A FEW POINTS ABOUT THE LAYSTALL ENGINE OVERHAULING DEPARTMENT

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An important point to note is that every engine, before being re-mounted in the chassis, has to undergo a prolonged test on the brake, which not only enables final adjustments and tuning to be carried out under running conditions, but also achieves the running-in process so that the engine is quite free on completion.

The actual B.H.P. developed at various speeds is recorded and no engine is passed off the test bench until its performance is satisfactory in all respects.

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The Way of Things

An Alteration.

AS Sir Henry Segrave has been so busy lately on new enterprises connected with aviation it has been necessary to defer the promised article by him to a later issue of MOTOR SPORT. Our thanks are therefore due to Capt. Malcolm Campbell, than whom surely no more able substitute could be found, for his remarkably fine article entitled " Speed—its Necessity " which appears overleaf.

The Pedestrians Association.

Owing to the unfortunately bitter attitude of one of its members towards motorists, a feeling has arisen that this body is anti-motorist in its aims, and that it wishes to cramp the liberty of all who progress on wheels about their lawful occasions. This however is not the case, and enquiry into the policy of the Association reveals the fact that it is a remarkably sane body, with excellent intentions, and whether these intentions will bear fruit depends largely on the measure of co-operation which can be secured from all who use the roads, whether on wheels or on foot.

It appears that the idea of still maintaining a general speed limit for all vehicles is not part of the policy, but their aim, and it is one with which we are in entire agreement, is that there should be some limit applied in towns in order to stop the thoughtless minority from feeling that, as soon as the speed limit is officially removed, they may go as fast as they like everywhere with impunity. To the majority of motorists the removal of the present speed limit will make no difference beyond relieving them from the annoyance of being stopped and fined for perfectly harmless speed on the open road. They will still drive just as carefully in towns and dangerous places, and as the present speed limit law has been broken steadily by all motorists for many years, their behaviour on the open road will remain unchanged. That is they will go as fast as they consider safe in the circumstances, which are governed by the road, the car, and their personal driving ability. That at least is the ideal, and with the exception of the thoughtless minority referred to above should apply in practice.

Every sane motorist wishes to assist towards the safety of all road users, but naturally does not want any more of the ridiculous laws which have prevailed since the commencement of the motoring era. A general speed limit would be a relic of such laws and something to which we are definitely opposed. Speed is of great value in saving time and money, and provided it is employed reasonably, must not be hampered.

There are many occasions when a road journey of several hundred miles is undertaken with the necessity of reaching the destination quickly, and on a suitable car a great saving of time can be achieved with perfect safety. The saving may easily be a matter of hours, and very valuable.

When, however we come to the question of speed in towns with its completely different conditions, it is soon evident that a small saving of time may mean a considerable risk, both to the driver and to the public who use the roads. A difference of only 5 minutes in traversing 15 miles of the London area, will make all the difference between a safe trip in good time, and a thoroughly hectic journey, which even when achieved by a really skilled driver in a case of emergency creates a bad impression, and in the case of a less skilled man will be merely dangerous.

Therefore, we say, have a reasonable speed limit in crowded areas by all means, but leave the open road free for safe speed, and we would appeal to our readers to remember that it is not " clever " to demonstrate the acceleration of a noisy sports car in dense traffic. A few minutes saved in a run across town are of little value, and may only serve to foster the prejudice which exists against the use of speed where it can be of real value. The old adage " he travels fastest who travels alone " might well be altered to read " he who travels fastest should travel alone," where risk of damage to persons or property is a minimum, and the enjoyment is a maximum. Remember that to drive a car really well is a valuable accomplishment, and one not quickly attained, therefore cultivate as much skill and quickness of action as possible, and in its application let your motto be " Festina lente."

SPEED—Its Necessity



By

Capt.

MALCOLM CAMPBELL

An impression of Capt. Campbell on the Delage on which he has achieved so many road racing successes.

EVERY time a citizen of the British Empire sets up a new speed record, whether on land, sea or in the air, it is bringing us one step nearer to absolute supremacy in the race for world trade and world influence.

"Speed," as Commander Sir Cecil Burney, the designer of the airship R.100, said in his recent book, "is the principal factor upon which the cohesion and stability of the Empire will most largely depend in the future." I would like to frame those words and hang them up over the beds of all the complacent critics who never fail peevishly to enquire, "What's the use?" when someone sets up a new record.

You hear that question asked by all sorts of people. It is one of those hardy annuals which a certain type of robustly self-satisfied British householder feels it his duty to ask. He asks it whenever anyone is killed, whenever a new motor-boat or motor car is being built, whenever a new air race is being planned, whenever a record is set up or a trophy is won.

Usually, I fear, he regards the people who attempt or do these things as brainless lunatics who, because they are clearly unfitted for what he would inevitably describe as "honest work," must needs create a diversion by attempting or achieving the spectacularly useless.

There is a very definite answer to all this. Speed, as Sir Cecil Burney has pointed out, is the main factor which will succeed in linking this Empire more closely together. Already we are linked by blood and sympathies, by loyalty and race tradition. But they are not enough. It is no good being loyal to the British Crown when you are a settler in South Africa, a farmer in New Zealand, a squatter in Australia or a planter in Malaya, if, when war breaks out suddenly, you find yourself cut off from the Mother Country by weeks, perhaps even months, of arduous and uncertain travel. No matter how excellent your intentions, the human link with the heart of the Empire cannot be as quick, as spontaneous, as living, when you are thousands of miles away, as it would be if you lived within the confines of the British Isles. Speed alone will bring you nearer.

The value of speed is still far too ill-appreciated, too misunderstood and too belittled in this country. We are apt, in our conservatism, to regard speed as something "fast," arguing an impetuous mentality, a somewhat unbalanced outlook, a rash and hasty sense of judgment. We think that speed means lack of thoroughness. So it does in certain respects. The fast worker is too often the superficial worker.

But when you come to speed as applied to matters of transport, when you regard speed as a link of Empire, as a vital nerve, influencing the enormous destiny of that stupendous all-red route which girdles the world and is known as the British Empire, you come to a very different conception of the term. Speed to-day means everything to us. If we are to live we must be quick.

The quicker we are on land, on sea and in the air, the quicker we shall capture trade, strengthen our

SPEED—ITS NECESSITY—continued.

Empire links, regain our commercial prosperity and teach the world once more that British influence, whether in trade or politics, means fairness, straight dealing and peace.

Every time a new speed record is set up it means a new step forward, a new improvement made in the design or use of whatever machine helped to make the record. It means, eventually, that the outermost parts of the Empire are brought so many hours or days nearer to the heart. We are only just on the threshold of the possibilities of speed. Civilization has developed in every other direction during the last few hundreds of years. Comfort, luxury, medicine, clothing, hygiene, food and a dozen other vital factors in life have all been developed to an extent undreamt of by our forefathers. Speed was the last to be tackled.

A hundred years ago our grandfathers travelled at twelve or fifteen miles an hour and thought it positively devilish. When the railway first came in, most of them opposed it bitterly. They said it was against all the laws of God and man. They said that if you were to travel at a mile a minute your blood would clot, your heart would stop and it would serve you right. They said that railways befouled the face of England. They made men with red flags ride on horseback in front of motor cars. They thought bicycling was immoral. And when aeroplanes began to fly some of them thought that the Christian religion was at its last gasp.

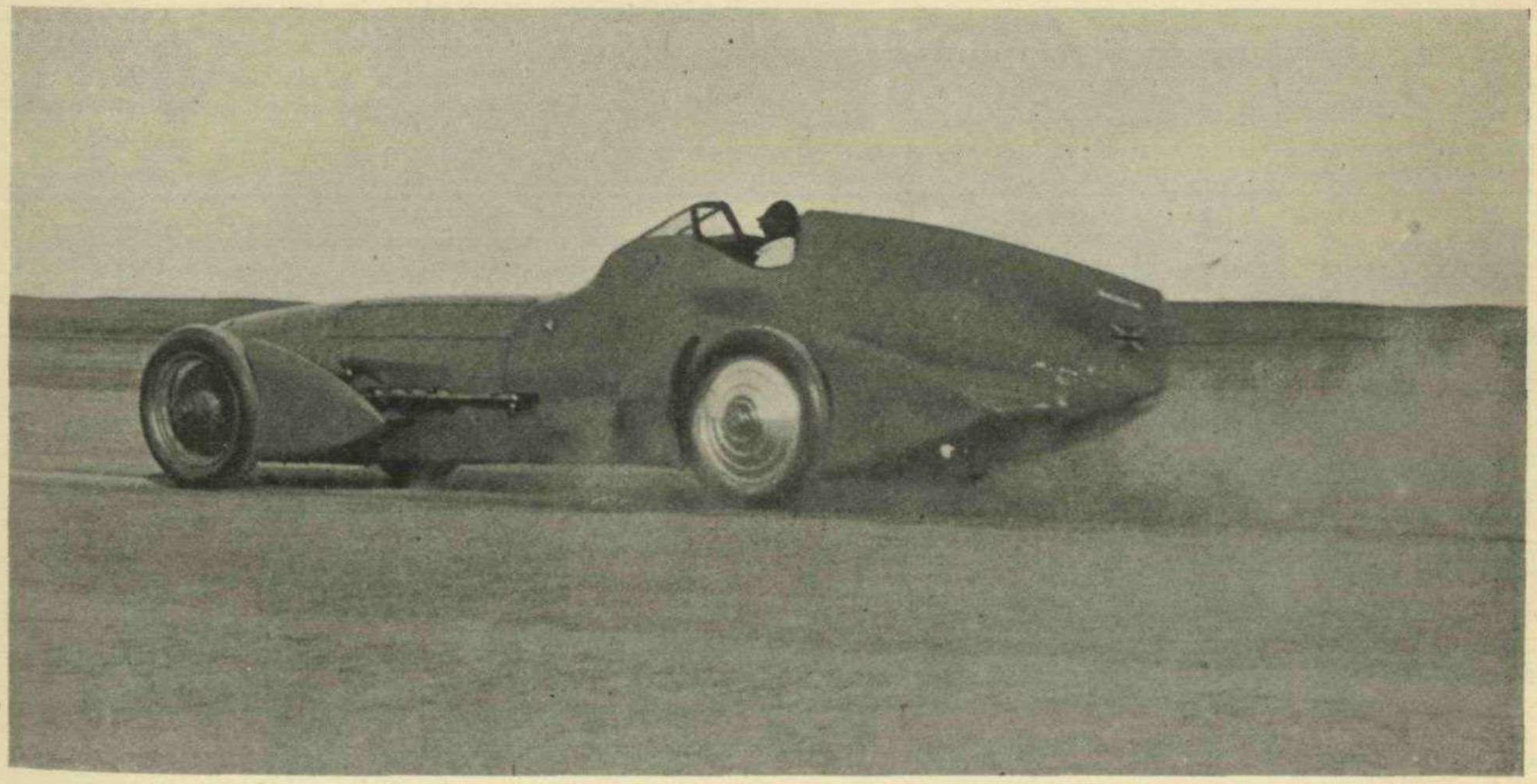
To-day, only thirty years or so after the dawn of the motor car, less than thirty years after the first Channel flight, we can travel at six miles a minute and our hearts do not stop. We can fly faster than any bird, faster than the wind. We can drive boats so fast that they almost leave the sea and fly, we can control motor cars at speeds so stupendous that the onlooker cannot distinguish the face of the man in the car, and the driver himself cannot pull up in less than a mile.

Yet, as I said, we are only on the threshold of the possibilities of speed. I am not a sensation-monger, but I have no hesitation in saying that speed on land will be doubled in the next few years. Four to five hundred miles an hour in a motor car is within the bounds of possibility. Speed in the air is so potentially terrifying that I hesitate to say where it will stop. Its limit will probably only be reached when we find that the machine is capable of more than the man. One day there will probably come a time when an aeroplane will be able to travel at a speed at which no man can live. Speed on water is the least developed of all. To-day a British boat can do ninety miles an hour on water and beat the world; tomorrow we may see that speed doubled. The speeds of to-day in all three elements will be the commonplaces of 1940.

I have said that I believe that the possibilities of speed are limited only by the weaknesses of the human body and the imperfection of mechanical construction and design, and that of the two, the body may fail first. I quote that not as a probability but only as a possibility, for I believe that the faster we travel the more we shall get used to it. The human constitution adapts itself with astounding ease to the amazing changes in life and environment which it is called upon to face.

For example, we live to-day at a pace and in a bedlam of noise which would have killed our grandfathers or driven them mad. Imagine Browning working in an office in the Strand, Carlyle writing in a flat in Piccadilly, Ruskin thinking ponderously in the office of a daily newspaper or Tennyson composing odes in a tube train from Piccadilly to Hammersmith!

We have changed all that and the change has been



Malcolm Campbell's "Bluebird" breaking records at Verneuk Pan at well over 200 m.p.h. and yet he says "speed on land will be doubled in the next few years!"

SPEED—ITS NECESSITY—continued.

brought about largely by the uses and demands of speed. Wireless, the telephone, the taxicab, even the penny bus and the penny post are all the hand-maidens of Speed. I believe that we think more quickly, act more quickly, work more quickly than our grandfathers. We certainly travel more quickly—and we shall travel quicker yet.

Speed in the old days helped to forge the Empire. The clipper ships mapped our trade routes and captured our trade. The fast frigates won our battles on sea and the mobile troops of Wellington and Clive, of Roberts and Napier, won them on land. Speed to-day will serve us just as well.

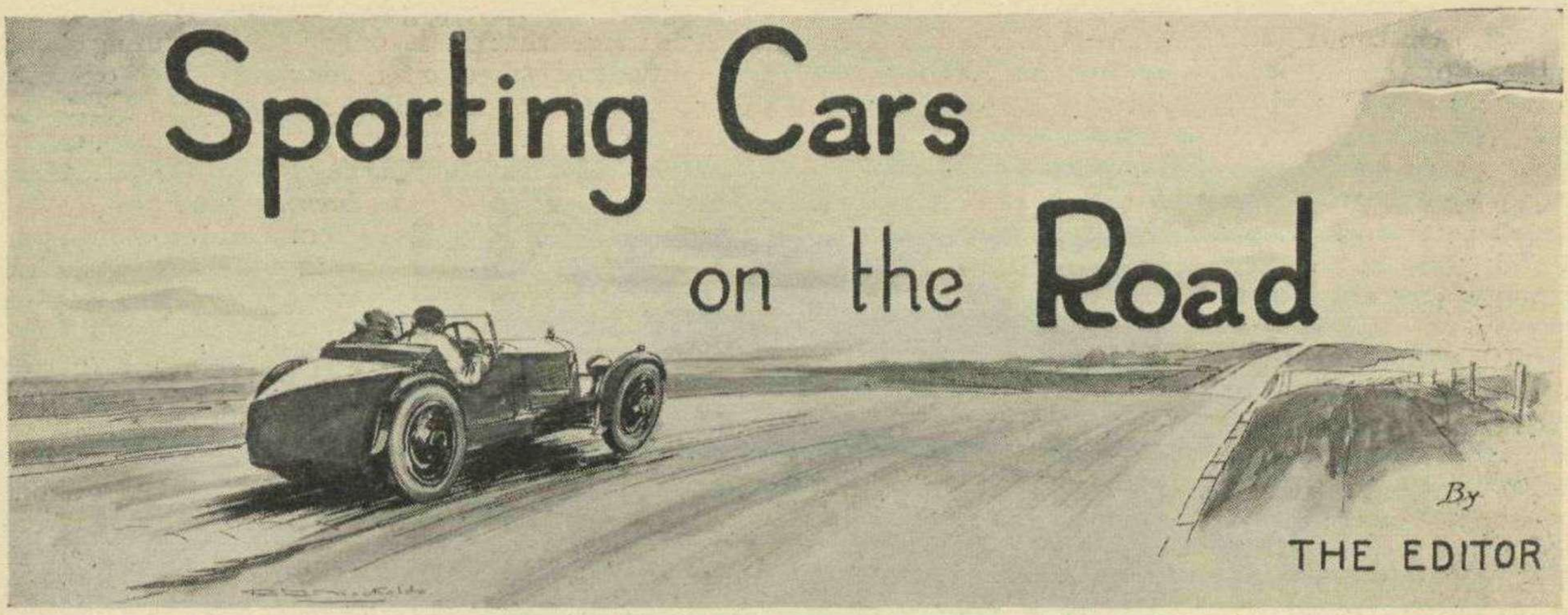
Quicker transport brings quicker trade. Quicker trade creates more employment and more employment means greater prosperity and contentment. Faster freighters will speed up trade just as fast liners and air services will encourage emigration, populate the thousands of square miles of Empire lands which are lying idle and destroy for ever that dreadful feeling of loneliness and isolation which has always been the principle handicap to colonisation and development.

Think of the tremendous advantages of an Empire, wide network of air routes on which freight, passenger and mail-carrying aeroplanes will be travelling day and night at high speeds. Think of the advantages of great inter-continental arterial roads on which fast motor traffic will be continually travelling at a hundred miles an hour or more—for although we can now drive at more than two hundred miles an hour, I do not imagine that the time will ever come when the average driver will wish to travel at much over, shall we say 100 m.p.h. When the day comes that mails will travel in a quarter of the time they take to-day, trade will expand, money will follow and finally every unit of the earth will be working to capacity instead of, as to-day, producing in spasmodic patches and working in ill-balanced connection.

You may say that this is all a dream, an Utopia. Utopia never happens to anyone and perhaps I have sketched one which the world will never see—but whatever happens, in whatever direction we may develop, whatever nations may rise or fall, the economic future of the world depends on speed. It is up to Britain, if she is to save herself, to hold and maintain the lead in speed.

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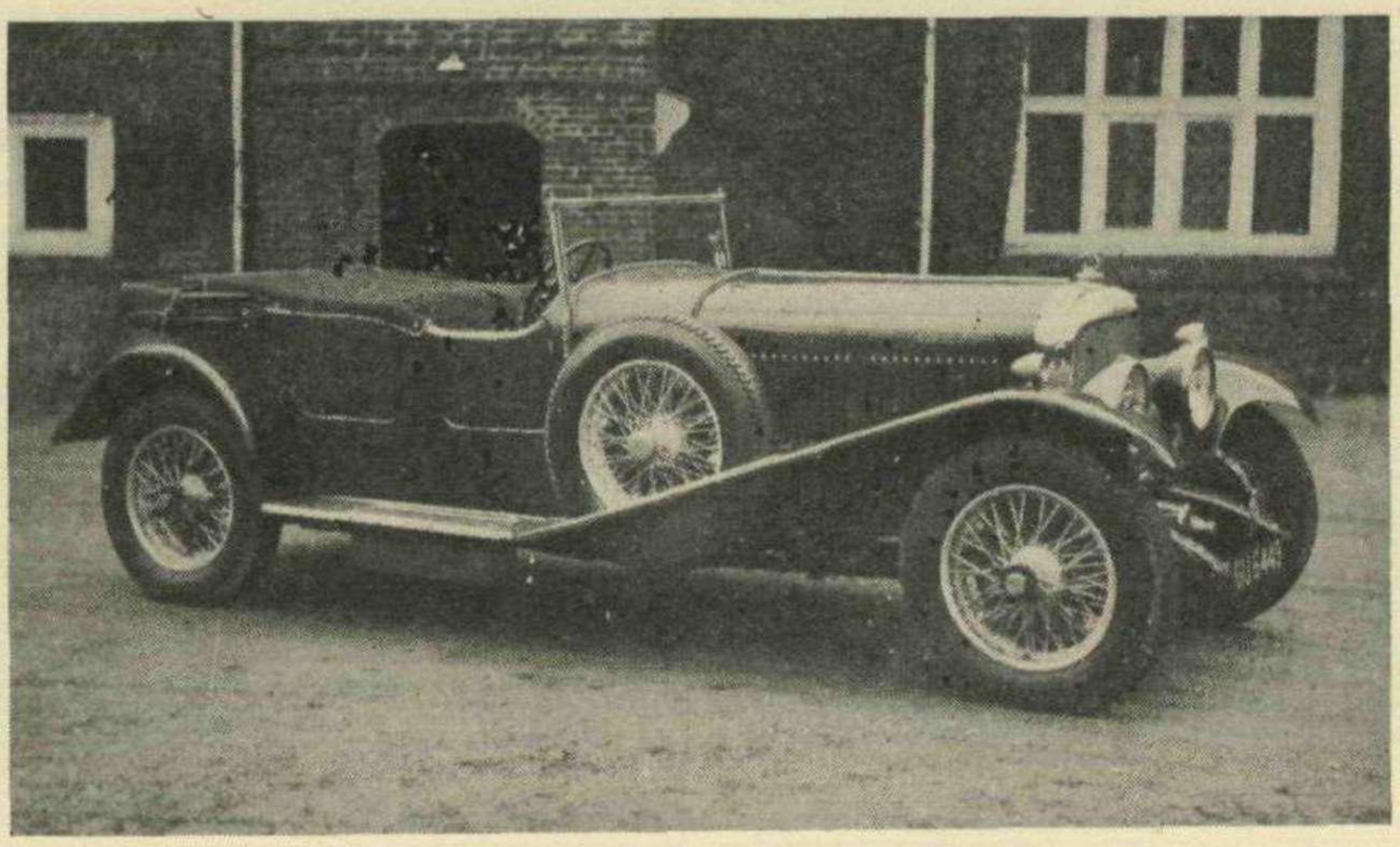
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THE SPEED SIX BENTLEY

EVER since the name of Bentley first became associated with road racing one success after another has fallen to this marque and the old cry that this country is losing prestige abroad has been silenced. The original 3-litre Bentley although extremely successful as a sports car did not appeal sufficiently to the man who desired something which will combine the speed and power of the sports car with the smooth running and silence of a town carriage. Such an ideal is difficult to obtain and naturally when it is obtained the result is expensive to produce. To the man who wants the best, however, price is not of such vital importance and the connoisseurs, whose number is increasing, will always be prepared to purchase such a car as the 6½-litre Bentley.

The most striking thing about this model is the amazing quality of silence at all speeds. One naturally expects a 6-cylinder to be flexible but there are few which combine flexibility and silence with such an excellent performance. When driving a car of this type so smooth is the power and pleasant the running that one is liable to forget that it is propelled by an internal engine. The engine of the 6-cylinder Bentley has, however many interesting and unconventional features not the least of which is the camshaft drive. As silence was one of the things most required, many components which would be inaudible in ordinary cars make themselves noticed when all else is quiet. It was this fact that led to the employment of three coupling rods to drive the camshaft in place of the more usual bevel drive. This drive, which is reminiscent of locomotive practice, is as nearly completely silent as it is possible to get and of course its construction makes any appreciable wear very unlikely. The engine peaks at 3500 r.p.m. at which speed, we are informed, 175 b.h.p. is developed. The maximum speed obtained during our test was 87 m.p.h., but we think it would be quite possible to exceed this under more favourable conditions as the weather was very cold and it is very difficult, however hard one drives on an ordinary road, to get such a car thoroughly warmed up on a cold day. The steering on the straight at



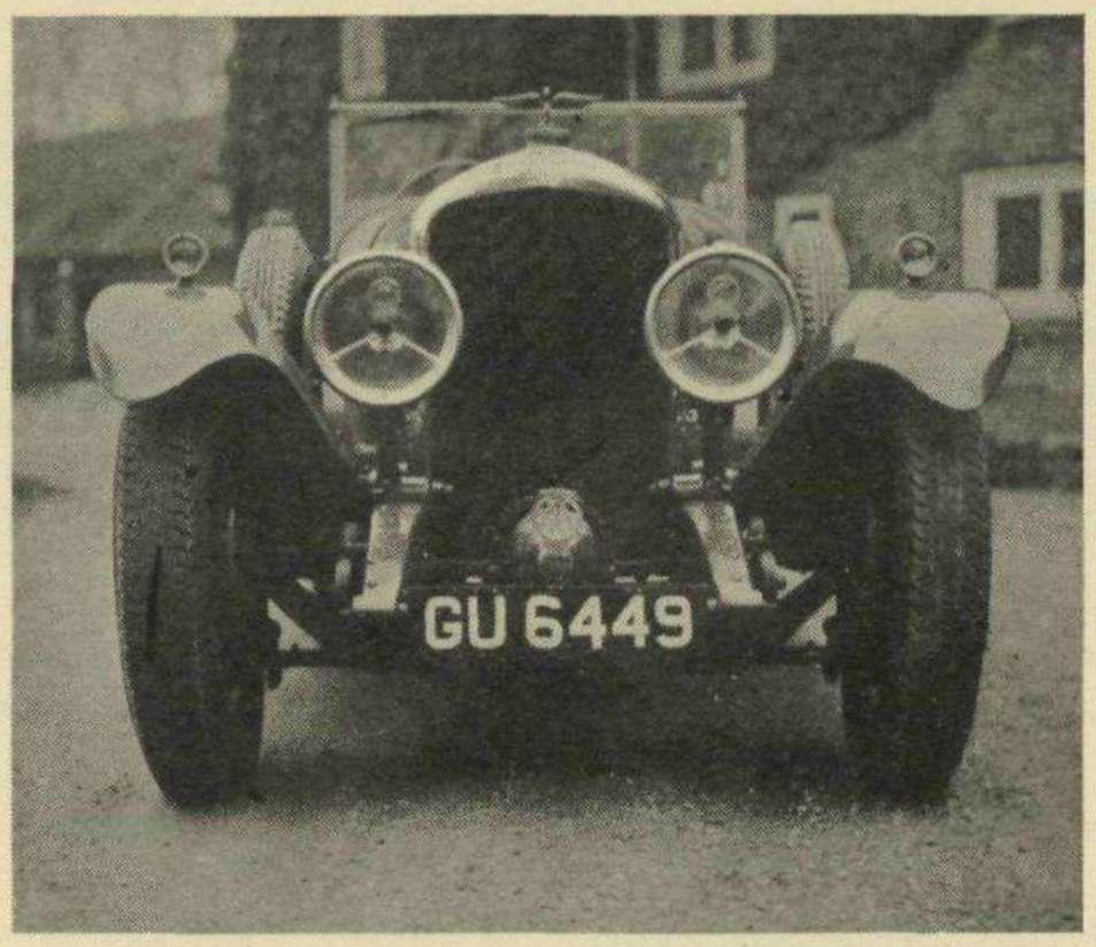
The latest product of a successful racing marque.

THE SPEED SIX BENTLEY—continued.

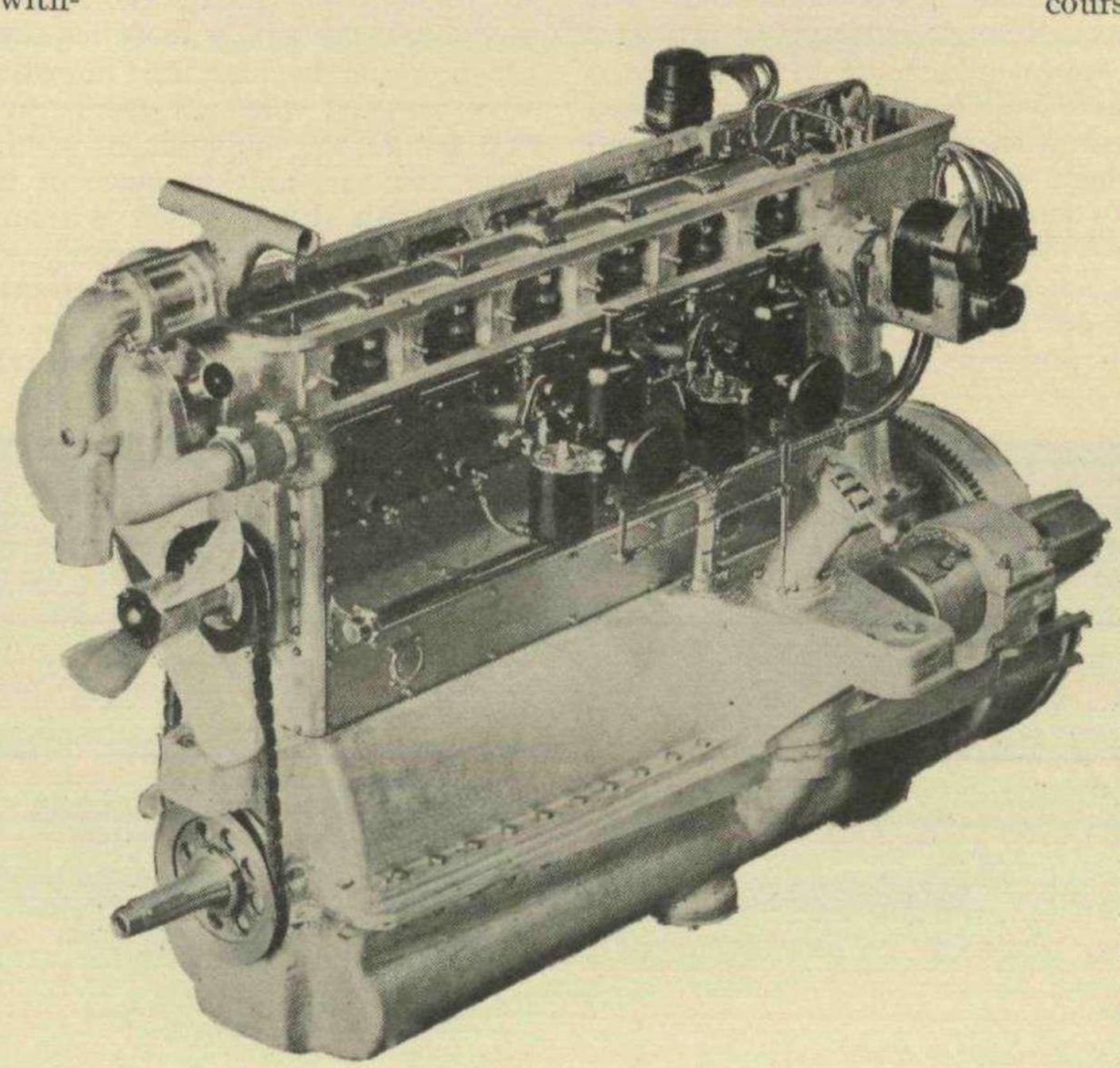
speeds is excellent and no effort is required to hold the car. On corners however, the considerable weight and size of the car becomes evident and although the cornering is very good compared with the ordinary run of cars we feel that it would be easier to handle on corners if the chassis were somewhat lowered. This, however, might interfere with other features and as this is not a racing car in the form supplied, but a very fast sports car designed for normal use, the present arrangement is undoubtedly a better compromise. We are informed that a larger steering wheel will be fitted than the one on the car we tested and this would be an improvement as a certain amount of effort is required when negotiating sharp corners and the extra leverage would reduce this. Naturally on a car with a performance of this sort one expects good brakes and we were not disappointed. They are operated by a vacuum servo system and are extremely light without being in the least fierce. The braking is so effortless that it is only when comparing speeds by means of the instruments that one realizes how amazingly quickly and safely the car may be brought to a crawl from really high speed. The stopping distance from 40 m.p.h. was 75 feet, this being accomplished without any appreciable effort and could probably be lessened in an emergency. The gear change is an improvement on any previous model of this make which we have tried and is very simple and the operation very light. The gears themselves are as quiet as one would expect in a car of this price and class. The ratios are 11.9, 6.45, 4.8, and 3.53 to 1.

