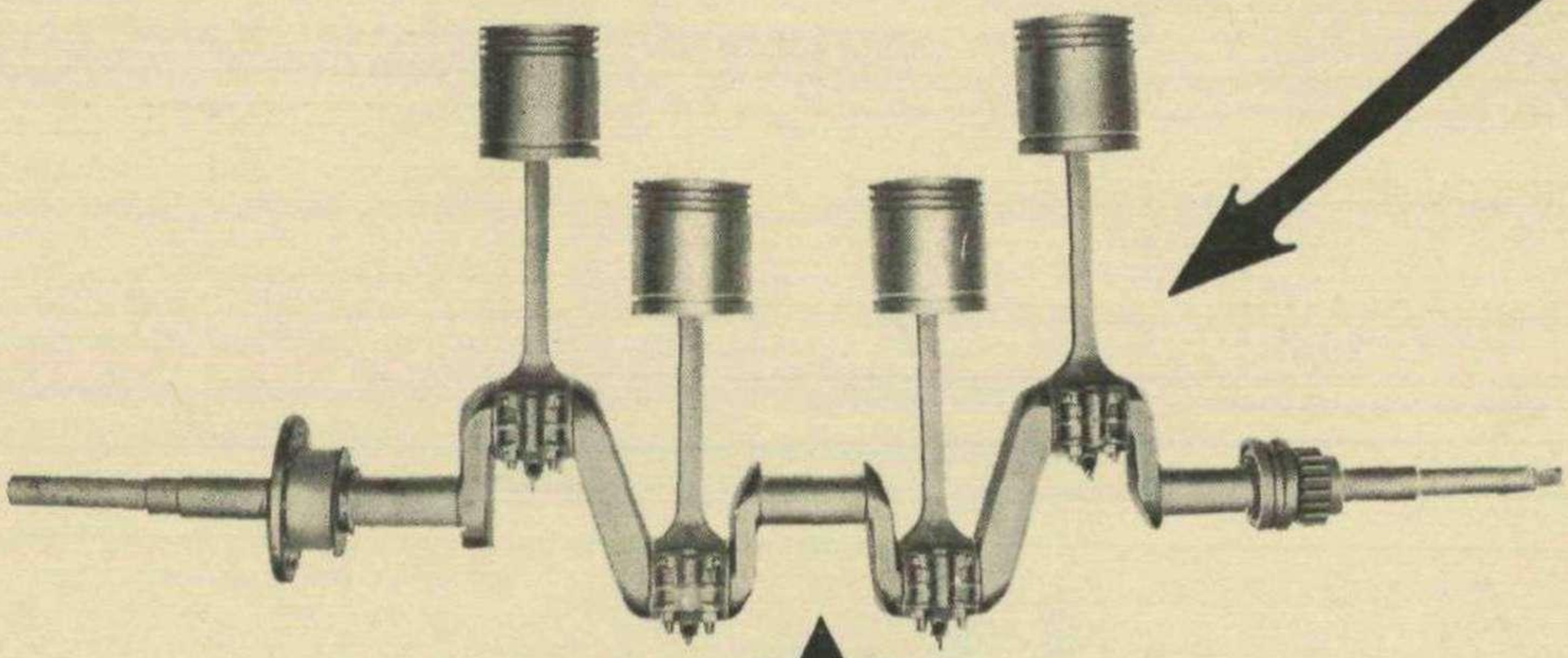
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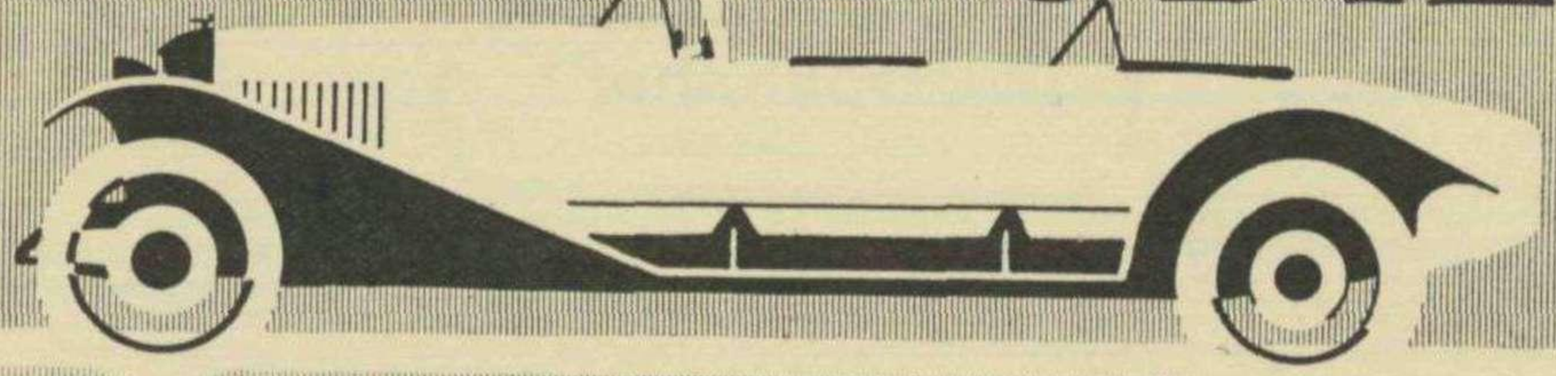
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MAY, 1925.

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NOTICE TO CONTRIBUTORS.

All contributions, whether literary, artistic or photographic, will be carefully considered by the Editor. A stamped, addressed envelope should be sent with every contribution, and the Editor will endeavour to return all matter he is unable to accept. Neither the Editor nor the proprietors are responsible for the loss of any contributions.

Editorial Notes.

The action of the Royal Automobile Club in refusing to sanction further hill climbs and speed trials on public roads cannot be said to create much astonishment, in view of the attitude of a certain section of the spectators for some time past. In fact, had not the governing body of automobilism taken action on its own account, it is probable that a higher authority would have done so.

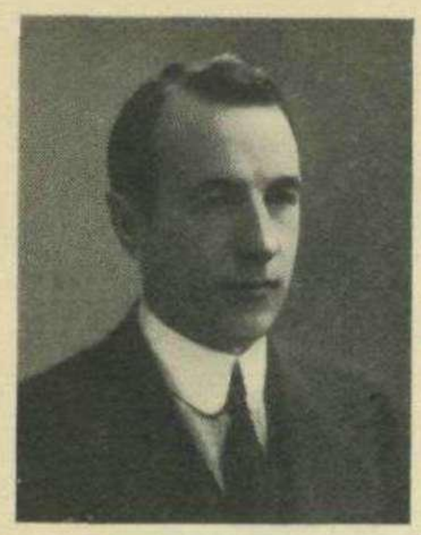
* * * *

It is an ill wind that blows nobody good, however, and the banning of road events for the time being is certain to create an added interest in the famous Brooklands Track, as has already become obvious by the increased attendances at the smaller as well as the more important meetings.

* * * *

Practical evidence of the appreciation of this Journal as a medium for the sporting motorist is to be found in the list of names on this page. The gentlemen named have associated themselves with us in a scheme whereby the BROOKLANDS GAZETTE should make a still further appeal to the clubman, and to all who are interested in motor sport.

Full particulars may be obtained on application to the Editorial Office.



SECRETS OF ENGINE BALANCE.

By F. T. BERSEY, M.I.A.E.

(Managing Director of the Laystall Engineering Works, Ltd.)

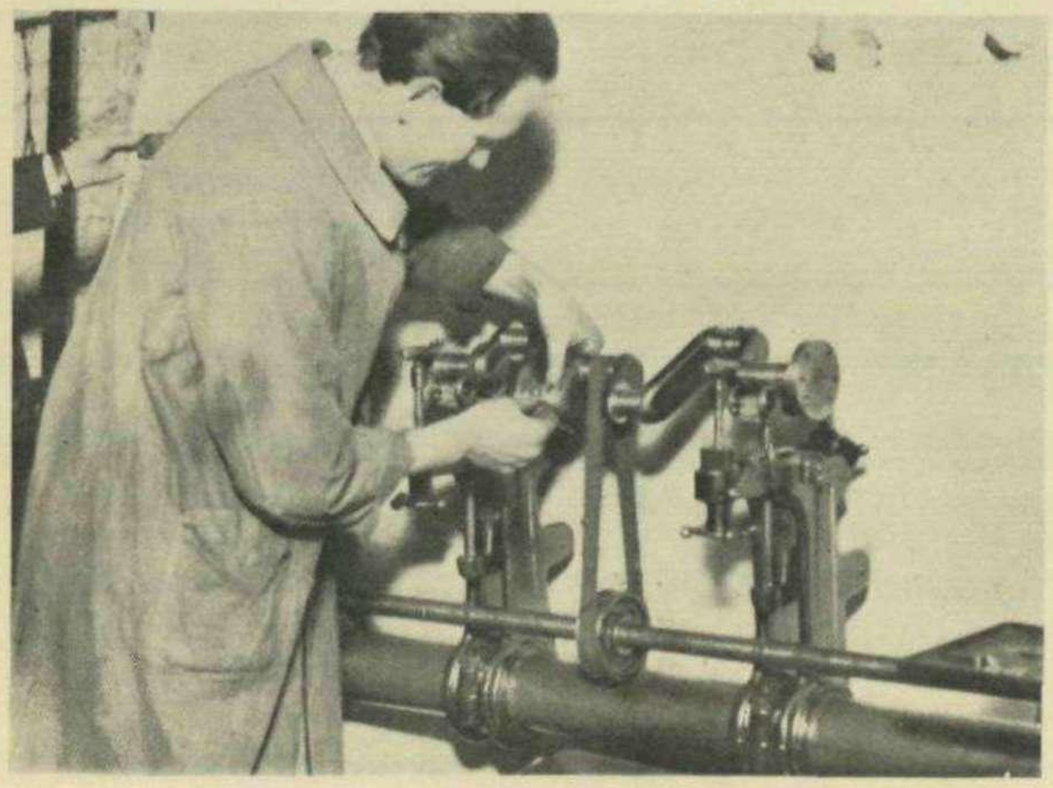
ACCORDING to theoretical principles the real secrets of engine balance are hidden away among the formulæ of the designer, and provided his knowledge of the subject is correctly interpreted by the constructor, there should be no such thing as an ill-balanced engine.

Practical motorists and speedmen in particular, however, know that theories must often give place to the stern realities demonstrated on the road and track and my own interest in the very fascinating subject of engine balance dates from an incident which may be interesting to place on record.

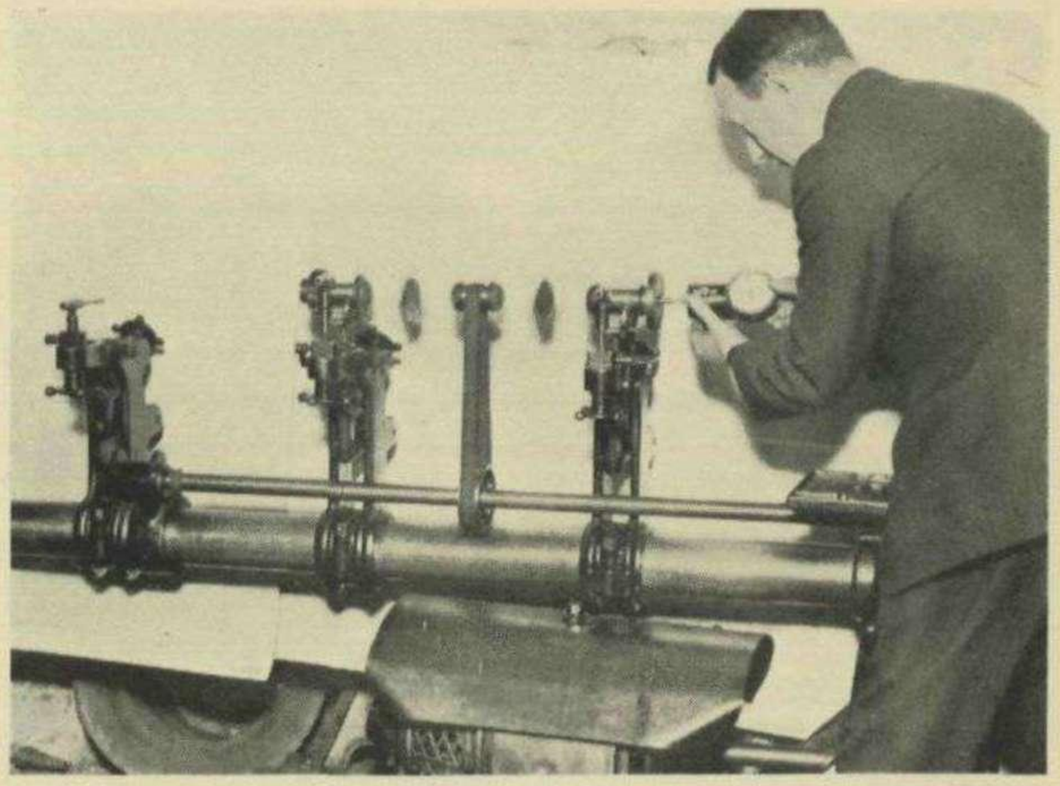
A friend of mine, some twenty years ago, purchased a high-powered racing car of well-known make, and as it had suffered considerable wear during long distance speed events on the Continent, proceeded to overhaul the engine and chassis. To a point his efforts were quite successful, but when approaching the maximum speed of which the car was capable, he used to experience great difficulty in keeping a straight course, owing to the terrific vibration set up by the engine.

This peculiarity of the engine was so marked that the whole unit was taken to pieces and he asked me to assist in carrying out a kind of post-mortem inquiry, with the object of discovering the reason.

About this time I had just installed a more or less primitive form of crankshaft balancing machine in my works, and though with regard to accuracy it could not compare with the model used at present, we were able to prove that the crankshaft and the flywheel of my friend's machine were considerably out of balance. In those days, there was little data to guide our efforts in correcting the faults, but eventually we arrived at a



FIXING THE WEIGHTS FOR PRELIMINARY BALANCING.



MR. BERSEY COUNTS THE R.P.M. OF A CRANKSHAFT DURING BALANCE TEST.

sufficiently good result to eliminate the periodical vibrations at high speed which had been so troublesome previously.

By virtue of this experience, I determined to take up the matter of practical engine balancing as a commercial proposition, and at the present time this particular operation constitutes a large part of the activities of the Laystall Engineering Works.

Theoretical Considerations.

In a brief review of this important subject it is impossible to go very far into the theories of engine balance, besides which, from the sporting motorist's point of view, practice occupies the premier place. What I mean is, the sporting car owner can do little to alter the inherent features of the design of his engine, whereas he can pay a considerable amount of attention to the practical side of engine balance with extremely beneficial results.

Nevertheless, in order to give a slight insight to those who have never looked at the matter from a strictly theoretical point of view, I will enumerate the principal causes of engine vibration before describing how the practical remedies are carried out by the aid of scientific apparatus designed for the purpose.

Broadly speaking there are four possible causes of vibration in engines of normal design, which may be described as follows :—(1) Unbalanced revolving components. (2) Unbalanced reciprocating components. (3) Torque reaction and (4) Torsional flexibility of the crankshaft.

SECRETS OF ENGINE BALANCE—continued.

Apart from the flywheel, which, *if accurately machined*, is seldom much out of balance, the only revolving component with any considerable inertia is the crankshaft. The centrifugal force set up by a single throw crankshaft when revolving at considerable speed is transmitted to the crankcase and tends to set up stresses, which if not counteracted would create very severe vibrations. To obviate such stresses a single throw crankshaft must be balanced by the provision of counter weights, extending radially in the opposite direction from the throws, and so proportioned that when rested by its main journals upon knife edge supports, it will remain at any position in which it is placed. In other words its *static* balance is correct, but here we are confronted with one of the fundamental problems of engine balance, which arises from the difference between the *static* and *dynamic* balance of rotating parts.

After all, where an engine is called upon to develop its maximum power at high speeds, the dynamic balance is the more important and many engine builders insist upon having their crankshafts with a correct dynamic balance, say at 2,500 r.p.m., even though at 1,000 r.p.m. it may be slightly out of balance. The argument put forward is that at low engine speeds the bearings are capable of resisting any possible distortion due to imperfect balance, but at high speeds nothing short of perfection will give the maximum efficiency.

Influence of Crank Design upon Balance.

With the symmetrical design of a four-throw crankshaft it might be supposed that little difficulty would be experienced in obtaining both static and dynamic balance in equal degrees, but in practice such is seldom found to be the case, because as the speed of rotation rises there is nothing to prevent a certain amount of distortion between the webs. Unless balancing counterweights or extended webs are provided one has to choose between static balance when the crankshaft is stationary, or dynamic balance when it is rotating, the only test for the latter is carried out by the aid of the balancing machine.

Action of the Crank Balancer.

The crankshaft balancer consists in a tubular base mounted on suitable supports, one of which provides a housing for an electric motor, driving a shaft running parallel to the tubular base. The vertical supports upon which the crankshaft to be tested is mounted are adjustable in a lateral direction to accommodate crank shafts of different dimensions and at their upper extremities are fitted with rollers to receive the crankshaft journals.

A belt is passed over one of the main journals as shown, and when the motor is set going the crankshaft revolves, its speed of rotation being controlled by a resistance switch. Now, if the crankshaft is out of balance, its vibration will affect the vertical supports, which are free to vibrate within certain limits, this movement being clearly indicated by means of a pointer working over a dial on each of the vertical supports.

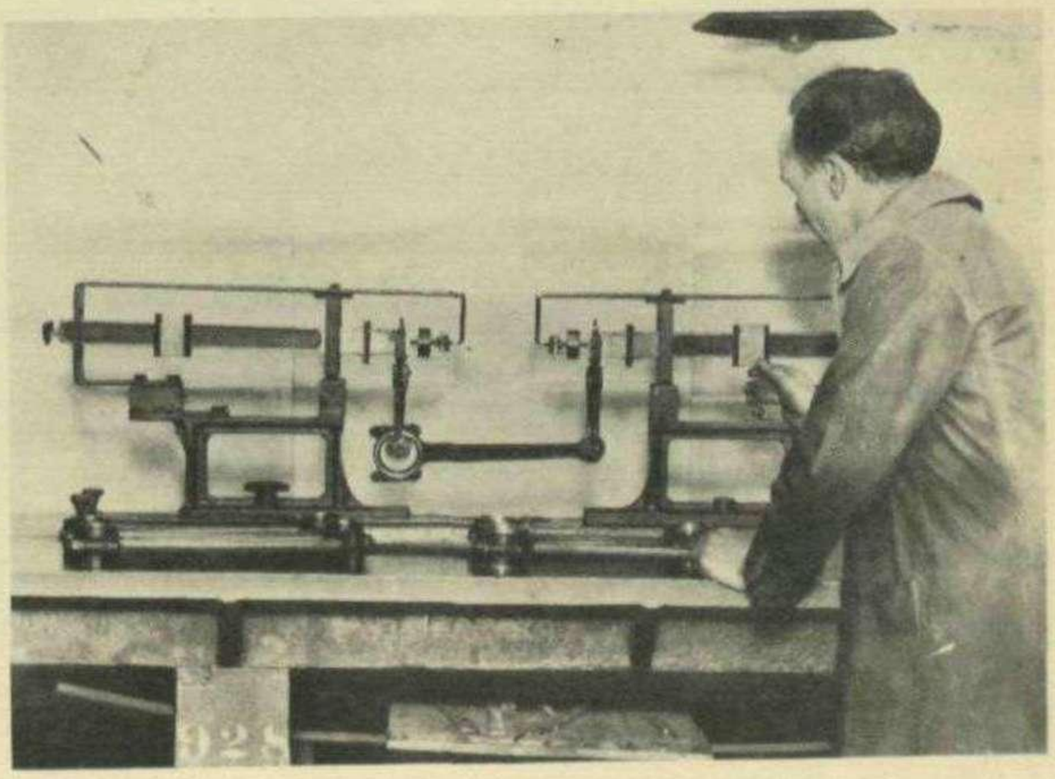
Thus, at the first test, we may discover that a crankshaft which has been machined all over is considerably out of balance, and besides creating the possibility of marked vibrations in the engine for which it is intended, would if uncorrected be responsible for an excessive amount of wear on the bearings. The use of the pointers mounted on the balancing machine may be appreciated when tests are made with balanced and unbalanced crankshafts. In the latter case, the pointers will flicker violently at speeds as low as 250 r.p.m., but after the balancing process has been completed the crankshaft speed can be increased to 2,000 r.p.m. without causing the slightest movement of the pointer. Whilst engine speeds are frequently much in excess of the latter figure, there is no practical necessity to worry much about balancing the crankshaft for the maximum rate of revolution as experience proves that if the balance is correct at about 2,500 r.p.m. the shaft will run quite steadily at the higher speeds; provided, of course, it possesses sufficient rigidity to resist the natural distortion set up by centrifugal force.

Method of Correcting Crankshaft Balance.

With all the improvements in balancing machines, no method has been devised for eliminating a certain amount of "trial and error" work in correcting inaccurate crankshafts. The flickering of the pointers will show the extent to which a shaft under treatment is out of balance, and the operator then commences to tie small lead weights on various parts of the throws, until a correct balance is secured on testing the shaft on the machine. It may take several attempts to determine the correct position and weight of the lead pieces thus added, but after this is done, a correct balance can be obtained by removing metal, corresponding in weight to the lead pieces, at positions opposite to those at which the trial weights were affixed.

Flywheel Balance.

As mentioned previously, the flywheel should not be much out of balance, if properly machined; but it is curious to observe the number of cases where lack of flywheel balance is found. I have recently come across quite a number of engines in which the flywheel balance could only be made perfect by the removal of a pound in weight, the fault being due to the imperfect machining



SPECIAL MACHINE FOR COMPARING CON-ROD WEIGHTS.

SECRETS OF ENGINE BALANCE—continued.

of the rim in relation to the register fitting over the flange on the crankshaft. This goes to show the importance of extending the balancing operations beyond the crankshaft and therefore I will proceed to explain the method adopted in the Laystall Works for dealing with connecting rods and pistons. Before doing so, I would mention that unless one uses a special form of machine for the purpose, there is little chance of securing accurate results and the primitive methods of suspending a rod from one end and weighing the other, or supporting one end on Vee Blocks, for the same purpose, can only give, very rough approximations to correct balance. True they are better than nothing, but are not good enough for the racing or competition motorist for whom nothing short of the best will give satisfaction.

How Connecting Rods are Balanced.

One of the most interesting features concerning engine balance is to be found when dealing with connecting rods, for part of the rod must be regarded as a revolving mass and the remainder as a reciprocating mass.

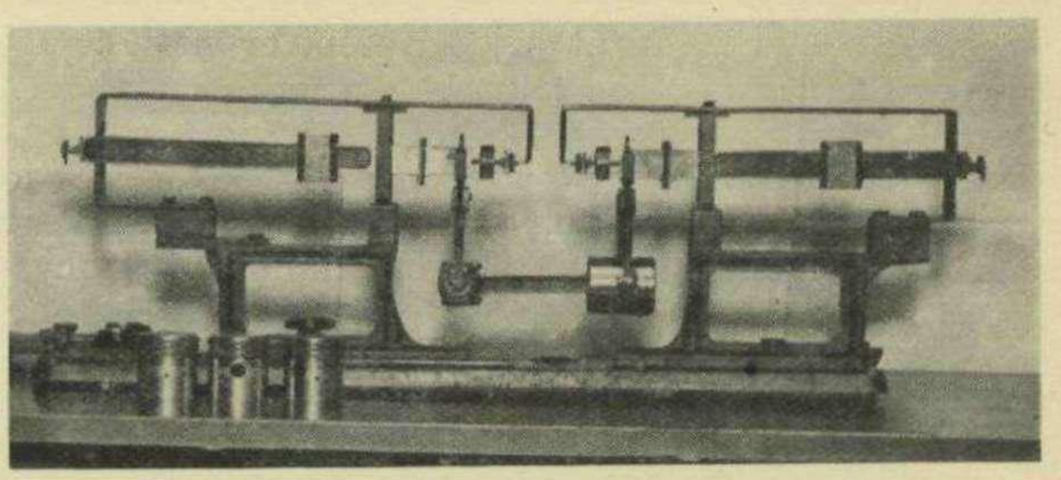
In rods of normal design, the big-end and a third of the length of the rod may be taken as a revolving mass, and the remainder as a reciprocating mass, and this is taken into account during the balancing operations.

As may be seen in the accompanying photograph, the rods are first suspended from the big and small ends respectively by means of knife edge mandrels and then the balance arms on either side of the machine are set to the zero position. The whole set of rods is then tested until the lightest one is found, so that small masses of metal can be removed from the others to make them all of equal weight. The arrangement of the machine permits accurate comparisons of the weight of both the big and small ends of the rods, and one can work down to half a dram with absolute accuracy.

