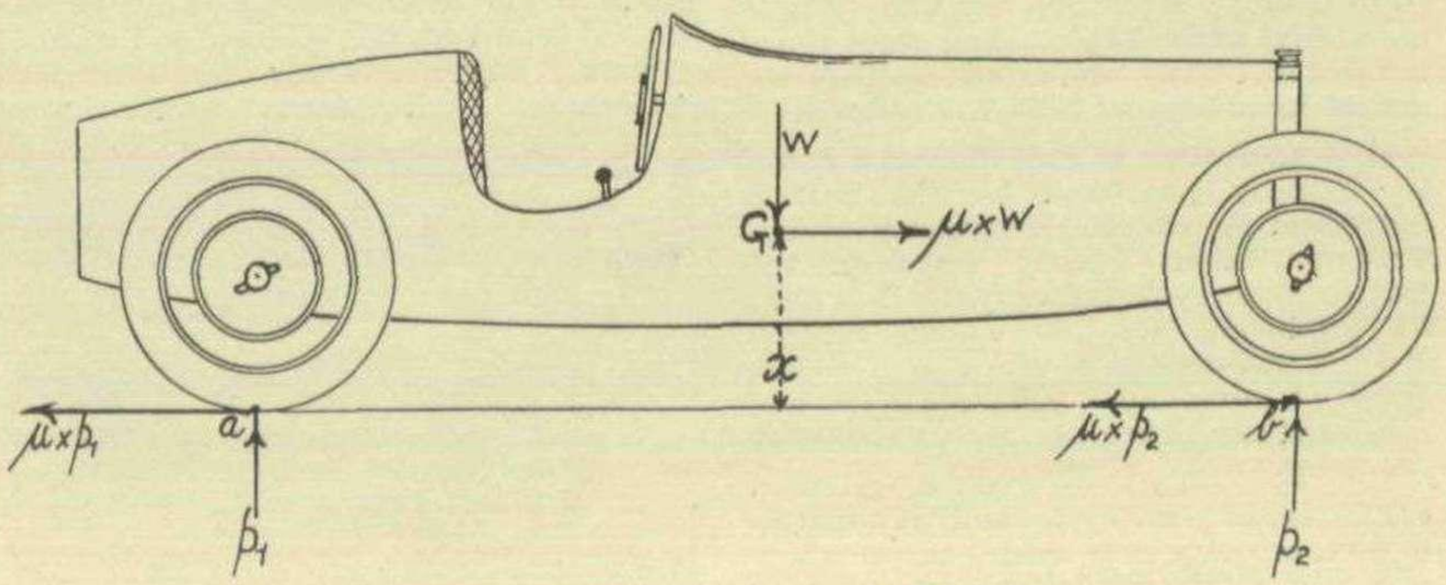


Diagram showing the forces on a car when braking.

SOME BRAKING PROBLEMS—continued.

should have just under ¾ the pressure applied that the front brakes have.

Suppose the same car be taken on to a rough concrete surface where, due to the interlocking effect of the tyre tread and the surface, p may reach a value of 1.

The correct ratio will then be $\frac{9-3}{9+3}$ or 0.5, showing how extra pressure (double that on the rear) on the front brakes can be used on exceptional surfaces. If the brakes are designed with such a ratio, however, and the car taken on a slippery surface with p equal to 0.2, the correct ratio will be approximately 0.9 for best results.

Otherwise the front wheels will lock well before the rear have had a chance to exert their full grip.

This shows how impossible it is on a normal, straightforward system to cater exactly for all braking conditions, and why a compromise which has been tried out in practice must be arrived at.

This formula is exactly correct only if the C. of G. is midway between the axles, but if it is slightly forward, or behind it, it will only be slightly altered, and the variations for different conditions will be similar. It can also be used to show the effect of a higher or lower centre of gravity and a shorter or longer wheelbase.

It is obvious from the formula that a lower centre of gravity, i.e. a smaller value for x, will make the ratio of adhesion of the front and rear wheels less affected by changes in surface, as if x is small, $2px$ is also small, and the expression remains nearer to unity.

A similar effect is obtained with a longer wheelbase. If the opposite extreme is considered, a very short and high vehicle braking on rough concrete at its maximum, say with a wheelbase of 6ft. and the C. of G. 3ft. from the ground, will make the formula equal to zero.

In other words, the back wheels will cease to adhere at all and the car will turn end over end! However, such a shape of vehicle, if it ever existed, was probably not fitted with front brakes at all, so we need not worry unduly over such a possibility!

In fact, if anyone asks you what is the correct ratio of braking effort on the front and rear wheels of a car, you can truthfully say, "It all depends"! —B.

Following various enquiries from readers as to the actual possible stopping distances of a car, we give the following table for a car with perfectly proportioned brakes on a dry concrete road where the coefficient of friction is 1.

The distance increases in proportion to the square of the speed.

10	m.p.h.	3.5 ft.
15	,,	7.5 ft.
20	,,	13 ft.
30	,,	30 ft.
40	,,	54 ft.
50	,,	83 ft.
60	,,	121 ft.
70	,,	160 ft.
80	,,	210 ft.
90	,,	274 ft.
100	,,	330 ft.

The fact that these distances are sometimes improved on in practice is due to the interlocking effect of the tyre tread and the road surface.

A Change of Address.

NEW showrooms have been opened at Stratton House, Piccadilly, by University Motors, sole distributors in London for M.G. cars.

The company's branch showrooms are being closed, and all business will be concentrated at Stratton House, where there is accommodation for over thirty cars.

The two service and repair shops in Carrington Street, and Cheyne Walk, Chelsea, and the garages in Down Street and Clarges Street, are to be retained.

The First English "500."

THERE is no doubt whatever that the motorcycle most widely used in Europe is the 500 c.c. solo. There are always more "3½'s" than other types in races and trials, and nowadays they are almost invariably of the o.h.v. pattern.

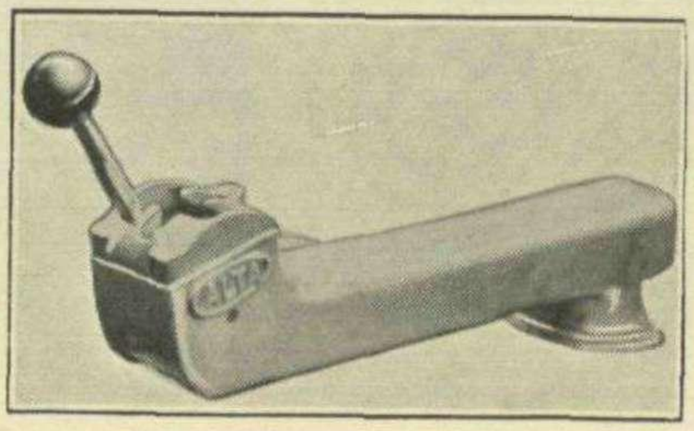
It is interesting to note that in a booklet recently published by the British Cycle and Motorcycle Manufacturers and Traders Union—"Early Days in the British Motorcycle Industry"—the credit for producing the first wholly English 500 c.c. motorcycle is given to the New Imperial company. This machine was exhibited at the Stanley Show in 1901.

It was the only motorcycle shown in an exhibition of pedal cycles and, as a matter of fact, only six were made, one of which was sold at the Show, the others being used by members of the staff.

Remote Controls for the Gear Change.

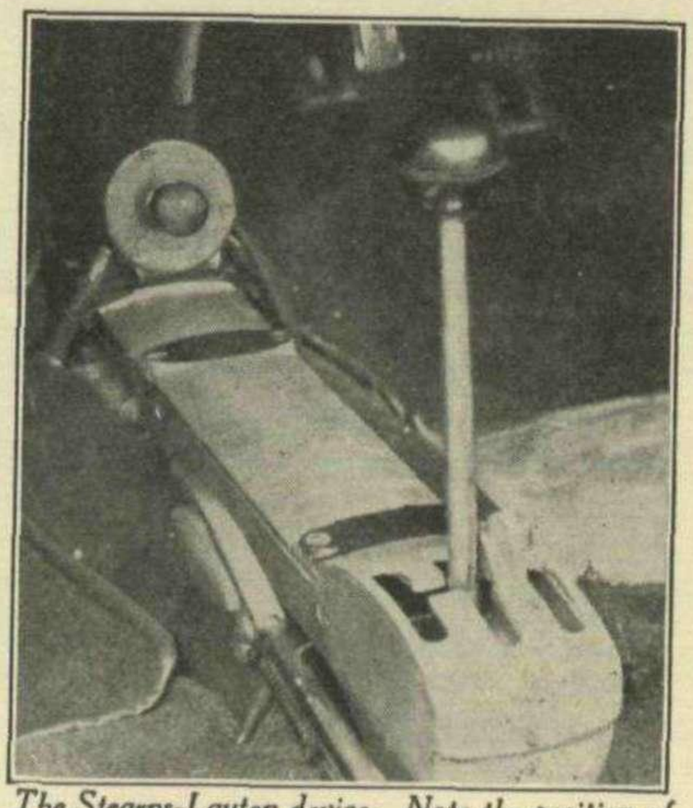
ONE unsatisfactory point which is sometimes met with in cars which have been modified from standard to sports type is the inaccessibility of the gear lever. To meet the requirements of owners who wish to overcome this, various firms are now marketing special remote gear control systems.

There is, for example, the Stearns-Layton device, which comprises an aluminium casing, on the end of which is cast a flange. This bolts on to the top of the gearbox, and at the other end is a gate and lever of orthodox type. The action of the latter is conveyed to the selectors through a flat steel strip. This has a central fulcrum point, consisting of a steel roller which slides between two guides. The movement of the lever is thus reversed at the selector end of the system. Made specially for Wolseley "Hornets" and Morris models, the Stearns-Layton unit costs 50s., or 55s. with a de luxe finish. It is marketed by E. C. Stearns and Co., 16, Fulham Road, South Kensington, London, S.W.3.



The Alta gear control.

Another remote control made for "Hornets" is the Alta, which is obtainable from V. W. Derrington, of 159, London Road, Kingston-on-Thames. As can be seen from the accompanying illustration, it is of neat and clean design, and it can be attached simply by removing the standard lever, and bolting it on with the four studs provided. The price is 59/6.



The Stearns-Layton device. Note the position of the starter button.



AIRCRAFT FOR THE PRIVATE OWNER

STANDARD - PRODUCTION LIGHT 'PLANES NOW AVAILABLE FOR THE AMATEUR PILOT.

IT is now nearly seven years since the light aeroplane movement was first established, and during this period the development of machines, and the advancement of flying as a sport has been steadily maintained. To-day not only has the would-be pilot ample facilities to learn and practice the art of aviation, but those who aspire to own machines have now a quite surprising variety of craft from which to choose.

All these standard-produced 'planes have been evolved after lengthy experience, experiment and trial, and makers may be said to have succeeded in their endeavours to produce machines which have safety and efficiency as salient and essential characteristics. And it now follows in natural sequence that attention is being given to other features of only slightly-less importance, and detail refinements are to be found in the present-day aircraft which make them extraordinarily comfortable, easy to maintain and simple to house.

In this article are included all those machines which are now marketed in this country and which are especially suitable for the private-owner; and it will be seen that in addition to British-built aircraft, foreign makes are also represented.

* * *

The Autogiro.

