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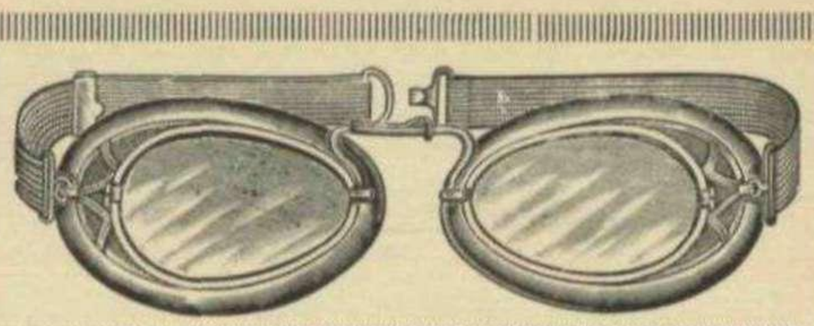
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The BROOKLANDS GAZETTE

No 8 FEBRUARY, 1925 VOL. 1

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

Edited by RICHARD TWELVETREES, A.M.I.MECH.E., M.S.A.E., M.SOC.ING.CIV. (France)

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NOTICE TO CONTRIBUTORS.

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

NOTICE TO CLUB SECRETARIES.

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

Editorial Notes.

The 1925 Season and our Policy.

As the organisers of many of the Motoring Clubs are busy just now in formulating their programmes and working policies for the coming season, perhaps it may be well if we join them in their reflections.

The sporting motorist in general is asking himself what he is going to do about it—to use a colloquialism—and in the endeavour to share the problems and aspirations of our readers, we repeat the question to ourselves.

"What are we going to do about it?" First of all, we are trying to come out to time with our issues; that, of course, is most essential, and we may assure our readers that every plan has been made to keep up to this aim.

Expressed on broad lines, our policy will be dictated by the wishes of our readers The BROOKLANDS GAZETTE is the organ for the sporting motorist, and while making no attempt to encroach upon the spheres of the excellent journals concerned with motoring generally, feel that some of our monthly reviews of current events may find a place in the literature of the pastime.

The "Sugary Trifles."

We have been called over the coals by one of our readers, who in the correspondence columns of this issue suggests that descriptions of cars are a "superfluity." While this appears to be entirely a matter of opinion, we are quite ready to accept the expressions of our readers on the subject; but on the face of it, one would suppose that there are a number of our readers who may not have had the opportunity of becoming acquainted with the intimate details of modern sporting cars and who desire some first-hand information concerning their various performances. All the cars

["THE BROOKLANDS GAZETTE" *will deal with all matters pertaining to motoring sport in all its forms in an impartial manner. Consequently, the Editor does not necessarily associate himself with the opinions expressed by his contributors.*]

EDITORIAL NOTES—continued.

described have been, and will be, tested by members of our staff, and in cases where the need for criticism arises, our comments will be to that effect. We have no use for "sugary trifles," as our correspondent describes them, and we shall endeavour to steer clear of anything approaching "pages of boring battalions of words."

If the dictates of circumstance have caused us to forsake the spanner and micrometer gauge for the Editorial paste and scissors, we still hold an affectionate regard for the practical side of motoring, with, we hope, the spirit of enthusiasm shown by our readers. But we are open to follow the wishes of the motoring sportsman whom we desire to serve in every way.

Activities of the "Closed" Season.

At this time of the year one hears little of the doings of automobile racing men, and of the hundreds of amateurs, whose inclinations lie in the direction of improving standard models in various ways. At first sight, one might be excused for thinking that the sporting motorist in general, like the butterfly, only appears when the spring arrives and when the call of the road and track brings him forth to fresh efforts.

It is only necessary to peep behind the scenes, however, to learn of the energetic preparations now being made by professionals and amateurs alike. Few sporting cars are to be seen on the road just now, because their owners are busy in carrying out overhauls and adjustments calculated to fit their machines for the real business of the season.

Now is the time to study the engineering side to motor racing, for the real sportsman is something far greater than an able exponent in the art of driving. Even if he does not possess the time or inclination to carry out his pre-seasonal repairs on his own account, this need be no hindrance to the mechanical efficiency of his car. During the past season much valuable information will have been gathered concerning performances, occasional breakdowns, or failures will have shown the need for detailed improvements and success in future events will depend largely upon the amount of care and attention bestowed upon the chassis during the next few weeks. Many owners look upon the first licensing quarter as a suitable opportunity for withdrawing their cars from service for the purpose of the annual overhaul and take advantage of the excellent facilities now provided in up-to-date garages for tuning up or for partial re-building if need be.