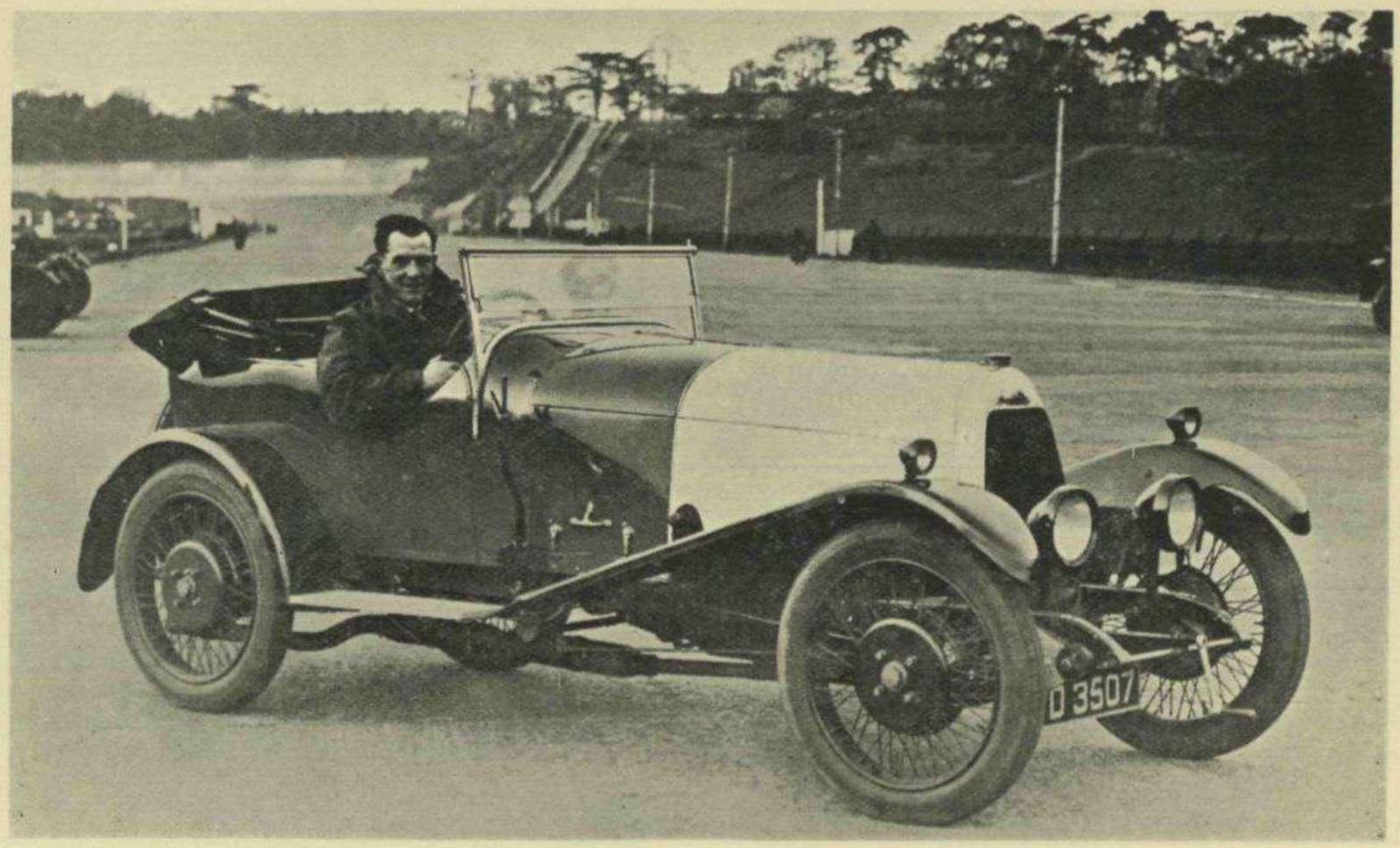
Having secured the correct balance and equalisation of weight in respect of the four rods, the next thing is to fit the pistons and repeat the process, thus ensuring that the pistons will be balanced as accurately as the rods.

When to Balance an Engine.

As a final remark I may mention the need for leaving all balancing operations until the last thing after an engine has been overhauled, for even in removing metal during the process of adjusting bearings it is an easy matter to disturb the balance, whereas a heavy washer fitted to one of the connecting rod bolts will have a similar effect. Correct balancing means more power, greater acceleration and decreased wear on a high speed engine; but is nevertheless the most neglected of all engine overhaul operations.



WEIGHING A CON-ROD WITH ITS PISTON.

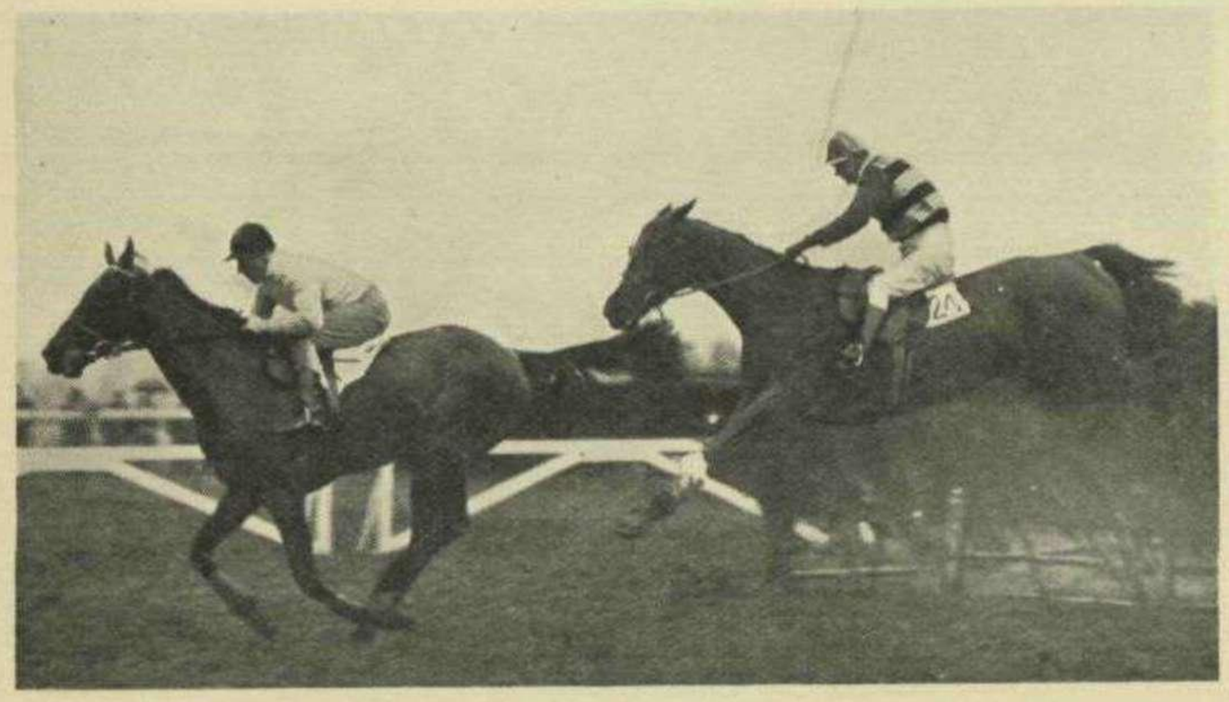


THE MARLBOROUGH 2-LITRE GRAND SPORTS.

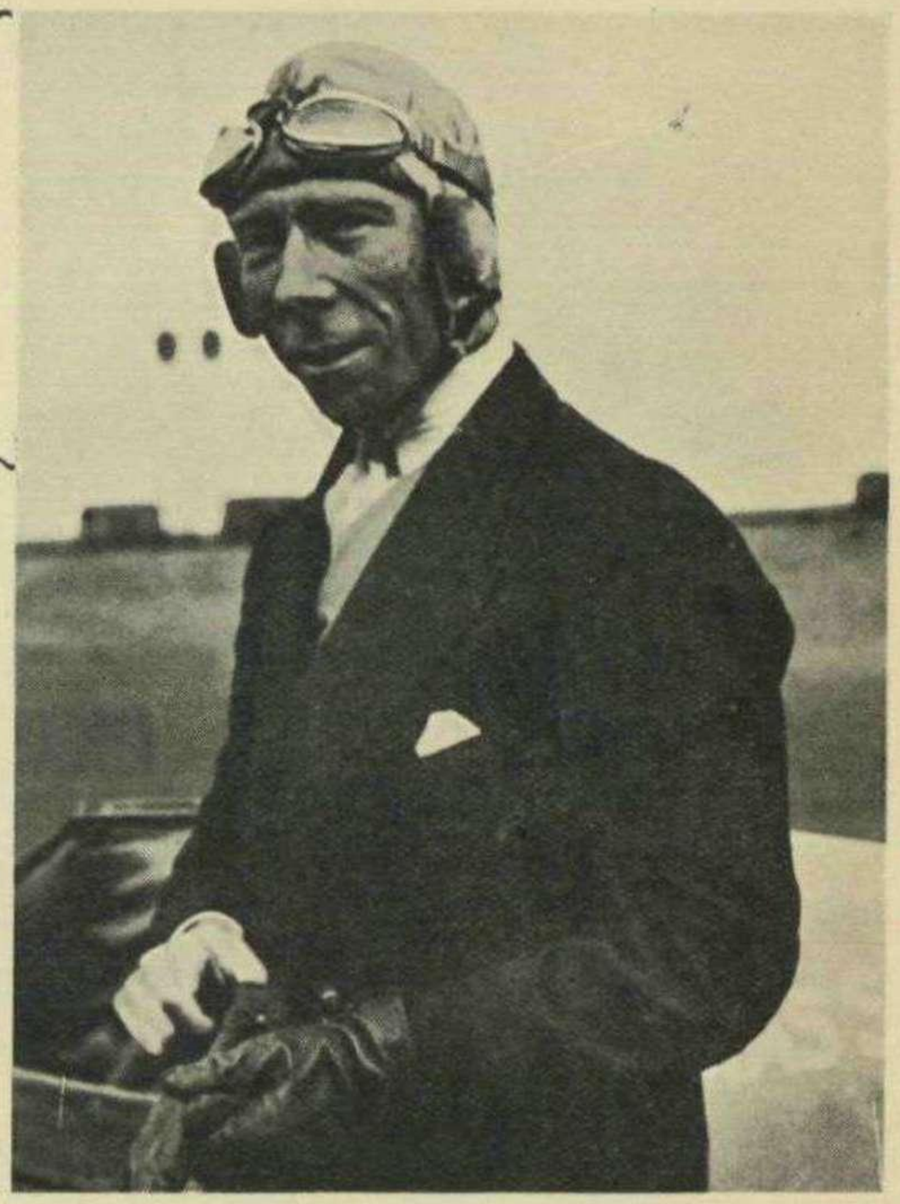
MOTORING SPORTSMEN.

Mr. George Duller.

By THE EDITOR.



THE DULLER STYLE OF HURDLE RACING AND THE ORTHODOX WAY.



THE FAMOUS JOCKEY-MOTORIST.

WITHOUT exaggeration it may be said that Mr. George Duller, the famous jockey, is one of the most interesting personalities in the motor racing world, in which his achievements compare with those for which he is celebrated on the Turf. To many of our readers Mr. Duller is best known by his appearance at Brooklands during the last few years, though his successes in the recent classic road races have brought him well to the front. As a matter of fact, however, he is a motorist of very long standing, and was an expert driver long before finishing his racing apprenticeship under Mr. Schwind, the trainer, of Streatley and Goring.

During our interview with Mr. Duller at his Epsom residence we discovered that he has actually owned practically every make of car, besides being an amateur mechanic of no mean attainments.

Many years ago an accident while boxing a horse at Kempton Park resulted in serious injuries which incapacitated Mr. Duller for several months, during which time he put on so much weight that he wisely decided to abandon flat racing and take to the National Hunt Rules. As is well known, his great forte is hurdle racing, and his success in this direction may be largely attributed to his daring innovation of riding "short" instead of following the orthodox long stirrups used by other hurdle riders. One cannot but admire the pluck of our jockey-motorist, who, having been bred and born among successful horsemen, breaks away from tradition, adopts his own style of riding, and proves the value of his own ideas by a practically unbroken series of successes.

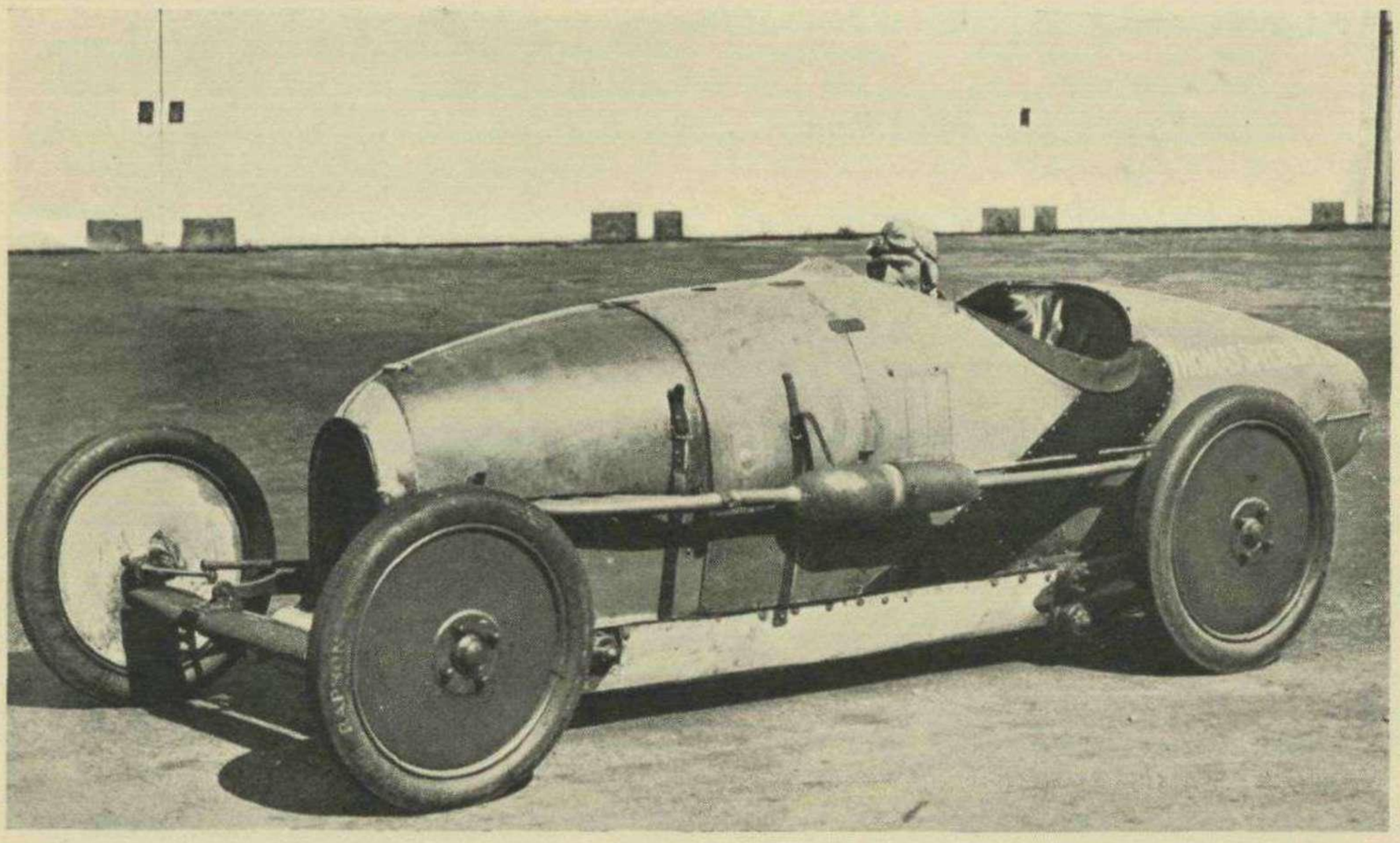
As Mr. Duller explained, it is all a matter of balance and "hands" whether one is assisting a high-mettled horse over a difficult hurdle or persuading a fast racing car round a sharp bend with the foot hard down upon the accelerator. Personally we are inclined to think that other qualities are needed, and Mr. Duller possesses more than the average amount of daring, whether he be mounted on a horse or behind the wheel of a 100 mile-an-hour car.

At one time Mr. Duller intended to take up racing on motor cycles, and would have done so had he not been warned by Herbert le Vack that the machine he proposed riding was far too dangerous for any high speeds. The warning was taken, and the rider who eventually ran this particular machine crashed on the first attempt, and only just escaped with his life.

Mr. Duller's first appearance at Brooklands was on "The Silver Hawk," a Swift chassis fitted with a 1,500 c.c. Coventry Simplex engine, on which he won several races at speeds averaging between 67 and 68 miles per hour. It was this machine which gave him some very valuable experience in tuning procedure, which came in usefully at a later date whilst "hotting-up" the various racing cars he acquired. Here it may be mentioned that Mr. Duller has been the owner of most of the cars he has driven in races, and is a genuine amateur, indulging in the sport for the love of speed and as a relaxation from his professional duties as a jockey. Apart from the mere pleasure of motor racing, Mr. Duller finds the sport an admirable recipe for keeping fit during the summer months, his experience on road and track being very valuable in keeping his hands and nerves in condition for the strenuous business of hurdle racing.

The illustration reproduced on this page is very interesting as demonstrating the Duller style of hurdle riding as compared with the orthodox manner, the leading horse being Golly Eyes, which, when ridden by Mr. Duller, was never beaten.

MOTORING SPORTSMEN—continued.



MR. DULLER'S THOMAS-SPECIAL, ONE OF HIS RACING STUD.

At the outbreak of war Mr. Duller joined up in the Royal Flying Corps at Brooklands, and very soon earned his "wings" as a pilot. On being transferred to Farnborough, at a later date, his motoring experience stood him in good stead, for he was entrusted with the responsible duties of testing all kinds of aeroplanes before they were passed for active service. "Flying," he remarked, "comes quite naturally to one who is used to horses, especially with experience of practical motoring as well."

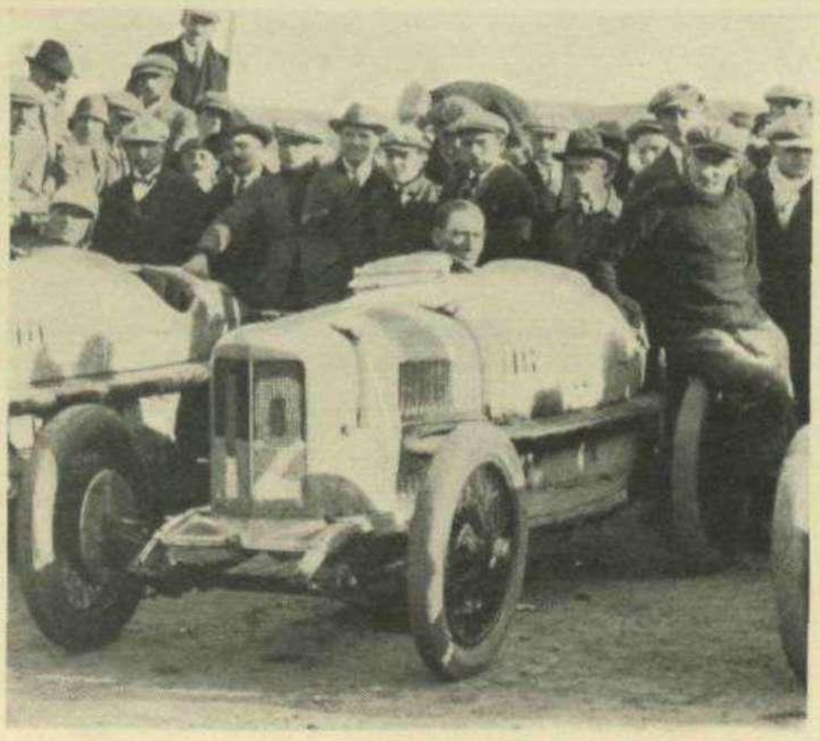
As an officer in the R.A.F. Lieut. George Duller was very popular with his brother officers and men, who very quickly recognised the courage and daring of the famous horseman. Had he been given the opportunity of demonstrating his flying skill over the lines there is little doubt that he would have become a renowned "ace," but his services at home could ill be spared, so he had to remain on less spectacular but equally important duties in the R.A.F. depots.

Continuing his interest in the sporting side of motoring on relinquishing his commission, Mr. Duller owned and raced cars of different makes at Brooklands, including a Bugatti, a 4½ litre Sunbeam and a Thomas-Special, the latter being run in the J.C.C. Two Hundred Miles Race of 1923. Both this car and a similar machine driven by J. G. Parry Thomas started under serious difficulties, having only left the shops a day previous to the race.

In last year's Two Hundred Miles Race, however, Mr. Duller drove one of the victorious Darracq team, and gained the second place at an average speed of 102.5 m.p.h. In this race he also tied with Major Seagrave for the fastest lap, 106 m.p.h.

This year he has begun very well by gaining the third place in the Grand Prix de Provence at Miramis, also at the wheel of a Darracq, with Major Seagrave and Count Conelli as team mates, all of whom were successful.

(*Continued on page* 409).



MR. DULLER ON THE DARRACQ AT MIRAMIS.

(Note: This car was inaccurately described as a "Talbot" in our last issue.)



LEADING THE FIELD OVER THE HURDLES.

Mr. Geo. Duller winning at Windsor on "Burning Kiss."

SPORTING MOTORISTS AND INSURANCE.

By R. B. MOORE.

IT is rather a curious thing that, whilst the average car owner never dreams of using his car without having it well covered by insurance, racing men have been inclined to pass over the matter as one of small consequence, and even now a large number do not appear to realise the necessity of insurance.

One of the main reasons for the apathy towards insurance may be explained by the high premiums that have been required in the past, coupled with the fact of the cover not being all that one might desire; but, apart from all that, I often find racing men who will not even take the trouble to discuss insurance matters at all.

There is the class of competition driver who considers the preparation of his car, or motor cycle, for a forthcoming event as the only thing which matters; but surely it is equally important for him to protect himself against the results of a serious accident which might involve him in a large claim made by an injured spectator. Furthermore, in the event of personal injuries, a competitor should be able to avail himself of the benefits of a personal accident policy.

It may be interesting to observe that most of the well-known racing men insure themselves as completely as possible, and the leading manufacturers of cars and motor cycles always arrange adequate insurance both with respect to themselves and their riders. In contrast to this I suppose 75 per cent. of amateur riders take all kinds of risk without any kind of cover at all.

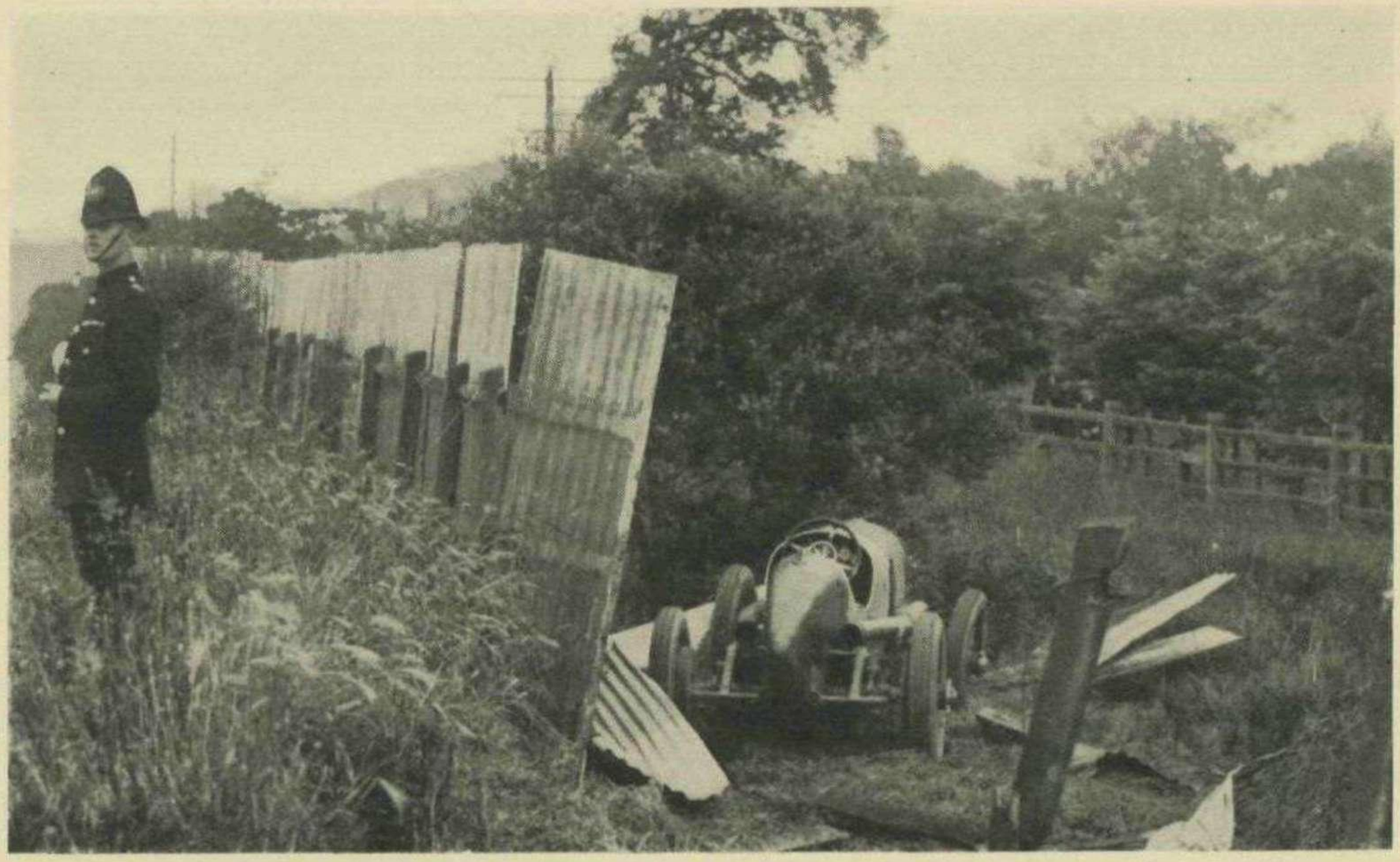
In my opinion the only solution of the insurance problem in relation to the sporting motorist is for the promoters of trials and races to make third party and personal accident insurance compulsory, thus reducing the cost so as to bring the amount of the premium within the reach of the average entrant.