The Autogiro is undoubtedly the most unconventional and striking aeroplane which has ever been evolved in the history of aeronautics. First experimented with in 1920 by the well-known designer, Don de la Cierva, it has gone through various stages of development until to-day, the manufacturers being fully satisfied with its practicability, it has been placed on the market.

An article appeared in MOTOR SPORT in January of this year which dealt with the whole history of this machine and the aerodynamic principles of its design, and it will therefore suffice to say that in place of the orthodox aerofoil it has a rotor comprising articulated blades, which are in effect aerofoils of small chord. These rotate by aerodynamic action, and in doing so induce lift. This arrangement endows the machine with extraordinary qualities of control and safety at low speeds, so that it can be brought down when required in vertical descent, and manoeuvred at a speed of only about 25 m.p.h.

SPECIFICATION.
(Model C.19 Mark IV.)

Fuselage: Welded steel structure.
Rotor: Three blade assembly, entirely cantilever. Solid Balsa wood cross section with spruce core. (The blades can be folded back to facilitate housing.)
Fixed wing: Wooden spars with fabric covering, aileron spar of steel tube.
Tail unit: Fin, rudder and elevator of wooden construction all fabric covered.
Rotor mast and hub: Quadruped steel tube structure with conical platform, positively fixed. Steel forged hub with radial and thrust ball bearings and braking system.
Rotor starter: Mechanical starting gear is incorporated as standard. Drive is taken from the rear end of the engine's crankshaft, and a single plate clutch and dog clutch are used. The starter imparts to the blades 180 r.p.m. initial speed in 30 seconds.
Undercarriage: Wide track, split axle type with Oleo legs and Bendix wheels and brakes.
Fuel capacity: Petrol, 16 gallons, 2½ gallons oil.
Engine: Armstrong-Siddeley Genet Major 100 h.p. air-cooled radial.



Though extremely unconventional, the Autogiro is essentially practical, and the C.19 shown in this photograph has now been placed on the market.

AIRCRAFT FOR THE PRIVATE OWNER—continued.



One of a large and famous family—the Avro "Avian."

DIMENSIONS AND PERFORMANCE DATA.

Rotor diameter, 34 feet; fixed wing span, 21 feet; height, 10 feet; span (with blades folded), 21 feet; length (with blades folded), 22 feet; tare weight, 975 lbs.; normal load, 1,350 lbs.; full load, 1,450 lbs.; top speed, 102 m.p.h.; minimum horizontal speed, 25 m.p.h.; cruising speed, 90 m.p.h.; climb (sea level), 630 f.p.m.; angle of climb, 11 degs.; vertical speed of descent at 40 degs. (no wind), 13 ft. per sec.; take off run, average conditions, sea level, 30 yards; landing run, nil; range, 230 miles.
Price: £1,050.
Manufacturers' address: The Cierva Autogiro Co., Ltd., Bush House, Aldwych, London, W.C.2.

* * *

Avro "Avian."

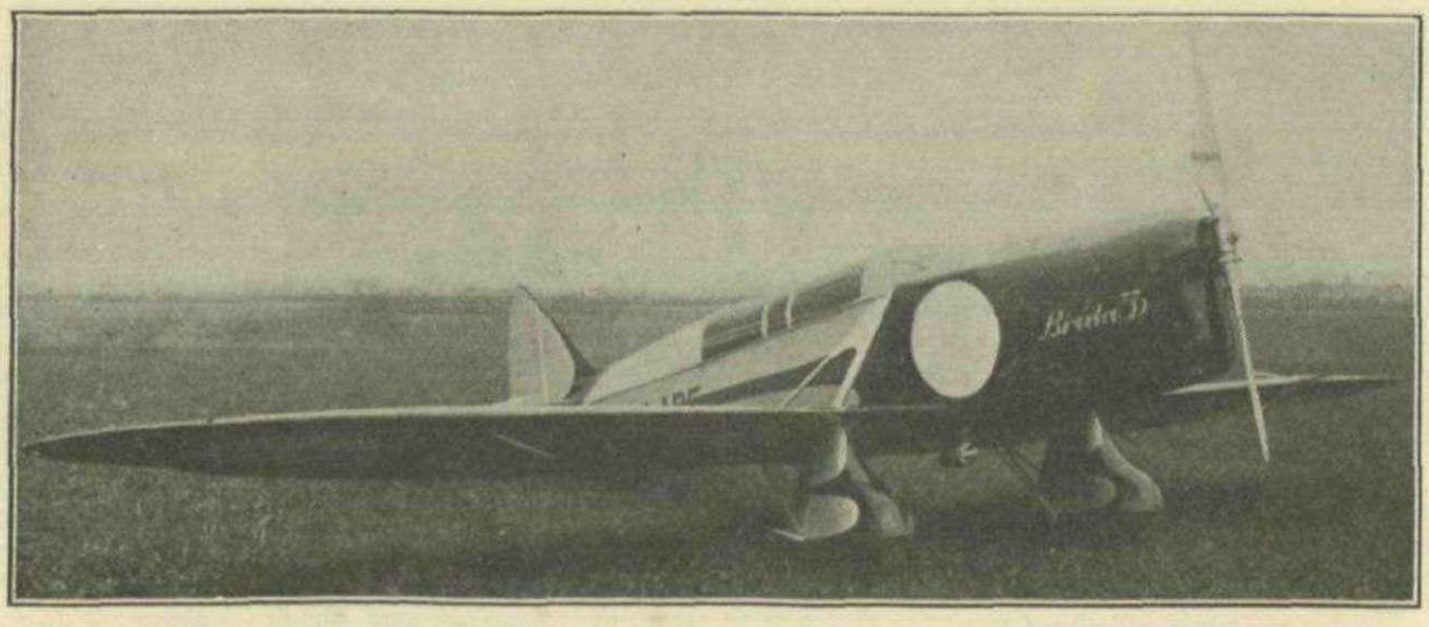
The Avro "Avian was first introduced in 1926, when it was entered and flown in the Light Aeroplane Trials at Lympne in that year by Mr. Bert Hinkler. Since then a large number of remarkable flights have been achieved with this craft, among these being Hinkler's flight to Australia. It will be recalled that this was done in 1928, and that it took 16½ days. This record flight was later beaten by Wing-Commander Kingsford Smith, who also used an "Avian."

The "Avian" is a single-bay biplane of the conventional type, and is now made in two models—the Standard type and the Sports.

SPECIFICATION.

Fuselage: Single unit of welded steel tube, covered with fabric.

Main planes: Normal construction with wooden spars, fabric covered. Ailerons are fitted to the lower planes only and are balanced to give positive and easy control throughout the machine's speed range.



An attractive foreigner—the Italian Breda 33 monoplane.

Tail unit: Normal construction of wood with fabric covering.

DIMENSIONS AND PERFORMANCE DATA.

Span of main planes, 30 ft. 0 ins.; width folded, 9 ft. 6 ins.; height, 8 ft. 6 ins.; length, 24 ft. 3 ins.; tare weight, 1,019 lbs.; pilot and passenger, 320 lbs.; petrol, 24 gallons, 183 lbs.; oil, 2 gallons, 20 lbs.; maximum speed at sea level, 108 m.p.h.; maximum speed at 5,000 feet, 105 m.p.h.; cruising speed, 90-95 m.p.h.; range with 24 gallons at cruising speed, 360 miles; stalling speed, 40 m.p.h.
Prices: Standard model with Hermes II. engine £795, with Gipsy II. 120 h.p. engine £845. Sports model with Hermes II. engine £825, with Gipsy II. 120 h.p. engine £875.
Manufacturers' address: A. V. Roe & Co., Ltd., 166, Piccadilly, London, W.1, and Newton Heath, Manchester, and Hamble, Southampton. Sole concessionaires for England: Henlys Ltd., Heston Air Park, near Hounslow, Middlesex.

* * *

Blackburn "Bluebird."

The product of one of the oldest firms in the aircraft industry, the "Bluebird"



The Blackburn "Bluebird" side-by-side 2-seater.

first appeared in 1925, and at that time it was something of a novelty in having the pilot's and passenger's seats arranged side-by-side—a feature which is retained in the latest type. There are obvious advantages in a seating arrangement of this kind; conversation can be carried on without the use of headphones, varying weights of pilot and passenger make no difference to the trim of the machine, and it is more comfortable to fly on the centre of gravity. The 1932 "Bluebird" is of all metal-construction, the fuselage being built up with four steel tube longerons and steel tie rods. It is constructed in three sections, which makes repair and replacement a simple matter. The wings have spars of steel strip, and the form ribs and compression ribs are of duralumin. Fabric covering is used. As is the case with the majority of light aircraft, the wings are designed to fold, the width being 9 feet 10 inches. The "Bluebird" is obtained with either D.H. Gipsy or Cirrus Hermes engines.

AIRCRAFT FOR THE PRIVATE OWNER—continued.

SPECIFICATION.

Fuselage : Steel tube structure of straightforward and clean design.
Wings : Biplane, single-bay with Rafwire bracing and ailerons on bottom planes only.
Tail unit : Adjustable tail plane, interconnected elevators, balanced rudder, no fin.
Undercarriage : Divided type, with metal springs and oil dashpot shock absorbing gear.
Controls : Dual control sticks and rudder bars, operating through pull-and-push rods and straight lengths of cable without pulleys. The engine controls are placed centrally, as is the tail incidence lever.

DIMENSIONS AND PERFORMANCE DATA.

Span : 30 feet (folded 9 feet 10 inches) ; length : 23 feet 1½ inches ; height : 9 feet. Normal gross weight : With Gipsy Mark I. engine, 1,655 lbs. ; with Gipsy II. engine, 1,680 lbs. ; with Gipsy III. engine, 1,705 lbs. ; with Hermes II. engine, 1,700 lbs. ; with Hermes IIB. engine, 1,705 lbs.

Prices : Gipsy I., £595 ; Gipsy II., £675 ; Gipsy III., £695 ; Hermes II., £650 ; Hermes IIB., £695. Slots extra.

Manufacturers' address : The Blackburn Aeroplane and Motor Co., Ltd., Brough, Yorks. Distributors : Auto Auctions Ltd., Horseferry Road, Westminster, London, S.W.1.

* * *

Breda.

The Breda 33 is a light 'plane of Italian manufacture of high performance and very modern design. As can be seen from the photograph (opposite page), it is a low-wing monoplane, and has enclosed cockpits, inverted engine, and " booted " undercarriage wheels. The main plane is braced by struts and streamline wires, and the lines of the machine as a whole are pleasing and clean. Wheel-brakes are fitted.

SPECIFICATION.

Wing span, 30 ft. 10 ins. ; total length, 22 ft. 3½ ins. ; total height, 6 ft. 6¾ ins. ; wing area, 166.84 sq. ft. ; weight empty, 946 lbs. ; useful load with standard petrol tanks, 660 lbs. ; useful load with auxiliary petrol tanks, 880 lbs. ; total weight with standard petrol tanks, 1,606 lbs. ; total weight with auxiliary petrol tanks, 1,826 lbs. ; weight per sq. ft. of wing area, 9.62 to 10.93 ; weight per H.P., 13.86 to 15.84 ; maximum speed, 144 m.p.h. ; cruising speed, 125 m.p.h. ; minimum speed, 53 m.p.h. ; factor of safety, 9 ; normal range, 750 miles ; range with auxiliary petrol tanks, 1,125 miles ; absolute celing, 23,000 ft. ; take off in 98 yds. ; landing distance without brakes, 110 yds. ; landing distance with brakes, 75 yds.

