The BROOKLANDS GAZETTE

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The only Organ devoted entirely to the Sport of Motor Car and Motor Cycle Racing and Competitions.

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CONTENTS.

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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 15th of the month, to ensure attention for the next issue. Address contributions to: The Editor, BROOKLANDS GAZETTE, 65, Victoria Street, London, S.W.1.

Editorial Notes.

Our first word this month must be one of appreciation and thanks for the generous reception which was accorded the initial number of the BROOKLANDS GAZETTE. From all sections of the motoring community we have received spontaneous congratulations upon this journal. That it has found a definite place in motoring interests is proved by the reception it has been accorded by all grades of car and motor cycle owners, and by competition enthusiasts in particular. Designed to supply those particular requirements of sporting motorists which had not hitherto been met, the BROOKLANDS GAZETTE appears to have completely filled its purpose. We do not mean by this that we consider No. 1 all that can be desired in the way of a sporting motoring journal. We are not so egotistical or misguided as to think that. We are conscious, indeed, of several improvements that might be effected upon it. Some of these we have endeavoured to approach in the present number, others remain to be incorporated as soon as circumstances permit. But, taken as it was, our first number undoubtedly won approval. The few appreciations published on our correspondence page are but typical of many others we have received. Hundreds of motoring enthusiasts, famous and obscure, have told us at Brooklands and elsewhere, that this journal is just what has been wanted. It fulfils, they say, their desire for a well-produced publication reviewing the sporting side of motoring in an authoritative manner, it provides interesting reading about aspects of motoring not usually dealt with in the Press, and it illustrates sporting events and technical subjects in an original way. Our friends are very generous in their congratulations. If such approval inspires us to produce a still better journal in succeeding

EDITORIAL NOTES—continued.

issues, we shall be fully rewarded, and to this purpose we are now devoting our energies.

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We welcome criticism. Let any reader who thinks he knows how this journal could be made better write us his opinions. All such views shall receive careful consideration. In making this invitation there is, however, just one thing we should like to lay rather a strong emphasis upon. As a monthly journal, the BROOKLANDS GAZETTE is naturally a review rather than a newspaper, in the ordinary sense of the term. This, we are quite sure, the majority of its readers want it to be. It intends to comment upon sporting events rather than to "report" them; pointing out the lessons they convey for the improvement of motoring, and emphasising any practical accomplishments by man or machine which they may produce. Respecting its general review of motoring sport and sports motors, it aspires to view subjects from an original angle. Technical and semi-technical articles are naturally prominent in such a programme, and it is our purpose to secure that these shall be thoroughly interesting to novice and expert alike, and of an informative, suggestive, and instructive nature. We hope, therefore, that we shall not receive unreasonable criticisms because, for instance, sporting events occurring at the extreme end of the month are not reported at great length. The weekly motoring Press looks after the topical news service side of the movement, and looks after it, we would say, very well. The BROOKLANDS GAZETTE has something beyond this to do, and whilst we intend to spare no effort in making our news service as up-to-date as any monthly which has to print some time before publication can, we feel sure that all readers will appreciate in this journal interests which are not found in any other motoring publication.

* * *

The suggestions advanced by Professor Low for a super-reliability trial in the Isle of Man are amongst the most original proposals that have been made in connection with motoring sport for some time. It will at once be recognised that the Professor's suggestions bear chiefly upon the improvement of the breed of motor cycles. As a sporting event there is not much to complain about in the present A.C.U. Six Days' Trial, whether this is run as a standard stock machine event or not. It is, however, only by the conversion of the Trial to a test of exclusively standard stock machines, which was effected this year, that it retains any substantial degree of importance as a classic test. Any decent motor cycle can be prepared to undergo successfully the trials imposed by recent Six Day events, certainly if one eliminates the freak hills and frame smashing roads formerly dear to the heart of the governing body. But when it is insisted that only standard stock machines—essentially "such as you can buy"—shall compete, it is soon revealed that some designers and manufacturers have still something to learn. It is only, we think, as a standard stock machine test, that anything like what we have known for years as the A.C.U. Six Days' Trial can nowadays have any educative value. This must be the first hypothesis in organising such events in the future. Professor Low would go much further. He suggests that a continuous trial confined to standard stock motor cycles and three wheel cyclecars should be run in the Isle of Man over a distance of 4,000 miles at an average speed of 30 miles an hour. This, he suggests, would be a much more appropriate extreme test for present day touring machines than the customary A.C.U. Six Days' Trial, in which the competing machines cover about 1,000 miles in daily instalments and do not exceed an average speed of 20 miles an hour. We agree with Dr. Low, and we think the A.C.U. Competitions Committee might well apply itself to an early consideration of this proposal, with a view to determining whether such a trial could be promoted next year. It is presumed that the trial would have to be in the Isle of Man, mainly because it would be illegal to promote a trial at over 20 miles an hour in Great Britain. It would obviously be necessary to change drivers in such an event, but we do not see any serious objection to this. On the whole, it seems indicated that the sporting aspect of this trial would be considerably more accentuated than that of the present A.C.U. Six Days'.

* * *

We quite anticipate that when the A.C.U. gets down to a serious consideration of this proposal, as we hope it will, some hesitation may be shown by the trade societies in offering their co-operation. We do not think they need fear such a trial. The machines which came out of it victoriously would

EDITORIAL NOTES—continued.

certainly have far more to be said for them than has the average winner of a gold medal in the present Six Days' Trial. There is little doubt that most of the well known touring machines of to-day would not be greatly distressed by such a trial; and if these events are really to be seriously regarded as attempts to further improve the breed, it is high time that something of this kind is evolved. Many people think that the A.C.U. was over cautious in hesitating so long before it adopted the standard stock rule for the Six Days'. Be that as it may, we would certainly commend Dr. Low's ideal to the powers that be as a very practical attempt to make the classic annual reliability trial more of what its title implies. We imagine that such an event would be tremendously welcomed by the Isle of Man. It must be admitted that an ideal course exists there, although it would seem necessary to run this trial *after* the T.T.—assuming that these races will again be held in the Island in 1925. We quite sympathise with the trade regarding the inconvenience and expense of competing in such a trial in Mona's Isle. This, we think, is the only substantial objection to Dr. Low's scheme, and, even it should spur on our various "governing bodies" to spur the Government to make possible such an event in England.

* * *

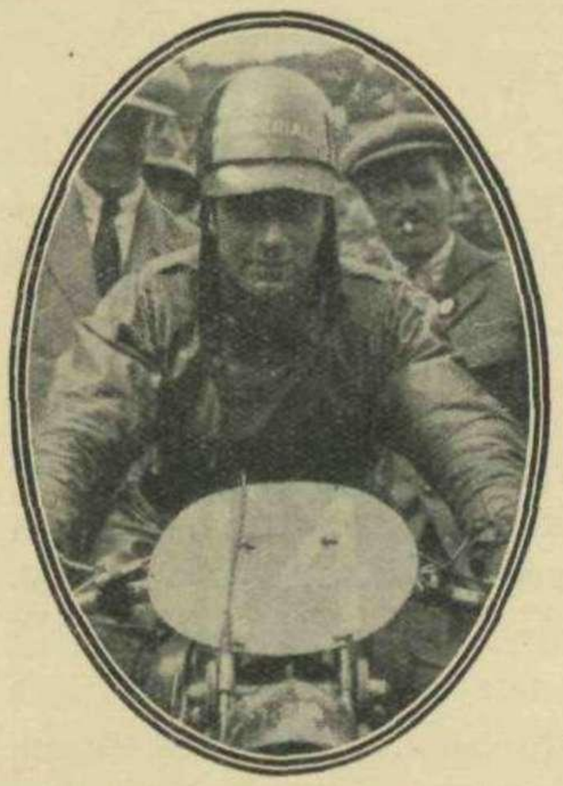
We commend readers' attention to the careful review of the motor cycle Tourist Trophy Races appearing in this issue. Although we do not necessarily associate ourselves with all our contributor's contentions, we feel sure that his arguments will be widely considered as worthy of thoughtful examination. If there is one thing which strikes us as demanding a revision of the T.T. regulations for next year, it is the fact that many of the "lightweight" machines were by no means what should be implied by this designation. One of the chief values of the T.T. as it now stands, is surely to develop the efficiency of motor cycles as an all-round basis—power for weight, controllability, and economy of running. We would like to see these factors very carefully insisted upon in the 1925 regulations. Everyone knows that very high speed can be attained with a specially constructed modern engine of, say, 250 c.c. What the buying public wants to be sure about is that motor cycles are getting lighter, stronger, and generally more attractive apart from mere engine efficiency and durability. That the T.T. has done much good in recent years is proved by the wonderful performance of certain ultra-lightweight machines in the 1924 races.

* * *

But there is room for all-round advance to be proved. To take one point, noise means a waste of power, and T.T. machines are excessively noisy. The T.T. races cannot be made standard stock machine events, because one of their main purposes is to provide scope for experiment. Taken in the aggregate the Isle of Man races have benefitted ordinary touring motor cyclists enormously. What is wanted to-day is sound foresight on the part of the A.C.U. in so arranging future T.T. meetings, that they are really productive of the greatest good to the greatest number of motor cyclists. We quite appreciate that design has now reached such a stage of evolution that it is by no means easy to arrange a thoroughly satisfactory series of T.T. races. The A.C.U.'s attempts to do this for next year will be observed with great interest.

* * *

Just now, inventors of devices to improve the efficiency or comfort of cars appear to be particularly prolific. Super-chargers, balloon tyres, new springing systems, wonderful streamlining designs and other scopes for genius are being extensively explored. We are at present giving attention to some very interesting new productions in these and other categories, and we hope to review them in forthcoming numbers after practical tests. First impressions are often unreliable in trying out new inventions in the motoring world, and we have no intention whatever of expressing a favourable opinion of any production after but a brief investigation. The proof of the pudding is sometimes more in the digestion than in the eating, and therefore readers may appreciate our not serving up to them the first tastes of things we are asked to sample. Acting strictly on the basis of exhaustive investigation before criticism—which, incidentally, we are sure the vast majority of the motor industry will welcome—we are inclined to give the worn but useful assurance that "If you see it in the BROOKLANDS GAZETTE——"



E. Twemlow (New Imperial).
Winner of Lightweight T.T.

THE TOURIST TROPHY.

What the Manx Events have Taught us.

By Laurence H. Cade.

ROLL OF HONOUR:

Senior Race: A. Bennett (Norton) Speed 61.46 m.p.h.
Junior Race: Kenneth Twemlow (New Imperial) Speed 55.83 m.p.h.
Lightweight Race: Edwin Twemlow (New Imperial) Speed 55.44 m.p.h.
Sidecar Race: J. Tucker (Norton) Speed 51.31 m.p.h.
Ultra-Lightweight Race: J. A. Porter (New Gerrard) Speed 51.20 m.p.h.
The Nisbet Award: A. Varzi (Dot)

K. Twemlow (New Imperial).
Winner of Junior T.T.

THERE is no occasion for us to dish up a detailed report of this year's T.T. races, because after all that has been written about these classic events as contests pure and simple, such a report would, at this date, be something like cold mutton for the third day in succession.

It is my purpose, therefore, to deal rather with the lessons which were taught by the races, and to glimpse the future with the only spectacles which ever have been able to probe its obscurity—those of the past.

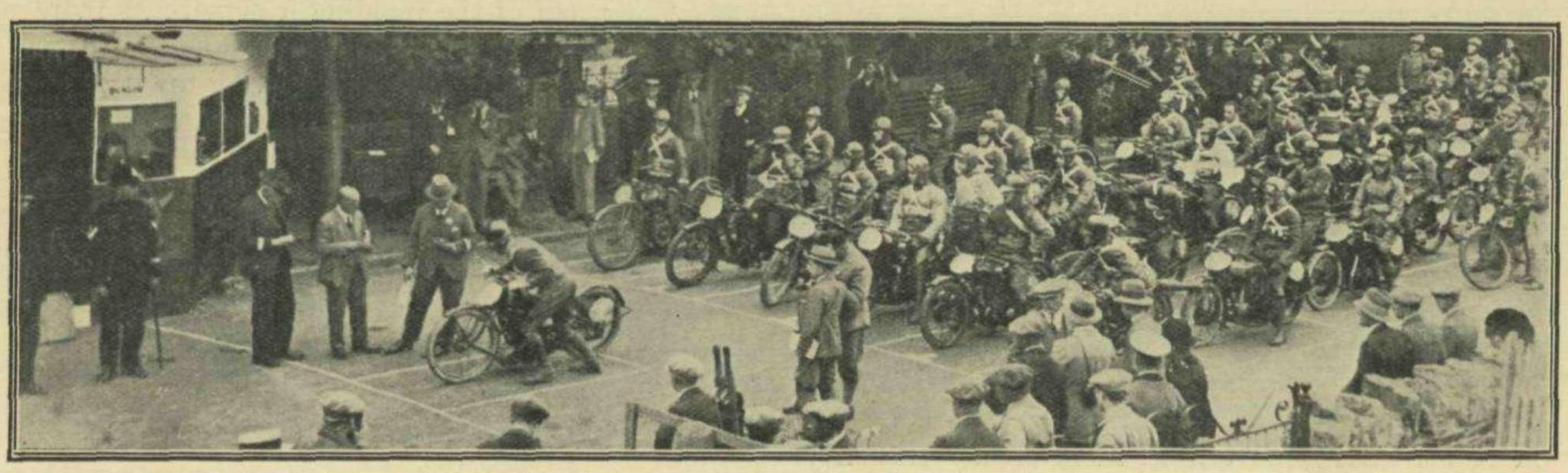
The outstanding feature of the 1924 Tourist Trophy meeting was that the multiplicity of events detracted from the individual importance of any one of them. It is all very well for the manufacturers to aver, with their tongues in their cheeks, that the prime reason for supporting the Manx races is that of "improving the breed." In the past, yes, at the present, no. It is the fact that the events still serve a very valuable purpose in enabling the manufacturers to discover those parts of their products which are most sensitive to abnormal stress and it is an essential corollary thereto, that the later models benefit therefrom. But I honestly believe that the big plum which dangles temptingly before entrants for T.T. races is advertisement. There is nothing at all to the discredit of the industry in this. Advertising is a legitimate and excellent reason for competing, and those who do not accept it as the prime cause, will certainly admit it as an important one.

It is therefore imperative that the promoters of the races should so plan the events that the winners should reap the harvest which is their just due.

A small boy who has "blown himself out" at the tuck shop does not look kindly on the lump of sugar which at another time he would covet, and very much the same thing obtains when there is such a feast of racing as that which was provided by this year's T.T. meeting. I think that a T.T. limited to two races represents sufficiency, and in saying this, I admit the difficulties of running two events which will serve the entire industry.

Seniors and Juniors.

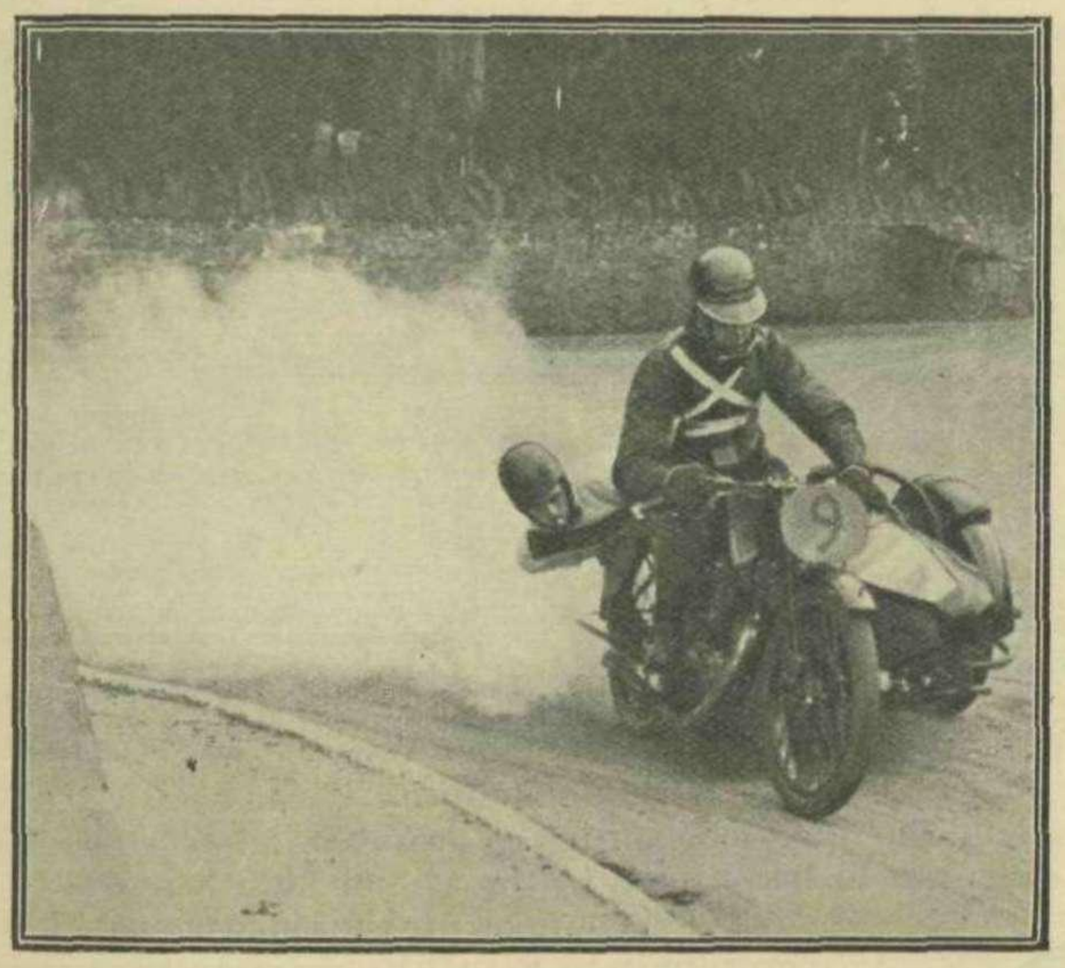
The differentiation between the types by weight is, I think, ridiculous, and should not be perpetuated. It is surely a ludicrous fact that one of the so-called "ultra lightweights" was heavier than one of the Seniors. The terms Senior and Junior are ambiguous but comparative, and cannot be improved upon. I do not regard the 350 c.c. machine as a Junior, and would suggest 250 c.c. as the maximum capacity of Junior machines. We could then have two races, one for machines up to 250 c.c. and the other for machines of more than that capacity. I cannot look kindly on dropping the passenger race, but since this is "something different," it might be retained without spoiling the other. The obvious Roland to my Oliver is that



The Junior T.T., 1924. Waiting for the Signal to Go.

THE TOURIST TROPHY—continued.

the 175 c.c. machines would not stand a chance against the "250's," and the 350's ought not to have to compete with the 500's. But I do not agree with this suggestion. A comparison of the average speeds of the five



J. W. Taylor (New Scale), Taking Quarter Bridge in Sidecar T.T.

races is misleading, and need not be employed as data upon which to work. It goes without saying that the Junior or "crack" motor cycle is a much faster proposition than the "lightweight," yet the winning speeds achieved in the Island by the two types were practically the same. Again, it is preposterous to take the verdict of facts as indicated by statistics, and to accept the indication that the ultra lightweight is the most reliable machine under stress. Yet the percentage of finishers was higher among the "babies" than among any other type, and this despite their maintaining an astonishingly high speed.

When the lightweight race was added to the Junior event, it suffered from the fact that it had to shine in the reflected glory of the main participants, but that seems a lesser evil than overcrowding the issue, and there seems to be nothing for it but to revert to the decision of Senior and Junior Races, with a class for 350 c.c. machines in the former, and a class for 175 c.c. mounts in the latter.

The Greatest Achievement.

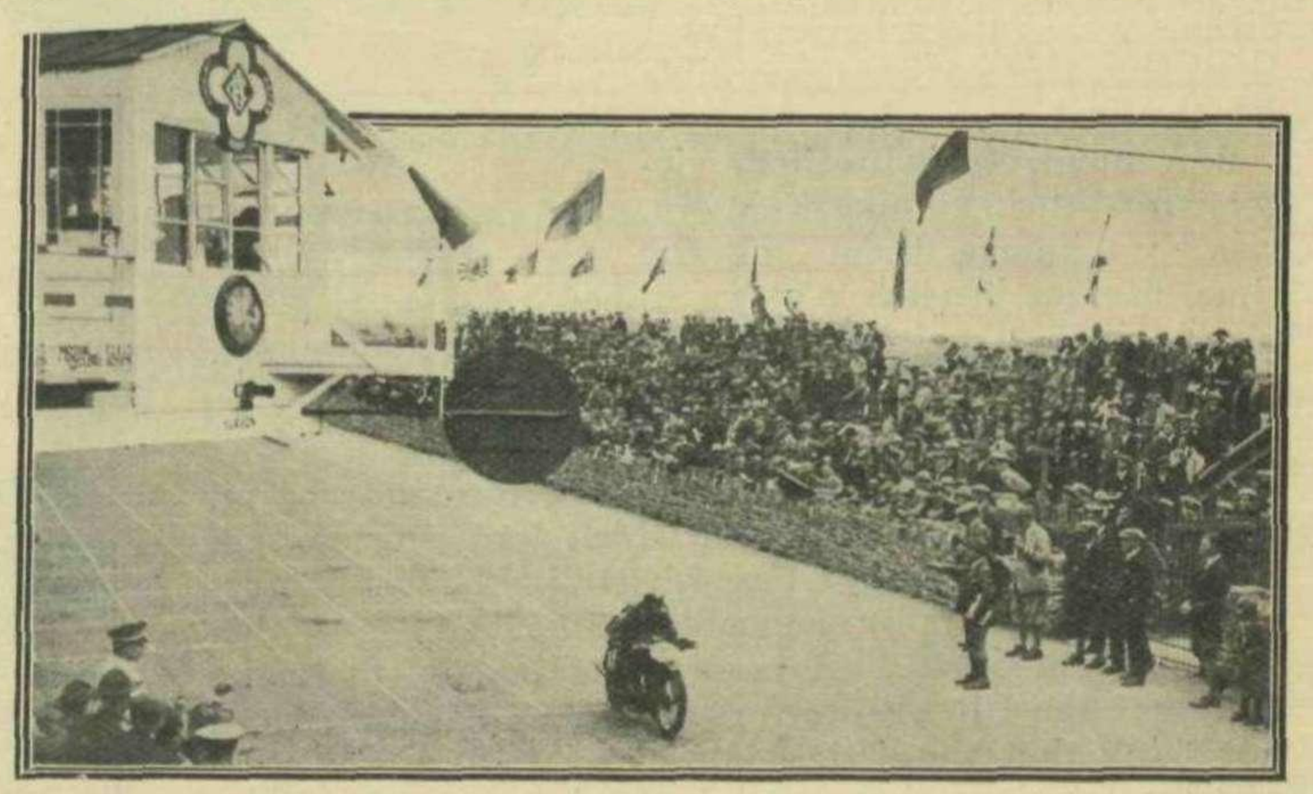
No doubt the finest achievement during the week was that of Alec Bennett, in averaging over sixty-one miles an hour for 226 miles, on a Norton. The marvel of this ride can only properly be realised by those who have been round the course. Any man who can get round the 37½ miles course which is the T.T. circuit, in under the hour, has something to crow about—to do the circuit in a fraction over thirty-five minutes is wonderful, and to keep on doing it for six laps is superhuman. To J. H. Simpson (A.J.S.) belongs the credit of getting round in the fastest time, but I think it is a far finer achievement to keep up a terrific pace for 226 miles, and that is why I think that the greatest accomplishment in the Manx races was a personal, rather than a mechanical one.

It has got to be a mighty good machine to get round the course six times at such an average speed. Not only has the power unit to be a highly efficient one, but the constructional side must be good and the brakes must be perfect. Braking plays an important part in Tourist Trophy racing, for the man who can decelerate to the best advantage, has a big pull. A high average speed is certainly resultant upon acceleration and deceleration, rather than on pace only.

I have seen Bennett taking corners in the Isle of Man at an angle which left me gasping. How on earth cohesion between tyres and road surface was maintained I do not know. But with all his spectacular cornering, Bennett is what is known as a "safe" man.

The Junior Winner.

Kenneth Twemlow did very little dawdling in the Junior Race—there is really not a lot of time for that when you average over 55 miles an hour. But he was slow compared with at least half a dozen other men. Simpson started off by setting up a cracking pace, and the hares stuck it until they fell. I think that most of us expected the Junior event to develop into a hare and tortoise affair, and many of us were of the opinion that Simpson was aboard a Mumtaz Mahal which wasn't intended for long distance work. Twemlow was nineteenth at the end of the first lap and I feel quite sure, without looking up any records, that he is the first man to win a race from so lowly a position. He secured the



K. Twemlow (New Imperial) Winning Junior T.T.

Trophy because of the many eliminations which occurred, but his was none the less a masterly achievement because of that. He had to face the same hazards, and if he or his "seconds" chose to ride to a winning schedule and ignore the mechanically suicidal pace, then it is all the more to their credit that they should have held the trump cards.

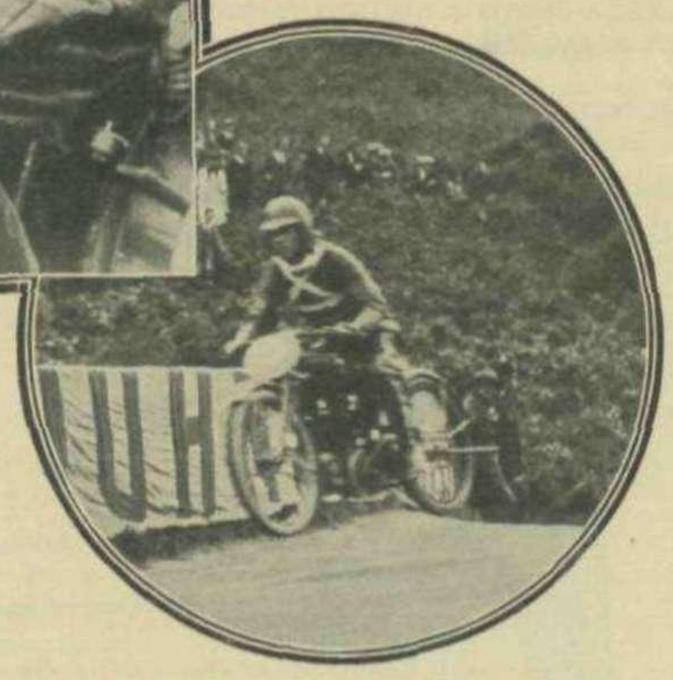
THE TOURIST TROPHY—continued.

A Fraternal Double.

Edwin Twemlow brought off a very remarkable family double when he " cleaned up " in the Lightweight race. His average speed was practically the same as

J. A. Porter (New Gerrard).
Winner of Ultra Lightweight Race.

that of his brother. The conditions were rather better, but I think that this was less responsible for the fast pace than the encouragement of his brother's victory, for Edwin, unlike Kenneth, was "up among them" all the time. He was, in a way, a lucky winner, because two faster men fell in the last circuit, leaving him to come home alone.



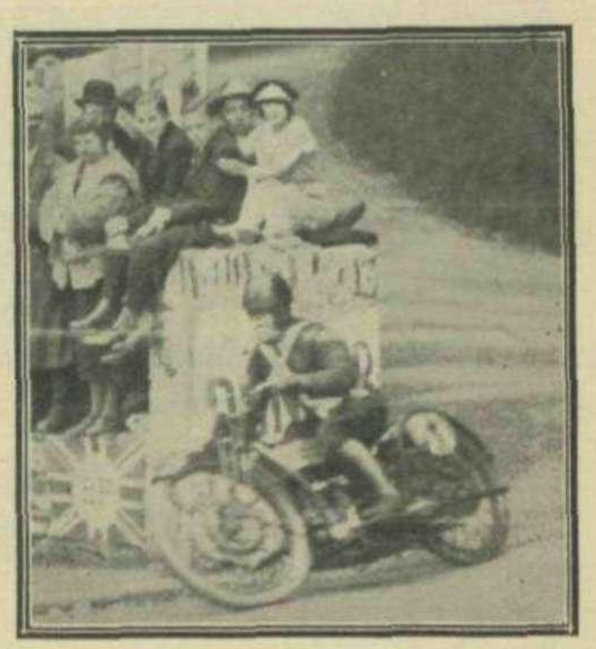
J. A. Porter (New Gerrard).
Jumping Ballig Bridge.

The Best Machine Performance.

Undoubtedly the best machine performance of all was that of the New Gerrard, which J. A. Porter took into first place in the Ultra Lightweight race. Fifty-one miles an hour by a mustard pot engine was phenomenal, and it was the more so having regard to the fact that the Ultras—were really heavyweights. I did not think that the little fellows would do a *single* lap at fifty, let alone three, and I certainly expected more than six retirements. I think that we may fairly deduce from the statistical results of this race, that duration is a greater test than speed. What would have happened on a six lap ultra lightweight race, run at the same pace ? We have no right to say that they would have been crocked, but, on the obverse side of the picture, we are confronted by a greater efficiency percentage on their part than in any other race.

The Norton Double.

The Norton victory in the sidecar, crammed home the measure in the cup of success which has been withheld from the Bracebridge firm for so many years. Tucker rode splendidly throughout, taking risks, as a man must in such an event, and was cleverly and dexterously assisted by his passenger. He hadn't the speed of Freddie Dixon on the corners, but he was one of the fastest of the competitors on the straight.



F. Dixon (Douglas) Taking Governor's Bridge in the Senior T.T. Race.

Longer Races Wanted.

Without a shadow of a doubt, the Tourist Trophy races should be longer. They would be of more real benefit, and they would be just as exciting. Two ten lappers—if the races are to be decided in the Isle of Man next year—and a six lapper for the sidecar, would be an infinitely better programme than that which was promoted for the present year. The A.C.U. is not to blame. The best of all teachers is experience. But the governing body must accept the teachings. Five races are at least two too many.

Consideration should be given to the fact that we are developing power units on a speed basis with practically no regard for other and equally important factors. It would be interesting to know what the petrol consumption of the winners was. There is no question about the fact that our carburetters to-day are exceedingly wasteful, and by running the T.T. races as was done this year, we are not going in the right direction to foster a more economic instrument. The average motor cyclist, when he learns enough to dabble with his machine, seeks first

G. H. Tucker (Winner) Taking Quarter Bridge in Sidecar T.T.

THE TOURIST TROPHY—continued.

of all to improve his petrol consumption, and this proves that economic running costs are of major attraction to the owner. No machine which cannot do at least a hundred miles to the gallon of petrol ought to win a Tourist Trophy race. Many years ago, when there was a petrol consumption test as part of the races, Jack Marshall, on a Triumph, won the race with a petrol consumption of 117.6 miles per gallon. Not a single one of the ultra-motor cyclettes, let alone the more powerful machines this year, averaged anything like that mileage. Speed is a god whose feet are of clay, and it is more than time that the Auto-Cycle Union devoted some attention to the utilitarian side of its Tourist Trophy races. I suggest that petrol "allowances" be measured out at the start of next year's races, and that if a man runs out of fuel, then he automatically retires. Otherwise, let us frankly admit that the A.C.U. is a showman concerned primarily with putting on a racing Rodeo, and the manufacturers are prepared to pay big prices for the advertisements which accrue from successful participation.

K. Twemlow (Winner) Receiving the Trophy from Col. Brereton (Right). Mr. Quintin Nicol (Left).

PROFESSOR LOW—REFORMER.

Some Drastic Proposals for T.T. and Stock Machine Trials.

There can be few whose opinions of the T.T. races, past, present, and future—particularly the future—are likely to carry greater weight than those of Professor A. M. Low, the Judge at this year's event. We found him, in discussing it, in a very disgruntled state of mind.

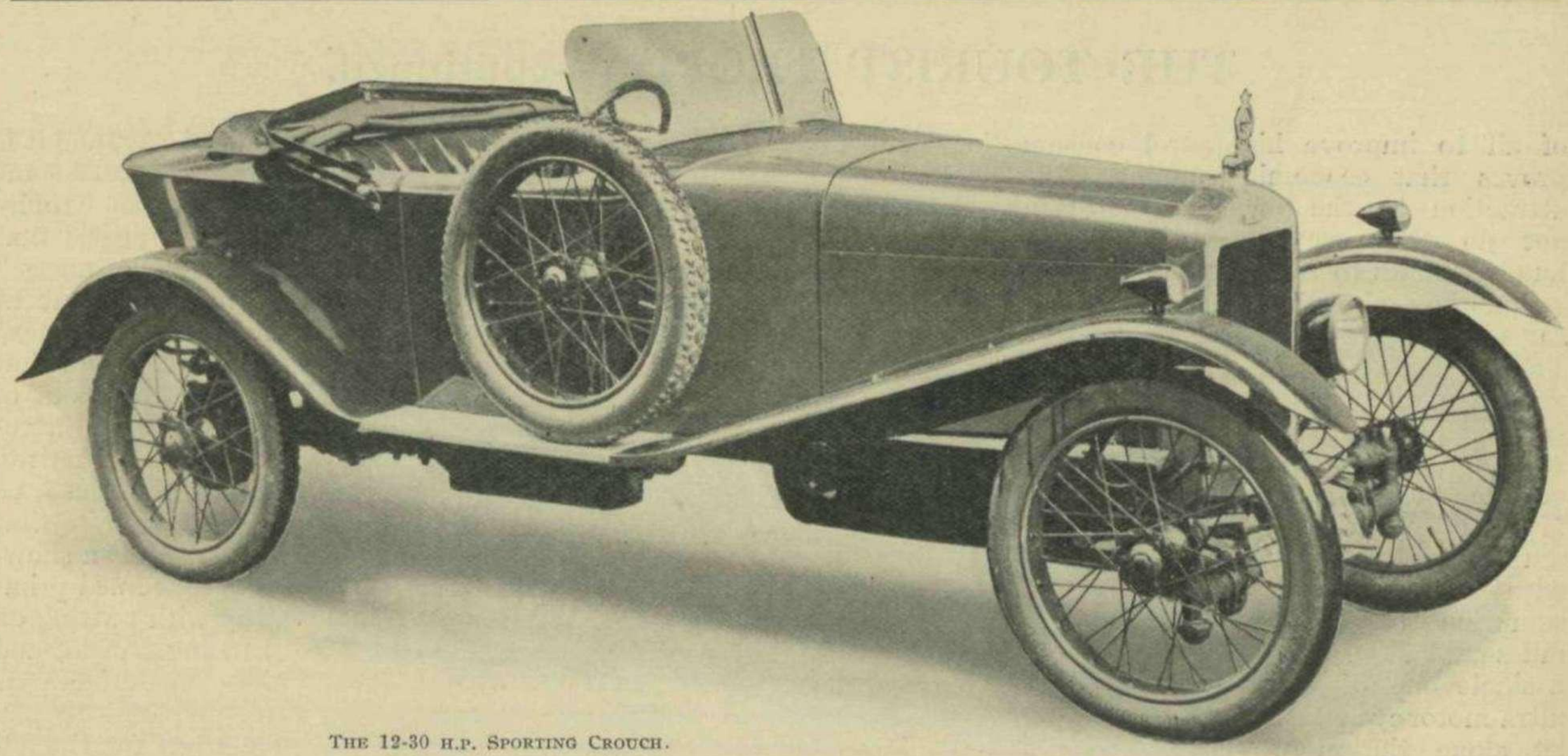
Very few things seem to the Professor to be all they might about the recent Isle of Man races, and he had some drastic alterations to suggest for future years. He was not at all satisfied, for example, with certain light weight machines, which were, as he truly remarked, almost as heavy as the medium weight types, and as regards the majority, at any rate, certainly used as much fuel. This circumstance may have influenced him in his rather drastic proposal that, in future, there should be no capacity classification, but that all sizes should run together, the distance covered being extended to three times the present length, the races being run for three days instead of one.

In addition to this, Dr. Low advocated a standard stock machine trial, to be run over 4,000 miles at 30 miles per hour, a trial which would be impossible in this country, because of the speed limit. This test, he thinks, should be run as a non-stop event, the machines being equipped with the necessary lighting sets, and drivers being changed as required. Certainly, if the two events, the T.T. and this standard stock test, were run one after the other, the result would be ten days to a fortnight's programme, which would be a great attraction, and would allow of a much larger number of spectators being able to see something of what modern motor cycles can do.

As regards the future T.T. winner, the Doctor thinks that it will be equipped with a supercharger, thus getting over the present difficulty that, with the high piston speeds needed with the current type of four stroke engines, failures are too frequent. With the improved accelerative powers thus conferred, he expected that the T.T. would be run at an average speed of over 70 miles per hour. Many of the Professor's prophesies have already become true, and those outlined above should certainly give the A.C.U. Competitions Committee and the Isle of Man authorities "furiously to think."

THE ARBUTHNOT TROPHY TRIAL.

The Auto-Cycle Union's Arbuthnot Trophy Trial is being held whilst this number is in the press. One of the most sporting events in the motor cycling calendar, the Arbuthnot Trial is held annually in memory of Admiral Sir A. K. Arbuthnot, for many years a keen motor cyclist, who was killed at the Battle of Jutland. It is confined to naval officers and midshipmen on the active list, although there has been some movement to extend its scope to officers in the Royal Naval Reserve and to Naval ratings. This year the Trial is being held amongst the Surrey Hills, with headquarters at the Burford Bridge Hotel. It is a two day event.



THE 12-30 H.P. SPORTING CROUCH.

Sporting Cars on Road & Track

By 'Open Throttle'

No. 2. The 12-30 h.p. Crouch

THERE are many sporting cars that are everything that this description implies, that is to say, they are fast, some of them exceedingly fast, and a lot of them very "sporty" in appearance. They fulfil many people's idea of what a sporting car should be, and they generally represent good value for money.

There is, however, a rapidly increasing section of motorists who are demanding something more of vehicles in this category than what is generally implied by the designation "a sporting car." For instance, they do not appreciate why they should sacrifice certain qualities which go far towards making motoring comfortable and enjoyable in order to secure the characteristic sporting features. The present writer numbers himself amongst this exacting but justified crowd. He positively fails to find satisfaction in a car that is extraordinary fast and remarkably sporty to look upon, but yet does not offer its driver reasonable comfort. No sensible person, of course, expects to find limousine effects in a sporting car. The two types are poles apart, conceived and built for entirely different motoring needs. But the writer could name in an instant several much appreciated sporting cars that are certainly not as comfortable to sit in or to drive as they could be without sacrifice of any of their sporting characteristics. Such vehicles will not be in his good books until they amend their ways. Fully appreciated as excellent engineering jobs, they are, in his opinion, practically spoilt by their designers' insistence on certain objectionable features which they wrongly imagine to be inherent characteristics of the sporting breed.

A car which is the very antithesis of these misguided efforts is the 12–30 h.p. Sporting Crouch. The writer recently spent a few days on the road in the latest model of this car, and he unhesitatingly acclaims it as an exceptional sporting vehicle. The Crouch was placed at his disposal by Messrs. B. S. Marshall, Ltd., of 17a, Hanover Square, London, W. 1, its accredited agents. It was delivered in that perfect condition in which Messrs. Marshall invariably hand over cars to the Press, and, one may assume, to all their clients also. A little carelessness in respect of a demonstration car may sometimes prejudice its critic in respect of its make generally, but this is never likely to occur in cars supplied by Messrs. Marshall.