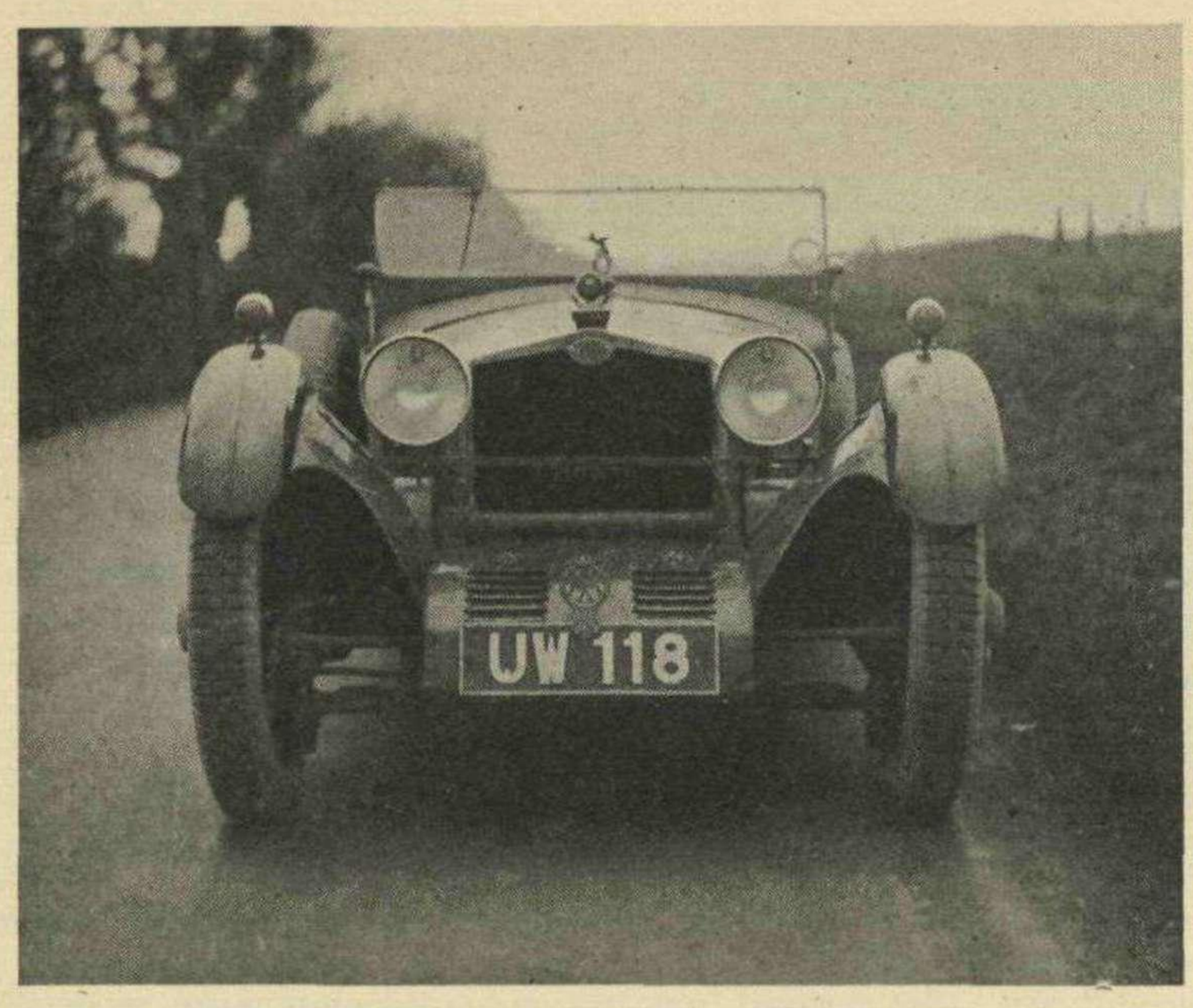
When feeling lazy, one can regard the car as being single geared as its top gear performance covers such a large range that it is only when requiring extra acceleration, or speed on a long hill, that one uses the gear box ; it is then that one realises the fact that it is certainly a car with two personalities, which can be a flexible and silent towncarriage or a fierce distance devouring machine at will. From a crawl of 10 m.p.h. 50 m.p.h. could be reached in under 14 seconds on third gear which will serve to give some idea of the averages that can be put up on such a car.

The body is very comfortable as far as the front seats are concerned and there is no doubt that an extremely big mileage in the day could be accomplished without undue fatigue, this being a feature where the big car certainly scores over a lighter vehicle. The rear seats however, suffer from the prevailing trouble of being rather high, although well sprung and with plenty of room. It is, of course, extremely difficult to remedy this without some freak design of body which would spoil the lines, and as so many owners use the rear seat largely for luggage this is not an vitally important point. Another point where this car shows its suitability for varying conditions is the fact that the springs are absolutely satisfactory at high speeds without being in the least harsh at low speeds on an indifferent surface. With a car of this class any criticism is bound to be purely relative as the standard is so extremely high that minor points come in for complaint which in a lesser priced car would be cited as something extremely good. In short, it is a car for the man who wants something really good and is prepared to pay for it.



An impressive view of the speed six—and below the power unit with the camshaft cover removed.





The Front-wheel Drive TRACTA

An interesting 1½ litre of proved design and performance.

NOWADAYS there are a number of cars, which in many ways are inclined to lack interest in the eyes of the enthusiast owing to the fact that they lack any particular qualities to distinguish them from being "just a motor car." However now and then one comes across cars with real character whose virtues are not merely negative and although these are apt to possess points with which one does not always agree, they at the same time possess other qualities which make them extremely attractive. The sports car must have this to arouse any real enthusiasm and in the front wheel drive Tracta which we recently had the opportunity of putting through a fairly prolonged test, we found a car which definitely made one think. At times we were annoyed by various minor points which seemed to us not to be just what we would like ; but at other times and especially towards the end of the test we came more to feel that here at least was something out of the ordinary and a car which the more one drove the more one wanted to go on driving.

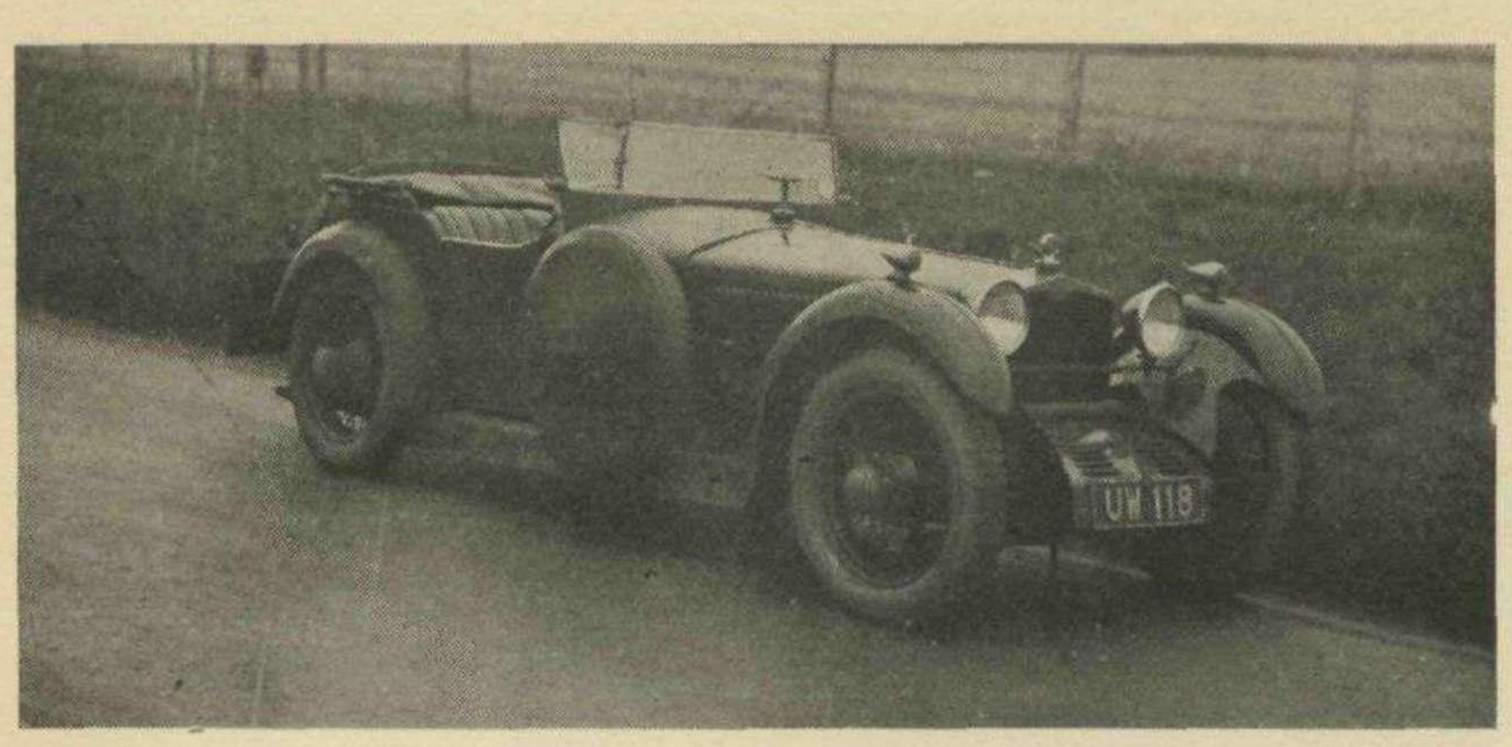
Much has already been written about the relative merits of front wheel drive and rear wheel drive and we do not propose here to start any argument as to which is the best, if either. We must confess that we are not convinced that front wheel drive, as such, has any outstanding advantage over rear wheel drive from the point of view of road holding, cornering and general control which after all are the chief points in sports cars ; but we can say quite definitely that front wheel drive really well carried out, as has been done in this case, is definitely as good as a really good rear wheel drive and that is saying a great deal. In our opinion the greatest merit of front wheel drive is gained from its other qualities, in the way that all the machinery is, so to speak, kept to one part of the ship and it is possible to build a car really low on the road which although not lower than can be obtained from a rear wheel drive design is much easier to obtain, and from the point of view of the body builder is greatly preferable. So many 4-seater sports cars of conventional type still suffer from very uncomfortable rear seating accommodation ; that is to say rear seats are too high and there is absolutely no means of lowering them in any way. On the Tracta however, the 4-seater model is built so that the rear passengers sit just as low as the front. This means that a 4-seater sports car with really good lines can be achieved.

The car we tested was a 2-seater but the accommodation in the tail for luggage, etc., would put many 2-seater touring cars to shame, from the point of view of the quantity which can be carried and all this without spoiling the lines.

Any one who is not familiar with an f.w.d. vehicle may expect to find something strange in the way it behaves when first taking over, but actually this is not the case and in handling at average speeds there is nothing in its behaviour any different from the normal layout. We had expected the steering to be heavy due to the considerable amount of mechanism which has to be moved when the steering is moved, but this is not so. The steering is extremely light and although it is not possible to get a definite caster action in this type of drive the steering comes back to the centre very easily and is so positive that there is no feeling of strangeness. Though we have driven cars which were little more sensitive and a little pleasanter in the steering these are so few and in such a very high class that we have no hesitation in stating that the Tracta steering can definitely be included among the elect whose control has been developed by road racing.

Cornering at speed is very easy as owing to the extremely low build there is no tendency to roll and the weight distribution is such that there seems no tendency for the tail to slide unduly. On wet roads however

THE TRACTA—continued



The claim to be the lowest standard car is well justified, as may be seen from this view.

there is a slight tendency for the tail to slide about on fast corners and although this does not appear to have the least effect on the control, and seems to correct almost immediately, it is a little strange at first. On dry roads however it will slide normally on a corner taken too fast, presenting no difficulty to anyone used to an ordinary car. There is a prevailing idea that travelling with a f.w.d. car it is necessary to go round a corner on the engine and if this is not done the car will become out of control. On the Tracta this does not happen, as we purposely tried the experiment. On a chosen corner where there was plenty of width to allow for eventualities, we entered a great deal too fast on the engine. As we were going faster than the limit of this particular corner the whole car proceeded to slip sideways towards the outside but there was no tendency to turn round. We shut off the throttle prepared for some unnatural evolution but the car merely eased slightly, ceased to slide, and came round the corner under perfect control. Another illustration of the ability to meet with an emergency was shown when we encountered a badly lit lorry proceeding towards us on the wrong side of the road, as we entered a patch of mist. The only solution was to swerve round the front of the offending vehicle, the whole manoeuvre being carried out at a normal fairly fast cruising speed and the only sign that anything unusual was occurring was the complaining scream of Mr. Dunlop's products on the tarmac. This was definitely a liberty which could only have been taken with very few cars and shows that the Tracta has one of the greatest features of any sports car in its cornering ability. We have dwelt rather long on the behaviour of this machine on corners but being unconventional in design this is a point some people might be worried about, and we were anxious to try out all the claims that are made for it and we must say that they are not exaggerated.

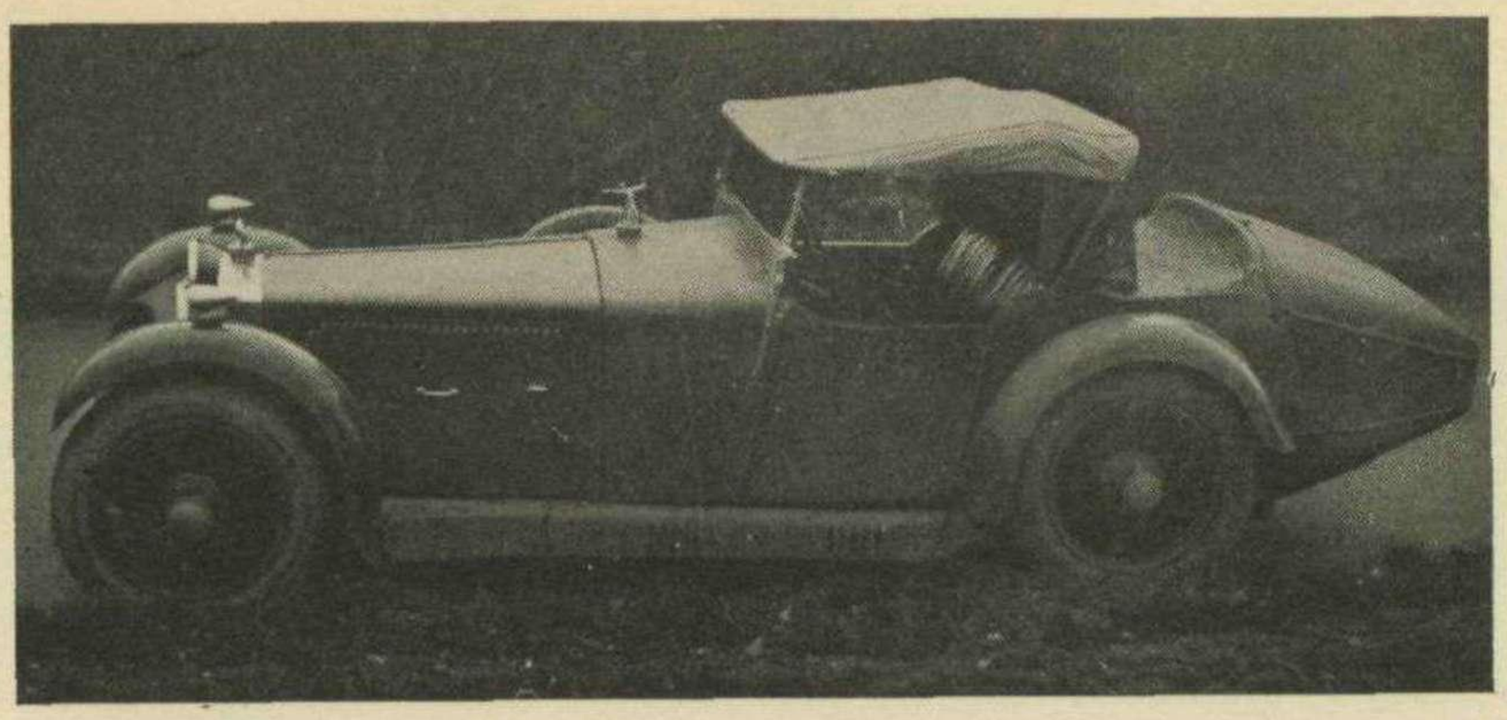
Among many unconventional features one of the most striking is the gear change. As the editorial education did not include lessons on the trombone, we were at first a little put out as this control is operated by a sliding rod which comes through the dash board. The movement is fore and aft for changes 1st to 2nd and 3rd to top, a twist being equivalent to crossing the gate. However when one is used to this control its advantages become evident as it is possible to make very quick changes in all directions, and the change from 3 to top and vice versa which is so frequently used on sports cars is extremely simple. When engaging 2nd gear this makes a slight noise, this being due to the fact that at the same time that the second gear is engaged an idler pinion is also engaged from rest and is therefore noisy, especially if travelling fast. This is not a very good piece of design and although there are doubtless technical reasons why this is fitted we would suggest that this is modified as soon as possible. Although the clutch of the model we tried was rather heavy this is not standard and on trying clutches of other machines at the showrooms of Arthur Stewart Auto Services in Vauxhall Bridge Road who handle the cars in this country, we found that the normal operation is as light as can be. Although the maximum speed on the level was an average of 71 m.p.h. we are certain that this could be improved upon by a modification to the carburettor setting, as this particular car has covered 73 m.p.h. in the hour at Brooklands. On one occasion when going downhill we attained 83 m.p.h., and the steadiness at this speed was extremely gratifying. This would suggest that it is over geared, but from every other symptom we do not thimk this is so, and suggest that a slight modification in the carburettor and ignition settings would produce a greater speed on the level.

The engine is very smooth and well balanced at high speeds, but it is inclined to be rough at low speeds ; this however seems to apply to most small high efficiency engines and the extremely solid construction of the engine and the whole car gives one the impression that nothing would ever break. Examination of the chassis makes it obvious that the car has been designed for high speed travel on Continental roads, the whole chassis being more strongly built than we have ever seen a 1500 c.c. car. Acceleration to 30 m.p.h. takes 10 secs. from rest and the acceleration in the higher parts of the range, although not remarkable, was quite up to the average of this class and very good in view of the fact that the car weighs nearly 19 cwt.

The brakes will bring the car to rest in 70 feet from 40 m.p.h. and are powerful and effective at all speeds. However, they are not as smooth as they might be, there being a slight tendency to chatter when they are applied

THE TRACTA—continued

violently. We would suggest that the internal brakes should be fitted instead of the external contracting type. The Hoyal body-work is extremely comfortable and the driving position just right for control, while there is plenty of room in the body due to the absence of any transmission to the rear. The electric equipment is good and the head lamps show that the experience of the makers in 24 hour races like Le Mans has not been in vain and the whole construction of the car is the result of development in the hard school of long distance racing. The price of the 2-seater body is £495 and when the performance, very robust construction and full equipment are considered in comparision with the general run of 1500 c. c. sports models, this price seems extremely reasonable.



The weather protection has been well looked after, and the tail provides unusually good luggage space.

THE CORD

Particulars of an interesting newcomer from America which provides another example of Frcnt Wheel Drive

MENTION has been made in the Press, from time to time, of an f.w.d. Auburn, and we are now able to state that the first examples of this model have arrived in England.

The appearance of the new car, which is called the Cord, is somewhat different from the rear wheel drive models. It is considerably lower, with a vee radiator, below which is a domed metal cover concealing the drive mechanism. The front axle is a stout steel tube, forked at each end, which curves round in front of this cover, and takes load through two quarter elliptic springs one above the other, mounted on each side of the chassis frame, and pointing forward.

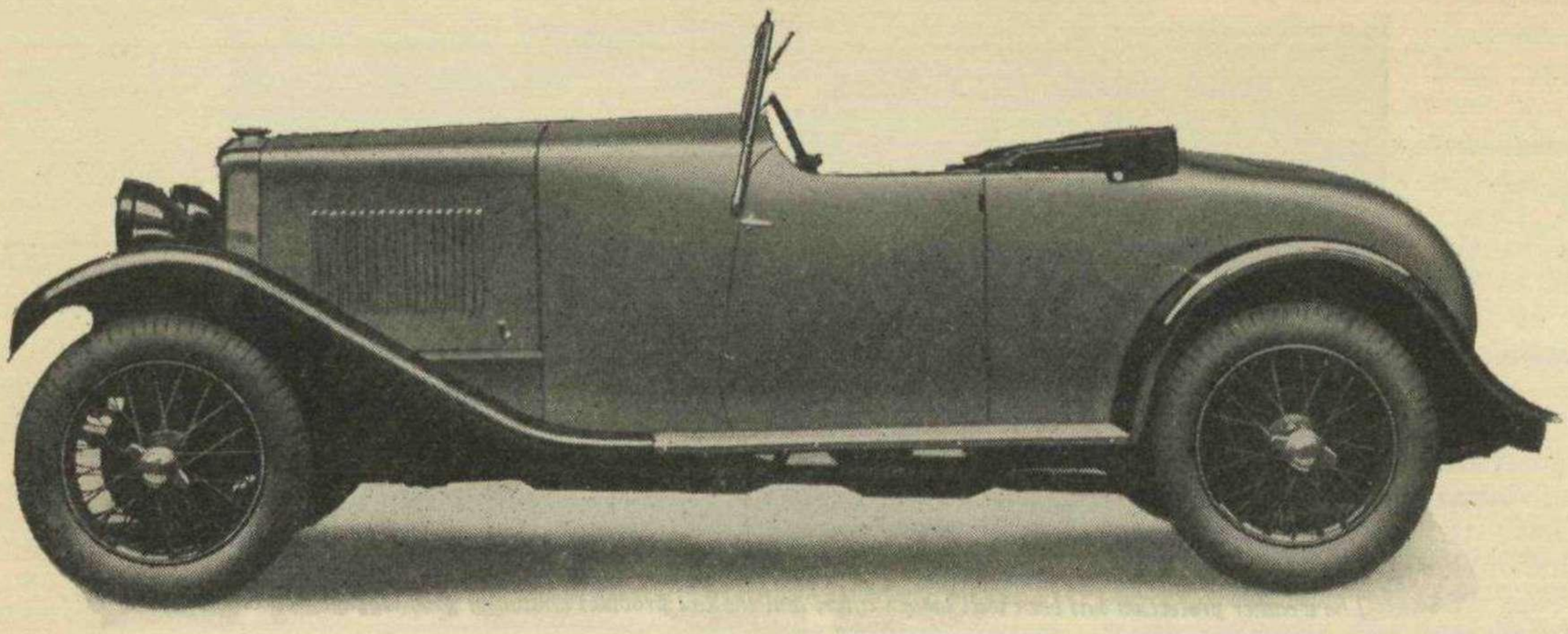
The power unit is an eight cylinder side by side Lycoming, 33.8 R.A.C. rating, similar to that fitted to the largest Auburn chassis. The engine is offset in the frame in order to clear the steering column, which is now being shifted to the right hand side for the English market. Power is transmitted through a three speed gearbox to the bevel driven differential, brake drums being mounted one on each side of this, and short shafts take the drive through universal joints to the stub axles. These axles are carried by stirrups pivoted in the fork ends of the front axle, and projecting arms on the stirrups are connected by the usual tie rod.

The universal joints at the inside ends of the short shafts are of normal type, but those between the shafts and stub axles are of special type designed to give constant velocity to the wheels on a turn. This feature permits the car to be turned in a 21ft. radius circle, which is exceptional for an 11ft. chassis. The steering pivots are almost vertical, and the absence of brake drums permits them to be of great length, and practically in the centre of the front wheels.

Since the chassis frame does not have to clear a rear drive axle and differential casing, it sweeps back in a straight line from the engine to the rear end, and allows the rear seats to be mounted at the same level as those in front. A light back axle and long semi elliptic springs are fitted. The standard chassis length is 11ft. 5½ins., providing ample platform space for closed coachwork.

Auburn and Cord cars are handled in England by Sinclair Motor Concessions Ltd., 2, Mill Street, Conduit Street, W.1., who also run a well equipped service station at Gunnersbury.

A New M.G. Model for this Season



The 18/80 M.G. Six 2-Seater Sports.

Details of the Mark II.

THE new factory of the M.G. Car Company at Abingdon is now finished, and the first of the Mark II models are on the erecting tracks. The range of models available for the present year is wide, and will appeal to all classes of motor sportsmen.

The Mark I six-cylinder model is unaltered from last year, and embodies an overhead camshaft engine of 2468 c.c., fitted with two S.U. carburettors and coil ignition, and a three speed unit construction gearbox. Drive is taken from a universal joint behind the gearbox through a ball jointed torque tube to the bevel driven back axle. The frame is of heavy section, upswept front and rear, and springing is by four semi elliptic springs assisted by Hartford shock absorbers. Lever and pedal are independently coupled to the four wheel brakes, which are fitted with single point adjustments.

The Mark II retains the good points of the earlier model, but is fitted with a four speed gearbox, embodying a silent third gear, and centre ball bearings for main and layshaft. The frame has been stiffened by a stouter centre cross girder, a front tie rod, and an additional pressing to brace the rear of the chassis. Springs are wider, and are fitted with Silentbloc shackles. 14in. brake drums are fitted to all wheels

The Mark II, which will be available in the middle of March, costs £550, which the Mark I is available at £445.

Much interest has been caused by the announcement during February of a road racing model. This car, which is called the Mark III, is fitted with an engine of similar capacity to that used in the Mark II, but with a high compression head fitted with two plugs per cylinder and a new camshaft. Dry sump lubrication is a feature, and the crank case sump is separate from the flywheel compartment. An oil tank is carried between the front dumb irons, and is fitted with an oil cleaner.

A large petrol tank holding 25 gallons is used and is provided with a quick filling device. A light four seater body complying with International Regulations is standard, and the price of the complete car is fixed at £895. This model will be raced by private owners during the coming season, and one car has been entered in the Double Twelve.

The M.G. midget is unaltered, but a neat coupé with sliding roof and Triplex glass is now in production at £245.

BRITISH SUCCESSES ABROAD.

In the Hungarian Winter Reliability Trial, Mr. F. Lukavecz riding a 1.72 h.p. Francis-Barnett won his category and was awarded a gold medal. What is even more remarkable is that in the speed hill-climb which was included in the trial, the little British machine made second fastest time of the day, out of 54 competitors.

A cable has just been received from Australia to the effect that Frank Arthur, who has thrilled hundreds and thousands of spectators at British dirt tracks, has once more been breaking records in Australia. Riding a Rudge-Whitworth at the Speedway Royale, Adelaide, he broke the three lap world's record with a time of 61 seconds. Arthur Atkinson, on a similar machine, won the West Australian Championship in record time.