The price of the Breda has been provisionally fixed at £1,090.

Concessionaires' address : Henlys Ltd., Heston Air Park, near Hounslow, Middlesex.

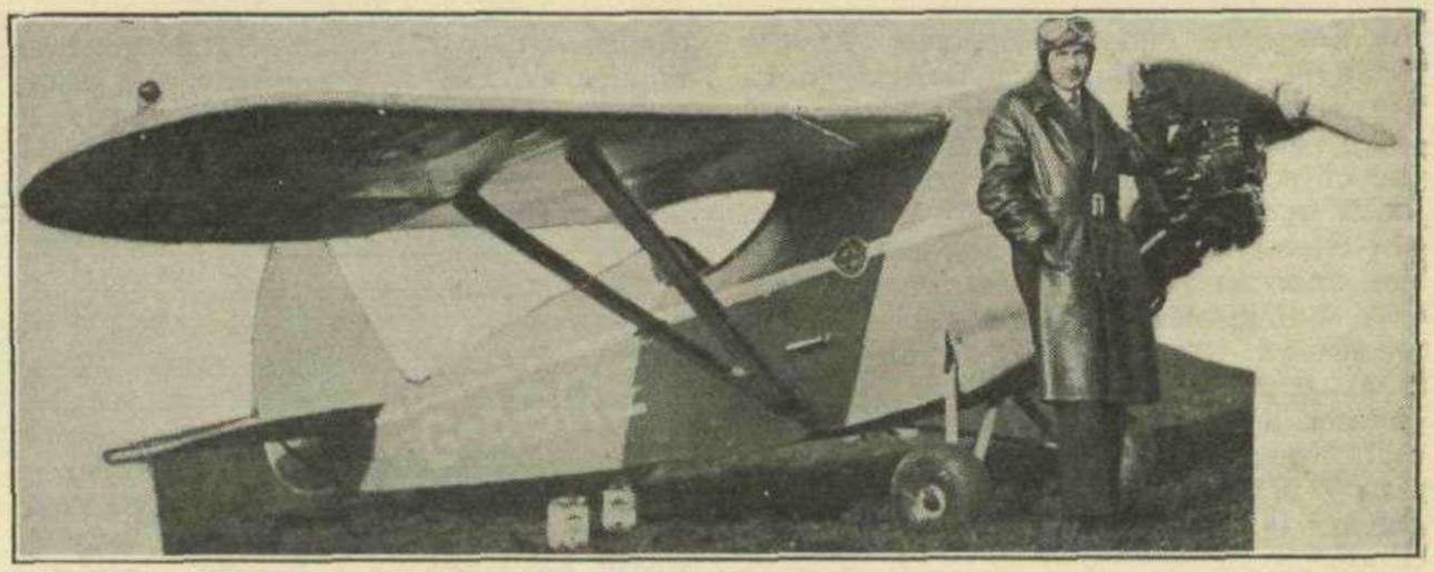
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Comper " Swift."

The Comper " Swift," though a comparative newcomer, has already become quite well known, not only on account of its high performance, but also for the flight achieved some little time ago by Mr. Butler when he flew a " Swift " to Australia in record time.

Behind the " Swift " is the experience of many years, for its designer, Mr. Nicholas Comper, in addition to being a pilot of repute, has been engaged in the design and construction of aircraft for a great many years.

The " Swift " is a high-wing strut-braced single-seater monoplane, built specially for the sportsman who requires a machine of really high performance. That it is also a thoroughly practical aircraft for serious long-distance work has been abundantly proved by Mr. Butler's achievement. Economy is another salient feature of this little craft.



A real sports machine—the little Comper " Swift."

SPECIFICATION.

Wings : Normal wooden construction, fabric covered and designed to fold for ease in housing. The ailerons are operated from the control stick through pull-and-push rods and straight lengths of cable.
Fuselage : Built in three portions, each section being covered with its own independent fabric. Longerons and intermediate struts are of spindled spruce with three-ply gussets. Top decking covered with plywood and shaped to give a good streamline form.
Tail unit : Normal monoplane type, with fin and rudder built up on steel tube frames. The spars and ribs are of spruce and the covering is fabric.
Undercarriage : Split type with shock-absorbing units placed within the fuselage.
Power unit : 75 h.p. 7-cylinder Pobjoy radial engine with geared airscrew. Gravity feed to carburettor from tank placed in front section of fuselage.

DIMENSIONS AND PERFORMANCE DATA.

Span, 24 feet ; length, 18 feet 4 inches ; height, 5 feet, 7 inches ; wing area, 90 square feet : total weight, 850 lbs. ; maximum speed, 145 m.p.h. ; cruising speed, 120 m.p.h. ; landing speed, 35 m.p.h. ; take-off, 60 yards ; petrol consumption, 5 gallons per hour ; duration, 300 miles.

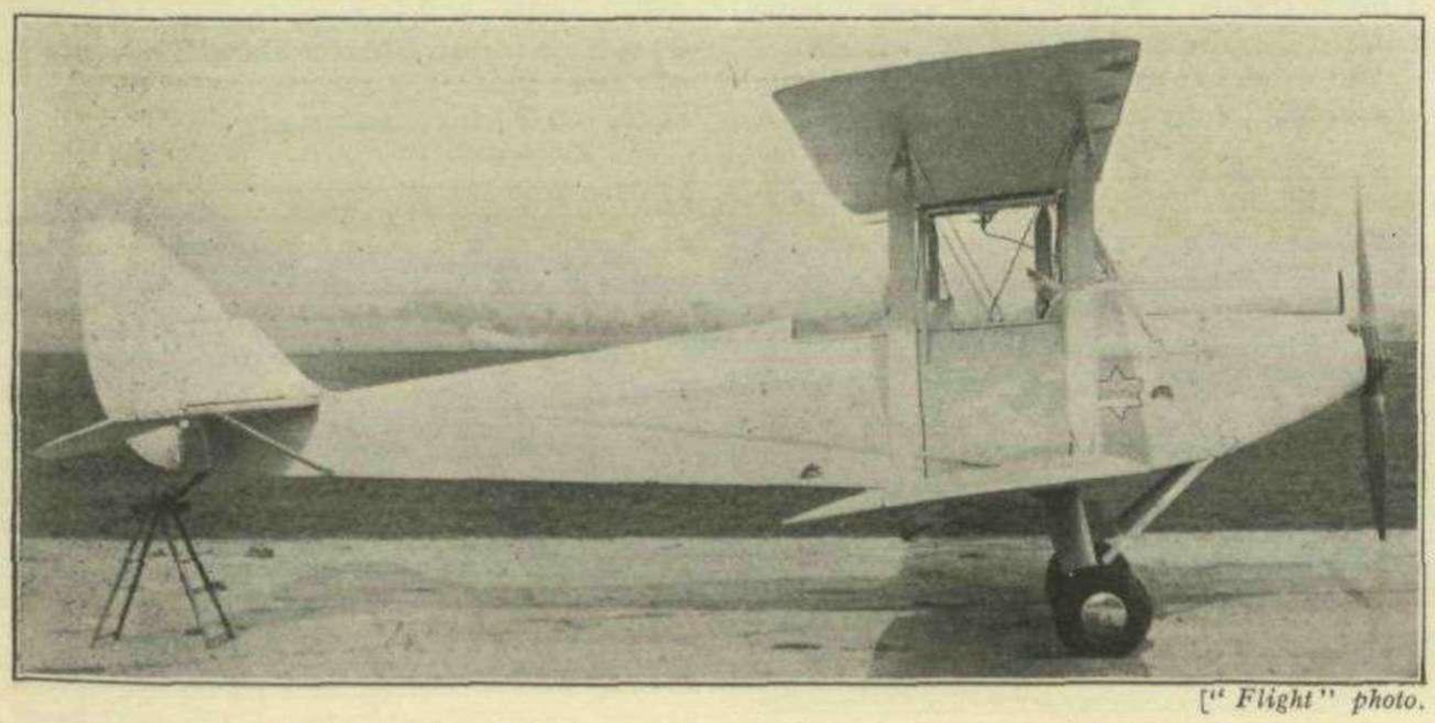
The price of the " Swift " is £550.

Manufacturers' address : The Comper Aircraft Co., Ltd., Hooton Park Aerodrome, Wirral, Cheshire. Distributors : Brian Lewis & Co., Ltd., 30, Conduit Street, London, W.1.

* * *

D.H. " Moth."

The D.H. " Moth " was in the first instance produced in 1925, and since that time so much has been achieved with it by numerous pilots, and so many have been sold at home and abroad, that it is now world-famous. It therefore requires scarcely any introduction to readers of MOTOR SPORT. The latest " Moth " is now offered in two models—



[" *Flight*" *photo.*

The Standard model D.H. " Moth," which is now available at £695.

AIRCRAFT FOR THE PRIVATE OWNER—continued.

the Standard and the Special. As the name implies, the former is built in quantity, with the aid of special plant and machinery which has been laid down with the object of making one article to the most meticulously accurate standards. The Standard model has a wooden fuselage, and the Special model, one of steel tube, but in other respects the two types are similar. The option of either 100 h.p. D. H. Gipsy I. or the 120 h.p. Gipsy II. engines exists in both models. The higher-powered unit gives an increase of 6 to 7 m.p.h. in speed, and allows of a quicker take-off and an improved rate of climb.

The wings of the " Moth " are of normal wooden construction, with ailerons on the lower planes and fabric covering. The two seats are arranged in tandem in separate cockpits and dual control is incorporated.

SPECIFICATION.

Wings : Single-bay biplane with Rafwire bracing and metal interplane struts and centre-section. By simple arrangement they may be folded back to allow the machine to be passed through a 10 feet doorway.

Tail unit : Fabric covered wooden structure, rudder partially-balanced.

Fuselage : Standard model—built up of wood on well-known D.H. principle, with spruce longerons and web members the whole covered with plywood.

Special model : Welded steel tube, giving exceptional strength and rigidity with light weight ; fabric covered.

Undercarriage : Wide track, with low-pressure tyres and patented D.H. rubber shock-absorbing units.

Fuel feed : By gravity from centre-section tank of 19-gallon capacity.

Engine : Both the 100 h.p. and 120 h.p. Gipsy are 4-cylinder in-line air-cooled units with overhead valves (two per cylinder), single carburettor and dual ignition. One magneto is fitted with an impulse starter. The Gipsy, which is, of course, the product of the De Havilland Co., is designed to run on No. 1 petrol and ordinary mineral oil.

The accommodation and equipment of the " Moth " is very complete, and includes inter-cockpit 'phone system, compass, clock, two air-speed indicators, altimeter, tachometer, oil pressure gauge, petrol gauge, and level indicator.

DIMENSIONS AND PERFORMANCE DATA.

Span, 30 feet (folded, 9 feet 10 inches) ; length, 23 feet 11 inches ; height, 8 feet 9½ inches.

Weights : Standard model, 1,750 lbs. ; Special model, 1,750 lbs.

PERFORMANCE DATA.

Speed at ground level : Gipsy I., 100 m.p.h. ; Gipsy II., 107 m.p.h. Cruising speed : Gipsy I., 85 m.p.h. ; Gipsy II., 91 m.p.h. Stalling speed : 42 m.p.h. Petrol consumption : Gipsy I., 5.2 gallons per hour ; Gipsy II., 5.8 gallons per hour. Range at cruising speed : 300-310 miles.