The simplest method of all would be that of including the cost of insurance with the entrance fee. The promoting club would then effect one policy and declare the names of the entrants to their insurance brokers as soon as the entrance fees were paid. In such a case each competitor would receive a certificate of insurance, made out by a responsible club official, on which would be stated the exact protection to which he may be entitled.

The single policy method of insurance to cover a number of riders has been adopted by the Auto-Cycle Union in the case of the Tourist Trophy Races in the Isle of Man. This policy covers third party risks, and, fortunately for the competitors, the A.C.U. has decided to stand the cost. The personal accident insurance is again compulsory, but special terms have been agreed by the A.C.U., which naturally is only possible by arranging insurance in bulk. Whilst discussing the matter of cost of insurance for sporting motorists, it is instructive to compare the present premiums required with those paid by some competition riders and drivers several years ago. It is only by a study of these figures that one fully realises the enormous progress made in insurance for the benefit of the insured motorist. As a matter of fact I have known entrants to pay three times the present cost for exactly the same benefits.

The two most important risks to be covered are undoubtedly third party and personal accidents. The basis of a third party claim may arise from an act of negligence on the part of the driver, who has a duty towards the public, and this duty is not so well understood as that of the driver in avoiding personal injury.

Therefore the benefits of an insurance policy should include the following :—



TRACK SPILLS EMPHASISE THE NEED FOR INSURANCE.

SPORTING MOTORISTS AND INSURANCE—continued.

1. *Indemnity (including law costs) in respect of the competitor's legal liability to the public.*—The most attractive policies are those giving an indemnity of at least £10,000 for each accident, as distinct from those where liability is only accepted up to a lower figure (up to say £2,000).

2. *Personal Accidents.*—The clause covering this item should include the payment of a lump sum in the event of death, the loss of two limbs and two eyes, or the loss of one limb or eye, as well as a sum payable each week during temporary total disablement (limited to 52 weeks) and medical expenses.

A policy which is now becoming very popular with motor cyclists is one covering the insured for the whole season's competitions, and embodies the points mentioned above. This form of policy has two very great advantages, the first being a considerable saving in premium, and the second the elimination of unnecessary trouble in arranging separate cover for each event, including those of a minor character, which, in the ordinary way, the entrant would not bother to cover.

The Liability of Clubs as Organisers.

Until quite recently very few club officials had any idea as to the risks they were running by not insuring themselves in respect of their liability to the public as organisers or promoters of sporting events.

Now the leading organisations have arranged policies which cover them completely. The form of policy taken out reads as follows:—"To cover the Club in respect of claims which may be made against it as Organisers of Hill Climbs, Reliability Trials and Speed Events, but excluding liability to competitors."

In my opinion such protection is absolutely essential, as it is quite conceivable that an injured member of the public would look to the promoters in the event of failure in a claim against a rider. Such a policy would cover accidental damage to a grand stand resulting in injury to spectators, which certainly would be the subject of claims against the organisers.

The cost of this particular type of insurance is usually based on the number of events with which the club is concerned, and also with the approximate number of competitors in each event.

THE FIRST INDIAN T.T. RACE.

The first road race to be held in Western India was run by the Bombay Motor Cycle and Car Club on March 8th, 1925.

The course of 51 miles, Thana to Lonavla, was over a very indifferent road, including a Ghat road four miles in length with thirty corners and 10 S bends, and rising just over 2,000 feet in this distance.

Considering the state of the road and the general conditions prevailing in India (this is not one of our Northern India Grand Trunk roads) the timings were very creditable.

The following were the classes with results.

Senior.

Sell, 492 Sunbeam	Retired, accident.
Brearley, 490 Norton	Retired to report accident to Sell.
Palkiwalla, 997 Indian	M 73 Sec 40.
Moss, 499 P. & M.	M 84 Sec 38.
Hudson, New Imperial	M 77 Sec 12.

Junior.

Ghandy, Matchless O.H.V.	M 78 Sec 45.
Mody, A.J.S.	M 84 Sec 17
Wall, S.S.	M 90 Sec 20.
Cooper, Matchless S.S.	M 99 Sec 20

Car Classes.

Up to 3000 c.c.

J. Mehta, 14-40 Lancia	M 60 Sec 53
R. Mehta, — Alvis	M 64 Sec 24
Sidley, 10-15 Fiat	M 103 Sec 13
Raymond, 10-15 Fiat	Retired.

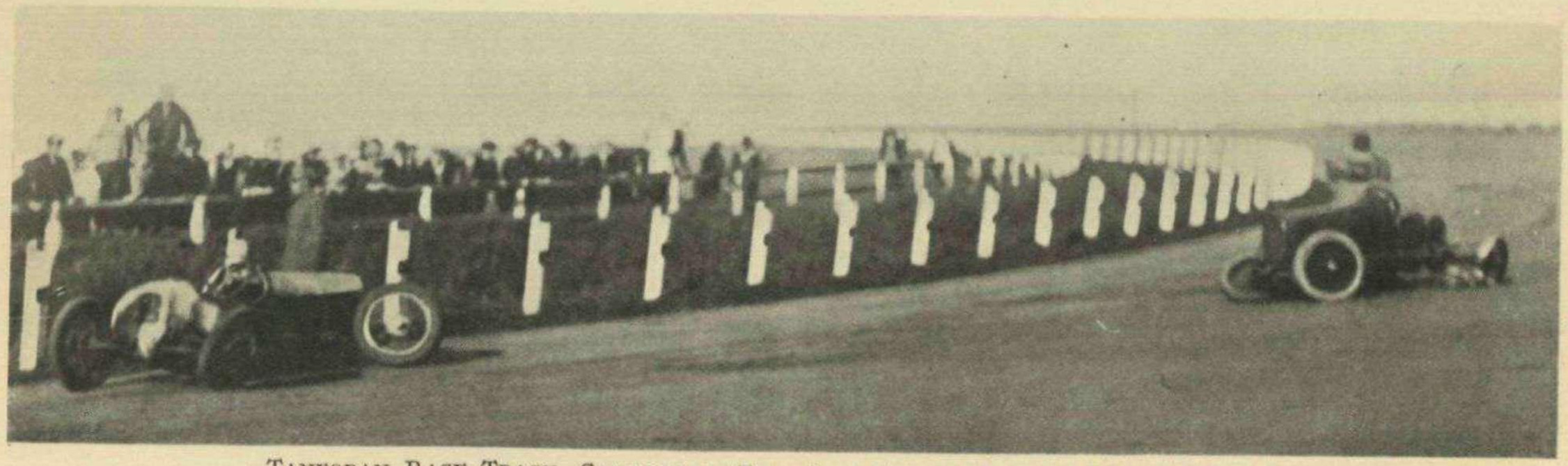
Up to 1600 c.c.

R. Mehta, — Alvis	M 64 Sec 24
Sidley, 10-15 Fiat	M 103 Sec 13.
Raymond, 10-15 Fiat	Retired.

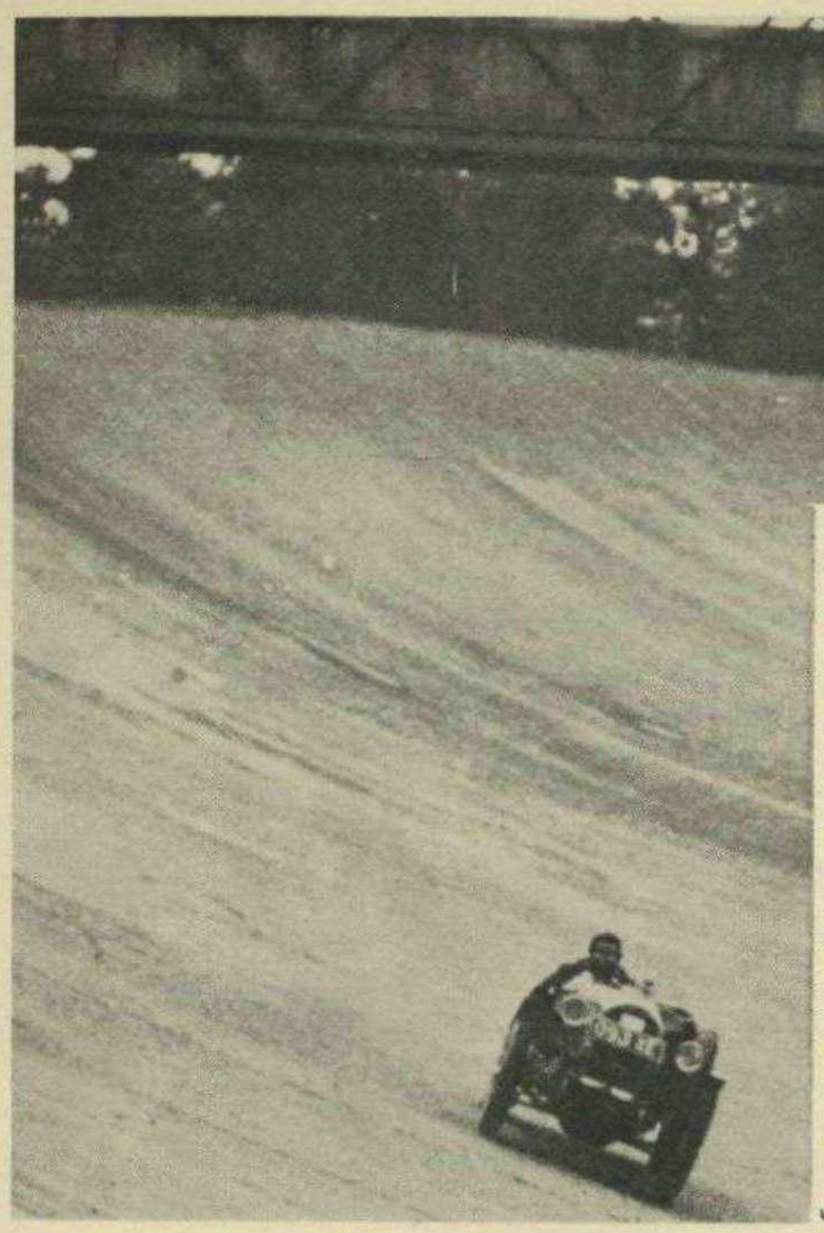
Up to 1200 c.c.

Ricardo, Austin seven	M 74 Sec 52
Wozen-Croft, Rover nine	M 81 Sec 40.
Wright, Rover nine	M 82 Sec 45.
Dalal, Rover Eight	M 84 Sec 36.

The only accident of the day was in the case of Sell, while taking a corner too wide struck a guard stone on the first bridge and Brearley was prevented in taking a second start through damaging his rear wheel while returning on a bye-road to report Sell's accident.



TANFORAN RACE TRACK, CALIFORNIA, TWO CARS CRASH AT THE "DEATH CURVE."



SPORTING CARS ON ROAD AND TRACK.

THE SIX-CYLINDER MATHIS.

ABRIDGED SPECIFICATION.

Engine: Six cylinder O.H.V. and camshaft. 60 mm. by 70 mm. (1187.5 c.c.)
Clutch: Plate type.
Gear Box: Unit construction, 4 speeds, centre control.
Cardan Shaft: Exposed with fabric discs.
Brakes: Four-wheel internal expanding.
Guaranteed speed: 70 m.p.h.
Price: Completely equipped, £375.
Country of Origin: France (Alsace).

IT is not generally known in this country that the Mathis car has been in production since the year 1900, when the manufacturers concentrated on a high powered chassis with an engine of 150 mm. bore and 160 mm. stroke, rated at 100 h.p. For ten years the Mathis was being developed as a large car, but in 1911 the firm began to see the future of the smaller type of chassis, and since that date have devoted their energies to perfecting the class of car concerned in our present review; though, of course, touring models, coupés and saloons are included in the Mathis range.

The car we tested recently is known as the Mathis "L" type and, as one can see from the accompanying illustrations, is an essentially sporting machine. We are indebted to the Atom Motor Company, Ltd., of West Hampstead, for the opportunity of submitting the car to a long test, which comprised a speed test on Brooklands track and a series of trials on the road.

Although the car is not intended for ordinary touring, the seats are quite comfortable, and the very low position enhances the stability of the chassis without interfering with the driver's vision of the road. The general handiness of the Mathis will be realised when it is mentioned that immediately on entering the thickly congested Finchley Road, we felt perfectly at home with all the controls, which is more than can be said of many sporting cars, some of which need quite a long acquaintance before one feels quite happy in traffic.

As may be expected, the little six-cylinder engine is so flexible that one can travel quite easily in traffic by using the top gear all the time, though naturally when very rapid acceleration is desired, the second and third gears are called into service.

Observations on Traffic Driving.

Perhaps one ought not to be unduly critical of a few shortcomings of a small sports car when being driven through London traffic, especially when it is remembered that French drivers have entirely different notions from our own on the subject of driving comfort and traffic speeds. At low speeds I must admit that the suspension is rather on the harsh side and that pot-holes are distinctly noticeable, even though shock absorbers are fitted. But then it is a known fact that few suspension systems behave equally well under all conditions, and the Mathis calls for nothing but praise when moderately fast and fast speeds are attained.

The plate clutch, after the manner of its kind, tends to slip for a second or so after the pedal is released and before the drive becomes absolutely positive, but we have no doubt this is only a matter of adjustment, or perhaps of running-in until the frictional surfaces bed together accurately.

The brakes and steering are perfect, whilst the acceleration leaves nothing to be desired. The action of the four-wheel brakes shows that the designers have struck the happy medium between the over vicious retardation and that which comes into operation too slowly.

A Speed Test at Brooklands.

As we intended to make a short speed test on the Brooklands Track, we were somewhat chagrined at being refused admission by the man on duty in the paddock, but on appealing to a higher authority, who made a

THE SIX-CYLINDER MATHIS—continued.

close examination of the exhaust system, we were allowed to proceed after having been warned that the car would be called in if it made too much noise. One rather irritating thing about the car was the fitting of a kilometre per hour speedometer which, of course, will be altered for the British market. Another thing about the instrument was the flimsy belt drive, which failed to transmit steadily enough to register accurately at high speed. Thus it was impossible to say the exact maximum speed obtained, but by timing the laps it was found to be somewhere in the neighbourhood of 74 m.p.h.

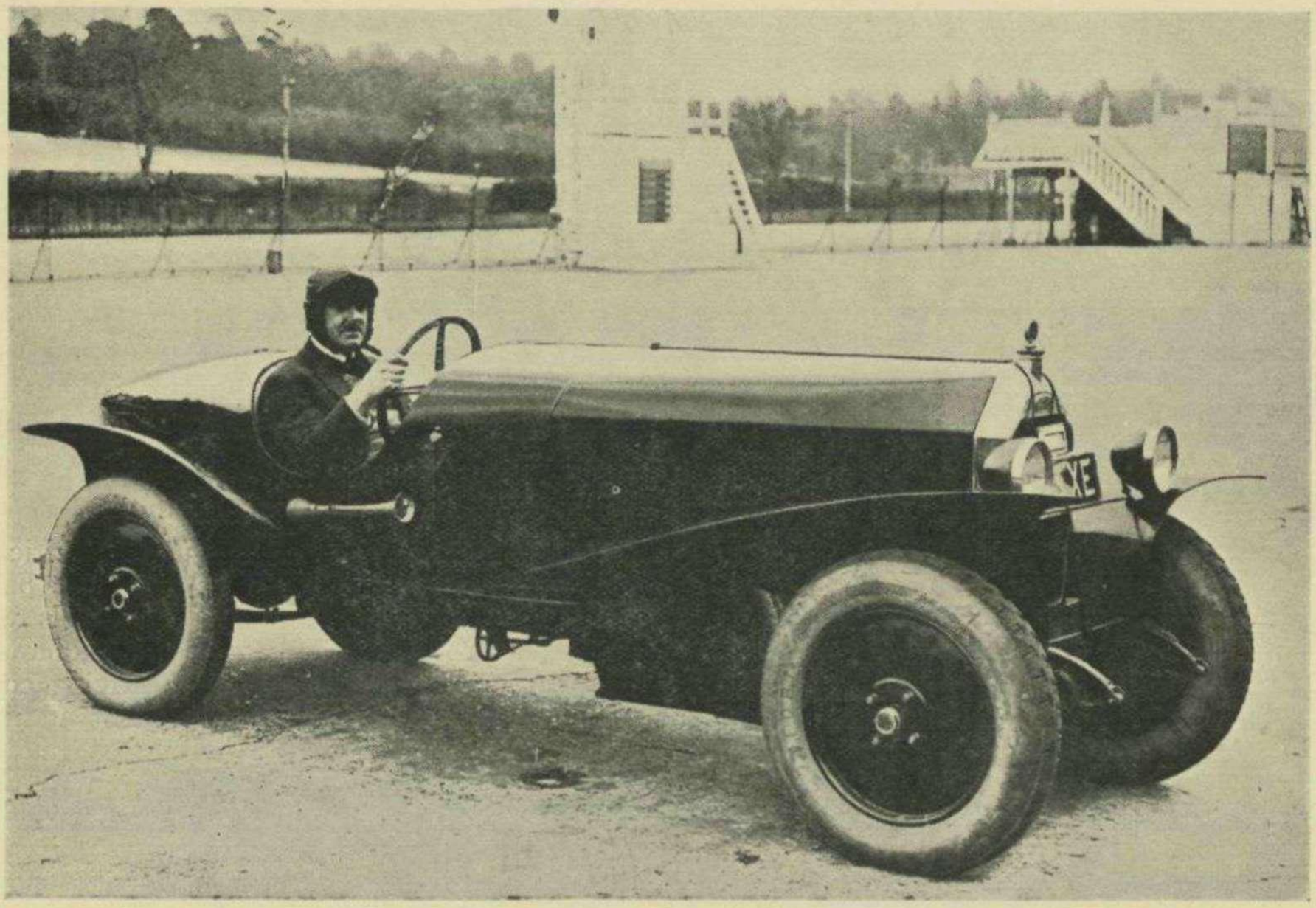
If these little cars are to be used seriously for sports driving it may be desirable to augment the petrol supply arrangements, for with the vacuum feed used on the model we tested, there was a slight tendency for the engine to "hunt" at high speeds. The same trouble was noticed later during some hill-climbing tests, but was eventually located in a temporary blockage of the pipe.

The Mathis was run all out for seven laps on the track and showed no sign of stress or overheating, neither were the bumps of the concrete surface particularly noticeable. Incidentally, it may be remarked that the wheels held on to the surface in a very commendable manner.

Fast Touring and a Hill Climb.

Leaving Brooklands the route selected lay along the Portsmouth road as far as the turning for Newlands Corner, then across country through Shere and Gomshall to Dorking. Passing Burford Bridge Hotel, where the Junior Car Club members were gathered in force, we made the ascent of the Zig-Zag leading to the top of Box Hill. As readers are aware, the gradient on this climb is not severe, but two or three of the hairpin bends call for a car with a good steering lock, if the curves are to be taken at any speed.

If we were asked for the outstanding feature of the Mathis in respect to road performance, the verdict would undoubtedly be given for its "cornering" abilities. By dropping into second a yard or two before each bend, the car can be forced round a sharp curve at an extremely useful pace. It is possible to stand on the accelerator, wrench the steering wheel on full lock and then get a momentary glimpse of the trees and hedges swinging round on a pivot, for the car is so steady that it feels stationary, whilst the landscape flashes by with a rapid flanking movement. Whatever one may say about balloon tyres and rolling action, there is certainly nothing to complain of in this direction with the Mathis, which sticks on to any kind of road without the slightest difficulty.



THE "MATHIS SIX" WITH THE EDITOR AT THE WHEEL.

Looking for Faults.

When testing such a nice little sports car as the Mathis, one may be apt to overlook any little weak points that exist, but as this is a part of stern duty we passed a critical eye over the chassis for the benefit of our readers.

The fasteners for the bonnet are inadequate and should be replaced by a set of a much stronger pattern and supplemented by a Brooklands bonnet strap.

Some form of positive drive for the speedometer would be a very welcome improvement, accompanied

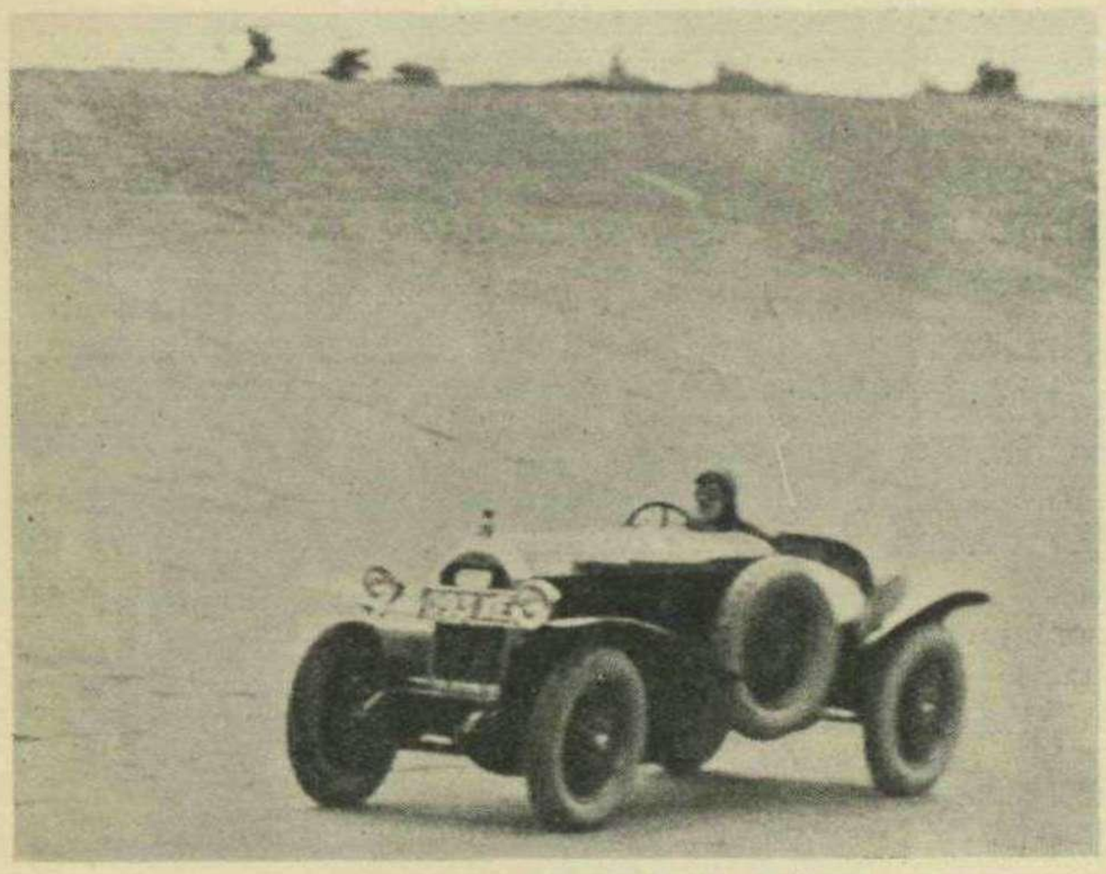
THE SIX-CYLINDER MATHIS—continued.

by the intended alteration from km.p.h. to m.p.h. for the instrument.

A further improvement would be some simple form of clamp to secure the wheel jack, pump and other articles carried loose in a space behind the driver's back rest. These things rattle about and give one the impression that the wings have worked loose.

It would appear that the right kind of oil for the engine has not yet been determined, for that used for our tests did not give complete satisfaction, and when drained out after a 250 mile run, appeared to have lost most of its lubricating properties.

Thus it will be seen that our criticisms are not of a very serious nature and for the most parts are details unlikely to be noticed by anyone who is not hyper-critical.



SNAPPED AT SPEED ON THE TRACK.



J. G. PARRY THOMAS IS INTERESTED.

An Inspection of Mathis Components.

As there seems to be a general impression among intending purchasers concerning the supposed flimsiness of some of the smaller sports cars, we made a special point of examining a selection of the components held in stock by the Atom Motor Company at Hampstead. These comprised all sorts and sizes of spares, including crankshafts, pistons, gears, and the like. It may be said at once that the quality of the material and the workmanship are very good, all the machine work being well finished to close working limits.

Another interesting point observed during our inspection of the parts was the high factor of safety noticeable in the components, that is to say, there was no sign of the weight having been cut down to so fine a limit that wearing quality would be endangered. The matter of engine balance appears to have been studied, but those who desire to amuse themselves by further efforts in this direction will find enough metal to play with, which is an important detail when tuning up an engine for the highest pitch of perfection. In all details of the design and construction, the Mathis bears evidence of having been produced by a firm with wide experience of larger cars and in many respects this model may be described as a large car in miniature.

Principal Agents: The Atom Motor Co., Ltd., West Hampstead, N.W., and B. S. Marshall, Ltd., Hanover Square, W. 1.

MOTORING SPORTSMEN—continued.

Since his spill at Sandown Park, where his mount fell and broke its back and threw him heavily on his head, Mr. Duller has been almost continually undergoing special treatment, for, as the X-ray photographs show, the concussion nearly resulted in a fracture of the spinal column. Fortunately he was wearing a crash helmet at the time, but he considers this device capable of further improvement, and is busy designing one of a new pattern. Let us hope he will have no occasion to test it as severely as he did the last one.

Even such a narrow escape cannot keep Mr. Duller away from his cars, for a week or so ago we found him busy at the Brooklands Track testing his Thomas Special in readiness for coming events.