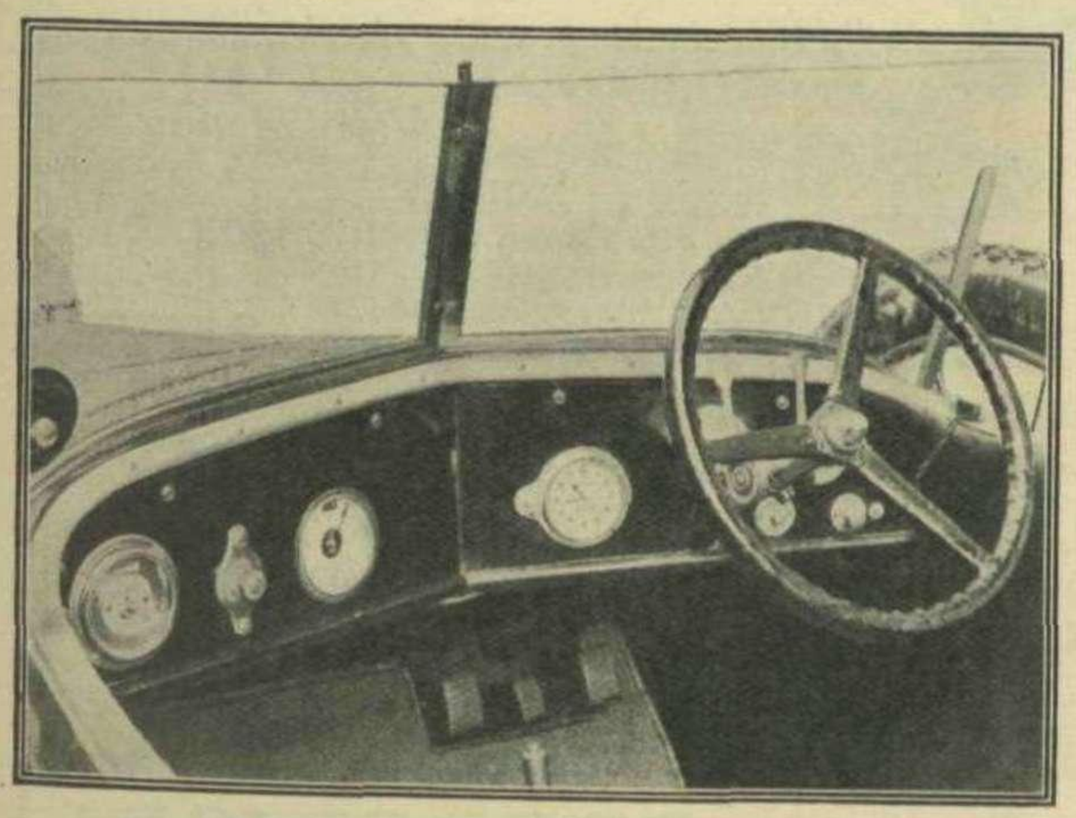
What struck one at once about the Sporting Crouch was its extreme comfort and delightful driving qualities at all speeds. Let it not be inferred from this that the Crouch is a tame or woolly machine. Far from it. The writer found it one of the fastest cars of this capacity on an all day run that he has tried for some time. Coupled with the recognised and essential sporting qualities of such a design, the Crouch revealed features all too often absent from similar cars.

Its two-seater body, with dickey to accommodate one adult, was remarkably pleasing in appearance and

SPORTING CARS ON ROAD AND TRACK—continued.

comfort. The driving seat, might, perhaps, be raised a little to advantage, and its padding was certainly not on the generous side. Otherwise one can put all the points which immediately effect the driver to the credit of the Crouch. The general idea of seating position was well worked out, and with the Crouch one certainly sits *in* the body and not on it, as with many sporting cars. There is plenty of leg room in each of the seats, and a fair amount of luggage accommodation. With the hood up, the driver and front seat passenger are afforded an exceptional degree of protection.

The appearance of the car is striking, but not excessively so. The colour of the body is Royal blue, and this



INSTRUMENT BOARD ON THE SPORTING CROUCH.

is smartly relieved by the red finish of the chassis, wheels, and wings. Although at first thought the latter might appear a little ostentatious, the red colour of the wings really blends with the general lines of the car so well that the effect is entirely pleasing. The V-shaped instrument board, mounted with speedometer, 8-day clock, switches and carburettor air controller is appropriately attractive.

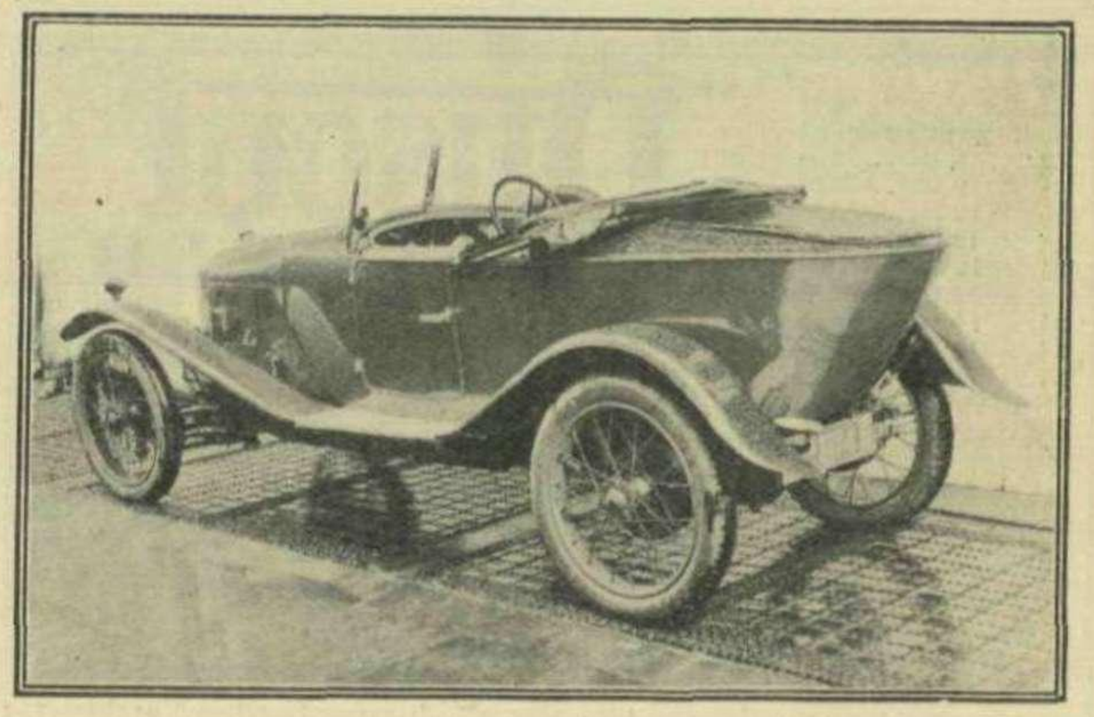
In the vital part of the car, the engine, one has a power-unit of high recommendation. It is an Anzani, and on the car the writer tried, it abundantly upheld the high repute of its eminent designers. Thoroughly sporting in its acceleration, range of power, and consistent endurance, this 1,496 c.c. engine was a real delight to drive. The Sporting Crouch is sold with a guaranteed speed of 60 miles an hour. It attains this with ease, and the manner of its attainment is such that one has that complete sense of reserve energy so beloved by any sporting driver.

One of the most outstanding virtues embodied in the Anzani engine is its excellent top gear performance. All too often very fast cars are not at all nice to drive at low speed on top gear. The Sporting Crouch will tick along at five or six miles an hour on top gear with complete smoothness, and the manner in which it picks up to high speed when the accelerator is gently depressed is entirely satisfactory. Such is the flexibility of the Anzani engine that one can, in fact, drive almost everywhere on top gear. This is saying a lot for a purely sporting car, but it is fully merited in the case of the Crouch. The writer found that one could jump from walking pace to some 45 miles an hour on top gear in a very few yards, and that the Crouch was quite content to run at round about 40 miles an hour all day, if driving conditions would let it. At this speed the car has an exceedingly good action, there being no perceptible engine vibration, and the body riding with a delightful gliding motion.

The general features of Anzani engines are well known. That in the Sporting Crouch has side-by-side valves, pump lubrication from the sump, operated by a skew gear from the half-time shaft, and thermo-syphon water circulation. The Cox Atmos carburettor is standardised, and ignition is by magneto.

The clutch is of the inverted cone type, lined with Ferodo, and is very easy and positive in action. The gearbox, of the Crouch special design, gives three speeds and reverse, and is controlled by a central lever. Ample braking power is provided by the foot brake of the internal expanding type, operating in exceptionally large drums on the rear wheels; and by the hand brake of the external contracting type, operating on the same drums. The springing is both interesting and efficient, being provided by quarter elliptics at the rear and duplex quarter elliptics in front.

The Sporting Crouch is fully equipped with five detachable wire wheels, a 12 volt. lighting set with five lamps, a separate starting motor with extra large accumulator, and the accessories already mentioned. At the price of £295 it should make a strong appeal to the motorist who requires a car of essentially sporting characteristics, but embodying also features which make it an admirable light touring vehicle. For an extra £5 the Crouch can be obtained with a polished aluminium body. There is also obtainable a Super Sports Crouch, listed at £450. This is more in the nature of a pure racing car, and is guaranteed to lap Brooklands when stripped and streamlined at 90 miles an hour, and to attain 80 miles an hour on the road when fully equipped. The writer may have more to say about this model in a later issue, but meanwhile he would commend the Sporting Crouch here reviewed to the close attention of sporting motorists in general.

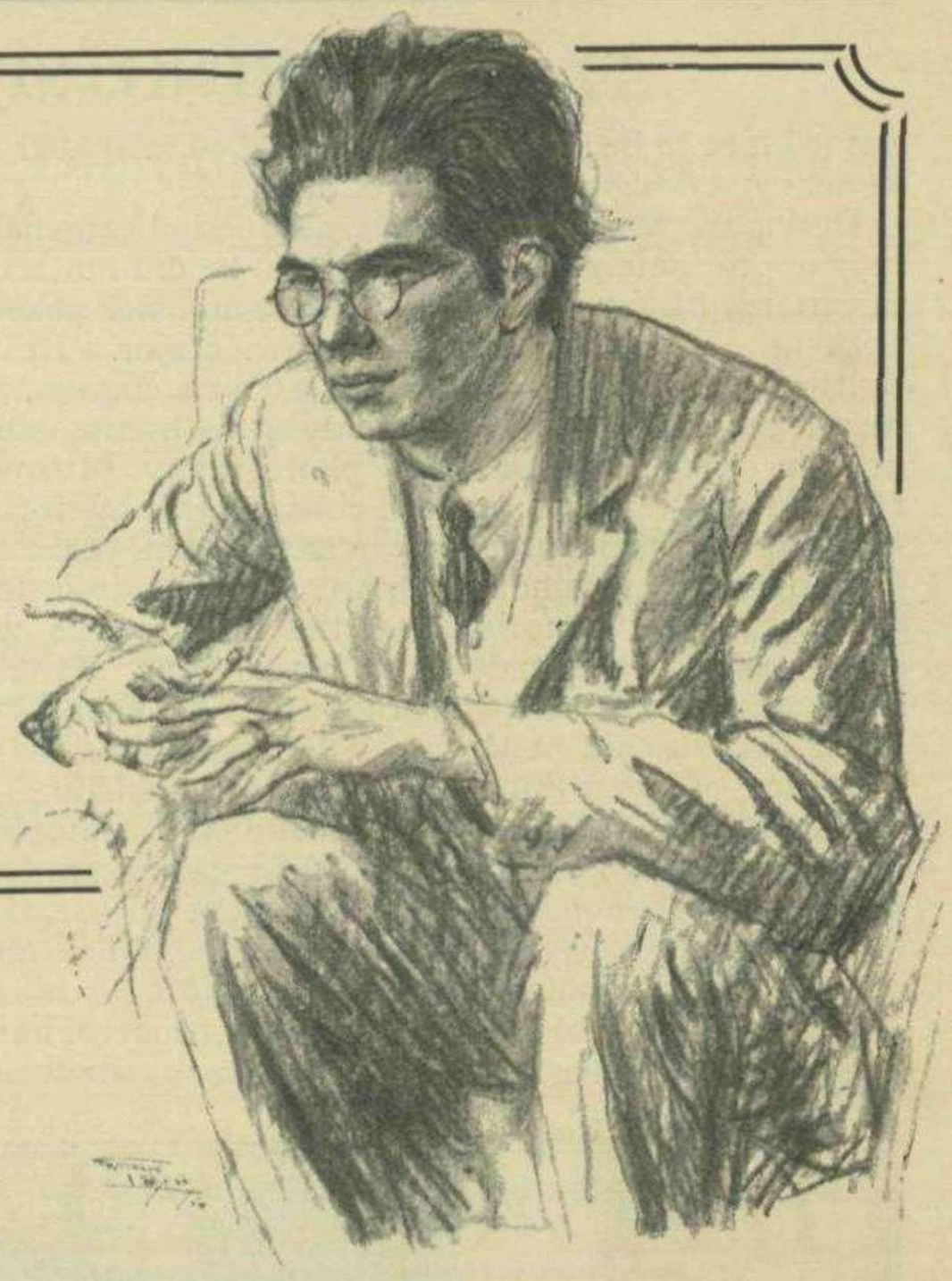


THE SPORTING CROUCH HAS ATTRACTIVE LINES

Motoring Sportsmen

by the Editor

No. 2. Professor A. M. Low



THOSE whose eminence entitles them to a place amongst motoring celebrities, or to whom the title of motoring sportsmen may be applied, consist by no means only of people who actually race or drive in competitions. There are some whose technical or administrative ability affords them ample scope for sportsmanship in the highest sense of the term, and without whose enthusiasm in less exciting fields than actual competition driving, the whole movement would be the poorer. Such a one is Professor A. M. Low, a personality whose name is now familiar to the great majority of British motorists.

I know so much about Professor Low that I hesitate what to say about him. ("No," as a certain famous comedian might remark, "this is *not* intended to be rude!"). What I mean is that the Professor has done so much and has so many interests that in endeavouring to review his activities, these simply tumble about one. Shall one write of him as a wireless expert, a television specialist, an evolver of weird measuring instruments, a forecaster of matrimonial order in the year 2024, or merely as a motorist? Obviously the last association has the prior claim upon the interests of my present readers, although it is a pretty big *merely* that must qualify the motoring associations of the worthy Doctor!

Actually, of course, Professor Low is first and foremost a scientist. That he has applied quite a lot of his scientific knowledge to the improvement of motoring is a fact of which all motorists should be glad. Realising that the scientist (like the more humble journalist), must specialise if he is to make real headway, he has devoted years of his life to making motor vehicles more efficient and motoring more useful and pleasant. Exactly how he has done this would take many pages of the BROOKLANDS GAZETTE to tell, and remembering the uses of that blue pencil which I wield against unoffending contributors so remorselessly, I must resist the inclination to write at length about those Low inventions which have already made we motorists more happy people. Those whose interests lie chiefly in the competition sides of motoring will mostly be already familiar with them. The audiometer, that ingenious measurer of sound (whose efficiency I once had the pleasure of demonstrating to the Bromley Bench), the various appliances to record springing effect, that efficient dissolved acetylene plant, the "wireless" apparatus that causes one's garage door to open at a shout or the switching on of one's headlights, and various other highly practical devices. These are material results of Dr. Low's labours, they can be seen and handled. Of that wider influence which his work has had upon motor sport and motoring in general, it is not so easy to write. One has to know the man to appreciate how he is for ever scheming here, there and everywhere to make cars and motor cycles a better job, to render the motorist of to-morrow a more satisfied person than the motorist of to-day. One goes into his office at Victoria Street and falls over a tangle of wires, batteries, and gauges. Emerging from somewhere in the collection, Dr. Low demonstrates how his latest apparatus is revealing the utter inefficiency of that pet car which one had thought the last word in revs., braking, or suspension! He is always doing something like this. He does it with a certain wizardly glee, not because he delights in showing our trade friends that their goods are not the goods, but because he realises that there really is still quite a long way to go before cars and motor cycles become perfect. At his laboratory at Feltham and even in his residence at Bedford Park, much the same thing happens. He is constantly pulling down castles that more worthy ones may be raised.

I do not suggest that every experiment Professor Low does bears fruit for we motorists—as a true scientist, to say nothing of a modest sportsman, he would be the last to claim this himself. But he has, I think, the spirit of the true investigator, and coupled to a very sound application of scientific knowledge, this

MOTORING SPORTSMEN—continued.

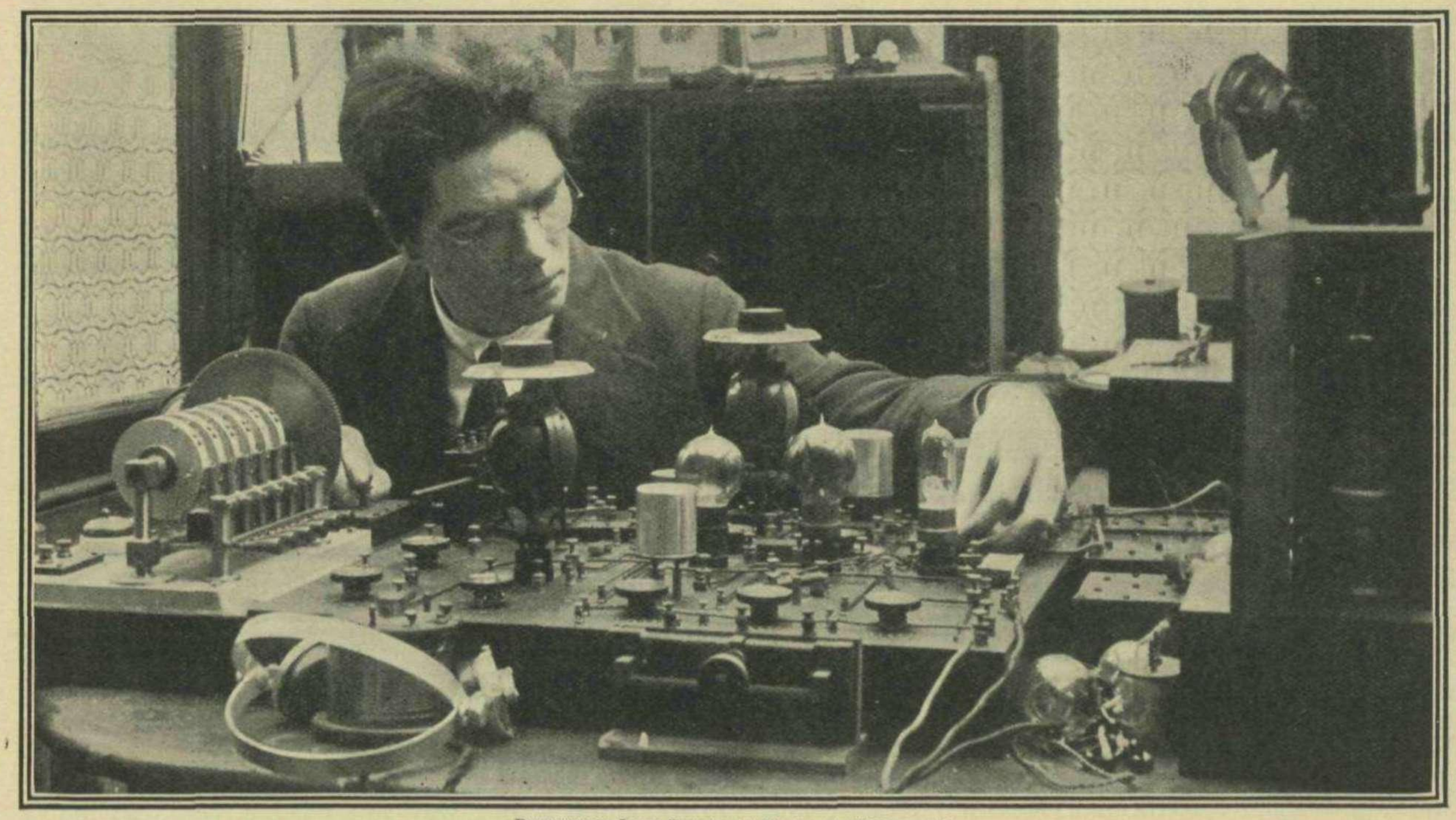
has led him to be substantially helpful to many car and motor cycle designers and manufacturers.

During the war (at this anniversary period perhaps one may appropriately recall such things) he did much confidential work for the flying services, and was gazetted both as a Lieut.-Commander and a Major. He has written a standard work on two-stroke engines, and important monographs on such subjects as the oscillographic averometer and the photography of sound. He carried out high speed cinematography for the study of scientific problems over a dozen years ago. Dr. Low's favourite hobby (apart, I assume, from those things directly comprised by the synonymous word *Brooklands !*) is the study of atomic motion. He shares with other scientists (who know not *Brooklands*) the belief that atomic motion may be responsible for the existence of everything in the world, including life itself. Breaking occasionally into that prophetic licence which is granted to all scientists, he proclaims that as time goes on we shall lose much of the use of our bodies and probably live underground. (What about motoring then, Professor ?)

To come back to earth, as it were, I need hardly recall Dr. Low's long and fruitful work as an administrator on Auto-Cycle Union Committees, his services as a judge on A.C.U trials, and at Brooklands, and his popular presidency of several leading motoring clubs. Amongst his technical connections are that he is a member of the Institution of Automobile Engineers, Fellow and Vice-President of the Radio Association, Fellow of the Chemical Society, and Fellow of the Royal Geographical Society.

Professor Low has Socialistic tendencies, but they are tempered by the excellent record that he seldom attacks anybody. Perhaps the chief point of contention that people in general may find with him is his rooted conviction that " women never stop to think—because they cannot." But no lady motorist, who meets the Professor at Brooklands or elsewhere, need hesitate to ask his advice on the most elementary question concerning the running of her car, for he is certainly amongst the most courteous of men. A keen owner-driver who covers a big mileage each year, the Professor's present mounts are a 10 h.p. Wolseley light car, a 16–50 h.p. Sunbeam touring car, a $3\frac{1}{2}$ h.p. two-stroke Dunelt motor cycle, and $1\frac{3}{4}$ h.p. Excelsior lightweight motor cycle.

O. E. S.



PROFESSOR LOW BUSY ON WIRELESS EVOLUTION.

AN EXPLANATION.

As we go to press, Mr. L. Coatalen, the designer of the Sunbeam Grand Prix cars, asks us to deny the statement made in certain contemporaries that the Sunbeam cars suffered from sparking plug trouble during the classic race ; and also the assertion that trouble developed with the superchargers. Neither of these statements, says Mr. Coatalen, are true. The K.L.G. plugs gave no trouble, and it was a magneto defect in each case which cost the Sunbeam its chances in the race. New magnetos were fitted just before the race, and the defect these developed was immediately discovered when the cars were examined. The Sunbeams ran perfectly when the original magnetos were replaced. Mr. Lee Guinness' car, says Mr. Coatalen, was finally stopped through a fracture of one of the ball bearings of the universal joint.

THE SCOTTISH SIX DAYS' TRIAL.

Comparatively few Failures over a Difficult Course. Inverfarigaig included at the Last Moment Instead of the Devil's Elbow.

THE field of a hundred and eleven entries for this classic event, promoted by the Edinburgh and District Motor Club, comprised sixteen cars, three three-wheel cyclecars, sixteen motor cycle sidecar combinations, and seventy-six solo motor cycles. A last minute change in the course, brought in Inverfarigaig instead of the Devil's Elbow, and if this was not exactly a case of escaping the devil to find oneself in the deep sea, there are probably few competitors who now think that the change was for the better. At any rate, as events proved, the motor cyclists at least had no cause to be thankful, as there were no fewer than sixteen failures on that hill, and in all twenty-nine riders lost their chances of silver cups on the first day, in which this particular stretch was included.

The cars evidently found Inverfarigaig less of a teaser than Amulree, which severely tested one or two four-wheelers, including Hill's Rhode, and Leno's Hampton. Paxman overturned his Frazer-Nash, but was able to right it and get going again. The other Rhodes, the Rileys and the Galloways, all made good on this stretch, as did D. S. Milne, on his Morris-Cowley.

The second day, notwithstanding the inclusion of Diabaig, may almost be said to have established a record for the Scottish Trials, since during that day only one competitor retired, and only two lost marks. No doubt this was, in part, due to the favourable weather which prevailed.

The morning of Wednesday saw a temporary return of the bad weather: conditions improved later, however, and on the whole there was no real reason to complain. Several competitors, principally those on cars, were baulked on Tornapress by others of their fellows who were not able to proceed quite as fast. The B.S.A. and the McKenzie were two of these. Few failures occurrred on this day. A motor cycle had to retire with a broken chain, and one of the Morgans had an accident which bent its front axle, putting it out of the trial. An error in the route marking of the course, for the fourth day, rather upset some of the calculations, both of the competitors and of the judges. On the fifth day, in which was included the ascent of Loch Losgoinn and Ford, there were several failures, as well as several outstanding successes, such as, amongst cars, those of the Rileys and McKenzies, and, amongst motor cycles, Rudges, Ariels, and New Imperials. After what had been done, the sixth day provided what seemed, in comparison, a picnic. The cars, at any rate, simply toured it, and what mishaps there were amongst the cycles were obviously development of the previous gruelling which they had received.

In the car class, Silver Cups went to Major W. H. Oates (Lagonda); D. S. Milne (Morris-Cowley); V. G. Wallsgrove (Riley); Martin V. de Satgè (Riley); A. R. Croal (Ariel); J. M. Inglis (Alvis); D. Pullinger (Galloway). Gold Medals went to W. Baker (Galloway); B. Allan Hill (Rhode); Jas. Holt (G.W.K.). Silver Medals were awarded to A. W. Brittain (B.S.A.); and J. W. Leno (Hampton). A Bronze Medal went to E. P. Paxman (Frazer-Nash).

In the motor cycle class Silver Cups were awarded to: A. L. Downie, E. W. Choldcroft, J. Stirling, and A. F. Downie, all on A.J.S. machines, the last named being a sidecar outfit; W. Woodcock, A. E. Rollason, H. C. Nias and L. U. Stannah, on Ariels; E. R. Jacobs, A. Symes, and G. W. Shepherd, on Beardmore-Precision; F. P. Dickson, on a Brough-Superior; K. J. Davis, B. L. Bird, and H. S. Perrey, on B.S.A. machines; J. W. Burton, on a Coventry Eagle; B. H. Cathrick, on a Dunelt; L. Crisp and M. G. A. Seally, on Humbers; G. S. Arter, J. Lidstone, and G. Kimberley, on James; R. C. Lawson and W. H. Hardman, on Matchless; H. F. S. Morgan, on a Morgan; B. Bourke and R. Duncan, on New Hudsons; J. S. D. Price and T. K. Hubbard, on New Imperials; R. L. Galloway, on a New Scale; G. M. Black, on a Norton; J. A. Leyland, on a P. & M. Panther; Miss M. Cottle, H. W. Clark, and H. Gibson, on Raleighs; J. R. Alexander, H. Alexander, and S. M. Greening, on Royal Enfields; S. C. Hubbard, B. E. Belfield, and F. T. Sibley, on Rudges; J. Shepherd, G. Dance, and N. P. O. Bradley, on Sunbeams; W. Westwood, on a Triumph; W. T. Tiffen, on a Velocette; W. J. Wood, on a W.A.G.; and H. W. Harrington, on a Zenith.

Gold Medals went to: L. Newey, on an Ariel; E. Eland, on a B.S.A.; J. W. Moxon, on a Francis-Barnett; A. Peffers, on an Indian Scout; Miss L. Ball, on a James; A Pattison and P. B. Purvis, on New Hudsons; J. G. Baker, on a Raleigh; J. T. Campbell, on a Sparkbrook.

Silver Medals were awarded to: H. Gaskell and R. S. Hector, on A.J.S.; Mrs. M. C. Jenninson, on Brough-Superior and Sidecar; B. H. Wishaw, on a B.S.A.; E. A. Barnett, on a Francis-Barnett; H. Turner, on a Humber; F. Spouse, on a Morgan; J. Gray, on a New Imperial; W. S. C. Walker, on a Norton; C. H. Turner, on a P. & M. Panther; R. J. Braid, on a Raleigh; V. Belfield, on a Rudge; H. Taylor, on a Scott; F. V. Wood, on a W.A.G.; and F. G. Adams, on a Zenith.

Bronze Medals went to: F. W. Giles, on an A.J.S.; V. F. Crosthwaite, on a Beardmore-Precision; and J. Mitchell, on a Sunbeam.

ACCOMMODATION IN FRANCE.

The Automobile Association asks us to specially point out to those intending to visit France for the many sporting motoring events that are now taking place in that country, the necessity for reserving rooms in advance at hotels, especially when the events are held in or near the big towns and tourist centres. Reports indicate that the number of people moving about in France just now is unprecedented, and that visitors who neglect this precaution are often turned away for want of accommodation. Most of the travellers are stopping for one night only, so that a motorist going to the various competitions by road, can usually secure rooms for the night by wiring or telephoning the day before, or even on the morning of the same day.

PROMINENT BROOKLANDS CARS.

Some Notes on Well-known Racing Vehicles.

I.—" Submarine."

THIS is a single-seater Marlborough-Anzani, owned by Mr. T. B. André. Its power unit is a 1½ litre side-valve engine, fed from a gravity tank of four gallons capacity, carried on the dashboard. The air-intake to the Solex carburettor projects through the bonnet in the form of a scoop pointing forward to assist induction, and a small pressure tube equalises pressure in the float chamber.

The gear lever is situated on the right-hand side as usual, but the brake lever is located on the opposite side of the car, near the driver's hand, owing to the very restricted space in the cockpit. The front axle is streamlined and an apron-plate covers the dum irons as far back as the radiator. There is no differential, and the back axle is fitted with a tie rod underneath and a triangular system of radius rods.

" Submarine " has Rudge-Whitworth wire wheels, a Fellowes magneto, and forced lubrication working at 100 lbs. to the square inch.

Early this season this car was considerably modified in the matter of suspensions, which now are semi-elliptic in front and quarter-elliptic at the rear, the whole being controlled by Hartford shock-absorbers of the dural-duplex type.

II.—" Larubia I."

This car, the property of Capt. John C. Douglas, is one of the three special cars built by Bertelli for the 1923 200 miles race, since when it has been rebuilt and considerably modified.

The engine, a Burt-McCullum sleeve valve four-cylinder of just under 1½ litres capacity, remains unaltered, apart from the fact that forced lubrication has been added.

The gear box comprises three speeds and reverse with Ferodo brake linings, and the large capacity gravity tank carried beneath the scuttle, supplies the engine through a Solex carburettor. " Larubia I " is fitted with Rudge-Whitworth wire wheels; Delco Reine magneto; semi-elliptic springs governed by Hartford shock-absorbers, and a Boyce motometer, which latter we imagine it is not easy to see from the driving seat when at speed.

III.—" Handy Andy."

This two-seater was built by Mr. Tommy Hann, for his own use on the track during the 1924 season. The engine is a 1911 O.H.V. Delage of approximately 3 litres capacity, having a curious form of bell-crank o.h.v. gear operated by push-rods. Tank capacities on this car are five gallons of fuel and two of oil. The petrol is fed to the New Memini carburettor by air pressure. The carburettor is similar to the one fitted to the Alpha Roméo, which won the Spanish Grand Prix.

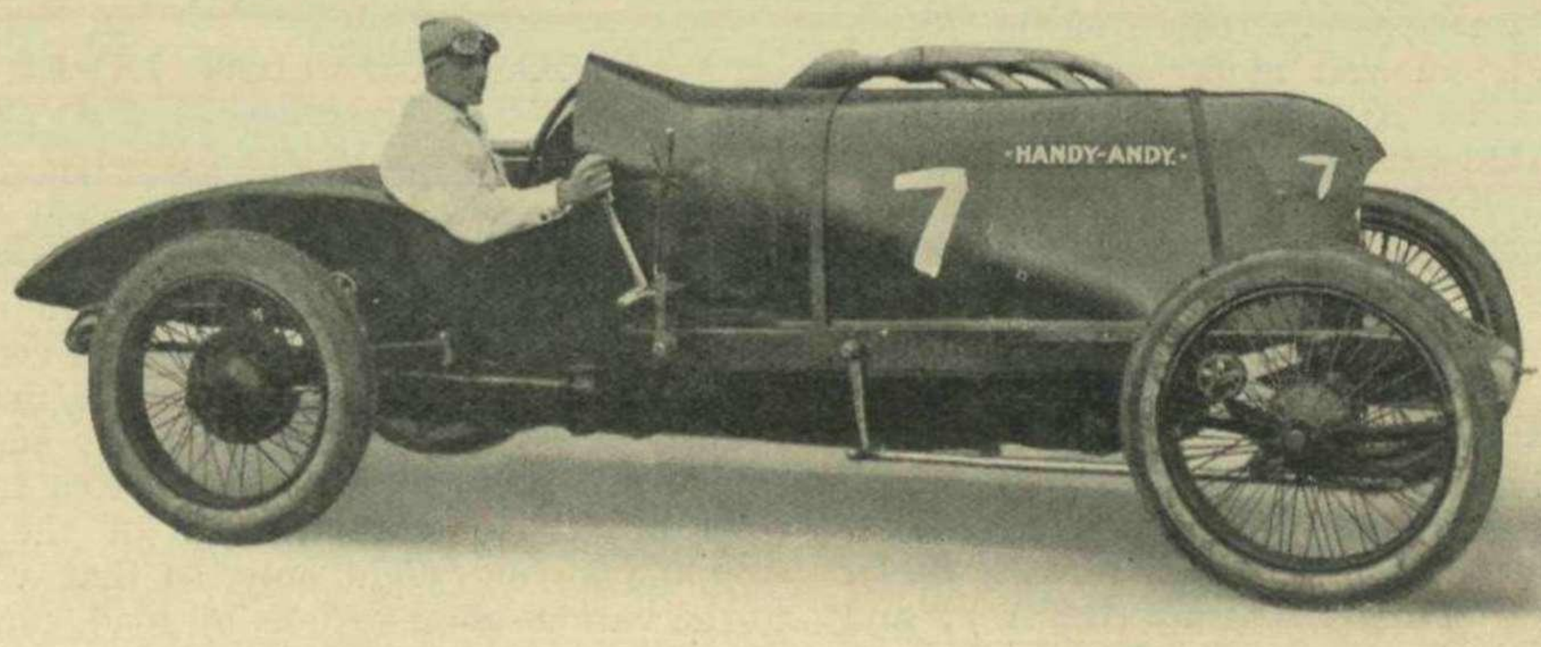
Ignition is by Double-Remy and is controlled by two switches for duplex ignition. These switches may be operated also by one master switch lest emergency arise, when one movement of the hand may cut out the ignition entirely. Two plugs are fitted to each cylinder.

The gear-box provides five speeds and reverse; and the gear quadrant is fitted with a special catch which ensures a positive change up from first into second.

The whole of the front axle and steering column are polished in order to facilitate the detection of defects in the form of cracks, etc. The dum irons are streamlined with aluminium apron. The starting handle is removable to assist streamlining.

The springs are semi-elliptic and are controlled by shock absorbers. " Handy Andy " being the first car to be fitted with the new type duralumin duplex Hartfords. The chassis and other parts are composite, the axles having been taken from one source and the frame, etc. from another.

The bonnet construction is unusual as is the exhaust manifold, which, at one point, is higher than the driver's head; this design having been found desirable in order to afford the gases a straight flow-through. The tail of the car is wedge-shaped. The wheels are of the usual Rudge-Whitworth wire type, and the tyres are Pirelli. The instrument-board bears an A.T. rev. counter, a Fournier radiator thermometer, and oil and pressure gauges, and the cockpit is provided with two self-controlled air cushion.



TOMMY HANN'S NEW 3-LITRE " HANDY ANDY."

SPRINGING FOR SPEED.

By H. SCOTT-HALL, M.I.A.E.

A consideration of the fundamentals of springing on sporting cars, as it effects the propulsive effort required, and therefore their speed. The importance of low unsprung weight is demonstrated in a new manner.

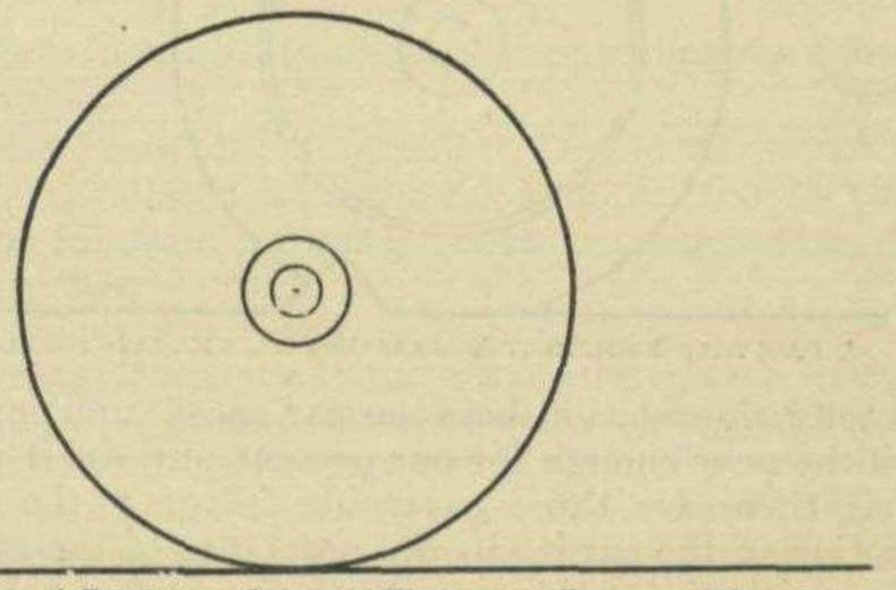
OF all the problems in, on, or around the motor car and its various uses, that of its springing is one of the most fascinating and probably the most difficult. The interest arises, as much as anything, from the variety, the endless variety, of the guises in which the problem presents itself. Even if we exclude the heavier type of vehicle altogether, and its problems are as intriguing as any, there are still as many types of car and car use to consider as will satisfy the powers of investigation of any enthusiast. Amongst touring cars, for example, there is every type of machine for which to cater, ranging from the light car, the loaded weight of which may be twenty-five or even thirty per cent. in excess of its weight unloaded; to the heavy high-powered limousine, which rarely conveys a load equal to ten per cent. of its own weight. The former, the more difficult case to meet, is rendered still more so by the twin handicaps of lack of space and necessity for low cost; the latter, the easier problem, is still further simplified, generally speaking, by an amplitude of the former, and less stringency in the latter.

The most exacting vehicle, in regard to its springing requirements, is undoubtedly the racing car. Not only is the efficiency of the springing one of the most important factors in the performance of the car as such, but, in considering the racing car as distinct from the touring car, we move into an entirely different region both as to aims and standards. On a touring car, the object is comfort, and the standard is the opinion of the user—generally formed by experience, but not infrequently lacking that. In the case of the racing car, the aim is speed, and the criterion is a definite statistical one—miles per hour. There may be just cause for a difference of opinion as to a degree of comfort: no expression of opinion carries much weight when the result can be calibrated in such definite terms as miles and minutes.

A Vital Factor.

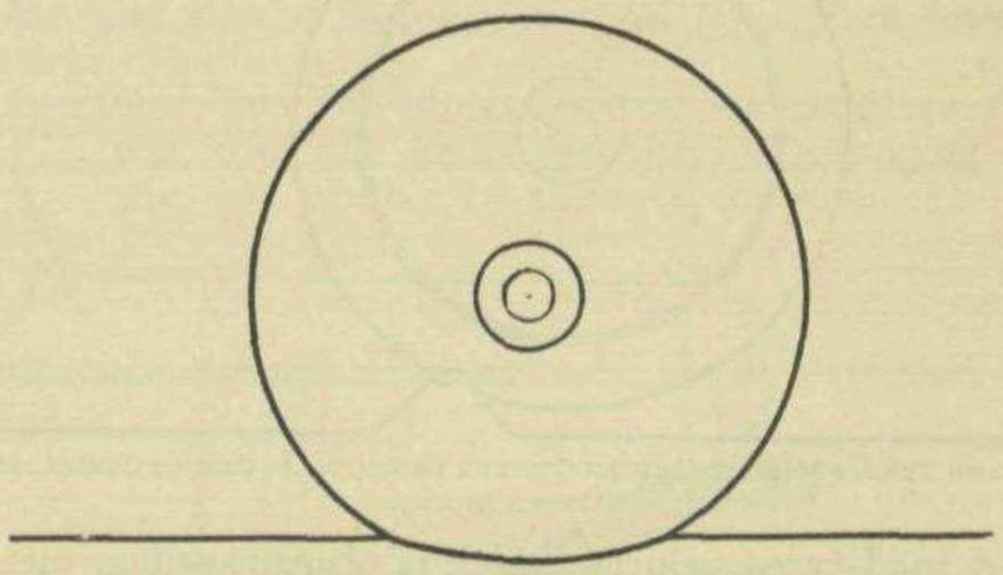
I think it is a fact that, although every racing man is aware that the efficiency of his springing has a tremendous effect on his speed capacity, there is very little concrete appreciation of the root causes of the effect. The experienced man almost feels in his being that a car's speed improves with improved springing. If he expresses his belief in any academic fashion at all he does so by reference to the road-holding properties which he perceives that the car possesses. As a matter of fact, the part borne by the springing in relation to this matter of speed, is as important, almost, as the size of the engine itself. Actually, the efficiency of the springing directly governs the brake horse power of the car as a whole; that is to say, for a given size of engine; and, if other things are equal, the horse power available at the road wheels depends upon the springing.