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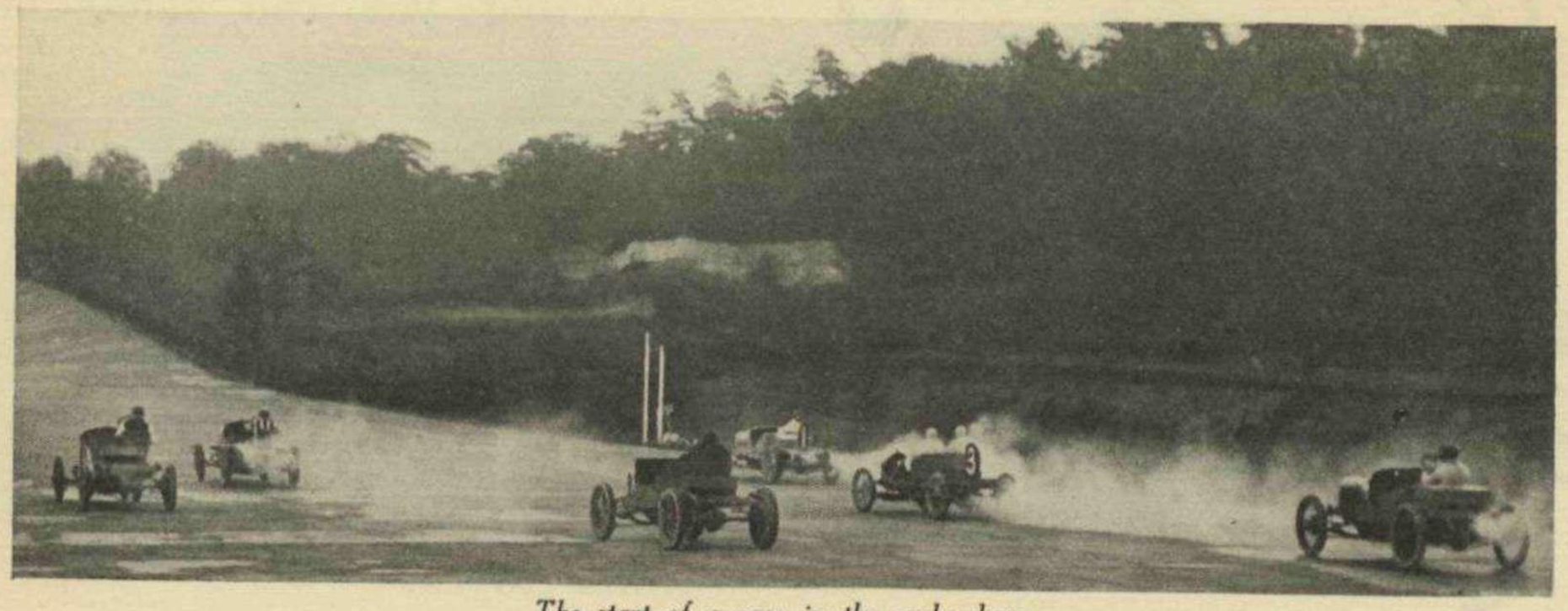
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34 Duke Street, St. James's.

THE FIRST BROOKLANDS MEETING —1907

When the sport was very young



The start of a race in the early days.

DECEMBER 6th, 1906 and July 6th, 1907 stand as red-letter days in the annals of English motor racing, for on the first date the Brooklands Automobile Racing Club was granted a special permit by the A.C.G.B.I., to hold races at the Weybridge track which was then under construction, and on the latter date the Club held their first meeting, on the first real motor course the world had seen.

The story of this meeting, the forerunner of so many other successful ones, is interesting and amusing. Looking at a race card of that date one would find that all events were scratch races, cars being classified by cylinder dimensions and minimum weight limits. The distances varied from 3.28 to 30 miles. The prizes totalled at least £4,550 which compared with those of present day events seems very high, until it is remembered that entry fees were anything from three to ten times as high in 1907 as they are to-day. At this early meeting the paddock was a sort of "holy of holies," but the public were allowed on the hill, which was divided into three "lawns" for the purpose, a fourth enclosure being reserved for members. The criticisms of the arrangements were many and varied, and far more than one hears to-day. Actually, over 13,500 people and 500 cars were said to have passed the turnstiles, while many more cars were parked outside. This must be considered good, especially as the London Cup Race was run at Alexandria the same day. The writer has one delightful photograph showing the main entrance, with horse carriages in the foreground! Horses at Brooklands! How times have changed.

The roads to the track on the eventful day would have provided a strange sight for modern motorists, for instead of the Bentleys, Bugattis, and Alvis one sees speeding along the Kingston by-pass, one would probably have seen Albion, Vertex, Panhard and others, many devoid of hoods and screens, crawling slowly along in clouds of dust. Eventually the spectators were in their places and the cars in the "park" (they were not admitted to the hill), and we can imagine a conversation being either hypercritical or else turning to such topics as Edge's 24-hour record with a 60 h.p. Napier set up at the track the month before; the "Silver Ghost" and Hotchkiss long distance runs; the 75 h.p. 6-cylinder Mercédès that was the latest product of the Cannstatt factory, and other current matters.

The first thing that strikes one on looking at illustrations of this first meeting is that nearly all the cars ran in chassis form, many having even their bonnet sides removed, and some competing without any bonnets at all. In fact one car—a 45 h.p. Daimler, probably the only competitor that had previously been in daily use—ran without even a seat, the driver being perched on a bit of carpet tied to the petrol tank, a broad belt around his waist with straps to the dash, affording some measure of support! Brooklands has been largely responsible for the development of stream-lined bodies as we know them to-day, although one car at the meeting in question had a faired nose to reduce wind-resistance. Another interesting point is that the onlookers found it difficult to distinguish cars at speed probably owing to the small numbers, and un-familiar appearance of the racers. Most people were of the opinion that speeds much below 100 m.p.h. appeared tame, while some considered that a one lap race for evenly-matched cars unable to exceed 40 m.p.h. would provide all the interest needed. This is interesting in view of the excellent impression of great speed conveyed by cars flat out on the Member's banking at modern meetings! Unfortunately, no times were issued, but it is certain that some cars exceeded 95 m.p.h. while the 30 h.p. cars did about 50 m.p.h., which was not so bad 23 years ago. The course used was around the outer circuit, until the last lap, when cars turned down the finishing straight; this finish proving quite safe despite high speeds and primitive brakes. A signal was placed at the fork to

THE FIRST BROOKLANDS MEETING—continued.

ensure safe crossing, but this was hardly satisfactory, and caused one driver to lose a race worth £1,600.

The first heat of the first race—The Marcel Renault Memorial Plate of 11.4328 miles—was not very exciting, as Tyron on Edge's 40 h.p. Napier soon got a lead, and won by several hundred yards from a Darracq. The second heat was better, as two Iris cars—a 35 h.p. handled by Earp and a 40 h.p. driven by Bircham—had a duel in which Bircham led until near the line when Earp put on speed and passed. Before the final, the Horsley Plate (for cars of about 30 h.p. over 3.28 miles) was decided, a Darracq winning easily and a Straker-Squire beating a Thornycroft by about 4ft. for 2nd place, with a Brasier a length behind.

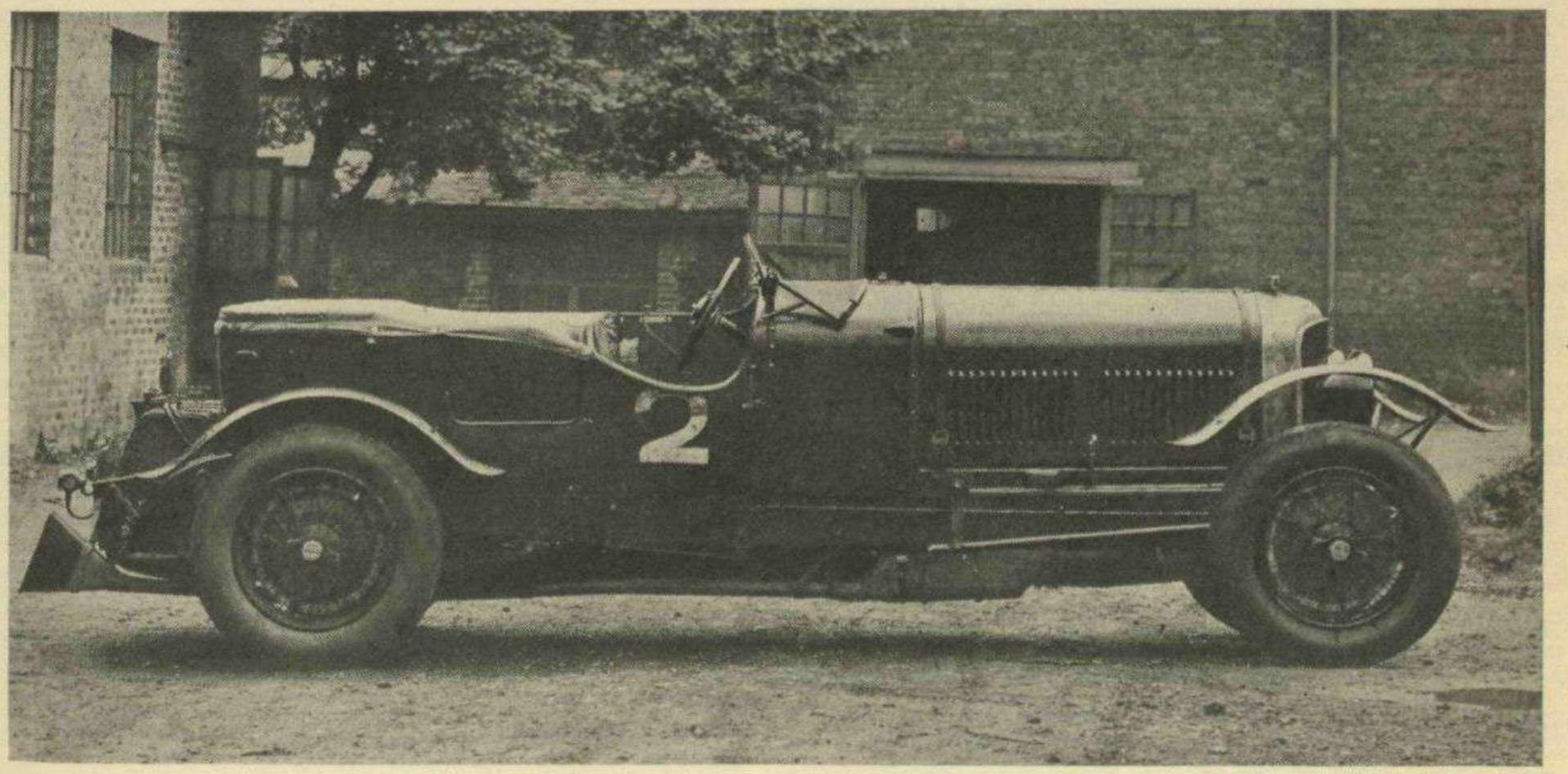
The final of the Marcel Renault Plate was an easy victory for Tyron on the Napier, Earp's Iris (easily distinguished by its strange radiator) being second, while a Darracq, despite a burst tyre, came home third. The Napier had a 40 h.p. 6 cyl. engine with a bore of 4in.

After this the Gottlieb Daimler Memorial Plate (15.743 miles), a race full of incident, was run off. Moore-Brabazon led for a good distance, driving a yellow 35 h.p. "Kaiser Cup" Minerva, while a Daimler and an Ariel-Simplex duelled behind, the latter refusing to be shaken off until its bonnet blew up and its driver was drenched in oil. Then the Minerva experienced a faulty valve and dropped out with the carburetter alight, allowing Instone's Daimler to gain an unexpected but popular win. Another Daimler was running 2nd, when its petrol feed choked as the straight was entered. The winning car had a 150 x 150 m.m. engine, chain drive, and a typical Daimler radiator and curved-in scuttle. The next event was the Byfleet Plate, over 10.3078 miles, and it was easily the best of the day. Wagner, driving a Fiat in place of Nazzaro, whose eyes had been affected in the Grand Prix, got away splendidly, but Chas. Jarrott soon got ahead on a Dietrich. Then Newton, driving one of Edge's 45 h.p. Napiers closed up, and as the two entered the straight Jarrott had barely 5 yds. advantage. Near the tape Newton ducked low over the wheel, and the Napier spurted away, to draw up on Jarrott's near side and finish level—a dead heat!

The De Dietrich had a 146 x 175 m.m. 4 cyl. 60 h.p. engine and chain-drive, and the Napier a 45 h.p. 6 cyl. motor with a bore of 4 9/16 in., and shaft-drive. It was rumoured that the Napier used oxygen for its final spurt, and some comment was made, in view of which it is interesting to note that oxygen cylinders are not allowed to-day. The next race was the first Montague Cup of 2,100 sovs. over 30 miles. The American speed king—Demogeot—went high on the banking, his Darracq going well until tyre trouble set in. Eventually Dario Resta (who met his death while at Brooklands six years ago), got the lead on a 120 h.p. Mercédès, but as the fork signal could not be operated until the track was clear he was caused to complete an extra lap, allowing Hutton's sister car to win the £200 Cup and £1,400 first prize, with a 120 h.p. Fiat 2nd, and Resta 3rd. Hutton drove a typical 120 h.p. 175 x 150 m.m. chain-drive Mercédès.

The last race was a "standard car" event, for cars costing £600-£700, over 5.997 miles. This was the only event in which steam cars were allowed, two White steamers competing. On first lap an Ariel Simplex led, but a Darracq passed, to win by 150 yards and a Junior being 3rd.

It may be mentioned that the Marshal's car was a Sizaire-Naudin with independently sprung front wheels, painted in the Club colours of yellow and black, while Mrs. Locke King's Rochet-Schneider went to the Panhard works at Acton Vale, before the meeting to be converted into a lorry for track use. The Earl of Lonsdale was one of the Stewards and arrived on a Mercédès with true Lonsdale body.



This Le Mans Bentley is a fine example of the progress made since the meeting described above.

GREAT RACING MARQUES

ROLLAND-PILAIN.

By E. K. H. KARSLAKE.

THOUGH many Rolland-Pilains are not perhaps seen in England, it is well known in France as a make of car which, while not having a very large production, makes an especial appeal to connoiseurs of motoring, which is still typical of some of the older French makes. The Rolland-Pilain has not had a succession of victories such as has fallen to the big European racing firms ; but the story of its activities is typical of the way in which a firm of this type has learnt to attain excellence in its standard productions in the hard school of racing.

In 1908 the Grand Prix des Voiturettes was held at Dieppe and run in conjunction with the French Grand Prix. The rules for the race limited the bore of the cylinders to 100 mms. for single, 78 mms. for two, and 62 mms. for four-cylinder engines. At that time these regulations placed the small four in a state of considerable inferiority, as it was not then considered practical politics to build an engine with cylinder bores of less than about 75 mms., owing to the frictional resistance experienced with a very small bore. In spite of this, however, MM. Rolland and Pilain were already certain of the ultimate future of the small four, and so decided to build their cars for the race with this number of cylinders. As, however, these little engines were capable of some 2,000 r.p.m., everyone was convinced that the limit of engine speed had been reached ; and Rolland-Pilain decided to seek for extra power by employing the highest stroke-bore ratio in the race. Their engines, therefore, had a bore and stroke of 62 x 115 mms. (1,390 c.c.), and, as an advanced feature, high tension magnetos. Transmission was by a cone clutch, a four-speed gearbox with direct drive on third, and a propellor shaft.

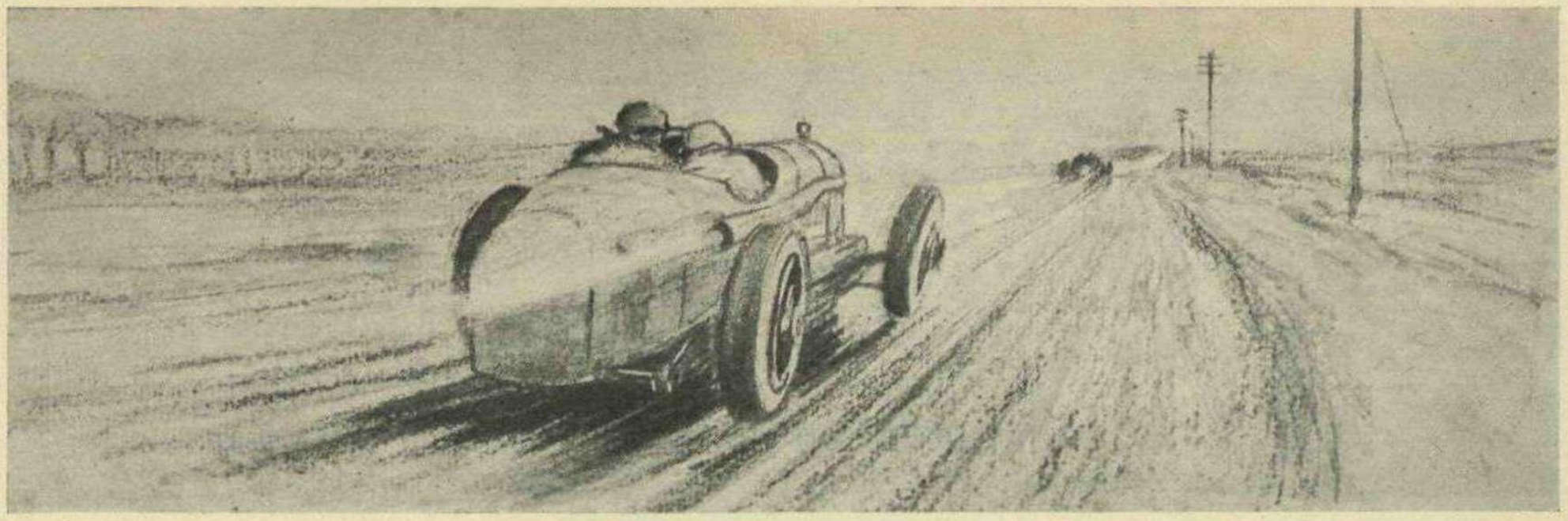
Three cars were entered for the race, and were driven by M. Pilain himself, Marnier and Simon. It was soon seen that in the matter of speed none of the multi-cylinder engines could live with the singles, but Pilain himself finished, his car being one of the very few small fours which did so, while Marnier and Simon were still running when the race was called off.

For the next three years, Rolland-Pilain continued to build 4-cylinder voiturettes, but the rules for the small car race continued to penalise the small four, and they therefore did not take part. In 1911, however, the Automobile Club de l'Ouest organised a race over the le Mans circuit called the Grand Prix de France, which was for racing cars with no limitations. Rolland-Pilain had now begun to build large cars, and they therefore entered three specially built machines with 4-cylinder engines of 110 x 160 mms. bore and stroke. These engines had four inclined overhead valves per cylinder, operated by an overhead camshaft driven by a vertical shaft at the front of the engine, while the cars had chain drive and, as something of a novelty, streamlined tails. Two of these cars were driven by Gabriel and Victor Rigal, while the third had Fauquet, an amateur, at the wheel. The curious thing about this race, however, was that out of fourteen competitors only one completed the full course. The Rolland-Pilains had especially bad luck. Their front axles had been obtained from an outside firm, and during the race they all proved defective. Fauquet got his car into second place on the first circuit, and then on the second lap his front axle broke and his car overturned into the ditch, fortunately without injury to the driver. Two days later the same fate overtook Rigal, who was running fourth, and thus Gabriel was left alone of the Rolland-Pilain team. The latter was held back by magneto trouble, but when the roads were re-opened to traffic he was still running, and was placed third in the general classification and second in the 110 x 200 mm. class.

In 1912, the Automobile Club de France revived its Grand Prix, which had not been held since 1908, and a great two-day race was held on the Dieppe circuit. Rolland-Pilain decided to enter for it, and two cars were prepared of the same design as those of the year before, but with the stroke increased to 165 mms., making the capacity 6274 c.c. The two cars were entrusted to Albert Guyot and Auford, and at once excited comment as the only French cars with streamline tails. Guyot, however, fell out on the first day, leaving Auford to carry the firm's colours alone. He, however, although held back by magneto trouble on the second day, finished the race and secured ninth place. It may be remembered that these two cars afterwards came to Brooklands and were well known at the track in pre-war days.

In 1922 Rolland-Pilain decided to return to the Grand Prix, which was now for 2-litre cars. The new racing cars which they built for it had straight-engines of 59.2 x 90 mms. bore and stroke, with two overhead valves per cylinder, which were both opened and closed positively. The crankshafts were built up of thirteen parts in order to allow their being carried in ball bearings, while roller bearings were used for the big ends, and lubrication was on the dry sump principle. Four carburettors were fitted, each feeding two cylinders and drawing their air from the crank-case, while the cars had battery ignition. The chassis passed under the rear axle, and four-speed gear-box, Hotchkiss drive and hydraulic front-wheel brakes completed the specification. Three cars were entered for the race at Strasbourg and were entrusted to the three veteran drivers, Albert Guyot, Victor Hèmery and Louis Wagner. Once more it was to be proved, however, that positive valve closing, while correct in theory, in practice is a little too efficient. After the first two laps Guyot's car, which was in third place, broke its crankshaft and had to be withdrawn, and was quickly followed by Hèmery, whose car broke a connecting rod, while Wagner suffered a broken

GREAT RACING MARQUES—continued.



An impression of the 1923 Rolland-Pilain racer.

piston. The race, incidentally, was one to destruction, for after eighteen starters, only three finished.

The next year, however, Rolland-Pilain returned to the charge in the Grand Prix, which was run at Tours, which is the native town of the firm. Three cars were entered, of which two were modified versions of the cars which had run at Strasbourg. The positive valve closing mechanism was discarded in favour of the more conventional valve spring, while new domed-head magnesium pistons were fitted, and magneto ignition substituted for the coil type. The third car had a 6-cylinder cuff-valve engine with a bore and stroke of 64.8 x 100 mms., built under Schmidt patents and designed by M. Henry, the famous designer of Peugeot and Ballet racing cars. The two eight-cylinder cars had Albert Guyot and Victor Hémery as their drivers, as in 1922, while the cuff-valve machine was entrusted to another veteran in the form of Jules Goux. The latter car, however, did not survive the practice period, and so the two straight-eights were left to start alone. Hemery was forced to retire in the early stages of the race, but Guyot got into fourth place, first of the French cars, and on him the hopes of that country were placed. For 29 of the 35 laps of the race he held his position, and then he too had to retire.

It was not long, however, before Rolland-Pilain got their revenge. The two eight-cylinder cars were entered for the Spanish Grand Prix on the San Sebastian circuit, which was run a month later, and Guyot and Hemery were appointed as their drivers. The latter, however, was taken ill before the race, and had to hand his car over to his mechanic, Delalaude. The two cars, however, took the lead at the outset, and finally came home first and second, Guyot, the winner, averaging 58 m.p.h. for 277 miles, which was a record for the old San Sebastian course. By this performance he gained both the King's Cup and the Regularity Cup.

The last important race of the year was the European Grand Prix at Monza, and for this two Rolland-Pilains were entered, with Guyot and Delalaude as their drivers. After a few laps the latter fell out with a broken big-end roller bearing, but Guyot continued and was running well at half distance, when an unfortunate event occurred. The driver burnt his leg on the exhaust pipe, and so came into the pits and turned his car over to Delalaude. The jury, however, decided that a change of drivers was against the regulations, and so the car had to be withdrawn. This was the last appearance of the straight-eight Rolland-Pilain, but it is interesting to observe that this model has now been standardised and is sold to the public incorporating the lessons which have been learnt from these races.

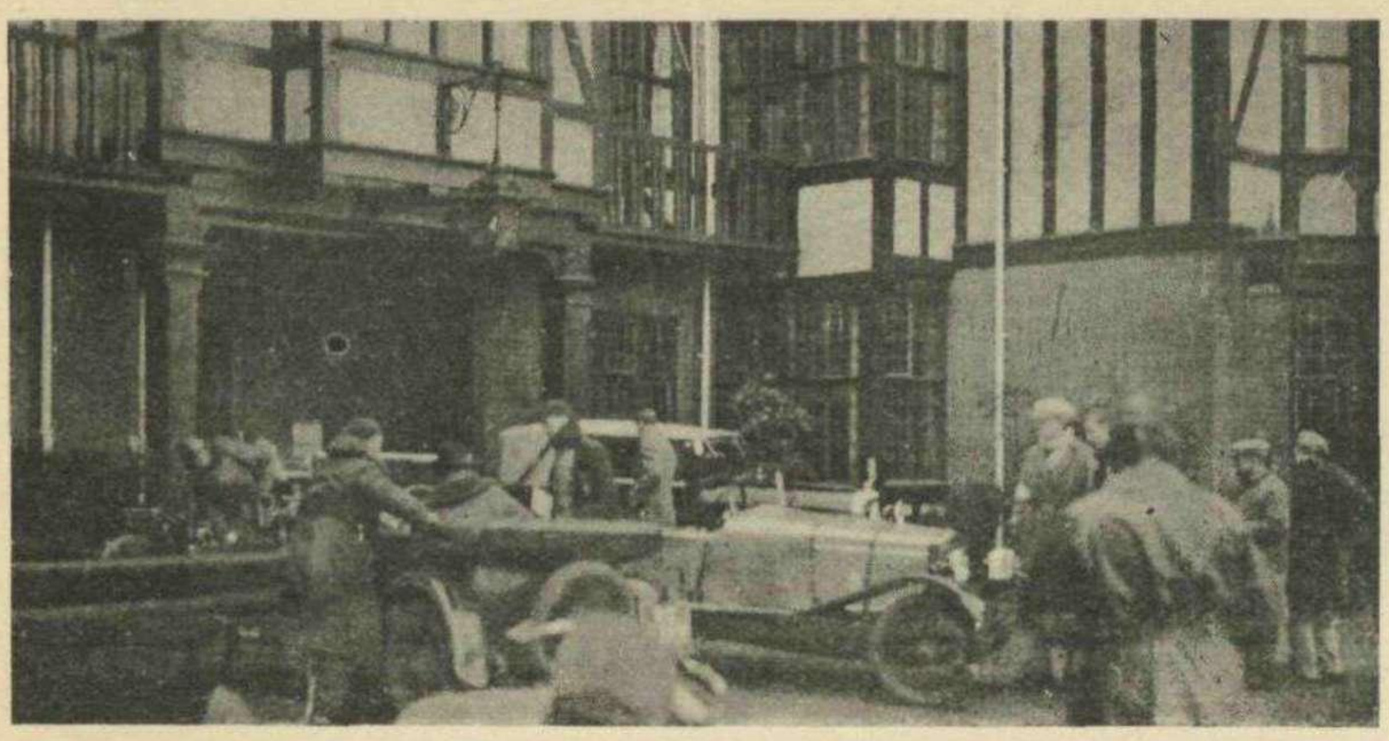
In the meantime, however, the Tours firm had begun to turn its attention to touring car races. In 1923 the first Grand Prix d'Endurance was run at le Mans, and for it Rolland-Pilain entered four of their 4-cylinder 2-litre cars of 73 x 120 mms. bore and stroke, with de Marguanatz and Delalaude, Sire and Guignard, Prouzet and Pichen, and Robin and Marnier as their teams of drivers. These cars did not approach the larger machines in speed, but they all finished the race and qualified for the Rudge-Whitworth Cup.

The next year two of the cars started, and this time Guignard drove with Delalaude, while Sire was joined by Tremel. This year the cars were rather faster, and Delalaude and Guignard finished sixth, with the other Rolland-Pilain ninth. The race in 1925 was the final for the Triennial Rudge-Whitworth Cup, and in it two Rolland-Pilains again started, Delalaude driving with Chalamel, and Sire with de Marguenatz. Both cars again finished, and Sire and de Marguenatz's covered eighth greatest distance in the 24 hours, which gave it second place in the final of the Rudge-Whitworth Cup.

Once more in 1926 Rolland-Pilain took part in the race, this time with three cars driven by Delalaude and Sire, Chalamel and Stremler, and Nezelov and Lassele. Of these cars two finished the race, and Chalamel and Stremler repeated the Rolland-Pilain performance of the year before by covering eighth greatest distance.

One is perhaps in danger of being accused of tediousness by continually stressing the desirability of more French cars taking part in this race nowadays; but it must be admitted that this is a consummation to be devoutly hoped for, and among French cars, few would make a more welcome appearance than the Rolland-Pilain.

THE INTER-VARSITY TRIAL



The start at the Rose and Crown, Tring.