Sporting cars of all types are admittedly subject to greater stresses than those imposed upon ordinary touring models, and speed naturally exacts a penalty in some form or another. The kind of wear taking place in a carefully driven sports car can be corrected by skilful mechanical treatment, and readers who have ambitions to capture some of the trophies offered for 1925 will do well to emulate the example of those who at the present moment are hard at work in preparing for the 1925 season.

Round the Clubs.

We sympathise with Club Secretaries at this period of the year, for while many are ready to assist by sending particulars of Club doings in the thick of the season, it is difficult to keep up the interest in our "Round the Clubs" pages during the "closed" period.

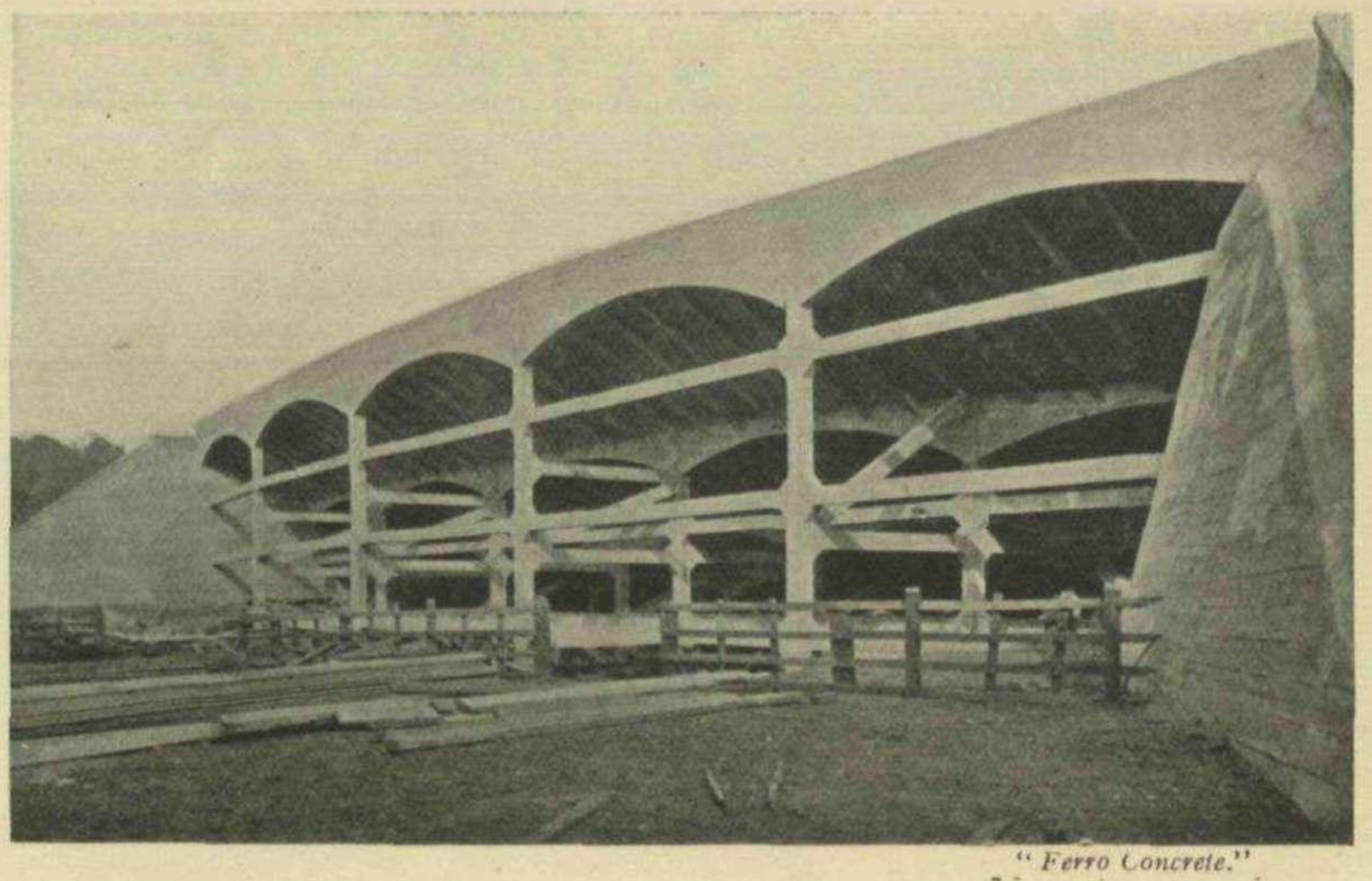
Hitherto, the matter submitted to us for inclusion has largely comprised lists of events, which, though useful, only appeal to a limited section of our readers. We are anxious to get a little more brightness and local colour into this section of The BROOKLANDS GAZETTE, and will appreciate the help of Club Secretaries and members in this direction.