This brief review would be incomplete without reference to the keen interest of Mrs. George Duller in motor racing, for it will be remembered that, with her husband as mechanic, she created a world's record for a lady by driving the Leyland-Thomas for 100 miles during the space of one hour. What with horses, racing and touring cars, to say nothing of the famous Alsatian wolfhounds, which are Mrs. Duller's special care, there are few brighter people than the Dullers, either at work with the horses or at play with the cars.

B.M.C.R.C. EASTER MEETING.

Good Entries but Mild Racing at Brooklands.

THOUGH the above meeting attracted a very large concourse of spectators, the afternoon's sport cannot be described as thrilling, for none of the events proved very exciting, though Horsman endeavoured to enliven the proceedings by bursting a tyre in one of the races.

Dixon showed us some very pretty gear work, and his get-aways were unapproachable, but thereafter he contented himself with a gentle tour of the track, though whether this was due to the amount of oil which smothered his Douglas or an attack of the holiday feeling it is not easy to say.

H. le Vack was seen performing with small engined Coventry-Eagles, with which he secured two firsts without any trouble, and Horsman only won one race out of four, but on the following Tuesday we noticed him breaking records and covered one lap at 100.2 m.p.h.

Allchin and Marchant were present, but not in leather, and we were pleased to note that the former showed few signs of his recent spill at Kop Hill, though his left hand was still bandaged. Among the spectators were Messrs. Stratford, Williams and Gregory, the three riders from the Commonwealth, who will probably ride A.J.S. machines in the T.T.

The 250 c.c. Scratch Race.

This was won easily by H. le Vack, who on his 246 c.c. Coventry-Eagle (J.A.P.) was never hurried and ran in ahead of Johnston (Cotton-Blackburne) and Tottey (New Imperial). With his speed of 65.10 m.p.h. it will be seen that he had plenty up his sleeve.

The 350 c.c. Scratch Race.

R. Hopkins was determined that le Vack should not have all his own way in this race, but when starting to force the pace, only succeeded in arousing the latter rider from a reverie on the beauties of the pine trees, with the result that le Vack won easily at a speed of 83.56 m.p.h. Hopkins was second and Mundey third on a New Hudson.

The 500 c.c. Scratch Race.

This time the proceedings were enlivened by a *real race.* Tottey, Walters and Williams got away together and in company with Judd on his Douglas started a real "honest to goodness" contest. It was disappointing to see the Douglas pack up as it was running to win and Williams (493 Sunbeam) ran home a winner at 88.62 m.p.h., followed by Walters on a similar mount, with Tottey third.

The 1,000 c.c. Five Lap Scratch Race.

With five good men at the starting line, something was expected of this race. Dixon started well, but failed to complete his second lap, Horsman was in trouble with misfiring and Baldwin had to retire on the last lap owing to his silencer coming adrift. This was hard luck, as his Matchless was running well and might easily have won.

Thus Knight alone was left to compete with Temple's McEvoy Temple and then his Zenith started to develop some trouble, which sounded like a valve breakage, giving Temple a clear finish at 88.31 m.p.h. Not a very thrilling performance for a 1000 c.c. machine! Knight just managed to crawl over the finishing line for a second place when his machine gave up the ghost.

The 350 c.c. Handicap.

In this race Glover's and Hall's machines cracked up in the first lap leaving Milton (246 Beardmore-Precision) to take the victory away from Mundey (New Hudson), who was closely followed by Harman (O. K. Bradshaw). Winner's speed 66.94 m.p.h.

The 500 c.c. Handicap.

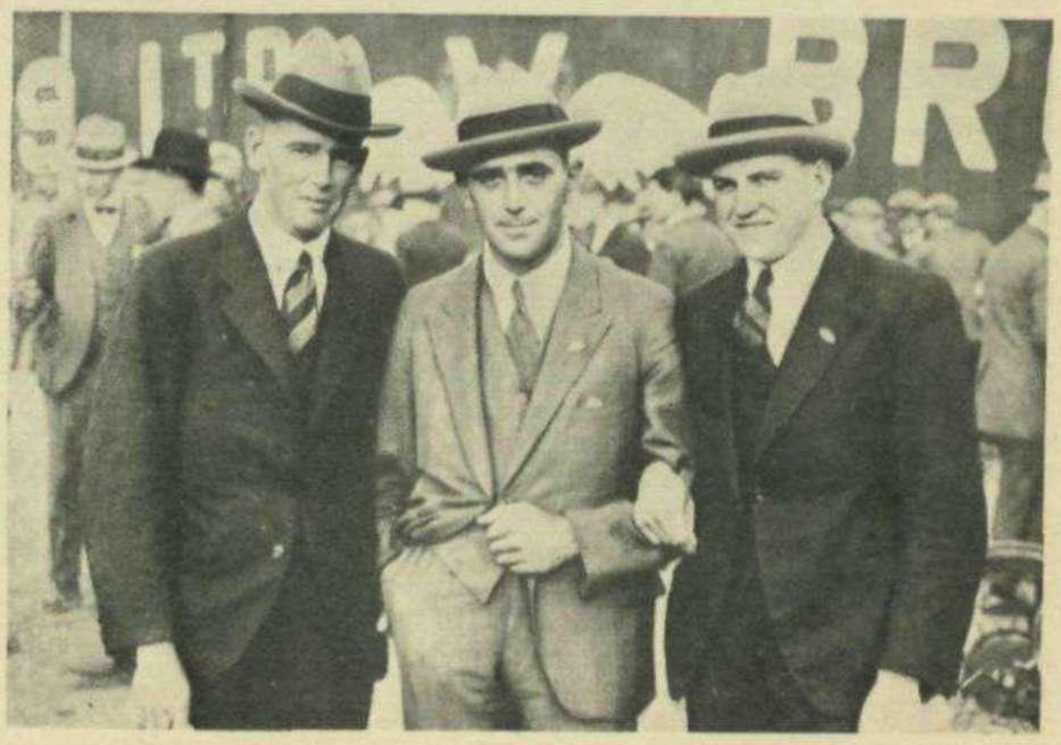
For this event a good field of nineteen starters assembled at the post, amongst which the new P. & M. machine was prominent by reason of its aluminium finish and duplex engine support. Russell (490 Norton) had a good start, which he kept to the end, robbing the Sunbeams ridden by Cobbold and Williams of a victory which either of them would have deserved. Speed 78.67 m.p.h.

The 1,000 c.c. Handicap.

Dixon made his usual spectacular getaway and led for half a lap, but was afterwards overhauled by Horsman's Triumph. Dixon held on until the last lap, when he slowed up a bit with the result that Walters (Zenith) took the second place, while Baldwin, the scratch man, brought up the rear. Horsman's win at 93.72 m.p.h. was one of the outstanding performances of the day.

Expert Handicap up to 1,000 c.c.

Out of a big field H. M. Walters again missed winning by a fraction and had the Zenith been running up to form, there is no doubt he would have been successful, but from his start he had a hard struggle to beat P. M. Walters on a 493 Sunbeam, who started with the winner, Denly (490 Norton), at 24 seconds. Baldwin was again



Australian Motor Cyclists arrive in England to compete in the T.T. Races. Left to right: Messrs. S. Williams, A. W. Gregory and A. G. Stratford.

B.M.C.R.C. EASTER MEETING—continued.

scratch, but was unable to do any good. The first man away held the lead until the third lap, but Denly, Tottey and the two Walters then came up and Denly finished a winner at 88.93 m.p.h.

Private Owners' Handicap.

C. S. Staniland (588 Norton sidecar) was never seriously troubled on getting away with 1 min. 3 sec. start, but Williams, on the Sunbeam, made a very good attempt considering his scratch start and the splendid pace set up by Staniland. Fitzgerald (Zenith M.A.G.) was third home, but stood second for a long time, until ousted by Williams. Staniland's winning speed was 75.34 m.p.h.

Passenger Handicap up to 1,000 c.c.

A good finish to the meeting was provided by this race, which scheduled for five laps was reduced to three and gave Worters a good chance with his 348 Excelsior-Blackburne. He took and held a lead until passed by Horsman's Triumph, which looked a likely first. For some reason, however, Horsman dropped behind, enabling Worters to win at a speed of nearly 70 m.p.h. Horsman kept the second place, followed by I. P. Riddoch (Zenith-Blackburne), who had fought his way up from scratch. Great things were expected from Baragwanath, Brough S.S. 100 (so much in fact that he was not quoted by the bookmakers), but he slowed up and eventually faded away.

THE A.C.U. AND SPEED CONTESTS.

Following the decision of the Competitions Committee of the R.A.C. declining to grant permits for any speed contests on the public highway, the Competitions Committee of the Auto-Cycle Union has passed the following resolution :—

"That this Committee, having carefully considered the difficulty of ensuring the safety of the public at motor cycle speed competitions on the public highway involving an excess of the legal limit of speed, are of opinion that until the conditions are changed all such competitions whether 'open' or 'closed' are prejudicial to the interests of the sport."

The effect of this resolution will mean that not only will the A.C.U. not grant an open permit for a speed event or a hill climb on a public highway, but also will strongly discountenance any closed club competitions of this character taking place. Where speed events are held on private property or on sands, the Competitions Committee will agree to their being held, provided the Committee is satisfied that adequate and proper arrangements are made for public protection.

The A.C.U. regrets exceedingly that it has been found necessary to take this action, but it has been forced to do so, not only in the interests of the competitors and the sport generally, but also of the general public. Where speed competitions are held on public highways the public have definite rights and neither police nor officials have any jurisdiction over them. Owing to this difficulty and the increasing crowds which gather to watch these events, the danger attaching to them has become so great that the A.C.U. feels it impossible to permit of their continuance until organising clubs are able to devise methods which will positively secure the safety of all concerned.

THE ENFIELD CYCLE CO., LTD.

The chief interest in the Royal Enfield Catalogue is to be found in the specifications of the 2¾ h.p. O.H.V. Sports model, listed at £55 net, and Model 352, which is similar to the Sports model, but has a Super-Sports 344 c.c. double port engine; the 8 h.p. Sports Solo, with a twin-cylinder engine of 976 c.c. capacity.

BARIMAR ACTIVITY.

A visit to Messrs. Barimar's repair works in Lamb's Conduit Street, London, W.C.1, gives a good idea of the business activity of this company.

There are departments specially eqipped for the repair of cracked and broken cylinders, crank cases, gear boxes, differential cases, shafts, etc.; in another machine room gears are cut, cylinders reground, pistons machined, connecting rods made, and twisted crank-shafts straightened and reground.

On another floor are motor car radiators and hundreds of damaged lamps, all awaiting treatment. New radiators of every type for motor cars and cycle cars in various stages of construction. Other sections of the works are specially equipped for the quick and economical repair of magnetos and accumulators, each department being in charge of a specialist.

THE TRIUMPH CYCLE CO., LTD.

The 1925 Catalogue issued by the Triumph Cycle Co., Ltd., is an attractive publication, giving full particulars of the various models of their well-known products, as well as full technical descriptions of the principal technical features. Readers will be particularly interested in the 4.99 h.p. O.H.V. machine, with two inlet and two exhaust valves. This is also supplied as a "Super" Combination, with a very smart sporting sidecar body. The illustrations in this Catalogue are very well produced, and give a very clear idea as to the sound construction of the Triumph machines.

The scarcity of really skilled mechanics in the motor repairing business is a thing which is likely to be felt very keenly by the sporting car owner who desires certain highly technical work to be done on his car from time to time. The whole trend of repairing seems to be in the direction of eliminating the good old-fashioned hand-work, without which it is practically impossible to get the best results in car tuning. Apart from the help given by sporting car manufacturers and their agents, the owner has to fall back upon his own resources for development work, which means that technical knowledge becomes one of the main factors of success.

THE B.A.R.C. EASTER MEETING.

Bad Weather Causes Abandonment of Several Races.



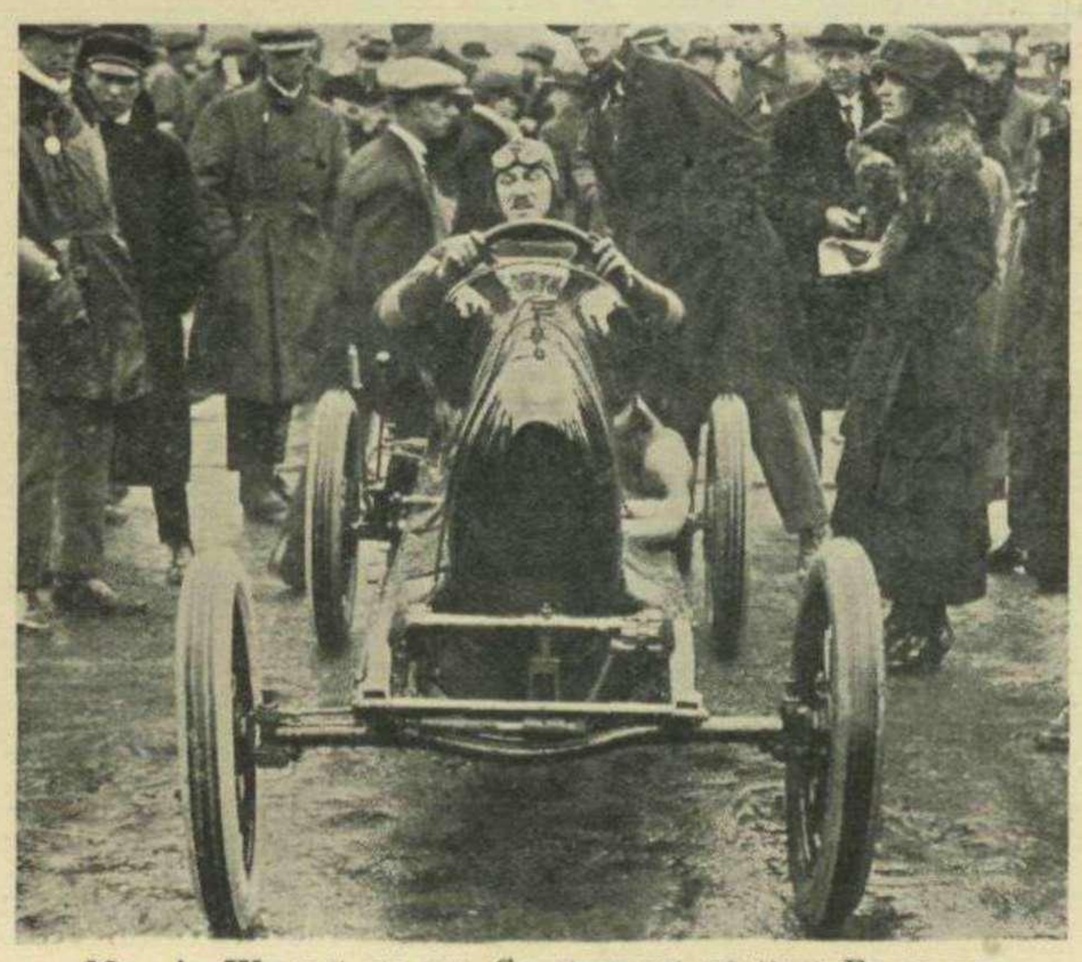
AN INCIDENT IN THE 18TH NINETY M.P.H. SHORT HANDICAP.

FINE weather in the morning was responsible for the large attendance at Brooklands for the opening meet of the B.A.R.C. Some thirty thousand people were assembled before the weather broke and completely spoilt the meeting from a spectacular point of view, as none of the larger cars competed owing to the cancellation of their events. Disappointing it certainly was, but undoubtedly the stewards were wise in not permitting the leviathans of the track to be unleashed; it was hard enough to hold the small fry down on the banking at times.

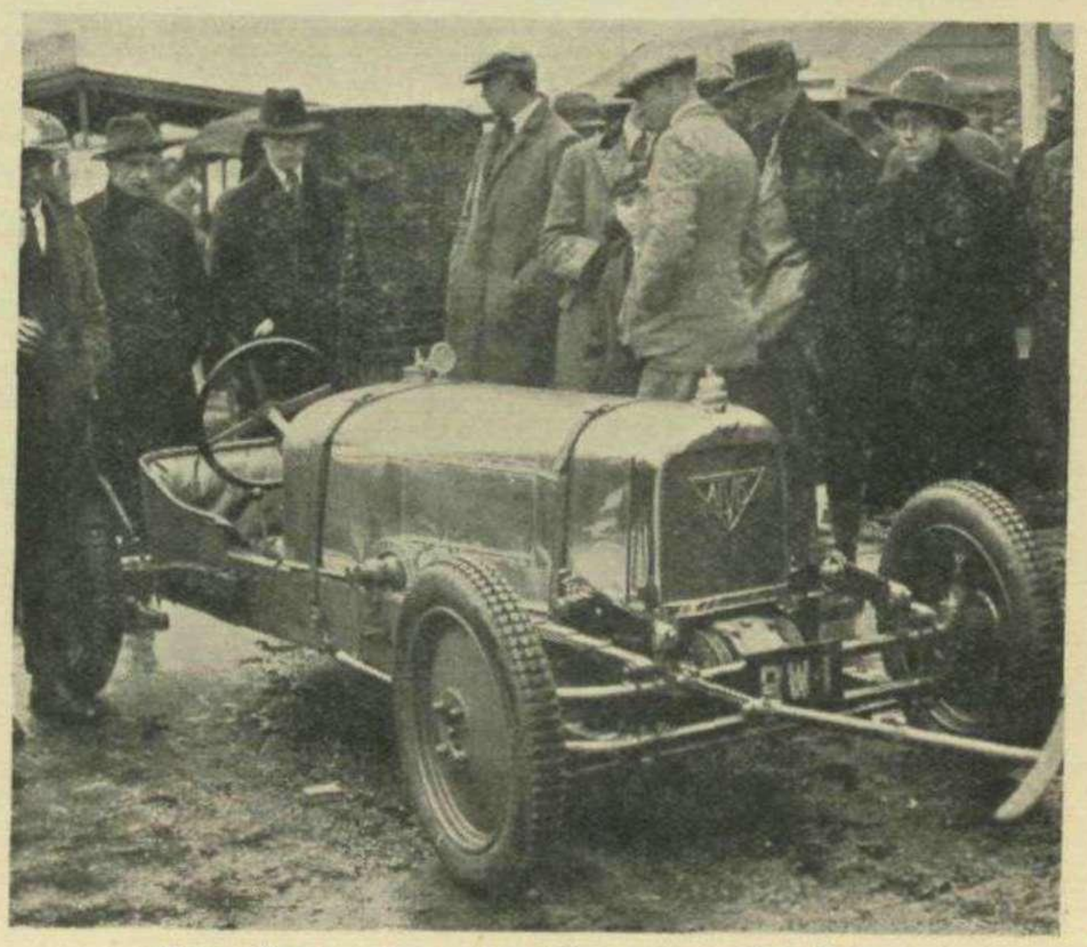
The first race, the Easter Private Competitors Handicap of $5\frac{3}{4}$ miles, commenced from the Railway start and finished half way down the Railway straight. It resulted in a win for Purdy's Alvis which caught the limit car (J. Dunfee, Salmson) twenty-five yards from the front and just managed to win by a length at a speed of 78.57 m.p.h. Lieut. Kidstone was third on his Bugatti.

The second race on the programme was the 32.75 m.p.h. Short Handicap, $5\frac{3}{4}$ miles, starting from the Pond and finishing on the Lightning Finishing Line. The Marendaz Special (43 secs.) was never caught, although another quarter mile would have resulted in Whale's Calthorpe winning; as it was, Marendaz won by about 130 yards and Dr. Benjafield was third on a Salmson. Speed 73.52 m.p.h. The third race was cancelled and the fourth took its place. This was the 18th 90 m.p.h. Short Handicap and the victor was the scratch man, Lieut. G. Kidston (Bugatti owing 6 secs.), second, O. Wilson Jones (Salmson 26 secs.), third, Capt. Waite (Austin 45 secs.). Speed 96.84 m.p.h. An exciting incident occurred when Mr. Chamberlayne's Nazarro, driven by Captain Miller, caught fire. It was driven down the finishing straight in flames, but the outbreak was soon dealt with by the Pyrene people. The O.H.V. gear was damaged during the week-end by someone who broke open Mr. Chamberlayne's garage.

The fifth (Brooklands Founders' Gold Cup) race was cancelled and the next, the 18th 90 m.p.h. Long Handicap of $8\frac{1}{2}$ miles proved a win for Capt. Campbell (Itala 1.18), followed by Whale's Calthorpe, only 80 yards behind, and Capt. Waite (Austin 11, 1.24) brought up

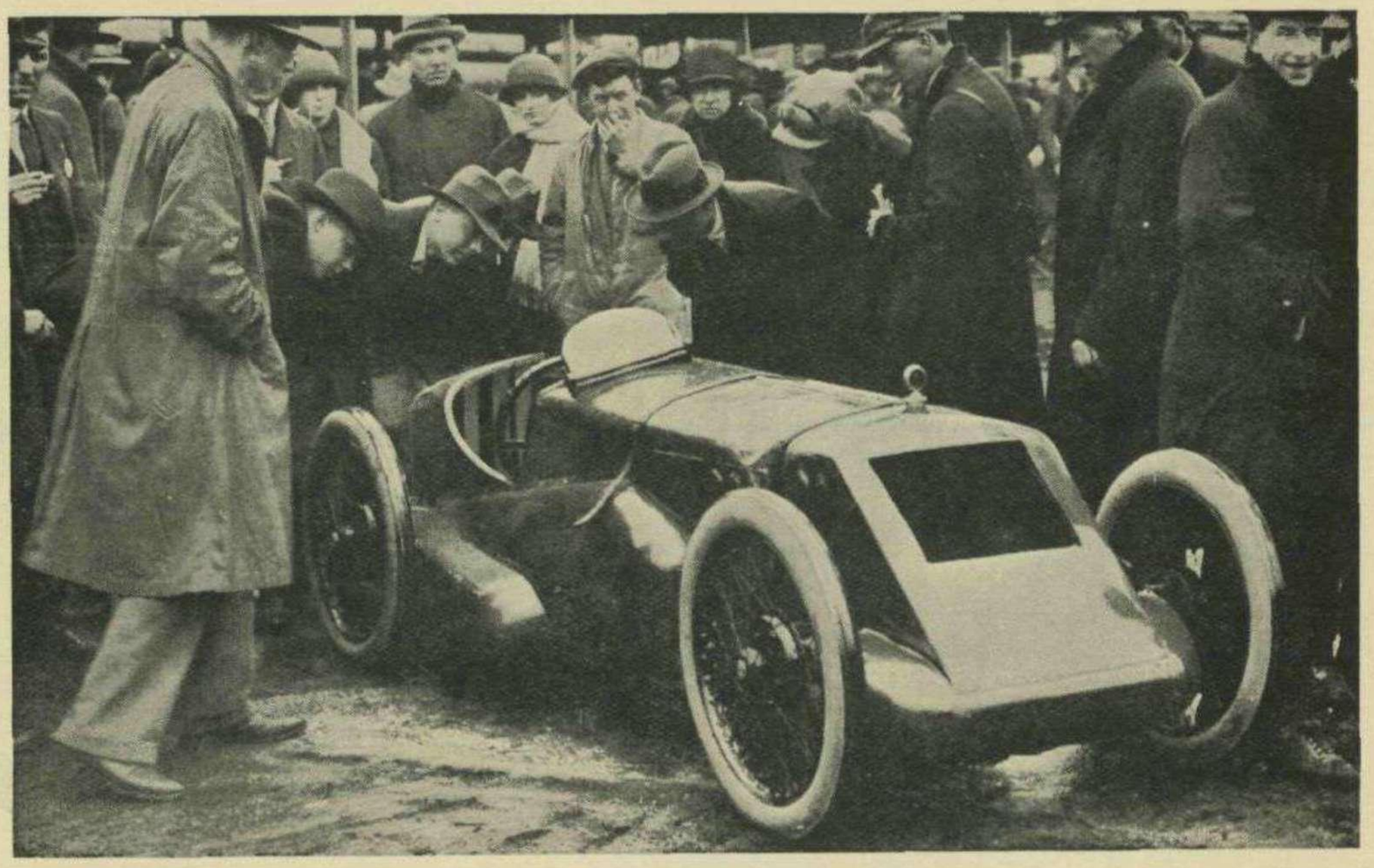


MR. A. WHALE IN HIS CALTHORPE IN THE PADDOCK.



THE SUPER-CHARGED FRONT-DRIVEN ALVIS.