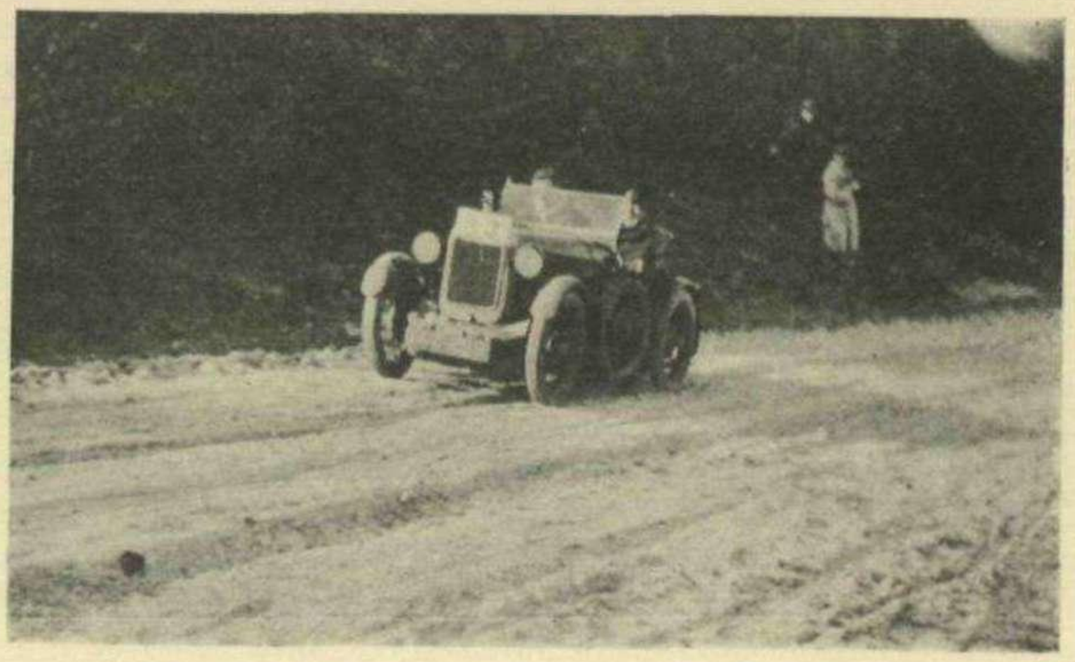
Cambridge win easily over a sporting course

IF ever there was an event which fully qualified for the title " Amateur " in every way it is the Inter-varsity Trial, and the 1930 event run off on the 15th of last month was no exception. The thoroughly cheerful spirit which characterises this show gives it an atmosphere shared by no other. Little details of the route, regulations, etc., don't seem to worry anybody, and the spirit in which the whole event is run is fairly well shown by the fact that at the end of the trial nobody could say who had won because the organisers had left the formula at home and no one could remember it ; though much exercise in mathematics was provided at the meal following the trial by everybody submitting their own ideas of what the formula should be !

Unfortunately it is extremely difficult to get a course which is suitable for both motor cycles and cars and the course used this year, although quite a good one from the point of view of cars, was not in our opinion anything like stiff enough for the motor cycles. We do not like to think it, but there seems a tendency to make this event too easy, or for what other reason would Alms Hill have been cut out of the trial just because the previous day a little rain had fallen ? Alms Hill dry is easy, whereas the same hill wet is a real test of riding without being in any degree unfair, and although we would not advocate using this hill for cars they can quite easily be sent another way, while any motor-cyclist who considers himself fit to ride in any trial should be able to tackle a wet Alms Hill and expect to get up clean. Several of the hills in this trial were really not worth while observing at all as the observers merely sat and shivered while one climb after another was made without any difficulty.

The first hill, Hastoe, came in this category but Hawridge which followed became the cause of trouble owing to some slimy patches which made it impossible to rush it and the majority of the motorcycle competitors came considerably unstuck, the best climb being Dykes' (P. & M. C.) who throughout showed a very good form indeed, riding extremely steadily. Murray (Sunbeam 0.) also made a good climb but the rest of the motorcycle competitors were very nervous or incompetent. S. A. Scott got his Vauxhall firmly embedded and so managed to provide work to keep the spectators from catching cold. Shortly after this, the meaning of the well-known phrase " the onus of finding the course rests with the competitor," became evident, a large number of them proceeding to scour the countryside in the hope of finding the next hill ! Unfortunately there seemed to be a complete absence of dye on the roads and though such cleanliness is highly desirable in the interest of preserving the beauties of our countryside, we could not help feeling that the said beauties would be sacrificed in a good cause during the trial if competitors could be made to find their way easily thereby. The system of fixing cards to trees, telegraph poles and other items of interest on the landscape is hardly sufficiently conspicuous, and by the time one has missed one of these and arrived at another from the wrong direction, it is not very easy to regain the course in the right direction.

The next few observed hills call for no comment beyond the fact that the observers would have been better employed elsewhere, but Maidens Grove produced some more amusement for the spectators and again showed that the standard of riding, at any rate as far



G. L. Willis, Austin, making a neat climb of Lewknor.

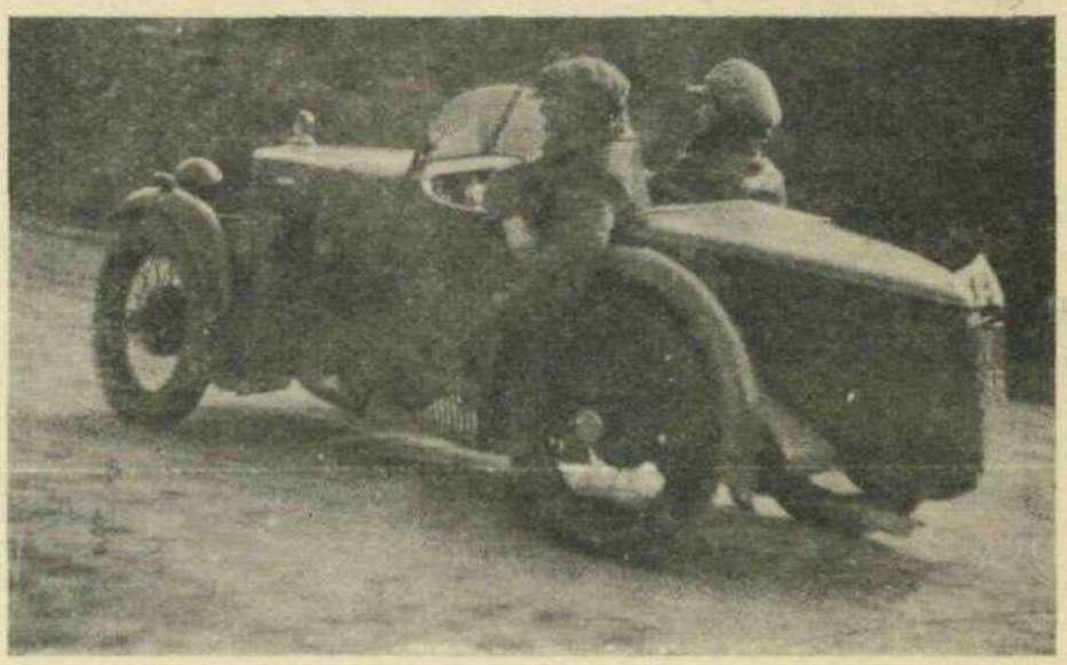
THE INTER-VARSITY TRIAL—continued.



Hywell-Murrel taking his Morgan up Lewknor.

as two wheelers are concerned, does not seem to have improved in the last year or so at our famous seats of learning. P. K. Dykes again made a good climb but W. T. Pitt (Brough Superior C.), Brittain (B.S.A. C.) parted fairly violently from their models through taking the wrong course, while F. E. Wilson managed to pilot his Rudge safely but not too confidently to the summit.

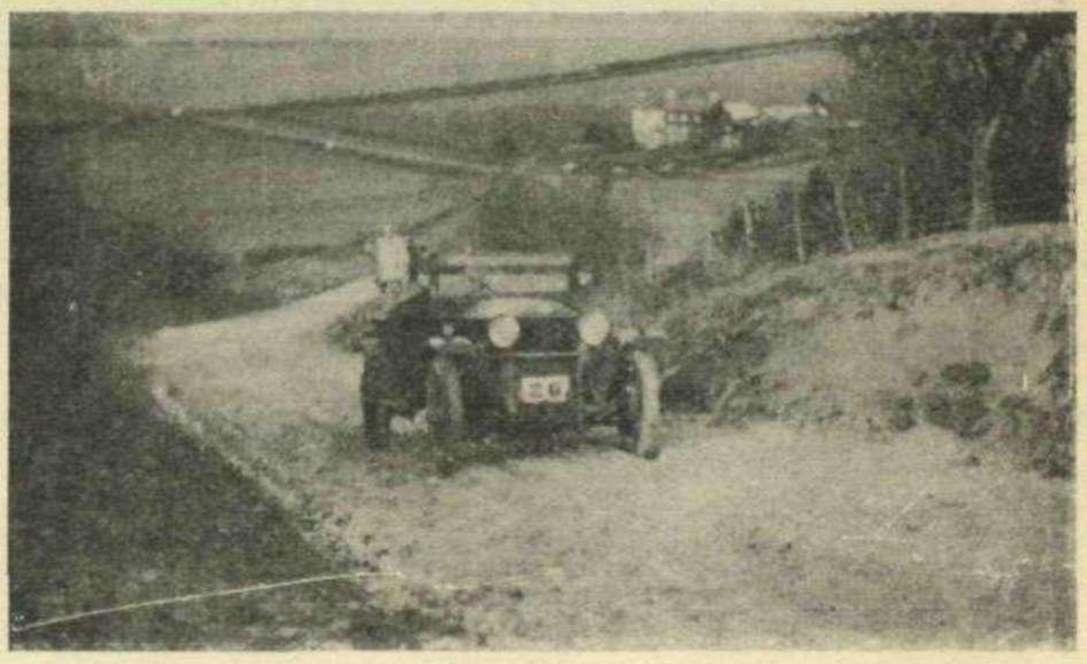
C. S. Jones (C.) on an Ariel made an effective climb while Murray appeared to have some difficulty in directing his Sunbeam up the narrow way, but managed to make a clean climb and avoid going over the edge Lutman Norton (O.) made a rousing climb and managed to keep a good course. W. M. May on his Ceirano seemed to be in a very considerable hurry during the whole of the trial and started to make a fast climb but unfortunately failed owing to a wheel spin higher up. The cars on the whole made a much better show than the motorcycles, and King's Salmson and Bevan's Bugatti made good climbs for Cambridge and Oxford respectively. The Austins, driven by V. L. Willis and T. S. Fisher, were also good, while Bellamy (Derby Special) got up, but only just. The M.G. Midgets and Rileys including J. S. Neale, C. S. Scrutton and Ripley, were good. Lewknor Hill was by no means as bad as we have known it but its chalk surface was just sufficiently moist to catch the unwary and its ruts were about the same condition as usual, that is fairly deep. By this time the order of the trial had become very vague and cars and motorcycles were arriving in every sort of order but the correct one, and mostly late, due to the difficulty of finding the route. The motorcycles apparently did not seem aware of the nature of the surface until they arrived on it and a considerable number measured their lengths at various points of the hill, most of them giving up without much of a struggle and grovelling unceremoniously in the ditch. W. T. Pitt (Brough Superior C.), J. R. Sugg (Norton O.), S. H. Murray (Sunbeam O.) got to the top by footing heartily. C. S. Cockerell on his Velocette started to come up in a rousing manner



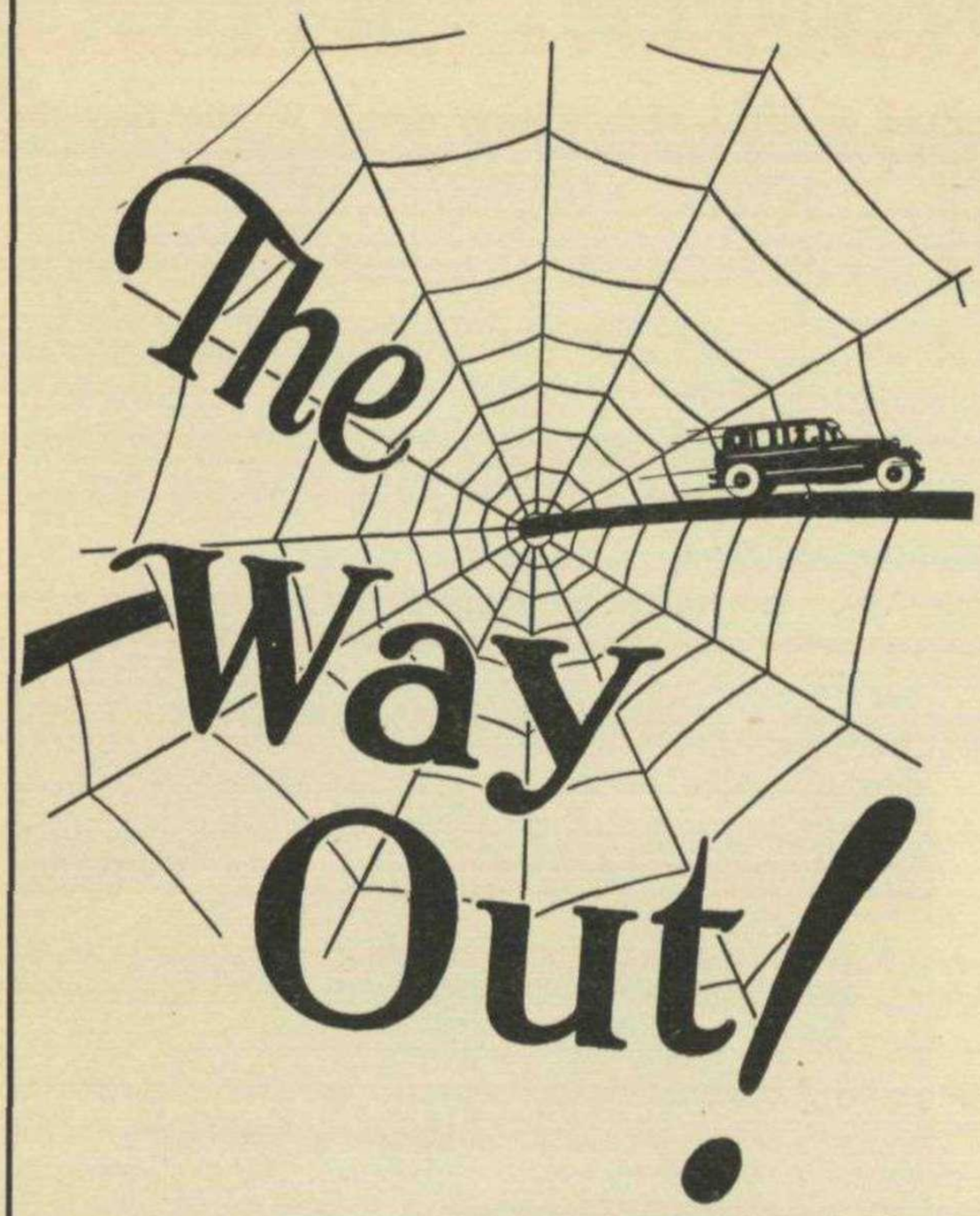
An M.G. Midget on Whyteleafe. This marque performed well throughout.

having evidently heard that slippery hills should be taken fast, but he apparently omitted to hear also that on slippery hills machines do not, naturally, proceed in a straight line and after a valiant struggle went end over end in the middle of the steepest part, but later continued unflurried. W. Clarke on a Vincent H.R.D. was making a good climb but had the bad luck to break a chain when nearly over the worst part of the hill and had considerable delay in re-fitting this. May's Ceirano made no mistake about Lewknor and a very fast climb was also made by G. le Grice for Oxford on a Lancia, while the Austins and M.G.'s also put up a good





C. S. Cockerell just before crashing on Lewknor, while M. W. May (right) Ceirano, made a fast climb.



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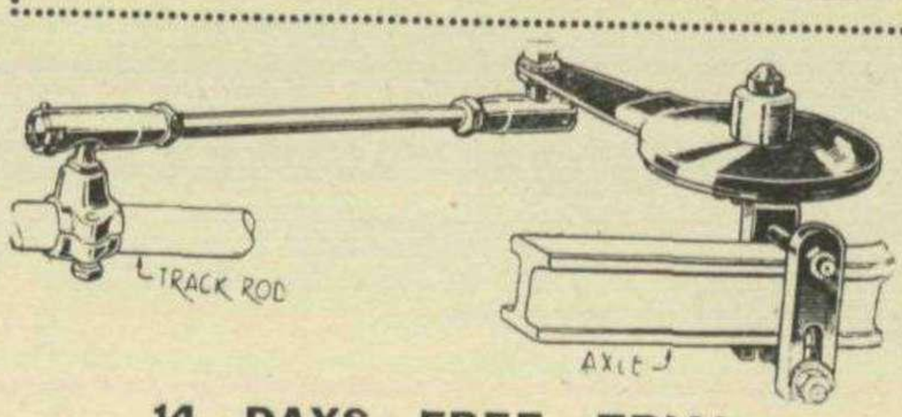
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THE INTER-VARSITY TRIAL—continued

show. Whyteleafe Hill provided no excitement and everybody toured up happily and a non-competing Austin 7 saloon with 3 up buzzed merrily up in the middle of the proceedings to show it was hardly a good hill to observe.

The last observed section, Great Kimble, was really quite sticky and as by this time everybody was well behind, nobody took much care over the section, which produced some fast runs. C. S. Jones (Ariel), B. Atherton (Scott) and Dykes made good crossings, while the star turn among the cars was undoubtedly M. W. May, who came over so fast that his wheels left the ground well and truly on nearly all the bumps. Not always by the right route the competitors, with very few exceptions again reached the Rose and Crown at Tring, and the worries of route finding, etc., were soon forgotten in a meal, at which the chief argument was about the lost formula !

RESULTS.

Cambridge ... 49·91 Oxford ... 12·92

CAMBRIDGE AWARDS.

May Cup ... B. J. Robson (M.G. Midget).
Veterans ... M. W. May (Ceirano).

OXFORD AWARDS

Best Car ... H. G. Stafford (Alvis).
Veterans ... A. D. Chetwynd (Lea-Francis)

NEW AERODROMES

MUNICIPAL aerodromes are to be established at Nottingham and Stoke-on-Trent, and agreements have just been signed whereby they will be managed and equipped by National Flying Services, Ltd., as lessees under the Corporation, following the example set at Hull.

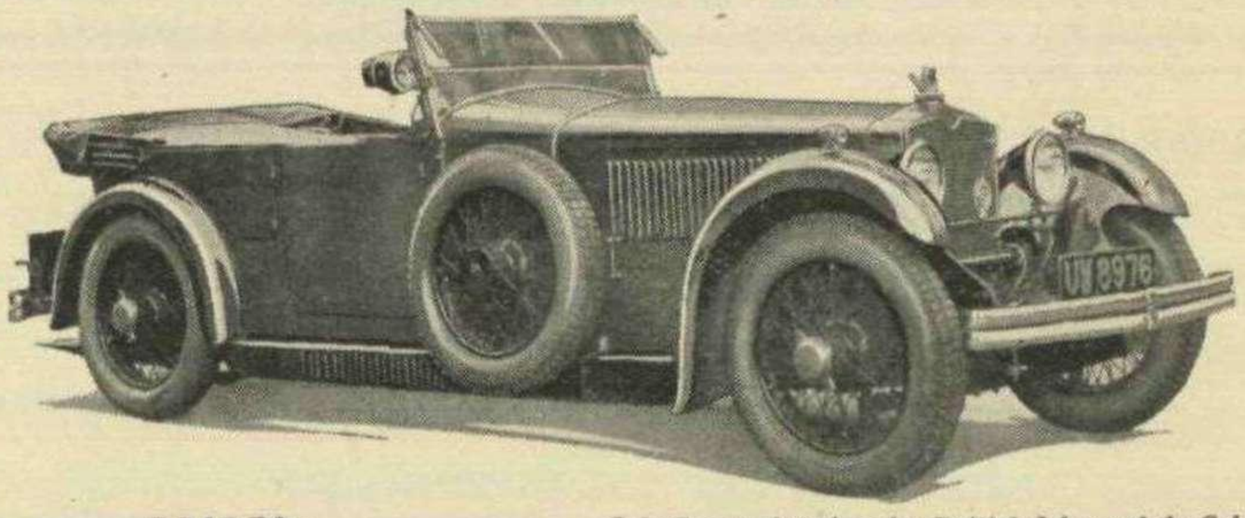
At Nottingham, the Company is already in occupation of the aerodrome site purchased by the Corporation at Tollerton. The Nottingham Aero Club has joined the N.F.S. organisation, and it will be provided with a clubhouse, hangar and all necessary equipment at the new aerodrome.

It is the ambition of Nottingham to make Tollerton the Croydon of the Midlands. The site, covering 140 acres, was purchased by the Nottingham Corporation last year. It is under four miles from the centre of the city and is well situated to become one of the main flying centres.

The Stoke-on-Trent municipal aerodrome will be the first flying centre to be established in the Potteries, and will serve a large industrial area of great importance. An excellent site has been acquired by the Corporation and will be taken over on lease by the Company and equipped on the same lines as Tollerton. In anticipation of this development the South Staffordshire Aero Club has been formed at Stoke-on-Trent.

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CLUB NEWS

THE NEW CYCLECAR CLUB.

AT the Annual General Meeting of The New Cyclecar Club, due to be held at the R.A.C. London, on February 10th, a proposition making it a condition of membership that every candidate duly approved by the Council shall sign the "safe driving" declaration of the Road Fellowship League, will be considered. At the same meeting members will be asked to approve of a new title for the club, namely, The Light Car Club.

In an interview the Hon. Secretary said :—

"The Road Fellowship League is of course an offshoot of The National 'Safety First' Association and the declaration outlines a code of road manners to which every decent minded motorist should have no difficulty in adhering. The proposal is not an admission that motorists as a body are at fault, but the first definite attempt on the part of a social and sporting motoring body—apart from the bigger bodies such as the R.A.C. to which, of course, the new body will be affiliated—actively to associate itself with the dictates of 'Safety First' and to show that motorists fully realise the present grave position with regard to accidents and the need for doing everything possible to ease it.

"Members of the proposed Light Car Club will be affiliated to The Road Fellowship League and so keen is the Council of the Club in its desire to bring the idea to a successful fruition that the capitation fee will be included in a subscription rate no higher than that charged by other clubs which include R.A.C. benefits in their programme.

"I feel sure that the scheme will make an instant appeal to motorists and a good impression on that section of the public which considers that motorists are not sufficiently alive to their responsibilities. It should be remembered that The Road Fellowship League embraces all classes—including pedestrians—so we are endeavouring to range ourselves beside the rest of the community in a great and important work. We also appeal mainly to the owners of small cars, the people who, in hundreds of cases, are new motorists—another point in our favour.

"If the scheme is approved, Lord Brentford, who as the late Home Secretary did so much in the cause of 'Safety First', will be asked whether he will accept the office of President. The proposed club will number no paid servants amongst its officials, everybody will work for the love of the thing, and we are looking forward to a big membership."

Other objects of the proposed Light Car Club are to encourage the development of 3-wheeled cyclecars and cars having engines of less than 1500 c.c. and to promote good fellowship amongst all owners. Sporting events will be confined to 3-wheeled cyclecars and cars up to 1500 c.c., but an attractive social programme —as well as full R.A.C. benefits—will be open to all, no matter what size of car they own.

JUNIOR CAR CLUB.

At the Annual General Meeting of the Junior Car Club held in London on 23rd January, the Hon. Sir Arthur Stanley was unanimously re-elected as President of the Club for the year 1930. For his past services as Honorary General Secretary, Mr. A. Percy Bradley's name was added to the existing Vice Presidents. Major Frank H. Vale and Mr. A. I. Logette were re-elected as Honorary Treasurer and Hon. Solicitor respectively, and Mr. L. F. Dyer will act as General Secretary.

The seventeen members of the 1929 Council were returned for 1930 and Capt A. R. C. Waite, who is the London Manager of the Austin Motor Company, was also elected to serve on the governing body of the Club.

The meeting was very well attended and a large number of members displayed their keenness in the welfare of the Club. The Secretary's Report that the membership had increased during the year and that the J.C.C. continued to hold its position as the largest Associated Club in the country was warmly received. The Treasurer was able to record an improved Financial position as the result of the past year's working.

A resolution passed at the meeting permits persons not owning a car to be enrolled as "Social" members at an annual subscription of 15/- or 10/6 if their place of residence does not permit them to participate in the events held in London and district.

J.C.C. PROVINCIAL EVENTS.

The record total of 340 members and friends of the South Western Centre of the Junior Car Club were present at the South Western Hotel, Southampton, for the Annual Dinner and Dance of the Centre on Wednesday, 22nd January. The chair was taken by Mr. T. G. Hayter, of Southampton, who is also Chairman of the Branch and the Mayors and Mayoresses of Southampton and Winchester were present. During the course of the speeches tribute was paid by the Mayor of Southampton to the splendid pioneer work of the Junior Car Club in evolving and holding competitions, the results of which were of undoubted benefit to the motor industry. Mention was also made of the excellent work which had been done by the Club in the Southampton district during the past year. After the Dinner, dancing was enjoyed by the gathering until long after midnight.

ANNUAL DINNER OF THE YORKSHIRE CENTRE.

A party of about 100 members and guests of the Yorkshire Centre of the Junior Car Club celebrated another year of the Club's activities in the Leeds district on Friday, 24th January. Mr. C. D. Wilson, Chairman of the Centre, presided and Mr. A. I. Logette and Mr. L. F. Dyer were present as representatives of the London Council. The Yorkshire Centre has made rapid strides in membership during the past year and has a greatly improved financial position. Many new members have recently been elected and an energetic Committee has already scheduled a comprehensive list of fixtures for the forthcoming season. During the course of the evening, Mrs. Wilson presented prizes to successful competitors in the various 1929 competitions, including the A. I. Greenwood Challenge Cup which had been won by the Chairman.

Representatives of the Liverpool and North Wales Centre were present at the function, and Mr. Matthews on behalf of the Liverpool Committee officially presented the Inter-Centre Challenge Shield to the Leeds Branch. This is the second year in succession in which the Yorkshire Branch has gained the shield from their Liverpool neighbours.

The dancing did not terminate until 2 a.m. and the function was very successful no matter from what point it was viewed.

* * *

The Annual Dinner and Dance of the Liverpool and North Wales Centre will be held at the Exchange Hotel, Liverpool, on St. Valentine's Day, Friday, 14th February.

AWARDS IN THE SECOND BRITISH "DOUBLE TWELVE."

It is announced by the Junior Car Club that the winner of the British Double Twelve Hour Race in 1930 will receive a Rudge Whitworth trophy and a cash prize to a total of 250 guineas. These awards, which will be won outright, will be in addition to the S.M.M. and T. Challenge Trophy and replica.

It is understood that the trophy which has been awarded by Messrs. Rudge Whitworth Ltd. is being specially made and will be very original in design.

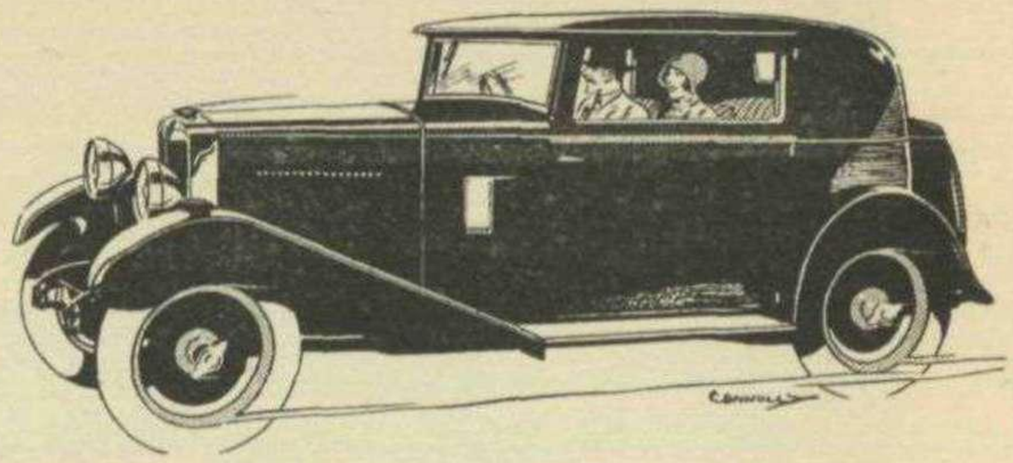
BERKHAMSTED & DISTRICT M.C.C.

A special Club Dance is to be held at the "Kings Head Hotel," Berkhampsted, Herts, on Wednesday, 5th March, and a hearty invitation is extended to any motorist to come along for an enjoyable evening. Evening dress optional; time, 8 p.m. to 12 p.m. At the recent Annual General Meeting the following officers were elected :—President: F. G. Hicks, Esq.; Chairman: L. G. Jennings, Esq.; Captain: F. Rust, Esq.; Trials Sec.: A. Paul, Esq.; Treasurer: F. Groom, Esq.; Hon. General Sec.: W. E. J. Kentish, Esq. An extensive programme has been mapped out for this season, and new members (who should apply to the Hon. Sec. as above) will be given a hearty welcome.

Next season's programme will consist of Trials, Treasure Hunts, Social Runs, Grass Track Racing, and Speed Hill Climbs, etc. The club is affiliated to the A.C.U. (South Midland Centre).