This section, gentlemen, is open for you! Let us have some personal notes. Tell us about that machine you "crocked" last season and about the new one for 1925. Your President has presented a new cup—excellent! Let us have a photo of the trophy, and so on *ad lib.*

"Round the Clubs" is not intended as a "fill-up" for the page left vacant by other contributors, it has a definite object which can only be fulfilled by the aid of enthusiastic co-operation on the part of clubmen all over the country.



CAPTAIN RICHARD TWELVETREES HAS BEEN APPOINTED EDITOR OF THE BROOKLANDS GAZETTE.



"*Ferro Concrete.*"

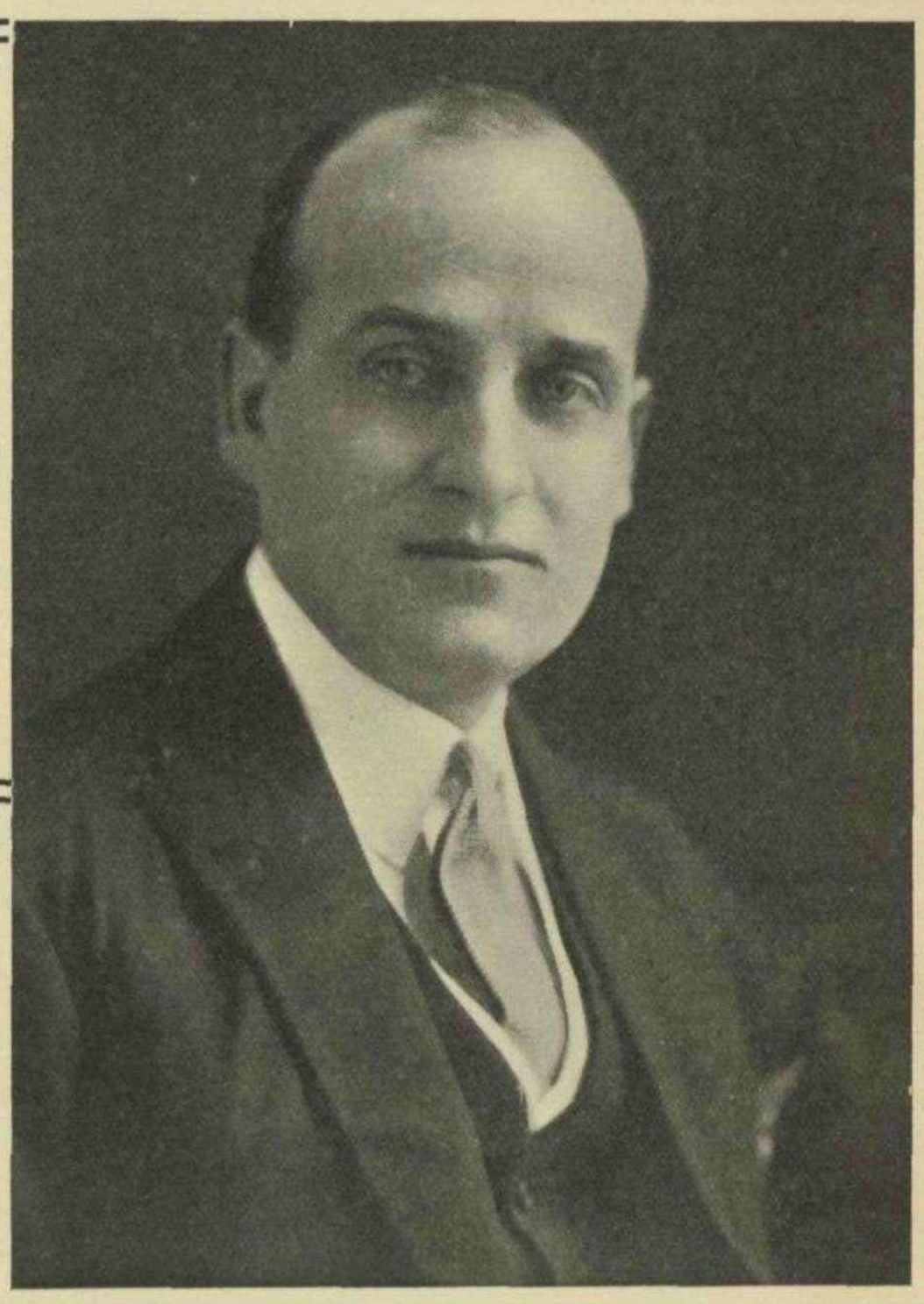
BROOKLANDS TRACK FROM AN UNUSUAL ANGLE, SHOWING THE CONSTRUCTION OF COLUMNS AND BEAMS.