It is only possible to consider the matter in the proper light if we get right down to fundamentals. The ideal road and wheel conditions for high speed travelling would be such as to obviate the need for springs at all. They would include the existence of a perfectly level and smooth road surface, so hard and strong as not to deflect in the slightest, under the load imposed by the wheel. The wheel itself would be absolutely hard and unyielding, as well as perfectly circular. So soon as we depart from those conditions, so soon do we begin to



THE IDEAL: A PERFECTLY CIRCULAR WHEEL ON A PERFECTLY FLAT ROAD.

lose power. If the road gives under the weight, then depressions are formed into which the wheel is continually falling, and out of which it must be continually climbing as it revolves. For that continuous climb power is needed. If the wheel itself gives, in the least degree, then more power is expended in causing it to go out of shape. Most but not all of the power lost in this way is restored by the road and wheel, the former as it straightens, giving the wheel a push forward, the latter, as it gains its circular shape, also propelling the car in a forward direction. Some of the power, however, is lost, never to be regained.



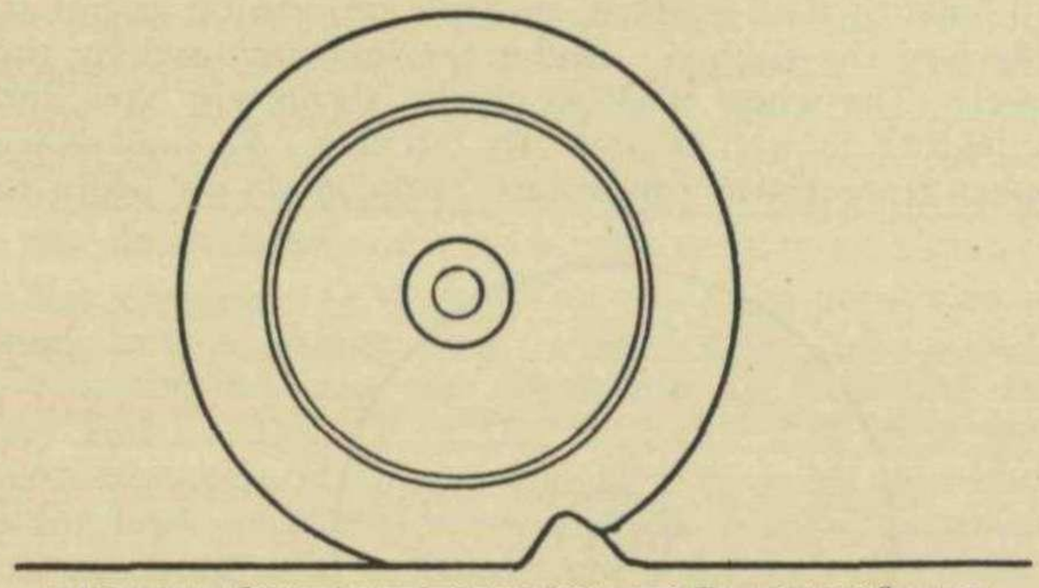
THE REAL: A FLEXIBLE WHEEL ON AN IMPERFECT ROAD.

Now we engineers could, and would, if required, provide a wheel which would, as near as needs be, fulfil the conditions laid down. Our trouble is that the road makers cannot do their part, or, at any rate, they cannot, at reasonable cost, provide roads which have that perfection, and will maintain it for any appreciable length of time. We have, therefore, to introduce imperfections into our wheels, fitting them with flexible rims, in the shape of pneumatic tyres, and have to equip our cars with other devices, by the aid of which

SPRINGING FOR SPEED—continued.

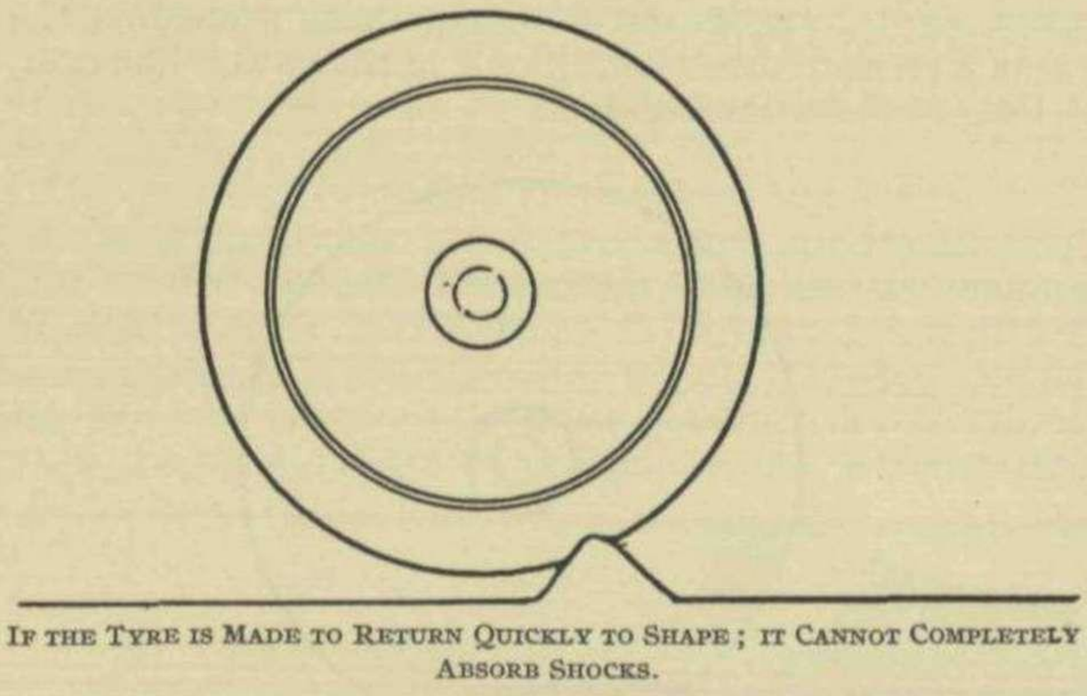
we are able, to some extent, to counter the depressing effect on car speeds of imperfections in road surfaces.

It is difficult, without going too far back towards the beginning of things, and also without spreading ourselves over a vast amount of mathematical formulæ, to express



A Tyre that Completely Absorbs Obstacles Re-acts too Slowly.

exactly the relation between car speed and power. It will be near enough for our present purpose if we state that there are three governing factors: the internal friction of the car itself, the resistance of the road, and the resistance of the air. With the first of these three I do not propose to concern myself at all: the third will, I hope, be matter for consideration in the near future: the second, our present interest, is governed by the incidence and dimensions of the obstructions which the road surface presents, so that the larger the obstacles, and the more frequently they occur, the greater is the power required. I should perhaps state that I am leaving out of the question the consideration of hill-climbing capacity, as having no bearing on the present subject.



If the Tyre is Made to Return Quickly to Shape; it Cannot Completely Absorb Shocks.

A solid-tyred vehicle, which is also unsprung, meets all the road obstructions, large and small—and we are considering here the smallest just as much as the largest—full tilt, as it were, and gets all the benefit of them direct, without any discount.

Comfort at Cost of Speed.

The vehicle which is fitted with pneumatic tyres, but which is still unsprung, gets a rebate which varies according to the pressure and capacity of its tyres. It might be possible to equip a car with tyres which, by reason of their dimensions and also because of the comparatively low pressure to which they were inflated, would absolutely absorb all the ordinary road shocks. It would thus afford comfort, but not speed. It would fail to afford speed because such a very large proportion of the power expended in distorting the tyre, altering its shape from the purely circular, would be absorbed, and would not be returned quickly enough by the tyre as it recovered its shape. It is only by very rapidly returning to its original shape when released from contact with the road that a tyre can and, as regards a good tyre, does return to the car, the power which has been spent in flattening it. Roughly speaking, the smaller the tyre, and the more it is inflated, the more quickly does it spring back to shape. (This capacity for *rapid* re-formation after flattening, is often quite wrongly called resilience).

Conflicting Requirements.

We are, therefore, in tyre equipment, between conflicting fires. If we fit tyres which are soft enough to absorb all the road shocks, then we shall, in that way, relieve ourselves of the direct loss of power from a rough road surface, but lose, at the same time, very nearly the same amount of power owing to the tyres own inertia. If we fit a tyre which will absorb a minimum of power in itself, then it is also the case that it will absorb a minimum of road shocks, and thus fail in achieving our object. This aspect of the matter is more important than is thought possible by the majority of motorists, for there is no doubt whatever that the correct place to absorb road shocks is at the rim of the wheel, and when some bright genius solves the problem of providing efficient means of so absorbing them, we shall be approaching very closely to perfection in springing.

The wisdom of arranging the springing at the rims of the wheels is demonstrable in this way. The three factors which govern the power consumption of a car, to which I referred earlier in this article, are indicated in the following formula as a, b and c: a being a constant for the internal friction of the mechanism of the chassis, b representing the road resistance, and c the air resistance. If F be taken as the force needed to propel the car, W be the weight, and v its velocity, then the formula is—

$$F = W\ (a + bv + cv^2)$$

Of this formula we are concerned with the (bv) portion, and for us the expression might just as well be F varies as Wbv, meaning that the force required to propel the car increases or decreases as the velocity, as the road resistance, and *as the weights of the portions which are effected by that resistance.* Now, if all the road shocks were absorbed at the rims of the wheels, then no part of the weight of the car would be affected by the road resistance, and everything would be for the best in the best of all possible worlds. To use a familiar and well understood term: there would be no unsprung weight at all.

A Compromise.

Since it is not practicable, for the reasons stated, to absorb all road shocks at the rims of the wheels, provision is made to absorb such as pass the tyres, at

SPRINGING FOR SPEED—continued.

points near to the rims of the wheels as is possible, and up to now this has invariably meant the use of shock absorbing media of one kind or another located between the axles and the frame of the chassis. If the combined effects of the tyre and this second means of absorption were perfection and if nothing reached the chassis itself, then we should be in the fortunate position of only having to reckon, in our formula, the weights of the axles, besides being able to calculate on a considerable proportion of the shock being taken by the tyres. Our formula would then become F_1 varies as Wbv, in which this F_1 is less than the old F because W, which formerly, as W meant the weight of the whole chassis, now means only the weight of the axles, and b, instead of being the full intensity of the road resistance represented in the original formula by b as imposed by having to surmount all the obstacles by a rigid wheel, is now less because some of that resistance has been absorbed by the tyre.

Actually, of course, the combined shock absorbing powers of springs and tyres together do not suffice to relieve the chassis of all road resistances, and the matter is more complicated than is stated. If we ignore, as for our present purpose we reasonably may, the power lost in the actual flexion of the tyres and springing devices, then we have a formula in three parts.

A Definite Formula.

There is first of all one which embodies the full road resistance. The tyres have to meet this, in the first place, so that, if we express the force due to this cause by F_t, then F_t, varies as $W_t \times b \times v$, the factor b is here at a maximum, but as the weight of the tyres is, comparatively small, almost negligible in fact, the effect is not great on the whole. Then there is the resistance to motion of the axles, which meet the full shock b, less anything absorbed by the tyres. We can call this resistance $b—t$, a term which is mathematically incorrect, but illustrative of my meaning. The tractive force required for the axles, F_a, then varies as W_a, the weight of the axles, multiplied by $b - t$, and by v. Now $b - t$, although less than b itself of course, is still a considerable factor, while W_a the weight of the axles, depends on the design of the car, that is to say, on the degree to which the designer realises the almost acute importance of reducing the unsprung weight.

Finally, there is that proportion of the road resistance which is not absorbed at all: that which remains after the tyres and springing has done all that they can towards its reduction. This portion of the resistance is felt by the whole car less the wheels, axles, and tyres. It can be represented—reading the formula non-mathematically—by $b - t - s$, and, with efficient springing, is comparatively small. The formula by which allowance can be made for this is—

$$F_c = W_c(b - t - s)v,$$

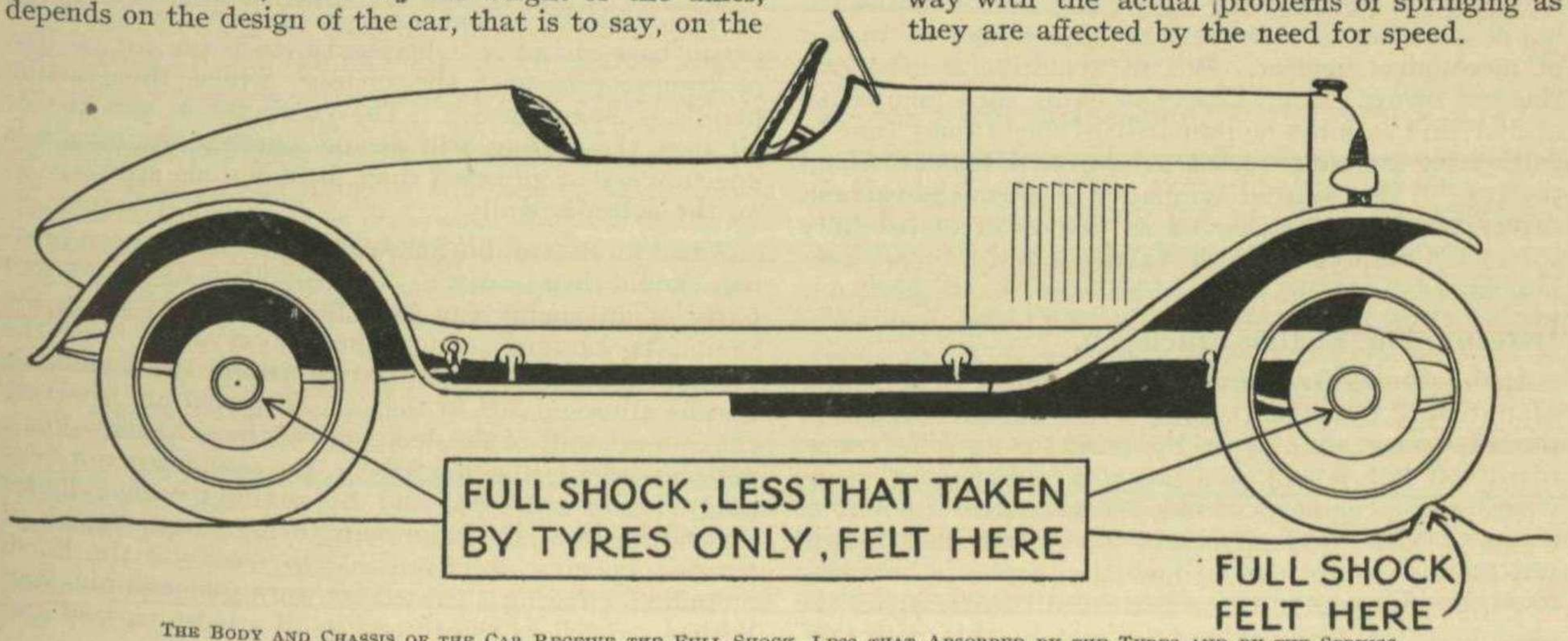
the symbols having meanings corresponding to those already used.

On these bases, the total effort needed to propel a car can be calculated, with the exceptions noted, by the use of the following formula, which is compounded of the above three—

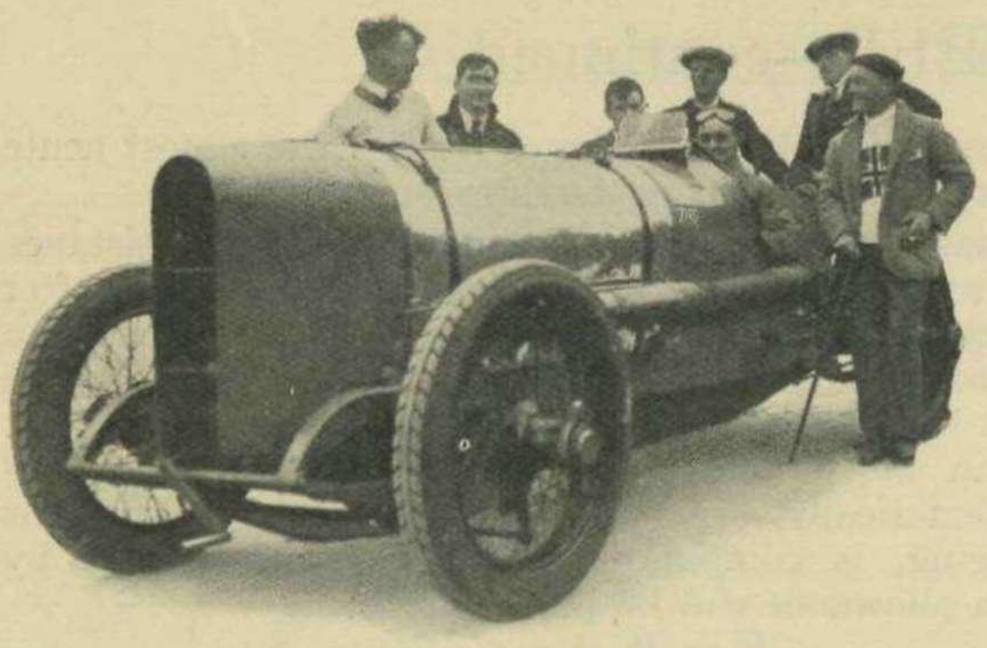
$$Wb - t(W_a + W_c) - {}_sW_c$$

That is to say, it is equal to the whole effort which would have been required had there been no springs or tyres at all, less the proportionate shock absorbing effect of the tyres, multiplied by the weight of the car, less that of the tyres, less, again, the proportionate shock absorbing action of the springs, multiplied by the weight of the car, less axle and tyres, *i.e.*, the "sprung" weight. For the necessary propulsive effort to be a minimum, the second and third factors must be maxima. The second cannot be greatly altered. The absorption properties of tyres, having in mind the need for them to have rapid recuperative powers, are almost so invariable as to deserve the name "constant." Moreover, as the weight of the tyres is small, it has already the maximum effect. The third factor is the important one, and it clearly becomes greater and greater as the unsprung weight bears a less and less proportion to the weight of the complete car. The importance of reducing unsprung weight, so as to reduce the propulsive effort needed for a car, and thus *to increase its speed for a given power*, is thus demonstrated.

In a future article I propose to deal in a more concrete way with the actual problems of springing as they are affected by the need for speed.



THE BODY AND CHASSIS OF THE CAR RECEIVE THE FULL SHOCK, LESS THAT ABSORBED BY THE TYRES AND BY THE SPRINGS.



12 CYLINDER, 375 H.P. SUNBEAM.

HOW TO "VET." A SPORTING CAR.

Some Practical Points for the Prospective Purchaser of Used Vehicles.

By CAPTAIN RICHARD TWELVETREES, A.M.I.Mech.E.

FOR the sporting motorist who decides to purchase a new car with the object of gaining laurels in competition work, the guarantees of the makers will be sufficient to assure him as to the suitability of his purchase to perform satisfactorily and to ensure of safety as understood by the speedman. Certain considerations, however, may prompt the prospective owner to investigate the possibilities of purchasing a second-hand car, in which case the problem is apt to be rather more complicated.

In general terms, it may be said that the owner of a genuine sporting model will be so careful to maintain his "bus" in first class mechanical order, that there is far less risk in buying a used car of this type, than when the ordinary touring model is purchased after being in the hands of other owners. The price of speed is made up of other factors than progressive design, high class workmanship and careful tuning. Enormous wear and tear has to be taken into account, the racing enthusiast ever exercising his knowledge and observation to make quite certain that no hidden defects in his car will spoil his chances of success, or cause him any unpremeditated absences from the scenes of his exploits.

The owner of a fast sporting car learns all there is to know about every single detail of the mechanism, calls each bolt and nut by its Christian name, so to speak, and in consequence runs very little risk of untoward happenings (let us call them nothing worse) by reason of mechanical neglect. But in acquiring a used car, the new owner cannot expect to enjoy such familiarity at first, and so must be prepared to spend some time in cultivating a close acquaintanceship with his new friend the car. This essential sympathy between the car and driver can best be achieved as the result of carefully conducted inspection work, carried on the broad lines indicated below.

Determining Engine Efficiency.

If the prospective purchaser is given the opportunity of watching the performance of the car he intends to purchase when running on the track, or up some recognised test hill, it will be a fairly easy matter to decide whether the engine possesses the necessary amount of "pep." The speedometer and revolution counter will tell their own story as to how the engine is behaving itself, besides which, the experienced speedman will be able to draw his own conclusions in this direction. But the conditions of a sale cannot be expected to include an indefinite number of trial runs, and after a time the vendor may lose interest in customers who fail to conclude the deal.

As a matter of fact, it is possible to derive a great deal of information about the condition of an engine without submitting the car to a test run at all, providing the following investigations are carried out.

A test for compression is all important. Though advice as to testing the compression of each cylinder separately may appear to be of an elementary character, a prospective purchaser may quite easily be misled as to the exact cause of faulty compression. Weak compression in one or more cylinders may be due to such trivial defects as the failure of valve cap washers, neglected valves or "blown" sparking plugs. But it may, on the other hand, be caused by worn or scored cylinders, burnt out valves, or details of an equally serious nature. The possibility of external leakages can soon be disposed of by surrounding valve cap washers, plugs and valve guides with a film of lubricating oil, when the presence of bubbles will reveal leaks as soon as the starting handle is turned.

Supposing, however, one or more cylinders are weak, and no external leakages account for the defect, it is essential to impose a further test. This should consist of removing the crank case inspection covers, or the entire base chamber if necessary, to listen for escapes of compression past the pistons, whilst the starting handle is being turned. The character of the hiss of air past the pistons will decide whether the escape is due to weak or gummed rings, or if serious scores exist on the cylinder walls.

A test for determining the condition of the engine bearings should then be made. The condition of the internal parts of an engine can best be ascertained when the engine is running under close observation, but the ordinary difficulties of distinguishing the different sounds are increased in the case of diagnosing sporting cars, on account of the deep note of the exhaust. For a person with a well educated ear, the sounds are not very likely to be confused, and by running each cylinder separately from the minimum to maximum degree of throttle opening, it is possible to recognise the harsh metallic "clinking" caused by worn gudgeon pins and bushes, as well as the thumping of a loose big-end and

HOW TO "VET." A SPORTING CAR—continued.

the dull rumbling denoting slackness in the main bearings. Every sound tells its own story, and the discord produced by wear is as painful to the keen motorist as is a false note to the musician.

Acceleration Tests.

When testing an engine for acceleration care must be taken not to give the full throttle opening, unless some kind of a load is imposed. By carefully observing the time in which the "revs" increase when the throttle is partly open, one can judge as to the amount of acceleration obtainable. A sluggish engine will soon show its weak points, when the throttle is handled by someone who knows what real acceleration should be and yet will not cause any damage by misuse of the test. The acceleration test is also useful in revealing any weak points in the engine suspension, or in the members forming the forward part of the chassis. By alternative acceleration and deceleration the reversal of stress, due to variations of engine torque, reveals any undue spring in the frame or defects in engine suspension. Loose frame rivets, springy cross members or stretched engine bolts can be shown up very clearly by judicious use of the accelerator.

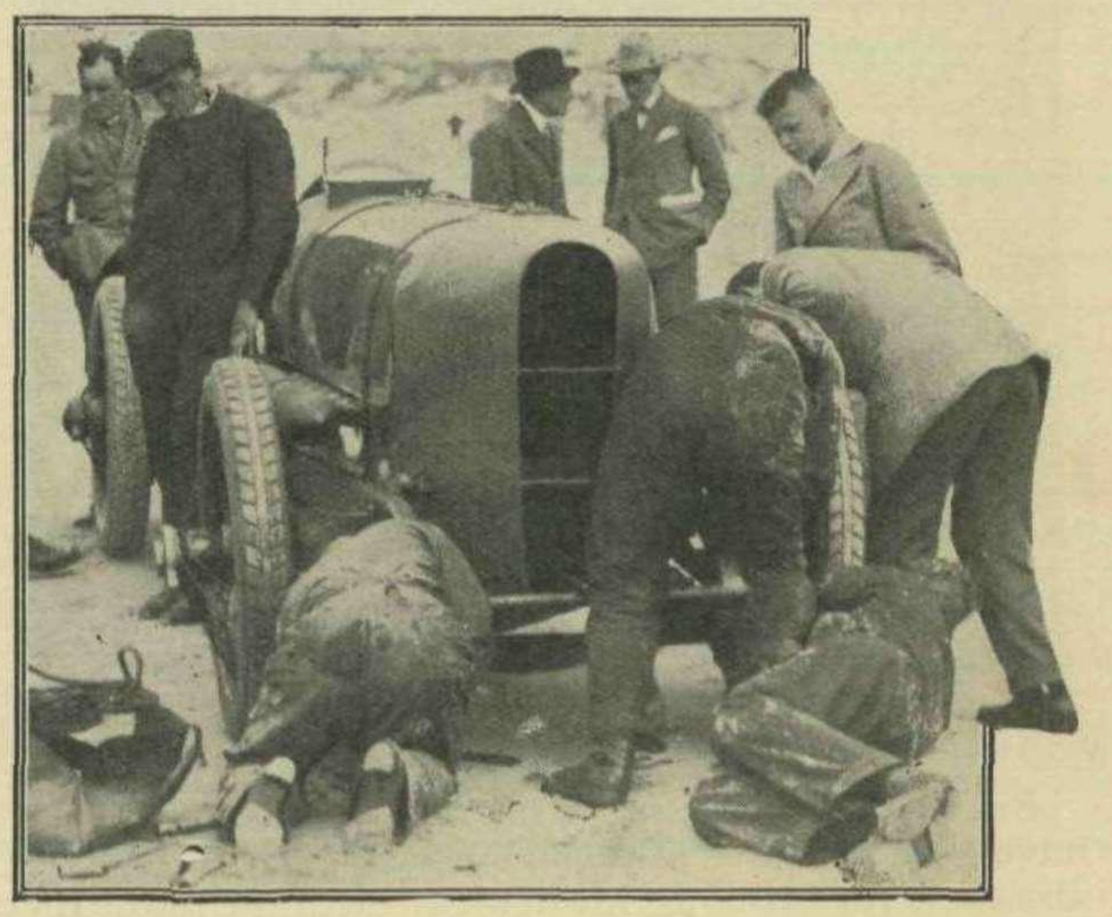
Should the valve mechanism or overhead camshaft gear be entirely enclosed, there may be some difficulty in discovering the amount of wear existing in vital actuating portions, and in such a case it will be desirable to remove the covers to expose important parts. Backlash, which may have developed to the extent of interfering with accurate timing, can usually be detected by exerting a temporary braking effect either upon the camshaft or the shaft which drives it. Should the application of a retarding effort reduce the noise of the backlash, it may be taken that there will be enough lost motion to need attention before the engine can be relied upon to develop its maximum efficiency, or indeed, to possess any satisfactory degree of reliability.

Some Vital Details.

Though the above-mentioned items are the more important to be investigated with regard to the engine, the inspection should also include examination of the lubricating system, the radiator and circulation system, the condition of the carburettor and fuel supply system, as well as of all details of the ignition. The condition of the bolts and nuts, as well as the general appearance of the engine, will indicate whether it has received considerate treatment or otherwise; for bad mechanics invariably leave records of their misdeeds in the form of damaged nuts and similar evidences of barbarous methods.

Testing the Clutch.

To judge by the way some drivers use their clutches on sporting cars, it would appear that they regard excessive fierceness as a highly desired quality. One has only to think for a second to realise that an ultra-fierce clutch is very nearly as bad as one that slips excessively when taking up the drive. Real efficiency is to be found midway between these two extremes, and the test for this is carried out in the following manner. Having seen that both brakes are acting properly, the engine is started and the first speed is engaged. The brakes are then applied to the fullest extent, after which the clutch is allowed to engage gradually. If the movement of the clutch pedal and the pressure on the accelerator are regulated judiciously, the clutch should pull the engine up. Failure to do so will indicate that an undue amount of slip exists between the members of the clutch, a fact that should be noted for further attention. With very powerful engines one would, of course, exercise special care with the accelerator whilst making this test.



CAPT. MALCOLM CAMPBELL'S MECHANICS MAKE A FINAL INSPECTION OF THE SUNBEAM BEFORE IT BREAKS WORLD'S RECORD.

Except in cases where unit construction is adopted, it is possible to detect any slight imperfections in the alignment of the engine and gear box by the amount of vibration observed on the clutch shaft. Irregularities in the movements of flexible joints between the two units should be regarded with suspicion, as indicating possible errors of alignment between the engine and gear box.

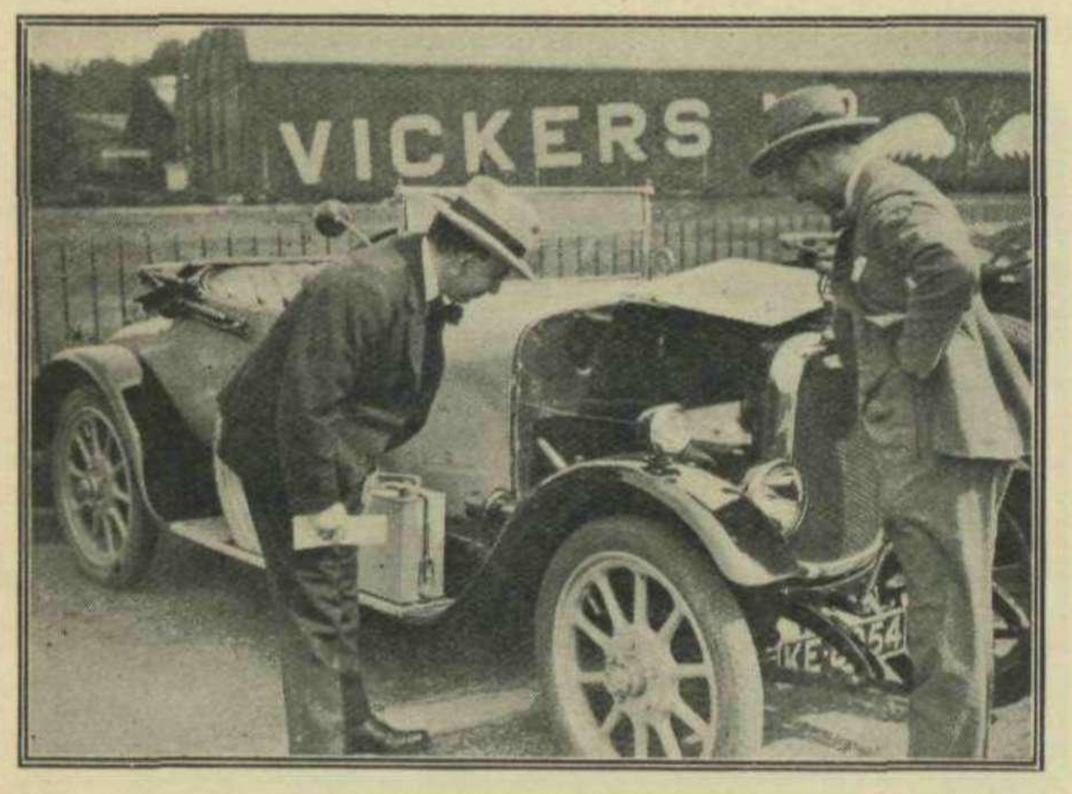
Steering and Suspension.

The importance of accurate and sensitive steering needs no emphasis for the driver of fast cars, whose experiences may remind him of occasions where much has depended upon the slightest turn of the wheel. In locating the backlash that may be present in the steering gear, one should pay particular attention to its distribution. Whereas a normal degree of backlash resulting from slight amounts of wear evenly distributed over all the joints need not constitute a danger, a lesser amount due to the partial failure of a single component becomes a very serious matter.

Each possible point liable to wear should be investigated with the greatest of care, and the examination should be carried out in a systematic way by beginning at the steering wheel and tracing every single movement throughout the entire mechanism until the front wheels

HOW TO "VET." A SPORTING CAR—continued.

are reached. This is a very important point in examining any part of a chassis. Sometimes inspectors are thrown off the scent of important defects by not adhering to a system for doing their work. For example, when examining a part of the steering gear, one may catch sight of a defect somewhere else, leave the steering to look at another part and forget to complete the part of the job that was engaging one's attention. One section of the chassis should be examined at a time, and completed thoroughly before another is commenced.



A Diagnosis at Brooklands.

Before a car is offered for sale, the original owner may have been tempted to remove a favourite set of shock absorbers for fitting to his new car, with the result that the suspension of the bereaved car will suffer, and may, indeed, be rendered positively unsafe. When the suspension is examined this detail should be borne in mind, as well as the fact that binding may cover a multitude of sins, or defective spring leaves.

The balance of the wheels has a very marked influence on the accuracy of steering at high speeds, and both front wheels should be spun when raised clear of the ground with a view to ascertaining if they are correctly balanced.

Transmission "Discoveries."

When one becomes practiced in the art of inspecting cars, it is really extraordinary how many things can be discovered during the simple transmission test. This test was used by the writer when engaged on inspection work for the Director of Transport during the war, and by continual practice he became rather quick at locating defects, much to the discomfiture sometimes of the M.T. drivers and a few of the officers.

The test for transmission which can be applied with equal effect to all classes of chassis, consists of raising one rear wheel clear of the ground engaging the first speed gear, then rocking the raised wheel to and fro against the engine compression through the medium of the whole transmission. While the transmission test is in progress and the inspector follows each possible detail of wear, item by item, it will be possible to locate faults that may exist from the rear wheel driving splines, through the differential, final drive, along the cardan shaft, and along to the gear box. The reversal of stresses imposed on the driving mechanism by the jerking of the rear wheel will show up practically every kind of wear between the gear box and rear wheels, besides which the security of the torque member or spherical coupling for the torque tube can be seen at a glance.

Recording Inspection Results.

However carefully an inspection may be carried out, it will lose a great deal of its value if the findings are not recorded. Enthusiasts who have studied speed work and carry out their activities on a scientific basis, are most meticulously careful about recording the results of inspections, and show exact measurements relating to such wear as may be found, with the object of deciding as to the steps to be taken to reduce it in other cars from which higher speeds are desired. The value of an inspection report decreases if it is loosely worded, or expressed in such a way as to convey no actual comparisons. Such phrases as "Slight wear on universal joints" may mean nothing or disguise the fact that the joints may be in need of instant repair.

Whether the inspection is carried out for the purpose of "vetting" a second hand car or used as a part of a system of scientific speed work, every detail should be carried out with as much care as repairs or any other vital attention to a sporting or racing car.

MOTORING RECORDS.

The following are new Motor Cycle speeds for the past month, beating Records previously published in our last issue, No. 1.

CLASS A.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	6/ 7/24	H. Le Vack	New Imperial J.A.P.	248	91.54	147.30
(f.s.) mile	6/ 7/24	H. Le Vack	New Imperial J.A.P.	248	92.06	148.17
(f.s.) ⊡*kilometre*	6/ 7/24	H. Le Vack	New Imperial J.A.P.	248	89.09	143.03
(f.s.) ⊡*mile*	6/ 7/24	H. Le Vack	New Imperial J.A.P.	248	89.25	143.62

CLASS C.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) 5 miles	2/ 8/24	V. Horsman	Triumph	498	92.82	149.38
(s.s.) 50 miles	9/ 8/24	A. Denly	Norton	490	87.52	140.85
(s.s.) 100 miles	9/ 8/24	A. Denly	Norton	490	86.91	139.86
					Miles.	Yds.
1 hour	9/ 8/24	A. Denly	Norton	490	87	137

CLASS D.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) 5 miles	2/ 8/24	V. Horsman	Triumph	599	94.11	151.46
(s.s.) 10 miles	2/ 8/24	V. Horsman	Triumph	599	89.44	143.94

CLASS E.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	6/ 7/24	H. Le Vack	Brough Superior	998	122.24	196.72
(f.s.) mile	6/ 7/24	H. Le Vack	Brough Superior	998	122.44	197.06
(f.s.) ⊡*kilometre*	6/ 7/24	H. Le Vack	Brough Superior	998	119.05	191.59
(f.s.) ⊡*mile*	6/ 7/24	H. Le Vack	Brough Superior	998	119.30	191.99

CLASS F.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
50 miles	12/ 7/24	V. Horsman	Triumph	599	76.95	123.84

CLASS G.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	6/ 7/24	H. Le Vack	Brough Superior	998	103.04	165.82
(f.s.) mile	6/ 7/24	H. Le Vack	Brough Superior	998	103.00	165.77
(f.s.) ⊡*kilometre*	6/ 7/24	H. Le Vack	Brough Superior	998	99.80	160.61
(f.s) ⊡*mile*	6/ 7/24	H. Le Vack	Brough Superior	998	99.73	160.51

CLASS J2.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(s.s.) 50 miles	12/ 7/24	S. J. Bassett	Austin	749	77.70	125.04

A full list of all Car and Motor Cycle Records is contained respectively in "The Brooklands Year Book for 1924," and the B.M.C.R.C. official list.

AN OFF DAY AT THE TRACK.

By "IGNORAMUS."

OH, we had a glorious time! That place, Brook—something, is awfully interesting, you know.

Of course, I don't pretend to be frightfully well up in it, mind you, but my friend who took me down is on the Motor Press and he said: "We'll have a look at the Grand Prix Sunbeam's supercharger."

Well, you know, I hate to appear ignorant or anything like that, and of course I realise now why he smiled at me like he did, when I said: "I'd love to go, as I've always been so interested in the cavalry."

Anyhow, we got there, but we never saw that supercharger. There were a lot of other men dawdling round the Sunbeam when we arrived, and they were all trying to coax the owners to lift up that lid-thing that covers the doings. But the said owners proved adamant, and stolidly turned down all bribes. There was a chap there who told my friend that something had "packed up"—just like our cook—and this was all the explanation which was vouchsafed.

My friend said: "Never mind; I suppose the Press luncheon hasn't been cancelled in consequence, has it?"

It had not, and as some thirty covers were laid for the far less number of Pressmen who missed the warning that the "do" was off, my friend smuggled me in as one of the Fourth Estate. He told me to say I represented the "Wardour Street World" if questioned. I did myself rather well at that luncheon and from what was provided I think that Pressmen must be recognised as devils of fellows.

Later, it was announced that a fellow named Thomas was going for some records. I don't know where he proposed to go to, but evidently his example was inspiring, because word soon came round that another man—Eldridge, I think his name was—would do likewise. Wherever they went, the shop must have been shut, for I never heard a gramophone while I was there.

Anyhow, this Thomas chap turned up later on in a funny-shaped motor car and went round the sloping concrete part awfully quickly. My pal told me he'd actually broken some records on the way round, so I reckon he's not much of a musician anyway.

Tell you what, though, he had on one of the most hectic Fair Isle jumpers I've ever seen, and it made me think of that solitary ape outside the monkey house at the Zoo.

One of the attendants told me that that red streak to match, which runs across this Thomas-fellow's face, was where he broke the timing-tape at Skegness Speed trials recently, and he guessed it must have something-well hurt, because he did it at such a colossal speed. Strictly between ourselves, I don't quite know what the man was talking about, but that's just what he told me—honest it is. But it only shows that Thomas is a clumsy devil, for he's always breaking something. First its records, then its tapes, then its sartorial regulations, and then its more records.

While we were waiting for Thomas to begin, my friend said: "Ha, there's Tommy"—and I turned round, and was introduced to a chap called Tommy Hann who, I believe, is in charge of shocks down there, or something, and we had a few; and then Hann said: "Ha! there's George—" and I turned round to be introduced to George Duller, the jockey-fellow who, I believe, had been training performing-fleas down there, because I heard someone ask: "How's the Bug?" He replied—"She's running a lot better now . . ." and we had a few more. Presently someone exclaimed: "Ha! there's Sammy"—but by this time it was not I who was turning round—it was the bar. That Sunbeam lunch must have been good.

Then Hann took me over to some aeroplane hangars and showed me around one of his own.

I think he must be cultivating a temperament by postal tuition or something, this Hann-fellow, for he doesn't use his shed for aeroplanes at all—bless you, no, it's full of old racing cars in varying stages of stagnation, and new ones in differing degrees of creation. Awfully interesting, though, and he seemed particularly attached to a car called "Quickly-catch-Funky," or something like that.