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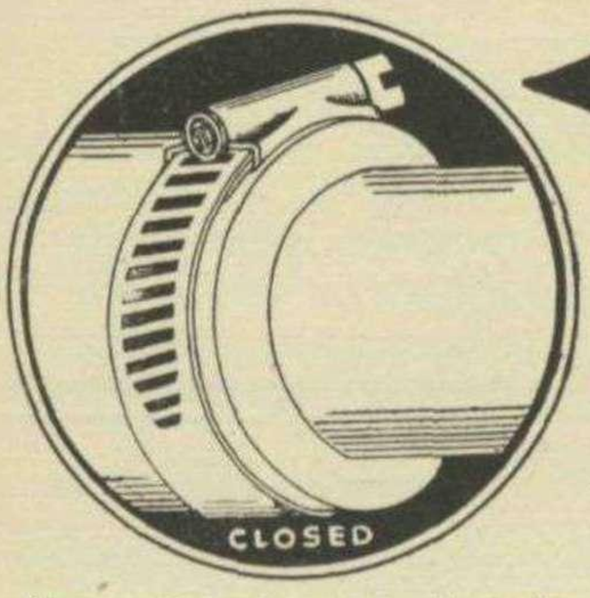
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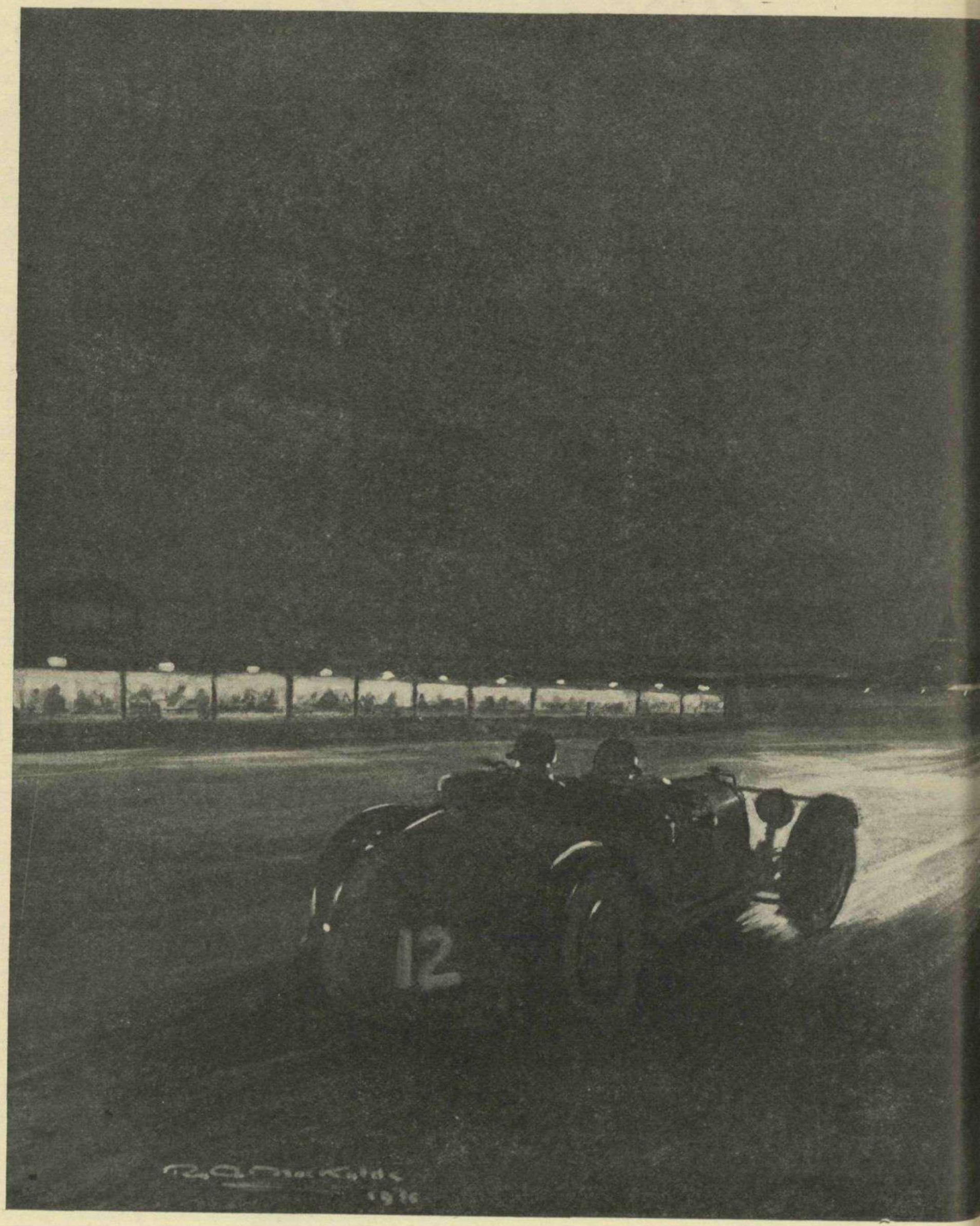
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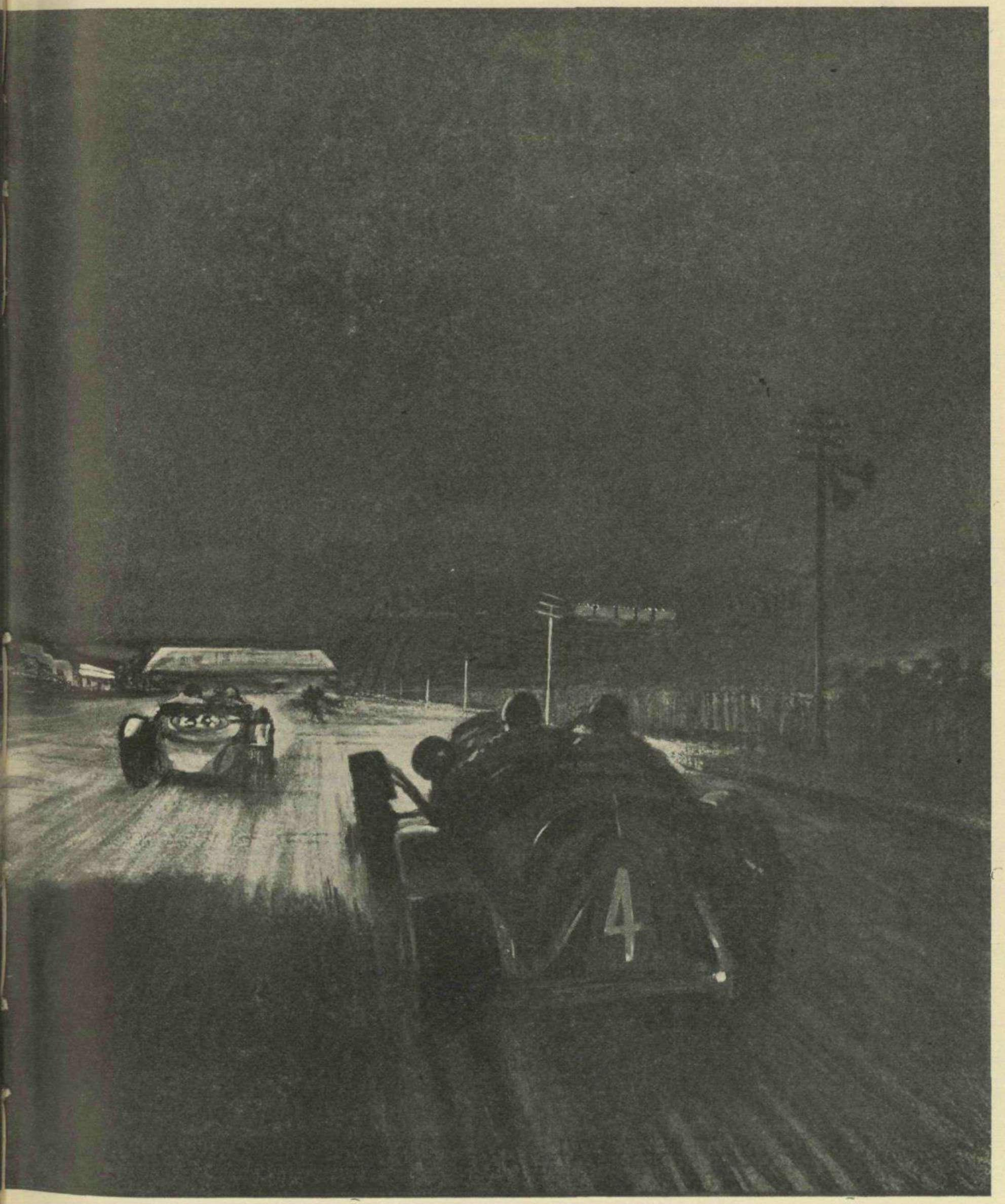
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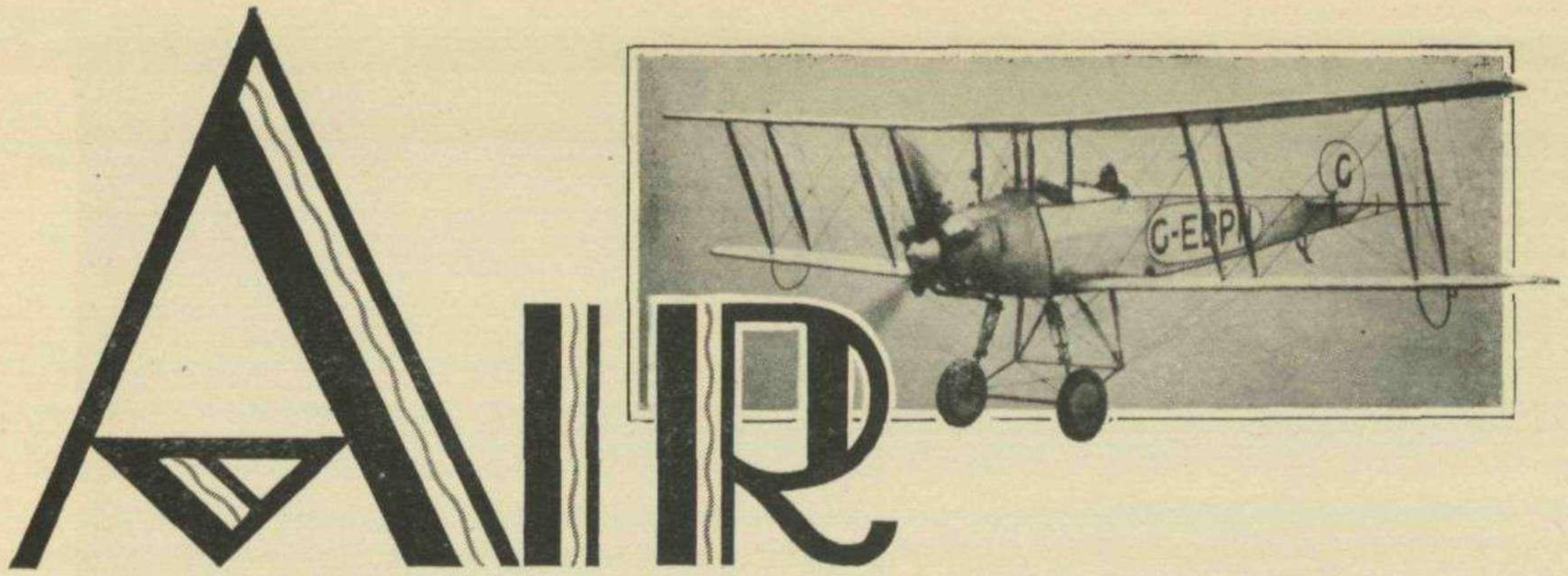
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IF— Only we could have a 24 hour race at Brooklands. Then would a scene as the above would become more than the product of an



some of the glamour of the Le Mans event be brought to this country and such artist's imagination. Meanwhile we must rest content with the "Double Twelve."

[*March*, 1930



ARTISTRY IN THE AIR

By MAJOR OLIVER STEWART, M.C., A.F.C.

SOME aerobatic pilots fill us with admiration at their skill and delicacy of touch ; others frighten us to death by the violence and recklessness of their manoeuvres but it has been given, so far as I know, to only one pilot to frighten us to death and to fill us with admiration at one and the same time. Before he died in France this pilot set a standard in aerobatics which in artistry and spectacular effect has never since been surpassed.

The aeroplane which was the medium of his unequalled displays of skill and daring would nowadays be judged slow and underpowered. It was a Sopwith Camel with a 110 h.p. Le Rhône engine. Allow me to reconstruct the unpromising scene of some aerobatic displays which outdistanced the greatest subsequent marvels of fact or film and which, had they been staged in peace time, would have drawn all London. Imagine a small aerodrome to the east of London. A few hangars of the old type flank one side ; on another side there are some trees. A narrow strip of tarmac extends in front of the hangars. There are low clouds and a slight, fitful wind.

A Camel is wheeled out of its shed and a large pilot with a red face climbs into the cockpit. Other pilots gather on the tarmac and sit on empty petrol cans which, at that time, served the dual purpose of providing receptacles for petrol and seats for pilots of the Royal Flying Corps while hanging about on their aerodromes.

The 110 h.p. Le Rhône is started by a mechanic who swings the airscrew. It splutters a moment and then hums evenly, running throttled down. The pilot tries his controls. The elevator rises and falls and he looks round and watches it. The ailerons rock and the machine rocks with them. The rudder flicks slightly to right and left.

These preparations are carried out slowly and methodically ; but now a change in the tempo occurs. The engine roars and fades, a hand waves from the narrow cockpit, the chocks are jerked from the wheels, the pilot turns his head quickly to right and left, the engine roars again and, simultaneously, before the machine has started to gather way, the tail lifts.

Now watch closely. The machine jumps forward, heeling on to the left wing. The left wing tip is brushing the grass as the machine rises. The machine rises as if it were being lifted from the ground and a surprisingly large expanse of top plane exposes itself flat to the view of the spectators on the tarmac. The machine has turned vertically across wind as it is taking off.

It flattens out and vanishes round the corner of the farthest hangar like an express train into a tunnel. The sound of its engine dies for a second then shrieks as the machine reappears two feet above the sheds. It comes down steeply towards the tarmac, turning slightly, and then, as its wheels skim the grass, it points its nose slowly upward. At that height and in that position it seems that the only possible manoeuvre open to the pilot is a zoom. But watch !

Over !

The machine goes on slowly turning its nose upwards until it is standing on its tail. Then the nose comes over on top and the large expanse of that top plane again appears horribly close to the spectators below it. It seems impossible that the machine should have room to flatten out before hitting the ground. One watches it almost panic stricken. But it continues—without a falter or the slightest unevenness—to curve round.

It curves round and its nose rushes straight for the tarmac ; its engine roars louder and louder. So close is it that the machine seems to have grown in size out of proportion to its surroundings. It curves round and with a fortissimo crash of its engine right in the spectators' ears, it passes along over the tarmac having completed a perfect loop at slow speed, right down on the ground.

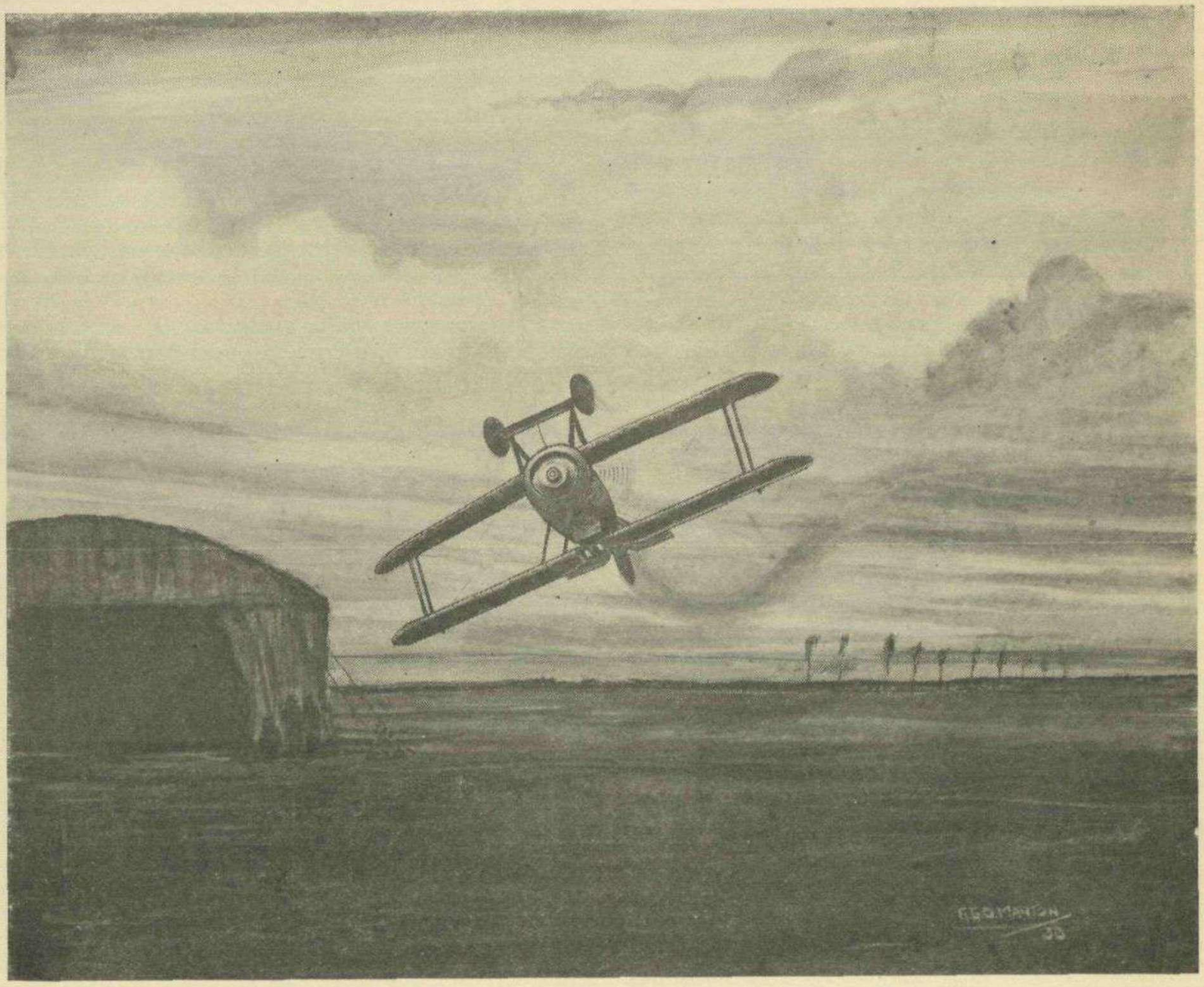
ARTISTRY IN THE AIR—continued:

No pilot could watch one of those low, slow loops without being dumbfounded with admiration and astonishment. But more extraordinary manoeuvres are in store. The Camel zooms after its loop, then falls towards the ground in a vertical sideslip, flattens out, turns and comes across the aerodrome parallel with the tarmac, its wing tip about over the edge of the tarmac and some ten feet up.

Opposite the central hanger it lunges up and round in a quick twist. The huge expanse of top plane again flashes into view to be succeeded by a close view of the lower plane and the undercarriage wheels. The machine wriggles, as it were, turns clean over and is again flying level about ten feet up. The pilot has performed a flick roll starting and ending it some ten feet from the ground.

The whole display might last five minutes but they were minutes so closely packed with the superfine execution of difficult aerobatics that the whole technique of flying seemed to be compressed into them. And finally the machine would settle on the edge of the tarmac, placed there precisely as a man might place a piece on a chess board.

I had the pleasure of meeting the pilot—and many members of the R.F.C. will guess his name—who used to give these displays. The impression that they were the reckless work of a madman was soon dispelled when one heard his theories. Every detail of every manoeuvre had been worked out and practised with almost inconceivable care at a safe height. And then the separate manoeuvres had been put together to form a carefully constructed whole which although it did not include any of the modern aerobatics such as outward spins and bunts or even slow rolls, for sheer spectacular effect exceeded any other flying exhibition.



A "Flick Roll" Ten Feet Up!

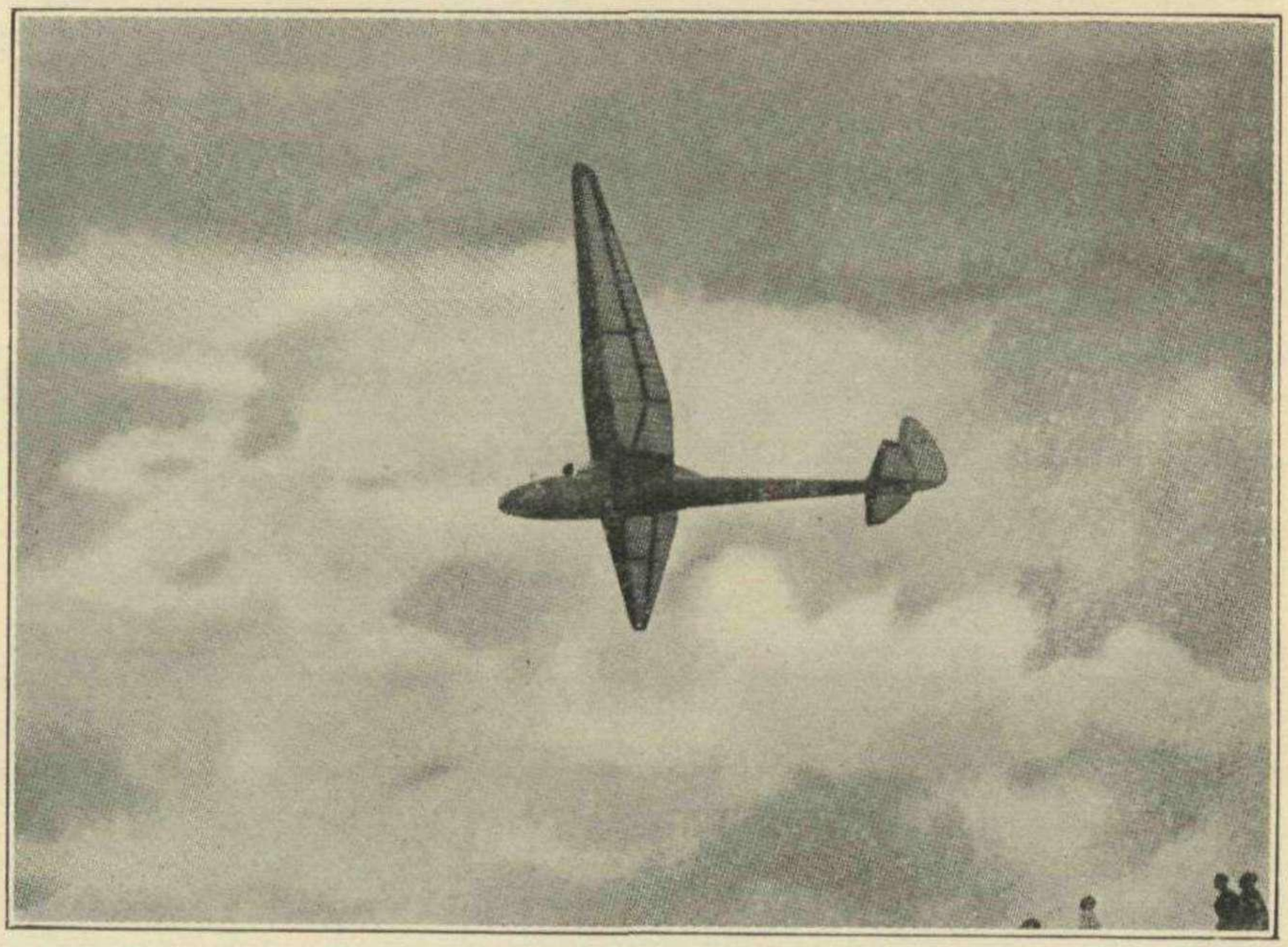
An impression by an artist who in 1918 witnessed the wonderfu. display of aerobatics which forms the subject of Major Stewart's article.

GLIDING GOSSIP AND NEWS

CHARTING THE AIR—

A GLIDING CONGRESS IN GERMANY—

R. AE. S. LECTURE.



DURING the past few weeks the British Gliding Association have been busily at work arranging plans for their future activities. Amongst these will be that of charting the air and finding suitable routes for the soaring sail plane to follow. This work will entail extensive experimental flights over areas which will be chosen as likely spots from which to operate. When sufficient material has been accumulated the Association, it is understood, will issue charts to affiliated clubs. It is also announced that the issuing of certificates of airworthiness, licenses to pilots and instructors and the approval of gliding grounds will be done by the B.G.A. in a similar way to that in Germany by the Rhon-Rossitten-Gesellschaft and in the U.S.A. by the National Gliding Association Inc. Full regulations will be announced at the inaugural meeting on the 27th of this month. The issuing of air worthiness certificates, is perhaps, the most important work, for there are indications that a large majority of gliders and sail planes which will be used in the country will be of amateur construction and in order to avoid the possibility of accidents due to faulty workmanship, material or design, some fixed standard in regard to them is clearly indicated.

TO MARK the tenth anniversary of the glider movement in Germany an International congress is to be held this month at Darmstadt by the Research Institute of the Rhoen-Rossitten-Gesellshaft. A big attendance is anticipated not only from people associated with the movement in Germany but from other European countries and a number of well known sailplane pilots and aircraft designers have intimated that they will be present to discuss various aspects of the art. Such matters as the organisation of gliding schools and the findings of constructors in their various experiments with motorless machines will be dealt with, and it is expected that much valuable information and data will be available as a result of this important fixture.

A READER of MOTOR SPORT has written protesting against the exhibition, some time ago, of a news reel film depicting a fatal accident to an American glider pilot while being towed by an aeroplane. "Apart from the ghoulishness of it," he writes, "the showing of this film must be detrimental to gliding, a pastime which is obviously going to be very popular in this country." With which remarks we are in full agreement.

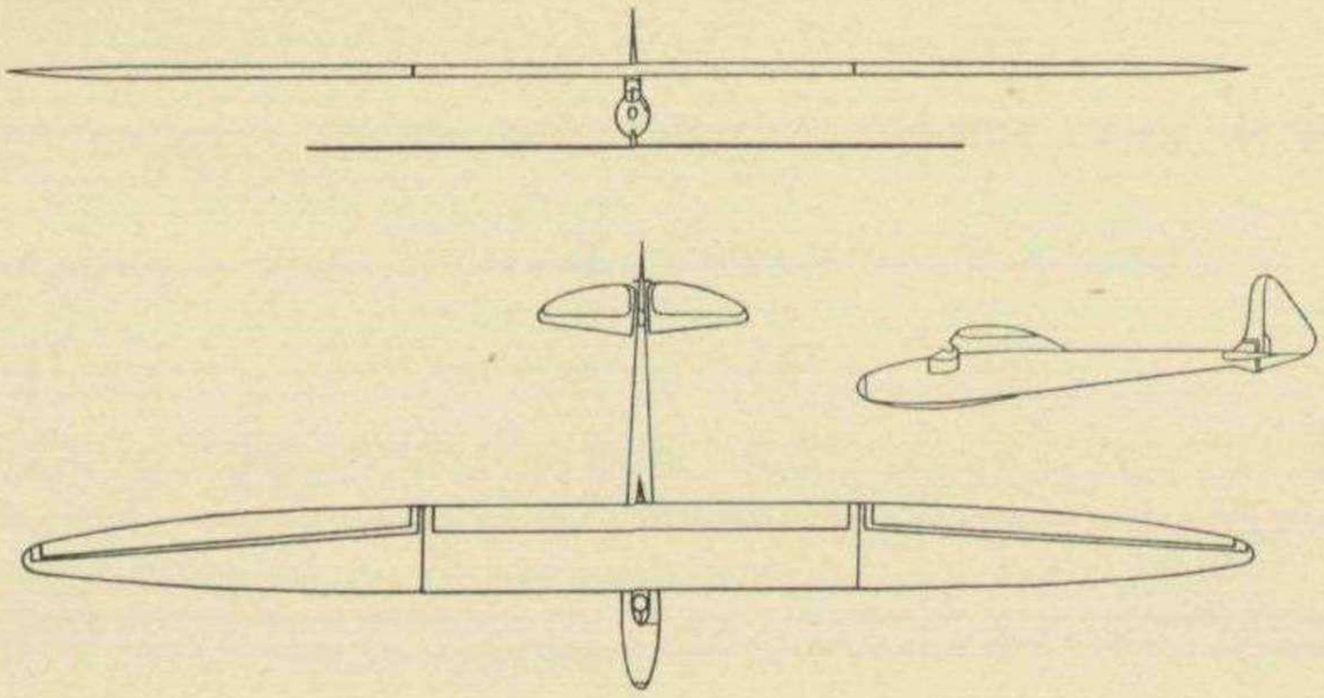
The Americans at times show a marked partiality for foolhardy and useless stunts in the air and since gliding has been taken up in the U.S.A. the movement has been marred by some half dozen bad crashes. All these were due to attempts being made at towing either by aircraft or motorcars and through using machines obviously unsuitable for such experiments.

LAST MONTH mention was made of the three types of craft which are used by the majority of the sailplane clubs in Germany. These are the "Zogling" elementary machine, the "Prufling," advanced training glider and the Kegel III sailplane. An illustration of the latter appears overleaf, The wing spread of the Kegel III is about 53ft. and the wing is made up in three sections and is of the full cantilever type. It has a cruising speed of about 22 m.p.h. and when flown with the nose down a speed of about 35 m.p.h. is attainable.

GLIDING GOSSIP AND NEWS—continued.

A machine of this type, we understand, will be seen shortly in England when it will be probably piloted by the well known German sailplane expert Herr Hirth.

FOLLOWING the lead set by the London Gliding Club, others which will be affiliated to the B.G.A. are now in process of formation. These include clubs at Cardiff, Evesham, Gloucester, Halton, Kent, Harrogate, Manchester and Newcastle and a Dirt Track Riders' gliding club will shortly come into being.