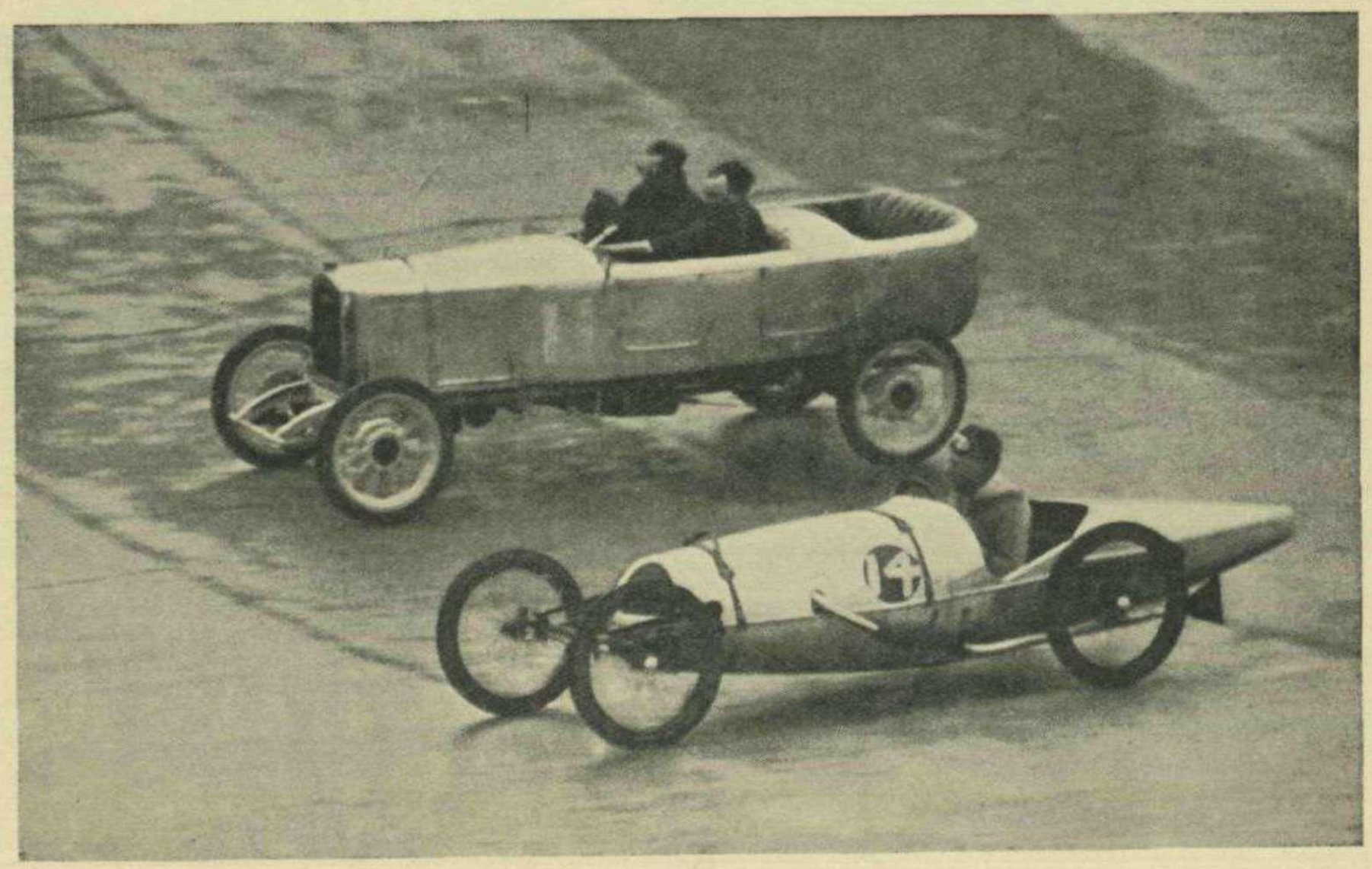
THE B.A.R.C. EASTER MEETING—continued.



THE NEW AUSTIN SEVEN RACER DRIVEN BY CAPT. WAITE CAUSES INTENSE INTEREST.

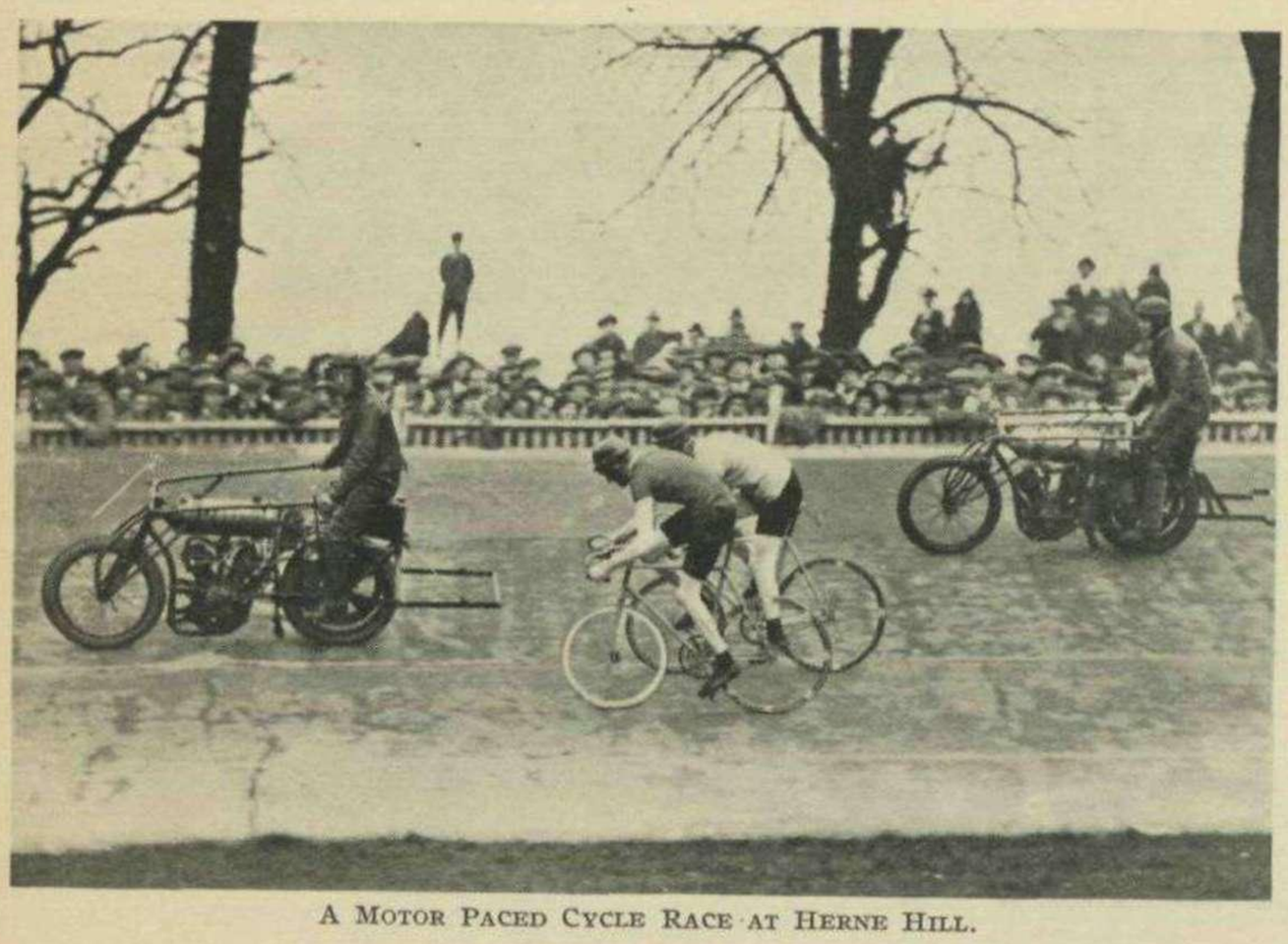
third. The winner's speed was 78.05 ; not very high for this race.

The last race was the 8th on the programme, being the 32nd 85 m.p.h. Long Handicap. The Limit car, a Salmson, driven by Mr. J. Dunfee, got well away and was closely followed by Capt. Waite (Austin 11). It was never caught and finished 120 yards ahead of the Austin at a speed of 76.34. Purdy's Alvis looked good enough to catch them both, but with a handicap reduced to 45 secs. from 1 min. 11 secs. he left it too long before spurting. Another lap, however, would have given the Alvis a second win.



J. V. PRESTWICH'S "JAPPIC" TRIES CONCLUSIONS WITH THE MARENDAZ SPECIAL.

RECENT MOTOR AND



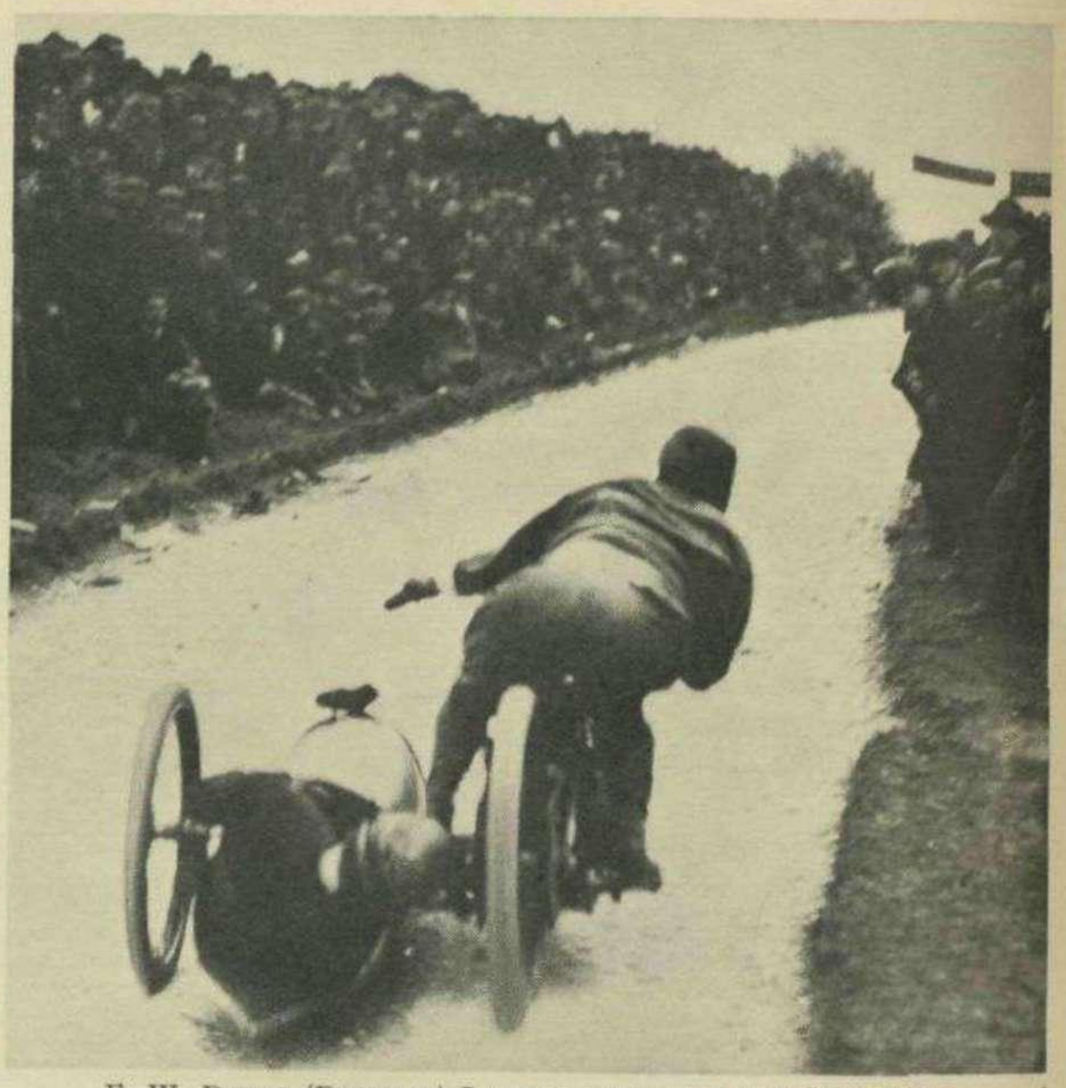
A Motor Paced Cycle Race at Herne Hill.



The Brooklands Crowd Views the Course in Safety.



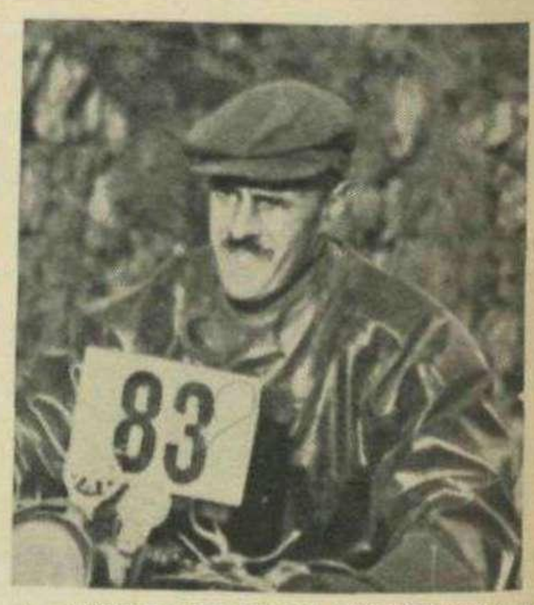
An Unheeded Warning at Kop: "Please Keep Off the Road!"



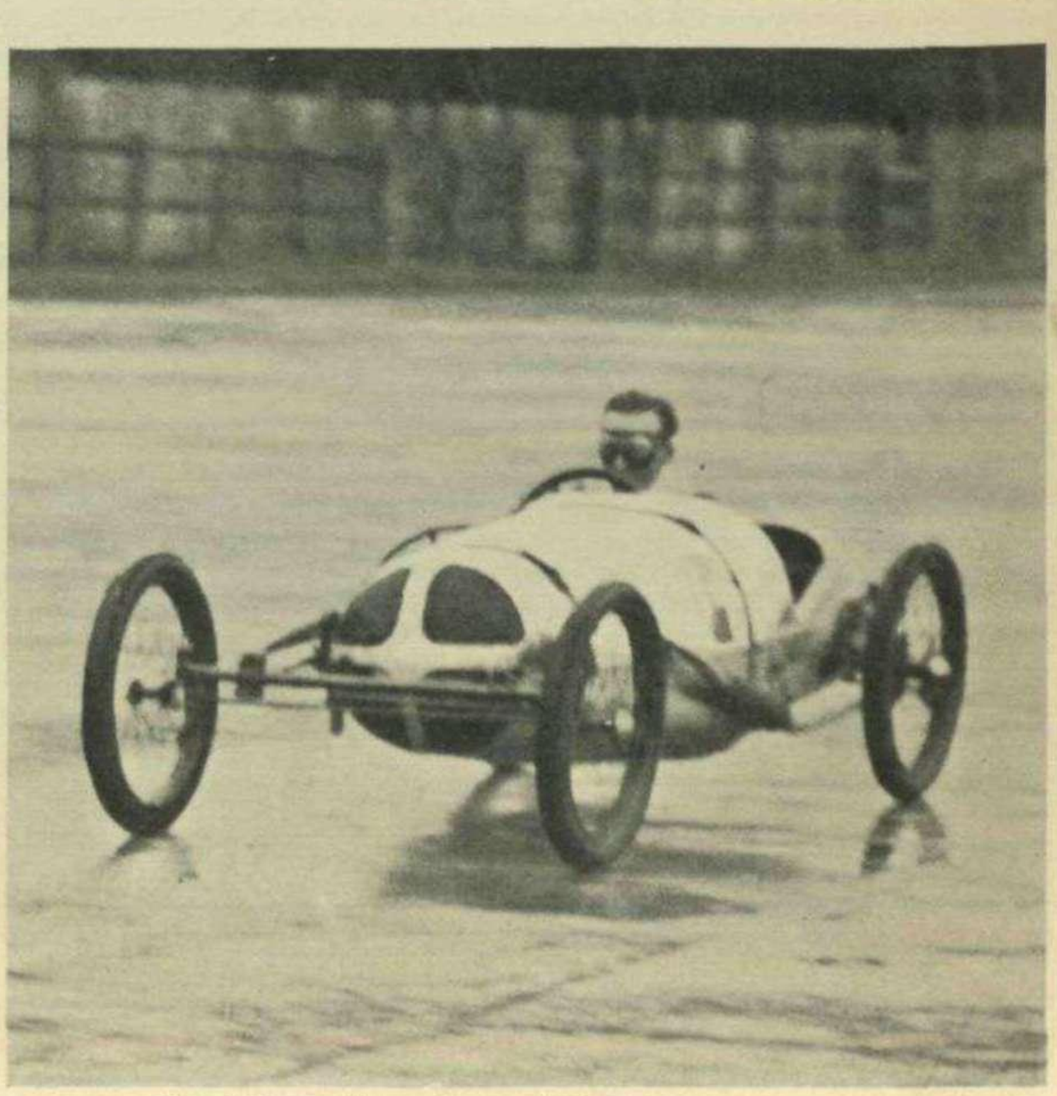
F. W. Dixon (Douglas) Lowers Sidecar Record at Kop.



G. A. Pidgeon: Anxiety.

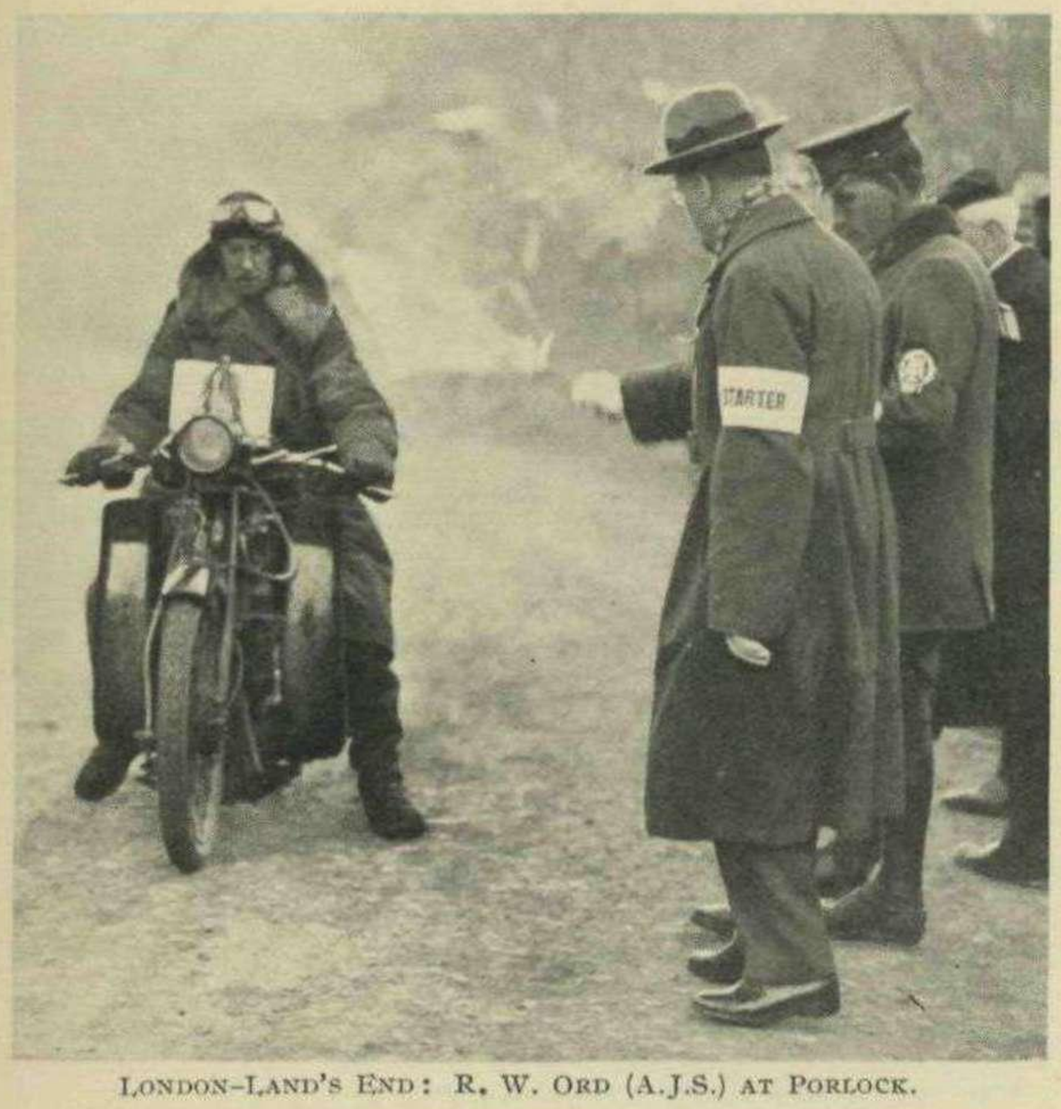


A STUDY IN HILL CLIMBING E.
G. W. Copeland: Success.



The "Jappic," the World's Smallest Racing Car.

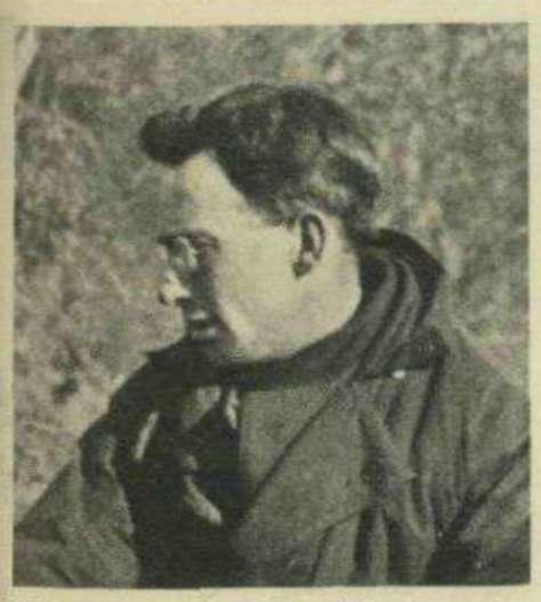
MOTOR CYCLE EVENTS.



LONDON–LAND'S END: R. W. ORD (A.J.S.) AT PORLOCK.



MAJOR COE (ALFA-ROMEO) CLIMBS KOP HILL IN 33 SECS.





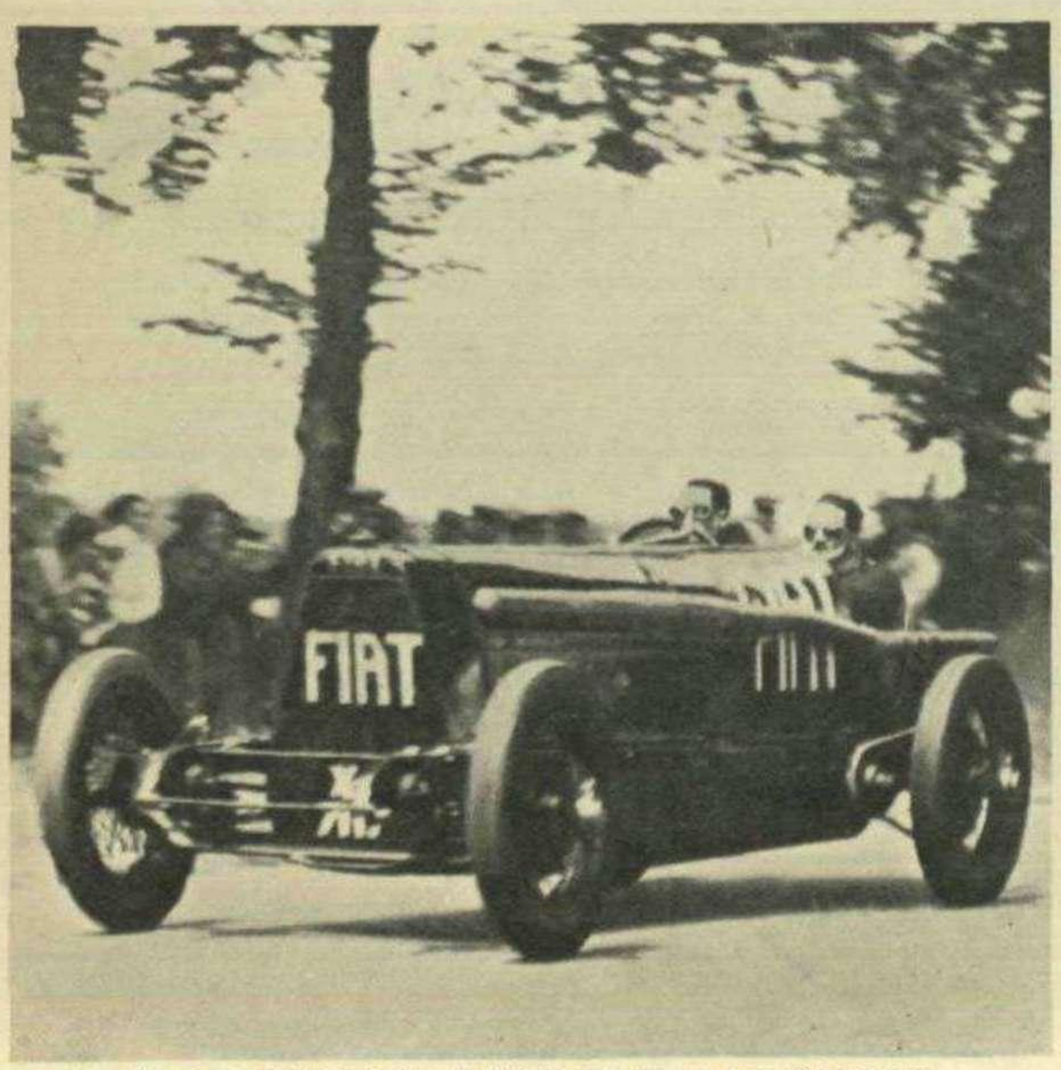
IMPRESSIONS SNAPPED AT PORLOCK.