Of course, I'm not frightfully technical, you know, but there's one thing that did strike me about these racing cars, and that is the difficulty their drivers seem to experience in getting their engines to go. Now I believe my pal's car didn't cost so much money as most of these cars, and yet his is fitted with one of those self-commencers.

Then, after that, I rejoined my pal at the bar and helped him out.

Just then Selfridge—I mean Eldridge—appeared on his F.I.A.T. (which, someone told me, stands for "Fun in a Taxi," but I think he must have been pulling my leg, don't you?)

Well, anyhow, Eldridge went out on to the round concrete part to see if he could go any faster than Thomas had done, when he smashed the records, but he didn't go so fast, so he soon came back again. Perhaps taxi-driving has rather disheartened him.

By the way, a funny thing happened while Eldridge was trying.

I do hate those people who deliberately mislead one rather than admit they do not know what you wish to know, don't you?

I distinctly heard a fellow reply to another chap's enquiry that Eldridge had just "gone up the Byfleet Bank."

Now, of course, I knew he couldn't have done so, for my friend had told me all the banks were shut when he touched me for something with which to pay for the drinks. So I went up and contradicted this chap and said—quite politely, mark you—that the gentleman must have been misinformed as Mr. Eldridge was driving a motor car round that sloping part yonder.

But I don't think he understood.

Anyhow we certainly did have a glorious time—though I do wish they'd taken the top off the Sunbeam, for I've always wanted to see a *horse* power—specially a super one. . . .

IN THE PADDOCK

Sporting Chat by 'The Lounger'

I suppose it was never anticipated that the seats in the Fork Grand Stand would be occupied throughout a complete programme. At any rate, I have ridden on many an unsprung pillion that has been more comfortable. But perhaps one can hardly expect silk cushions for an extra "bob"!

* * * * *

Why do not more car racing enthusiasts attend the Track on motor cycle racing days? Many of them would find the programmes quite interesting, and one or two car designers and drivers might take a good tip or two from what has lately been accomplished with the faster two-wheelers.

* * * * *

The recording of results at B.M.C.R.C. meetings has much improved of late. I cannot admire the artistic efforts of some of the official painters, but I am quite sure that "the gate" much appreciates the dual results boards which are now in operation behind the timing-box and in the fork enclosure respectively.

* * * * *

How old *is* George Reynolds' Humber? From the very fact that it is always so spick and span, it attracts attention to its wealth in years. But its owner is quite proud of it, as he has every reason to be. It is a wonderful old car, and Mrs. Reynolds and the family always look so comfortable in it.

* * * * *

When asked "What'll win?" a certain Brooklands enthusiast always replies "I'll tell you after the race." But I notice that the bookies hand over quite a lot to him. It is no use writing to me for this gentleman's name and address He has not a monopoly of information, he is simply consummately lucky in betting, as in most other things he touches.

* * * * *

I have noticed lately a number of weary-looking people arrive at the Track on push bicycles. Quite a lot can be read into this about the missionary vocation of Brooklands. If people will *pedal* from afar to see motors racing, surely by hook or by crook they will some day own motors themselves? At any rate, I congratulate these cyclists upon their motoring enthusiasm.

* * * * *

What a remarkable lorry it is that Count Zborowski carts his racing cars about on! I have heard whispers of astonishing speeds it has put up on Continental roads, and certainly its equipment is typical of the thoroughness with which the Count does everything. I suggest a hundred miles race between the Zborowski lorry and George Reynolds' Humber, both carrying their usual freight, and the owners, for this occasion, swapping wheels.

* * * * *

I like that six-cylinder A.C. on which Colonel Lloyd disports himself, even although its official yellow paint is a bit lurid. It has rather put the other official Brooklands car into the shade, but the old Sizaire is still giving a good account of itself in the hands of the peaked cap gentleman.

* * * * *

The great variety of cars, including several of antique vintage, on which spectators arrive at the Track, speaks well for both their versatility of motoring taste and their sporting enthusiasm. Several remarkably cleverly camouflaged Fords have lately made their appearance. But I have yet to find the first in the Paddock or enclosures which does not give itself away by reason of its steering wheel. This, of course, if to proclaim oneself a Metallic Elizabeth, *is* in car etiquette to give oneself away!

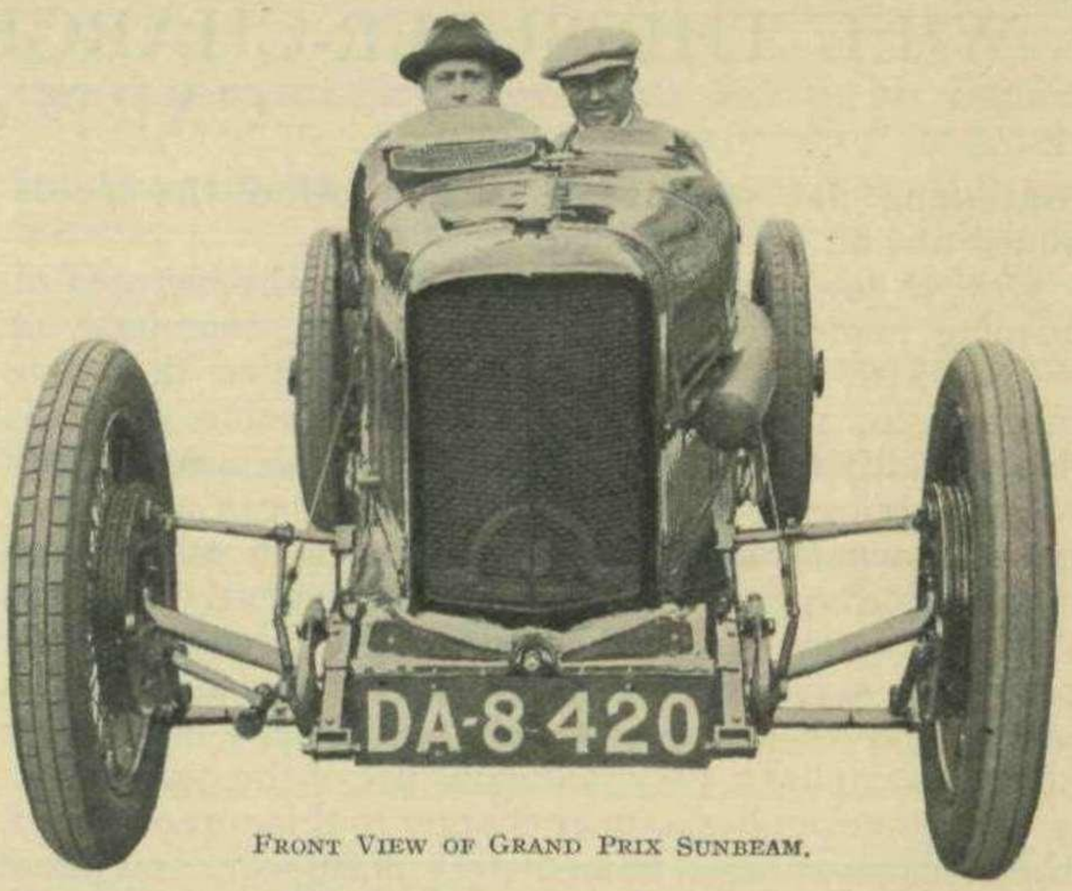
* * * * *

The "Leyland-Thomas" in her 1924 form is, without doubt, one of the finest specimens of streamlining that has yet appeared. A saving of 40 per cent. head resistance is claimed for the new design. This is very considerable when the shape of the streamlining adopted last year is recalled.

WILL THE SUPER-CHARGER BENEFIT THE TOURING CAR?

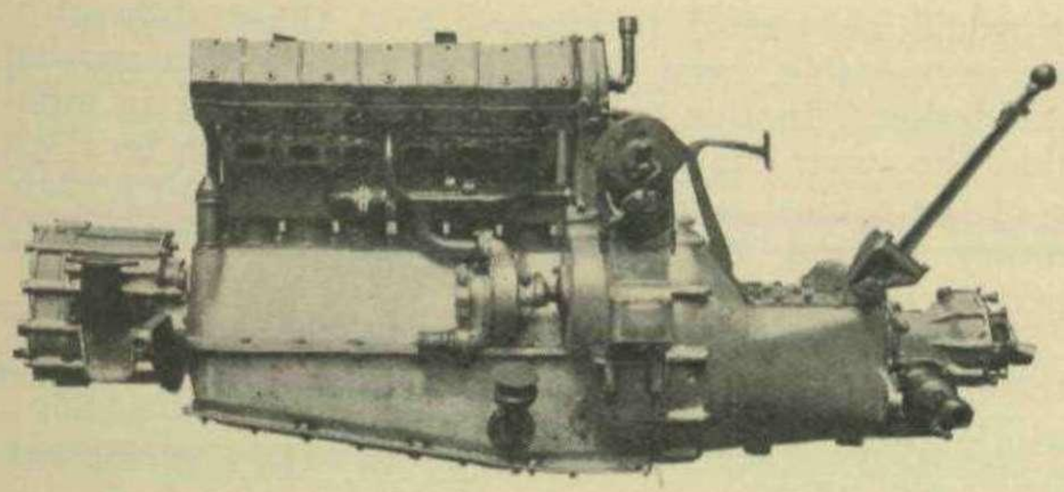
A Qualified "Yes."

By LOUIS COATALEN.



FRONT VIEW OF GRAND PRIX SUNBEAM.

THE above question, upon which I have been asked to write a few notes, is so broad and general that it is quite impossible to return a simple direct answer to it. If it had been "Will the super charger benefit some types of touring car?" I should perhaps have been able to be more definite. On the other hand, if it had been "Will the super charger benefit *all* touring cars?" I would by no means commit myself in its favour to this extent. It is very easy in a matter of this sort, unwittingly, to give the impression that any principle which one may advocate for certain conditions is desirable for universal application, therefore I wish to make it clear at once that the use of a super charger on the ordinary general utility type of touring car, in which first cost is naturally an item of great importance, is a very remote possibility indeed, and very far from a probability.



SUNBEAM ENGINE, SHOWING SUPER CHARGER AT FRONT END.

It should be borne in mind that there is no strict dividing line between the racing car and the touring vehicle, inasmuch as there are so many gradations of the latter. For instance, the highly developed "sporting" or "speed" model (a type which is steadily increasing in popularity) is neither more nor less than a racing car in which certain concessions have had to be made to accommodation, ease of upkeep, quietness and comfort. A little further along the scale one finds that more and more concessions are made with an accompanying further sacrifice of speed and acceleration, combined with an increase in weight. Further along still one comes to the sort of car which is just simply mechanical transport. In this sort of vehicle vitality is of no consideration whatever, the only qualities demanded being cheapness, reliability, and reasonable comfort. Thus it happens that a mechanical device which in one sort of "touring" car might be a very desirable thing indeed, would in another "touring" car be an unnecessary luxury and complication, and in yet a third "touring" car, nothing but an unmitigated nuisance.

It is because of these facts that one can rarely answer a broad question such as the above, in a direct and unqualified manner.

To be precise, I confess I have some hesitation about answering it at all, having regard to the need for having a very lengthy experience of any engineering contrivance before making up one's mind about it; my own view is, however, that for certain types of touring car, the super charger principle has distinct possibilities.

The great advantage of the super charger is that it enables such a valuable amount of extra power to be got out of an engine, that is both small in size and light in weight. It does this by virtue of its ability to fill the cylinders with a greater weight of gas than would be possible with the ordinary induction system operating under atmospheric pressure. Many people have the idea that, in consequence of this action, the super charger is really only of substantial advantage at the top end of the revolution scale, at which point maximum power is being obtained, but the actual scope and value of the device goes a great deal further than that. By means of experiments carried out in the Sunbeam two-litre engines, built for the Grand Prix, I have been able to show that, whilst the super charger adds very pronouncedly to the power at high revolutions—the increase under favourable conditions being something in the neighbourhood of fifty per cent.—its benefits are even more marked at lower speeds.

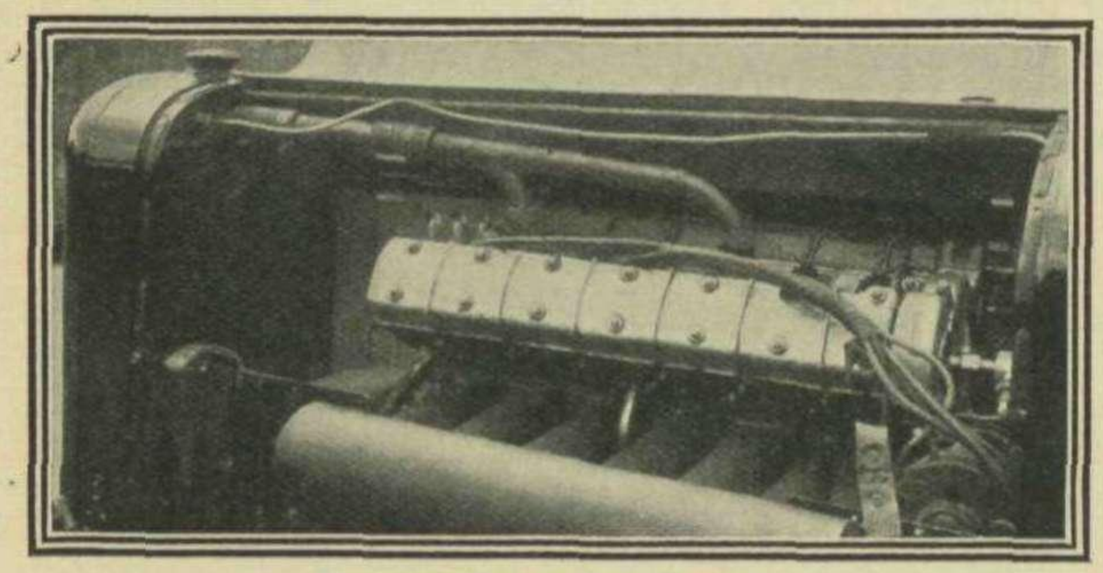
When seeking after high power from an engine of limited size, it is necessary to concentrate upon high effective revolutions. To attain this object involves the use of fairly large valves provided with a pretty big lift, otherwise there would be wire-drawing of the gas and the horse power curve instead of rising or even

WILL THE SUPER-CHARGER BENEFIT THE TOURING CAR?—continued.

continuing flat would fall off long before the speeds aimed at had been attained.

Now at lower speeds it is found that the big area of opening made possible by these valves, combined, of course, with the necessarily early timing of the valve mechanism, results in very uneven running. This is due partially to disturbance of distribution and partially to an absence of that turbulence in the gas which has been shown to be of such importance in an internal combustion engine. Thus it not infrequently happens that an engine, designed to run and to give maximum power at, say, 6,000 r.p.m., with scarcely any pull at all at less than 2,750 r.p.m., and I need hardly say that this implies a very strenuous use of the gear box.

When one applies a super charger to this sort of motor, these disadvantages immediately disappear, and there is a perfectly enormous increase of torque at the lower revolutions, accompanied by a consistent regularity of torque, thanks to the neutralisation of distribution troubles. The result is that the top gear performance of the car is conspicuously bettered, for not only is more power and therefore more acceleration available, but these benefits cover a much wider useful scale of revolutions.



SUNBEAM GRAND PRIX ENGINE.

In the meantime the super charger has itself absorbed a considerable amount of power on its own account, for it is a pumping mechanism which has to do a great deal of work, but its effect is such that the power lost in this way is quite small compared to the extra power which is introduced.

On many occasions it has been suggested that the use of super chargers on motor cars has been definitely brought about solely by the restriction of cylinder capacity in the more important races, and that had this restriction not been in evidence, designers would simply have made their motors of larger capacity. It is thus sought to be established that the super charger is no better in any way than an increase in cylinder dimensions. That, however, is not quite true.

There has for years been a steady and an absolutely justifiable tendency to multiply the number of cylinders and to make each individual cylinder smaller in dimensions. This tendency exists altogether apart from any considerations of taxation, for it is manifest on the other side of the Atlantic, where car taxes are happily trivial, as well as in Great Britain, where they are absurdly high. There are very good reasons for this state of affairs. One is that in the small multi-cylinder one has a means of reducing the stresses on the vital working parts, another is that one gets greater uniformity of torque, which implies greater comfort to the passengers and less wear and tear on the transmission. A third is that one gets a reduction in size and in weight of the power plant, which in turn means a less bulky, a more economical and, at the same time, a stronger vehicle.

To my mind, the super charger system has great possibilities, inasmuch as it helps forward the tendency to which I have referred, that is to say, for a given power, it makes smaller and smaller engines possible, so that if not in principle, at least in effect, one begins to approach the internal combustion turbine which has so long been looked forward to in vain. These advantages do not accrue from a mere increase in the size of an engine, although that may well be the cheapest method of obtaining a desired increase in power. We want, however, not alone more power, but a more uniform flow of power. Also we want lighter, more controllable, more durable, stronger, livelier and more economical cars. The merely larger engine does not accomplish these objects and its adoption would therefore be a retrograde step.

As to the super charger, it cannot be pretended that it is without disadvantages. It is not cheap to make, for it requires to be very efficient if it is to do any good at all; the problem of its silence presents certain difficulties; it cannot be denied that it is a complication (though a complication is not necessarily disadvantageous); finally, because it has a lot of work to do, it gets hot and therefore some means must be devised for keeping it adequately cool.

In view of the fact that the super charger for motor cars is as yet in its very early stages of development, it would be absurd to suggest that these difficulties are insuperable, even regarded as an aspect of touring car design. In this connection we must bear in mind that the super charger is a component, which by itself is of the utmost simplicity, having nothing but a plain rotary motion and having, therefore, an inherently perfect balance.

All these considerations point to the possibility of the super charger being ultimately able to establish its utility in connection with that type of car in which a really good performance is called for. In a racing car, of course, one is aiming at maximum performance, irrespective of anything else. As an example, the two-litre supercharged Sunbeam engine gives well over 160 b.h.p. It could be considerably "detuned" and it would still give 100 b.h.p. over quite a large scale of revolutions. This fact in itself suggests possibilities which may at length be realised.

In the meantime it may be remarked that much has been said and written about the value of racing. In my opinion racing would be justified if it has done nothing else than bring the super charger principle into the limelight, from which I have little doubt it will finally emerge (as so many other racing ideas have done in the past) as something of distinct importance in touring car design.

THE MOTOR CYCLISTS' V.C.

How the Nisbet Award has been Won.

THE late Mr. J. R. Nisbet, known popularly to thousands of old motor cyclists as "Jimmy," and founder of the famous house of Bowden Wire, Ltd., was for many years Chairman of the Auto-Cycle Union. He always took an enthusiastic interest in the T.T. races, with which he was associated in the capacity of Clerk of the Course from their inception.

When Mr. Nisbet died suddenly, during the war, the A.C.U., anxious to perpetuate his memory, decided to institute an additional award in connection with the T.T. races in his name. This trophy it was decided to call the Nisbet Award, and it was intended to rank as the motor cyclists' V.C., being awarded solely at the discretion of the T.T. Stewards to a competitor who should show such pluck, endurance, or capacity to triumph over difficulties as to warrant some special prize. It was wisely ruled that the continuance in the race of a competitor suffering from a serious injury should not constitute qualification for the Award.

The first T.T. competitor to be presented with this coveted trophy was the ever-popular Levis exponent, "Pa" Appleby, who was thus honoured after the races in 1920 as a mark of his courage and good sportsmanship in competing in a particularly plucky manner against a field of each of whom he was old enough to be the father.

In 1921 the trophy was awarded to G. W. Jones, who took a toss at Sulby Bridge, both he and his machine going clean over the parapet into the water below. Notwithstanding this unrehearsed immersion, Jones retrieved his motor cycle, kicked the forks straight, made a few deft adjustments, and then remounted and rode off to finish the required number of laps in altogether creditable time.

Neither in 1922 nor in 1923 was the prize awarded, although many thought it was well earned by Woods, the intrepid Cotton rider, whose machine caught fire and afterwards crashed, in the latter year.

In this year's T.T., Achille Varzi, the Italian rider of a D.O.T., won the award.

Rounding a bend in the course at a colossal speed, Varzi suddenly found himself confronted with a fallen competitor, who lay right across the road. Without hesitation, Varzi threw himself off his machine into the ditch in order to avoid further injury to the fallen man. Afterwards he patched up his machine and proceeded to ride on, but was stopped at the pits on his next appearance there, and was forbidden to continue, since his machine was considered unsafe.

It will be seen that this year marks the first occasion on which the award has been made to a foreign competitor. This is certainly completely justified by the action which inspired it.

THE CHAUFFEURS' CLUB.

The National Society of Chauffeurs, of which Mr. E. M. C. Instone, J.P., is the president, in conjunction with the vice-presidents, the Hon. Sir Arthur Stanley, G.B.E., C.V.O., C.B., M.P., Sir Julian Orde, Lord Montagu of Beaulieu, Sir William Letts, K.B.E., Mr. Stanley Spooner and Mr. A. E. Holmes, is appealing for £5,000 for the purpose of setting up a Club-house for the Society.

The proposal is that the Club-house shall comprise, besides bedrooms, dining, billiard and reading rooms, a lecture-hall, a gymnasium and an extensive and up-to-date garage.

It is foreseen that a club such as this would prove a boon to all owners of chauffeur-driven cars visiting the Metropolis, for the chauffeur would know immediately that he had somewhere satisfactory to put up and to garage the car.

In addition to the time saved by this pre-arrangement, he would at all times be at the telephonic beck and call of his employer should he be required.

The appeal goes on to say that it is proposed to affiliate with Chauffeurs' Clubs in foreign countries, and thus to form an international brotherhood, from which both the owner and the chauffeur would derive benefit—the former insomuch as when travelling in a country where there was an affiliated society, the chauffeur could immediately obtain any information he required, as well as find accommodation for himself and the car.

The appeal is being addressed particularly to private owners, trade societies and other concerns engaged in the motor trade.

The Society has also issued an informative and compact handbook which embodies a list of garages, French and English road signs, and points in driving.

INTERNATIONAL MOTOR CYCLING.

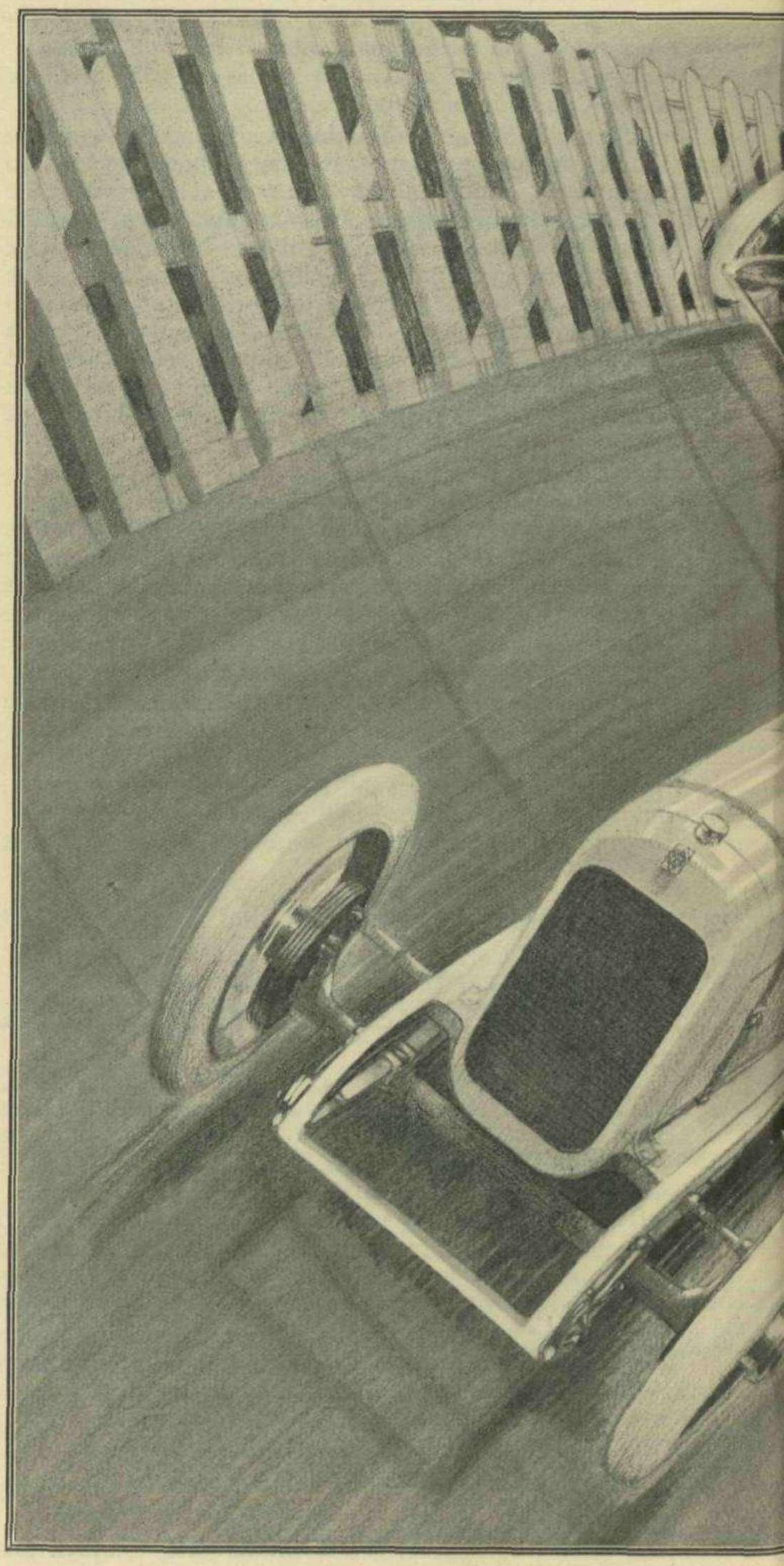
The Auto-Cycle Union has carefully selected the team of motor cyclists to represent Great Britain in the annual International Six Days, which is being held this month in Belgium. Including one sidecar combination and two solo machines, the team consists of F. A. Giles on a 349 c.c. A.J.S. and sidecar; G. S. Arter on a 499 c.c. James; and H. Clifford Wilson on a 493 c.c. Sunbeam. Each of these riders has thoroughly earned his place. Giles won the motor cycling championship in 1922 and made the best performance amongst the sidecars in the 1924 Six Days. Arter also put up a magnificent performance in the A.C.U. Six Days this year, going through the entire Trial without losing a mark; a feat only equalled by one other competitor. Clifford Wilson has put in a lot of good work in competitions, especially in Continental events; but his outstanding accomplishment was in 1922, when he rode a machine for twenty-four hours on end under official A.C.U. observation.

In 1922 the British team lost by one mark only to the then holders, Switzerland. The International Cup was last year awarded to Sweden, with Great Britain second, and although England failed to win the team award, British riders won the special prizes for the best performances in the trial by a solo and sidecar machine respectively. This year high hopes are entertained in official quarters of England's chances of success.

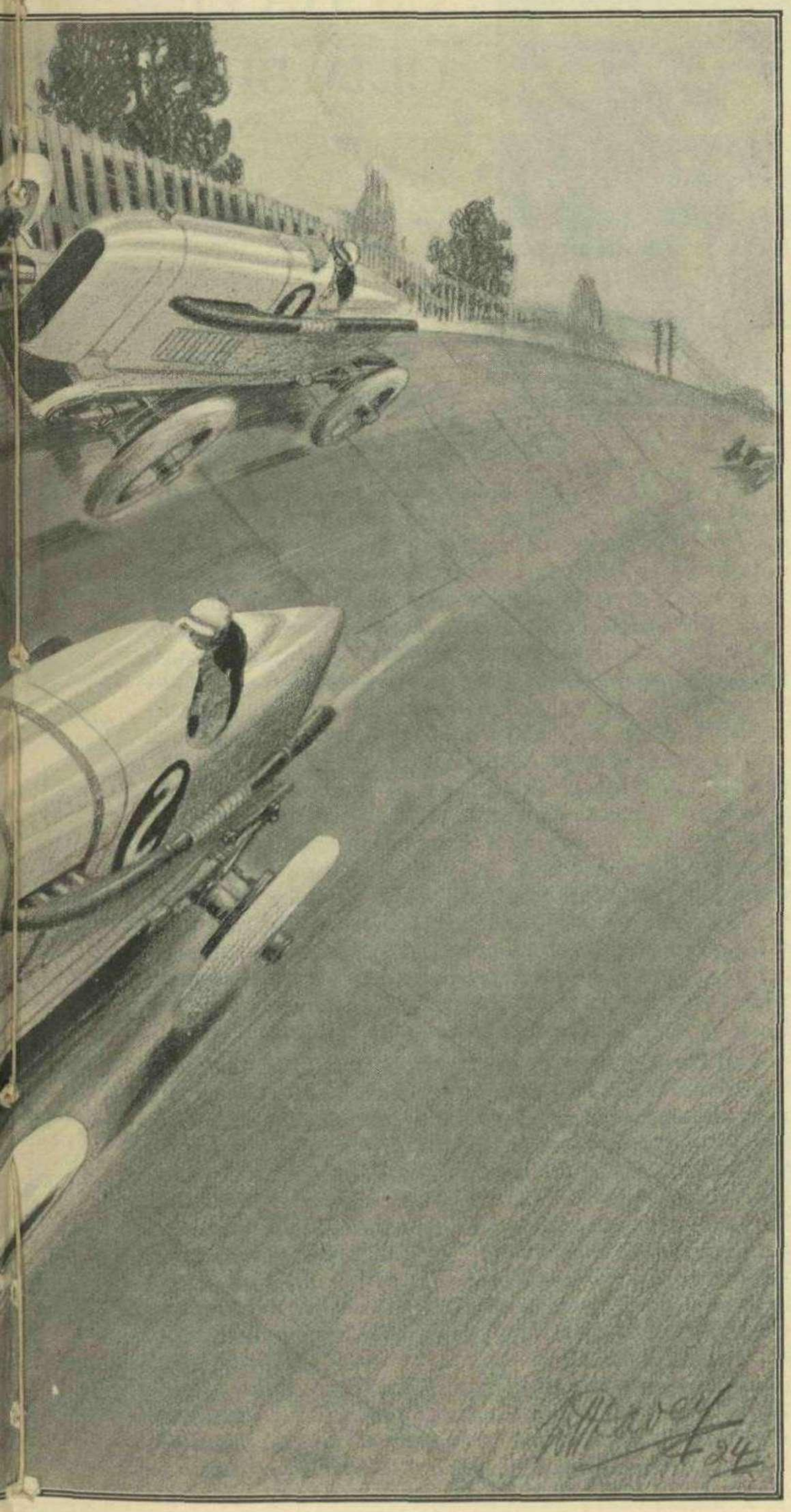
MAKING BROOKLANDS SAFE

The recent great increase in the speeds of cars at Brooklands suggests the feasibility of erecting a strong wooden paling at the top of each banking.

The paling would be a continuation of the curve of the existing track, and would be used in emergencies as part of the track for passing at high speed.



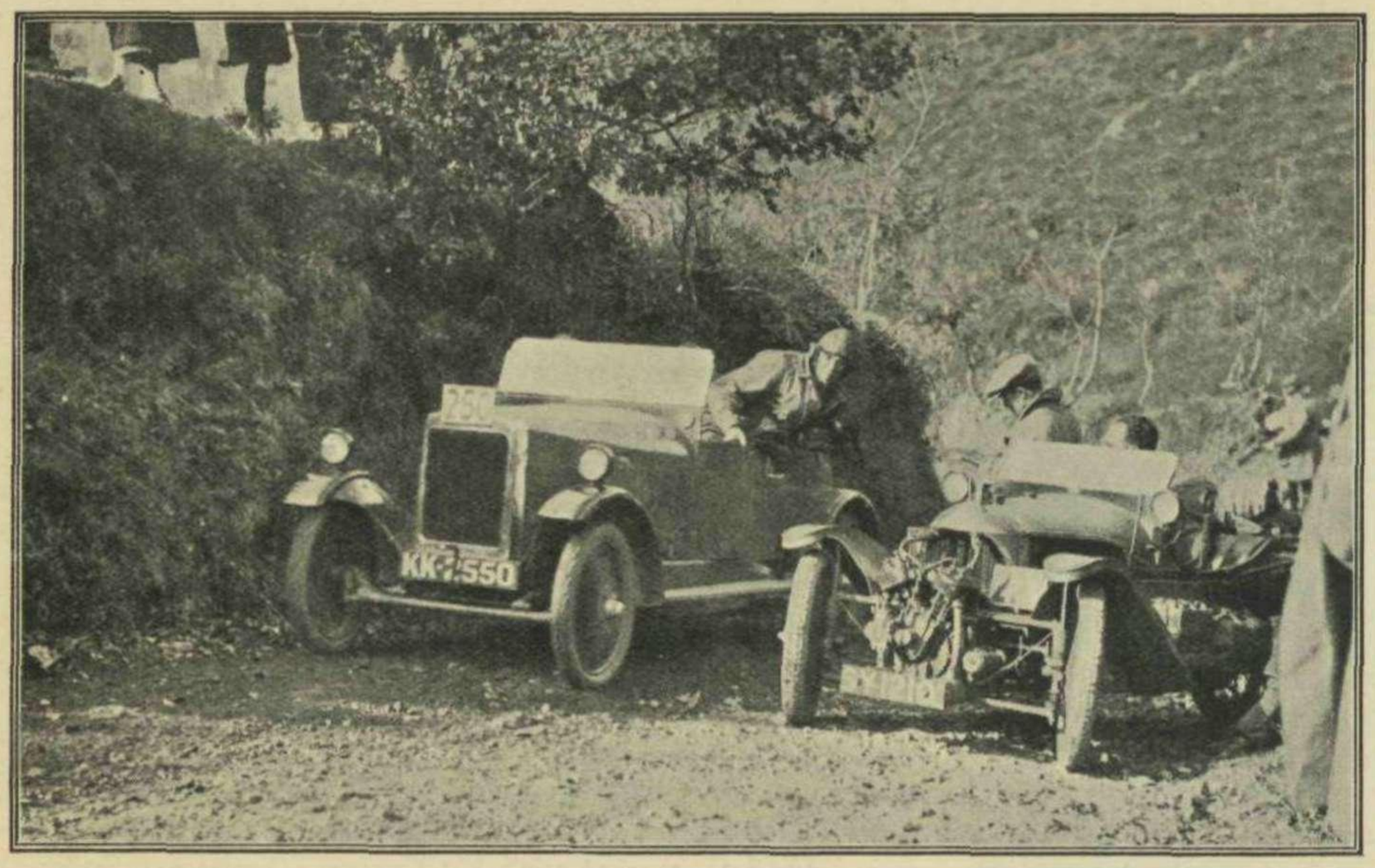
FOR 160 MILES AN HOUR?



Whilst this emergency structure would not be normally used as part of the track, its existence would give greater confidence to drivers of ultra-fast cars when passing near the top of the banking.

It is conceivable that it might, in fact, prevent a recurrence of recent fatalities.

What is the opinion of our readers ?



THE RHODE-O ON THE ROOST!

HILLS SOME OF US HAVE CLIMBED.

By

REX BRITTAIN.

EVER since the youth with the banner got busy trying for the altitude record (and, incidentally, provided generations of suburban quartettes with something really zippy to sing on winter's evenings!) "Excelsior" has been a favourite motto with sportsmen, particularly the motor cycling fraternity! They were high and far off times when an antiquated 1½ h.p. Werner motocyclette conveyed me precariously *and noisily round the country*—she was antique even in 1903—and she provided thrills that I have never been able to match since, and the hill climb game was just beginning in earnest then.

The favourite test of those days (Cudham Church was thought utterly unclimbable, and it was rightly considered a staggering feat when old G. D. Hardee—still with us, praise be!—wangled a direct drive machine up Chalk Pit) was Westerham, to-day an easy second-gear job for a sidecar, then a terror to be dreaded. I can still hear the enraptured cheers when Pearks climbed it on a 2 h.p. Singer with the engine housed inside the aluminium spoked wheel, holding the chain of his pedalling gear in one hand to guarantee the performance! In days when you reckoned to cool down, put in fresh oil, strip yourself to the limits of decency, and screw down the adjustable pulley (if any) before tackling such a slope, this was a real achievement.

Then came the renowned Chase *versus* J.A.P. match, which arose out of a challenge after the regular Catford hill climb. (I still treasure a certificate which warrants that I pushed a bicycle up this grind in 4.57!).

The J.A.P. engine was splendidly good of its day, but the driver, Low, had not the racing experience of the nimble ex-racing cyclist, Chase, and the latter won by a narrow margin after a thrilling scrap. (It was rumoured that Chase used picric acid, a forerunner of the "dope" of to-day). I am afraid that Westerham wouldn't do for 1924!

Perhaps the favourite hill near London is Kop, where the Brooklands gladiators can gather for a legalised scrap. It is not particularly steep, but is respectably stiffish at the top, perhaps one in six, and there are two easy bends. Lined as it is with natural grand stands, it is loved by the big crowds that are attracted there, for you can keep the men in sight practically all the way from the start. All the winds of Heaven sport up there, and the temperature is nearly Polar as a rule, but you forget that! Four years back it was a sight to see Openshaw (what has become of him now) streaking up here on his sinister looking o.h.v. Zenith, which always made the onlookers sit up. The hill is S. M. Greening's spiritual home, and if anybody wants to study the perfection of gear changing at speed, he has only to sit at the foot of the last rise and watch the popular J.A.P. expert at work. An equally pretty sight is to see George Dance on his Sunbeam wing his way up like a swift, plumb in the centre of the road, utterly ignoring the encroaching crowd—which separates before him as if divided by a magician's wand—seeming to float more than touch the ground, with never a flicker for that very unpleasant bump near the top.

The London district is rather short of good hills, but there are one or two calculated to make one thoughtful near the metropolis. Succombe, though easy, is useful, for if you can take it easily on second, you know you will be about all right in the West country, where the real pimples pullulate! Alms can be rushed, but it is one in three at least, and in the fall the leaves on the ground can unsaddle a solo man very easily. (*Experto crede!*) The sidecar that can climb it on second is a good one. It is dead straight, but in wet weather even Parsons' chains don't guarantee a view of the top. It is what one might term a "windy" hill; a great place to take the motor cyclist who is given to fireside feats, and has never seen it. I took such a one once, and we gave him a picnic lunch on the Cannons, letting it thoughtfully sink in. When he came to climb it the effect of the good work was very apparent. It is well to go down it gently; I still remember the

HILLS SOME OF US HAVE CLIMBED—continued.

runaway combination that charged down there once, and the screams of the lady passenger, though both came off scot-free as it happened.

Old Chalky, which is close to the Chalk Pit, is quite useful, if you have liberal crank case clearance, and so for that matter is Shoreham Cross, unclimbable so far as " feet on the rests " goes on a moist day, bumpy, with a narrow path of chalk rubble steeply cambered, with a really fruity drop on the near side, and a stiff rise after that over submerged tree roots and generally wet leaves !