The Kegel III.

ONE of the first privately constructed gliders of the Zogling type to be completed in this country is that made by a group of enthusiasts at Chatham. Designed by Mr. C. H. Lowe Wylde it was built in six weeks and is now undergoing tests.

THE London Gliding Club held a general meeting on the 20th of last month when the Chairman and the Committee explained to members how far their work had proceeded to date.

Two machines are now ready for use and it is anticipated that the Club will start active gliding in a very short time. The one difficulty with which the Committee has been faced is the finding of a suitable site. During the course of their extensive search in districts south of London, a number of places were inspected, but in every case, the owners of the land were unwilling to grant permission to the Club to use it as a venue. As a result, it seems probable that the L.G.C. will have to go to the North of London in the Tring-Dunstable area where little difficulty, either in finding a site or in getting permission to use it, is anticipated. The Committee has been encouraged in pursuing their search in the northern district by the fact that no less an authority than Dr. Georgii has stated that the area around the Beacon at Ivinghoe would be admirable in every respect as a gliding ground and he has expressed the view that it is even superior to the Wasserkuppe in Germany where the well-known gliding school operates.

THE GLIDING LECTURE

ON the 19th of last month a lecture was delivered before the Royal Aeronautical Society in London by Dr. Walter Georgii, and Herr Fritz Stamer, on gliding at the flying school at Wasserkuppe, Germany.

As was to be expected the lecture was extremely interesting and instructive and attracted a large number of visitors. Dr. Georgii traced the history of the glider movement in Germany from 1920 and graphically illustrated by lantern slides and with statistics the striking advance which has been made in motorless flight during the past 10 years. One feature which impressed listeners in particular was the amount of work which the research department of the school at Wasserkuppe carries out in the scientific investigation of air currents, conditions at varying altitudes, cloud formations and so forth. Their findings in this direction have been of great value to both designers and pilots of sail planes and it is safe to say that the data acquired has contributed largely to the progress which has been made.

Herr Stamer's paper dealt at length with the formation, organisation and methods of instruction of the school at Wasserkuppe, where in a session of seven months between 200 and 250 pupils pass through a course. Fifteen gliders and sail planes of five different types are in use by the school. These include: six Zoglings, for beginners, three Pruflings for soaring practice, two Hangwinds for soaring in light winds, two Canossa two-seaters and two high performance sail planes of the Professor type.

In initial training the pupil carries out short hops only and he is watched by the instructor from the ground; afterwards he is launched from a hilltop and at a later stage, passes onto the Prufling machine. Herr. Stamer stated the dual control instruction had been tried with success, but owing to the complication in construction entailed and the extra call on instructors' time it has not been widely adopted. It was also pointed out that a two-seater with a low wing loading and a good gliding angle has of necessity to be of very big span which of course is undesirable.

When pupils pass onto the soaring plane proper they start with making long, flat figure of eight turns in the region of a rising wind and in this way develop a "soaring sense."

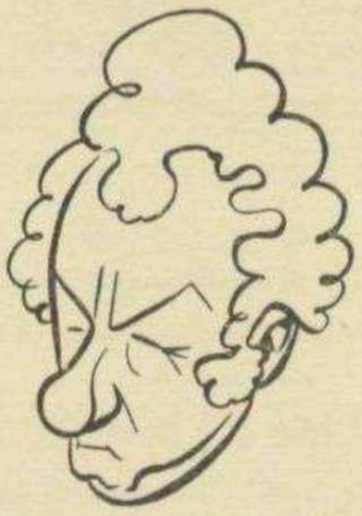
The lecture concluded with the exhibition of a film showing the different types of machines in flight, method of launching, various phases of the construction of gliders and views of the Wasserkuppe school ground.

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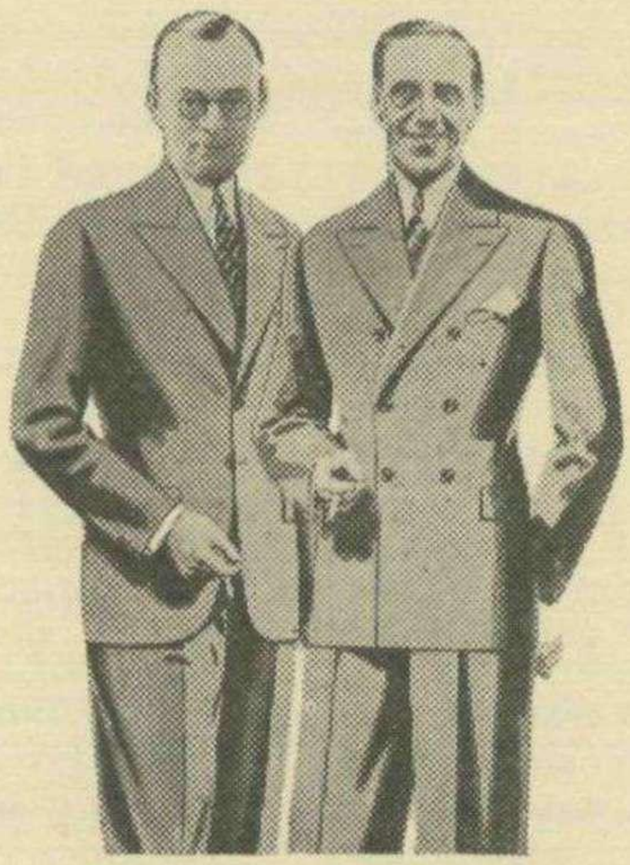
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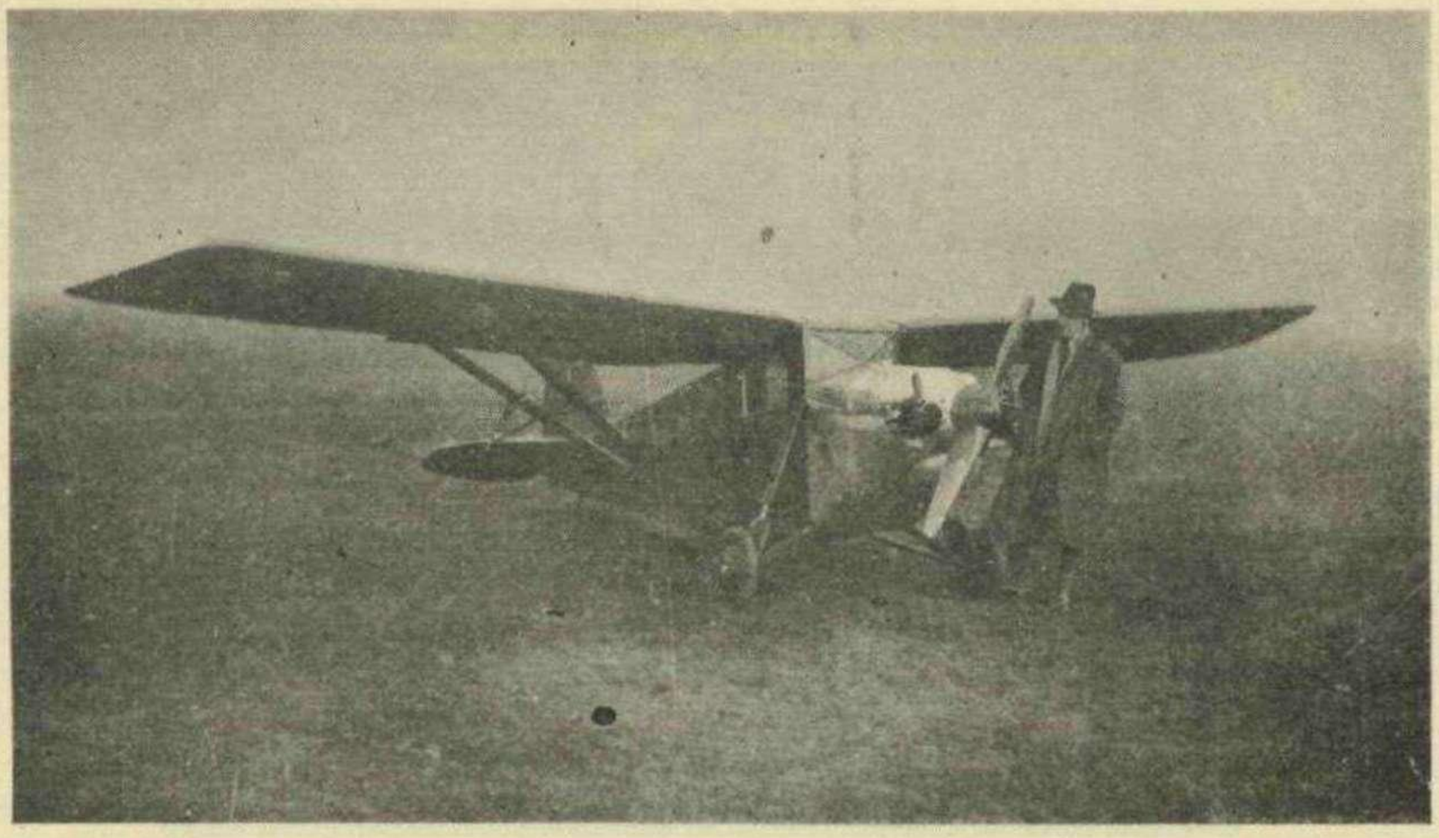
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A SINGLE SEATER CABIN MONOPLANE

The A.B.C. "ROBIN" with "Conduite Interieure"



WHEN the very small, simple single-seater machine materialised in varied forms in this country some 7 years ago, the possibilities which it offered for the would-be private owner, were such as to cause considerable optimism, and enthusiasm ran high regarding what was popularly referred to as the motor-cycle of the air." For one reason or another, however, the development of this type of machine was not proceeded with and the resources of those manufacturers who were responsible for its inception, were later given up to the production of the two-seater light aeroplane as we know it to-day. More recently, the small inexpensive machine has been revived and an example of the type is to be found in the little A.B.C. "Robin," which is manufactured by the A.B.C. Motors Ltd.

While conforming to accepted principles of construction the "Robin" is unusual as a single-seater in that is a cabin type of machine. As will be seen from the accompanying illustrations it is a high wing monoplane with V-strut bracing. The wings can be folded back so that it can be housed comfortably in a hangar of only 18 feet by 12 feet dimensions and this folding operation takes only 30 seconds.

Construction.

Throughout the designing, simplicity has been aimed at and this feature is particularly noticeable in regard to the fuselage which is built up of 4 spruce longerons with light struts and formers interposed. The whole assembly is covered with ply-wood veneer and wire bracing is dispensed with. The wing is built up in two halves and like the fuselage is of wood. The spars are of spruce and of I section. The wing ribs are also of spruce and made up in girder fashion strengthened with three-ply gussets.

Across the top of the forepart of the fuselage two metal tubes are positioned, to the extremities over which are attached swivelling duralumin blocks. These blocks which are drilled, take a locking pin which also passes through the metal fitting on the end of the wing spars and thus the wings are attached. The locking pins incorporate a spring-loaded locking device which, while allowing very rapid and easy dis-engagement (for wing folding), makes the assembly highly secure when the machine is in flying trim.

The embodiment of cabin arrangement naturally entails unusual depth in the front fuselage and this allows the designer to fix his lift struts at a very good angle. These struts, by the way, are of steel and neatly faired.

The 35-40 A.B.C. "Scorpion" engine is attached to an engine plate of multiplywood, the latter being fixed to the longerons with steel plates of very neat design. The nose of the fuselage just to the rear of the engine is stiffened by diagonal steel tubes and the whole assembly is particularly rigid without having any complicated system of bracing.

An undercarriage of the "split" type is incorporated in the general arrangement and this has a very wide track. It is of steel tube construction and embodies the usual shock absorbing medium of rubber cord. The empennage, with the exception of the outer frame of the fin and rudder, is of wood and the tail plane itself is wire braced internally. A simple means is employed to allow of the adjustment of incidence to the tail plane. This is done by two bolts which retain the rear spar to the fuselage and by simply slackening the lock nuts and screwing the bolts one way or another the angle of setting may be altered over a considerable range.

Cables operate all the controls and the dimensions of the latter are such as to give a nicely balanced control which is so desirable on a machine of so low a weight as 680 lbs.

The petrol and oil tanks are placed in front of the cockpit and the petrol is fed by gravity.

The cabin affords plenty of room for the pilot and is

A SINGLE SEATER CABIN MONOPLANE—continued.

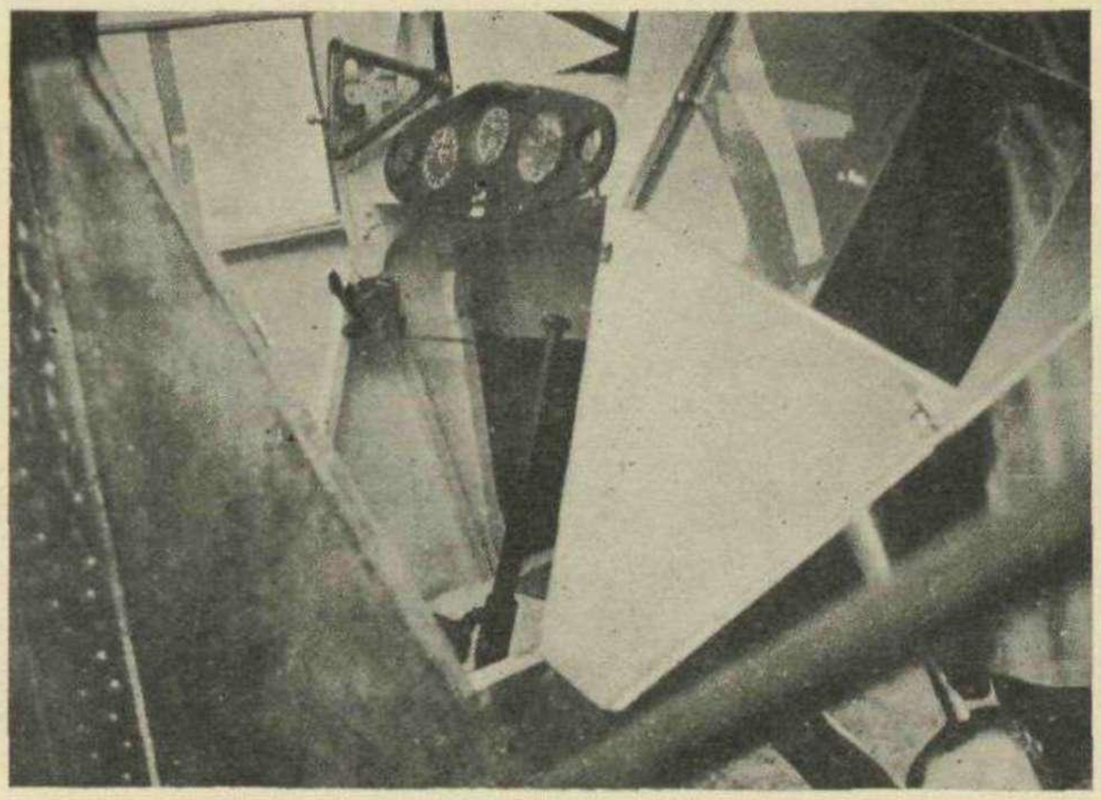
exceptionally well equipped. It is lined inside with veneer and well finished, and a door is fitted on the starboard side. Care has been taken to ensure a good view from the cabin, there being sliding windows at the side, a V windscreen in lront and a hinged sky-fight forms the roof of the cabin. There is a hatch in the top of the fuselage at the rear of the cabin giving access to a locker which is sufficiently roomy to carry two large suitcases, and throughout it is apparent that the machine has been produced as a serious touring machine and not merely as a joy-riding toy.

According to the makers the top speed of the machine is about 105 m.p.h., while the cruising speed is in the neighbourhood of 85 m.p.h. and this can becomfortably maintained with the engine developing two-thirds of its normal output only, and the landing speed is about 38 m.p.h.

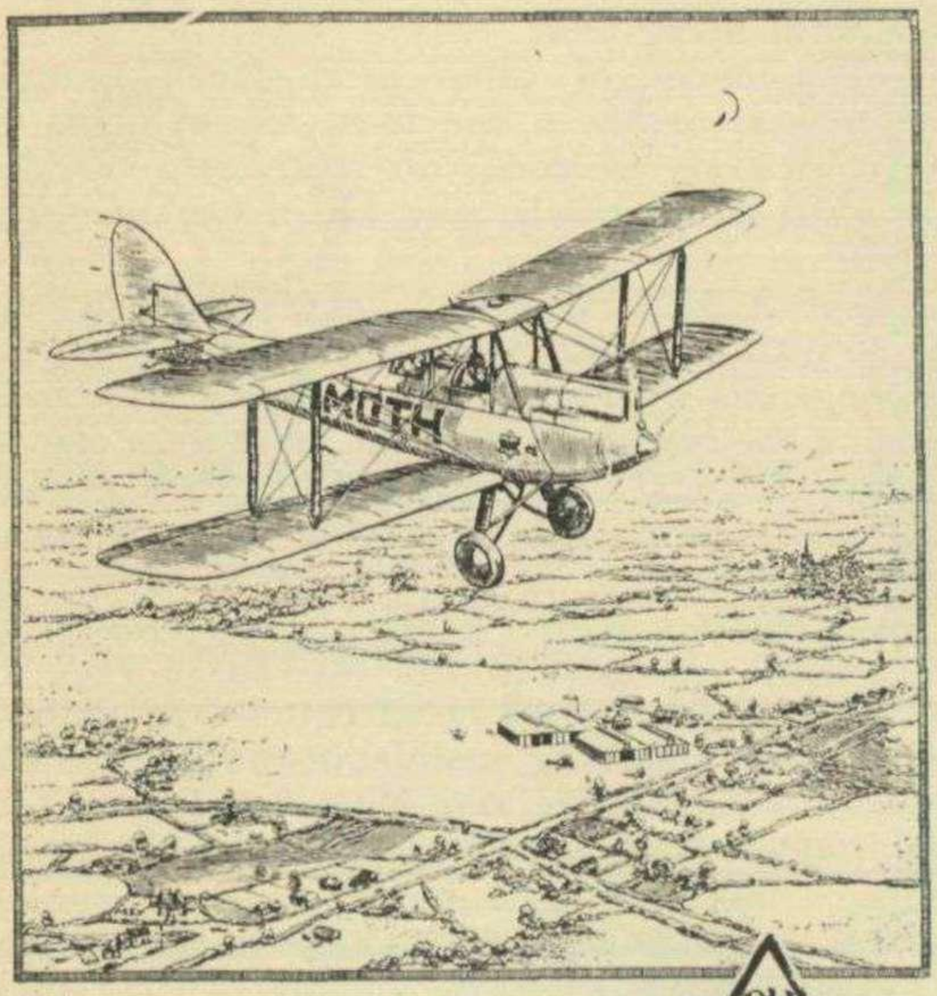
The following are the main dimensions and data of the " Robin " :—

Span (spread), 25ft. 4ins. ; Span (folded), 11ft. 4ins. ; Length, 17ft. 7ins. ; Height, 5ft. 9ins. ; Chord, 4ft. 6ins. ; Area of main planes (including Ailerons), 97 sq. ft. ; Ailerons, 13 sq. ft. ; Tail plane, 9 sq. ft. ; Elevators, 6 sq. ft. ; Fin, 2.5 sq. ft. ; Rudder, 4.5 sq. ft. ; Weight (empty), 415 lbs. ; Weight (loaded), 680 lbs. ; Wing loading, 7lbs. sq. ft. ; H.P. Loading, 17 lbs. h.p. ; Climb for first minute, 750 ft. ; Climb ceiling, 21,000ft. ; Range, 340 miles.

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A view of the neatly arranged cabin of the " Robin."



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THE HANDLEY PAGE SLOT

Its Construction and Principles

EVER since flying first became possible, no factor has engaged the attention of the aircraft designer and the inventor, more than safety and from earliest days the biggest aim has been the production of a machine with a high degree of control.

One has only to run through the records of aviation history to find evidence of this fact and to realize, that until comparatively recent years, the goal was far from being attained. In the early days not a few flying fatalities were due to structural failure and, in a measure, to ignorance of the fundamentals of aerodynamics on the part of both pilot and designer. The war, of course, speeded up the development of such to a phenomenal extent, so that by 1918 accidents due to breakages had been very much reduced and the skill of pilots in general raised to a much higher standard. But accidents still occurred and a big proportion were due to the pilot losing control of his machine through stalling. It was realized years ago, that if this loss of control at the period of stall could be overcome, aviation could really become safe, but the problem which faced the designers was one of extraordinary difficulty and it was only after a period of prolonged and painstaking research that any hopeful results were obtained.

As an outcome of this work, the Handley Page slot or slotted wing has been evolved and there is no doubt that it is one of the outstanding aeronautical developments of recent years. Like most clever inventions, it is amazingly simple and those to whom its principles are explained inevitably remark on the extreme implicity of the device.

Before describing the slot and its action, it is necessary to go into the subject of the stall and the incipient spin which generally follows the stall, how it occurs and why it occurs. When a machine is flying normally the air stream passes over the aerofoil or wing in a steady flow and induces lift (approximately two-thirds being derived from the upper surface and only one-third from the under surface). When the speed of the machine is reduced to a certain point, the airflow is no longer steady over the wing and eddies occur over the rear area of the wing and along the trailing edge where the ailerons are situated. Of course, there is then no longer any lift and the wing sinks (in other words, the machine stalls), while any movement of the aileron is useless in recovering control and in attempting to raise the dropped wing, by moving his stick, the pilot actually increases the drag and reduces the lift with the result that the trouble is accentuated and the spin follows. The diagrams in figure 1 will explain more clearly what occurs.

Incidence and Airflow.

In figure A the wing is shown in side view, moving from right to left, and in the normal position of flight with the airflow passing over it. In figure B the wing is moving upward, and in C is moving both upward and forwards. The three figures A, B, C therefore, show that the angle at which the wing attacks the air when the wing is simultaneously moving forward and rising is less than when it is only moving forward. In other words the angle of incidence of an aerofoil moving both upward and forward is less than that of a wing merely moving forward. The lift of a wing increases with the angle of incidence up to a critical point when the lift is at the maximum; afterwards it falls off and this critical angle is known as the stalling angle of the wing.

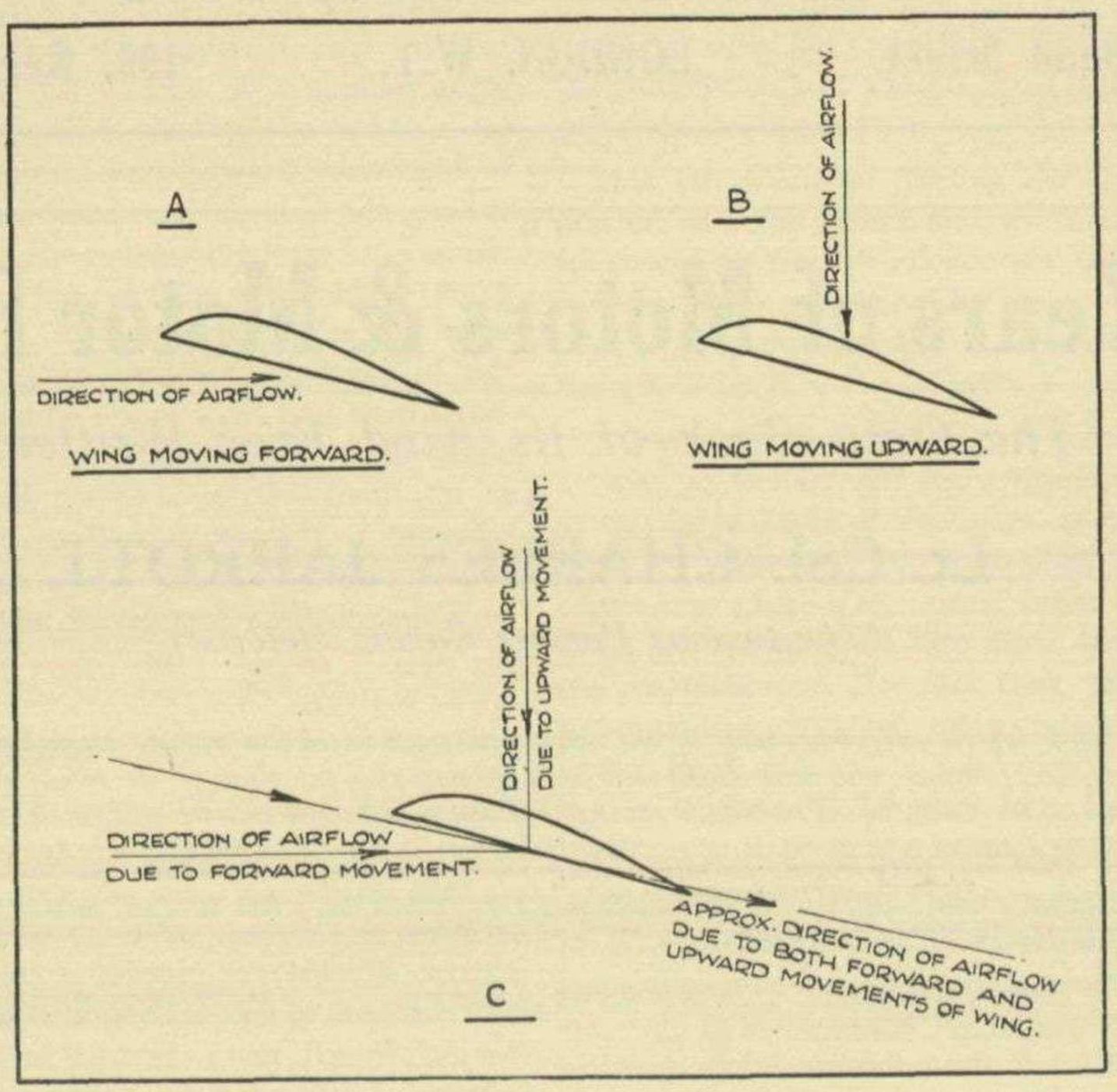
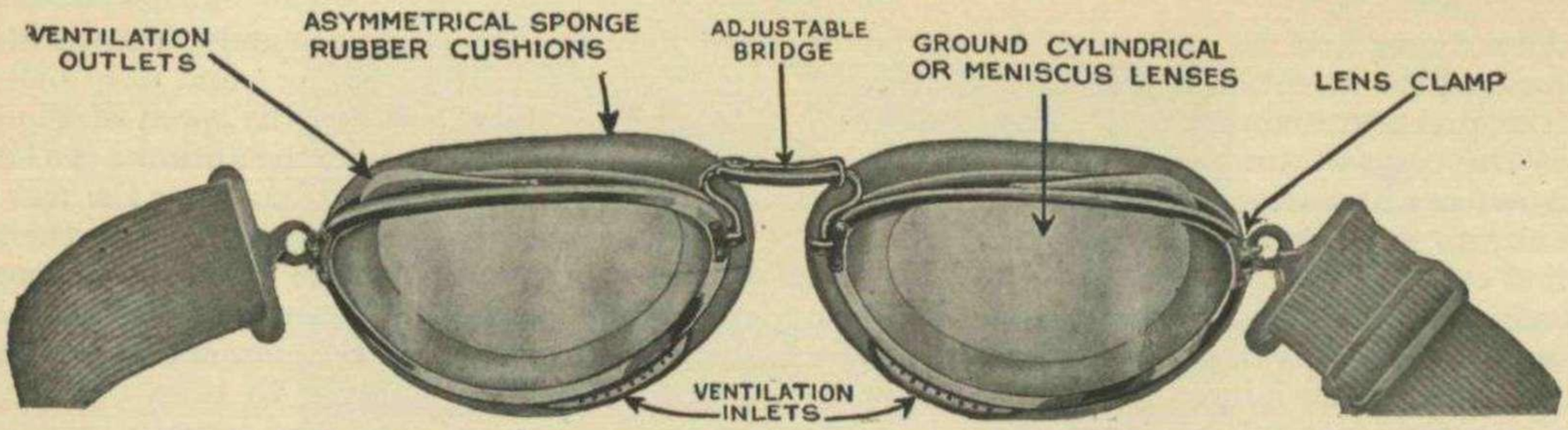


Fig. 1.