Prices : Standard model—Gipsy I., £695 ; Standard model—Gipsy II., £775. Special model—Gipsy I., £750 ; Special model—Gipsy II., £825. The machine is also offered as a seaplane, the prices ranging from £980 for the Gipsy I. Standard model to £1,115 for the Special model with Gipsy II. power unit. Slots are also obtainable as an extra.

D.H. " Puss Moth."

The " Puss Moth " is one of the more recent additions to the D.H. range of light aircraft, and, like the " Moth," it is designed expressly for the private owner. Its layout embodies a great number of advanced features, and it is equipped and fitted out in such a way that it may be justly described as a luxury aeroplane. The " Puss Moth " is a high-wing strut-braced monoplane, and owing to its very clean lines, it has, for a machine of comparatively low power, a very high all round performance, its climb and ability to cruise at high speed in particular being most marked. Pilot and passengers (the machine is a 2-3 seater) are accommodated in a comfortable cabin, the view from which is exceptionally good. This is due to the use of an inverted engine, which leaves the view ahead completely unobstructed, and the large windows at the sides and in the roof.

Other notable features are the air and wheel brakes, which greatly lessen the landing run—a matter of importance when the machine is being operated from a landing ground of small area. The air brakes consist of simple streamline sleeves which are attached to the undercarriage compression struts, and by moving a lever these can be swivelled round broadside on to wind, thus resulting in an effective braking action. The wheel brakes are of the well known Bendix type.

The " Puss Moth " conforms to present-day tendencies of design, having a metal fuselage and folding wings, while there is plenty of room for carrying luggage.

SPECIFICATION.

Wings : Strong wooden construction, fabric covered, with ailerons embodying the patent D.H. differential control system.

Fuselage : Steel tube structure, welded and made in sections to facilitate overhaul and repair.

Tail unit : Wooden construction, fabric covered, adjustable tail plane.

Undercarriage : Wide track " split " type, with Bendix brakes and air-wheels. A tail wheel in place of the more usual tail skid may be fitted if desired.

Fuel system : Petrol tanks are fitted in the wings with simple gravity feed to the carburettor. Tank capacities may be had in three sizes—22, 28½ and 35 gallons.

DIMENSIONS AND PERFORMANCE DATA.

Span : 36 feet 9 inches (folded 13 feet) ; length with wings extended, 25 feet ; length with wings folded, 26 feet 3 inches ; height, 6 feet 10 inches ; weight, fully loaded, 2,050 lbs.

PERFORMANCE DATA.

Speed at ground level : 128 m.p.h. ; speed at 5,000 feet, 125 m.p.h. ; rate of climb at ground level, 800 feet per minute ; stalling speed, 42 m.p.h.

The price of the " Puss Moth " as a land plane is £1,180. Handley Page slots can be fitted at extra cost.

D.H. " Tiger Moth."

The D.H. " Tiger Moth " is a development of the ordinary " Moth," designed primarily as a high-performance training machine for Service flying. At the same time, it is entirely suitable for private use, and it is therefore included in this article. It differs from its prototype in that it is fitted with an inverted Gipsy III. engine, and has staggered wings and modified cockpits. The centre section has also been moved further forward and altered somewhat in design, and a new wings section is used. The wings do not fold.

In official trials the " Tiger Moth " was shown to have a speed at ground level of 109 m.p.h., at 5,000 feet 107 m.p.h., an initial rate of climb of 700 feet per minute and a stalling speed of 46½ m.p.h. The price of this aircraft has been fixed at £1,045.

Manufacturers' address : The De Havilland Aircraft Co., Ltd., Stag Lane Aerodrome, Edgware, Middlesex.

* * *

Klemm.

Of those foreign-built light 'planes introduced in recent years into this country, the Klemm is the one which has secured the greatest popularity, and to date there are between 30 and 40 in use. Originally fitted with a flat-twin engine of only 20 h.p., it is now obtainable with a variety of power units, the most popular of which is the 40-50 h.p. Salmson.



["Flight" photo.

Air travel de-luxe—the D.H. " Puss Moth." It is fitted with an inverted D.H. Gipsy engine.

AIRCRAFT FOR THE PRIVATE OWNER—continued.



The 40 h.p. Salmson-engined Klemm is renowned for its efficiency, and ease of flying. The wing span is 42 feet 8 inches.

The Klemm is of German design and construction, and the first machine was produced after extensive experiments with soarers, and it is generally admitted that it is one of the most efficient of really light aeroplanes now produced. Even with so small a power as 20 h.p., quite a number of outstanding flights have been made with it in the past, the most striking example of which was, perhaps, that made in 1926, when an L.20 type was flown (with a passenger) from Stuttgart to Vienna and Budapest and back; during this trip the Gross-Glockner Alps were crossed in very bad weather at a height of 12,000 feet.

The Klemm is a low-wing monoplane of the full-cantilever type. With the exception of the ailerons, elevators, rudder and a section of the main planes, the covering is of plywood. The machine is noted for its low landing speed, which is in the neighbourhood of 25 m.p.h., and its anti-spinning characteristics.

SPECIFICATION.

Wings: Full-cantilever of wooden construction, high-lift section, plywood covering with fabric from rear spar to trailing edge.
Fuselage: Wooden structure, devoid of wire bracing, plywood covering. Cockpits arranged in tandem with dual control.
Tail unit: Full cantilever wooden structure, with adjustable tailplane. Plywood covering as on main planes.
Undercarriage: Split axle type.
Fuel system: Main tank in front fuselage, with reserve tanks in wing roots. Gravity feed to carburettor.
Engine: 40-50 h.p. nine-cylinder air-cooled Salmson radial.

DIMENSIONS AND PERFORMANCE DATA.

Span, 42 feet 8 inches (the wings do not fold, but are quickly detachable); length, 23 feet 8 inches; height, 7 feet 3 inches.

Speed at ground level, 90 m.p.h.; cruising speed, 75 m.p.h.; landing speed, 26-30 m.p.h.; ceiling, 1,600 feet; range, 630 miles; fuel consumption, 2½ gallons per hour.

The Klemm is offered with the following alternative engines:—70-80 h.p. Siemens, 85-95 h.p. Cirrus, 80-100 h.p. Argus.

Owing to fluctuations in the rate of exchange, prices cannot be stated.

Concessionaires: S. T. Lea Ltd., 141, New Bond Street, London, W.1.

Redwing.

The Redwing is another English light 'plane, which, though a relatively new make, has "caught on" in the private flying movement. The company responsible for its production was only formed in 1930, yet they have made such good progress that already four flying clubs are using Redwings for instructional purposes. The machine is a side-by-side two-seater biplane, and is powered with an Armstrong-Siddeley Genet engine. Its construction follows orthodox practice, with wooden fuselage and wings. Owing to its low wing loading and the wing section used, the Redwing can be taken off and landed at a speed as low as 30 m.p.h.; yet it has a top speed of 96 m.p.h. The arrangement of the cockpit has been well thought out, and with the seats arranged side-by-side, conversation between pilot and passenger can be made without effort or the aid of telephones. Dual control is fitted, and all the usual instruments are incorporated in the standard equipment. The layout as a whole has been very well conceived, and it is obvious that the designer has aimed at producing a machine which is easy to fly and simple to maintain.

SPECIFICATION.

Wings: Normal wooden construction, fabric covered and braced with Rafwire. Ailerons are fitted to lower planes only. Metal interplane struts.
Fuselage: Wooden structure with plywood covering, with large detachable panels on the underside.
Tail unit: Orthodox construction, with fixed tail plane, braced on underside with streamline steel tubes. Rudder partially balanced.
Undercarriage: Wide track "split" type, incorporating Oleo shock absorbers, devoid of valves and springs.

Wherever possible, pull-and-push rods are used in the control system, and there are no pulleys and fairleads, the cables being used only in short lengths.
Fuel system: Gravity feed to carburettor from tank installed behind fireproof bulkhead in front fuselage.
Engine: Armstrong-Siddeley Genet five-cylinder air-cooled radial, 80 h.p.

DIMENSIONS AND PERFORMANCE DATA.

Span, 30 feet 6 inches (folded 9 feet 8 inches); length, 22 feet 3 inches; height, 8 feet 4 inches; weight, fully loaded, 1,450 lbs.; speed at ground level, 96 m.p.h.; cruising speed, 85 m.p.h.; landing speed, 30 m.p.h.; rate of climb, 800 feet per minute.

The price of the Redwing is £660.

Manufacturers' address: The Redwing Aircraft Co., Ltd., Heston Air Park, near Hounslow, Middlesex.

* * *

Spartan.

Although on casual inspection the Spartan appears to be very similar to the majority of light biplanes, it has, in fact, a number of unique features in its design. These have been incorporated mainly with the object of simplifying construction and reducing maintenance and repair costs. For example, the rudder and elevators are of the same size and form, as are the starboard and port tail plane surfaces and the fin. Similarly, the interplane struts are identical, and interchangeability is found in the undercarriage units and other parts.

The Spartan is also notable for its general robustness of build, and the manner in which it will stand a lot of rough handling and really hard work with the minimum of attention. Both the Household Brigade Flying Club and the Bristol and Wessex Aero Club use Spartans, and a private owner of very limited experience has successively negotiated the long and arduous route to



Another side-by-side seating light 'plane—the Redwing with "Genet" radial engine.

AIRCRAFT FOR THE PRIVATE OWNER—continued.

Australia. At home one finds a number of Spartans in operation for commercial "joy-riding" purposes, and several are in use abroad.

The machine is made in two types—the "Arrow" two-seater and the 3-seater. Both types are also obtainable as seaplanes.

SPECIFICATION
("ARROW".)

Wings: Normal wooden construction, fabric covered, with ailerons on top and bottom planes. Rafwire bracing.

Fuselage: Wooden construction with plywood covering. The cockpits are arranged in tandem, and have large doors at the side to facilitate entry and egress. A large locker is placed behind the rear cockpit.

Tail unit: Normal wooden construction with fabric covering, rudder and elevators are partially balanced.

Undercarriage: "Split" axle type with efficient and robust shock absorbing gear.

Engine: Gipsy I., Gipsy II. or Hermes II. (all four-in-line air-cooled units).

DIMENSIONS AND PERFORMANCE DATA.

Span, 30 feet 7 inches; length, 25 feet 1 inch; height, 9 feet; width with wings folded, 9 feet 9 inches; weight (fully loaded), 1,750 lbs.

Speed at ground level: With Gipsy I. 99 m.p.h., with Gipsy II. 101 m.p.h., with Hermes II. 101 m.p.h. Cruising speed: With Gipsy I. 83 m.p.h., with Gipsy II. 90 m.p.h., with Hermes 85 m.p.h. Stalling speed: 41 m.p.h. Rate of climb: with Gipsy I. 430 feet per minute, with Gipsy II. 700 feet per minute, with Hermes II. 630 feet per minute. Range: with Gipsy I. 330 miles, with Gipsy II. 264 miles, with Hermes II. 302 miles.

Prices: Gipsy I. £675, Gipsy II. £735, Hermes II. £730.



A Spartan in flight. This machine has several clever features embodied in its design.

SPECIFICATION
(SPARTAN THREE-SEATER.)