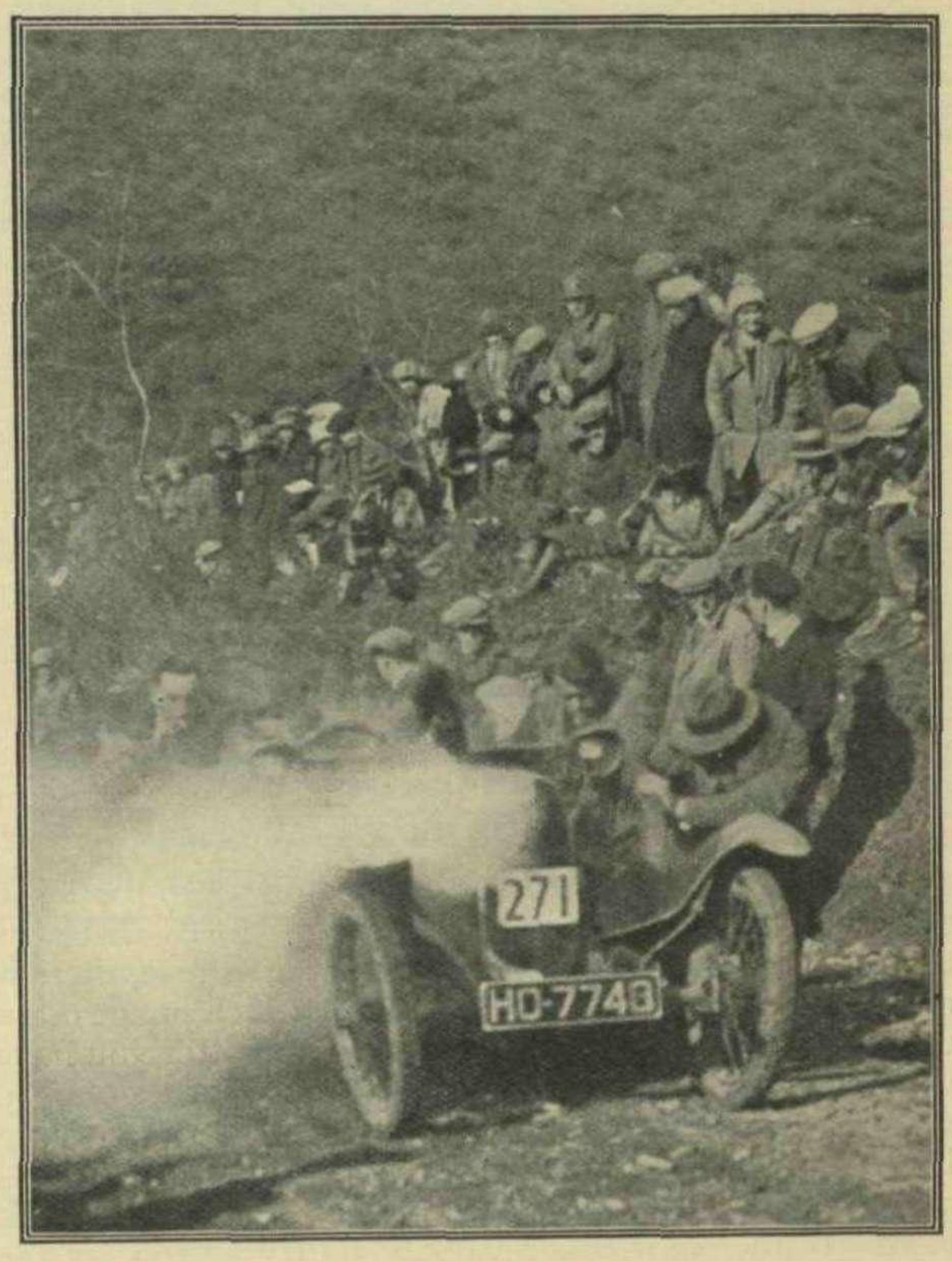
But for those who are holiday making about this time, there can be no better way of combining sport with pleasure than to make for North Devon, where the acclivities can be as baffling as they are beautiful. I believe that S. F. Edge (I wonder if he has forgotten the days when we used to hang over the fence of the Crystal Palace track to watch him racing with Jarrot and Wridgway on the early De Dion motor tricycles ?) was the first man to go up that aged terror, Porlock, on a motor vehicle, in this case a prehistoric Napier. Someone betted that he couldn't, and set out level with him on horseback. The equine finished a very bad second ! And it must be remembered that Porlock then was not what it is now : quite recently the bends have been considerably eased, and then it was well worthy of Monsieur Michelin's definition of " steep, stony, sinuous and precipitous descent ! " On a wet day it was just a slimy red river, and in a typically moist June it can be a teaser in 1924, if you have a heavy sidecar.

There is an easy second gear approach (for the benefit of those who don't happen to know it—those who do can bear me out) followed by an insane right hand wriggle with a very stiff inside. As a local Ford delivery van on its 100 to 1 bottom gear is invariably filling up the whole of the left hand easy curve as you come at it, you charge the one in three with a prayer that no one is coming down, skid across the road into the ditch, right yourself, and sail up a bonnie stretch of one in five or so, which is where a really first rate modern machine gets up into second in order to maintain that dreaded 19 m.p.h. average in the London-Land's End. The top curve (easy left) brings you into bottom again, but not for very long, and after that a good machine will finish at thirty-five over the ensuing mile or two that leads to the glorious view that lies on your right as you slither down Countisbury.

The favourite sport of the Lynmouth people is to sit on the slope of this descent and watch the expressions of the people descending. It is just like a " grinning-through-the-horse-collar " contest at a fair ; none of us knows how funny he looks when really intent and a trifle bothered, and this is not a slope with which to take liberties, as it has burnt out many a brake lining, and must have removed a good many tons of rubber from back tyres. Having been widened, it is much safer than it was.

Lynton hill, just ahead, is extremely easy—if it is not treated cavalierly, when it has a knack of turning and flooring the too confident one. The surface up to the sharp elbow looks like the Chesil beach, after a few score drivers have been up it ; but keeping the right hand path, and crawling round the left elbow at a tick over, there is nothing to apprehend.

It is otherwise—*quite* otherwise—with Beggar's Roost, up the top and round the corner. This hill is as temperamental and treacherous as a Hollywood vamp. Many have been heard to boast that they could guarantee a dead certain climb of it with a heavy sporting sidecar,



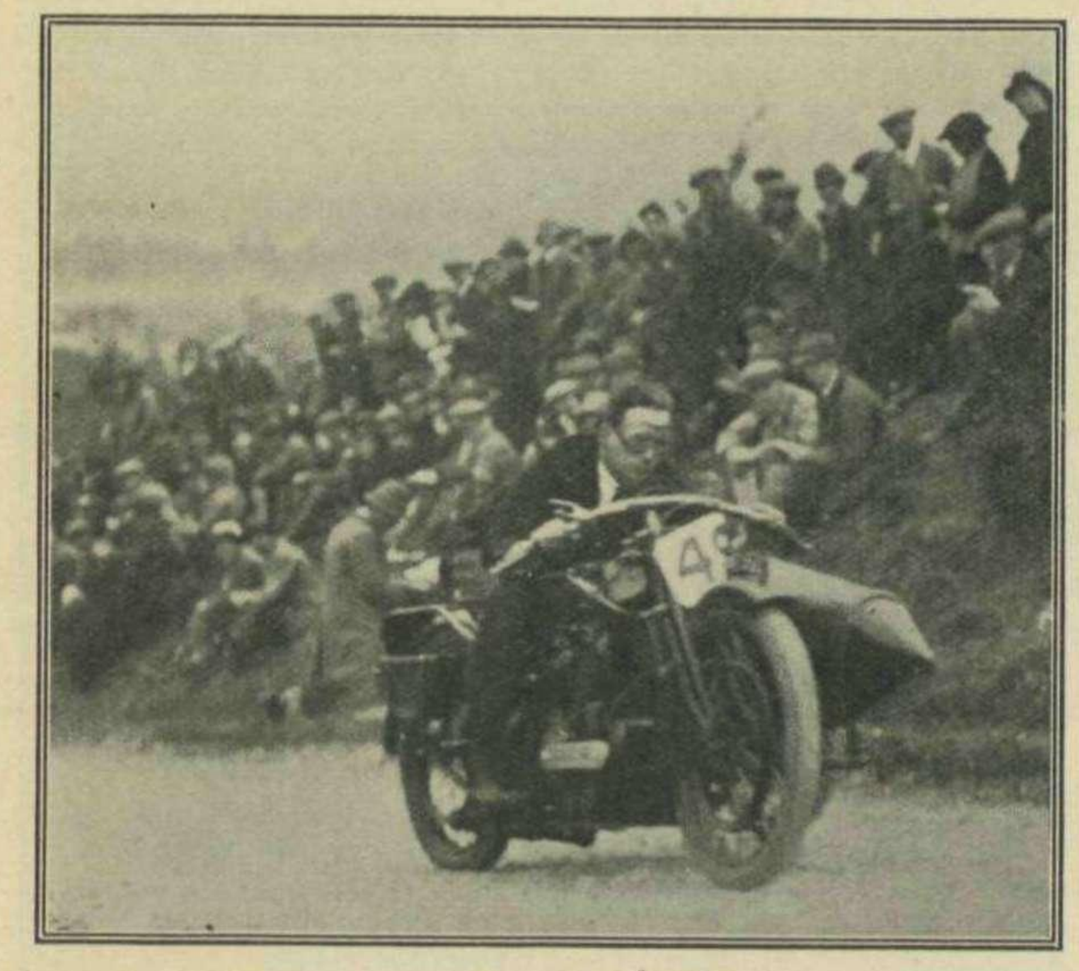
"Every Picture Tells a Story!"—on Beggar's Roost.

or a light car. And scores have eaten their words, and many an ounce of good red Devon earth with them, by the side of the betraying hump near the top of that up-ended sea beach !

For a solo man there is a clear path, if he doesn't object to leaving a trail of corpses behind him, since the spectators *will* cover the good going with their large, flat feet ! But the middle going and the stones on the left, only to be compared with shifting sands, have heard more good, heartfelt, soul searing profanity, have listened to the remarks of more strong men in agony than perhaps any other strip in England. A tired man who reaches this after an all-night run, with the sun well in his eyes, a cheering concourse yelling out advice and cluttering up the road, with his gold trembling in the balance—well, if he gets over clean, he's good ! As far as I have been able to work it out, the formula is—" Take the middle of the road and your courage in both hands, and rush like Hades ! " Anyway, a sidecar is an awkward craft here, and no one is advised to tackle it (other than solo) without a little helping hand for

HILLS SOME OF US HAVE CLIMBED—continued.

shoving, in case, if he doesn't know the slope. It is very easy indeed to turn right over, and with all brakes locked and the engine in gear machines will slide bodily sideways, it's that steep. You can spend a really sporting half day on it.

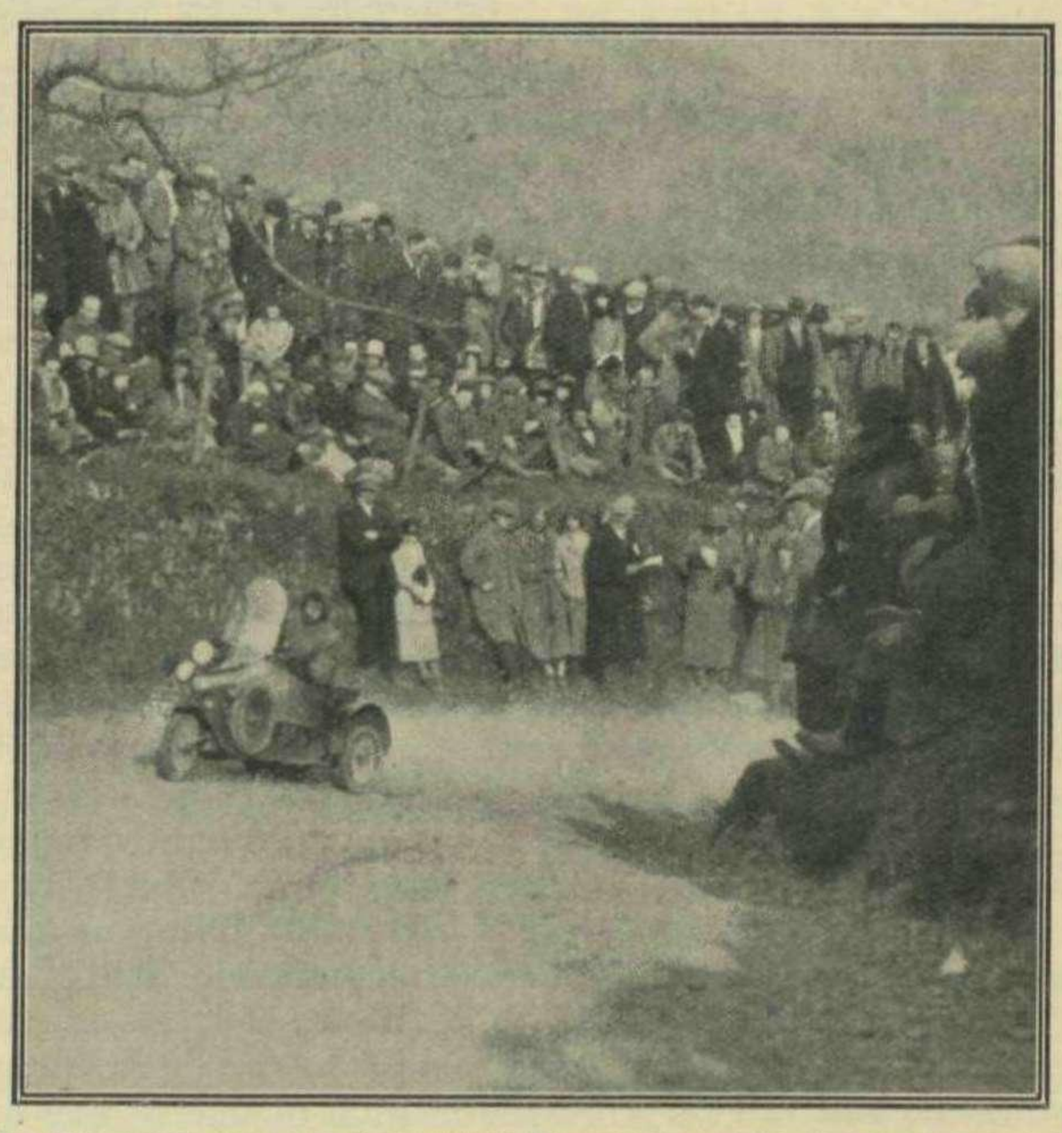


"All Out" on Kop—A Big Zenith Sets the Pace.

Station hill, Lynton, is almost hub deep in loose rubble, and so not very much fun to three wheels or more. But if you push through Lynton village, there is a very jolly rise called Lydiate Lane, which is not often used for trials—you will know the reason after you have got up! (Especially if, as happened in my case, a very obdurate Exmoor pony projects his bony rump half way across the narrow road near the top). Thereafter, through several gates, one arrives via the golf course to the coast road, a really sporting drive by the edge of the cliff over a shocking surface, with amazing scenery (but don't let that distract your attention too much from the steering, as they are so overstocked with tenors in Heaven, and you might not care for a harp!), dropping down to Hunter's Inn. There you will find a nice little slope leading back to Barbrook Mill. Tell me later if you did not think the right hand bend quite noticeable? It was used in the trials—once. Quite a liberal lock is called for.

Lynton Hill is dreaded by local drivers when it gets greasy, whether up or down, but the star turn is Brendon Hill, only a few miles away. Never go near it in the wet.

(*Continued on page* 96.)

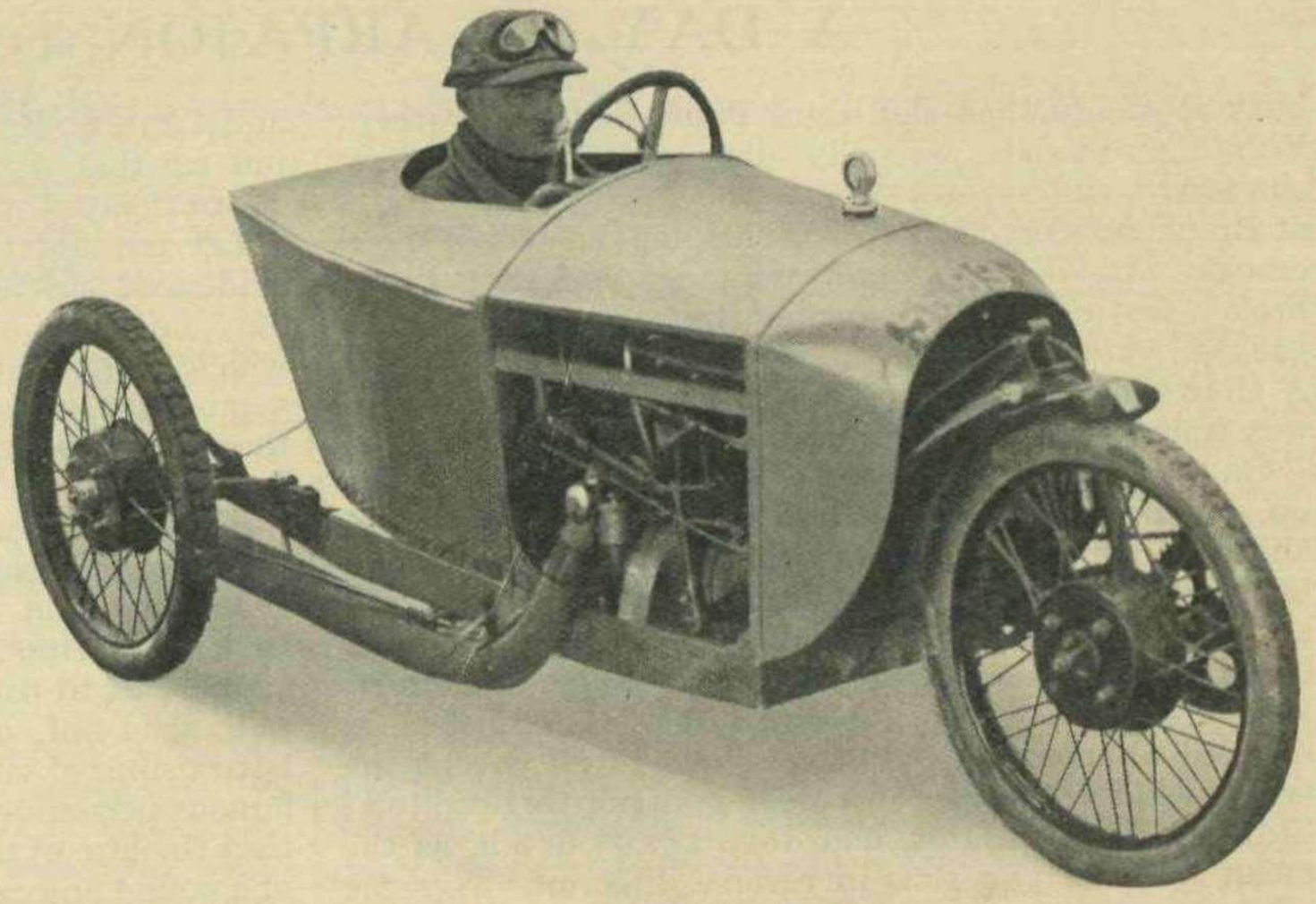


The Harper Runabout Startles the Crowd on the Top Bend of Porlock

Early Morning Courage is Required to do this sort of thing at 6.45 a.m. after 170 Nocturnal Miles.

A DAY AT ARPAJON.

Where Many World's Records Were Made.



THE NOVEL 350 C.C. COLOMBE CYCLECAR WHICH SET UP THREE WORLD'S RECORDS AT ARPAJON.

By

FRANK A. HARDY.

PARIS, at shortly after 8 a.m., and the promise of a fine, bright day. The car which was promised had not shown up, so, as the Major and I were anxious to go to Arpajon, a taxi was requisitioned. There were several attractions in the vicinity of Paris on that day, July 6th, the Olympiad, the visit of the Prince of Wales, charabanc trips to Versailles, and what not, but the magnet that drew us in the direction of Arpajon was the Tentatives de Records du Monde, organised by the Moto-Cycle Club de France.

As in the case of the noble lord who, on remarking that he was going to Piccadilly, was advised to pick a good 'un, we picked a good taxi. Plenty of horses under the bonnet, plenty of room in the body, plenty of tyre on the wheels, and " plenty good " driver. No sooner had he learnt our intended destination, than he produced a copy of that morning's paper in which was set out full details of the speed meeting we were to visit. Wherefore, all three of us started away with much *eclat*—which is cryptic French for keen anticipation of " the doings."

Southwards we hied, crossing the Seine, casting a glance at the misty vista, through which showed the twin towers of Notre Dame on our port quarter, through " the Boro," and so to the gates of the city, the Porte d'Orleans, for Arpajon lies on the Paris-Orleans road, some 30 kilometres away. A brief but irritating halt was called here, at the Octroi, an anachronism hardly less out of place than the modern English custom that permits one to buy cherries at an hour when the purchase of tobacco is forbidden. Then on, over the hard high road, through Longumeau to our objective.

We were not the first arrivals. A reception committee of gendarmerie, programme wallahs, and mixed population was already on the scene ; and someone had built a fence across the road and, for as far as we could see, all the way along one side of the highway. Our carriage, therefore, had to be left, and, with lordly disregard of the fact that it would cost us eight francs an hour, we bade the driver wait our return. Being a sport, he merely smiled, parked the car, and followed in our footsteps to view the proceedings.

I will not trouble you with an account of those footsteps, slipping and slithering in the trampled grass, over dry ditches and along the raw edge of cultivated fields. After a mile or so our attention was thankfully diverted to the course on our left, for a sound as of a bee in torment smote the ear, and presently there appeared Chéret, on a 75 c.c. Rovin, the babiest little motor-cyclette that ever called itself an automobile. Clad in black silk tights, and wearing a dinkie little crash helmet, Charét lay prone along the spider-like frame, and buzzed by at a speed, as we ultimately discovered, of nearly 44 m.p.h. He was the first item on the programme.

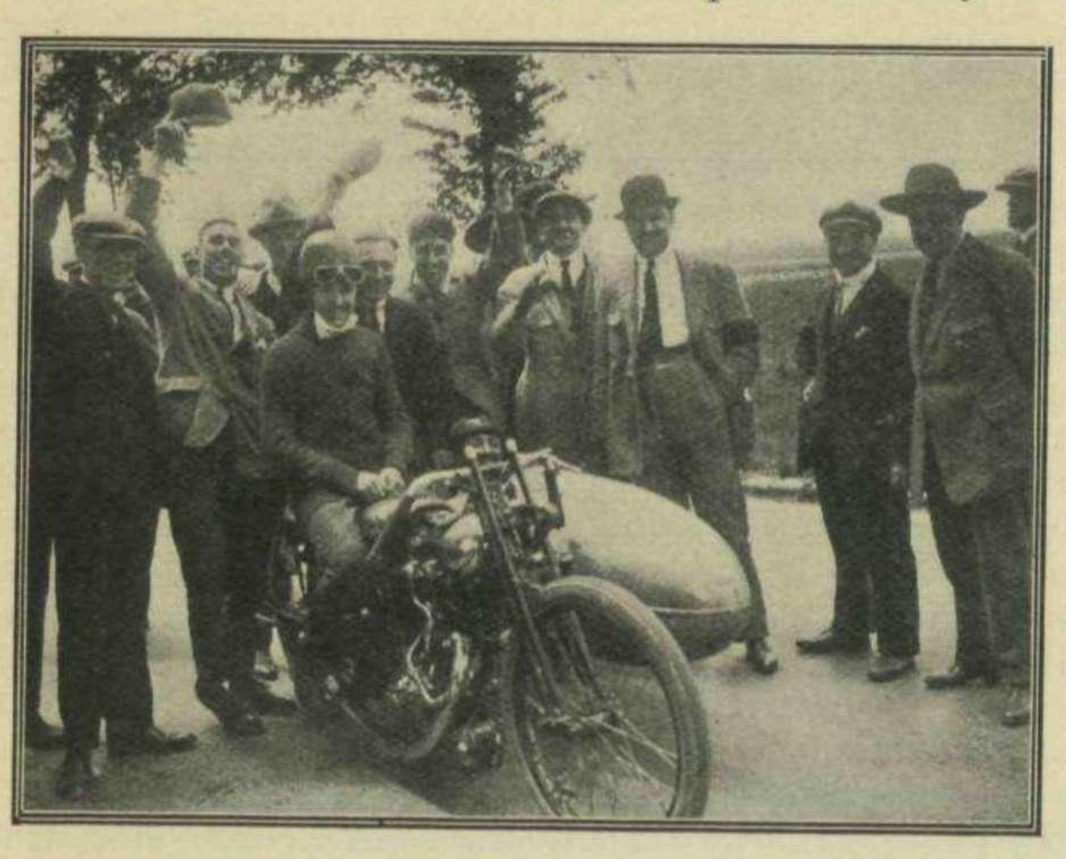
Later, we arrived at the first timing strip, reminiscent of Brooklands, and later still at the centre of the course where officials, timekeepers, and others of the cognoscenti were gathered. There was also a vigorous electrical generator, busy making the " juice " for the timing apparatus, a telephone installation, and a huge loud speaker which swung about and reported progress to the crowds up and down the course. Everything seemed to have been provided for, including a first-aid outfit discreetly hidden behind the official stands. Fortunately the latter was called out but once, when a three-wheeler shed a tyre, made a dive towards the roadside, and so scared a gendarme that he made a wild jump into a ditch, breaking his leg.

Meanwhile I had toddled on to the parking point at the further end of the course, leaving the Major in company with George Brough—he of the cheery voice—to glean any good news during my absence. It was not an easy walk, those second two miles—did I say that the day was bright and hot ?—but a pressman knows only duty, and there was compensation is seeing some of our own men, Le Vack, complete with green jersey, Temple and Judd, flash by on their attempts to win more world's records for Britain. A happy party were

A DAY AT ARPAJON—continued.

busy at the further end, Cyril Pullin and his brother; Vivian Prestwich, partially disguised in an Alpinist chapeau; and several others who are familiar figures at Brooklands, all hard at work helping our trio of speed cracks. An alfresco buffet reminded me that I had broken fast early that morning, but a loaf of bread, a flask of wine—but no "thou"—helped to fill the gap. A chat with one and another, a few snapshots, and it was time to start on the return tramp.

On the way back I was passed by the big Fiat, Eldridge up, and marvelled at the lack of confidence in his steering abilities displayed by the onlookers who took cover behind tree trunks or in the ditch. But, then, they had not seen him pirouette around the brink of the Byfleet banking. Thomas—Réne, not Parry—on his 12-cylinder Delage, came by also. A sweet car this, finished in dappled aluminium, and streamlined in all except the tyres: what a "bus" for a week-end run to Brighton! Eldridge, I heard later, had done 147.03 m.p.h. as the mean speed of two runs in reverse directions over the kilometre, but as a reverse gear had been left out of the car's make-up, the performance could not qualify as a record. Nevertheless, the speed actually was



THE 100 M.P.H. SIDECAR. MR. H. LE VACK ON HIS 1,000 C.C. BROUGH-SUPERIOR-J.A.P. SIDECAR (PASSENGER, M. CHERET) AT THE ARPAJON SPEED TRIALS, WHERE HE PUT UP TWO WORLD'S RECORDS AT OVER 100 M.P.H. RIDING SOLO HE ATTAINED THE SPEED OF 123.08 M.P.H.

attained, and officially timed. Thomas's speeds of 143.29 m.p.h. for the kilometre and 143.32 m.p.h. for the mile, were set down as records.

Dissatisfied with the peculiar position arising out of the above, Eldridge made arrangements for a reverse gear to be fitted to his car, and on the 12th July, over the same course, put up the following figures: kilometre, 146.86 m.p.h., and mile 145.57 m.p.h. [Subject to official acceptance by the I.F.A.C. they rank as records.—Ed.]. The motor cycles, too, had not been dawdling. Le Vack had put the sidecar record, for the first time, to over 100 m.p.h. and, riding solo, had achieved the wonderful speed of 122.44 m.p.h. And the Frenchmen liked it. All along the course they waved hats and cheered the appearance of the green jersey, as our 'Erb handed out the *grand vitesse* in the most approved fashion. Verily it was a wonderful show, and I rather fancy that a goodly few of the 34 records put up that day, by many types of automobiles, will adorn the record list for some little time to come.

Let me add that the arrangements for the meeting evidenced careful and thorough preparation, and the only criticism one could offer was that the meeting, which started at 9 a.m., dragged somewhat when, at 5 p.m. the standing start runs had yet to be carried through. Rejoining the Major, we started upon the two mile tramp to our taxi, pausing only to enjoy a wordy altercation between a farmer and a hobbledehoy cyclist caught riding over his flourishing crop of chicory. Of our reunion with our chauffeur—of our dash back to headquarters over pavé whereon our ample tyres enabled us to pass it through many "sports" cars less well shod—of our graceful acknowledgment of the hat-raisings of villagers, who clearly mistook us for more famous persons—and of our pleasant surprise on finding that the hire of the car was amply settled by a payment of a pound apiece, I will not tell at length. These were but sideshows to the big picture, the world's record achievements. But, that credit may be accorded where due, I append a few figures of the British riders' performances:—

	Kilom.		Miles.	
SOLO MOTOR CYCLES, 250 C.C.	secs.	m.p.h.	secs.	m.p.h.
H. Le Vack, New Imperial J.A.P.	*25.17	= 89.09	*40.34	= 89.25
SOLO MOTOR CYCLES, 350 C.C.				
R. N. Judd, Douglas	... 25.465	= 84.87	41.375	= 87.03
SOLO MOTOR CYCLES, 1,000 C.C.				
H. Le Vack, Brough-Superior J.A.P.	*18.79	=119.05	*30.27	=119.3
SIDECARS, 350 C.C.				
R. N. Judd, Douglas	... 30.115	= 74.35	*49.265	=73.102
SIDECARS, 1,000 C.C.				
H. Le Vack, Brough-Superior J.A.P.	*22.145	= 99.8	*36.095	=99.735

All above are mean Speed times and Speeds; those marked * qualify as world's records.

HILLS SOME OF US HAVE CLIMBED—contd.

Blue Hills Mine is nothing to amount to much, and not worth the long journey over the shaggy moors and atrocious roads.

For those who like to go still farther afield, Alt-y-bady can be recommended if the habitual following wind is on tap. And only Scots hospitality can make up to you for the hills among the heather!

Parsons chains are mighty useful things to carry (small boys are always speculating on the mistrustfulness of my character, as shown by the precautions we take not to have our spare wheel tyre stolen!) but they are no use on Devon hills on a dry day, rather the other way, as a few found out last Easter. If it is wet, they are life savers, and an ascent without them are often utterly out of the question on even the knobbiest of rubber tyres. And a jolly good motto for the sporting hill hunter heading westward is the old Latin tag of our school days—*festina lente*, for if he doesn't make haste slowly, he may end up with a handle bar resembling the crumpled horn of the nursery rhyme cow! But the judicious may have the time of their lives, and sniff at the hills of the home counties for ever after!

G. Campari, who won on an Alfa Roméo.

Major H. O. D. Seagrave, who was Fifth, on his Sunbeam.

K. Lee Guinness, who drove a Sunbeam.

A. Divo, who was Second, on his Delage.

THE GRAND PRIX.

Victory for British Motor Cycle and Italian Car.

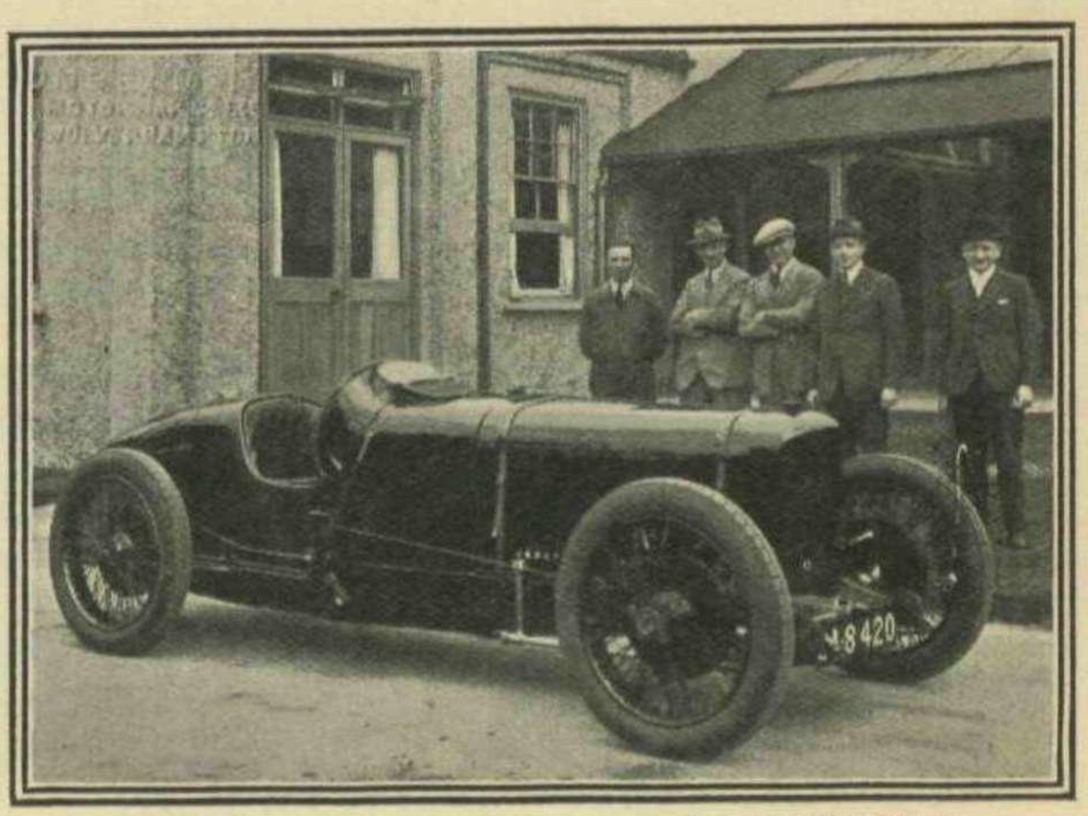
THIS year's French Grand Prix races were run over a comparatively short course, a lap being approximately fourteen miles. It is triangular in shape, the three sides being approximately equal in length, while the start and finish, which is near to one of the corners, is within seven miles of Lyons. Being triangular, the course naturally presents three bends at least, and all of them are distinctly on the acute side. There is also an acute "double back" bend near the apex of the triangle. In addition, there is, near to the starting and finishing points, a double S bend, which had to be taken with cars on the down grade, and which provided, besides the opportunity for the exercise of considerable skill in driving, a multitude of thrills for the occupants of the grand stands, which were in full view of this, the most difficult part of the course. As the races were held just before we went to press, we are prevented from commenting upon them at length in this issue.

The entrants for the Motor Cycle Grand Prix were divided into four classes, for machines having capacities of 175 c.c., 250 c.c., 350 c.c., and 500 c.c. The first had to cover the course ten times, which is equivalent to 143 miles ; the second class ran twelve laps, which is 171 miles ; the third did 14 laps, or 200 miles ; and the fourth had to lap the course 16 times, doing 228½ miles. Amongst British machines which were entered, were the Levis, Zenith, A.J.S., Sunbeam, and Norton.

The 350 c.c. class was won by Longman, on an A.J.S., and he covered the distance, 342.030 kilometres in 3 hours 43 minutes 43 seconds, which is equivalent to an average speed of 86.970 kilometres per hour, or 54.05 miles per hour. The 500 c.c. class was won by Bennet, on a Norton, the distance, 370.320 kilometres, being covered in 3 hours 54 minutes 29 seconds, at an average speed of 94.790 kilometres an hour or 58.91 miles per hour.

The Car Grand Prix of Europe, which embraces the Grand Prix of the Automobile Club of France, was run over 35 laps of the Seine course, approximating to 500 miles. The first lap, which saw comparatively many stops for wheel changes and other adjustments, was covered by Seagrave, on a Sunbeam in leading position, in 12 min. 22 sec. He kept his lead, to the delight of the many British spectators, till well into the third lap, when he was passed by Bordini on an Alfa-Roméo, who had managed to pass not only Seagrave, but also the Sunbeam driven by Lee Guinness, who was running third. Bordini kept the place thus won, with Ascari second, and Lee Guinness third, until the twelfth lap, when Guinness had to drop behind to effect adjustments. Prior to this piece of bad luck, Guinness had been running very well indeed, doing a lap in 11 min. 26 secs., which is equivalent to 121.64 kilometres per hour, or practically 75.6 miles per hour. At the end of the 19th lap, Ascari and Campari, both Alfa-Roméo drivers, were first and second respectively, with Lee Guinness third, with Divo on a Delage closing up behind. Lee Guinness and Bordini eventually retired, and in the result Campari won, in 7 hours 5 min. 34⅘ sec., at 113.280 kilometres, or 70.4 miles per hour.

In the ultimate result the placings were : (1) Campari, on Alfa-Roméo, 7 h. 5 m. 34⅘ s. ; (2) Divo (Delage), 7 h. 6 m. 40⅕ s. ; (3) Benoist (Delage), 7 h. 17 m. 4⅘ s. ; (4) Wagner (Alfa-Roméo), 7 h. 25 m. 10⅘ s. ; (5) Seagrave (Sunbeam), 7 h. 28 m. 56 s. ; (6) Thomas (Delage), (7) Chassagne (Bugatti) ; (8) Frederich (Bugatti) ; (9) Reata (Sunbeam) ; (10) Garnier (Bugatti) ; (11) Marchiesi (Fiat).



The Grand Prix Sunbeam and some of its Creators.

New Equipment for Sporting Cars & Motor Cycles

The Petrol Miser.

Although there may be some little doubt as to the derivation of the name which Runbakens have applied to one of their latest inventions, the "Petrol Miser," there can be no disputing that in any event it is the *mot juste*.

The automatic carburettor which is capable of making, of its own accord, without human interference, adequate provision for all the variations in mixture which are called for in the course of even a single day's running, is but rarely met with. Many users, of course, are satisfied with the results they are able to get with the ordinary instrument; the keen sporting driver, however, will ask for something a little more precise in its functions. His requirements are provided for in this little fitting with the double entendre name, which allows the driver, by the mere twist of a metal disc, to vary the strength of his mixture according to the conditions of the moment.

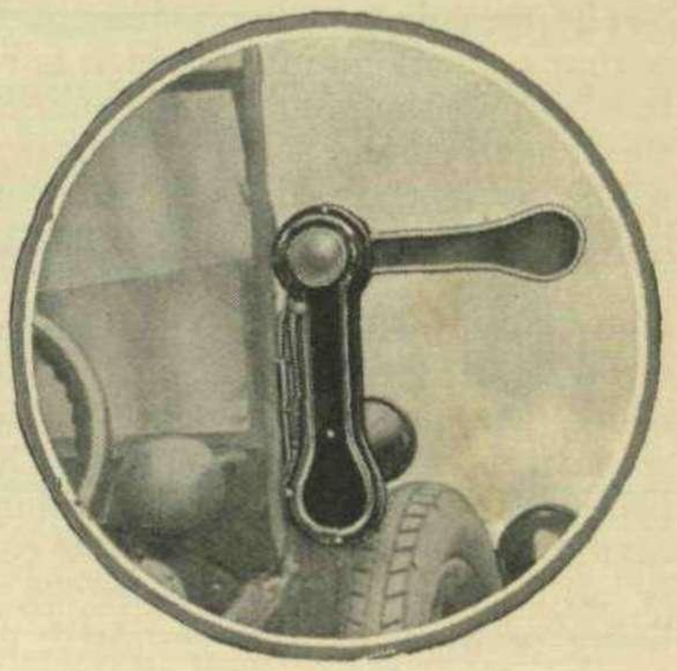
PETROL MISER DASHBOARD CONTROL.

As an example of the sort of thing we mean, we need only refer to the fact, well known to motorists of even brief experience of car running, that a carburettor which is set to afford easy starting requires more air at speed than the ordinary adjustment will, as a rule, allow; on the other hand, if the adjustment be such as to give the best mixture for speed, then starting, and hill climbing as well, become more difficult. The "Miser" is a dashboard instrument which controls a supply of pure air. In the off position that supply is cut off, and the carburettor, which may be set for easy starting, is available for that purpose, or for other conditions which demand a comparatively rich mixture. One makes a slight movement of the control disc when the car is under way, and working in circumstances which allow of a thinner mixture, and the additional air is provided. Not only is petrol economised in this way, but the actual running of the car itself, at all speeds, is improved.

Provision is made, in the construction of this little fitting, for a drop of petrol to be injected into the induction manifold, from the dash. The "Miser" can be used as an aid to engine cooling when descending hills, and it can be fitted to the car in about half an hour. Its price is but 30/–, post free, from the Runbaken Magneto Co., Ltd., Derby Street, Cheetham, Manchester.

Automatic Signalling Gear.

The matter of signalling one's intentions as regards direction of travel to following traffic is rapidly increasing in importance. The general adoption of some mechanical contrivance for making the proper signals automatically at the right time, has much to be said for it. Such a piece of mechanism is the Desmo-Saveacs, which is marketed by Desmo, Ltd., of Desmo House, 31, Stafford Street, Birmingham, a firm which is noted for its prolificacy of useful inventions for motorists. This particular device embodies a semaphore, which is mounted to the off side of the wind screen. It is coupled up to the brake pedal in such a manner that, on the pedal being subjected to a moderate pressure, the semaphore moves up and down with a movement which imitates almost precisely the orthodox movement of the arm of a driver signalling his intention to slow up. Pressure less than that causes the arm to remain stationary in a horizontal, outwardly projecting position, signalling the intention to turn to the right. While a device such as this might with considerable advantage



THE DESMO-SAVEACS INDICATOR.