The graph in figure D gives some indication of how the lift of the wing increases with the angle of incidence up to about 15 degrees and then diminishes. Applying this graph in an example of an aeroplane flying with an angle of incidence of 10° and with a wing lift (a), it

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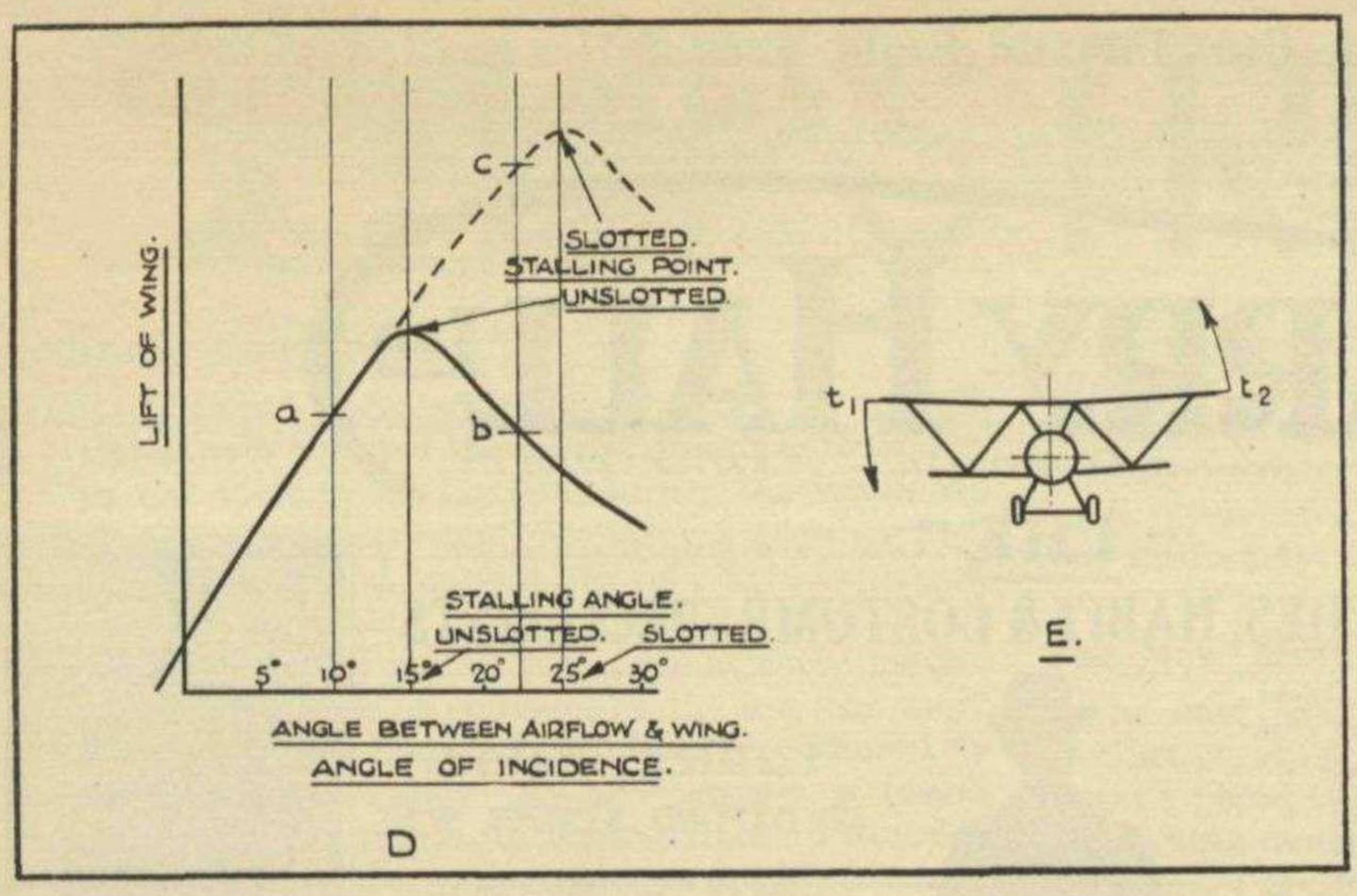
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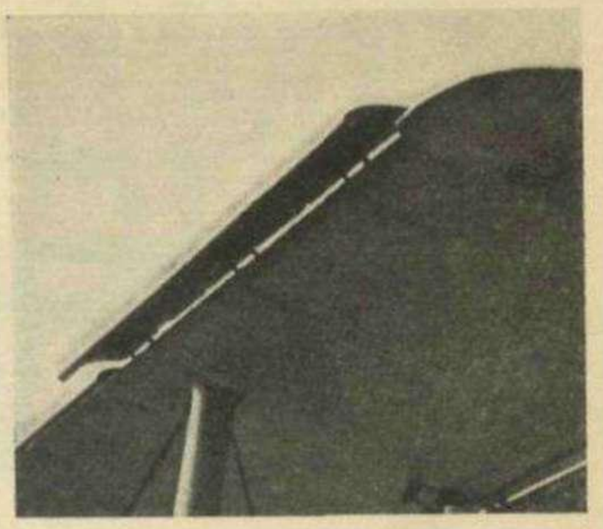
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THE HANDLEY PAGE SLOT (continued).





The Handley-Page Auto-Slot fitted to the top plane of a biplane. The aerofoil section can be plainly seen.

will be seen that an uneven movement of air will cause the wing tip (t2) to rise. The wing tip (t1) begins to fall and thus the aeroplane starts to roll in the direction of the arrows. Therefore the upward and forward movement of the wing (t2) will be of a smaller angle of incidence than before and the lift will be less than (a) in figure D. The downward and forward movement of wing (t1), on the other hand, will have a lift greater than (a), in other words the rising wing loses lift and the falling wing gains it and the machine will quickly return to its normal position. If we now consider the same machine being flown at an angle of incidence of 22° with a wing lift b (in figure D) we shall find that something very different occurs. The decrease in the angle of incidence of the wing tip t2 as it rises results in its lift becoming greater than B while the lift of the wing tip t1 as it falls, diminishes. Therefore the machine does not tend to resume its normal position but falls over and spins.

Recovery from the Spin.

Recovery from a spin as we know, can only be secured by increasing the speed of the machine to such a point when the air streams over the wing are steady enough and of sufficient velocity to make the control surfaces again operative and this procedure can only be carried out by a dive and with considerable loss of height. The whole problem therefore centres round the matter of the retention of steady air flow over the surfaces of the wings and it is precisely this which the Handley Page slot secures.

The slot can best be described as a miniature aerofoil which is attached to the leading edge of the main wing by hinges so that it is enabled to move upwards and away from the recess in which it rests under normal conditions. When in the "out" position there is a gap between the leading edge and the slot and it will be readily grasped that when the slot is in this position and the wing is stalled a stream of air is induced through the gap over the upper surface of the wing.

This air stream in passing through the gap is compressed to some extent and so in passing rearwards it smooths out the turbulence set up through the stall and the ailerons at once become effective and allow the pilot to keep the machine on an even keel laterally even though it be in stalled flight.

The whole action of the slot is quite automatic because as soon as the aircraft stalls the airflow over the wing at this large angle of incidence at once draws the slot from its recess and its controlling action immediately comes into play. On normal flight being resumed, the slots are forced back into their recess, again through the air pressure. The fact that the slot is entirely self-operating obviously adds greatly to the value of the device for it relieves the pilot of any extra manipulation in an emergency, leaving him free to control the machine in a perfectly normal way.

The Handley Page Slot is being fitted to machines of all types and sizes in increasing numbers and no better proof of its utility in preventing machines from spinning is to be found than that it has not been used on high speed service craft because it prevented the pilots from throwing their machines into intentional spins, an evolution which is part of the R.A.F. flying routine. Latterly, however further developments have been made whereby it can be used on the fighter type, its action being brought into play at the will of the pilot.

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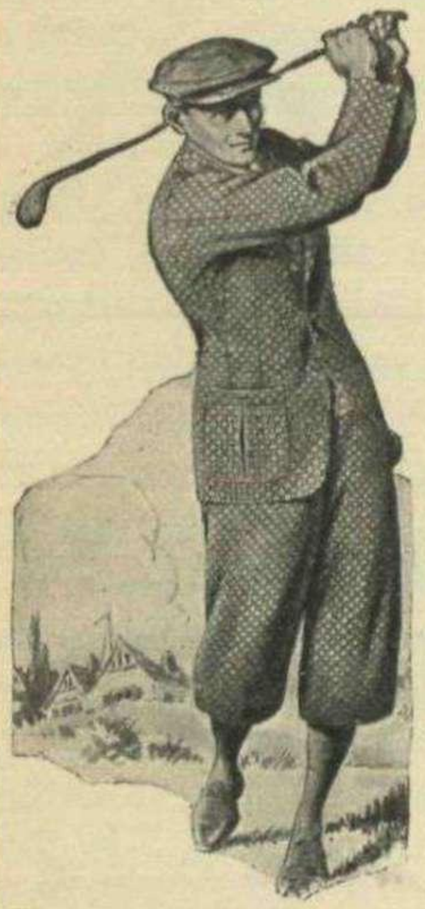
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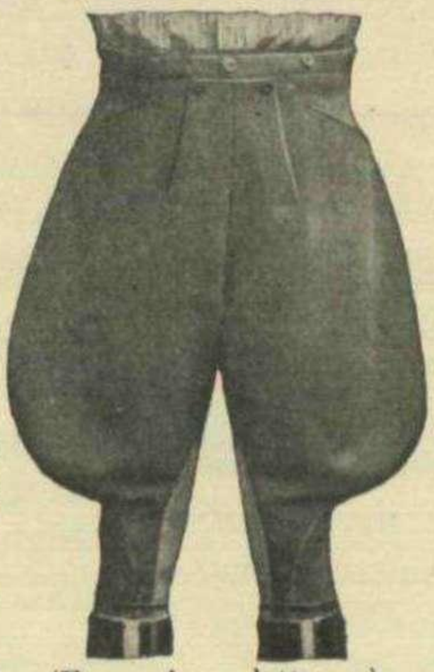




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Aerodrome Congestion.

THE enormous increase in the number of aircraft flying over some of the more popular aerodromes in the vicinity of London during the weekends and in fine weather, has been presenting a growing problem for some time, and many flying folk have expressed the view that something drastic should be done in regard to the control of aerial traffic round these places.

Apart from the risk of collision in the air (the most dread of all air accidents), the inconvenience caused to pilots is very considerable. As an instance, a friend of mine was cruising round for no less than 15 minutes on a recent Sunday waiting his chance to put his machine down, what time numbers of other 'planes were darting round him from all directions. He said it was almost like a "dog-fight" of the war days!

Stag Lane is probably one of the busiest aerodromes near the metropolis and this question of flying traffic has become so serious that the De Havilland Co. have made arrangements for the purchase of another aerodrome where their work of testing and instructing will be carried on and so a thinning out process will be possible.

The Handley Page Co. also are giving up their aerodrome adjoining their works at Cricklewood and are laying out a very find 'drome at Radlett, Herts, some 8 miles distant. As soon as they have left their old quarters, according to a report, the builders will be busy making a new housing estate on the vacated ground, and thus will pass out an historic spot from whence in years gone by many famous machines first took the air.

A Fine Flight.

When Mr. F. C. Chichester set out from Croydon in December of last year with the intention of flying to Australia, there were many who, remembering the failures and mishaps of other ambitious amateurs in attempting long distance flights, were exceedingly sceptical as to whether he would reach his goal.

Now that he has succeeded, he is deserving of all the praise which has been accorded him, for undoubtedly his was a very fine flight, especially as he is in every sense of the word an amateur. He commenced his actual solo flying only last year, and with an abundance of confidence and initiative, but with little experience, he has carried out a flight which would do credit to any professional pilot. For his actual flying time on his long and lonely journey amounted to but 17 days. On one section of his route, after he had left Port Darwin, he was forced to fly for hours through heavy rain and over a widely flooded area, where a forced landing would have been exceedingly difficult, and in the earlier stages of this trip, as was to be expected, he was faced with a galaxy of unpleasant climatic conditions. His machine, was of course, the ubiquitous Moth. Mr. Chichester's achievement stands as yet another proof of the ease of handling and reliability of this famous machine while it also reflects great credit on the Brooklands School of Flying where he received his instruction and ultimately took his ticket in only August last.

The New Moth.

The new Moth III which has now reached regular production stage, is quite the most interesting private-owner's plane I have seen for a long time. Of the high-wing, cabin monoplane type it has a very "un-English" appearance and only the familiar shape of the partially balanced rudder and fin, which since the days of the famous "4," has been a feature of all D.H. types, betrays the new model as being of that ilk. The lines of the machine are extremely clean and graceful and I am told that during initial test flights its performance was found to be well up to expectations. The engine is a "Gypsy," modified somewhat to enable it to be mounted upside down. The placing of the engine in this position, besides giving an unobscured view ahead for the pilot, also contributes greatly to the general good looks of the Moth III.

The Schneider Rules.

The announcement made recently by the Royal Aero Club that the Federation Aeronautique Internationale has agreed to the modification of the rules recommended by the former body in regard to the Schneider Trophy event for 1931 brings to mind the fact that the contest has grown into something far removed from that which the donor planned seventeen years ago. The late M. Jacques Schneider was anxious to see the seagoing flying machine develop and in 1913 gave his trophy as an encouragement to this end, and while he attached importance to speed in the air it is obvious from the original rules that he was just as much concerned with the behaviour and navigability of the craft on the water.

Since about 1923 however the competing planes have become speed machines pure and simple and that part of the competition which was carried out on the water has come to be regarded as of minor importance. Indeed, it is quite common to find that the general public regard the Schneider contest as a race and not as a competition, and the fact that the competing machines are seaplanes is accounted for owing to the tremendous speed making it impossible for land planes. The amended rules as set out by the Royal Aero Club include the abolition of the 6 hours mooring test and as the contest has now become the criterion of speed, it is safe to say that these alterations are bound to meet with general approval.

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THE SPORT AFLOAT



PREPARING FOR THE SEASON

By the Hon. VICTOR BRUCE

WITH the glint of ice on roadside ponds, or the threat of snow in the sky, it may cause a mental shudder to think of speed-boating and possible duckings for the inexpert or unwary—but the season is apt to creep upon one unexpectedly, and for those who are proposing to indulge in the pastime of water motoring this year it is a safe maxim that they cannot begin their preparations too early.

Whether the boat to be used is an old friend of the preceding season, a new one still to be purchased, or a second-hand craft picked up as a bargain, delay in taking the necessary steps to put it into commission is likely to involve disappointment or a loss of enjoyment during the early part of the short season. So far as new boats are concerned, there is every reason to believe that the developments of the past few years will reach fruition this season in a considerably augmented demand.

Enormous progress has been made in the design of both power units and hulls, and it is my belief that even the more or less uninitiated public now accepts the inexpensive outboard-engined hydroplane as a perfectly practical craft, which, in conjunction with a motorcar, will give complementary, or even alternative, pleasure.

There is very little doubt, in my mind at least, that the spade work of the pioneers will this year begin to bear fruit. Whether the British motorboat industry is fully prepared for a " boom " remains to be seen, but those who are already converted to the new pastime will be wise not to be too optimistic on this score. In other words, they should already be seeing about purchasing their new boats.

Incidentally the question of second-hand craft is almost equally affected, since a shortage in the supply of new boats, in answer to the suddenly increased demand which I foresee, is bound to cause an inflation of prices.

For those who are now taking to motorboating for the first time, the question of the type of craft with which to start is rather difficult. Since we have very largely to thank the American industry for the fact that the new form of motorboating is possible at all, it would be ungrateful to decry the products emanating from the other side of the Atlantic.

But we need scarcely explain the basic advantages of acting on the slogan, " Buy British." It is sufficient to say that patriotism in this respect in regard to motor-boats, equally with motorcars, entails no practical sacrifice. The reverse, in fact, is emphatically the case ; and if the promised boom materialises, the advantage in regard to quicker and more efficient service for the British motor boat will be even more important. In any case, it is my considered opinion that in regard to performance, as well as from the investment point of view, " buying British " is the best policy.

In regard to the selection of a particular type of boat, for full satisfaction it is just as important to be quite clear as to the kind of performance that is required as it is in buying a motor car. Just as with the car it is possible to obtain anything from a 100 mile-an-hour sports car down to a modest family five-seater costing one-tenth of the price, so every conceivable variety of requirement is catered for in the motor boating world. Obviously, a racing hydroplane would be as unsuitable for the man who only wants to picnic in shady back-waters in the upper reaches of the Thames, as would, on the score of cost of maintenance, be a 100 h.p. cruiser, no matter how cheaply purchased second-hand, for the purchaser to whom the petrol bill is a serious matter.

The best possible advice that one can give on the matter of selection, therefore, is that further advice should be sought ! I personally shall be very willing to give any help within my power to any correspondent who cares to submit his problems to me, but in any case I do want to emphasise the necessity for a very careful consideration of exact requirements before a purchase is actually made.

Although we are supposed to be a maritime nation, I suppose that the percentage of inhabitants of these Isles who know anything about water motoring " rules of the road " and general etiquette is very small ; and and this fact is probably the greatest deterrent to a wide demand that the industry has to face. While one cannot belittle the importance of knowledge of rules and regulations and customs, this knowledge is not difficult to acquire, and so far as the actual management

PREPARING FOR THE SEASON—continued.

of the boat is concerned, it is a whole lot easier than the driving of a motor car. As a matter of fact, the two processes are identical in most respects, and it is the fashion nowadays to make the controls, steering, instrument board and so on almost indistinguishable from those of a car.

The driving of a comfortable four-seated boat capable of twenty odd miles an hour is actually child's play, while the piloting of a racing hydroplane capable of exceeding forty miles an hour is certainly no more difficult than the task of extracting the best possible performance from a fast sports model on the road.

TWO NEW EXPRESS CRUISERS

Details of high speed craft by the British Power Boat Company

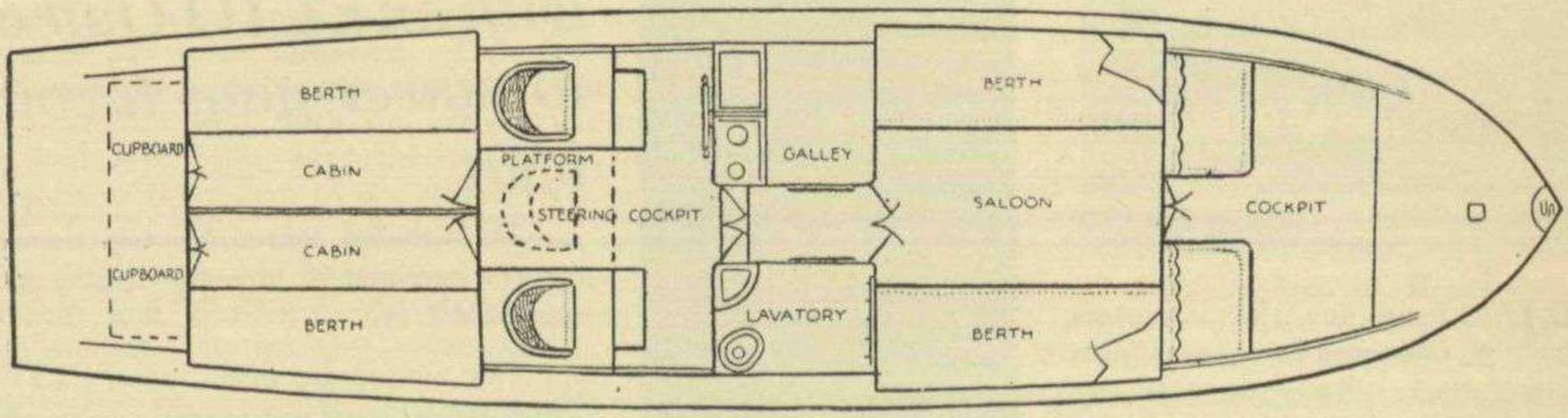
ALTHOUGH in America the idea of a really fast cabin cruiser is by no means new, there has not been much call in this country, hitherto, for any high speed boats of this type. This is probably due to a certain prejudice on the part of the old style cruising man who thinks that speed in many cases means shallow draft and shallow draft is thought by many to make a boat unseaworthy, and therefore only suitable for inland waterways. This idea is now proved to be without foundation and an example in the way of fast cruisers which will probably start the fashion in this country for this type, is to be found in the new boat, Miss Pamela II, which has just been completed by the British Power Boat Company, for Mr. A. H. Pass.

This vessel has been designed by Mr. Scott Paine, already famous to all followers of speed boat design, as the man behind the amazingly successful Miss England. Miss Pamela is a 35 foot cruiser and has been designed with the ambitious idea of giving a speed of 30 miles per hour combined with good handling and the ability to negotiate broken water without discomfort to its occupants. It must not be supposed that this cruiser is a fine weather or short distance vessel for occasional flips, as it has a cruising range of 300 miles and in it recent trials under weather conditions probably much more severe than will be encountered by the average owner using it for pleasure, has shown that it can be used for really serious work.

The accommodation is very well arranged and is sufficient for a party of 4 to live comfortably on board, while provided the crew does not object to adapting itself to some extent, 6 or 8 people can be coped with. Contrary to the usual style of cabin cruisers of this size, the main cockpit is arranged right forward and owing to the generous flare the occupants of the cockpit are completely protected from any chance of solid water disturbing their equilibrium and the amount of spray encountered forward is negligible.

The control is from a cockpit in the centre with a sliding roof, and is situated between the saloon and the main cabin.

Although the draft is shallow, owing to the flat floor possible in this type of hull there is more room than in a great many 35 footers. In spite of its high speed the beam is 9 feet so that there is no possibility of cramping.

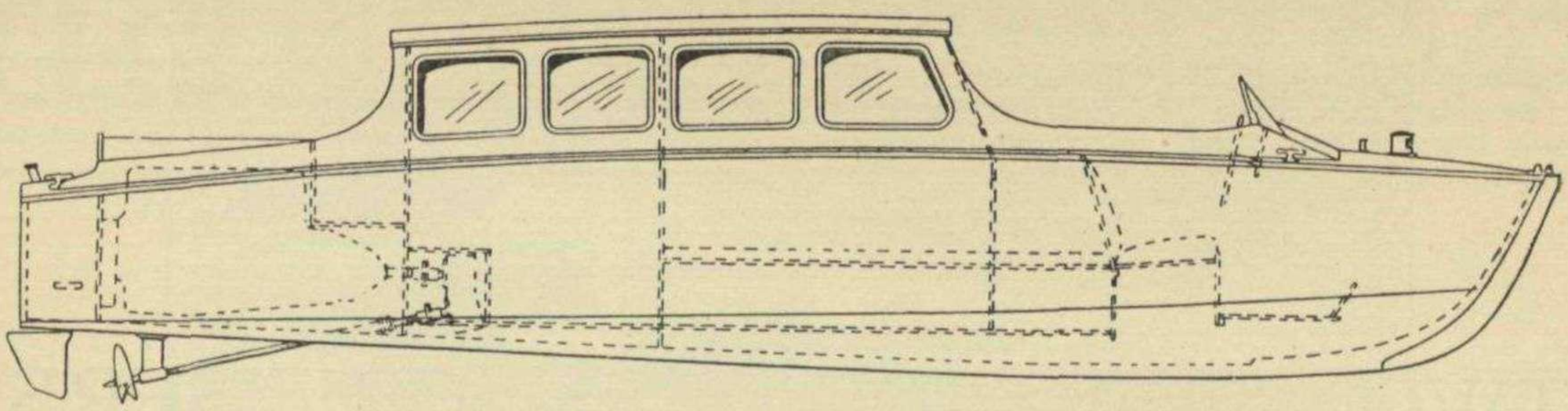


The accommodation of the 35ft. Senior Express Cruiser.

Miss Pamela is propelled by two 200 h.p. 6-cylinder Chrysler engines each running in the same direction and each driving the propellers direct. All controls are arranged by the wheel so that manoeuvring is entirely a one man job. Autopulse feed is used to convey the petrol along the pipes under the covering board from the 150 gallon petrol tank under the stern deck. As this supply is not subject to gravity, there is no danger of leakage in case of failure in the pipe line near the engine. As well as a petrol tank, there is a very commodious locker under the stern deck for luggage.

This is a thoroughly suitable vessel for sea work but owing to the fact that its design is so much based on that

TWO NEW EXPRESS CRUISERS—continued.



The motor and drive are very neatly arranged in the Junior Express 23 footer.

of the "23" speed boat the draft is only 2 feet and if one's fancy should at any time turn towards inland cruising on the Broads or other water-ways there is no danger of grounding.

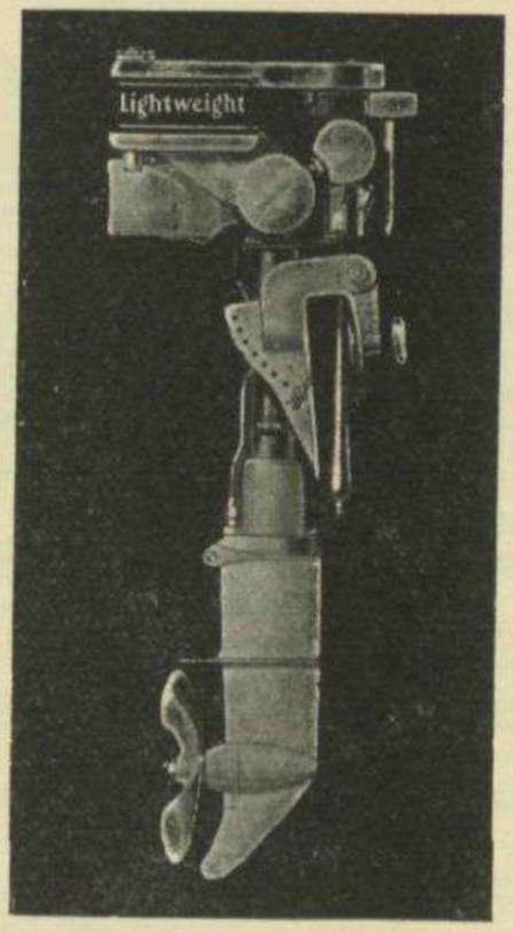
The after cabin can be provided if required with a fore and aft bulkhead for dividing it into two if the extra accommodation is required.

Mr. Pass is to be congratulated on his enterprise in obtaining what is undoubtedly a type of cruiser with immense possibilities and should be followed by many of those to whom the ordinary 8 knot cabin cruiser is too slow to arouse their interest.

The price of this vessel is, we understand, approximately £2,200, while for people who require something of a similar performance, but with less accommodation, the British Power Boat Company are producing some very attractive smaller cruisers such as the Junior Express Cruiser which is depicted on this page and which has a higher performance than Miss Pamela, the maximum speed being 33 m.p.h. and the motor a 135 h.p. Scripps. This of course being a 23 footer, has naturally very much less accommodation, but is a further proof of the tendency to produce cruisers of a very much higher performance than has hitherto been the fashion in this country.



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THE OUTBOARD CRUISER



A Wright cruiser fitted with an Elto quad engine.

Some advantages of a new type of craft which is rapidly increasing in popularity.

IT is not very long since the mention of anything in the way of a motor cruiser conjured up visions of something costing not less than £500, and usually more if any real accommodation was required. In all cases the only type of craft available had inboard engines, and it is doubtful if any one would have considered purchasing any other type, as the outboard unit was regarded as only fit for use on a dinghy, and rather a nuisance at that.

Owing to the space required by an inboard unit it was not possible to make a serviceable craft less than about 30ft. in length, and this in turn meant that a fairly powerful engine was required if any reasonable performance was to be obtained. This, in turn meant that a simple low priced engine was out of the question, and a 4-cylinder unit with its necessary equipment, costing well over £100, kept the cabin cruiser proper out of reach of the means of the small boat man.

In the last few years the outboard engine, as a result of racing experience, has become an extremely reliable proposition, and develops remarkable power for its size and weight. So far this power has been largely applied to racing hydroplanes, and though this is a very interesting side of the sport it has rather tended to overshadow the possibilities of the outboard for other purposes. Now however a few people have begun to recognise some of the other advantages of the outboard engine, and one of the latest developments is the introduction of the outboard cruiser.

For the man who wants to own a real cabin cruiser on which several people can sleep, but who cannot afford the large type of boat referred to at the beginning of this article, the outboard cruiser becomes a very attractive proposition.

The craft at present available to the public fall readily into two classes. The first, and at present the most numerous is the light fast hull, stepped in some cases, with cabin accommodation for about two people, designed entirely for use on rivers and other sheltered waterways such as the Norfolk Broads. The second class, and one which we think will in time make a greater appeal to the real cruising man is the heavier type of craft of comparatively deep draft, and with a much lower speed, which can be used at sea in any weather which the small inboard cruiser can cope with.

In both classes the main advantage of the outboard is used to the full, that is the fact that the whole of the hull is used, instead of a considerable portion being required for the engine.

Among the first class mentioned above there are some for which remarkable speeds are claimed.

The Wright cruiser handled by the Elto Motor Sales Co. and powered with an Elto quad engine, is made in two sizes, the 18 footer costing £105 and the 20 footer costing £120. As 18 m.p.h. is possible with this and 12 m.p.h. with a Speedster power unit, it will be realised that these craft are now capable of a performance which was first obtained on racing hulls only a year or so ago. The Knight cruiser may be seen at Kensington-Moir & Straker Ltd., who are sole distributors and the price of this is only £98 and the speed with a " 32 " Johnson engine is 17 m.p.h. These are only examples of this class of which there is a good choice on the market, and provided the owner is prepared to pick his weather, or confine himself to sheltered waters, these are certainly extremely attractive as it is possible to obtain the complete craft with engine for a price in the region of £150. This makes them comparable with the very cheapest class of car, and of course the upkeep expenses are considerably lower.