The Three-seater Spartan is similar in general specification to the "Arrow," but is slightly smaller in span and length. The second passenger is accommodated in the front cockpit, the seat being arranged so as to allow the occupant to sit either facing forward or behind.

DIMENSIONS AND DATA.

Span, 28 feet 10 inches; length, 24 feet 9 inches; height, 9 feet 4 inches; width, with wings folded, 9 feet 4 inches; weight, fully loaded, 1,680 lbs. Speed at ground level, 103 m.p.h. Cruising speed, 90 m.p.h. Landing speed, 44 m.p.h. Rate of climb, 600 feet per minute.

Prices: Gipsy II., £795; Hermes II., £790. Handley Page slots fitted as an extra.

Manufacturers' address: The Spartan Aircraft Ltd., East Cowes, Isle of Wight.

AFTER FIFTEEN YEARS—continued.

My instruction in the art of aviation had begun.

Looking back on that time, I can recall that while we were the best of friends on the ground, we seemed to be at daggers drawn when flying. How I hated that Frenchman with his hand wavings, and his unheard ravings and curses! For him, no doubt, I was a ham-fisted, clumsy fool; while on my side, he was an unreasonable, temperamental Continental. But time passed, and I began to distinguish between the resistance on the stick from the warp control, and the violent and savage corrections of my movements by my instructor. Somehow, I suppose, I was learning to fly. Anyhow, after something over three hours—which included a violent pile-up in a field, due to the inevitable passing out of the Gnome—I was sent up solo, and chapter one was ended and chapter two began.

Fifteen years have passed. The R.F.C., the R.N.A.S., the rotaries, and a hundred-and-one things have gone to limbo. Flying the Atlantic or to Australia is quickly becoming a mere bagatelle. Elderly gentlemen fly, women fly, everyone flies. And I have started again. Once more I am a pupil in aviation; and what a contrast I have found!

I walk from the warm comfort of the chief instructor's sumptuous office, down a paved way to the sheds. The red "Moths" of the D.H. School stand ready, spotless, immaculate and glistening in the winter sunshine. Engines are idling with less noise than a sports car. I am loaned a helmet with comfortable 'phones, and get aboard. I do not feel, as I did in 1917, like a prisoner being marched to his execution. Friendly hands assist me to adjust my safety belt. I note with pleasure the snugness of the cockpit, the neat instrument board, the position of the throttle lever, the stick and rudder bar—everything just right.

"You will find that things have changed a bit, since you first flew," says my instructor as we taxi out. Then, with the deep muffled hum of the engine in my ears, we're off. Again I see the earth slide away from beneath me, and the countryside sprawl out as we get our height. At my pilot's bidding I take control. A light, easy pressure on the stick, a shade of rudder and the "Moth" sweeps round in an easy left-hand turn, and away beyond our port wing tip I discern the 'drome again.

To the right and to the left we go through these simple evolutions, and no warning comes down the speaking tubes to "stuff the nose down on the turn" to guard against the stall, and I have no querulous ear cocked ever alert to sense the engine's falter. We talk in normal voices, without effort, without strain, we fly without effort, without anxiety. Then with airscrew slowly flicking round we approach the aerodrome, land and taxi in.

And as I walk away I realise the potency of that remark that "things have changed a bit." The bad and barbarous days of flying have gone, but who regrets their passing?

AFTER FIFTEEN YEARS.

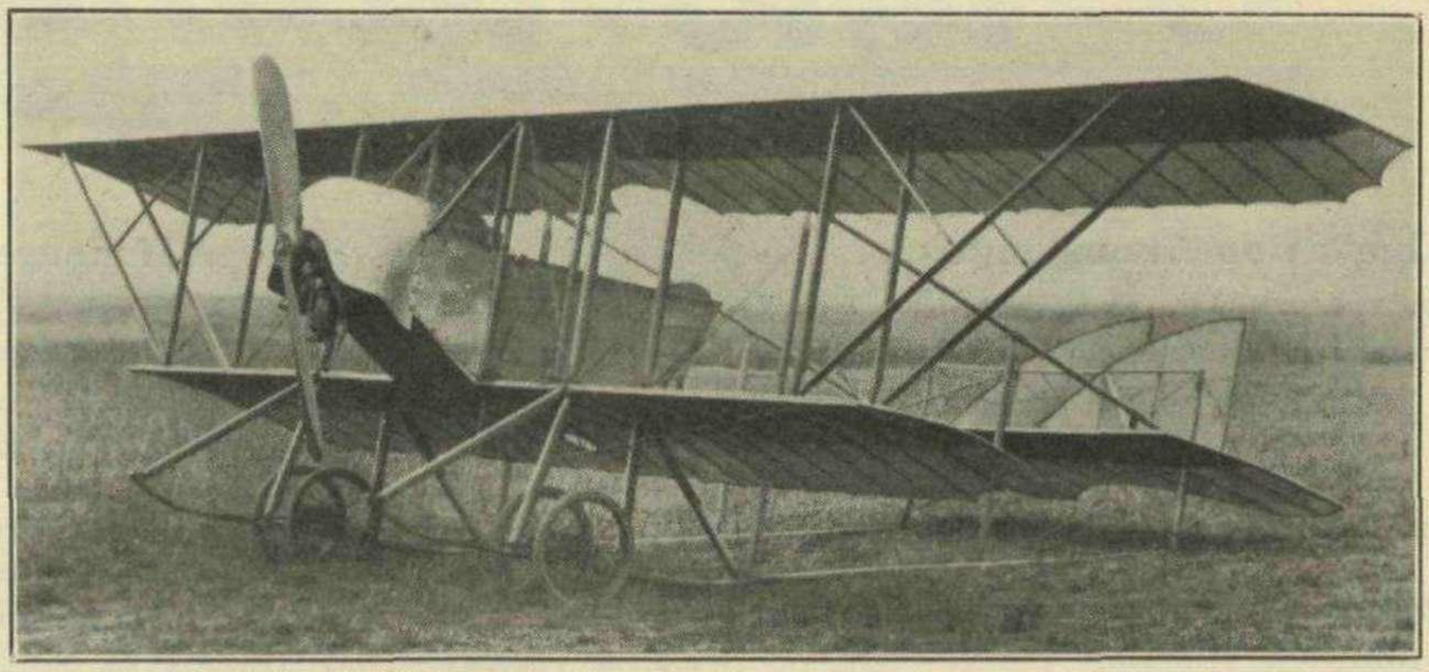
LEARNING TO FLY—YESTERDAY AND TO-DAY.

BY "EX-R.F.C."

WHEN I say that I am able to recall clearly and in detail my very first flight as a pupil in aviation, I do not claim it as a phenomenal feat of memory, even though it happened fifteen years ago. I have no doubt the real veterans of the pioneer days of 1910-1914 can do the same, for every man who has ever flown retains vividly the recollection of his first flip in the face of all subsequent events which may prove to be richer by far in adventure, hazards and sensation.

There is nothing quite like that first flight. One is overwhelmed with surprise, exhilaration, awe, and alternating spasms of fear and confidence. A whole medley of feelings moulded into one colossal emotion. Initiation into other things—let us say motorcycling, track driving or outboard racing—dwindles to insignificance when compared with "the air."

And so through fifteen years, not altogether barren of experiences, I have been able to call up visions of a certain morning, dull, grey, cheerless and very cold. A ground mist shrouded the hangars and the aerodrome; leather-clad figures stood around—instructors, pupils, soloists. We were waiting, of course, for the mist to lift. It's a grim time of day,

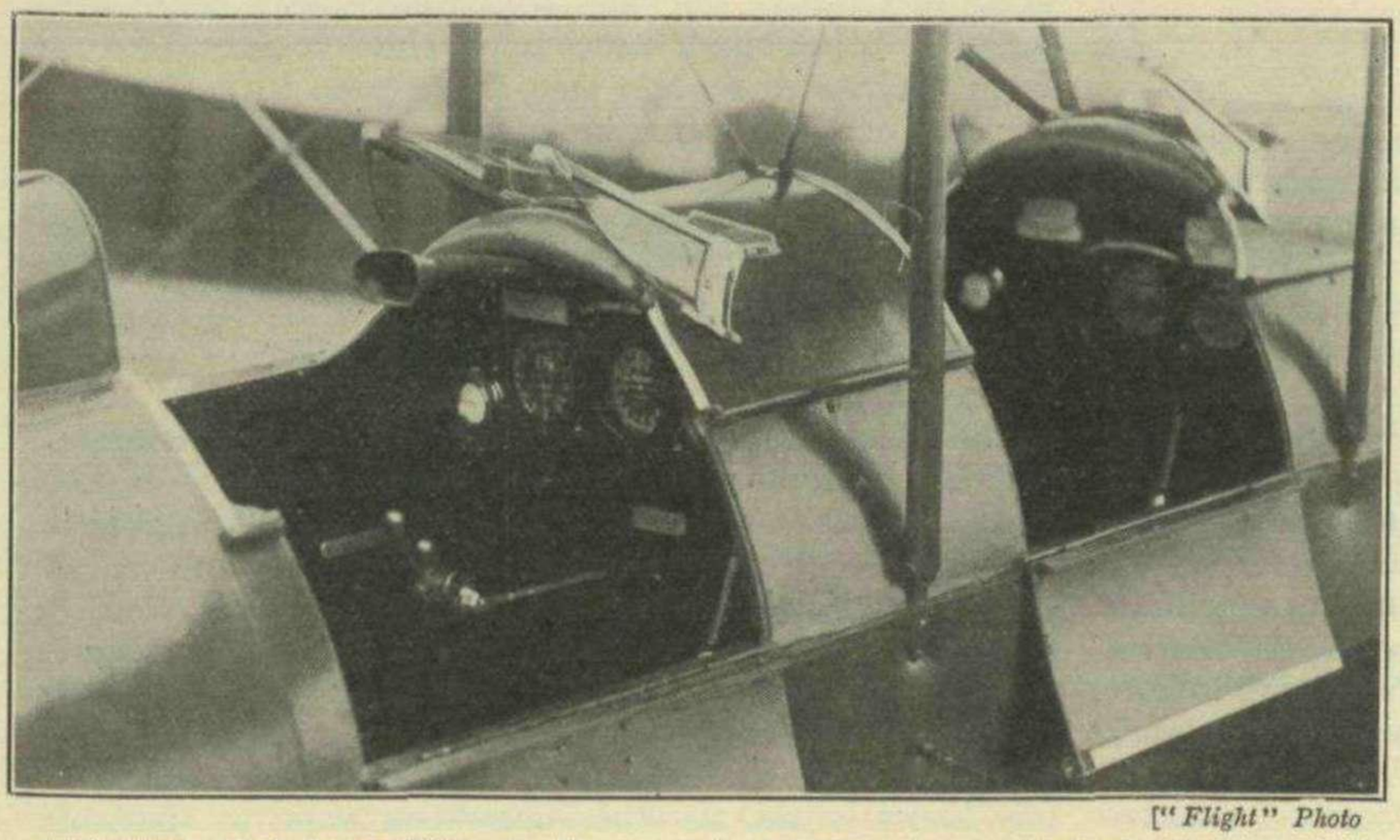


ANCIENT AND MODERN. A school machine of pre-War and Wartime days. It is a Caudron with 50 h.p. Gnome engine, and "warp" wings and elevator.

that first hour after dawn, when breakfast seems so far off, and one's eyes are heavy with sleep. Presently when the outskirts of the aerodrome became discernible the business began. Machines emerged from the dimness of the sheds, there were cries of "Suck in!" and "Contact!"—icy blasts from propellers flattened the grass and churned the dust, the rotaries coughed and roared; there was a pungent reek of "castor."