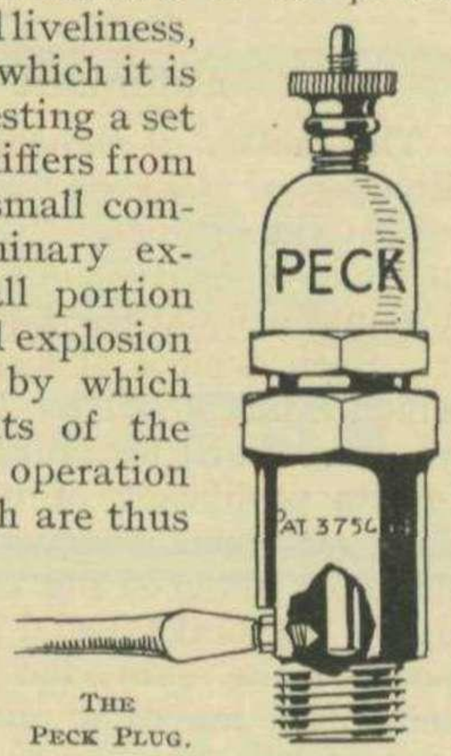
NEW EQUIPMENT—continued.

be fitted to any type of car, its most emphatic appeal will undoubtedly be to users of closed cars. With the Saveacs in position there is no need to let down the window or to interfere with the side curtains ; no need to expose the occupants of the car to wind and rain, or for the driver himself—or herself—to experience discomfort.

The semaphore itself is made with a red reflecting surface, so that it is equally efficient at night, since all oncoming lights are bound to shine on it. When not in use it slips out of sight into a neat housing which is provided for it. This device is made in three models. Model A is complete with red reflecting semaphore as shown in our illustration, and costs only 45/–. Model B is equipped with an observation mirror, and its price is 50/–. Model C is fitted with an automatic ruby warning light for night signalling. The lamp is wired in series with the side lamps, and the price of this model is 55/–.

The Peck Super Plug.

A new type of sparking plug has been patented by Sir William Peck, of Fettes Row, Edinburgh. One of its features is claimed to be the elimination of the tendency to oil up, while improved engine operation, making itself evident both by an increase in the power developed as well as by increased liveliness, is a further practical result for which it is designed. We are at present testing a set of these plugs. The Peck plug differs from others in that it embodies a small compartment in which the preliminary explosion of the gases, or a small portion of them, takes place, this initial explosion providing the heat and flame by which the main combustible contents of the cylinder are ignited. That the operation is very much on the lines which are thus indicated is apparent from the fact that, when this plug is used, the ignition timing of the engine concerned can be advanced by from ten to twenty degrees.



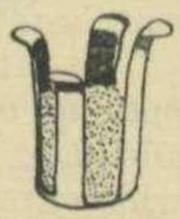
THE PECK PLUG.

The actual sparking points of the plug are located within a small chamber, which is really an extension of the body of the plug. The connecting passage between this chamber and the cylinder is of a peculiar shape, which, it is claimed, is a contributory cause towards its satisfactory functioning. The insulation of the plug is all mica, the loose porcelain cap being a finishing piece only. The central electrode, and also the grub screw electrode, are of pure nickel. The mica being coned, the plug can be taken to pieces, and is gas-tight when it is screwed up again. The mica insulation is protected, at its inner end, from the direct tearing action of the flame, by a metal cover. The spark gap is adjustable by a screwdriver, the movable point being secured in the required position by a small locking nut.

Cantrell Valve Stem Lubricator.

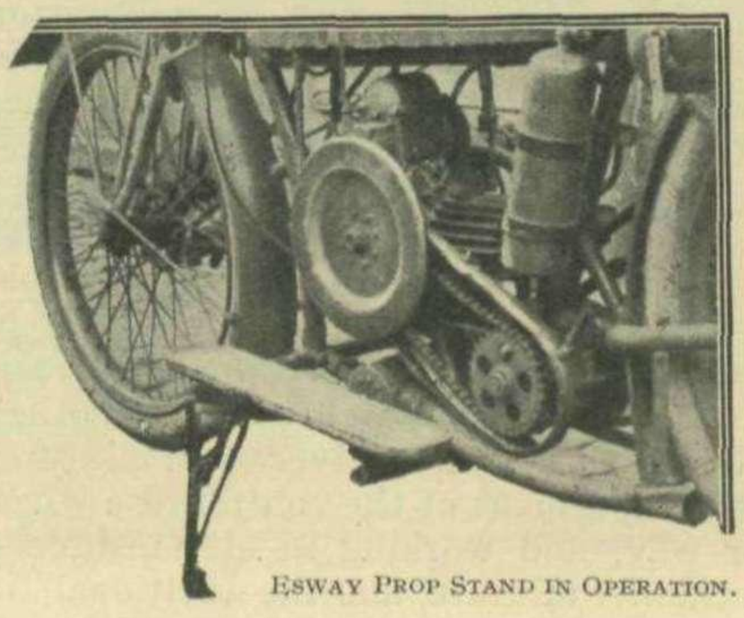
The advantages of lubricating the stems of internal combustion engine valves are obvious. A simple form of lubricator which has several good points is the Cantrell, made by Mr. G. Cantrell, of Buxton, Derbyshire. Each of these lubricators consists of two parts. There is a metal body, and an all wool felt pad. The metal case is designed with four projecting prongs, no two of which are the same length, the upper ends being so formed that they will partially embrace the wire coils of the valve spring. To facilitate this operation, the lengths are such that, approximately, they will all be in contact with the one coil of the spring, notwithstanding its upward climb towards the valve. The casing is put into place by being wound up the spring. This case contains the pad, which is bored a tight fit upon the stem of the valve, and, as the spring moves in operation, the felt pad is squeezed, and deposits oil upon the stem of the valve. Once these lubricators are fitted, it is only necessary to replenish the oil supply by squirting a little on to the pads occasionally. The price is 16/6 the set of eight.


CANTRELL LUBRICATOR IN POSITION.


THE METAL CASE & PAD.

Esway Prop Stand.

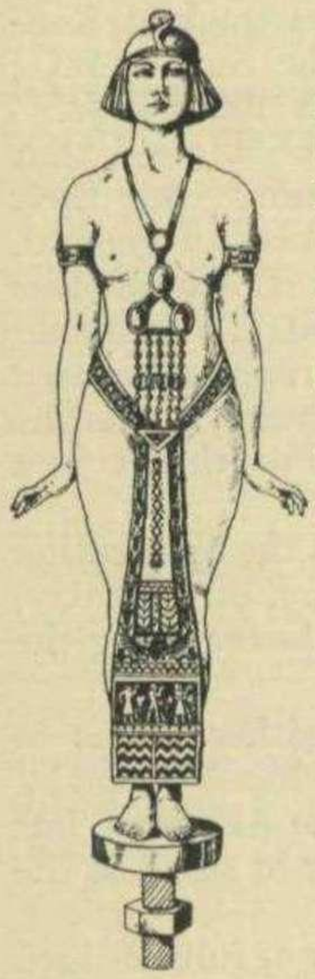
The Esway motor cycle stand is automatically adjustable for a variety of positions and heights. It is located beneath the footboard of the motor cycle, and is erected for use or returned to the non-operative position, merely by pressure of the foot. Its facility for accommodating itself to so many different positions and heights—there are fifteen in all—is afforded by means of a series of ratchet teeth which are cut upon the inside of the leg of the stand, with which a vertical pawl, suspended beneath the footboard, engages. The foot of the stand is rounded, and has teeth cut into it, so that it gets a grip upon the road no matter what is the angle to which the stand is lowered. The stand works equally well on steeply cambered roads and on level surfaces, and there is no restriction as to the extent to which the machine is to be allowed to lean. Pressure on a projecting lug serves to lower this stand, the pawl automatically finding the most convenient tooth on the ratchet. When it is required to replace it, the machine is brought to an upright position, which takes the weight off the


ESWAY PROP STAND IN OPERATION.

NEW EQUIPMENT—continued.

stand. A touch of the toe on the pawl then unlocks it, and the stand flies back into its horizontal position under the footboard. No clips are needed to keep it in place, as the same spring which returns it to position will serve to hold it there. The price of the standard Esway for fitting to footboards, as shown in our illustration, is nine shillings and sixpence, and it is manufactured and sold by G. Harter, 42, Harcourt Terrace, London, S.W.10.

Artistic Mascots.



THE LUXOR CULT IN THE FORM OF A BEAUTIFUL MASCOT

Many car and motor cycle mascots now on sale are produced by the brassfoundry trades, and these often lack artistic conception and fineness of detail. Mascots made by the Birmingham Medal Co., of Vittoria Street, Birmingham, being produced by silversmiths, are appreciably better than the usual run of such articles, and are invariably notable for their excellent modelling, detail, and finish.

The original mascot illustrated is oxidised, and the lady's dress—what there is of it—is tastefully enamelled.

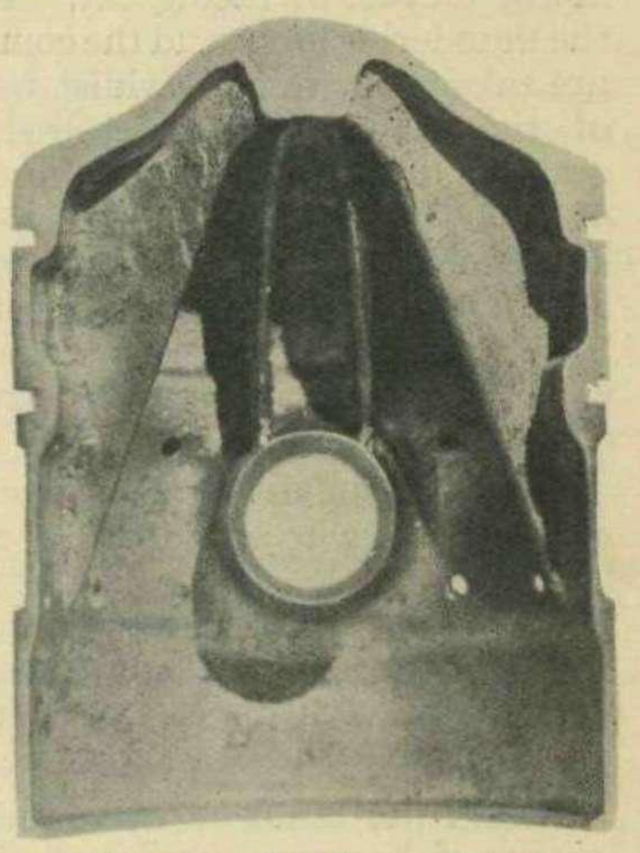
Illustrated lists depicting many fascinating mascots offered at attractive prices, can be had on application to the company.

The Birmingham Medal Co. are also specialists in high class medals, plaques and other forms of motoring awards. They are, it may be mentioned, makers of the Auto-Cycle Union's T.T. trophies, medals, and replicas; also the Alec Ross trophy, the Dunlop Ulster Grand Prix, the Blackpool Carnival trophies, and of medals, etc., for over 100 motoring clubs.

Specialloid Pistons.

If there is one thing above all others which the racing and competition man does appreciate, it is the necessity for light reciprocating parts in his engine. Certain firms have, therefore, made a speciality of catering for his requirements in this direction, notably by providing him with alloy pistons which enable him, as a rule, to effect considerable reductions of the weight of those parts as compared with what is regarded as standard. As to the popularity of this means of improving the racing possibilities of any engine, there need be no doubt, and if there were, it is completely removed by the news that one firm alone, namely Specialloid, Ltd., is preparing to produce no fewer than 10,000 such pistons per week. To that end larger premises have just been acquired by this firm at Friern Park, Finchley, London, N.12. The works are very complete, and entirely self-contained, no reliance being placed upon the local electricity supply company for the provision of power, which is afforded, instead, by means of a suction gas plant and engine. This in itself is an advantage, on account of the benefit of independence aforesaid, but it also allows of considerable economies in the works. The furnaces for the metal foundry, for example, utilise the surplus gas from the producer as fuel, while the gas engine itself drives a compressor, the air from which is used to provide a forced draught for the same furnaces.

Specialloid pistons possess features of their own both in regard to their design and also as to the metal of which they are made. The latter is a special alloy—hence the name—which has been decided upon only as the result of researches extending over a number of years. It is claimed that it has the special advantages that its co-efficient of expansion differs only slightly from that of cast iron, and that it is light, but nevertheless strong and durable. Moreover, it is not the case, with this Specialloid, that it gradually increases in dimensions, as appears to happen with some alloys of aluminium.



SECTION OF SPECIALLOID PISTON.

As to its construction, the most important provision is that which is made against oil passing the rings into the combustion chamber, one of the biggest bugbears of motoring, but particularly that of the racing man. To prevent this, a special groove is cut in the surface of the piston, below the level of the lowest ring. The groove is wide, but shallow, and is drilled near its lower edge, the holes passing through the skirt of the piston into its interior. The wide groove retains the oil, serving, in a way, as a sort of reservoir, and holding the oil, instead of allowing it to pass up the piston. Any surplus passes through holes in the wall, into the inside of the piston, and thus away.

WEIGHING OF CARS IN COMPETITIONS.

The Royal Automobile Club asks us to draw the attention of organisers of hill-climbing or other competitions, in which weight is a factor in the determination of the result, to the importance of taking all possible steps to prevent any material alteration in the weights of the competing cars between their being weighed and the hill climb. The ideal arrangement, the R.A.C. points out, is for the cars to be weighed at the foot of the hill immediately before the commencement of the competition, and to remain under the observation of officials of the trial until the moment of starting. When this is not feasible the nearest possible point for weighing should be selected, and the cars placed in charge of observers until the starting line is reached.

WHAT SPORTING MOTORISTS OWE TO THE CYCLE TRADE.

By MAYNARD ROWLAND.

HISTORY repeats itself, in the use of mechanism, just as in national story. Our attitude to both histories is similar, for as we appreciate the pageantry and glitter of King's courts and warfare, whilst we overlook the patient work of yeoman and artificer, so to-day we hail with pride those who produce the speedy motor bicycle or racing car. The luxurious limousine, the thundering lorry, and the commodious omnibus, which are taken for granted, whilst we have no time to think of the men, often unlettered, sometimes not even reaping due reward, on whose work these triumphs of engineering have actually depended for their creation. These men in the realm of practical mechanism explored as truly as did David Livingstone, Captain Cook, or Francis Drake, each in his sphere—and their perfected work is accepted as usual constructional practice to-day all the world round.

In earlier and less hurried times than those in which we now live, such men might conceivably have been honoured by learned societies, or parliaments might have called them to their bar to express their thanks; Kings might have knighted them, and some of them, at last, might have rested that outworn mechanism—the body—among the illustrious dead.

Would the Dean of Westminster think it too incongruous if he were asked to find a resting place for the body of some little known explorer who first used wire in tension to build a wheel? Could a resting place be conceived for such a one under the same groined roof that for centuries has sheltered Geoffrey Chaucer's grave? Why not? Many of the early mechanical inventors who have made possible the sporting car of to-day were perhaps more worthy of such honour than some whose bodies lie in national shrines.

However, to return to our main road. It is curious that although the first dandy horses and hobby horses were built in England, Paris was soon the centre of the sport and trade of making and using pedal propelled bicycles. But this was only for a short while, as the cycle trade soon came back to this country with the English invention of the wire suspension wheel by Haynes and Jefferies, who were Londoners.

The spokes on this pioneer wheel, which was to mean so much, were radial, and it was some years before the tangent spoke, with steel nipple, came into use. The credit of this is due, I think, to Trigwell, of Brixton, whilst the brass nipple, owing to its early liability to strip its thread at high tension, but slowly took the place of the quickly rusting steel one.

It is interesting to remember that the best small capstans and tapping machines in early days came from the works of D. Napier & Sons, who, long before cars were thought of, were famous precision tool makers and engineers.

The pneumatic tyre in its present form is due to the work of Dunlop and Bartlett, as the latter was the first to insist that beaded edges clinched in the rim was the proper method of attaching the cover to the wheel.

Before turning from wheels, one should call attention to the years of work that were put in on suitable forms of rims. A name that should be remembered in this connection is that of E. H. Woollen. A vivid recollection of a cycle race meeting on the grass track at Kennington Oval under the auspices of the Surrey B.C., is that of Maltby riding with disc wheels about 1892.

In regard to ball-bearings, it must be allowed that these did not originate in the cycle trade. But their use was quickly adopted by cycle makers in general, owing to the adjustments evolved by Bown, of Birmingham, Hughes, and Rudge, of Coventry. It should be specially noted that when ball-bearings were used in the steering heads of bicycles and tricycles, it was the first application of such bearings to take up thrust in a swivelling or gyrating manner.

To the credit of the cycle trade stands the application of the differential drive by James Starley, of Coventry, and Arthur Sydenham, of London, the latter being the author of the spur and pinion type.

Again, steering wheels coupled together so as to turn in differing circles were first introduced on pedal tricycles. The system was known as the Akerman, but I believe that Sydenham was the holder of some of the first patents.

Regarding frames: although the maker of fully fledged motor cars has for some years almost forgotten that he ever used steel tube except as a cross member, he may again utilise it extensively, provided he finds a better method of joining than brazing provides. The most up-to-date of motor bicycles is, of course, still dependent on tubes brazed to forgings and castings.

Of chains and chain gearing, so much was done by many early designers at about the same time, that it is almost invidious to make selection. But we should remember such pioneers as Mabbot, of the Abingdon Works, Charles Garrod and Hans Renold, the latter a Manchester man, by the way. Each of these helped to increase quality and lower production cost in a manner that has since substantially benefitted motorists. Before leaving the subject of chains, it is well to remember that Harrison Carter was the first to enclose chain gearing in dust-proof, oil-bath casing.

Other early power transmitters comprised all kinds of epicyclic gearing and sliding pinion gears. Here again Sydenham was one of the earliest and most thorough workers, followed by Sturmey, Archer and others. One other now famous name in this connection is that of Bowden, of Nottingham, whose help in transmitting power round awkward corners has been, and still is, of first importance.

In concluding my present notes, I would like to emphasise one point. These productive inventors were all British! In fact nearly all of the improvements I

(*Continued on page* 104)

THRILLING EVENTS AT SHELSLEY WALSH.

A FEW IMPRESSIONS BY A CASUAL SPECTATOR.

WHEN a rich acquaintance invited me to accompany him in his car to the Annual hill climb of the Midland A.C. at Shelsley Walsh, I accepted—not so much with a desire to attend the hill climb, as to view the country round about, for Shelsley Walsh is situated some twenty miles from Worcester amidst the show country of the Midlands. Let me say, however, that after a most enjoyable and thrilling day, I would have considered a 100 miles journey through the desert fully justified by the sport provided at this event.

My previous experience of hill climbs had consisted mainly of cheerless waiting on some bleak, cold hill, where at more or less lengthy intervals a car would come streaking up—often the same car coming up two or three times, and slower usually each time. At Shelsley, however, the organisation was almost perfect. Each car came up but once only, and in quick succession. There was but little waiting and no dearth of thrills, for to climb this hill fast, calls for the very highest driving skill. In fact, at the end of the day, I concluded that the brakesmen on the Wembley racers, whose job I had hitherto thought to be the world's worst, in reality have a very dull time.

H. W. Cook in 30–98 h.p. Vauxhall at Shelsley Walsh.

I should imagine that the hill at Shelsey was originally laid out by some sporting cave man for the purpose of chariot racing *down hill*. Anyway, it is admirably suited, so far as the spectators are concerned, for fast work in the usual direction. The first half is practically straight, there is then an acute left hand corner, and hardly has this been negotiated when a right hand bend, slightly less acute, claims the immediate attention of the competitor. This second bend is slightly banked the wrong way, presumably, as the old lady in the story said: "to make it more difficult."

The day's sport on this occasion was opened by Miss Pink (Aston-Martin), who ascended in great style, cornering very steadily, this no doubt being due to the fact that she had as passenger the benevolent designer and manufacturer of these wonderful cars! His example is one that might well be followed by other manufacturers. What, for instance, would be of more interest to the enthusiastic onlookers than for some lady driver to make a fast climb in a Ford, with Henry himself in the tonneau, or alternatively a Chevrolet full of General Motors' Directors. I commend this idea—free of all cost—to the companies concerned. Its effect on sales would be immediate. Miss Pink was followed by R. F. Summers (also Aston-Martin) who made an even quicker climb.

Next a ½-litre Sports Darracq came up extremely well in the hands of Mr. Harold Heath, incidentally winning the President's Cup—and followed by a Bean in touring trim and with a full load. There was considerable enthusiasm when Captain Waite in a four-seater Austin came up steadily and fast, averaging 31.5 m.p.h. Coe and Summers followed on 30.98 Vauxhalls which, as usual, were extremely well handled and fast, their speeds being approximately 35 and 33 m.p.h. respectively. Hecton on a Bentley ran Coe very close, being only 2/5 second slower.

The next event for engines of 1 litre, brought forth three Austin "Sevens" and a Gwynne "Eight." The Austins were all surprisingly steady, and for their size, remarkably fast; the winner, Mr. L. T. Kings, averaging 35 m.p.h.

With the 1½-litre class, the real excitement of the day commenced. Harvey on the new Alvis racer approached the corner with a roar, was a little too fast, skidded sideways, made a gallant effort to straighten out, failed to do so, and turned right round, his off side back wheel hitting the bank with a thud. After an instant's delay, and as the spectators started to pour on to the course, he pulled out, turned round, and amidst the warning shouts of the marshals sending the spectators back to safety, he finished his climb, with one back wheel wobbling in an alarming fashion. In spite of his bad luck and the consequent delay, he averaged 22 m.p.h. from which it may be gathered that had he successfully negotiated the corner his time would probably have been a factor to reckon with. Better luck next time to this intrepid exponent of a popular British car.

Raymond Mays, on a Brescia Bugatti, then made one of the star climbs of the day. Wearing, as usual, a radiant smile (as well as a few other things), he handled his little car magnificently, stifling each skid at the moment of its birth. His time 50 4/5 seconds, beat his own record for the hill, and won him the event. He came up later in his same inimitable fashion on a similar car, but was not quite so fast.

Beardsell, on a Hodgson, having no doubt heard that one or two spectators were feeling drowsy, decided to enliven things. He took the first corner well, corrected the skid, went into another one on the next bend, corrected that, hit the bank, burst three tyres, and disappeared in a cloud of dust, running off the road on to the grass a little further on. Hall (Aston Martin) concluded events in this class with a fine climb, cornering steadily and skilfully, and gaining third place.

THE DOCTORS PONDER!

Dr. Eric Gardner, Medical Officer at Brooklands, and Professor A. M. Low, D.Sc., absorbed in a popular interest behind the timing box.

WHAT SPORTING MOTORISTS OWE TO THE CYCLE TRADE—continued from page 102.

have mentioned came from the three cities of London, Coventry, and Birmingham. Very little of a really pioneer nature was evolved or developed in the United States, France, Germany or Italy. Yet these other countries have certainly since built on our surely laid foundations. The British inventors were supported by the sporting and racing men of their time, some of whom were amateurs and others dependent on the trade for a living. Things were really very much the same in this connection in the early cycle racing days as they are at present in automobilism! On grass track, on cinder path and on the highway, strenuous tests were made, criticism offered, and encouragement given.

There is, as at the tail end of an Æsop's fable, a moral to be drawn from this brief review of early accomplishments.

The men who did these things so soundly need not your help and encouragement to-day. But there are always keen intellects and bright minds ready to respond to kindly interest, and to develop good ideas under fair criticism and human sympathy. I do not suggest that to-day there are many Watts awaiting their Boltons, nor Dunlops their Du Cros, but motoring sport, the motor trade, and the inventiveness of this country certainly need stimulation and encouragement. It is primarily for the motoring sportsmen of to-day to give these, as did their valiant fathers when pedal-cycling was young. Truly this is the time for service and sacrifice and not for exploitation and advantage!

THRILLING EVENTS AT SHELSLEY WALSH—continued from page 103.

In the 2-litre climb, Paul, on a Beardmore, came up steadily and fast, so steadily as to make his speed deceptive, and many people were surprised to learn that he had captured the record for the hill, his time being 50 1/5 seconds. The next fastest in this event was Harvey on another Alvis, his special car being out of the running as the result of his mishap in the previous event. His time was 54 seconds.

The day concluded with the unlimited event, which was opened by Mrs. Stewart Menzies, who brought up a big Peugeot in steady fashion. Cook on the T.T. Vauxhall made a thrilling climb, but was not able to beat the time of the smaller cars. Captain Malcolm Campbell, who had entered the big Sunbeam, met with a mishap *en route* and did not compete. The event finished with good climbs by Park on a Vauxhall, and Kensington Moir on a Bentley.

Altogether a very fine day's sport, and one upon which the Midland A.C. are to be congratulated.

The awards were as follows:—

PRESIDENT'S CUP: Best performance on formulæ: H. Heath (11 h.p. Darracq), 69 4/5 secs.

BEST AMATEUR PERFORMANCE (Formulæ): Miss W. M. Pink (11 h.p. Aston Martin), 79 2/5 secs.

BEST PERFORMANCE BY A LADY (Formulæ): Miss W. M. Pink.

BEST PERFORMANCE BY MEMBER (Formulæ): R. F. Summers (11 h.p. Aston Martin), 69 4/5 secs.

FASTEST TIME OF DAY: C. Paul (13.5 h.p. Beardmore) 50 1/5 secs.

Round the Clubs

ESSEX COUNTY & SOUTHEND-ON-SEA AUTOMOBILE CLUB.

This well-known club recently carried out its annual benevolent event, when the annual Cripples and Poor Children's Outing took place. A considerable fleet of cars took part, including one char-a-banc hired for the purpose by a member who was prevented from being present, and who did not wish that his absence should cause disappointment for any of the kiddies. Altogether some 200 children enjoyed a run of about an hour and a quarter, through some of the prettiest parts of the county, to the residence of Mr. and Mrs. Disney, The Hyde, Ingatestone, where they partook of tea. After the meal Mr. Mellor took charge of affairs, and various amusements, children's sports, etc., were indulged in until 5.30, when the start for home was made, the day's outing finishing at about seven o'clock in the evening.

A particularly interesting recent run was to Beeleigh Abbey, near Maldon. The Abbey is one of the oldest buildings in Essex, and is in a wonderful state of preservation. It contains a fine collection of old furniture which has been gathered together by Mr. R. E. Thomas, the owner, who is a connoisseur in such things.

The Hon. Secretary of this Club is Maitland Keddie, Esq., and the Headquarters are at the Queen's Hotel, Westcliff.

FERRYHILL AND DISTRICT MOTOR CLUB.

A July programme containing half a dozen highly interesting and sporting events is one which this club can show. It started with a run to Reeth and an impromptu run on the 6th, which was quickly followed by a reliability Trial on the 13th. On the 20th occurred the N.E.A.A. Teams Trial, and on the 23rd, a Mystery Trial. On the 26th the Saltburn Speed Trials took place, and the 27th saw another Social run and impromptu trip.

The competition for the Aicken Cup on the 13th, was very keenly contested. It was run over the following course : Ferryhill, Darlington, Richmond, Reeth, Buttertubs Pass, and Hawes, which was the Lunch stop. The return was by way of Bainbridge, Askrigg, Redmire, Richmond (by the old road), Darlington, and Ferryhill Town Hall. Ten of the competitors finished, G. Dawson, F. Miller, and A. Nicholson being first, second and third. The winner lost only half a minute, and the same separated first from second and second from third. The mystery competition involved the finding of a hidden route. It was started from Headquarters at 6.30 p.m., and the entries, which were numerous, were accepted up to 6 p.m. of the day of the run.

During August, besides social runs, a reliability trial, and a hill climb, particulars of which are not yet forthcoming, two Gymkhanas are to be held. The first of these will take place on the 4th August, in connection with the Dean Bank British Legion, and will include several very interesting events. The second is to take place on 23rd August, in connection with the Ferryhill station and district flower show.

The Hon. Secretary is J. P. Whelan, 1, Haig Street, Ferryhill, Durham.

MIDDLESEX COUNTY AUTOMOBILE CLUB.

In this club's annual Gymkhana held at Tilbury's Field, Potter's Bar, the policy was followed of including several non-motoring events, with a view to widening the interests, and affording opportunity for the members' families to take part.

The results of the 100 miles reliability trial to Bournemouth were as follows :—Large Car Class : E. W. Long, winner of the Banbury cup, lost 374 marks. F. J. Green, second, losing 472 marks, and S. Worrall, third, having lost 564 marks. In the Light Car Class, W. R. E. Honner won the Church cup for the third year in succession, so that it now becomes his for good. He lost 473 marks. J Thornton was second, losing 651 marks, and G. E. Sutton third, having lost 702 marks. The event was a marked success, no fewer than 100 members taking part. The organisation was efficiently carried out by Messrs. W. A. Bruce and W. H. B. Hawken, of whom the former made three journeys to Bournemouth and back, so that he could ascertain and measure the best and most interesting route for the trial.

The Hon. Secretary is Captain W. J. Lendrum, 10, Leaside Avenue, Muswell Hill, N.10.

MIDDLESBROUGH AND DISTRICT MOTOR CLUB.

The famous open speed trials, popularly known as the Saltburn Speed Trials, organised by this club, were held on Saturday, the 26th July. Four championships were competed for, and a solid silver Cup, which was awarded for the fastest time of the day. The championships were all competed for over twenty miles, the classes being : motor cycles up to 250 c.c. ; motor cycles up to 350 c.c. ; motor cycles up to 500 c.c. ; and motor cycles up to 1,000 c.c. The winner of the championship in each class is awarded a challenge cup, to be held for one year only. The cup for fastest time becomes the permanent property of the winner. In addition to the cups, prizes are awarded in accordance with the number of entries in each class, there being three in each section, consisting of gold, silver and bronze medals, provided not less than eight enter. Two prizes are awarded in case of five to seven entries, and one only if the entries total four. A special prize is to be given in each section of a class to the first amateur member of the Middlesbrough Club, residing within the Middlesbrough postal area, providing there are not less than three such entries.

As we go to press before the date when these trials are contested, we are unable to report results in this issue. We anticipate, however, that, as usual, there will be a large entry, and that a successful day will result. We shall have pleasure in commenting upon the results in our next issue.

The Hon. Secretary of this Club is Mr. A. V. Buttress, 18, Ayresome Park Road, Middlesbrough.

MIDLAND CYCLING AND ATHLETIC CLUB.

The annual twenty-four hours Trial of this club was held in splendid weather, a little too splendid, in one sense, since the competitors had to face the sun for the major part of an afternoon and evening, and found themselves facing it again on the return journey next morning. The start was made from the Robin Hood Garage on the Stratford Road, and the route followed, from Birmingham via Beacon Hill to Shrewsbury and Holyhead and return was a particularly stiff one, including, besides the hill named, such climbs as Cefn Du, Bwlch-y-Groes, Bwlch-y-Ddar, Peniarth and Braniarth. Both Cefn Du and Bwlch-y-Ddar were responsible for the coming to grief of several competitors, the latter being too much of a stumbling block for even that expert Trials man, Mr. H. F. S. Morgan. On the whole, however, in view of the conditions, the failures in a field of fifty entrants, were remarkably few.

Amongst motor cyclists whose performances deserve special mention are : E. Poppe on a 976 c.c. Packman and Poppe ; F. V. Wood, on a 496 c.c. W.A.G. ; W. T. Woodcock, 498 c.c. Ariel ; H. S. Perrey, 770 c.c. B.S.A. ; F. W. Giles, 349 c.c. A.J.S. and sidecar ; R. F. Turner, 346 c.c. New Imperial and sidecar ; F. A. Watson, 599 c.c. Sunbeam and sidecar ; C. W. Hough, 349 c.c. A.J.S. ; and F. W. Wallis, Matchless and sidecar. Of car entrants, the following made good performances: B. W. Harcourt and E. Kincain, both on Austin Sevens ; P. H. Jones, Ariel ; G. P. Law, F. Hallam, and J. Cocker, all on L. Clynos ; F. V. Edwards on a Calthorpe ; E. Neale, Jowett ; H. F. S. Morgan, G. H. Goodall, R. T. Horton and J. C. Chippendale,

ROUND THE CLUBS—continued.

on Morgans; H. B. Denley on a Rhode; F. S. Barnes, Salmson; A. J. Dixon on a Singer; L. Mathews on a Swift; and J. W. Meredith on a T.B.

SHEFFIELD & HALLAMSHIRE MOTOR CYCLE & LIGHT CAR CLUB.

A team nominated by this club had the pleasure of a trip to Belgium last month, in order to take part in a Reliability Trial over a distance of a hundred miles. Liége was the centre from which the trip was run, and the team reported a very enjoyable sporting and successful event.

The next event of importance is the Centre Speed Event on the 16th August. For this there are classes for all capacities, including one for cars to the size or horse power of which no limit has been set. An important new departure in connection with this affair will be the broadcasting of the time of each man all along the course by means of loud speakers. An attempt is being made to make the event as interesting as possible to the spectator.

The Reliability Trial for the Club Cup will take place on the 24th August, and the Hunstanton 24 hours' Reliability Trial is due on 6th September.

The Hon. Secretary is Mr. S. C. Ashby, 36, Horninglow Road, Sheffield.

WEST KENT MOTOR CLUB.

This club has held several very successful events during the season up to the present, and, to judge by its programme, is likely to keep up that desirable standard. One of the most successful of these events was the Brooklands meeting. So popular was this event that the Club has again reserved the Track for another of the same order, for the 16th August. This meeting is open to members of the following clubs: Wallington Motor Club, Epsom and District Motor Club, Sydenham and District Motor Club, and Preston and District Motor Club.

The Hon. Secretary is Mr. F. Wilson Smith, 32, Hammelton Road, Bromley, Kent.

SUTTON COLDFIELD & NORTH BIRMINGHAM AUTOMOBILE CLUB.

A Hill Climb will be held by this club on September 13th, at Angel Bank, near Cleobury Mortimer, in Shropshire. This hill, which has now been in use by the club for three years, is just under half a mile in length, is reputed to be of a 1 in 8 gradient, and is practically straight. High speeds are possible as the surface is a hard granite macadam in good condition, and is unaffected by rain. The competitions to be decided include classes for Cars and Motor Cycles of all the usual capacities. Every competitor is allowed two ascents of the hill with each machine entered, and there are no restrictions as to type of machine, while the question of sports or racing machines is covered by the handicap scheme outlined below.

Four challenge trophies are to be awarded, these being the Sutton Shield, for fastest time by any motor cycle, at present held by George Brough; the Ixion Cup, for fastest time by a motor cycle under 350 c.c., at present held by G. Rowley, while for cars the Goodyear Rose Bowl and the Allday (President's) Cup are offered for best performances on formula by cars of unlimited and under 1,600 c.c. capacity respectively; these are both at present held by Raymond Mays, and are to be won outright by any competitor winning them twice. The usual class awards will be competed for, and the Sutton Club's method of handicapping will again be used to decide the winners of an additional set of awards.

This scheme, which was inaugurated last year, has proved very successful as an alternative to awards on formula, and is intended to give advantage to less skilful or less expert competitors in their attempts to compete with the better known cracks who are to be found at this club's meetings. Any intending competitors who have not yet received entry forms should apply immediately to the Secretary of the meeting, Mr. J. D. Woodhouse, 10, Warwick Chambers, Corporation Street, Birmingham.

EALING & DISTRICT MOTOR CYCLE CLUB.

This is another club which has the distinction of being presided over by Professor A. M. Low. An outstanding example of the ambitious nature of its programme, and also, incidentally, of the efficient manner in which its events are organised, was the 200 miles sidecar race which the Club organised at Brooklands on August 25th last year, and which was a huge success. The Club itself was formed in 1914, under the name of the Acton and District M.C.C. The advent of the war stopped activities after several successful runs had been made, and nothing further was done until the early part of 1919, when a re-union meeting was called in Ealing, and the club reformed with its present name. One of the principal events run by this club is the classic London-Holyhead trial, which has now been run for four years in succession, and is certainly one of the most sporting long distance trials of the year.

The Joint Hon. Secretaries are: Mr. Frank A. Longman, of 17, Bond Street, Ealing, and Mr. F. H. Douglass, 11, Lilac Gardens, Ealing, W.5.

THE LIVERPOOL MOTOR CLUB.

This club recently organised a visit to Screw Hill, near Nevin, Carnarvonshire, and a car driven by Captain Gray, was successful in climbing this notorious hill without assistance. A competition was therefore organised, to be run on time and formula, and was won by Mr. G. E. Addinsell, on a 2¾ h.p. Dot Bradshaw. Mr. G. G. Barnard put up a splendid performance on a 2¾ h.p. P. & P. Jap and sidecar, as did also Mr. Harvey, on a 2¾ h.p. Rudge and sidecar.

This club's classic event is, of course, the Colwyn Bay Speed Trial. Their success this year was somewhat marred by inclement weather, which prevented the completion of all the classes. However, there were some very good races, and the Mersey Cup for the fastest car, the engine of which was under 3,000 c.c., was won by Mr. J. A. Joyce, on a 1,496 c.c. A.C., in 22 seconds, at 81.82 miles per hour. The Braid Challenge Cup, for the fastest car under 1,500 c.c., went to Mr. G. S. Boston, on a 1,496 c.c. Horstmann, and the Snowden Cup, for the fastest time with a sidecar, was won by Mr. H. Hudson, on a 9.96 h.p. Tornado Anzani, at 77.59 miles per hour. The Cup for the fastest time of the day, irrespective of engine capacity, was not awarded, because of the weather interference, but special cups were awarded to Porter (Bentley) and Paul (Beardmore).

The Cheshire Centre of the A.C.U., to which this Club is affiliated, recently held a Rally and Freak Hill Climb. It was well attended, both by competitors and spectators, the locality being one which lent itself to a social event, and picnicking was the order of the day.

It is interesting to learn that this club has at last obtained permission from the authorities to run races on Wallasey Sands, and the first event will be held on Saturday, September 13th. Application for entry forms and regulations should be sent to the Secretary immediately. The Liverpool-Edinburgh Trial is to be run on September 27th, and this year, the Jeans Cup and the Quikko Cup, are to be competed for on that occasion, instead of as separate fixtures. This club is willing to encourage entries by teams of its members into events organised by other clubs, and to that end will pay any team fees which may be charged. Entrants are expected, of course, to pay their own entry fees.

The Hon. Secretary of this club is Mr. L. H. Lumby, 10, Seaton Road, Wallasey.

KENT & SUSSEX LIGHT CAR CLUB.

In this club's Speed Trials, held recently at Bexhill, Leon Cushman, on his 200-mile-race Bugatti, made the fastest time of the day, covering the 700 yards stretch of the promenade in 28 seconds. Miss Ivy Cummings made second fastest, on her improved and rejuvenated Frazer-Nash, her time being 28 3/5 seconds. H. Eaton, on an Aston-Martin, also did well, winning both 1,500 c.c. events, the amateur in 38 3/5 seconds, and the general in 36 4/5 seconds. Miss A. Dawes won the event for Morris cars only, in 43 3/5 seconds, and S. Constable was first in both races for Morgan Cyclecars only, covering the distance, in the racing car, in 34 seconds.

THE SOUTHAMPTON & DISTRICT MOTOR CYCLE & LIGHT CAR CLUB.

The Club's annual inter-club Hill Climb, held at Spread Eagle Hill, near Shaftesbury, produced excellent and spectacular sport over the 5/8 mile course. Fastest time was put up by

ROUND THE CLUBS—continued.

E. W. Spencer, on a 494 Douglas, in 34 4/5 seconds, thus winning the " B. & C." Cup, presented by the Birmingham & Coventry Cycle Company, Southampton. The fastest amateur time, 36 seconds, was made by D. T. Phillips, on a 490 Norton.

A social run to Sandbanks was a very successful fixture, as was a smoking concert in celebration of the T.T. win of the Club's member, Mr. Alec Bennett. This function was held at Quilter's Hotel, Southampton, when the presentation in connection with the annual hill climb was also made.

WAKEFIELD & DISTRICT M.C. & L.C.C.