H. G. BAILEY: THOUGHTFULNESS.

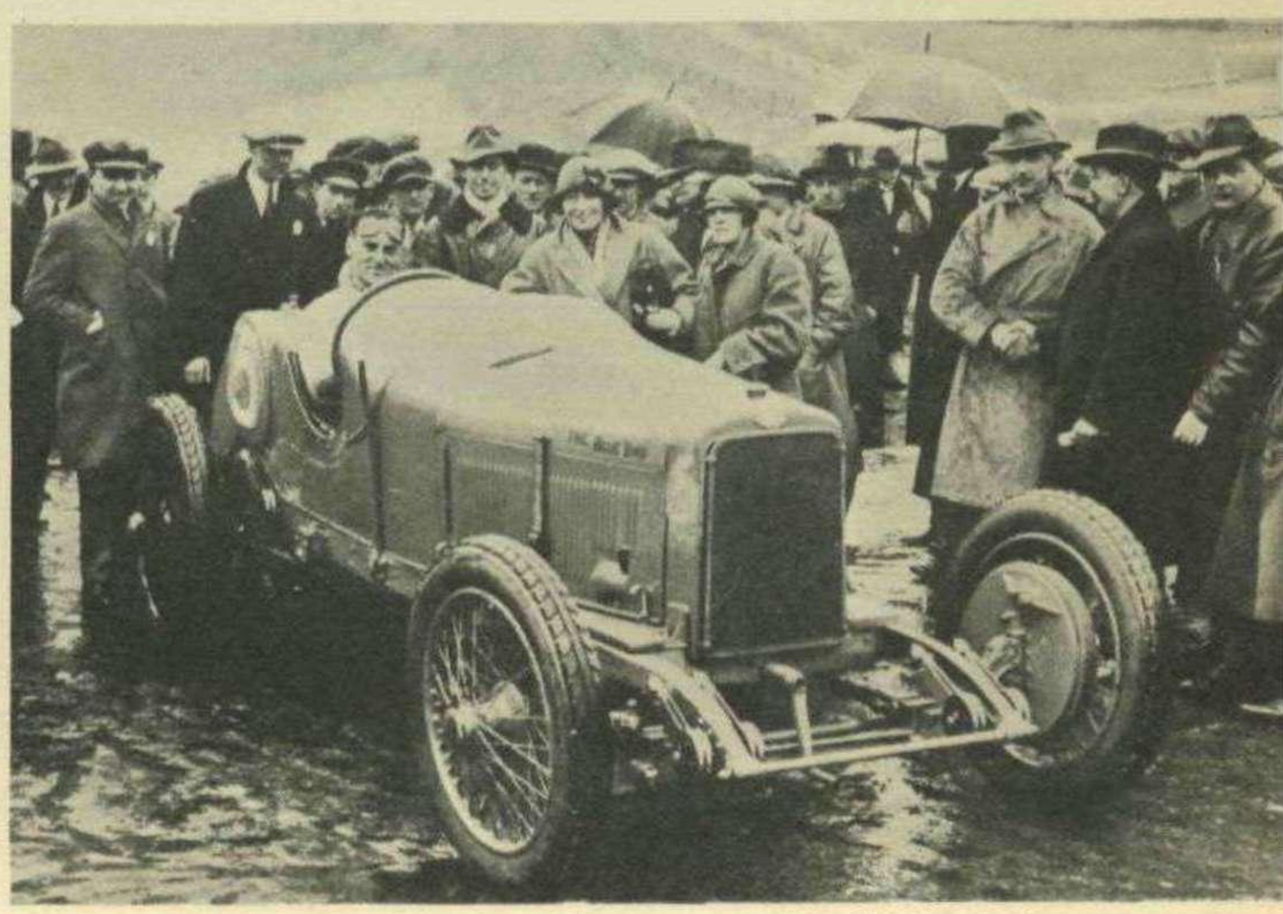
P. R. COPLAND: DETERMINATION.



SPECTATORS WHO BELIEVED IN "SAFETY LAST" AT KOP HILL.



ELDRIDGE'S "FIAT": A CONTRAST WITH THE "JAPPIC."



CAPT. MALCOLM CAMPBELL WINS AT THE B.A.R.C. EASTER MEETING.

SPORTING MACHINES ON TEST.

The 3½ h.p. Longstroke "SUNBEAM."

By ARNOLD RADCLYFFE.

IN the general opinion of motor cycle *savants*, the 493 c.c. overhead valve "Sunbeam" is the ideal production of Sunbeamland, but as a very able description of the latter model has appeared already in the motoring press, I decided to make a test of the 3½ h.p. longstroke machine, especially as this is catalogued as "The Speedman's Machine," and should therefore be of interest to our readers.

It was my original intention to enter the Sunbeam for the Southern Scott Scramble, but as the date of delivery was uncertain, I had to be content with going over the course on the occasion of that event in an unofficial capacity.

When undertaking a trip of this kind, one is well advised to be quite familiar with the control and habits of the machine to be used; but I found this precaution entirely unnecessary with the Sunbeam, as it seems to fit everywhere directly one takes to the saddle.

First Impressions.

My first impression of the machine was that it seemed to occupy no room on the road, the all-black enamel and inconspicuous finish of the tank making the bike look much smaller than it really is. The design permits of an upright riding position when cornering, and yet allows a crouch for track work, without having to extend the elbows too far forward. The throttle and magneto controls are placed conveniently, the former opening inwards, which I prefer. Mounted forward at the right hand side of the tank, the gear lever is very conveniently situated for a quick change, but I was inclined to foul my knee against it at times. This, of course, would be obviated by using knee grips of the "Dance" pattern. On threading my way out of London, I discovered some of the sterling qualities of the Sunbeam, which include a sweet clutch and rapid acceleration.



THE 3½ H.P. SUNBEAM, SHOWING THE GOOD RIDING POSITION.

At first I had a little trouble with a carburettor "flat spot" when picking up, which caused the engine to stall on several occasions. The defect could not be traced to any stoppage in the carburettor, and continued until I replaced the 38 jet by a 41, upon which the objection disappeared.

Testing on the Great West Road.

Before putting the Sunbeam at a short speed test on the excellent surface of the Great West Road, I tried the suspension on an adjacent stretch, which has not been touched for generations by the hand of man. Some idea of the surface at this point may be gathered, when I mention that two well sprung touring cars travelled over it very gingerly at about 10 m.p.h. Thanks to the design of the forks, however, and the addition of D. & B. stabilisers on either side of them, the Sunbeam took the rough surface at a good speed, with a complete absence of front wheel bounce.

Once again on the main road, the machine showed its paces, which were quite up to expectations, if not rather beyond them. I may mention that this particular machine had been well run in, having in fact two recent Golds to its credit, so that my criticism was in no way hampered by the irritating "newness" usually to be taken into account on such tests.

Comments on Coursing Camberley.

Having thus established friendly relations with the Sunbeam, we proceeded together to Camberley to see how we should shape on a test of more than average severity. The route was unfamiliar to me and from the condition of the majority of machines on finishing the first round in the morning, I concluded that high foot-rests were essential, and silencers in front of the engines were likely to be carried away. Now, the Longstroke "Sunbeam" is very nicely silenced, only a pleasant

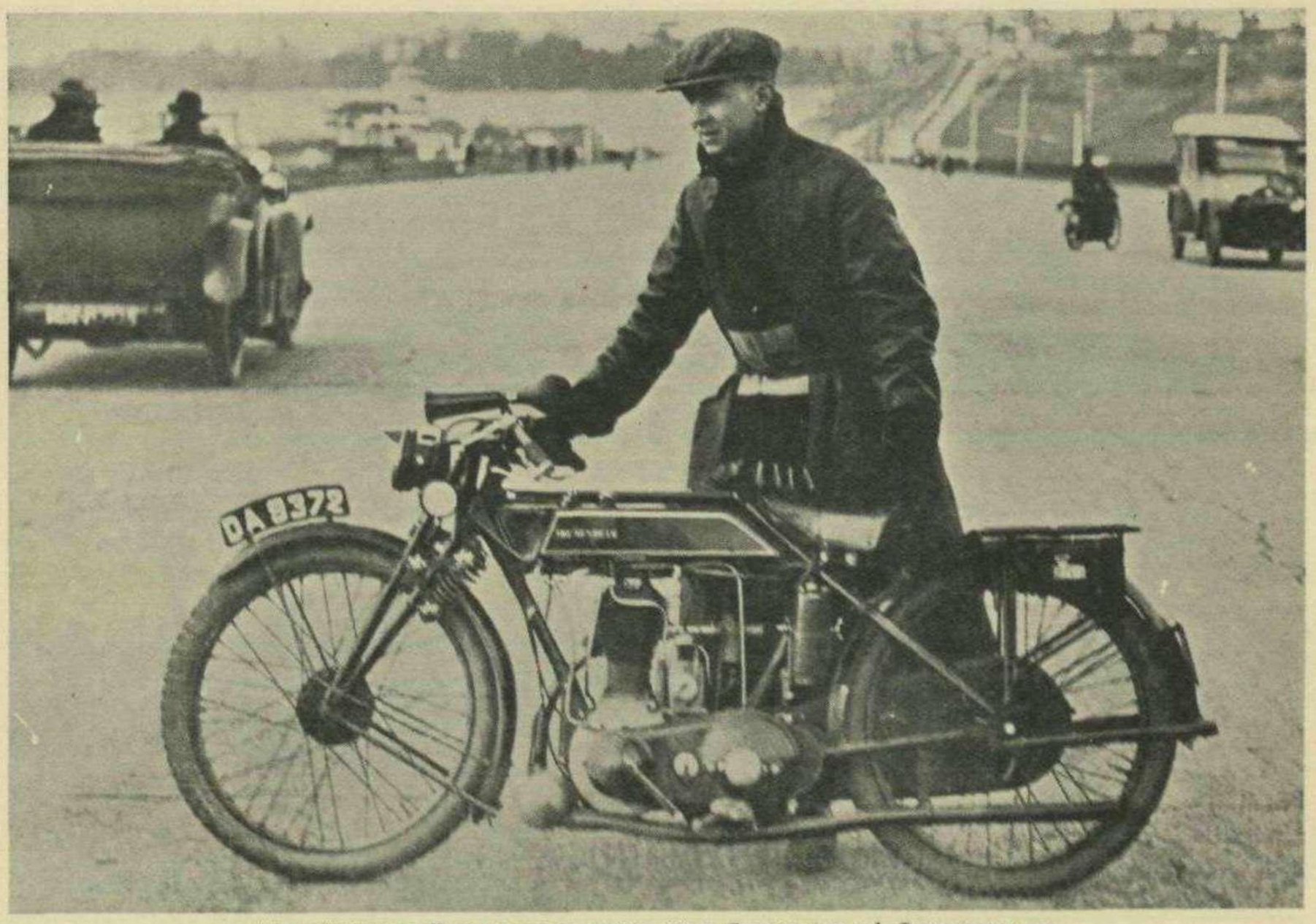
SPORTING MACHINES ON TEST—continued.

note being heard when the silencer *in front of the engine* has dealt with the gases ; and, in addition, the footrests are more or less normal. I noted with relief, however, that the foot brake is mounted separately from the footrest, and when I bent the left rest during the run, the brake was not put out of action. In point of fact, the Sunbeam expanding front brake is the best I have tried so far and it is possible to stop the machine in its tracks either with this or the other brake. As good braking is never more wanted for cornering on the course of the " Scramble "—with the possible exception of the T.T.—it helped me to maintain a fast average without risk of smashing the machine. It was possible to come right up to a hairpin bend at full throttle, shut off suddenly and apply both brakes hard, then aided by the ability of the machine to corner at a good angle, to get away quickly again without skidding.

Woolly, Red Road and the Devil's Drop were negotiated without any faltering and practically without wheel spin. The latter I attributed to the new Dunlop square studded tyres, which besides adding to the stability of the machine assisted materially in the braking effect, for which the Sunbeam is so remarkable.

During my trip round the course, I noticed the front forks bottomed several times on unseen pot-holes, and I was anxious about the steering head, but no flaw was discoverable at the finish. Needless to say, the springs are quite stout enough for ordinary work and are, in fact, larger in diameter than those of last year's model, but as the pot-holes were something in the nature of hidden elephant traps, it was surprising that the steering head was intact at the finish.

Apart from the slight bending of the footrest, caused no doubt by an impact with a concealed stump, the



Mr. Arnold Radclyffe with the Sunbeam 3½ Longstroke.

For such a course as the Camberley Club organisers select for the entertainment of their members and guests, I found the Sunbeam ideal ; the short wheelbase, the good acceleration and braking, combined with the perfect, absolutely perfect steering and shock absorbing front forks, all go to make the machine most manageable over a track, which is full of surprises in the way of gullies, quagmires, pot-holes and soft sand. The latter is liable to strike terror into the heart of the most hardened competition rider, when it is encountered suddenly at speed.

The Sunbeam Acquits itself Nobly.

I am glad to say, the Sunbeam completed the course without throwing me out of the saddle and that Wild and Sunbeam came through the test surprisingly well and in spite of the fact that top gear could seldom be engaged, the engine kept very cool and showed no signs of tiring. I gave her plenty of oil by means of the auxiliary hand pump and though the mechanical pump was delivering oil freely through the sight feed, the engine could not be prevailed upon to smoke. One hardly expected clouds of smoke, however, as I found it possible to stand on the kick starter almost indefinitely against compression.

Technical Comments.

The magneto fitted is an E.I.C. square type situated behind the engine, high up and sheltered by the cylinder, the instrument giving a good spark at all speeds and (Please note, O ! King of Thessaly) starting was a matter

SPORTING MACHINES ON TEST—continued.

of one kick from cold, without flooding and astride the saddle.

The sporting Amac carburettor gave good results on the whole, but possibly an improvement might be effected by a variable jet having a small range of openings. I am not in favour of variable jets as a rule, but in this case should have liked an opportunity of making some tests in this direction.

The Sunbeam patent oil-bath chain cases were fitted to this model, but actually the Longstroke is sent out with an ordinary chain guard for the rear wheel. I think it would pay to sacrifice a little weight and accessibility by having an oil-bath chain case fitted as standard.

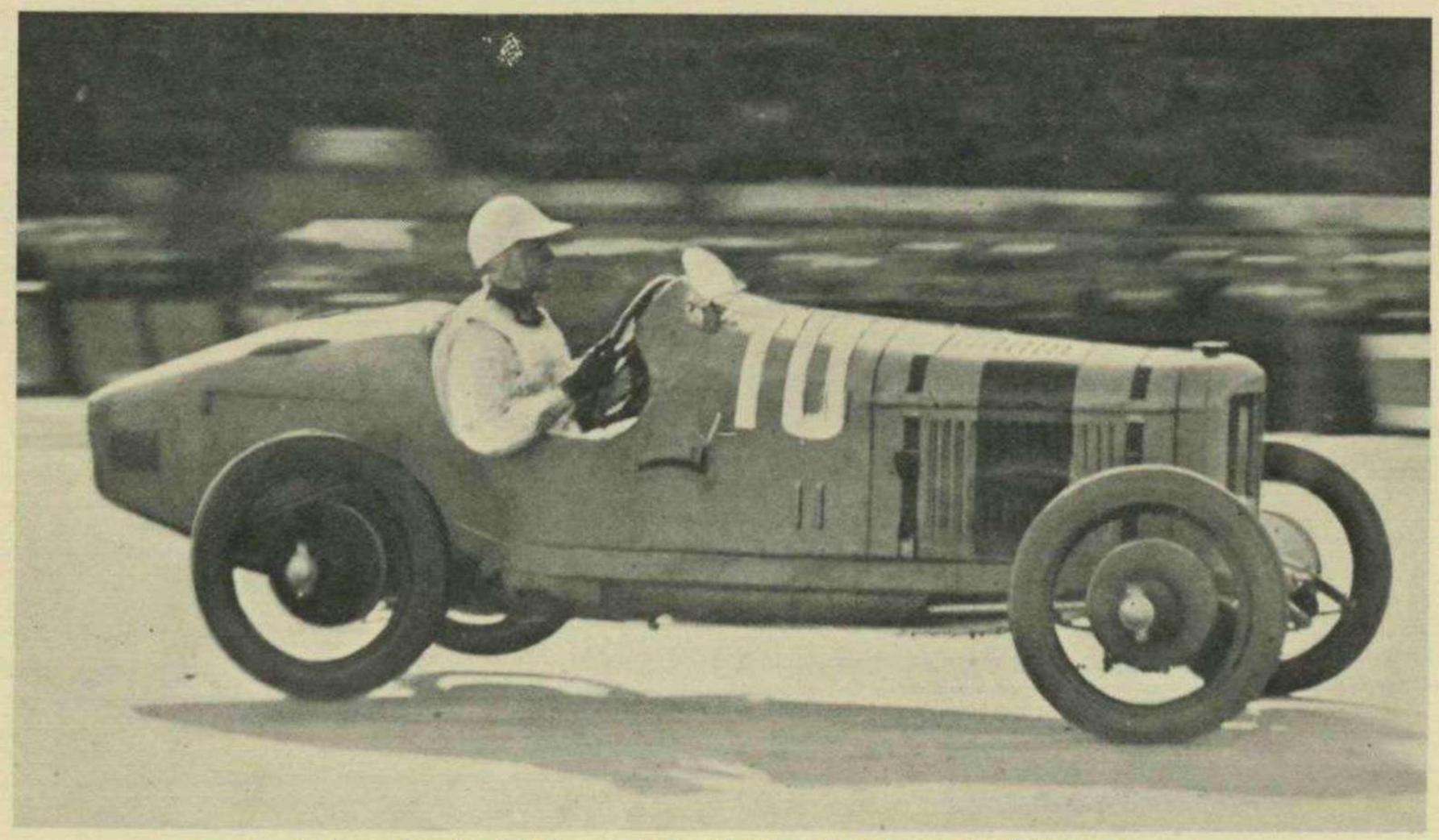
Special comment is called for with reference to the gear-box, which besides being extraordinarily silent in operation, permits of very quick changes. This may be attributed to the method of employing dog clutches, actuated by the Sunbeam rack-and-cam motion. The only criticism I have to offer concerning the gears on the machine I tested, was the difficulty in engaging the first gear quietly from a standing start, but I cannot believe this is anything but a slight misadjustment, which should be easy to correct.

The ratios fitted on the machine I tested were as follows :—4.6 : 7.0 : and 10.5, which suited the course admirably. Other ratios are optional.

On some 3½ h.p. machines, one feels the need for a fourth gear, but on the Sunbeam the ratios are comparatively close and this, coupled with a high engine performance, renders the extra gear quite unnecessary, except perhaps for sidecar work with a heavy passenger. Slow top gear running, say through a 10 mile limit, is very attractive, since with the spark fully retarded, it is possible to throttle down to 6 or 7 m.p.h. without any snatch.

The tank holds about 1½ gallons of petrol and a quart of oil, which is quite sufficient for the engine capacity, but with the big jet I used the engine is naturally greedy, though the average consumption was about 50 m.p.g.

On several speed tests I reached between 73 and 74 m.p.h., and in general terms formed an extremely favourable opinion of the model for all round efficiency.



MAJOR H. O. D. SEAGRAVE ON THE DARRACQ AT MIRAMIS.

The Oxford Motor Club Handbook.

We have received a copy of the above mentioned Handbook for 1925, which is extremely well produced and full of interest, not only to Club members but to motor cyclists and motor car owners in general, though primarily intended for the former.

We give below an extract from the 1925 programme from which it will be seen that the Club is a very live organization.

Fri., May 1st	...	May Morning Run.
Sat., May 2nd	...	Surbiton Team Trial.
Sat., May 16th	...	B.M.C.R.C. Race Meeting at Brooklands.
Sat., May 16th	...	Herts County A. & Aero Club Hill Climb, Aston Hill.
Sat., May 23rd	...	A.C.U. South Midland Centre Hill Climb.

Subject to alteration.

Speaking of Brooklands as a venue for sporting events on an even more extended scale than at present, there seem to be splendid opportunities for developing the unoccupied space in the middle of the track as a sporting course of more that ordinary interest. If only all the motoring clubs and organisations could be persuaded to co-operate there would be no anxiety for the future of speed trials under road racing conditions.

* * * *

By introducing the novelty of including the roads and test hill at the Brooklands Track in their High Speed Reliability Trial, the Junior Car Club Committee have rendered a big service to the sporting motorist, and we shall probably see further developments in this direction in the near future.

On Brooklands — as on every road

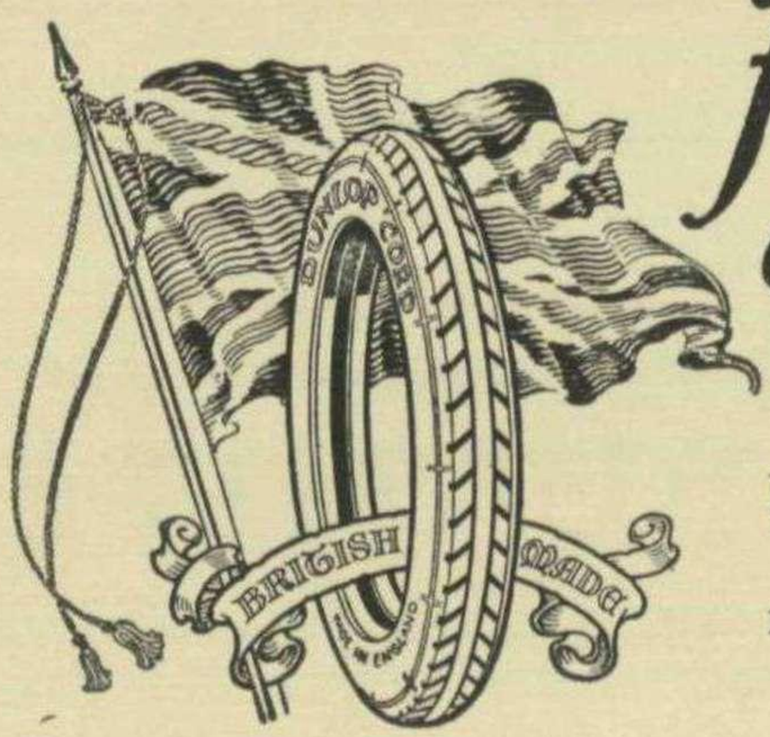
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Occasional Four	£195
Three-seater "Clover Leaf" De Luxe	£235
Torpedo Four-seater "De Luxe" ..	£225
Two-seater Coupe	£215
Two-seater Cabriolet "De Luxe" ..	£215

Model 11 h.p. 1925 Type P.E.

Chassis	£225
Torpedo Four-seater "De Luxe" ..	£295
Four-seater Saloon "De Luxe" ..	£375
Four-seater Standard Saloon	£350

Model 13 h.p. "Sports" 1925 Type L.

Chassis	£300
Two-seater "Sports Body"	£375

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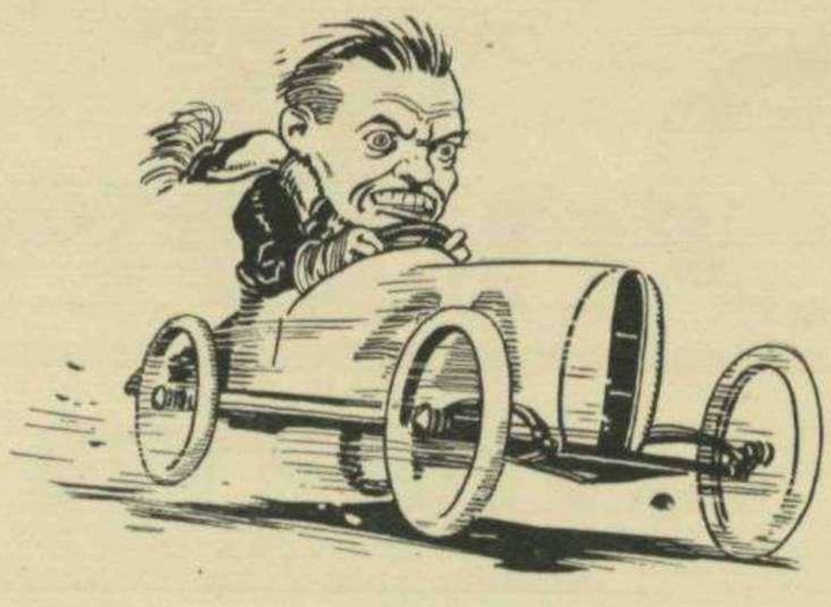
A TIP from "LONG TOM"

If you are going to

EPSOM,
ASCOT, or
GOODWOOD

by car the best places to view the race from are the Bus Enclosure at Epsom, stand side, The Eastern Motor Enclosure, stand side, at Ascot (there is a lovely lawn and covered stand here adjoining), and the stand side Motor Enclosure at Goodwood. *This is the biggest treat of the lot and remarkably cheap, too.* Book your places early at the R.A.C.

By a remarkable coincidence "LONG TOM" is right on the spot in each case, so you won't have any worry about your winnings.



Telamite Teddy,

The "Brooklands Bullet,"
Whose bus had fifteen cyls. to pull it,
While tootling up the Kirkstone Pass
Heard yells that made him take the grass
Between the road and a gaping quarry,
And miss by a hair a four-ton lorry.