And then I was shown to one of these machines, and was directed in the somewhat ticklish procedure of entering it. I had to step deftly with bowed head through tailbooms and a mass of diagonal piano wires. I had to insert my clumsy sheepskin boot in a crazy and frail stirrup step, and heave myself upwards and inwards to find myself in due course in a narrow and shallow nacelle. Actually the sides came level with one's waist, and—I can look back on it now, and marvel—there was no windscreen, no belt, not one solitary instrument, no throttle and no headphones. My instructor (a Frenchman) already occupied the front seat. He turned and said laconically, "We will go up now." The intermittent "blipping" of the engine ceased, and the Gnome kept up a steady hum. Slowly the tail lifted and the machine gathered speed and before I had realised it, we came clear of the ground. My begoggled eyes strayed round and I saw the dark streak of the horizon, the ever-growing panorama, the wing tips and the trailing edge blurred in feverish vibration. We went round in a gentle bank, and I saw the hangars dwarfed by 1,000 feet.

My instructor turned his head, gesticulated with his left hand, and mouthed unheard words, drowned by the roar of wind and engine. What it was all about I had not the faintest idea—so I shook my head. Suddenly the nose dropped, and the engine was cut out. I heard then faintly, "Hold—the—stick—feet—on—rudder bar!"



["Flight" Photo

ANCIENT AND MODERN. In the present day school machine every detail is included which makes training an easy and comfortable process. Here are the cockpits of the D.H. "Moth," complete with telephones and full set of duplicated instruments.

(Continued at foot of preceding page)

Slipstreams



King's Cup Arrangements.

THE Royal Aero Club has released some details regarding the King's Cup Race, which is to take place on Friday and Saturday, 8th and 9th July.

The start and finish will be Brooklands, and the course will be as follows :—

First Day.—Brooklands-Lympne (*turning point*)—Portsmouth (*turning point*)—Bristol (*control*)—Castle Bromwich (*turning point*)—Hooton (*turning point*)—Woodford (*turning point*)—Leicester (*control*)—Ipswich (*turning point*)—Northampton-Brooklands (*finish*). The total distance for the first day's course is 747½ miles.

Second Day.—Brooklands-Bristol (*turning point*)—Northampton (*turning point*)—Brooklands (*control*)—Shoreham (*turning point*)—Portsmouth (*turning point*)—Bristol (*turning point*)—Brooklands (*finish*).

The selection of Brooklands as the venue of our premier air event of the year is significant of the fact that this aerodrome may become a principal centre of sporting flying once more.

In the early days it vied with Hendon as a place for the public to witness the then new science of mechanical flight, but of recent years it has sunk rather into the background. I think this year will see its " come-back," for in addition to the King's Cup, we shall also be able to see some pylon racing there before the season passes. Meanwhile the new club buildings which have been in course of erection for some time are now completed, and the amenities of Brooklands for visitors has thus been greatly increased.

The German Way.

While our own clubs are working under difficulties with the existing subsidy arrangements, those clubs which are operating in Germany have been going through even more trying times of late, for they have to rely entirely on their own funds in purchasing and running their aircraft. But the German is renowned for his resourcefulness, and the German Air Union, to which nearly every flying club in the Fatherland is allied, organised a competition some time ago for designs for light aeroplanes suitable for construction by club members. Sundry designs were submitted, and after two of these had been approved, experimental machines were built. These were flown recently at the Berlin aerodrome, and from reports, they appear to be thoroughly practical. Both machines are real light 'planes with 20 h.p. flat-twin Mercédès engines, and each is of the single-seater high-wing monoplane type. I wonder how long it will be before we shall see a revival of machines of this type in England.

Hinkler Honoured.

When it was announced last month that the Royal Aero Club had awarded the Britannia Trophy for 1931 to Bert Hinkler (or to give him his full title—Squadron-Leader H. J. L. Hinkler, A.F.C., D.S.M.) for his flight from New York to London, I am sure nobody was in the least surprised. And everyone will agree with the Committee that this was the most meritorious performance in the air accomplished during the past year.

Hinkler, of course, had previously been awarded the Segrave Trophy, so it is satisfying to find that one great British pilot at least has received recognition in his own country. But for all this, and the many receptions, dinners, and so forth which were held in his honour, Bert, it seems, has failed to find an opening in England, and so he has gone back to the U.S.A. to try his luck there. And in doing so he is following the lead of quite a number of people who, either as aircraft designers, inventors, or just plain pilots, have given up hope of getting worth-while jobs in Britain and have gone to other climes.

For some time now, the opinion has been growing that America is going to be the big noise in the aircraft industry before many years have passed. Rumours have been going round that a huge syndicate has been formed there, and that they have plans ready whereby they intend to capture the world's aeroplane market. A friend of mine gathered quite a lot of information about this story from no less a person than Frank Hawks, and the former assures me that there is more than a grain of truth in the tales which have been heard.

On the other hand, someone who has recently returned from the States reports that there is so little doing in the American aircraft trade just now that even a concern such as Curtiss is working with only a skeleton staff, while their hangars and shops are crammed with brand new machines—unsold.

Flying and Temperament.

I remember reading in some book on flying a remark to the effect that an instructor can tell in a few moments whether a pupil will turn out to be a pilot—or not. With this I do not agree. The psychology of the aviator is a most complicated business. You get some people who find flying boring and uninteresting at first (a strange type, this), others take to it at once, and quite a lot are scared stiff on their first flip. These first impressions, however, are nothing to go by; I have known the blasé type to alter their views considerably after a few hours in the air, the super-keen pupil to suddenly go all to pieces after 3 or 4 hours of solo flying, and the windy fellow to develop into a first-rate pilot.

SLIPSTREAMS—continued.

Of the latter type I remember one very striking example; it was during the War. A certain officer under instruction came to my flight. He had had some twelve hours dual—a lot for those days—but he was definitely very nervous, and we watched him anxiously on his first solo. He didn't crash, but he told us frankly that he hated flying, and that he was terrified when in the air. However, we kept him at it, and while he never showed any brilliance, he did eventually get his " wings." I heard later that he was flying S.E.'s overseas and had been awarded the M.C. for shooting up a German 'drome. No, as I said before, I do not agree that " an instructor can tell in a moment whether a pupil will become a pilot—or not."

" RUDDERBAR."

THE SPORT AFLOAT.

SOME OUTBOARD RACING SUGGESTIONS

—Some ways of encouraging entries are put forward by our contributor, who expresses the amateur's point of view.

A BRIEF consideration of the outboard races and meetings held during 1931 shows that, if entries and attendances can be admitted as evidence, the popularity of this sport has considerably declined. Even the International events held in London, and elsewhere, were very poorly supported. Exceptions exist, of course, but in general the above is in no way overstated. All sorts of reasons have been advanced for the gradual disappearance of competitors and the limitation of entries to a very few enthusiasts. One cannot entirely blame this on the financial crisis through which the country is passing, although this must have had its inevitable effect. Nor can the fault be laid with the organisation of the sport, which generally has been fairly efficient.

From a consideration of the opinions of the competitors and others interested in the sport, it would seem that the present rules, governing racing in this country, have been drafted with the object of discouraging outboard motor-boat racing.

This statement may seem very sweeping, but an examination of our racing rules soon justifies it. In brief, only standard engines may be raced at any official meeting. There are, of course, a whole host of other necessary or unnecessary rules, but that is the crux of the matter. As a result, competitors are debarred from making any alteration to their engines, although they may be racing against engines of later type, which embody the very alterations they desire to make. The only changes which can be made are as follows:— Propellers of any design may be fitted. Plugs may be changed, piston rings may be replaced. Silencers must be of an approved type, but this is perfectly justifiable and necesssary.

Now let us consider how all this affects the ' man in the sports car ' who is really the ' man in the street ' of outboard racing. He buys, in a moment of enthusiasm, the latest production of the Buzoff Corporation, and, after learning to start the thing, decides to take up racing. He enters for one or more races, and perhaps makes a decent showing during the rest of the season.

So far, so good.

During the winter he meets several friends, and succeeds in persuading them that outboard racing is worth while. They buy, as a result of his introduction, the latest Buzoff.

Then what happens? Obviously, if handled with reasonable intelligence, the later engine walks away from our enthusiast. What can he do? He can, shall we suppose, make a sports car of ancient vintage behave like an up-to-date model. Why not tune the outboard in the same way?

Then he reads the racing rules, and usually decides to sell his outfit and spend the proceeds on a new set of tyres for his three-year-old sports car, which he can enter, although it is completely and essentially non-standard, in a number of sporting events.

It is true that a number of handicap events would be available to our enthusiast, but no handicapping system has yet been devised to give any real satisfaction. Alternatively, he might obtain an even later Buzoff than his friends. This is an expensive process, and at once destroys the claims of outboard racing to be a cheap sport. In any case, it seems inevitable that he will become dissatisfied, and will eventually desert outboard racing for something where he can get value for money.

The only way to revive interest in outboard racing is to get rid, for all time, of all racing rules which restrict the skill and inventive genius of the individual.

A set of rules, somewhat as follows, could be framed which would allow anyone with reasonable tuning ability, to put up a good show against the latest factory productions.

(1) Engines over twelve months old may be tuned by their owners in any way, provided they comply with the following conditions:—

(*a*) Cylinder capacity must not exceed the rated

OUTBOARD RACING SUGGESTIONS—continued.

cylinder capacity of the class in which the engine is to race, i.e. Class A, 250 c.c. ; Class B, 350 c.c. ; Class C, 500 c.c. ; Class D, 500 c.c. upwards.

(*b*) If superchargers are fitted, the engine shall be considered as having a cylinder capacity of 30% greater than its actual swept volume capacity, as in the R.A.C. Tourist Trophy regulations.

(*c*) All engines must be startable by the pilot or driver without the use of starting devices not carried in the boat.

(*d*) All engines must be efficiently silenced.

(2) Compression ratios may be increased or reduced as desired by the owner, provided that standard cylinder blocks are used. These may, however, be modified as desired.

(3) Crankshafts, flywheels and reciprocating parts may be rebalanced, but must basically consist of standard parts, except pistons, which may be replaced if desired.

(4) Ignition systems may be modified as desired, provided that the altered systems are applied to the engine without serious structural alterations.

(5) Any carburettors may be fitted.

(6) Any propeller may be fitted, and gear ratios between propellers and drive shaft altered as desired, provided that standard housings are employed.

(7) Any size or type of fuel tank may be employed, and any fuel feed system fitted.

(8) Any fuel may be used.

The above rules place no restriction whatever on the skill of the individual, but prevent the redesign of major parts in such a way as hopelessly to increase the factor of cost. Under these rules, our enthusiastic friend would be able to compete on nearly equal terms with the owners of last-word productions. Another type of enthusiast, who has hitherto been lacking, would enter the field. Those who could not afford the high cost of new engines would be able to purchase year-old motors, and pit their skill and ingenuity against the hard cash of those able to buy the latest models.