An interesting gymkhana and gala is being organised by this club in conjunction with the City Council and local tradesmen, the proceeds to be devoted to the aid of local charities. It is anticipated that it will be a great success.

Hon. Secretary, Mr. C. C. Salmon, Market Street, Wakefield.

BRIDLINGTON & DISTRICT M.C.

The third annual speed trials of this club were held recently, on the new Kingsgate Road, before about 6,000 spectators. Some very good racing was seen, and considerable interest was taken in the novel class for tradesmen's vans, in which the ½ mile was covered by the winner, Mr. Holltry, in a Morris-Cowley, in 40 5/16 seconds. The runner up was R. Atkin, in a Chevrolet, in 41 5/16 seconds.

THE JUNIOR CAR CLUB.

On Saturday, September 20th, Brooklands will once again be the scene of the Junior Car Club's 200 miles race. The main points of interest in the regulations for this year's race are the inclusion of an additional class for cars having engines the capacity of which does not exceed 750 c.c., and the running of the three classes, 750 c.c., 1,100 c.c., and 1,500 c.c., together. All the competing cars will be started off together at 3 p.m., to allow spectators the opportunity to get down to the track comfortably after lunch. A good many entries have already been received, and the coveted " No. 1 " has this year gone to Mr. T. L. Edwards, who has entered a Horstmann car. Other entries are four Austin cars, two entered by Mr. E. C. Gordon England, one by Mr. Gordon Handy, and one by Mr. J. P. Dingle ; two Salmsons, both entered by Mr. A. Bovier, two Alvis, by Mr. T. G. John, two more Horstmanns, one by Mr. D. E. Calder, and one by Mr. H. W. Purdy, and an Aston-Martin, entered by Mr. E. R. Hall. Very many more are of course expected, and it is more than likely that last year's entry list of fifty will be exceeded.

Copies of the regulations and entry forms may be obtained from the Hon. General Secretary, Mr. A. P. Bradley, Junior Car Club, Clock House, Arundel Street, Strand, London, W.C.2.

THE SURBITON MOTOR CLUB.

This, one of the most active of sporting clubs, has always an interesting programme, and enjoys the presidency of that inventive motorist, Professor A. M. Low.

Its fourth annual Brooklands meeting proved a most successful and enjoyable event. The programme embodied eleven races in all, of which six were for cars and five for motor cycles. The Surbiton Short Handicap was won by Morgan on an Aston-Martin, closely followed by Hall, on an Austin, and Duller, on a Thomas Special. The winner's average speed was 78.79 miles per hour. The Surrey Senior Short Handicap was won at an average pace of 86.17 m.p.h. by Miller, on a Bianchi, with Duller second, on a Bugatti, and Gillow, on a Riley, third. Duller did a lap at 103.76 m.p.h. The Surrey Lightning Long Handicap was won easily by Thomas on a Leyland-Thomas at 115.03 m.p.h. with Duller next, on a Bugatti, and Miller third, on a Bianchi. Thomas did one lap at 124.8 miles per hour. The Surbiton Junior Long Handicap looked like being a victory for Black on his G.N., which ran splendidly, and was leading until the the second lap. In the end Miller won comfortably on the Bianchi, at 88.78 miles per hour, with Hall on the Austin, second, and Black third. J. G. P. Thomas managed to win the Surrey Senior Long Handicap, notwithstanding a heavy handicap. He was driving Mr. Lionel Rapson's Lanchester, and just beat Hall (Austin), with Norris, on a Bianchi, a close third. The winner's average speed was 98.23 m.p.h. The Surrey Lightning Long Handicap was won by Duller on a Bugatti at 98.85 miles per hour ; Morgan, on an Aston-Martin, being second; and Norris (Bianchi) third.

The first motor cycle race of this meeting was for 350 c.c. machines, and for this there were 16 starters. It was won at 80.46 miles per hour by H. M. Walters on a 344 c.c. Zenith. C. W. Lucy, on a Cotton, fitted with the J.A.P. engine, came in second, J. S. Worters, on a Toronda, being third. C. T. Ashby, on a T.T. Montgomery, had hard lines, coming in fourth. The next race was for machines between 350 c.c. and 1,000 c.c., and in this there were twelve starters, including Temple, on Le Vack's old Zenith. Denly on a 400 c.c. Norton looked like being the winner, and rode perfectly throughout the race, being just beaten by H. L. Grimes, on a 678 c.c. Martinsyde. M. A. McEvoy, on a 998 c.c. McEvoy-Anzani, was third. The winner's speed was 71.97 miles per hour. In the Lightning Handicap, for machines of up to 1,000 c.c., there were 21 starters, out of which Glover, on a 733 c.c. Douglas, came in first, his speed being 89¼ miles per hour. J. S. Worters, on a 348 c.c. Toronda, was second, and C. T. Ashby, making up for his poor fortune in the first race, managed this time to find third place. The Private Owners' Handicap, which attracted 14 starters, was won by A. G. W. Williams at, curiously enough, exactly the same speed as the 350 c.c. race. He was riding a 493 c.c. Sunbeam, and was followed by L. F. Peaty, on a 348 c.c. Hawker, who just beat V. H. Stephens, on a 490 c.c. Norton. J. S. Worters proved unbeatable in the 1,100 c.c. Passenger Handicap, coming in first, with his 348 c.c. Toronda and sidecar, at 66.76 miles per hour. I. P. Riddoch, on a 998 c.c. Zenith-Blackburne was second, with D. R. O'Donovan, on a 588 c.c. Norton and sidecar, third.

The Hon. Secretary is Mr. H. Lambert, 47, Church Road, Richmond.

THE BRITISH MOTOR CYCLE RACING CLUB.

This premier sporting club of motor cyclists is organising five two-hundred mile races, to take place on the track at Brooklands, on Saturday, September 6th, commencing at 9 a.m. This event is open only to members of the club, either as entrants or drivers, and is to be held under the Club's racing rules, together with certain supplementary regulations, amongst which the following may be quoted.

The 200 mile races are confined to male members of the club as drivers, and are for solo motor cycles, one race for each of five classes, namely : A, 250 c.c. ; B, 350 c.c. ; C, 500 c.c. ; D, 750 c.c. ; E, 1,000 c.c.

Prizes are to be awarded in each class, the first in each case being a silver cup, the second a gold medal, and the third, a special silver medal. To all who finish the distance within the time limits a silver medal will be awarded.

The closing date for entries, which must be made on the official form and forwarded to the Secretary with a fee of £2 10s., is Thursday, August 21st, 1924. Entries are limited to twenty in each of the classes A and B, and to fifteen in each of the other classes. If the number of entries exceeds the limit, a waiting list will be opened, and entries will be accepted for inclusion in such list on the understanding that if there are any non-starters, a corresponding number of entrants whose names appear first on the waiting list for that class will be given the opportunity of starting. If no opportunity to start is given to an entrant on the waiting list his entry fee will be returned in full.

The Hon. Secretary of this Club is Mr. A. Geo. Reynolds, 95, Fillebrook Road, Leytonstone, E.11.

SLOUGH & DISTRICT MOTOR CYCLE & LIGHT CAR CLUB.

This Club's Reliability Trial, for the E. W. Finch Cup and medals, was held recently in very hot weather. The course consisted of two circuits of 65 miles, and included Kop and Nap Hills. For purposes of comparison, each rider starts with 100 marks, and deductions are made as the trial proceeds. In the result, the Cup went to Mr. C. D. Field, who, riding a 2¾ h.p. Beardmore, lost only 11 marks. G. Slade, on a 3½ h.p. O.H.V. Norton and sidecar, and H. Stribling, on a 3½ h.p. James, tied for second place, both being credited with 83 marks. The third prize, a bronze medal, went to Mr. C. L. Rolls, riding a 2¾ h.p. A.J.S., his marking being 78.

The Hon. Secretary of this Club is Capt. H. Wilfred Dyke, Hartford, Upton Road, Slough.

WHY COMPETITION MOTORING IS PHYSICALLY BENEFICIAL.

By LIEUT.-COL. F. S. BRERETON, C.B.E., M.R.C.S., L.R.C.P. (*Chairman of the Auto-Cycle Union; Vice-President of the Federation Internationale des Clubs Motocyclistes*).

IT would be interesting to learn what proportion of the thousands of fascinated and often excited spectators who find their way to Brooklands or other racing tracks, or who watch the classic T.T. and other events, fix their attention mainly on the machine hurtling round the track, or over the course, and what number let their thoughts flow in the direction of the man who handles the individual vehicle.

We are apt to speak glibly enough of the benefits of racing to automobile and motor cycle design. "Improve the breed" is a facile saying, and secretaries of clubs and organisers of events constantly trot it out and put it in the limelight. Undoubtedly, too, the science of engineering as applied in particular to the design and construction and the materials employed in the manufacture of the automobile and the motor cycle, has been enormously assisted and advanced by the experience gained in motor racing. It would require all the pages enclosed in this handsome edition of the BROOKLANDS GAZETTE, aye and more, to set out, even in brief detail, all the component parts that have been modified in design, scrapped, re-designed and yet again re-designed as a result of lessons learnt in racing. The influence extends right back to and beyond the metallurgical laboratory; so that to-day the machine you see hurtling before you is a vast improvement in every respect from that which first took the road in this or any other country, from the tread of the tyres which support it, to the minutest hidden detail; the whole apparatus is revolutionised. Yet, as every thinking man knows, the car and the motor cycle have not reached finality, nor ever will, because more experience of competition work produces more and more lessons, and the designer is forced to accept new ideas and to seek for still greater perfection.

So much for the machine; but what of the man—the more important factor in the racing unit? He is as he was constructed, and as he will remain till the end of all time. Perhaps he has little differences, if you like, here and there, but re-designing is out of the question. In man, in fact, is material created to one pattern, but capable of alteration in minute yet all important respects so as to fit him for almost any undertaking.

Motor racing is, I maintain, an undertaking almost more strenuous, in its own particular direction, than any other sport or pastime. It seems somehow ludicrous to suggest that the man who sits seemingly at ease in a racing car or on a motor cycle needs to be fitter, stronger, more alert than the champion boxer, for instance, who is trained to the last point, and able to stand up in a gruelling contest lasting through perhaps twenty rounds. It seems remarkable to suggest that the racing motorist must be fitter than the athlete who takes a strenuous part in the Olympiad. Yet this submision is not altogether overdrawn, because in athletic contests, in boxing, in every sport you like to consider, while victory and defeat are in the balance, the result is limited to those two factors. In motor racing, on the other hand, one slip, one failure to act in some special way on some unexpected and suddenly arising emergency, means perhaps—death. It may involve also the lives of other people, a tragedy such as has happened before now on racing tracks, but fortunately not in England.

LIEUT.-COL. F. S. BRERETON.

The argument follows that the man who sits so seemingly at ease on a famous racing machine is a man of iron nerve in the fittest possible condition. One does not suggest that his muscles are harder than, or nearly as hard as, those of the gymnast, but of necessity his sight, his hearing, his brain, every part of his body must be in perfect condition, every movement co-ordinated, his senses alert, ready to act instantly, whatever the demand made on him.

Can any ordinary man claim to be in this condition? Can the office worker, for instance, imagine himself so fitted as to undertake, without consistent training, the physical effort required in motor racing? Yet a clerk may aspire to become one of our crack racers. But having aspired, he must set to work to fit himself for the ordeal. And this can only be done by a long and consistent system of specialised training.

Likewise those who have already climbed to the seats of the mighty on racing car or motor cycle, must keep themselves in such condition as to be able to continue their successful racing; for competition is keen, and success is for the fittest.

The designer and the manufacturer have the cars and the motor cycles, capable of great speeds and of long endurance. If the human element does not fail, then there will be no lack of events, and fortunately there is evidence that the human element tends to excel even the wonderful machines that are nowadays placed at its disposal.

WHY COMPETITION MOTORING IS BENEFICIAL—continued.

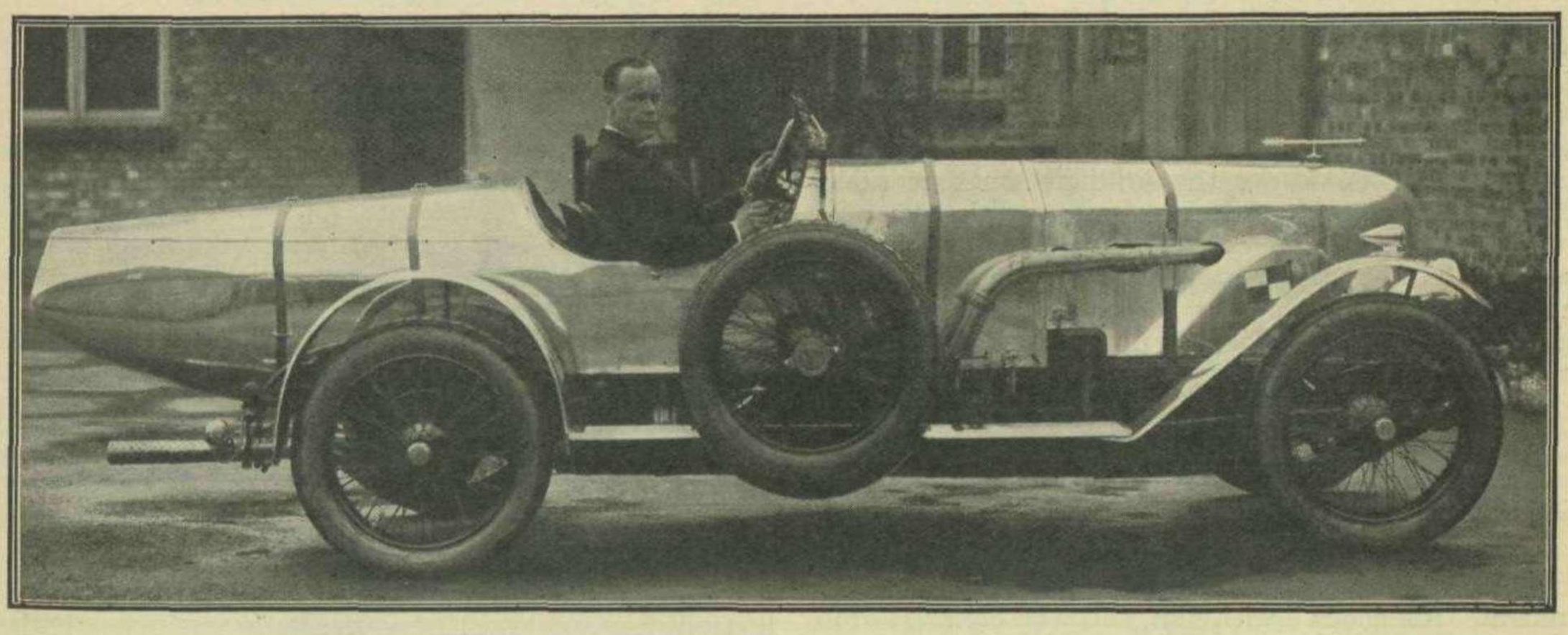
I will not go so far as to suggest that motor racing is better for the individual than those athletic contests for which less strenuous training and perhaps more lenient discipline are required, but I do assert that, as every one knows, motor racing demands physical excellence, that it attracts a large number of ambitious people, and that inasmuch as physical excellence is a *sine qua non*, the pastime of motor racing is of direct physical benefit to those who take part in it.

Let, therefore, the general public who attend and watch machines hurtling by them in great speed contests give more than a passing thought to the man who sits in control, looking perhaps quite comfortable, yet actually tense, eager, ready for the unexpected event whenever it happens. His prowess at the wheel or in the saddle has made possible those continuous changes of design which have produced present day excellence in our cars and motor cycles. His nerve and skill have, indirectly it may be, given us a perfection which fifteen years ago seemed out of the question, and his effort has resulted not only in all round improvement, but in such detailed changes that the car and motor cycle of to-day is, as stated earlier, utterly unlike and infinitely superior, to those that have gone before.

A word as to what may be advisable in those ambitious to take up motor racing. Moderation in drinking and eating and in the use of tobacco is suggested primarily ; open air life as far as possible, and exercise. The exercise need not necessarily be of a violent nature, but the sort of exercise that one might obtain while overhauling and testing a motor car or motor cycle intended for racing. "Early to bed and early to rise . . ." is as true an adage as ever it was, and the continual practice of the power of observation is essential. Errors of vision, an inclination to dyspepsia, and trifling ailments should receive skilful and immediate attention and advice. With this, such ailments can, in the majority of cases, be easily rectified. The nerve, alertness, the *savoir faire* so vitally important in all racing men, will come by experience—swiftly with some men, more slowly with others.

After all, your racing man is made, not born. Yet it is fair to suggest that a reversal of this statement may be equally true, and that your racing man, like your air pilot, (the really good one), is frequently born to it, takes to it as a duck to water and excels easily where others achieve triumphs with relatively great difficulty.

Finally, to pass on the views of the Auto-Cycle Union, to be a racing man means essentially to be a fit man, and none but those in the fittest stage should be allowed to undertake what is otherwise a pastime dangerous to the individual and possibly also to the public.



MAJOR L. ROPNER IN HIS 30-98 H.P. VAUXHALL CAR ("SILVER ARROW.")

SALTBURN.

"Time and Tide wait for no man." It is unfortunate that the promoters of the recent Saltburn Speed Trials were unable to succeed where that earlier celebrity, Canute, is reported to have failed, as then the competitors might have been able to hang about until the electrical timing apparatus consented to function.

As it was, they were constrained to carry on as best they could, and this led to a certain amount of muddle over the various times and speeds attained. However, it was unanimously agreed that in the matter of fastest time of the day there could be "no possible doubt whatever," and consequently the special prize was awarded to Captain Malcolm Campbell who, in his 12-cylinder Sunbeam, established the following performance :—Electric timing, return journey $16\frac{1}{5}$ secs. = 138.08. This was before the machine was working correctly. On the first journey the car ran over the silk thread without breaking it, therefore no contact was recorded. The same two journeys hand timed were :—First journey, $15\frac{2}{5}$ secs. = 145.26. Return journey, $15\frac{3}{5}$ secs. = 143.39.

We learn that Captain Campbell proposes to make an attempt on world's records with this car in the near future and that he is hopeful of success. He does not think the conquering Sunbeam was quite up to its best performance at Saltburn.

THE B. M. C. R. C. AUGUST MEETING.

Excellent Sport under Favourable Conditions.

BROOKLANDS was very lucky with the weather for the August Meeting of the British Motorcycle Racing Club. Heavy clouds skirted the track and rain fell in the vicinity, but only one little shower occurred during the racing. The star artist was Victor Horsman, on his record-breaking Triumph. He won two races, beat three records and materially improved his leading position in the contest for the Aggregate Prize, which is awarded for the best compilation of points at the end of the season. In the scratch race for 1,000 machines, Horsman finished fourth, behind three big twins, but he beat the Class D Record for 600 c.c. machines, over the flying five miles, registering a speed of 94.11 m.p.h. over that distance. He also beat the ten miles record (standing start) at 89.44 m.p.h.

In the 500 c.c. scratch race, Horsman brought out his 499 c.c. machine and won quite easily, but his best performance was in the last race of the day, a handicap for previous winners. In this, he rode the smaller of his two machines, and was given an allowance of 1 min. 15 secs. in a fourteen miles race. It was not until the last lap that Horsman got in front, and he was gamely chased by R. O. Lowe, the brilliant amateur rider. At the finish the proverbial blanket covered the men who took the places, Temple having run into third place from scratch, but being just robbed of victory. Horsman had to beat another record to win, this time the flying five miles (Class C) falling to him at 92.82 m.p.h.

Temple had matters all his own way in the 14 miles scratch race for 1,000 c.c. machines, and averaged a mere fraction under 100 miles an hour for the full distance.

In the Passenger Handicap, D. R. O'Donovan turned out for the first time for quite a long while, but he brought " the goods " with him, and won on his Norton sidecar by ten yards at over 63 miles an hour.

It was good to see C. M. Needham, on a Brough-Superior, win the 1,000 c.c. handicap at over 83 miles an hour, for races are so aften won by men whose names continually figure on the programme, that it is refreshing to find a new name among the familiar ones.

The results were :—

SCRATCH RACES.

CLASS A. (250 c.c. SOLO). DISTANCE : THREE LAPS.

1. W. D. Marchant (Zenith-Blackburne).
2. F. L. Hall (New Imperial M.A.G.).
3. C. R. Godwin (J.E.S. Blackburne).

Marchant made all the running and after getting away to a good start was never challenged, winning very easily at 67.39 m.p.h.

CLASS C. (500 c.c. SOLO). DISTANCE : THREE LAPS.

1. V. E. Horsman (Triumph).
2. A. G. Williams (Sunbeam).
3. P. M. Walters (Sunbeam).

Horsman was so very much faster than his competitors that the race became a mere procession. A rainstorm kept the speed lower than it would otherwise have been, and Horsman won easily at 78.79 m.p.h.

CLASS B. (350 c.c.). DISTANCE : THREE LAPS.

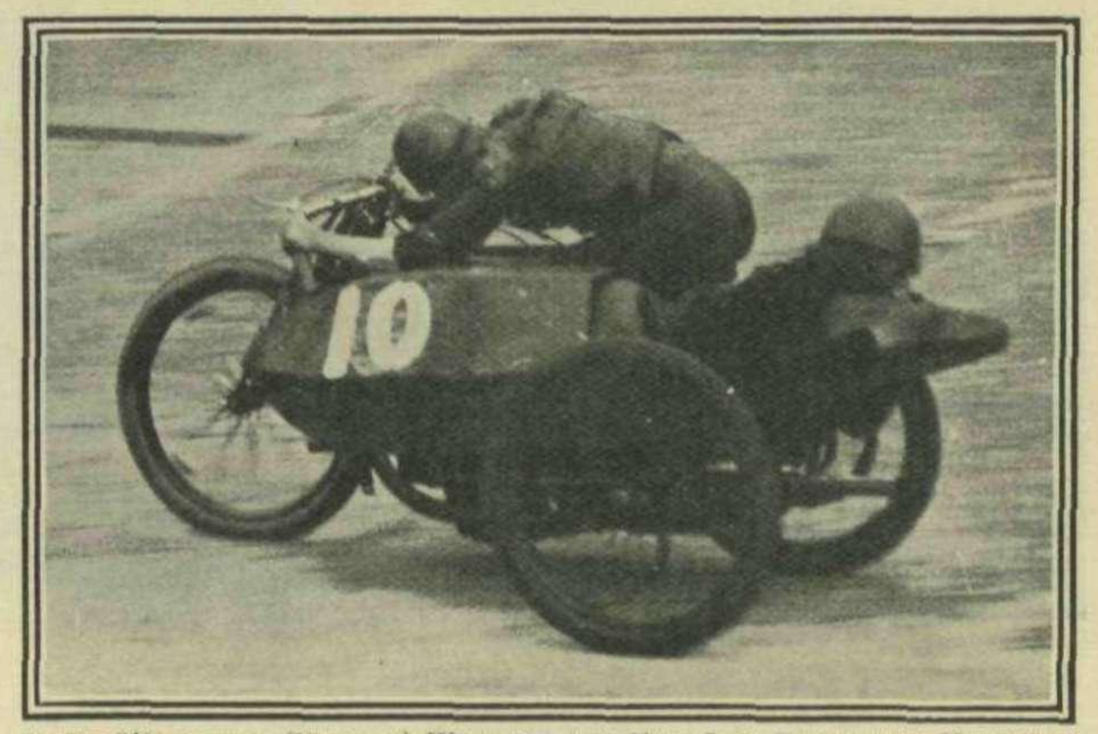
1. J. S. Worters (Toronda Blackburne).
2. R. A. Mallet (Zenith-J.A.P.).

Marchant was expected to win this race, but failed to finish, and only Worters and Mallet finished, the former being eighty yards in front on the line, to win at 79.05 m.p.h.

THE JACK LINTON CUP RACE FOR 1,000 C.C. SOLO MACHINES. (FIVE LAPS).

1. C. F. Temple (Montgomery-Anzani).
2. T. R. Allchin (Zenith-J.A.P.).
3. Capt. O. M. Baldwin (Matchless-M.A.G.).

Temple took an early lead, retained it throughout and won at 99.61 miles an hour. There was never any doubt, bar stoppages, about the result. Horsman was the only competitor to use a 600 c.c. machine, and he did well to take his Triumph into fourth place with record speed.



D. R. O'DONOVAN (NORTON) WINNING THE FIVE-LAP PASSENGER HANDICAP.

HANDICAP RACES.

CLASSES A. & B. (NOT EXCEEDING 350 C.C.). THREE LAPS.

1. F. L. Hall (New Imperial M.A.G.) 1 min. 12 secs.
2. V. Baxter (Rex-Acme) ... ... 27 secs.
3. R. A. Mallet (Zenith-J.A.P.) ... ... 39 secs.

Hall was probably as fast as any of the placed men and he made the most of his start, so that nobody ever had a chance of catching him, and he won by a distance at 66.76 m.p.h.

CLASS C. (NOT EXCEEDING 500 C.C.). THREE LAPS.

1. R. M. N. Spring (Norton) ... ... 30 secs.
2. P. M. Walters (Sunbeam) ... ... 54 secs.
3. A. G. Williams (Sunbeam) ... ... 30 secs.

A fine race with Williams travelling well. Spring won by fifty yards from Walters at 83.84 m.p.h.

(*Continued on page* 112.)

A View From the Test Hill.

BROOKLANDS SUMMER MEETING.

THE first Saturday of July was remarkable for the outdoor festivals which attracted sport and pleasure-loving Londoners. Racing at Henley, Lawn Tennis at Wimbledon, horse racing at Alexandra Park, a selection of first class cricket engagements, and—above all, of course—Brooklands, were among the items on a mixed menu of sport. Thus, we suppose that we should really not be surprised because the attendance at Weybridge was probably the smallest seen this year. But there was nothing wrong with the racing; far from it! J. G. P. Thomas, whose Leyland-Thomas without any effort, can be seen to be getting faster and faster, put up a lap record for the course at 125.14 miles an hour and sauntered home in the Lightning Long Handicap at a mere 117½ miles an hour. There was a high wind blowing, and it is stated that Thomas declared his cognisance of this fact, though one would hardly have thought that wind velocity would have entered into things on such a bullet as the Leyland-Thomas. The latest contribution to the speed of what must now be regarded as the fastest car in the world, is a forced induction device, simple of construction and effective as to result. Air is forced through a pipe opening in front of the radiator cowl on to the carburettors. (A wag in the Paddock asked us whether this was forced draught, supercharging, or merely "extra air.")

There were only three cars on the line for the Lightning Long Handicap, but they provided the spectators with more thrills than any of the bigger fields. Thomas was asked to owe five seconds, while Gallop on the Ballot, received nineteen, and Count Zborowski on a Mercedes was limit man, with 22 seconds. Zborowski was fast enough just to keep ahead of Gallop, and for the greater part of the race it looked as though it would be a big fight between these two, with Thomas nowhere. We could see the backmarker coming round the banking at terrific pace and we saw, too, that he was gradually cutting down the distance between himself and the leaders. When they went away on the last lap it looked like a certainty for Zborowski, but on the Byfleet banking there seemed to be just a chance that Thomas would get up. Excitement was intense when, as Zborowski and Gallop swept off the banking on to the straight, Thomas swooped by, to win the fastest race ever run on the track, by a couple of yards. That was the big race of the afternoon and, to our mind, by far the best yet seen this season.

There were nine races altogether, and they resulted as follows:—

The Fortieth 100 M.P.H. Short Handicap (5¾ Miles).

1.	Dr. J. D. Benjafield (Bentley)	20 secs.
2.	Major C. G. Coe (Vauxhall) ...	22 secs.
3.	George Duller (Bugatti) ...	14 secs.

There were nine starters in this event, and of these, Dr. Benjafield, getting away to a fine start, won his way into the lead and retained it throughout. Gallop showed up well, but was eventually passed by Coe and Duller, though neither of these could get on terms with the fast Bentley, which won easily at 90½ miles an hour.

Twenty-ninth 75 M.P.H. Short Handicap (5¾ Miles).

1.	A. Whale (Calthorpe)	48 secs.
2.	Lieut. P. du Cane (Bugatti) ...	10 secs.
3.	Capt. F. H. B. Samuelson (Austin)	37 secs.

Whale got away from sixteen starters in fine style, and at the end of the first lap was a quarter of a mile ahead of Miller (Bianchi). His Calthorpe drew farther away from the field in the second lap and he won hands

BROOKLANDS SUMMER MEETING—continued.

down at 73 miles an hour, with du Cane and Samuelson providing a good spectacle in their duel for second place.

TWENTY-FIFTH LIGHTNING SHORT HANDICAP (5¾ MILES).

1. J. G. P. Thomas (Leyland-Thomas) 5 secs.
2. Count Zborowski (Mercedes) ... 17 secs.
3. Capt. R. C. Gallop (Ballot) ... 15 secs.

Zborowski led from Gallop till Thomas passed him a mile from home, to win comfortably at 109¼ miles an hour. It was a race about which there was practically no betting, the winner being so warm a favourite that the odds quoted on him left no opportunity for "punting."

FIFTEENTH 90 M.P.H. SHORT HANDICAP (5¾ MILES).

1. Leon Cushman (Crossley) ... 42 secs.
2. H. P. Purdy (Horstmann) ... 42 secs.
3. George Duller (Bugatti) ... Scratch.

In receipt of a start which appeared to be generous, Gordon England (Austin) led the field for just over a lap. Cushman got ahead early in the second lap, and with Purdy "on his heels" won a close race by three lengths at 79¼ miles an hour, with George Duller bringing his scratch car into third place.

THIRTY-NINTH 100 M.P.H. LONG HANDICAP (8½ MILES).

1. Capt Malcolm Campbell (Ballot) 39 secs.
2. Capt. R. Gallop (Aston-Martin) 58 secs.
3. A. Ellison (Lorraine-Dietrich) 42 secs.

Thomas on the Leyland-Thomas had to go back to "owe 7"—thanks to his success in the Lightning Short Handicap—and this prevented him from getting into the places, though he was less than a bonnet behind Ellison at the finish. Gallop was the leader until the last lap, when Campbell got in front to win easily at 99¾ miles an hour. Thomas would have been "up" if the race had been a little longer, for he was moving very quickly.

TWENTY-NINTH 75 M.P.H. LONG HANDICAP (8½ MILES).

1. Capt. M. Campbell (Itala) ... 1 m. 41 s.
2. Capt. F. H. B. Samuelson (Austin) 1 m. 41 s.
3. A. Whale (Calthorpe) ... ... 1 m. 53 s.

The backmarkers were not given a chance in this race, and Samuelson, though not in the lead, was almost a lap up when Thomas started on the Lanchester. Then Campbell passed the Austin and ran away to win with plenty to spare at 74½ miles an hour.

TWENTY-FIFTH LIGHTNING LONG HANDICAP (8½ MILES).

1. J. G. P. Thomas (Leyland-Thomas) owes 5 secs.
2. Count Zborowski (Mercedes) ... 22 secs.
3. Capt. Gallop (Ballot) ... ... 19 secs.

This was the big race already referred to, and provided the spectators with an exceptionally excellent race. The winner's speed was 117½ m.p.h.

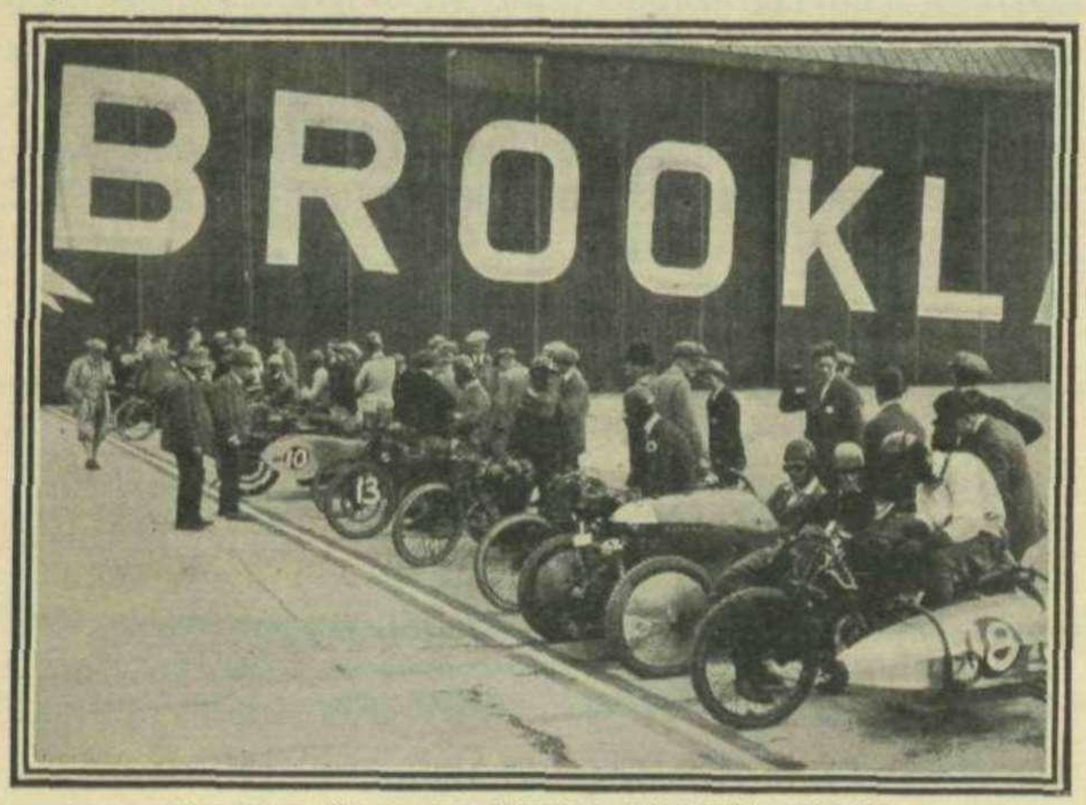
FIFTEENTH 90 M.P.H. LONG HANDICAP (8½ MILES).

1. Major Coe (Vauxhall) ... ... 7 secs.
2. A. Ellison (Lorraine-Dietrich) Scratch.
3. R. C. Morgan (Aston-Martin) 57 secs.

Coe did not look like getting through the field until well on in the second lap, when he got into third place. Ellison was haring after Coe, but was not much faster, and the two went to the front to win by a quarter of a mile at 94¼ miles an hour.

Beautiful weather favoured the meeting, our inconsistent climate for once living up to the title of the day's proceedings. We were pleased to observe a varied concourse of spectators, although, as we have said, the attendance would probably have been much larger but for the veritable galaxy of sport offered in and around the metropolis on this particular day.

THE B.M.C.R.C. AUGUST MEETING—continued from page 110.



START OF THREE-LAP PRIVATE OWNERS' HANDICAP.

CLASSES D & E. (NOT EXCEEDING 1,000 C.C.). THREE LAPS.

1. C. M. Needham (Brough-Superior) 1 min. 18 secs.
2. T. R. Allchin (Zenith-J.A.P.) ... ... 15 secs.
3. H. J. Knight (Zenith J.A.P.) ... 1 min. 18 secs.

Needham was the "dark horse" of the field, and he made the handicappers conspicuous with a run away win at 83.28 m.p.h.

PRIVATE OWNERS' HANDICAP. THREE LAPS.

1. R. O. Lowe (Norton) ... ... 27 secs.
2. R. G. Maurice (Norton sidecar) ... 1 min. 54 secs.
3. J. Newbourne (Norton sidecar) 1 min. 54 secs.

Maurice looked a winner until the last lap, when Lowe went to the front and won a fine race by about twenty yards, at 76.4 m.p.h.

PASSENGER MACHINES HANDICAP. FIVE LAPS.

1. D. R. O'Donovan (Norton) ... 2 min. 5 secs.
2. A. Greenfield (Zenith J.A.P.) ... 6 min.
3. V. Baxter (Rex-Acme) ... 3 min. 10 secs.

O'Donovan went off at a great pace and it was soon evident that he could catch the limit man. This he did, though he did not get away from him, and at the finish there was only fifteen yards in it, the veteran averaging 63.5 m.p.h.

WINNERS' HANDICAP FIVE LAPS.

1. V. E. Horsman (Triumph) ... 1 min. 15 secs.
2. R. O. Lowe (Norton) ... ... 1 min. 45 secs.
3. C. F. Temple (Montgomery-Anzani) Scratch.

A very fine race, in which Horsman, after catching Lowe, could not drop him. Temple looked like catching the leaders and thereby depriving Horsman of success, but he was a couple of lengths behind Lowe at the finish, with Horsman, who had beaten the five miles record, only just ahead at 90.06 m.p.h. Temple averaged 103.54 m.p.h. and had one lap at 107.1 m.p.h.

BROOKLANDS IN A HEAT WAVE.

A Successful Handicapping Innovation.

(By our Special Representative).

BROOKLANDS sweltered in the heat of the tropics during the British Motor Cycle Racing Club's "Fifty" programme, on July 12th, and the Weybridge track can be very hot indeed at times! I do not think that the fork stands have ever been so well filled as they were on that day by those who sought the comparative cool of the shaded places.

Officials and Pressmen worked in their shirt sleeves with no more garments on than decency demanded, and the coolest men at the track were the competitors who rode with open tunics.

An innovation was the introduction of sealed handicaps in connection with the races, and this scheme proved highly successful, not because of any particular interest in the results thereof, but because it made every competitor a "trier." However a man was placed in the field, he could not know his position on the sealed handicap, with the result that it was up to him to "tread on the gas."

There were three fifty miles races, and a three-lap handicap, and they were all interesting. Victor Horsman was the hero of the meeting, on his record breaking Triumph. He secured the 500 c.c. fifty miles race and the passenger event over the same distance, incidentally beating the world's record for the distance with his sidecar.

Lieut. W. T. Jameson, a sporting naval officer, brought off a fine performance. Obtaining short leave, he left Devonport on the morning of the races and rode up to Brooklands just in time to compete in the Private Competitors' Handicap on a 2¾ h.p. o.h.v. Sunbeam. In this he received 1 min. 21 secs. start. This did not seem particularly generous, and he was an outsider in the betting. But he got away to a fine start, secured the lead on the second of the three laps, and won in a canter.

Herbert Le Vack, after his terrific exploits in France, was expected to "do things," but after winning the first of the fifties he cracked up in the other two and failed to finish.

The fifty miles events were scratch events in classes, with time allowances on a cubic capacity scheme, based on the records in the various classes. Thus, in the 350 c.c. race, the 250 c.c. machines had a start of 5 mins. 22 secs., but no individual "250" had a start from any other machine of the same capacity.

Fifty Miles (350 c.c.) Race.

Le Vack went away with the "two fifties" and went into the lead right away. He had covered three laps before the Juniors started, and after six laps he still led, with the lightweights occupying all the places, but Wright and Mallet, on Zeniths, were overhauling the smaller machines very well. On twelve laps, Le Vack was still in front, but Wright had come up into second place and there were three juniors among the first six. At the finish, Le Vack was well over a lap in front of Wright who, in turn, was well ahead of Mallet.