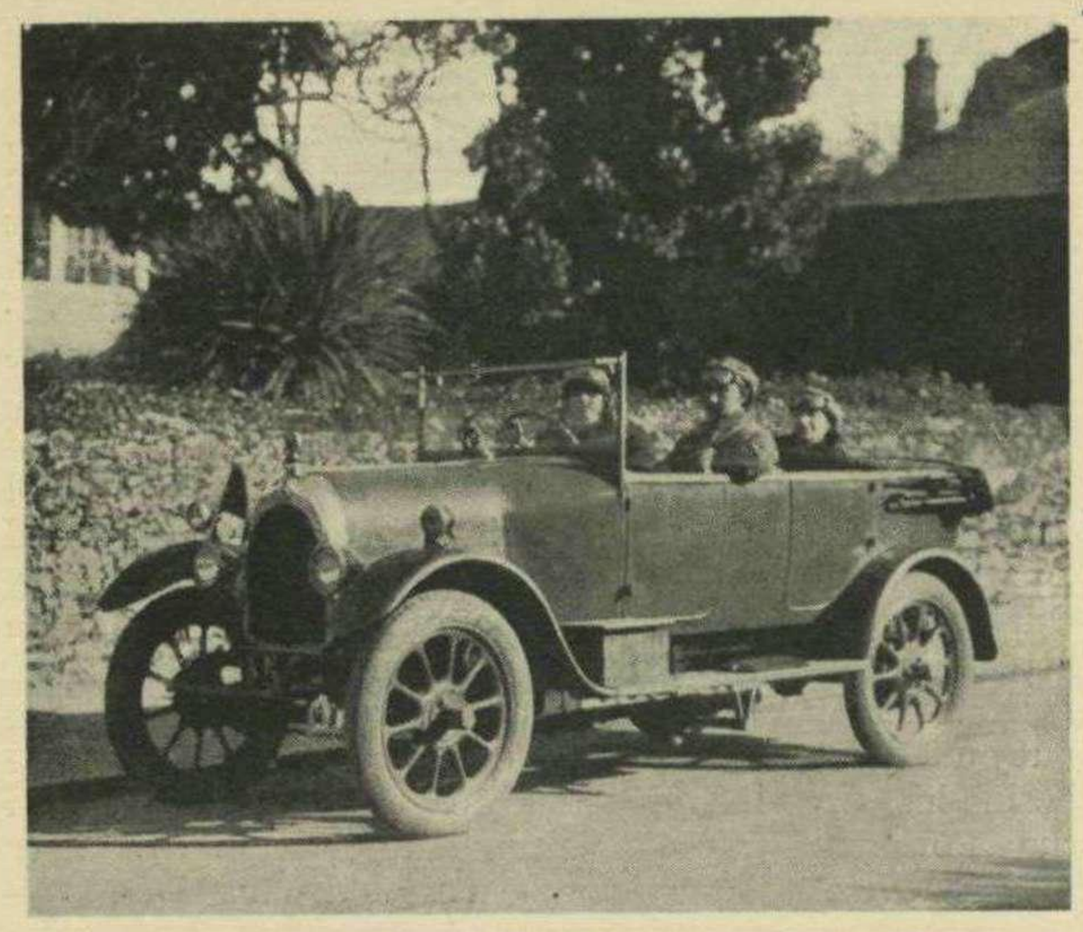
Telamite Teddy swung his car round,
Lit a cigar, and then at a bound
Went after the runaway lorry like deuce.
Could he scrape past it or was it no use?
Doing eighty, it swerved; Teddy passed, mudguards gone.
Then, his tail to its bonnet, he put his brakes on!
In twenty-two seconds they came to a stand—
And—Teddy drove off with a wave of his hand.

This rescue still further enhanced Teddy's name
But honour where honour is due all the same.
And Teddy owns he'd have had a fright
If his brakes weren't lined with

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THE 11·9 BEAN SNAPPED ON THE LAND'S END TRIP.

An Unofficial Commentary ON THE London—Land's End Run.

Observations During a Journey in Search of Experience.

JIM and I "bossed" a gold in the London–Exeter–London owing to the collapse of what appeared to be a perfectly good tyre on Peak Hill, and though the old Bean never hesitated at any part of the trip, we made up our minds to carry out some experimental work on the engine and then go down to Land's End with the rest of the M.C.C. members in search of experience. The greatest pleasure connected with these trips is to be found when one makes the first attempt, for then there is the glorious uncertainty whether one's car will be good enough for the stiff climbs, apprehension as to whether one will do just the wrong thing in the excitement of the moment, and whether somebody else will not konk out on a tricky corner of a difficult hill just when one wants to put up a particularly good show.

You have all read the reports of the event, so it is useless for me to repeat what has been recorded already; but if I may be permitted to confine my comments to personal experiences it may be of interest to all except the regular competition driver, who has nothing to learn about these sort of events—though incidentally, it may be remarked, many well-known drivers and cars failed to get through the classic Easter trial with full honours.

Getting more Revs.

As everyone knows, the 1923 Bean was just a good solid job, without any pretensions to speed, and had an engine which possessed a distinct disinclination to get round at anything above 2,500 r.p.m. Now, Jim and I have messed about with our particular haricot and induced it to turn over at quite a respectable speed, by the aid of a set of Specialloid pistons and a "hot-stuff" camshaft specially made for the job by Laystalls.

To be quite on the safe side we remetalled the con-rods and did a little in the way of engine balancing as the overhaul proceeded. Incidentally, the new camshaft played havoc with our original carburettor setting, which meant that we had to spend a quiet night on one of the new roads trying different combinations of jets, chokes and diffusers against the clock over a measured mile.

The best we did was 32 m.p.h. on second speed and 45 m.p.h. on third. If the chassis had not been such a long way above the ground we should have burst our 60 m.p.h. speedometer, which, in fact, recorded *under* the correct reading on account of the oversize tyres fitted to the standard rims.

The acceleration we passed as being first class, and then, in an ambitious moment, we gave the magneto a bit more advance, so that, until the car reached 45 m.p.h. it had to be run at full retard. In passing, I may remark that this extra advance helped to spoil the climb at Porlock, when we were driven straight across the first bend, as the curve was blocked by a machine that failed just in front of us.

Why we did not Compete.

Having made all these preparations for the trip, one may well ask, "Why did you not compete?" Well, for one reason we wanted to see how other people got on, to meet friends and enjoy wayside chats without being harassed by Father Time, and to loiter about on the hills and other places of interest.

With these objects in mind we began our trip by losing our way in the fog before arriving at Slough, but reached the place of assembly in time to see the sidecars start. By this time many of the cars had arrived, and we had an opportunity of inspecting the new Rover Sports, the Speedy Morris, the little Austins, and other cars which were destined to make good performances. If it had been possible to have taken a colour photograph of the interior of the great sheds in which the cars and their drivers assembled the result would have been extremely interesting, for here was the sporting youth, dressed in aviator's overalls, with a long tasselled cap hanging over his back and extending to his waist. The sporting maid affected a similar attire, smoked innumerable cigarettes, and consulted route cards with a professional air. Except for the presence of the officials, the whole scene resembled a gigantic carnival, with an orchestral accompaniment in the sounds of the departing cars as their exhausts roared and whined a valediction on passing out into the night.

Not a Race.

As carefully pointed out by the compilers of the programme, the London–Land's End Run is *not* a race; but all the same there were precious few drivers whose right feet did not go hard down for the first few miles. Each of the little Austins tried to show it was as good or a little better than the one in front, and it was only when the seasoned competitors began their long journey that the tail of the procession settled down to a sedate rate of speed, which was seldom varied throughout the trip, except on the few occasions when it was necessary to make up time.

COMMENTARY on the LONDON—LAND'S END RUN—continued.

Baffled by the Fog Fiend.

The early hours of Saturday morning were heralded by a dense fog, which lay in patches along the route, and though this caused obvious inconvenience to some of the drivers, others sped through the denseness as if it did not exist. At every turn we expected to see some competitor ditched, but by luck and good judgment the convoy got clear without any casualties, as far as could be ascertained.

A few hours before dawn, however, the fog thickened, and at times our pace had to be reduced to a mere crawl, so much, indeed, that we wondered how some of the competitors managed to keep up to the scheduled twenty miles per hour.

During a stop at Bridgwater we took the opportunity of adjusting our steering column, which had been taken down prior to the run. On engaging the worm with a different section of the worm wheel the freedom of the gear had lessened, beside which there was a certain amount of backlash due to side movement on the worm wheel spindle. The latter was soon corrected, after which the steering eased off considerably, which was a very good thing considering the nature of the route which lay before us.

The Ascent of Porlock.

Not having any reason for tarrying with the back-markers, we decided to go ahead in order to arrive at Porlock Hill in time to see some of the motor cycles and the entire batch of cars make the ascent. During our unofficial ascent, as already described, we suffered a bad baulk which, coupled with too much advance on the ignition, caused the gallant little engine to jib. Had we not been disturbed by the sight of the stranded car, which impeded our proper course on the hill, the restart would have been fairly easy, but, to Jim's utter disgust, we had to be helped over the diagonal crossing of the steepest portion.

Was it for this we had toiled during those many nights, wrestling with spanners and scrapers and things? But, after all, it was all in the luck of the game, and we were not alone in our sorrow, for the hill took a heavy toll of the competitors. We profited by experience nevertheless, and discovered that engine revs. cannot be obtained quickly unless the spark is brought well back and advanced as the engine picks up its load. Such things are written in the elementary books on driving, but no book yet produced can help anyone during the infrequent seconds when everything seems to combine to upset one's better judgment. Sometimes a skilled driver may let his clutch in with too sudden a jerk, others will fumble the gears, and on Porlock Hill there seemed to be a regular epidemic of inadequate side brakes, the partial failure of which caused a large proportion of the competitors to run backwards for a few yards instead of making a clean re-start. A few of the little cars executed some spectacular zig-zagging while negotiating the steepest portions, but most drivers maintained a regular course, it being an easy matter to pick out those who knew the hill by the way in which they steered round the bends with a regular sweep and chose a medium course between the rough on one radius and the severe gradient.

After waiting until the last of the cars had passed, we proceeded to make up the time in order to catch up with the leaders, but here our luck petered out. It began with a fast ascent of one of the hills on second gear, with the engine screaming round at a speed that one would hardly credit. We knew the valve cottars were likely to give trouble, and carried a selection of spares, so that when the one located under the hottest part of the exhaust pipe sheared we stopped to play snapdragon with a stiff valve spring and a cottar which showed a preference for going anywhere except in the valve slot. Our next valves are going to be of a better steel, and be fitted with circlips instead of cottars.

In a matter of ten minutes or so we were going again, but pulled up on seeing a friend looking very disconsolate beside his car, which appeared to be going great guns on the Porlock section. Naming no names, we may mention that this particular car should have done well, as a week or so previously we had used it during the week-end, and did a stretch of road at between 79 and 80 m.p.h., besides climbing a hill nearly as bad as Porlock at a very encouraging speed. Our friend's luck was out, nevertheless, for a slipping clutch had caused the engine to boil dry, and, stranded in a waterless waste, he was on the point of abandoning the contest. Happily we were able to come to the rescue with our spare tin of water, and the competitor was soon humming on ahead to make up for lost time and an attempt to wrest a silver medal from the M.C.C.

Are Security Bolts Desirable?

I have not yet discovered the reason why one of my new tyres tore off the rim when rounding the third right hand bend in succession on a winding part of the road, but am inclined to think that tyre manufacturers place rather too much faith in the security valve in these days. The defect may have been due to taking the corner too fast, but I think that had the tyres been secured to the rims by a few security bolts this little trouble and the scrapping of a brand new tube would have been avoided.

With these delays we were behind again at Beggars Roost, and so did not catch up with the field until Launceston was reached, and after scouring round the town for an oversized tube for the spare wheel, hurried on to Bluehills Mine, which was reached in time to see the last fifteen cars ascend.

Our car made no bother at all about the long drag up to where the "bonne bouche" of the Land's End trip begins, and, making no mistake about the engine revs. this time, we charged at the corner on first speed, and succeeded in getting round without hesitation, except for a slight impact with the stone heap on the outer radius. This was followed by an easily corrected skid as the car righted itself, and the rest of the ascent was made in fairly good style. It seemed as if the spectators expected the old 11.9 Bean to come unstuck on this hill, and the cheer they gave when the difficult corner was rounded recompensed Jim for all the trouble he had taken with the preparations.

The remainder of the journey was uneventful except that on leaving Penzance it seemed as if Land's End was about a thousand miles away, but this was partly due

COMMENTARY on the LONDON—LAND'S END RUN—continued.

to the fog and darkness and partly due to fatigue. After explaining to the Marshal at the finishing point that we were merely pleasure seekers, and not competitors, we adjourned to the hotel for a meal, then started back for the homeward trek.

By taking turns at driving and sleeping we arrived at Plymouth in time for an early breakfast, a clean-up, and a replenishment for the car.

As it was a fine morning we lazed away a couple of hours on the Hoe, had lunch, and at 1.15 started back for a non-stop to town. But for a stone striking the undershield and forcing part of the shield against the flywheel we would have succeeded in our attempt, but the removal of the offending shield and a refil of petrol at Salisbury accounted for the only stops on the 220 mile run to the south-west of London, our destination being reached at 9.5 p.m. on the same evening, thus averaging approximately 28 m.p.h.

Except for a slight impact with a stone wall when Jim fell asleep before reaching Plymouth, with a resulting dent on the front hub and the rear wing, there was no further damage from the strenuous trip, but before proceeding to Brooklands on Easter Monday we had to fit a new clutch lining as the old one had broken completely away from the rivets and refused to allow the cone to disengage. Thus the final part of our Easter adventure consisted in dismantling the clutch and fitting the new lining in order to carry out our intention of being present at Brooklands for the first B.A.R.C. meeting of the year.

THE LONDON—LAND'S END TRIAL.

Some Impressions of a Motor Cycle Competitor.

In a world of imperfect things the conditions in the London-Land's End trial were nearly perfect. The roads for the most part were good, the weather was fine, and there was not too much heavy traffic about. Inconsiderate spectators were, perhaps, the greatest trouble; here and there, indeed, they were positively a curse. Even before we started we learned from a marshal that a solo man had skidded into the crowd outside the gates of the Slough estate.

Shortly after the beginning the moon arose and later hung high in a blue sky. The country was singularly beautiful under its silvery ray. Towards dawn, however, the weather grew very cold, and banks of mist made visibility poor. The mist froze on our coat collars and formed flowers on the sidecar wind screen. At one time I found that the frost in the Schebler carburetter had cause the throttle to jamb. This in spite of the fact that the front cylinder shields the carburetter from the direct air blast.

At Bridgwater we were treated to the worst breakfast that we have had since the bad old Exeter breakfasts, now a thing of the past, and after that meal we "scrapped" on to Porlock, where the re-start test and the climb gave us no trouble. The hill was in good condition and the road beyond it, down Countisbury to Lynmouth, seems to have improved.

Lynton was dry and easy. But Beggars Roost was well nigh impossible for the sidecars. Knowing that the surface was loose I rushed the hill, but nevertheless came to a standstill near the top. From out of the hole which the spinning back wheel had dug for itself some gentlemen hauled my outfit with a rope and hook.

Thence onward the trial became a race over bad, dirty and twisting lanes to a lunch which, although served in a hall temporarily rigged up for the purpose, was surprisingly good. The washing arrangements, however, were primitive and the men looked grubby. The ladies, by some miraculous means, had managed to remain clean. Face cream was the most sought-after luxury, and one expert who applied half a pot-full to his dusty red face demonstrated "That school girl complexion."

Rumour, as usual, was busy at lunch and there were many distinguished absentees from the meal.

I wonder how many fellow competitors looked into the fire station next to the lunch hall and saw the queer old engine hitched to a Fordson tractor. One fears that the children of Launceston will never experience the joys of seeing the fire engine race by.

At Perranporth the kind ladies of the town gave us a free tea which was greatly appreciated by the riders whose throats had been rendered very dry by the dust of the roads.

I find that the descent into Bluehills Mine is harder to accomplish than the ascent out of it, for the hairpin bend going down always gives me cold feet. Once round the acute corner the climb is an easy one, and when that has been effected there is nothing further to trouble one until the end is reached except, maybe, the dangerous descent into Portreath.

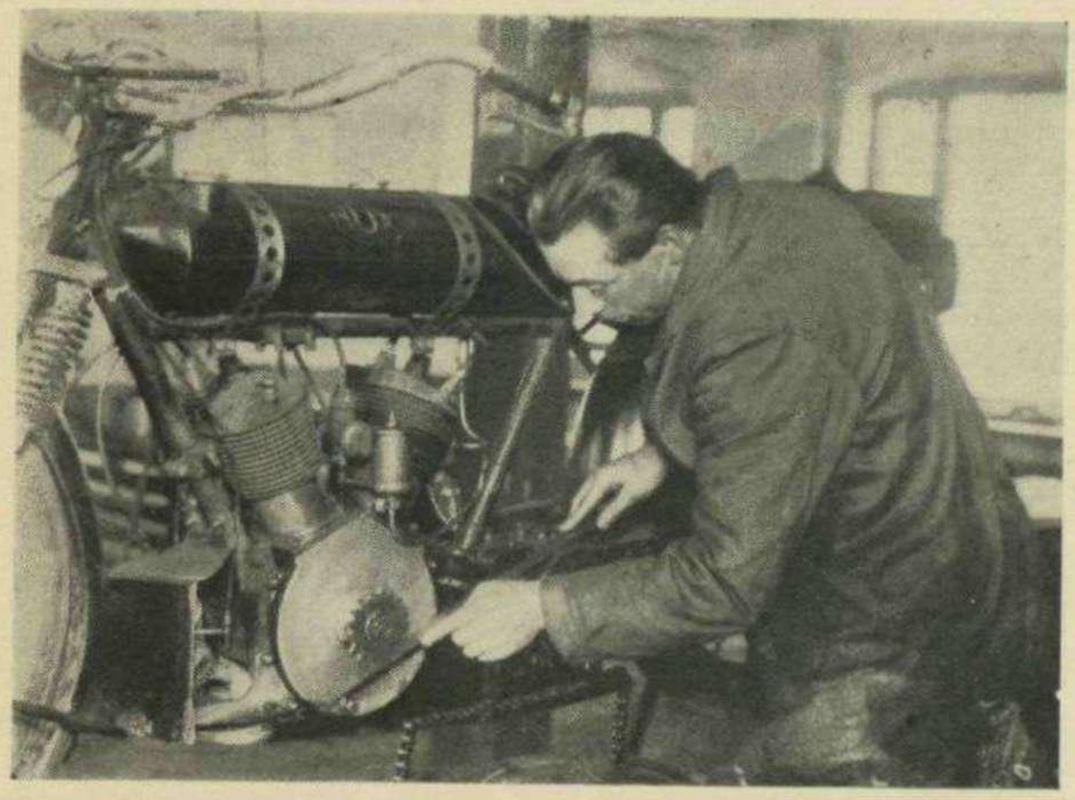
Within a mile and a half of Land's End, Church had the misfortune to upset his A.J.S. at a turn. The machine was badly damaged, the frame being twisted, the sidecar chassis broken, all wheels buckled and the sidecar tyre gone. We helped him up, and his lady passenger pluckily suggested carrying on. I saw them finish and trust that they did so in time to get their "gold."

My own machine, an Indian Chief, behaved perfectly on the run, and on the first occasion we opened the tool kit it was with the object of removing the numbers at the end.

TUNING MOTOR CYCLES FOR SPEED.

Some Practical Hints for Amateur Competition Riders.

(Note : The illustrations for this article were specially taken in the Motor Cycle Repair Depot of Maudes' Motor Mart.)



LINING UP THE MAIN DRIVE SPROCKETS.

IN endeavouring to offer any useful suggestions on the above-mentioned subject, the writer realises that machines used for competition vary so much in type and condition as to place difficulties in the way of indicating how the best results may be obtained to suit individual cases, though perhaps the subject may be treated usefully by dealing with the procedure on general lines.

To begin with, we may assume the machine about to be treated is fitted with an overhead valve engine and has at least some pretensions at being classed as a Sports Model. Competitions of to-day are so keenly contested that only good riders mounted on first class machines have any hopes of success, but at the same time, should any modest reader be doubtful as to his qualifications as a competition rider, he may be assured that common sense is a good substitute for at least a part of an apprenticeship and also for a large amount of book learning.

Whether one proposes to use a brand new machine, or a second-hand model overhauled in readiness for its new owner, no serious attempt at tuning is recommended until the machine has completed its first thousand miles and has become thoroughly run in. Even in the case of an overhauled machine, the engine cannot be expected to give the best results until the parts have had a chance of bedding themselves together again and during this operation, more than the ordinary amount of care must be paid to the matter of lubrication.

Removal of Superfluous Fittings.

One of the first things to occupy the attention of the intending competition rider is the removal of all superfluous accessories, which besides adding to the dead weight only tend to interfere with the accessibility of the mechanism. As far as the lighting is concerned, there is much to be said in favour of using a good self-contained acetylene lamp, which can be removed when desired by undoing a couple of nuts. When it comes to the point of making timed checks for speed, a stop watch will prove invaluable and the machine must be fitted with a reliable speedometer, the popular Bonniksen being hard to beat for accuracy and general utility. If the rider is mathematically inclined he will be able to turn to account the characteristic action of this instrument, whereby two speed registering hands work alternatively at five second intervals. From this one is able to gather much useful information concerning acceleration and braking effect, for modern tuning is largely a matter of scientific investigation and must be treated as such.

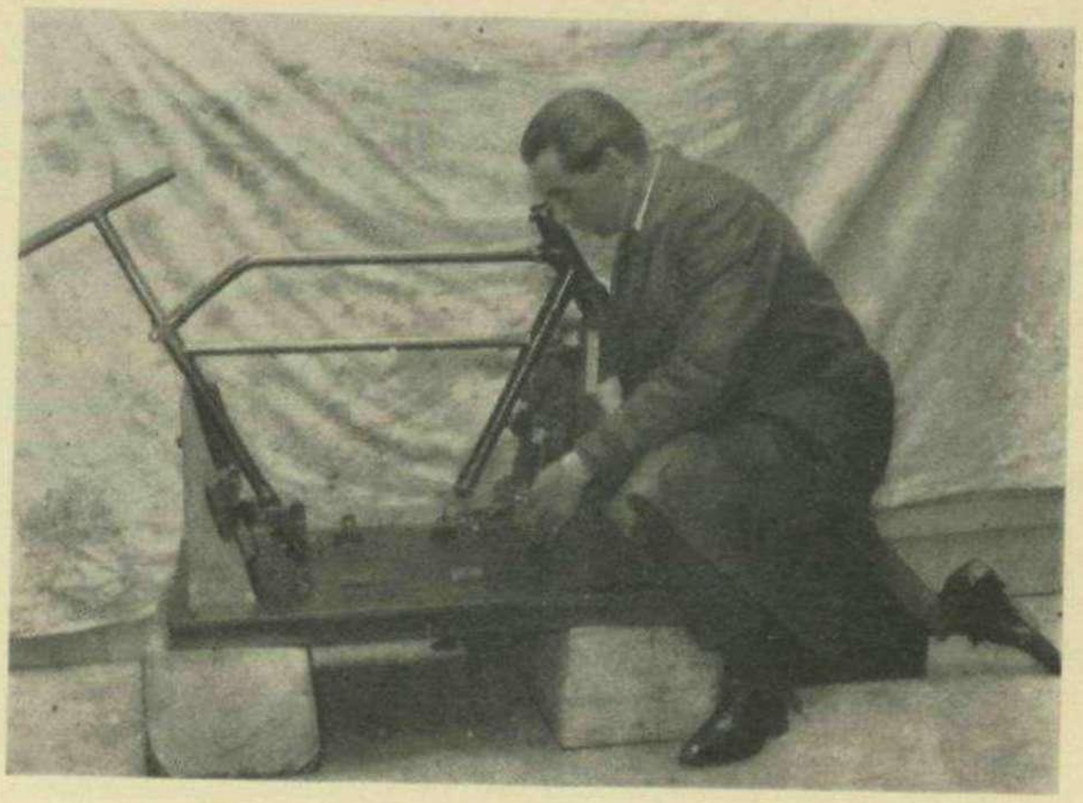
Attention to Frame and Wheels.

When about to undertake tuning operations, most riders begin by directing their undivided attentions to the engine, which is quite reasonable and proper provided the frame and wheels receive an equal amount of care. What usually happens, however, is that the enthusiastic amateur is so keen on trying out the improved engine as to overlook or hurry over the needful attention to the other parts of the machine. For the latter reason it is proposed to deal with the less interesting, but highly important, section of motor cycle tuning first, reserving our remarks upon engine efficiency for a subsequent occasion.

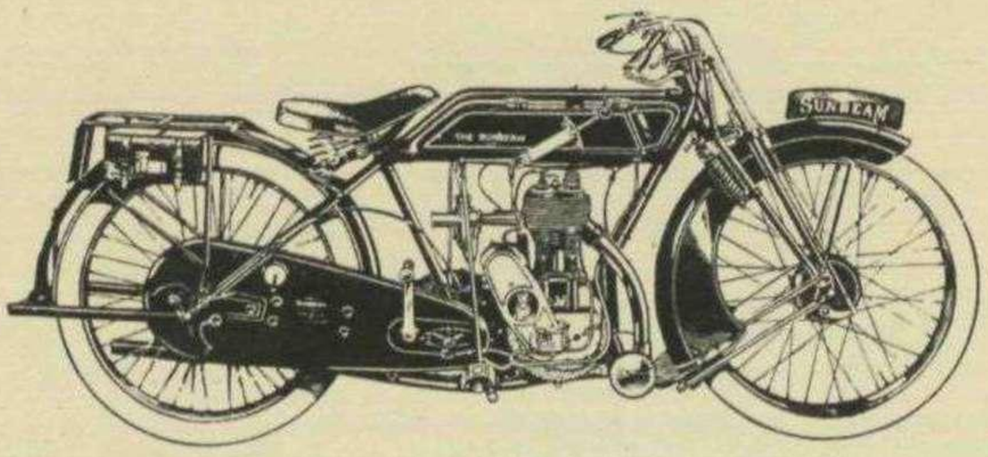
Frame Alignment and Steering.

From casual observations on the road one would imagine the average motor cyclist to be an extremely careless individual where frame alignment is concerned, but those who are quite ready to risk unnecessary skids and irregular steering on the road, should be warned against the danger of imperfect frame alignment where high speeds on the track, or other speed courses, are contemplated.