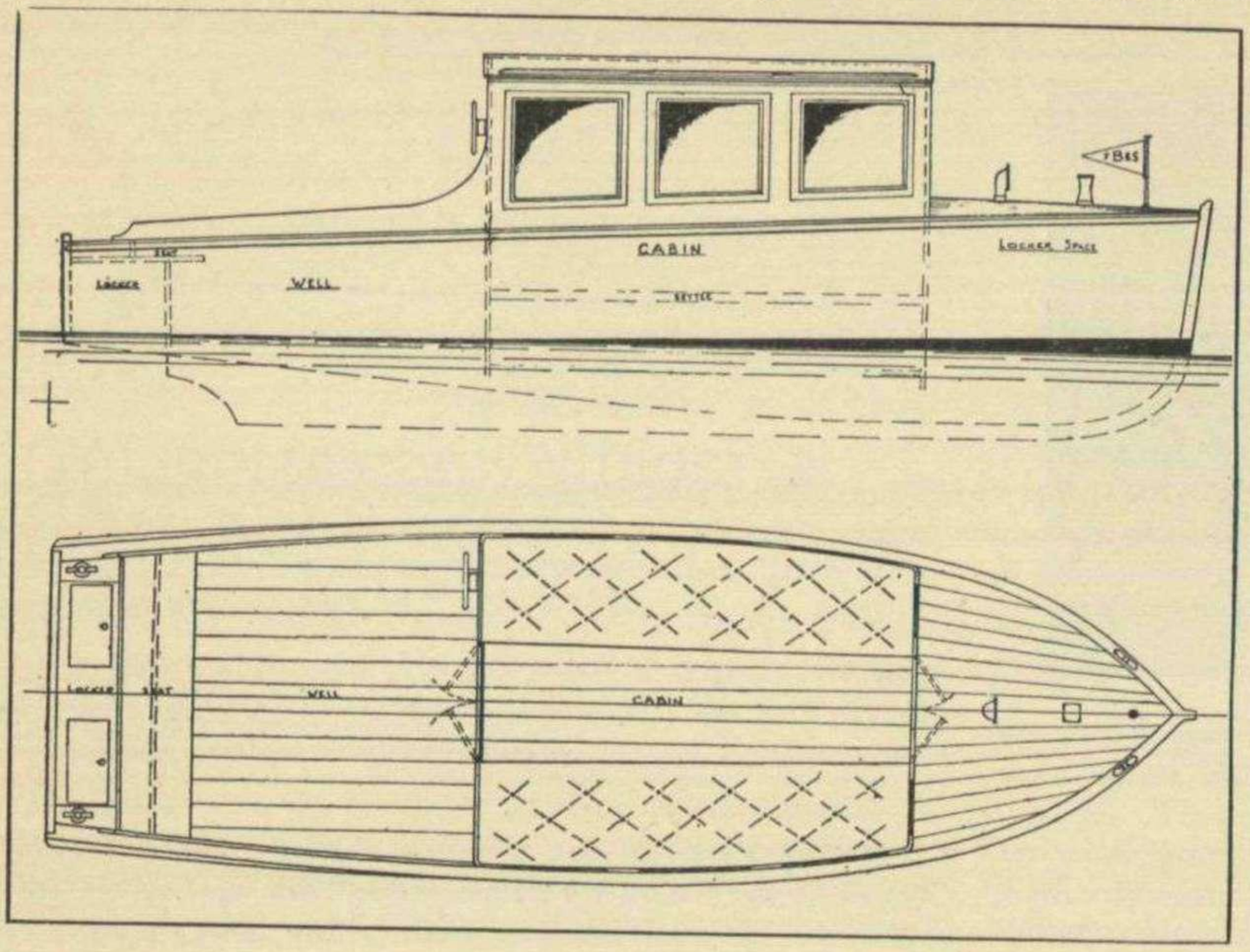
When one comes to consider the seagoing class the choice is not so good, as it does not yet seem to be realised that the outboard is a seagoing proposition, and, most small seagoing cruisers have inboard engines of about 8 h.p. The modern heavy duty outboard develops quite as much power as these, and in the case of slightly larger craft originally designed for sail only, it is much easier to fit an outboard as an auxiliary, than

THE OUTBOARD CRUISER—continued.

to go to the expense of the constructional alterations necessary for installing an inboard engine.

Many people object to the outboard on the grounds that it is untidy to have an engine " hung over the stern " but it is a simple matter in designing a hull to allow for the motor being enclosed in a light casing or let into the stern, and this is done on several speed boat hulls. A neat job is thus assured while the property of detachability which is so convenient is not interfered with in any way.

We hope it will be clear from the points we have raised that the man with £200 or less to spend many now obtain a thoroughly serviceable craft for cruising on river or sea, that the upkeep of it will be extremely low, and the possibilities remarkably attractive to the enthusiast who was previously unable to afford it.



This shows details of an 18 footer by J. Banks & Sons, Duke Street, Liverpool.

MOTORING BOATING WITHOUT TEARS.

THOSE who, in these enlightened times, step into their nice new boats, start the engine at the first turn of the handle and cruise off to a prearranged destination, confident in the ability of their craft to return them to the point of embarkation at a settled hour, may have forgotten the joys of motor boating in the bad old days. Imagine the joy of a youth in his middle teens, when he was lent a complete motor boat, with leave from the owner to go as far as he liked in it. " It may need a bit doing to it," was the only indication of the owner's confidence in the safety of the craft, as he was fairly certain that its voyage would not extend farther than it would drift !

First impressions were not unfavourable : 15ft. over all, " was once white " (so we were told), and decked forward. But her chief glory lay in the engine, a flat twin two-stroke of unknown, but believed foreign manufacture, which the owner later admitted had come into his possession by a process of barter.

When once afloat the " Popoff " took in no more water than was enough to half fill her. Once bailed the next item was to get it started. This occupied three days, a pint of methylated spirit (for priming) nearly a dozen p'ugs, and a fund of blasphemy of which we had not hitherto believed ourselves capable. It should be remarked here that the plugs which were found most suitable were a Splitdorf in the port cylinder and an ex W.D. Lodge Areo to starboard.

Life was finally aroused in the engine by the process of swinging the engine backwards on full advance.

By the end of a week a voyage of half a mile was undertaken light heartedly and for at least three days the motor boat gave no more trouble than a daily bailing and perhaps a quarter of an hour's swinging the flywheel.

One day for no apparent reason the Popoff popped—hence the name. Further investigations revealed that the starboard cylinder was full of water. It dawned on us that this was inhaled through the underwater exhaust by the unconventional method of starting. This trouble was cured by disconnecting the exhaust pipe so that it opened under the starboard thwart which caught fire in consequence. Furthermore such an exhaust system spared the expense of a Klaxon.

For the next fortnight voyages of ten miles or more were undertaken daily much to the anxiety of the owner. During this period we had been surprised to notice a few small fragments of a resinous substance appear as if by magic in the neighbourhood of the engine. Finally ten miles from home one of the crew received a smart blow on the ankle from a body which appeared to emerge from the flywheel magneto. It was one half of its total insulation.

The Popoff had popped its last.

LETTERS FROM READERS

Letters from readers on any subject are always welcome but they should be as brief as possible.

Sports Cars in the I.O.M.

Sir,

I cannot remember having seen in your columns mention of the time taken by ordinary sports cars to complete the Isle of Man T.T. course. Last year I noticed cars being used to open and close the roads for practising, but never heard if any times for the circuit had been taken. In a large car, stopping to open and shut the mountain gates, I was able to get round in 45 minutes, and am wondering whether this would be considered good for a car.

Being one of the younger generation of motorists, I cannot remember much of the car T.T. races, and suggest that an article on this subject would be of general interest. Incidently, are three litre Sunbeams still in production ? After their wonderful successes in the past, it is strange that the type should be allowed to lapse.

AJAX.

Doncaster.

The three-litre Sunbeam is still listed by the manufacturers.—Ed.

Irish Grand Prix Rules.

Sir,

There have been rumours that two seater cars would be allowed to compete at Phoenix Park this year, and though no confirmation of this seems to have appeared in the Press, there is much to be said for the suggestion.

The International Regulations compel the fitting of a four-seater body to cars taking part in road races, but what is the point of this proviso ? Surely the cars taking part do not pretend to be touring cars in the full sense of the word, but if this is so, why cannot a two-seater be equally well a touring car ? Any discrepancy in the weights of the bodies could be made up by ballast carried by the two seaters.

If the Dublin authorities sanction the entry of two-seater cars, I hope we may see the Mercedes SS/K performing, as well as other cars unfortunately prevented from entering by their chassis only being suitable for two-seater bodies.

AMIL.

Southampton.

The 4½ Litre Bentley.

Sir,

While agreeing with the policy outlined in A. T.'s letter in your February number, may I bring forward the good points of the 4½-litre Bentley ?

I have had considerable experience of the 3-litre model, and found that while 85 m.p.h. was available under favourable conditions, a good distance was required in which to attain this speed. With my 4½-litre I can exceed 90 on several parts of the Oxford High Wycombe road and can attain that figure in quite a short time.

The extra length of chassis means that passengers in the rear seats have reasonable accommodation while the cornering is little if any worse than the shorter car.

I am tired of hearing that the new six cylinder X runs down to 5 m.p.h. on top gear ; what I like is a car that doesn't get excited when doing over 70 m.p.h., and the 3.5 top gear ensures " that restful feeling," at high speed.

The only complaint I have is against the coachwork. Wings seem to get loose sooner than they should and the cellulose soon lost its showroom finish, but for the man who likes driving his car hard without ill effects the 4½ has everything to recommend it.

SATISFIED.

Oxford.

Light Planes on Test.

Sir,

As a reader of Motor Sport in its old form and new, I welcome the inclusion of articles on light aeroplanes. Many owners of sports cars look forward to the time when they can own a machine of their own, but like myself have not acquired a knowledge of different types. I hope that during the coming season you will review the different English and foreign machines as was done with the Klemm in the February issue, so that prospective owners may see the various makes available. Perhaps we may hope for something approaching a road test, where such figures as maximum speed, range, and weight carrying capacity will appear.

L. C. SMITH.

Hampstead.

Articles dealing with different makes of light aircraft will appear in Motor Sport at regular intervals.—Ed.

An Outboard Query.

Sir,

I have been much interested by the articles on " Speed Boat Design," and wish I were in a locality suitable for the type of craft suggested. Unfortunately in this neighbourhood we are not favoured by stretches of sheltered water, and so a stouter boat would have to be used in the interests of safety.

A friend has offered me a sound fifteen foot rowing boat with transom stern, and I am wondering what sort of result could be expected from fitting a powerful engine such as the Elto Quad. This suggestion may amuse your readers who are accustomed to skim about on the sheltered waters of reservoirs, but I do not care to risk my life on a converted egg box for the sake of a few extra m.p.h. Any information on performance and the effect of high powered motors on displacement boats would be most welcome.

J. WILKINSON.

Isle of Man.

Two Stroke Areo Engines.

Sir,

As one who has had a considerable amount of experience with 2-stroke motor cycles over a period of years, I am puzzled to know why this type of engine finds so little favour as a power unit for small aeroplanes, as it seems to me that its attributes of simplicity and smooth running make it highly suitable for such work.

Motorists who are strong " anti-2-stroke " complain that its one bad feature is its poor speed range and uneven running at low speed. One will admit that the 2-stroke is not as good as the 4-stroke in this respect but the requirements of an aero engine do not call for this quality of super-flexibility, so one cannot imagine that this is the reason for its being ignored by the aircraft world ; nor can it be on account of any question of cooling, for in the air an air-cooled engine is running under ideal conditions.

The performances set up by the modern valveless motorcycle engine show that it is capable of being run on full throttle over long periods without any undue trouble. Surely, therefore, with its simplicity, its stamina and its even torque the 2-stroke should be worth while developing for aeroplane work, especially as it should be considerably cheaper to produce than the complicated multi-cylindered 4-stroke of medium power.

J.M.

London, S.W.7.

THE VICTORY CUP TRIAL

Organised by The Birmingham Motor Club.

It can truthfully be said that this year's "Victory" has been a great success. The second of the "chosen ten," it would be difficult to find a better organised event.

With a very representative entry numbering some 170 riders, very little delay was experienced except at Bellmans Cross—a new hill first used in the 'British Experts' Trial,' the surface of which was a sea of thick mud in very deep ruts. The organisers used nice judgment in choosing the route and it was not too difficult to keep up the 20 m.p.h. average—although many severe hills and colonial sections were included. Owing to a considerable amount of recent rain, such old favourites as "Cut Throat," "Baxter's Monument," "Kyber Pass," and "High Oak," were in really sticky condition, which state, combined with the tremendously deep ruts and boulders, caused the failure of many solos and sidecars alike.

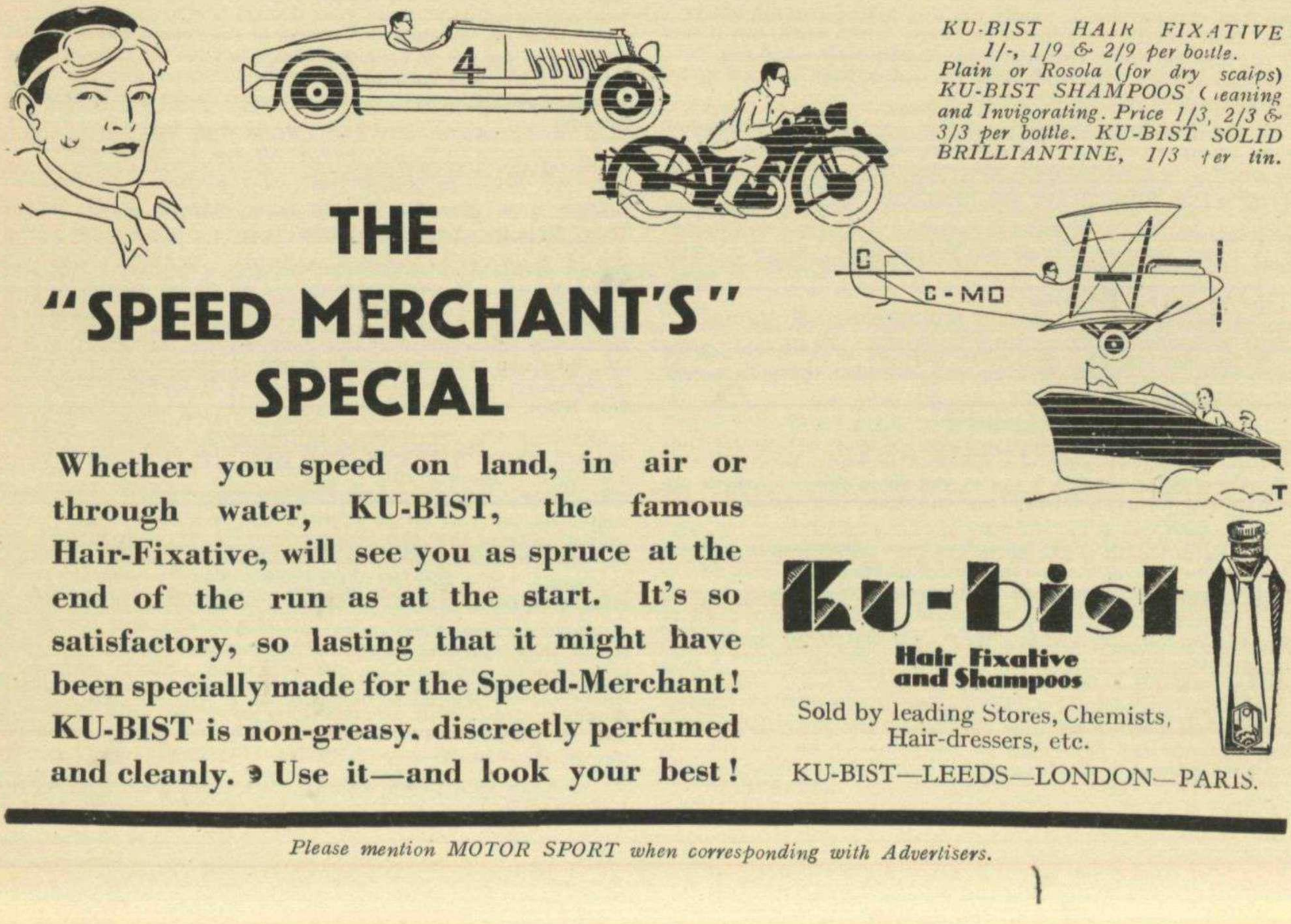
The first observed and time section, Sling Fordrough, was not easy and in fact, spills and failures through water reaching plugs, caused quite a number to lose marks.

The acceleration test was carried out on a level stretch of good surfaced road—150 yards with 5 yards rolling start. Some remarkably good times were put up. The fastest sidecar being 7.4/5 secs., whilst the best solo time reached as low as 7.1/5 secs.

A fine variety of hill surfaces had to be overcome and Dropping Wells, a very steep aclivity with an apparently bottomless depth of red sand, was the undoing of many riders. Speed and "horses" were absolutely necessary. Several very good climbs were made, the fastest by Mr. H. S. Perrey on his 500 c.c. Ariel sidecar outfit, who actually registered 50 m.p.h. during his climb. There was yet a formidable and almost unknown hill to be encountered, namely "Dingle Farm," which proved to be a very tricky business, with a rough and steep beginning. There appeared half way up, a deep hole which presented tremendous difficulty to a clean sidecar climb. When past this, the surface changed to deep and glutinous mud—much the same as Bellman's Cross.

At the finish the general atmosphere was of cheerfulness and even the unlucky ones felt that in spite of one or two "foots," and even failures, the trial was a good one and deserved hearty support in the future.

Mr. Perrey was declared the winner of the "Victory Cup," for the best performance of the day. A very popular victory and well earned.



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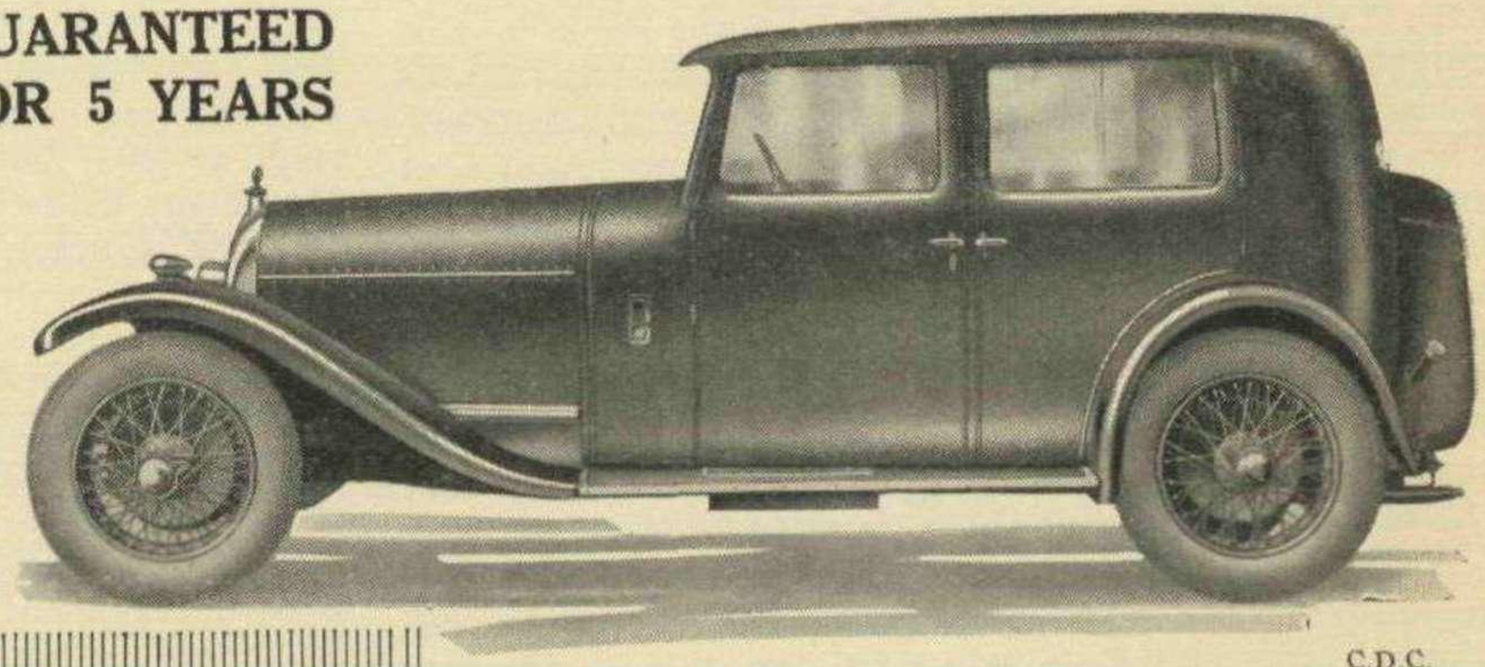
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With my compliments I wish your business every success for the future.

I am,
Yours faithfully,
J.S.

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By "CAMSHAFT."

How Is Your Steering ?

MUCH has been written and many heated arguments have arisen about the causes of wheel wobble and the various steps that can be taken in the design to prevent it. However, the fact remains that wheel wobble does occasionally occur and is liable to be extremely unpleasant ; therefore anything which can be done to eliminate it fairly simply is always welcomed. A sports car which we have been driving recently and which had seen the best of its days was liable to this trouble and being too lazy to go into theoretical causes we fitted one of the well known F.E.W. steering dampers. The results were certainly very good as we found that any tendency to wobble was eliminated without having to screw the damper up so tight that the steering became heavy. Of course, steering dampers have been used on motor cycles now for a considerable time and although many idealists seem to consider such a fitting shows that the steering is at fault, we cannot entirely agree with them. After all if the fitting cures certain trouble and the said fitting is simple there seems to be no reason why advantage should not be taken of it, and we would certainly advise any whose cars suffer from this extremely annoying trouble to try the F.E.W. steering damper, as it is very simple and certainly appears to do the trick.

A Maude Trophy Echo.

There is no doubt that the Dunelt performance in winning the Maude Trophy with that remarkable 25,000 mile run at Montlhery last year, was not only a great triumph for the successful firm, but was a good illustration of the way Britain keeps her lead in the motorcycle trade. The lunch recently given by the Dunelt Company to celebrate the winning of the Trophy, was a fine example of the thoroughly sporting spirit that prevails in this industry. Ariels, who have held this trophy now for a couple of years were present to applaud the latest winners and Mr. Jack Sangster expressed his admiration for the feat which had wrested the Trophy from them, at the same time in a very amusing speech suggesting that should the Trophy show any signs of returning to its old home nothing would be done to obstruct it ! Mr. Pehrson for the Dunelt company inferred in the same spirit that it would be enticed to stay as long as possible in its new home.

Another Traffic Problem.

An example of the troubles that may be caused by amateur traffic controllers was provided the other day when I was driving up to town in a thick fog, and came to one of the numerous places where our new arterial roads are being uprooted and smoothed out again after their first settling down process. Only one way traffic being possible and visibility being nil, the controller (?) explained that they were using a system of flags, handed me a flag with injunctions to hand it to his " mate " at the other end and despatched me into the mist. I was therefore distinctly annoyed a hundred yards or so further on to meet a lorry looming up out of the mist and expressed my feelings in the usual manner. The fire was returned with interest, and what is more the lorry driver with an air of righteous indignation brandished *a flag* at me ! His expression changed to complete surprise when I in turn waved my flag, and our comments were then turned to the optimists who caused the trouble but who were unfortunately out of earshot ! It is events such as this that lead us, sometimes at any rate, to thank our lucky stars for a well trained police force ! Imagine London traffic controlled by amateurs—ye gods !

A New Map.

The face of the country round London has changed so rapidly in the past few years, that even those who live near it find considerable difficulty in finding the best routes out of town to various parts of the country. In spite of the great improvements lately in the entrances to London, there are many experienced motorists who still use the old roads, being in many cases too long to find the best way out, while the comparative novice is always in a quandary when suddenly asked to decide the best route to follow to start a journey to say, Stratford on Avon. The Ubique people have recently brought out a very ingenious map showing the main routes out of London and this includes a very useful index. By looking up the town which is the object of the journey one finds a route number corresponding with a number on the edge of the map, giving immediately the correct road out of London. Certainly a useful addition to one's possessions, and at 5/6 in a really good case it is not expensive.

M.S. Road Tests.

Several readers have recently asked for lists of cars recently tested by MOTOR SPORT, so here you are, with the numbers in which they appeared.

November,	1929	38/250 h.p. Mercédes.
December,	1929	4½ litre Invicta.
,,	,,	Supercharged Triumph Seven.
January,	1930	Black Hawk Stutz.
,,	,,	Aston Martin.
,,	,,	2-litre Schneider.
February,	,,	Hurlingham Vauxhall.
,,	,,	16/60 h.p. H.E.
This month		Speed Six Bentley.
		1500 c.c. Tracta.
Next month		(Wait till it arrives.—ED.)

Motor Sport Classified Advertisement Section

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USED SPORTS CARS

ALFA ROMEO

ALFA ROMEO 15-60 h.p. 1½-litre Short Chassis (delivered November, 1927), fitted with exceptionally smart 4-seater very low sports body, in magnificent condition, new tyres, any trial ; £325.—Jack Withers and Co., 44, Osnaburgh Street, N.W.1 (opposite Great Portland St. Station). 'Phones : Museum 8620-1 and 6595.

15-75 h.p. 1½-litre Sportsman's Alfa Romeo Saloon, new and unregistered chassis ; price £650 ; complete car, £750.—S. T. Tea, 141, New Bond St., Mayfair 4376.

USED SPORTS CARS
(continued)

ALFA ROMEO

ALFA-ROMEO, 1928 nodel, special chassis, very fast, fitted Weymann streamlined coupé, painted green and cream, new tyres, taxed year, one owner, good condition, most attractive proposition at £275. L. Headlam, Stokesby, Whitby.

1925 22-90 h.p. Sports Alfa Romeo 4-seater ; 99 guineas.—A. Rix, 153, Euston Rd., N.W.1. (between Euston and St. Pancras Stations). Museum 5739.

AMILCAR

1929 Super Sports Amilcar 2-seater, in excellent order throughout, red ; £165.—A. Rix, 153, Euston Rd., N.W.1. (between Euston and St. Pancras Stations). Museum 5739.

ALVIS

SPECIALLY Selected Alvis Super Sports 12-50 h.p. 2-seater, 85 m.p.h., mileage only 5,000, 1928-29 licence paid, Alvis guarantee transferable, wire wheels, dipping reflectors, Triplex, silent wiper, special exhaust, one ownership, special colour £5 extra, maintained entirely by works, only occasionally used, one car in a thousand, showroom condition, unscratched ; £295, cost £565 ; terms, exchange, written guarantee ; also other Alvises.—Taylor, 278, Wheeler St., Birmingham.

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USED SPORTS CARS
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£60—Genuine grand sports 6-cyl. Delage, F.W.B. 2 spare wheels, 4-seater boat shaped body, with new hood and side curtains, a real fast car.—237, Brixton Hill, S.W.2. 'Phone : Streatham 4666.

1925 Series 14-40 DELAGE International sports 4-seater, repainted blue and red, f.w.b. good tyres, a perfect chassis, very fast, £75. Exchanges, deferred. Clapham Automobiles, Ltd., 72, Park Hill, Clapham, S.W.4. Brixton 5511.

HISPANO-SUIZA.

MONZA Hispano-Suiza, fitted with special 4-seater sports, built entirely regardless of cost, rear half deck windscreen, Triplex glass all round, new tyres, recently overhauled at a cost of £200, special pistons, genuine speed 95 miles per hour ; price 650 guineas ; part exchanges, deferred terms from £10 per month.—Modern Cars, Ltd., 196-8, Great Portland St., W.1. -Museum 2947-8.

INVICTA.

1929 Invicta Short Chassis Special, very comfortable, open 4-seater sports, recellulosed, new hood, elaborately equipped, fastest Invicta in existence, perfect throughout ; £725.—Huskinson and Fane, Ltd., 11, Curzon St., W.1. Grosvenor 3016.

LEA-FRANCIS

WONDERFUL Bargain.—February, 1929, Lea-Francis Hyper sports supercharged 4-door fabric saloon, 2 spare wheels, colour light blue ; this car cost over £600, and was only in use for 8 months ; sacrifice, £300.—London Lagonda Service Depot, 195, Hammersmith Rd., W.6.

1929 LEA-FRANCIS T.T. supercharged 2-seater, specially prepared for Ulster race but not raced owing to illness ; delivered June, 1929 ; 2,000 miles ; £375. Beasley's, 374, Euston Rd. Museum 7600.

M.G.

M.G. MIDGET, 1929. Red. First licensed August, 1929. Used one month last year. Fully licensed till end of 1930. Specially tuned engine. 45 m.p.h. in second. £145. Box P.15.

1930 M.G. Midget Sportsman's Coupé ; £235.—Whitticks Automobiles, 64, High Street, Wimbledon. S.W.19. Tel. : Wimbledon, 1537.

Motor Sport Classified Advertisement Section—*continued.*

USED SPORTS CARS
(continued)

RILEY

A. RIX FOR RILEYS.

1929 Mark IV. Riley Monaco saloon. Brown with cream wheels and wings. As new. 4,000 miles. £215. (Below.)

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1929 Mark III. Blue. Double carburettor. Sports Monaco Saloon as new, taxed. £195.

A Rix, 153, Euston Road, N.W.1. Between Euston and St.Pancras Stations. Museum 5739.

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