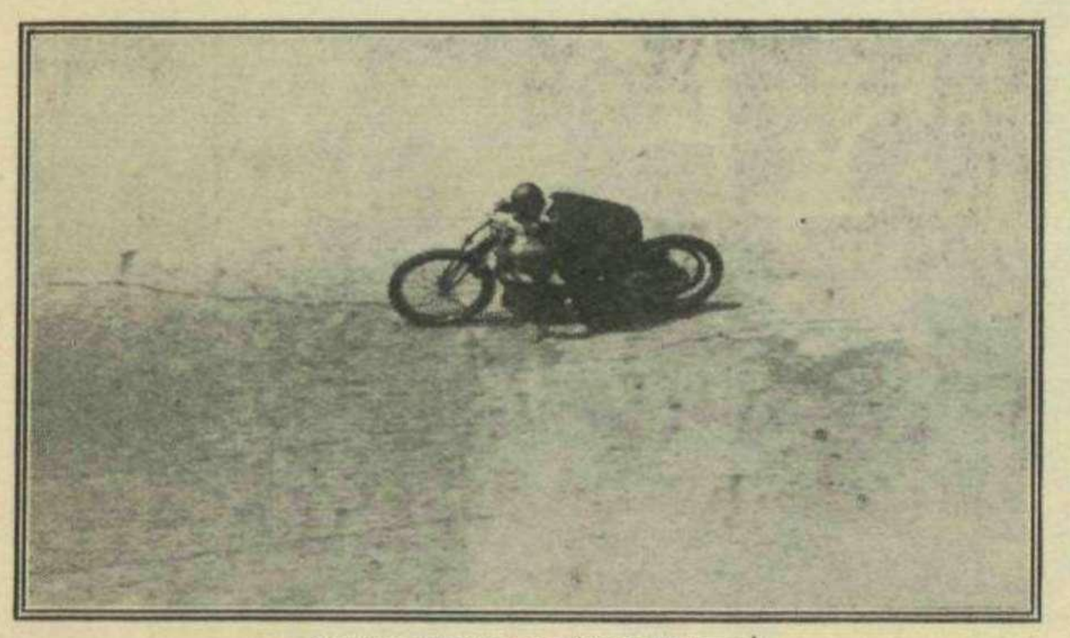
The first six men were:

1. H. Le Vack (248 c.c. New Imperial J.A.P.) 42 mins. 2 secs.	Speed	71.35 m.p.h.
2. J. Wright (344 c.c. Zenith)		76.58 m.p.h.
3. R. A. Mallet (344 c.c. Zenith)		72.64 m.p.h.
4. E. A. Dedham (348 c.c. Matador-Bradshaw)		71.66 m.p.h.
5. E. S. Prestwich (248 c.c. Zenith)		61.75 m.p.h.
6. G. L. Werts (348 c.c. O.K. Junior) ...		68.58 m.p.h.

BROOKLANDS IN A HEAT WAVE—continued.

SEALED HANDICAP RESULT:

1. J. Wright (Zenith) ... ... 2 min. 42 secs.
2. R. Mallet (Zenith) ... ... 3 min. 32 secs.
3. E. A. Dedham (Matador-Bradshaw) ... 3 min. 3 secs.



VICTOR HORSMAN FROM ABOVE!

The Fifty Miles (Unlimited) Race.

Only nine starters faced up for this event, in which the only two 1,000 c.c. machines, Herbert Le Vack's Brough-Superior and McEvoy's Anzani, conceded 3 mins. 57 secs. to the seven 500 c.c. competitors. R. O. Lowe, the amateur Norton rider, got off to the best start, but Horsman on the Triumph passed him behind the members' bridge and led from there to the finish. Le Vack was disappointing. He started when Horsman had nearly completed three laps, and he did not pick up a lot. After six laps he stopped, and after a brief delay, resumed, only to finish another lap and then retire.

Meanwhile Horsman was setting a warm pace, and was a certain winner if he could finish. Glover and Lowe provided some excitement with a fine duel, neither of them, however, being anything like good enough to hold the Liverpool crack, who, averaging over 85 miles an hour for the full distance, won by nearly four miles. Glover on the Douglas was second at 80.07 m.p.h., and R. O. Lowe (Norton) third at 79.8 m.p.h.

SEALED HANDICAP RESULT—

1. Horsman (Triumph) ... ... 4 min. 30 secs.
2. Glover (Douglas) ... ... 6 min. 18 secs.
3. Lowe (Norton) ... ... 6 min. 6 secs.

The Fifty Miles Passenger Race.

In the fifty miles race for passenger vehicles, two Blackburne-engined Morgans were at scratch to ten sidecars. As events proved they did not get a "look in." The 350 c.c. combinations had 7 mins. 44 secs. start, the 600 c.c. sidecars had 6 mins. 33 secs. S. J. Bassett on an Austin Seven had 2 mins. 1 sec., and the 1,000 c.c. sidecars, 36 secs.

The 350's got away well enough, and Baxter on the Rex Acme led until Horsman, going great guns, passed him to secure a lead which, as in the solo race, he held to the finish. Only the Rex Acme had retained a place on six laps, Horsman being first, Baxter second, and J. Newbourne (Norton) third. Le Vack lasted only two laps, and then came in with plug trouble. The little Austin Seven went splendidly, and to everybody's surprise Beart was faster than Norris. It was soon obvious that nobody could catch Horsman unless he stopped, but the Triumph went on with the regularity of a train and he was over two laps to the good at the finish. Both he and Bassett on the Austin broke the fifty miles records in their classes.

The Results were:—

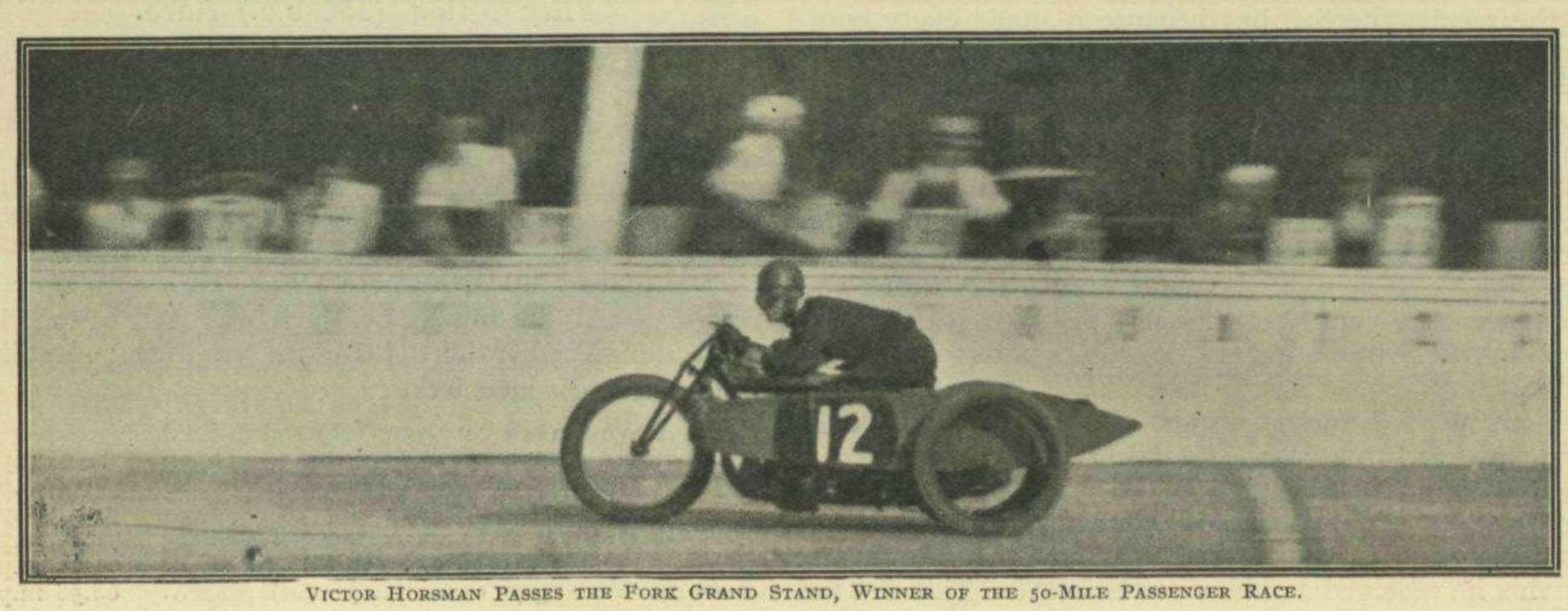
1. Victor Horsman (599 c.c. Triumph) Time: 40 mins. 10 1/5 secs. ... ... Speed: 76.95 m.p.h.
2. G. N. Norris (1,096 c.c. Morgan-Blackburne) 84.23 m.p.h.
3. S. J. Bassett (749 c.c. Austin) ... ... 77.70 m.p.h.
4. J. Newbourne (499 c.c. Norton)
5. V. Baxter (344 c.c. Rex-Acme)
6. E. C. Baragwanath (976 c.c. P. & P.)

Horsman's and Bassett's times stand as world's records.

SEALED HANDICAP RESULT—1. Bassett; 2. Horsman; 3. Norris.

Private Competitors' Handicap (8½ miles).

L. W. E. Dickson, on "The Nipper," was the limit man, and with 2 mins. 15 secs., established a big lead. Jameson made a fine start, and was chasing "The Nipper" with R. M. N. Spring on his heels. At the end of a couple of laps Jameson got in front and Spring dropped out, to give place to R. O. Lowe on a solo Norton. Eventually Jameson crossed the line an easy winner at 69.08 miles an hour, with Lowe second and Spring on his Norton sidecar third.



VICTOR HORSMAN PASSES THE FORK GRAND STAND, WINNER OF THE 50-MILE PASSENGER RACE.

CORRESPONDENCE

SOME CONGRATULATIONS.

The Editor, BROOKLANDS GAZETTE.
DEAR SIR,

I have read the first number of the BROOKLANDS GAZETTE with the greatest pleasure. It appears to me to strike a new note in literature dealing with motoring matters, and inasmuch as competitions of various sorts are attracting an increasing number of motorists, I imagine and hope that you will find the Gazette in great demand by devotees of the sport. I may say that I read the first number from cover to cover, and if you continue to turn the numbers out in equally good form and with equally interesting contents, I am sure you will create a very enthusiastic demand for it. Wishing you the greatest success,

Yours very truly, F. S. BRERETON, *Lt.-Col.*,
Chairman, Auto-Cycle Union.

The Editor, BROOKLANDS GAZETTE.
DEAR SIR,

Personally I think the BROOKLANDS GAZETTE is a very bright publication, and I wish you and all concerned success with your venture.

Yours sincerely, STENSON COOKE,
Secretary,
Automobile Association & Motor Union.

The Editor, BROOKLANDS GAZETTE.
DEAR SIR,

I must really congratulate you on what I consider a most interesting publication, which should appeal to all sportsmen who are interested in car and motor cycle racing. I have no doubt that it will help to increase the number of private owners, and lead them to take an active interest in securing the maximum efficiency from their cars or motor cycles.

Yours sincerely, ARTHUR BRAY,
Member of the Committee,
Marine Motoring Association.

The Editor, BROOKLANDS GAZETTE.
DEAR SIR,

I consider that the BROOKLANDS GAZETTE supplies a much needed want, and if subsequent issues bear favourable comparison with No. 1 which I have eagerly perused from cover to cover, a successful future should be assured. Edited, published, and printed, as I believe it is, by practical sporting motorists, its monthly publication will doubtless be impatiently awaited by all to whom the hum of a healthy exhaust is as the most enchanting music. Here's a long life to the BROOKLANDS GAZETTE!

Yours truly, ALAN W. DAY,
Hon. Sec., North London Motor Cycling Club.

The Editor, BROOKLANDS GAZETTE.
DEAR SIR,

I should like to congratulate you upon the BROOKLANDS GAZETTE and the interesting matter contained in it. I will certainly bring the journal to the notice of our members.

Yours faithfully,
TRISTRAM FOX, *Comdr., R.N. (Rtd.),*
Secretary, British Motor Boat Club.

The Editor, BROOKLANDS GAZETTE.
DEAR SIR,

Hearty congratulations on your first number, and wishes for much success for the BROOKLANDS GAZETTE.

Yours sincerely,
(Rev.) E. PERCY GREENHILL, M.A.,
Competitions Committee, A.C.U.

The Editor, BROOKLANDS GAZETTE.
DEAR SIR,

I would like to compliment you on the first production of the BROOKLANDS GAZETTE. It contains most interesting articles, which I feel sure will be eagerly read by sporting motorists. Such a Gazette should not only appeal to serious sporting motorists (by this I mean those who enter sporting events), but to those motorists who have no desire to attempt anything more than to use their car or motor cycle to get "there and back," who are always curious to know "what it is like," and "how it is done," and "who's who." Reminiscences of bygone days are always most interesting to all motorists, as are comments on current motoring news. I wish your journal every success.

Yours truly,
F. W. BARNES, *M.I.A.E.*,
Director and Works Manager,
Zenith Motors, Ltd.

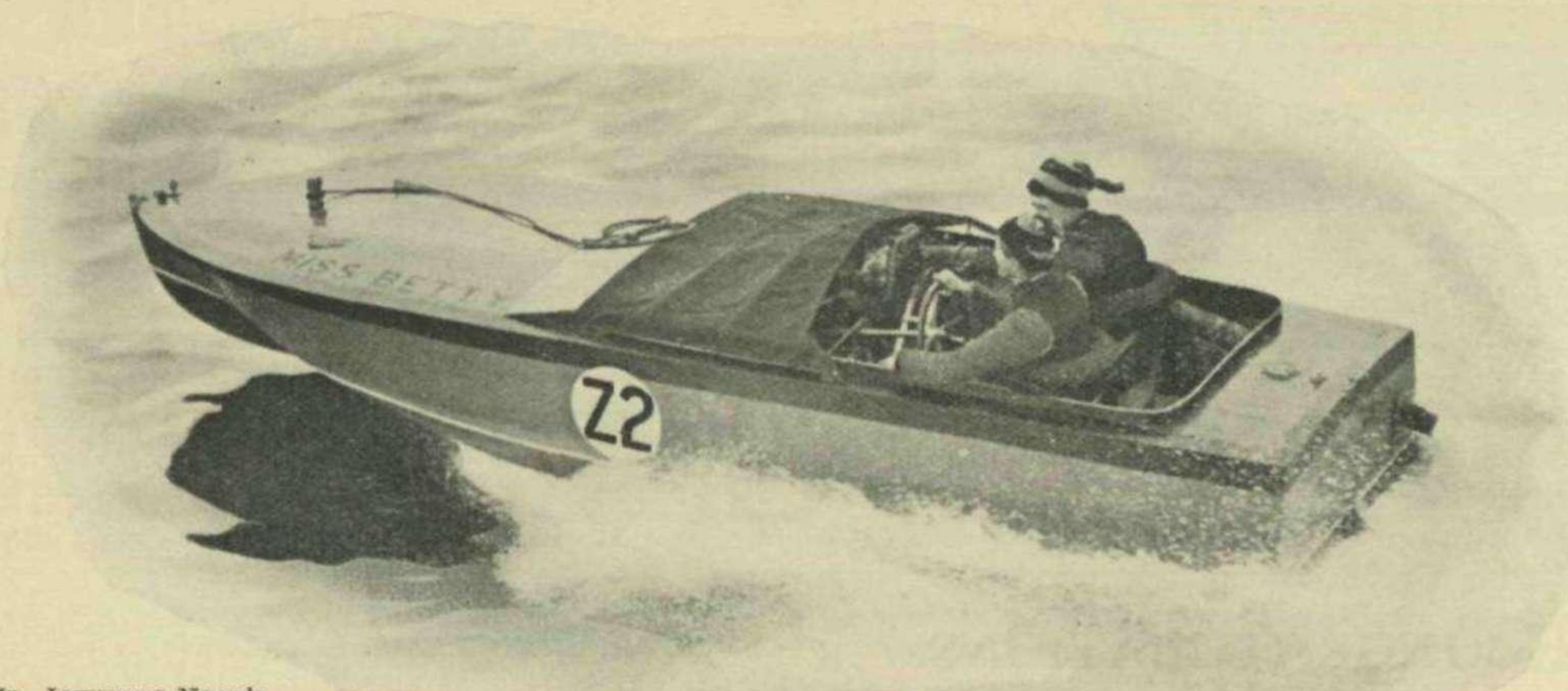
The Editor, BROOKLANDS GAZETTE.
DEAR SIR,

I congratulate you on the first issue of the BROOKLANDS GAZETTE. There is a certain definite cleanness and symmetry in the "make-up" of the Gazette which is very pleasing, and the size is just right for handling with ease; in fact, as a specimen of tasteful printing, it gives many points to other journals of a like class.

I hope the BROOKLANDS GAZETTE has a long and useful record before it. It seems to me to fill a want which becomes evident immediately one studies the very interesting matter which you have got together for the first number.

My good wishes to you and your enterprise.

Sincerely yours,
ED. J. BURROW, *F.R.G.S.*,
Managing Director, Ed. J. Burrow & Co., Ltd.



MR. JOHNSTON NOAD'S
"MISS BETTY,"
A SUCCESSFUL 1½ LITRE BOAT.

THE CEMENT OR THE SEA?

A Consideration of the Main Differences of Car and Motor Boat Racing.

By ARTHUR BRAY.

TO the ordinary layman, of course, there is a vast difference between racing on Brooklands Track and racing in a motor boat, but to the sportsman who pursues the wonderful performances of the internal combustion engine of to-day, there is a resemblance. On both, one can obtain that great thrill and enjoyment that speed brings, in one case propulsion being made through wheels and tyres—in the other through a fast turning object called a propeller.

Progress in design has helped, both with the automobile and the motor boat, to reduce engine size, while streamlining in the case of the former, and hull design in the latter, has also contributed to efficiency by reducing windage and skin friction respectively.

Twelve or fourteen years ago it was necessary to employ 100 h.p. or more to obtain 100 m.p.h. at Brooklands track, and about this h.p. or more, to obtain 40 knots at sea. To-day the story is different: we have tiny engines with a cubic capacity of only 1½ litres hurling these little chassis round the track at 100 m.p.h., while in the Duke of York's Trophy Races at Torquay, we saw new type boats obtaining a very high speed, with the same sized engine.

If we return for a moment to 1912 and 1913, there was the famous 21 foot class which was, to my mind, one of the most successful types of racing boats ever built in this country. Really high speed or what was then high speed engines were employed to propel a hull using "the wave collecting bow" design to help to lift them and reduce skin friction, instead of the previous hydroplane or step boat. These boats were fitted with an engine not exceeding 151 cubic inches and the engine usually ran direct coupled to the propeller at 2,600 to 3,000 revs. giving a speed between 26 to 31 knots, according to hull design. The successor to this class is the newly formed 1½ litre class, which came into being in 1922 at the Brussels Conference of the International Motor Yachting Union, and I have no doubt that it will interest all would be owners of 1½ litre boats to know that it was fostered in its infancy by British parents. It is hoped, therefore, that this class will appeal to all those Brooklands sportsmen who may in the future decide to adopt the sea as a sport in addition to the track, as in the formation of this class, careful thought was given to the expense of sea racing and building a boat for this purpose.

Not Unduly Costly.

I do not for a moment believe that a boat of this size would cost any more than a Brooklands 1½ litre car, while the impression of speed with the former is to my mind much greater than with the latter. To dwell for a moment with the human element, it is rather difficult to define which type of sport calls for the greatest skill in handling. On the track, of course, a good start is a very important factor for success, but this also applies at sea, as all races are of the flying start type and therefore a few seconds late over the line often means the loss of a race. Again, on the track, skill in changing gear comes to the fore, but at sea when starting a race, one has simply to study one's watch, the throttle lever, and keep clear of other competitors who are all as eager as you to get over the line at gun fire. This latter point is by no means as easy as one would imagine when there are 12 or more starters.

After the start at Brooklands, one's mind is set on getting by the other fellow and missing the bumps which are so well known to all habitués, but at sea it is rather a different story. Nature has decreed that her several elements shall play an all important part in this wonderful sport, therefore it must be apparent that no two waves being of equal size, the skill of the helmsman must

THE CEMENT OR THE SEA—continued.

be at its keenest in the navigation of his craft, while there is also quite a lot for the amateur to study with regard to tides, rounding mark boats, and other factors.

The sea is ever an uphill job, with no easing down for these fast revving engines, so that every minute part of their construction is tested to the utmost during the period from start to finish. The strain imposed on the hull during racing in anything of a "lop" may be likened to the strain imposed on a chassis under similar

A WELL-KNOWN COMPETITOR "GETS AWAY."

condition, and for this reason one need not feel alarmed, when travelling at great speed at sea, to notice the whole engine and hull "working" in no uncertain manner.

A Coming Class.

There are as yet very few engine manufacturers who specialise in a "pukka" 1½ litre marine engine, but I have hopes that in the future this class will develop to such an extent that manufacturers will concentrate their efforts in developing engines which will give their great power at much lower revolutions than at present. If this is done it will assist the hull designer considerably, and perhaps will also assist in abolishing the present gearing down of propellers, which adds to the weight of the whole boat in consequence of the necessary gear box.

A few years before the war a propeller designed to turn at 2,500 revs. was thought an impossibility, but to-day there are propellers running in boats at over 3,000 r.p.m. But I think here the limit has been reached, as I feel certain that no naval architect or designer could ever compete with 4,000 to 5,000 r.p.m., as such geniuses as Coatalen, Martin and Green have given us during the last few years.

Another point to consider is that of weight. At Brooklands windage would appear to be as important to study as weight, and here again a favourable comparison can be made with a motor boat, as skin friction really replaces windage, while the weight question remains common to both. I believe that many of the 1½ litre cars which compete on the track weigh considerably under 10 cwt. complete, but in some of the boats which have just been completed, this figure has not yet been exceeded complete with fuel, helmsman, etc.

With regard to Brooklands habitués who have taken to the sea, I can mention Woolf Barnato, who originally owned a 3-litre boat and who now owns one of the three fastest 1½ boats, "Ardenrun II." which has a Sunbeam engine. In addition, there is Sir Algernon Guinness, Bart., well known in the Isle of Man and Brooklands before and after the war. He drove a boat in the last British International Trophy, fitted with his favourite engine, the Sunbeam, but although he finished, he was not quite fast enough for the flying "Yanks" who came over complete with bow rudders and showed us a few things about hull design which apparently we did not then know.

A Great Sport.

There is also Major Tate who was frequently seen at Brooklands before the war at the wheel of a Mercedes. He drove the fastest English boat in the last British International Trophy race, but without success. He also endeavoured to fetch the cup back from America the year after, and might have done so, had not the hull been dropped and strained in transit. I have no doubt, and sincerely hope that this list, from memory, of three sportsmen will be considerably augmented next year, when still more 1½ litre boats will be built (there are 7 or 8 at present), and I can promise all those that may be sceptical that there is just as much fun for them in navigating a boat as there is in driving a car round Brooklands track. The expanse of the sea is unlimited—there are no punctures or bursts and it is just as much yours as anybody else's.

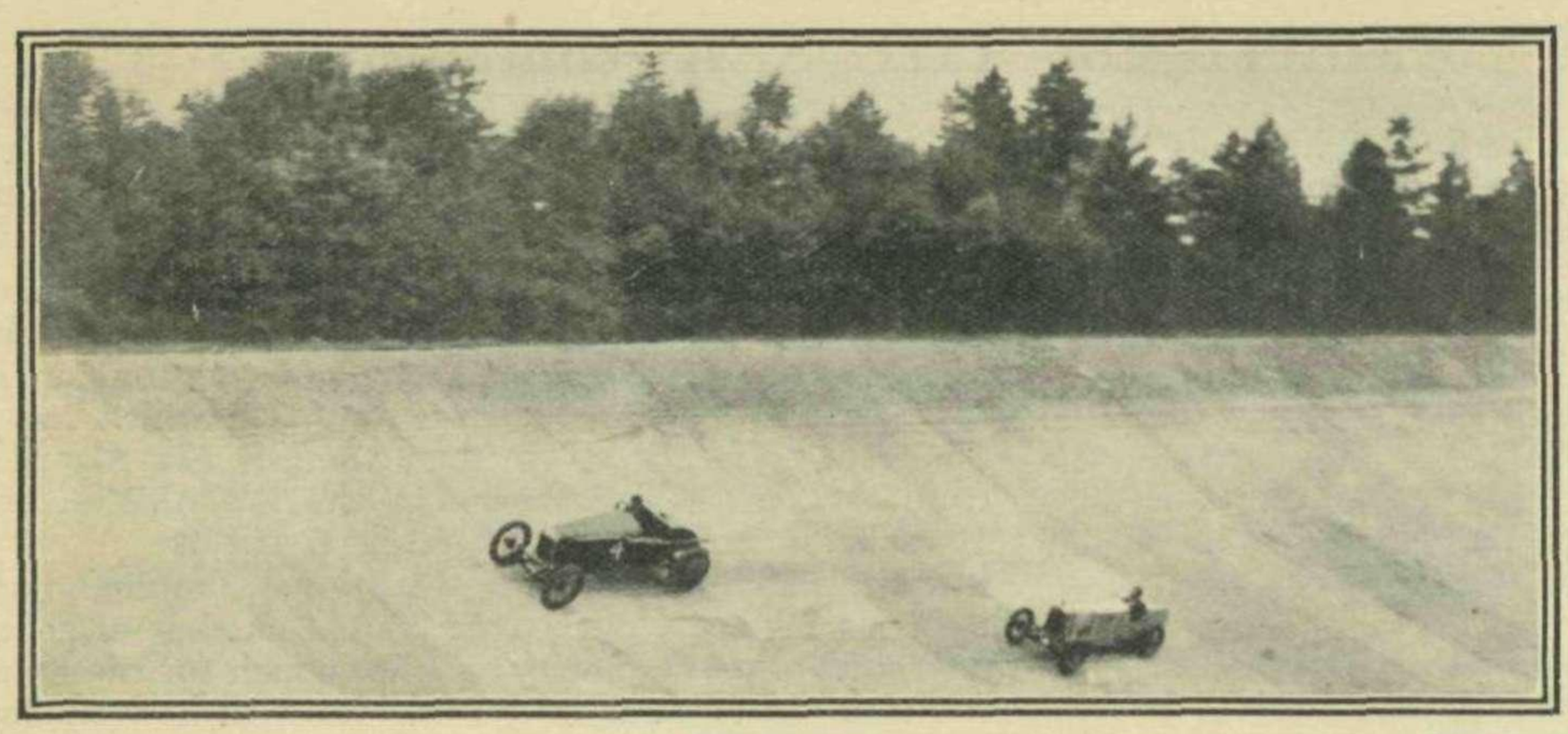
The "flop, flop" of the hull on the waves while travelling through the water, the song of the salt breeze

THE 1½-LITRE BOATS "SKIM" THROUGH THE WATER.

in your ears, the sunlit spray flying past you, is not this an exhilarating change from the hot track, the smell and the roar?

You do not have the excited crowd, nor as yet, "Long Tom" laying the odds, but you do have the freedom of the sea to spur you on, the joy of speed and plenty to occupy your mind, while you are trying to catch the fellow in front.

The 15 minute gun has gone, we must start to get the old 'bus warmed up. A swing or two, she's off. "Let go aft," and now for 30 minutes or so of real life!



DR. BENJAFIELD (BENTLEY), WINNER OF 90 M.P.H. SHORT HANDICAP, PASSING C. M. HARVEY (ALVIS).

BROOKLANDS AT ITS BEST. A Great August Meeting.

THE August Bank Holiday meeting at Brooklands was certainly one of the best yet held, and we regret that its date prevents our commenting upon it at length. The races were fast and they were also very close, wherefore the large concourse of spectators was presented with the two main ingredients for exciting contests.

J. G. P. Thomas was asked to do too much, not by the handicappers, but by his competitors. He drove magnificently. Twice during the afternoon he beat the record for a lap, but on each occasion he had to be content with second place, for the very good reason that he was inadvertently baulked. I have never seen such dexterous work at the wheel as Thomas did on the banking behind the public enclosure. He did all that mortal man can do, but to pass a crowd of cars while you are stepping it out at over two miles a minute, is a hazardous enterprise, and unless the way is absolutely clear, it is a suicidal venture. Mr. A. V. Ebblewhite who we believe was mainly responsible for the handicapping, works out his figures with due regard for everything, and does, we believe, allow about a second for "passing" by the backmarkers, but he cannot budget against a baulk, and that is what Thomas had to contend with.

The best race of the day was, fittingly enough, that for the President's Gold Plate. It was a fight all the way between Capt. Waite on the little Austin, and Mr. Tommy Hann on his Lanchester "Softly-Catch-Monkey." Waite started four seconds ahead of Hann and caught his man, but was repassed. They raced together for eight miles, and at the finish there was not a length between them. All the time, Capt. Barnato was gradually creeping up on the duellists, and he very nearly caught them. He was a trifle slower on his last lap than on the two preceding ones, otherwise he would have won the Plate.

In the 90 m.p.h. Long Handicap, Gillow on the Riley and Kaye Don on an A.C., had another great match which ended in favour of the former by a length, much to the chagrin of the big crowd in the public enclosure who had "gone" almost solid for Kaye Don!

Mr. G. Duller started favourite in the August Private Competitors' Handicap, and won after a fine race in which he beat Felix Scriven, by fifty yards.

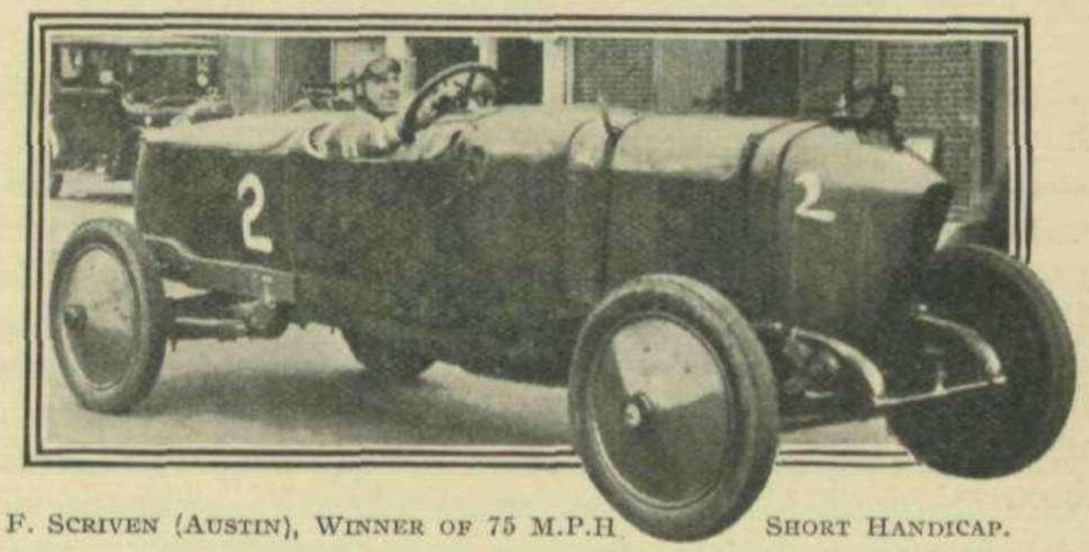
The results were :—

AUGUST PRIVATE COMPETITORS' HANDICAP (5¾ MILES).
1. Mr. G. Duller (Thomas Special) ... 28 secs.
2. Mr. Felix Scriven (Austin) ... ... 34 secs.
3. Mr. J. D. Benjafield (Bentley) ... 9 secs.

There were eleven runners with George Duller at virtual scratch, and he overhauled the field to win by fifty yards at 85¾ miles an hour.

THE 41ST 100 M.P.H. SHORT HANDICAP (5¾ MILES).
1. Mr. J. D. Benjafield (Bentley) ... 13 secs.
2. Major L. Ropner, M.C., M.P. (Vauxhall) ("Silver Arrow") 13 secs.
3. Mr. T. G. John (Alvis) ... ... 17 secs. (Driver : Mr. C. M. Harvey)

There were seven runners, of whom Major Ropner was a warm favourite, but Mr. Benjafield, starting off the same mark, was the faster and he beat him by eighty yards, at 91.56 m.p.h.



F. SCRIVEN (AUSTIN), WINNER OF 75 M.P.H. SHORT HANDICAP.

THE 30TH 75 M.P.H. SHORT HANDICAP (5¾ MILES).
1. Mr. Felix Scriven (Austin) ... ... 11 secs.
2. Mr. V. Gillow (Riley) ... ... 23 secs.
3. Mr. C. W. Chinnery (Gwynne) ... 1 min. 19 secs.

Chinnery was the dark horse, but after starting well, he slackened appreciably and was caught in the second lap by both Scriven and Gillow, between whom there was about twenty yards at the finish. There were twelve runners. Winner's speed : 84.83 m.p.h.

THE 26TH LIGHTNING SHORT HANDICAP (5¾ MILES).
1. Capt M. Campbell (Sunbeam) ... ... 23 secs. ("Blue Bird")
2. Mr. J. G. P. Thomas (Leyland Thomas)... Scratch
3. Major L. Ropner, M.C., M.P. (Vauxhall) 48 secs.

Thomas just failed to get through, though he passed Ropner. Campbell averaged 103.8 m.p.h. and won from the scratch man by twenty yards. Thomas's second lap was accomplished at over 127 miles an hour, and was a record for the track.

BROOKLANDS AT ITS BEST—continued.

THE 16TH 90 M.P.H. SHORT HANDICAP (5¾ MILES).

1. Mr. E. L. Meeson (Mr. Kaye Don) A.C. 41 secs.
2. Capt. W. Barnato (Wolseley) ... ... 49 secs.
3. Mr. E. C. England (Austin) ... ... 52 secs.

Kaye Don had matters all his own way and won easily at 89.17 m.p.h.

THE 40TH 100 M.P.H. LONG HANDICAP (8½ MILES).

1. Capt. W. Barnato (Mr. G. A. Vandervell) (Talbot) ... ... 1 min. 20 secs.
2. Mr. J. G. P. Thomas (Leyland-Thomas) Scratch
3. Major L. Ropner, M.C., M.P. (Vauxhall) ... ... 1 min. 8 secs.

Despite the fact that he put up another record lap at 128.36 m.p.h., Thomas could not catch Vandervell. When he started it did not look as though he could get anywhere near to him or Ropner, but he thrilled the crowd with a terrific second lap and only failed by three hundred yards. There were seven runners. Vandervell's speed was 93.95 m.p.h.

MAJOR ROPNER, M.C., M.P. FOR SEDGEFIELD, WHO DID WELL IN SEVERAL RACES.

THE 16TH 90 M.P.H. LONG HANDICAP (8½ MILES).

1. Mr. V. Gillow (Riley) ... ... 1 min.
2. Mr. E. L. Meeson (Kaye Don) (A.C.) 37 secs.
3. Mr. F. L. Rapson (Mr. J. G. P. Thomas) (Lanchester) ... ... Scratch

A splendid race, in which Kaye Don failed by less than a length to catch Gillow, who won from a field of eleven runners at 81.63 m.p.h.

THE BROOKLANDS PRESIDENT'S GOLD PLATE RACE (8½ MILES).

1. Mr. T. Hann (Lanchester) ("Softly-catch-Monkey") ... ... 1 min. 3 secs.
2. Capt. A. Waite, M.C. (Austin) ... 59 secs.
3. Capt. W. Barnato (Wolseley) ... ... 39 secs.

One of the best races ever seen at Brooklands with Hann and Waite fighting out a terrific struggle, while the faster men gradually overhauled them. Five cars finished within fifty yards with Hann less than a length in front of Waite, to win at 78.07 m.p.h. There were ten runners.

THE 26TH LIGHTNING LONG HANDICAP (8½ MILES).

1. Capt. M. Campbell (Sunbeam) ("Blue Bird") ... ... 28 secs.
2. Major L. Ropner, M.C., M.P. (Vauxhall) ... ... 1 min. 10 secs.
3. Mr. R. T. T. Spencer (Sunbeam) 1 min. 14 secs.

Spencer looked like winning, but began to miss on one cylinder, and Campbell, despite penalisation as a result of an earlier win, led by a quarter of a mile at the finish. His average speed was 107.55 m.p.h. There were only four runners and of these, J. G. P. Thomas retired in the first lap with carburettor trouble.

CALENDAR OF MOTORING SPORT.

AUGUST.

Friday, 8th to 18th.	**F.I.C.M. International Six Days' Trial in Belgium.**
Saturday, 9th.	**A.C.U. East Midland Centre. Speed Trial.**
Saturday, 9th.	**N.W. London M.C. General Efficiency Trial.**
Sunday, 10th to 20th.	**Coupe des Alpes (Italian).**
Saturday, 16th.	**Wessex Centre A.C.U. Hill Climb.**
Saturday, 16th.	**Sheffield and Hallamshire M.C. and L.C.C. Speed Trials.**
Saturday, 16th.	**Western Centre A.C.U. Open Speed Trials.**
Saturday, 16th.	**West Kent M.C. Meeting at Brooklands.**
Saturday, 16th.	**Kent and Sussex Hill Climb.**
Saturday & Sunday, 16th and 17th.	**International Hill Climb at Clausen.**
Sunday, 17th to 24th.	**French Light Car Trials.**
Sunday, 17th.	**Mount Ventoux Hill Climb.**
Friday, 22nd.	**Middlesex County Automobile Club. Fox and Hounds Run.**
Friday & Saturday, 22nd to 23rd.	**A.C.U. Arbuthnot Trophy Trial.**
Saturday, 23rd.	**Northern Centre A.C.U. Open Reliability Trial.**
Saturday & Sunday, 23rd & 24th.	**Fanoe Island Speed Trials.**
Saturday, 23rd.	**Ferryhill and District Motor Club Gymkhana.**
Thursday to Sunday, 28th to 31st.	**Boulogne Meeting.**

SEPTEMBER.

Saturday, 6th.	**B.M.C.R.C. 200 Mile Races.**
Saturday, 6th.	**Ulster Grand Prix.**
Saturday, 6th.	**Speed Championships at Monza.**
Saturday, 6th.	**N.W. London M.C. Public Schools Trials.**
Saturday, 6th.	**Kent and Sussex L.C.C. Trial.**
Thursday, 11th.	**Manx M.C.C. Amateur Road Races.**
Saturday, 13th.	**Brooklands Autumn Meeting.**
Saturday, 13th.	**Liverpool Motor Club. Speed Trials at Wallasey.**
Saturday, 20th.	**Junior Car Club. 200 Miles Race at Brooklands.**
Saturday & Sunday, 20th & 21st.	**A.C.U. Children's Outings.**
Saturday, 27th.	**Liverpool Motor Club. Liverpool to Edinburgh Trial.**

OUR NEW ROADS.

Fine Highways Completed and under Construction.

ALTHOUGH many of the new trunk and bye-pass roads seem to be, comparatively speaking, almost deserted, the reason lies in the fact that their existence, or more frequently their direction, is yet little known. It is certainly not because of any antipathy for them amongst motorists in general. Actually, those who have experienced the joy of using them need no second invitation to travel along them, but look forward rather to the day when more and more of such highways will be completed and available for their enjoyment. It may be true that, in some cases, their interest and enthusiasm is a little tempered by certain misgivings, which cannot but arise in the minds of those who have tried certain stretches, such as that on the Wrotham bye-pass near Maidstone, the state of which, on the last occasion on which the writer traversed it, was anything but an advertisement for modern road construction. Even those to whom it has been explained that this particular stretch is in course of being seasoned, which process involves the passage over it of a certain amount of traffic, may very well be inclined to demur at having their cars put to service as road rollers. However, experiences of that kind do not detract from the appreciation of the better finished roads, rather the reverse, in fact, and each motorist after his preliminary runs, invariably turns to note the works which are proceeding in those parts of the country in which he has a more direct and personal interest.

We, and the majority of the readers of this journal, have that special interest just now, at any rate, in the London-Southend Road, now approaching completion, and likely, we are informed by a high authority, to be open, as regards the greater part, in the early part of next month. Those who make a point of being present at the motor racing events which take place annually at that sea-side town will, in particular, learn with especial pleasure that, amongst the good things which this road affords is a complete elimination of that awful stretch between Billericay and Wickford. These places, for a crow, are but five miles apart, but for motorists have hitherto been separated by eight miles of as twisty a bit of road as can be found anywhere. Nor will this new Southend road resemble that stretch near Maidstone to which reference has already been made. It is to be laid "ready rolled," not calling upon the motorist to do his share towards its flattening.

Not all these new roads are being constructed in the same way, or embodying the same materials. Many different methods are being employed, for a start, and developments will follow the lines which are demonstrated to be most suitable for the traffic and which the particular piece of road is most required. The Ministry of Transport, we understand, will welcome any expression of opinion from motorists, so that the decision as to which surface and which method of construction is the best may be the more satisfactorily made.

There are two main types of road now under construction, those which are, practically speaking, of concrete only, and those which are built up of one or other of the various asphaltic or bituminous compositions, carpeted with a layer of similar material, more finely made, and more smoothly laid. The North Circular Road, with which many will have made first acquaintance in the course of visiting the Exhibition at Wembley, is an example of the former type, as is the new Cambridge road, which runs parallel to the old road, extending from Ponders End northwards. A typical example of the asphalt coated road is the Great North Road, running through Huntingdon. Protagonists of the concrete road claim that they are not unduly liable to cause skidding, a fault which certainly seems to be present with some of the examples of the alternative type. On the other hand, the concrete road is very touchy about the weather conditions which it has to endure, and dislikes, above all things, extremes of temperature, which cause cracking as the result of expansion and contraction.