In cases where the rider means to do things thoroughly and dismantles the entire machine, there will be but



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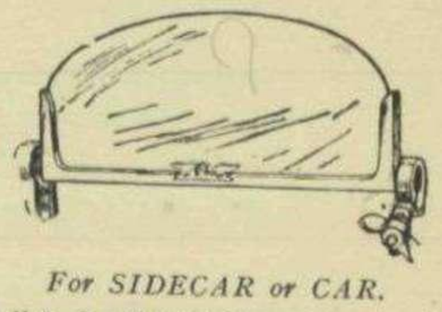
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NOTICE TO CLUB SECRETARIES.

Club Secretaries are specially invited to send the Editor paragraphs about the activities of their Clubs, and, in particular, notice of forthcoming events. All reports of competitions, meetings and other events should be sent to the Editor as early as possible, and must be received by the 20th of the month, to ensure attention for the next issue. Address contributions to: The Editor, THE BROOKLANDS GAZETTE, *65, Victoria Street, London, S.W. 1.*

TUNING MOTOR CYCLES FOR SPEED—continued.

little difficulty in detecting any inequalities in the alignment of the front and rear wheels. The latter being due to some minor inaccuracies in the fork ends or the setting of the hub spindles, but on the other hand may result from distortion of the tubes of the frame. In the latter circumstance, one is well advised to have the whole frame trued by an expert frame builder, or to return it to the makers, so that it may be reset properly with the aid of accurate jigs. The latter course is preferable in most cases where defects are discovered and after the frame has been returned by the makers, there need be no fear of the wheels failing to track,unless one is unlucky enough to have a crash during the road testing operations.

Attention to the frame will naturally include an overhaul of the forks, together with any steering damper which may be fitted, and when one is satisfied that all these frame details are in order, the inspection of the steering head may be commenced.

The Danger of Pitted Head Races.

One of the most usual defects to be found in steering heads is that of pitted ball races, caused by the hammering of the balls when the adjustment has been allowed to slack off. On no account should the head be reassembled if the ball races show the least sign of pitting, for this is certain to render the steering stiff or erratic. It is surprising to find how often the steering ball races give trouble either due to bad machinery or imperfect design, so this point must receive due attention.

Supposing, however, the races are in good condition, they should be greased and re-assembled, carefully adjusting the head to eliminate all traces of shake. It is not desirable to *pack* the head too full with grease as this only tends to churn up and create friction instead of providing a proper film of lubricant for each of the balls and their races.

Attention to the Brakes and Wheels.

As it is probable that some high speeds will be attained during the tuning process, it is important to adjust the brakes so that the shoes are as close to the drum as is possible without actually rubbing when disengaged, and obviously all the brake actuating mechanism needs the most careful scrutiny and overhauling.

With reference to the wheels, the wheels should be carefully washed out to remove all the old grease which may have become coagulated and the bearings should then be refitted with light gear grease or thick oil. The difference in the running of the wheels after the treatment recommended has to be experienced to be believed. Most amateurs make the mistake of screwing up the cone adjustments too tightly ; but, as a matter of fact, the adjustment should be little more than finger tight before the locking rings are firmly secured.

The next item is that of removing the tyres in order to test the wheels for truth, and in tightening any loose spokes care needs to be exercised to avoid pulling the rim out of truth. At this stage one should look out for spoke ends which may project inside the rim and cause risks of puncturing the tube from the inside at awkward moments.

If security bolts are not already fitted, the rims should now be drilled to receive them. Opinions vary as to the number of security bolts required, but for ordinary purposes two per wheel will suffice. Careful spacing of the holes is very necessary so as to preserve the balance of the wheel and for the purpose of spacing the tyre valve should count as a bolt, so that the rim may be divided by three equally spaced holes.

When replacing the tyre balance of the wheel and the tyre calls for strict attention, for at high speeds any lack of balance will seriously interfere with the ease of steering and the road holding qualities of the machine. This point may be emphasised by the following facts : When running at a speed of 100 m.p.h. a 26 in. wheel rotates at 1,300 r.p.m. and an unbalanced weight of only one ounce placed 12 inches from the hub, generates a centrifugal force of 36 lbs. to upset the balance of the wheel. If any reader cares to check these figures the formula for centrifugal force is :—

$$\frac{W.R.N^2}{2933}$$

Where W. = weight in pounds.
R. = radius in feet.
N. = revs. per min.

The above particulars explain why racing cracks are so insistent upon good balance, which beside influencing steering and stability avoids other stresses imposed upon an unbalanced machine.

Any slight discrepancies in wheel balance may be corrected by the simple expedient of winding thick copper wire around the two spokes diametrically opposite the valve and the added weight should be secured by soldering in preference to the usual insulation tape. One cannot, in fact, be too fastidious about wheel balance on a high speed motor cycle, which is a somewhat neglected factor in racing efficiency as may be gathered by the fact that one sometimes finds wheels that can be rotated by the slightest pressure applied to a spoke nipple, whilst others require a decided push to start rotation.

(*To be continued.*)



GREAT CARE AND SKILL IS NEEDED FOR TRUING WIRE WHEELS.



Round the Clubs



SHEFFIED & HALLAMSHIRE MOTOR CYCLE & CAR CLUB.

The commencement of the season was celebrated on March 26th by a dinner dance held at Hathersage when over 100 members and friends were present. The proceedings terminated at 2 a.m. and the success of the evening augurs well for the coming season.

The opening run was on March 29th, to the Grindon Valley via Bakewell, Longnor and Warslow. A halt was made at the head of Wetton Hill which caused the failure of four or five members. Afterwards the company of 50 motor cycles and sidecars and a dozen cars proceeded up the valley to Warslow where tea was taken, followed by a pleasant run home via Hulme End, Youlgrave and Bakewell.

On Sunday, April 5th, the first sporting trial, the Amateur Reliability Trial for the Roper Shield, attracted 17 entries, this trial being open to all who have never won a premier award in a club trial. The course led by moorland tracks, muddy lanes, farmyards and main roads to Shatton water-splash which claimed no victims. The following rough section up Rindale accounted for two failures, Balmforth (349 A.J.S.) who crashed and F. Hall (Scott) whose machine evidently preferred ploughed fields. Excellent climbs of Pindale were made by H. W. Ogg (293 New Imperial), J. May (346 P. & P.) and G. Sawer (349 A.J.S.)

Semi-main roads then led by Millers Dale to Cowdale and the main Buxton Road where six survivors appeared, the course afterwards leading through Great Hucklow and Hathersage, after which was a final rough section over Stannage Moor to the finish at Ringinlowe where the following checked in :—

J. May (346 P. & P.), G. Sawer (349 A.S.S.), W. Artindale (499 Sunbeam), H. W. Ogg (293 New Imperial), T. Bullivant (980 Coventry Eagle s.c.), and M. Parkes (490 Ariel).

The final results were:—

1st. Roper Shield, J. May (346 P. & P.).
2nd. Half Pint Tankard, H. W. Ogg (293 New Imperial).
3rd. Bronze Medal, G. Sawer (349 A.S.S.)

The events for May are :—

May 3. Traders' Team Trial.
May 9. Social Run.
May 16. Barmouth (24-hour) Reliability Trial.
May 17. Ditto.
May 24. Mystery Trial.
May 28. Supper.

Any persons interested and wishing to become members should communicate with the Hon. Sec., C. C. New, Esq., 9, Bents Green Road, Sheffield.

HONITON MOTOR CYCLE & LIGHT CAR CLUB.

(Affiliated to the A.C.U.)

At present this is one of the smallest clubs, but nevertheless, last year, which was the fourth year of the club, a membership of seventy was attained.

During the season ten well-supported events were promoted, and the total value of the awards to members was over £50.

One of the reasons to which the success of the club is attributed is the fact that short evening runs are held, with an entrance fee of only 2/-, in preference to the all-day event, which the majority of motor cyclists cannot support owing to lack of time and money.

The annual subscription is 5/- per annum, including the A.C.U. affiliation fee, and the Secretary is Mr. A. C. Roberts, at the Club's headquarters, the Dolphin Hotel, Honiton.

Below is given the list of events for 1925 :—

PROGRAMME OF EVENTS, 1925.

Sat.,	May 9th	... ...	"Morrish" Trophy Run
Thur.,	May 21st	... ...	Acceleration Test
Sat.,	June 13th	... ...	... Top Gear Run
Thur.,	June 25th	... ...	... Club Cup Run
Thur.,	July 16th	... ...	... The Hill Climb
Sat.,	July 25th	... ...	... Reliability Run
	For Lloyds Bank, Veloce and Secretary's Trophies.		
Thur.,	Aug. 13th	... ...	"Tovey" Trophy Run
Thur.,	Aug. 20th	... ...	Hill Climb
Sat.,	Aug. 29th	... ...	"Traders'" Trophy Run
Thur.,	Sep. 10th	... ...	Yeovil-Taunton Night Run
Thur.,	Sep. 24th	... ...	Autumn Sporting Run
	For the "Loyd" Bowl.		
Tues.,	Oct. 20th	... ...	The Club Bal

(Subject to alterations.)

BROOKLANDS AUTOMOBILE RACING CLUB.

LIST OF FORTHCOMING FIXTURES.

Note.—The List of events for May and June appeared in the March isue, on page 360.

Saturday, July	11th	... West Kent M.C.
Saturday, July	18th	... B.M.C.R.C. Meeting.
Saturday, July	25th	... M.C.C. Meeting.
Monday, August	3rd	... B.A.R.C. OPEN MEETING.
Saturday, August	8th	... Public Schools Club.
Saturday, August	15th	... B.M.C.R.C. Meeting.
Saturday, August	29th	... Essex M.C.
Saturday, Sept.	5th	... Sunbeam M.C. Club.
Saturday, Sept.	12th	... B.A.R.C. OPEN MEETING.
Saturday, Sept.	19th	... B.M.C.R.C. Meeting.
Saturday, Sept.	26th	... J.C.C. 200 Miles Race.
Saturday, October	3rd	... West Kent M.C.
Saturday, October	10th	... B.M.C.R.C. Meeting.
Saturday, October	17th	... Ealing & District 200 Miles.

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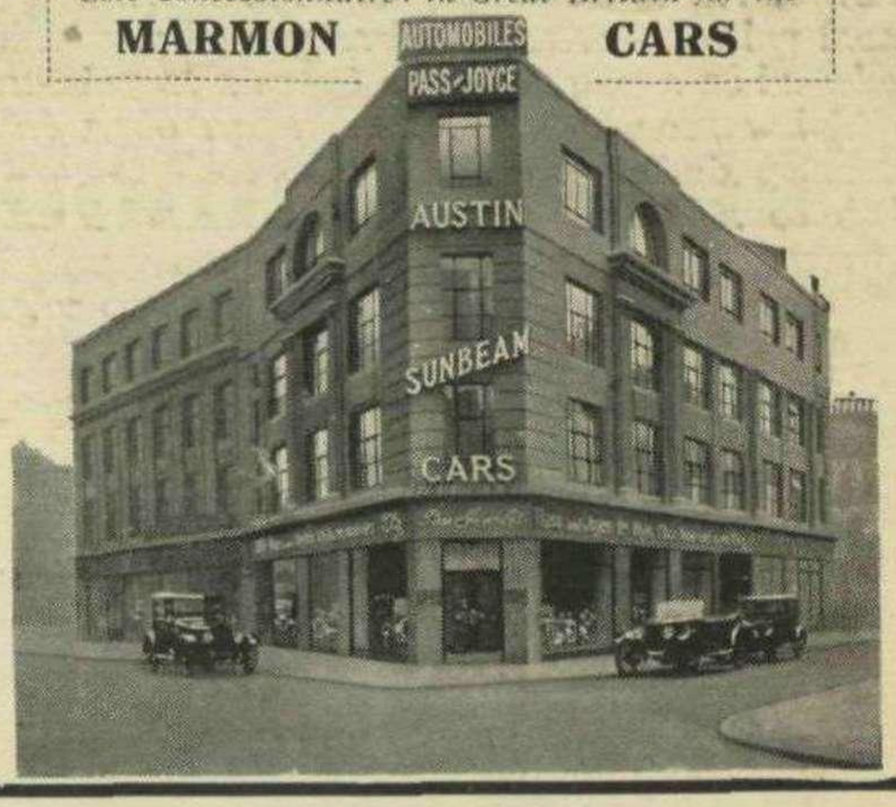
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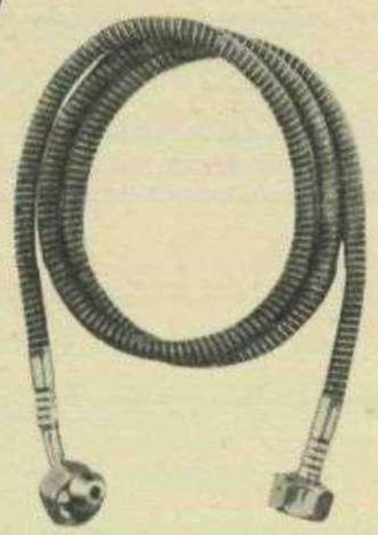
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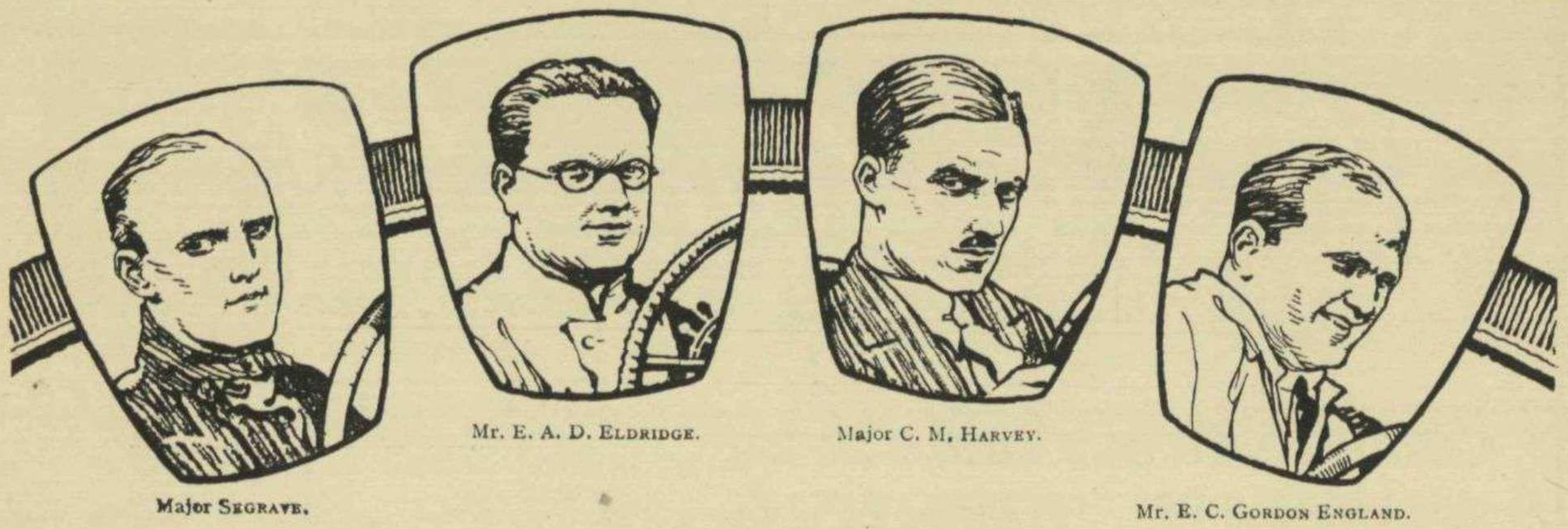
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On March 24th, Major Segrave, driving a Grand Prix Sunbeam, made the fastest time of day for cars (the fastest for motor-cycles was made by another "BP" user) at Kop Hill Climb. He covered the distance of 902 yards in 28⅘ seconds. He used "BP."

Last July Mr. E. A. D. Eldridge, on his Fiat, set up the world's record flying mile, 147.69 m.p.h. This record still stands unbroken. Meanwhile Mr. Eldridge has captured many other records—on "BP."

Major Harvey was the first driver of a British car, the Alvis, to win the 200 miles race at Brooklands—which he did on "BP" at a speed of 93.29 m.p.h.—which for a car not fitted with supercharger still stands as a record for this race.

Last October the same driver was successful in breaking 39 records in one day, when he covered 700 miles in under eight hours—a speed of over 88 m.p.h.

Mr. Gordon England, with his Austin Seven, apart from his other successes, set up no fewer than 21 records on "BP"—all at a speed of over 80 m.p.h.

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ROUND THE CLUBS—continued.

WEST OF ENGLAND MOTOR CLUB SPEED TRIALS.

This Club held its first big event on the Brentor Course, held on April 4th, 1915, and the event attracted a representative entry from both trade and amateur riders.

Several well-known speedmen were competing. Dixon, arriving from Messrs. Douglas Motors, Bristol, with a lorry load of machines and mechanics, was successful in winning every class for which he entered, attaining a speed of exactly 100 m.p.h. solo on one run, and a speed of over 86, fastest sidecar.

J. A. Joyce appeared on the super-lightened A.C., and covering the half mile at an average speed of 91 m.p.h., made the fastest car time.

Walters' Peugeot, piloted by Vernon Motion, ran into second place, which was a disappointment, as this car is known to have attained, and still be capable of, far higher speeds. It may be remembered that this car was the winner of the 1912 European Grand Prix.

H. G. Dobbs, a local amateur, performed excellently on his Morgan-Blackburne, covering the half-mile in 22 2-5 seconds in spectacular style, thereby first tying, and finally beating, Wallsgrove's well-known Riley. The Morgan presented a peculiar appearance owing to the passenger having to lean completely across the back of the body in order to hold in top gear.

R. E. Kestell, the Manager of Crown Motors, Plymouth, and the local Zenith Agent, did very well to win all the Novice Solo classes on his 2¾ h.p. Zenith.

R. T. Grogan, the winner of the 500 c.c. class 200 miles race last year at Brooklands, was very far from being up to form, as were the other Norton Riders. He secured one second to Dixon, second place in the remaining two solo classes going to C. R. Grant.

P. Pike, Norton, and D. Briggs' fiercesome looking Zenith, were unexpectedly slow. Briggs' transmission obviously being unable to cope with the power developed by the engine, and Pike's gear-box finally seizing up entirely.

No speed Trial would be complete without the orchestration of a Scott Exhaust; this was ably provided by R. B. H. Johnstone, although Harrison-Smith's smaller Scott-Squirrel with standard silencer was faster.

Miss Barnett, the only lady competitor, covered the half mile at exactly 60 m.p.h. on her Big Four Norton and Sidecar, in full touring trim; this must be considered a very creditable performance.

The electric timing, perhaps not unexpectedly, gave way, and a further delay was caused by a careless spectator standing on the telephone wire. The organisation was not very perfect, but was hindered by the usual lack of forethought of the spectators who constantly crowded on to the course, and round the timekeeping officials. In spite of this, no accident of any sort occurred.

The West of England Motor Club, which is a central organisation catering for sporting motorists in Somerset, Devon and Cornwall, is holding its next event, the Yeovil-Land's End Reliability Trial, on Whitsuntide (May 30th). This event has already considerable standing in the West of England, and was previously run by the Yeovil Motor Club. Hon. Secretary, L. W. Pearce, St. Brelades, Cheddon Road, Taunton.

THE WEST KENT M.C. SPRING MEETING.

There was a large number of spectators at the West Kent M.C. Spring motor cycle race meeting held at Brooklands on the 4th inst., which was run off successfully in weather which is seldom enjoyed on this side of the continent; the sun was never more welcome, in view of the unnecessarily conscientious activity of the silencing authority which made prospects look pretty black. It appears strange that S. F. E. Fitzgerald on his new 592 c.c. Zenith M.A.G. was turned off the course for an alleged inefficient silencer; yet he raced and won with this identical silencer in the recent B.M.C.R.C. meeting. *It was passed O.K. then*.

The finicky method in which the silencing regulations were enforced reached a point when comment is superfluous.

An unfortunate incident occurred preventing H. J. Knight, 976 c.c. Zenith J.A.P., from competing in the passenger class; he was testing on the road inside the track when his fingers got entangled with the throttle lever, landing him in a ditch and bending his forks badly.

The honour of fastest time of the day goes to H.M. Walters, 728 c.c. Zenith J.A.P. by doing one lap at 96 m.p.h.; it appears that A. G. Williams, 493 c.c. Sunbeam, could not get going, his fastest lap was 89.9 m.p.h. His lower speed may be attributed to the unfortunate engine mishap in the B.M.C.R.C. meeting. The two Lap Novices Unlimited Handicap was remarkable in that 15 started and only two crossed the finishing line, the entire field faded away; but Gordon Ivey, 492 c.c. Sunbeam, did not fade away with engine trouble, his rear tyre went flat when doing over 70 m.p.h. coming off the Members banking; he can congratulate himself on not crashing as half the cover left the rim.

The next race was the Two Lap Scratch, Solo up to 380 c.c. for Experts. Hopkins (Chater-Lea-Blackburne) crossed the line three yards in front of Worters (Blackburne) with O'Reilly six yards behind, for third place.

Blackburnes did very well, Hopkins pulling off two firsts, one race in the 350 c.c. Kissle won at 80.72 m.p.h. Hobbold did well for Sunbeams, he managed two firsts, winning one at 82.31 m.p.h.

NORTH LONDON M.C.C.

Some 25 members of the North London M.C.C. foregathered at the Alexandra Palace on Sunday, March 22nd, preparatory to starting on a social run to Chipping Ongar. The weather, although cold, gave every promise of again being favourable, but it was not long before conditions such as are usually encountered on the London-Exeter Trial prevailed. The party eventually reached Ongar, where a welcome tea was taken at the King's Head Hotel. In spite of snow, wind and other attentions from the Clerk of the Weather, all spent a very pleasant afternoon.

Hon. Sec., A. W. Day, "Claremont," Ballards Lane, Finchley, N.3.

ROUND THE CLUBS—continued.

SOUTHPORT MOTOR CLUB.

1925 *PROGRAMME OF EVENTS.*

May 31. } Two-day Holiday Run to Hardknott and Wrynose
June 1. } Passes.
July 18. Race Meeting.
,, 22. Evening Event (7 to 9 p.m.). Speed and Distance Judging Contest.
Aug. 9. Social Picnic to Brock Close.
,, 15. Race Meeting.
Sept. 12. Race Meeting, A.C.U. and R.A.C. OPEN PERMIT.
,, 20. Social Run to view Halsall Cup course.
Dec. 26. } Two-day Winter Trial. Coast to Coast. "Douglas,"
,, 27. } "Crosthwaite" and "Mason" Cups.
(Open Permits for cars and motor cycles applied for.)

1926.

Jan. 8. Race Meeting. Annual Dinner and Prize Distribution in the evening.

T. H. HALSALL, Hon. Secretary,
Southport Motor Club,
55, Hoghton Street, Southport.

TRAVERS TRIAL RESULTS.

TRAVERS TROPHY, enamelled gold medal, and £50: H. S. Thompson, 2½ h.p. Velocette.

ALLAN ROBSON SHIELD (for fastest time on observed hill): G. F. Povey, 2¾ h.p. O.H.V. Velocette.

BRADFORD CHALLENGE BOWL (for best performance four-wheeler): H. B. Denley, Rhode car.

N.U.T. CHALLENGE CUP (best solo machine, over 500 c.c.): C. J. L. Handley, N.U.T.

BEST SOLO PERFORMANCE (Newcastle Club member): H. S. Thompson.

BEST PASSENGER MACHINE PERFORMANCE: N. P. O. Bradley, 3½ h.p. Sunbeam side-car.

BEST PERFORMANCE PRIVATE MOTOR-CYCLE, not exceeding 350 c.c.: P. Hart, Sunbeam.

BEST SOLO (exceeding 350 c.c.): J. Wray, Norton.

BEST PRIVATE OWNER (timed hill): Bradley, Sunbeam side-car.

GOLD MEDALS.—Solo: H. S. Thompson, Velocette; G. F. Percy, Velocette: J. Joynson, Cedos; P. A. Loughton, Matchless; Davison Hall, Panther cub; S. Gill, Calthorpe; G. Rutherford, Rover; H. W. Hadfield, Raleigh; G. Wright, Humber; L. Crisp, Humber.

SIDE-CARS: H. Gibson, Raleigh; F. Whitworth, Rudge-Whitworth.

CARS: A. B. Denley, Rhode; V. G. Walsgrove, Riley; J. Glenton Friars, Clyno; S. Goodfellow, Clyno; J. Cocker, Clyno saloon; A. Stewart, Riley; F. Turvey, Humber eight; J. W. Bell, Triumph.

The car team prize was won by the Clyno team.

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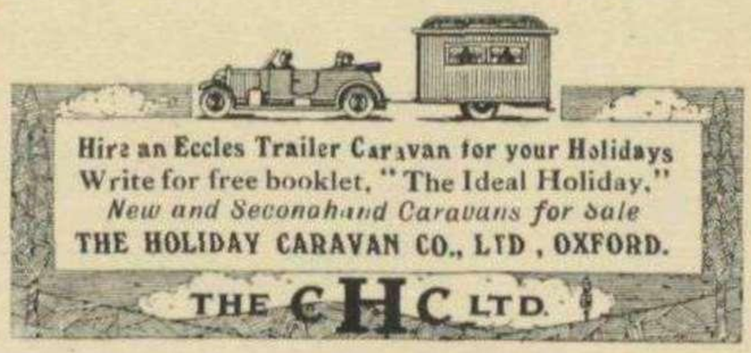
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