There is no question that meetings held under the rules suggested would meet with hearty support. Old hands who have been unable to keep pace with the ever-increasing cost of racing would again enter the field. Others, thanks to the removal of the same handicap, would be able to take up the sport. The effect would be cumulative and wholly beneficial, not only to the sport, but to those interested in the motor boat industry. The possibilities are limitless, the difficulties negligible.

All we require is sufficient courage to throw overboard a collection of restrictive rules which are about as popular as D.O.R.A. In conclusion, a word of warning : it is no use waiting to see what will happen this year. Another year under present rules, and outboard racing will be on a par with the lamented 1½-litre class.

[Without suggesting that our contributor's plans are ideal in every detail, we agree that a determined effort on these lines to make outboard racing more attractive to the impecunious but mechanically-minded, would be of great benefit to the sport and the industry.—ED.]



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THE NEW RECORD

GAR WOOD REGAINS IT WITH 111.7 M.P.H.

ON Friday, 5th February, the famous American pilot, Gar Wood, succeeded in winning back the water speed record. He had just previously reached a mean speed of 110.78, but this was not the required amount above Kaye Don's speed to rank as a record. However, the supercharged Packard engines had proved satisfactory, and it was evident that Miss America IX. now has the necessary speed. On the above date he returned a mean speed of 111.7 m.p.h., and Gar Wood is now pleased with his effort, and has only to wonder how soon we shall cause him to have to go out again.

A great deal of work has gone on with this boat recently, and as a result of the increased power, and modifications to the loading of the boat, greater steadiness has been obtained, as well as greater speed. His figures have been submitted to Brussels for official confirmation, and the next stage in the battle for the world's speed record on water must be opened from this side.

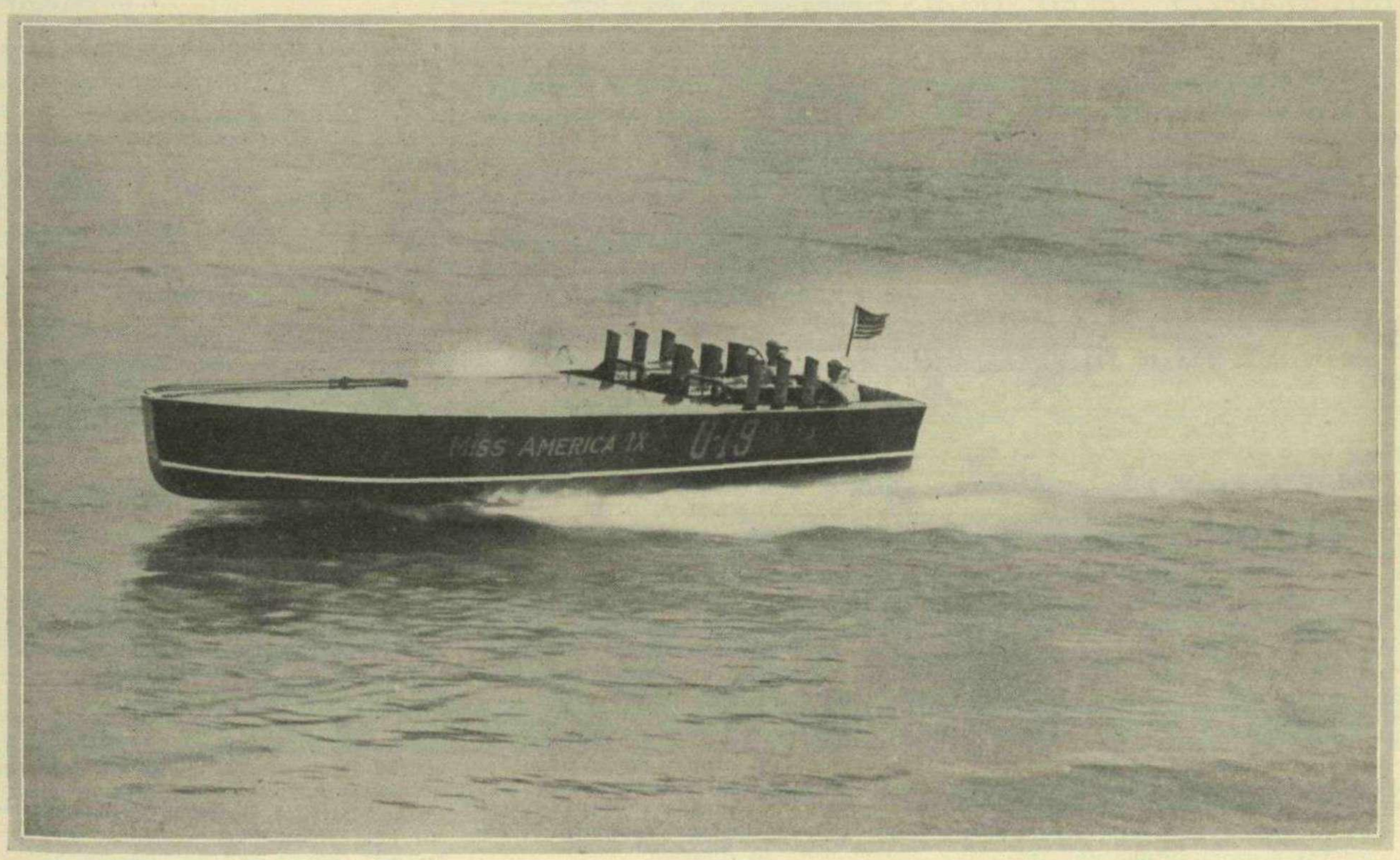
Miss England III. is now being proceeded with at Thorneycrofts, and although being built more for handiness and general stability than for sheer speed, the power of the latest Rolls engines should also make it possible for this boat to recapture the record for Britain.

The general layout of the new "Miss England" will be on fairly normal lines, twin screws without a very high propellor speed being likely. The excessive revs. used in the first two "Miss Englands," although unexpectedly successful, were really only necessary to avoid the big torque reaction of a large screw. Hence the fact that 12,000 r.p.m. was necessary to transmit the colossal power available. The use of twin screws with opposite rotation should make the efficient use of some 5,000 h.p. an easier matter.

The Italians can certainly set us an example in the way of encouraging entrants for a big meeting. For the International Regatta at Lake Garda at the end of May, they are inviting outside competitors to come and stay there at their expense, and the railway charges for competitors are to be specially reduced. All particulars can be obtained from Arthur Bray, 114, Baker Street, London, W.1.

THE LONDON-PARIS OUTBOARD TRIP.

Mr. R. C. Cole recently left London for Paris on his Watermota engined dinghy to attempt the double journey to Paris and back. After a stormy passage round the North Foreland, in which the little craft stood up well to heavy seas, he reached Dover, and at the time of writing is held up there pending some improvement in the weather. A full description of the boat, and the log of the full voyage will appear in our next issue.



Fastest afloat. The famous boat "Miss America IX" which in the hands of Gar Wood, has now reached 111.7 m.p.h.

THE COLMORE TRIAL—continued from page 199.

RESULTS.

THE COLMORE TROPHY (best car performance).—A Langley (M.G. Magna).

THE BERNARD NORRIS CUP (best performance over 1,100 c.c. capacity).—F. S. Barnes (M.G. Magna).

THE RHODE CUP (best performance under 1,100 c.c. capacity).—H. B. Prestwich (M.G. Midget).

THE COMMITTEE TEAM PRIZE.—The Sunbac Team (J. G. Orford, F. S. Barnes, W. W. Whithall).

FIRST-CLASS AWARDS.—H. C. Wardle (Hornet), W. R. Nimmo (Frazer Nash), J. G. A. Roe (Riley), G. B. Goodman (Morris), P. Lees (Frazer Nash), C. H. Lawford (Riley), E. R. Oliver (Clyno), L. A. Cowcill (Frazer Nash), J. S. Bass (Alvis), A. Squillario (Morris), H. W. Blaw (Frazer Nash), F. Sforza (Magna), J. G. Orford (Austin), J. A. M. Patrick (Hornet), W. W. Whithall (M.G.), R. M. Mere (M.G.), W. J. B. Richardson (Singer), R. J. P. Morley (A.C.), W. Mason (Riley), F. W. J. Bolton (Morris), J. R. Temple (M.G.), H. W. Burman (Lea-Francis).

SECOND-CLASS AWARDS.—H. Metchim (Austin), R. A. Brown (Austin), G. A. Hobbins (Frazer Nash), J. A. Bastock (M.G.), J. A. W. Thorpe (M.G.), S. F. Ryland (Morris), R. J. B. Seaman (Riley), R. J. W. Appleton (Riley), Mrs. M. Vaughan (Triumph), H. Laird (Hornet), H. J. Aldington (Frazer Nash), J. R. H. Baker (Hornet), A. A. Baring (Frazer Nash), E. C. Mann (Frazer Nash), V. W. Derrington (Hornet), S. H. Roe (Riley), R. Way (Rover), R. J. Richardson (Austin), G. G. C. Knight (Austin), Miss M. H. Lund (M.G.), J. B. Carver (M.G.), N. H. Cole (M.G.), J. D. Barnes (Singer), H. C. Hunter (Riley), C. F. Albnison (Riley), D. West (Frazer Nash), M. E. King (Frazer Nash), R. W. Johnston (Hornet), H. S. Cundey (Frazer Nash), F. S. Hutchens (Hornet), J. F. Jefferson (Hornet), Miss M. V. Milne (Austin), C. Mann (Ford).

THIRD-CLASS AWARDS.—J. F. Kemp (M.G.), A. E. Carr (Morris), J. A. Berry (M.G.), A. C. Fairtlough (Aston-Martin), J. H. Summerfield (M.G.).



A Midget climbing Piccadilly.

INTERVARSITY SPEED TRIALS—continued from page 198.

CARS.

850 c.c. SPORTS.

1st, G. W. Wright, 746 c.c. M.G., 27.3 secs.
2nd, W. G. Rushworth, 747 c.c. Austin, 28.1 secs.

850 c.c. RACING.

1st, H. C. Hamilton (D), 746 c.c. M.G. (S), 25.5 secs.
2nd, R. R. Jackson, 746 c.c. M.G. (S), 26.6 secs.
3rd, W. G. Rushworth, 747 c.c. Austin, 28.1 secs.

1100 c.c. SPORTS.

1st, T. B. Wood, 1089 c.c. Riley, 24 secs.
2nd, T. A. Frazer, 1089 c.c. Amilcar, 30.3 secs.

1100 c.c. RACING.

1st, M. F. L. Falkner, 1089 c.c. Amilcar (S), 21.5 secs.
2nd, G. A. Black, 1087 c.c. Salmson (S), 23 secs.
3rd, T. B. Wood, 1089 c.c. Riley, 24 secs.

1500 c.c. SPORTS.

1st, G. R. Hartwell, 1496 c.c. Aston-Martin (O), 23.5 secs.
2nd, L. A. Hutchings, 1496 c.c. Frazer-Nash, 24.8 secs.
3rd, M. E. King, 1496 c.c. Frazer-Nash, 25 secs.

1500 c.c. RACING.

1st, J. A. Robinson, 1496 c.c. Bugatti, 21.3 secs.
2nd, A. F. P. Fane, 1496 c.c. Frazer-Nash (S), 21.5 secs.
3rd, G. M. Grant, 1496 c.c. Frazer-Nash (S), 22.1 secs.

UNLIMITED SPORTS.

1st, R. H. Oppenheimer, 4467 c.c. Invicta, 23.7 secs.
2nd, O. Scott-Moncrieff, 4225 c.c. Vauxhall, 24.9 secs.
3rd, F. C. Thompson, 4398 c.c. Bentley, 25.1 secs.

UNLIMITED RACING.

1st, V. Rothschild, 7120 c.c. Mercédès (S), 19.1 secs.
2nd, T. S. Fotheringham, 1990 c.c. Bugatti, 21.3 secs.
3rd, O. H. J. Bertram, 2263 c.c. Bugatti (S), 21.6 secs.

O=Oxford Entry.
D=Demonstration.
S=Supercharged.

U.S. to "Buy British"?

AS any filmgoer knows, the American police forces have long used motorcycles for traffic control purposes and up to now machines built in the United States have invariably been preferred by the "speed cops."

British makers of motorcycles have tried hard to get a footing in the States, but until recently their efforts have not met with much success. At last, however, comes the news of an unusual American interest in British machines.

A Californian police chief, last month, sent an enquiry to a prominent British factory—the Ariel Company—asking for details of the firm's new four-cylinder product, especially with regard to its suitability for police work. His enquiry particularly relates to the maximum speed and, as this is of primary importance, it is interesting to note that the maximum of the British machine is very much greater than that of the most powerful police mount made in America.

Another indication of the States' interest in British machines comes from a San Francisco dealer who, in a long letter to the Ariel Company, explains that he thinks the new product is likely to oust the American machine.

In response to these American enquiries the Ariel concern has built up a special four-cylinder model on lines as nearly as possible approaching the ideal in the States. Long upturned handlebars are used, folding footboards, a foot-controlled clutch and a large pan-seat saddle.

Motor Sport Classified Advertisement Section

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1930 Alfa Romeo 1½-litre Sports 2-seater, grey with green wheels, chromium plated fittings, many extras, including racing type speedometer and revolution counter, folding windscreen with Triplex glass, attractive appearance, very fast; £350.—Bellevue Garage and Service Station, Ltd., 19, Bellevue Rd., S.W.17. Battersea 0479.

1929 ALFA-ROMEO 1½-litre twin o.h.v. camshaft, first registered 1930, fitted with very attractive low-built sportsman's coupe, colour maroon, blue leather upholstery, chromium-plated, exceptional road performance, £425; exchanges and deferred. A. J. Guppy, Ltd., 314, Euston Rd., N.W.1. Museum 3324.

1930 ALFA-ROMEO 1½-litre supercharged sports 2-seater, black and stainless steel wheels, small mileage, £500. Bruton Garages, Ltd., 4, Blenheim St., New Bond St. W.1. Mayfair 4737.

ALVIS

ALVIS F.W.D. supercharged sportsman's 4-seater coupé, black and green, 85 m.p.h., definitely as new (1929), 12 months' guarantee; terms, exchanges.—Albert (Mews) Motors, 192-194, Belsize Rd., N.W.6. Maida Vale 5204.

12/50 Alvis. Late '27 overhauled, fast, £90.—Denmans, 132/3, Long Acre, W.C. Temple Bar 8135-6-7.

USED SPORTS CARS FOR SALE (*continued*).

ALVIS.

1931 12-60 Sports Alvis, only 4,000 miles. Guarantee transferable. Perfect. Dunham, 46, Castle St., Luton.

AUSTIN.

SPECIAL 1930 supercharged Austin 7 h.p. T.T. Road Racing 2-seater, 36 m.p.h. 1st, 58 m.p.h. 2nd, 90 m.p.h. top. Brooklands outside exhaust. rev. counter, temperature and air speed meter. Many extras, excellent condition. Road, sand, track competition. Bargain £125. S. D. C. Taylor & Co., Ltd., 6, Kendrick Place, near South Kensington Stn. Kensington 8965.

AUSTRO-DAIMLER.

BARTLETT for Guaranteed Sports Cars.—Austro-Daimler 1928 20-70 h.p. tubular chassis, 6-cyl., o.h.v., 4 speeds, low black fabric 4-door saloon body, superb condition, 80 m.p.h.; cost £900, my price £165; exchanges, deferred.—27, Pembridge Villas, Notting Hill Gate.

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1929 14/40 M.G. Sports 4-seater. Blue and Aluminium. £85.—Denmans, 132-3, Long Acre, W.C. Temple Bar 8135-6-7. Open week-ends.

£345 Supercharged Montlhéry M.G. Midget, complete as per catalogue, many extras and any trial.—Major Gardner, 1, Brighton Rd., South Croydon. 'Phone 1852.

1930 (July) M.G. Midget Coupé, spotless condition, small mileage, very fast; consider exchange. £125.—'Phone, Victoria 0467, Lampitt.

MONTLHERY Midget Supercharged, actual double-twelve model. Completely rebuilt. In A.1. condition for fast motoring, touring or racing. Price £335. Apply—Lord March, Kevill-Davies and March, 9, Bruton St. W.1. Mayfair 5446.

BROOKLANDS MOTOR COMPANY offers: M.G. 1931 Mark I speed model touring car, very small mileage; cost £525, our price £265.

M.G. Mark I Salonette, late 1929, exceptional condition throughout; £165; written guarantee; exchanges and private deferred terms.—167, Great Portland St. W.1. Museum 3143-4.

1929 M.G. 14/40 2-seater. Red and aluminium, very clean, small mileage. 70 m.p.h. £105. C. H. Wells, Mount Arlington, Shortlands, Kent. Ravensbourne 1295.

£50!! M.G. 14-40 Super-sports 4-seater, specially finished in cream and red, wire wheels, servo f.w.b., new set side curtains and hood, leather upholstery, bucket seats, good tyres, really smart and fast car. Below.

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Motor Sport Classified Advertisement Section—*continued.*

SECOND-HAND SPORTS CARS (*continued*).

M.G.

75 m.p.h., perfect condition, M.G. Midget, blue fabric 2-seater, Brooklands exhaust, R.A.G. twin carburetters, double valve springs, stoneguard, double Hartford shock absorbers, etc., mileage negligible; any trial.—Sloane 7219.

1931 Model Midget Sports 2-seater, Blue. Two spare wheels, many extras. Excellent condition. £90. Eastern Garages, Ltd., Chelmsford, M.G. Distributors.

O.M.

1927 O.M. Light Six 4-seater; bargain, £60 or offer.—Denman's, 132-3, Long Acre, W.C. Open week-ends. Temple Bar 8135-6-7.

RALLY.

10 H.P. sports 2-seater, specially tuned for Double 12. Mechanical condition perfect, tyres new. Very fast. £100. Watkins & Doncaster, Ltd., Petty France, S.W.1. Victoria 6220.

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1930 Salmson G.P. o.h.v. Camshaft 2-seater sports, underslung, £100; 1926 tourer, £15; 1924 o.h.v. camshaft sports 4-seater, £20; no deposits; exchanges.—Page, 199b, Upper Richmond Rd. Putney 7671.

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90 m.p.h. Stutz 37 h.p. 1930 series. Weyman sports saloon, delivered 1929. Cost £1,400. Excellent condition. £365 or offer.—Denmans, 132-3, Long Acre, W.C. Temple Bar 8135-6-7. Open week-ends.

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1929 Special Vernon-Derby 6-cyl. Super Sports 2-seater, underslung, fitted with special high compression head, 4-speed close ratio gear box, twin Solex carburetters, lavishly equipped, including rev. counter, new hood, etc., fitted with magneto and coil ignition, new tyres, this car has just had a genuine overhaul, any trial, taxed; £95, or exchange for M.G. Midget.—"Heatham House," Twickenham. Popesgrove 1163.

1929 VERNON DERBY 6-cylinder special underslung sports 2-seater, black and green, twin carburettors, dual ignition, 4 speed close ratio gear box, chassis recently overhauled throughout. Excellent tyres; taxed. £110 or exchange.—Winbush, 5, Wetherby Mews, S.W.5. Flaxman 8859

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INDEX TO ADVERTISERS

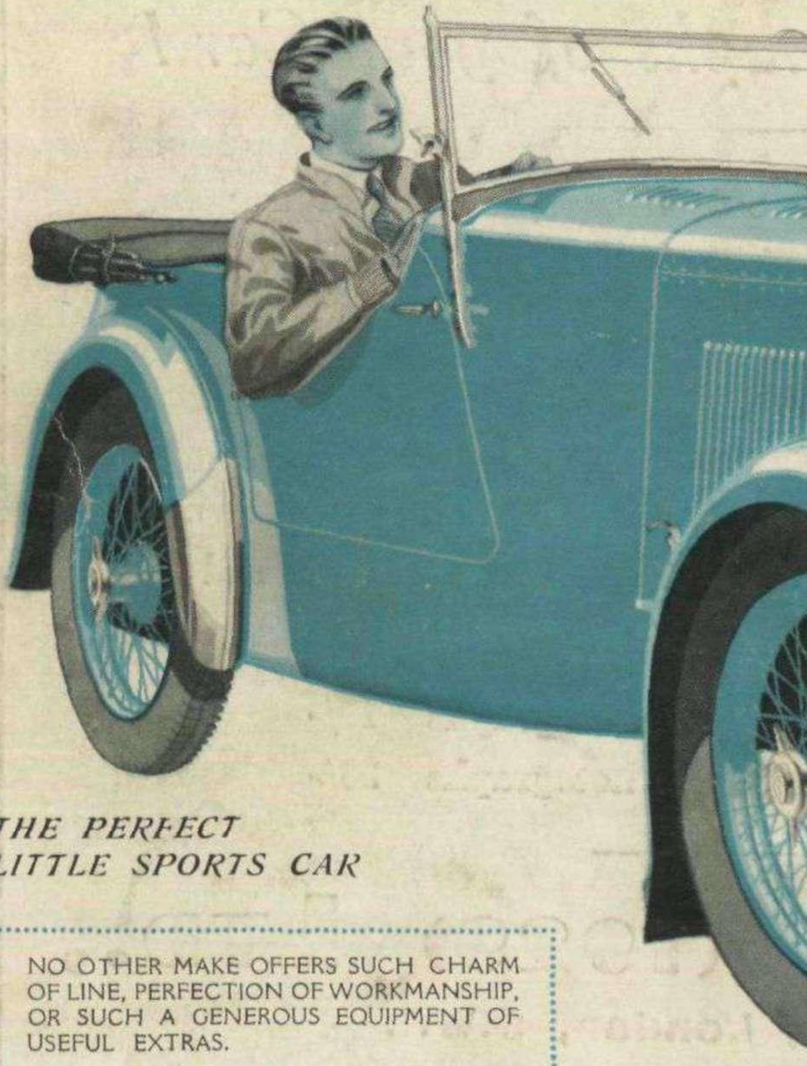
	PAGE
A.F.N. Ltd.	204
B.P.	201
Britannia Batteries, Ltd. ...	208
Bugatti Owners' Club	208
C. C. Wakefield & Co., Ltd. ...	212
Charles Follett, Ltd. ...	197 & 207
E. C. Stearns & Co. ...	back cover
Eustace Watkins, Ltd.	ii.
Ferodo, Ltd.	front cover
Henlys, Ltd.	219
Junior Car Club	211
M.G. Car Co., Ltd.	194
Patrick Motors, Ltd.	207
Riley Record	224
Roberts & Co., Ltd.	235
Robinson & Co.	220
School for the Blind	193
Superchargers, Ltd.	208
V. W. Derrington	207

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