Motoring Sportsmen

by the Editor

No. 6. Dr. J. D. Benjafield

M.D. (Lond.), etc.



IT is a matter of conjecture whether Dr. J. D. Benjafield owes his popularity to his achievements in bacteriology, in which science he has done so much to relieve suffering mankind, or to his meteoric rise to fame in the ranks of the genuine amateur racing motorist. We have had the pleasure of witnessing him at work in his laboratories, where virulent organisms are obedient to his will and almost begin to suspect that he has succeeded in cultivating some potent form of Speed Virus, with which he has secretly innoculated the car he affectionately calls " Baby Bentley."

Prior to the year 1923, Dr. Benjafield's interest in motoring was confined to the use of cars for professional purposes ; but on the water, he may justly claim more than the average amount of motor boating experience, until on losing his boat in adventurous circumstances, his attention turned to motor racing

Like so many other professional men with heavy demands upon their energies, Dr. Benjafield felt the need for some form of recreation to provide a complete relaxation from his duties and decided that the Brooklands Race Track provided a solution to the problem. As he explained, the track is within easy reach of town, and all the meetings are held at convenient times, so that the hobby of track racing can be indulged in with the least interference with his normal activities.

Possibly some professional men might be inclined to the opinion that track racing makes too heavy a demand upon one's physical and nervous system, but while Dr. Benjafield admits the need for normal physique and nerve control, he is quite ready to recommend track racing as an admirable hobby, which by providing one with an intensely interesting amusement, is a great factor in keeping one young.

The Doctor's experience as a racing motorist is extremely interesting, in that he took it up from the " zero point," so to speak, and the temperature chart of his enthusiasm took an upward curve from the moment he first took the wheel of his health reviving Bentley. Questioned as to the possible risks of the racing novitiate, Dr. Benjafield replied that provided one was in good condition, chose a suitable mount, and was content to graduate for real racing by assiduous practice, speed work at Brooklands was but little more dangerous than ordinary touring. " But, as an amateur," he continued," for the benefit of racing novices, I would urge the necessity for achieving speed by easy stages. At eighty miles an hour or so, there is little difficulty for a driver of average skill, the trouble begins if one, having become accustomed to the track at that speed, makes a sudden attempt to travel round the ' hundred mark,' for then everything seems different ; and, before one realises the fact, very awkward circumstances may arise."

In fact, Dr. Benjafield was most emphatic in the opinion that no novice should be allowed to compete in any race until he had satisfied the track authorities by making a certain number of practice laps, or put in a definite number of driving hours round the course, that he is qualified to do so.

Speaking of his debut as an amateur racer, he expressed his appreciation of the welcome he received from the old hands at the game ; who, he said, were always ready to help in any way possible and this spirit of real sportsmanship is one of the principal attractions among the competitors at Brooklands.

Readers are too familiar with details of the various successes gained by Dr. Benjafield to need any reminder in this brief sketch, but it is interesting to notice that since he acquired the Bentley last year, the speed of the machine has increased very considerably, and though we are not permitted to disclose the results of the latest

MOTORING SPORTSMEN—continued.

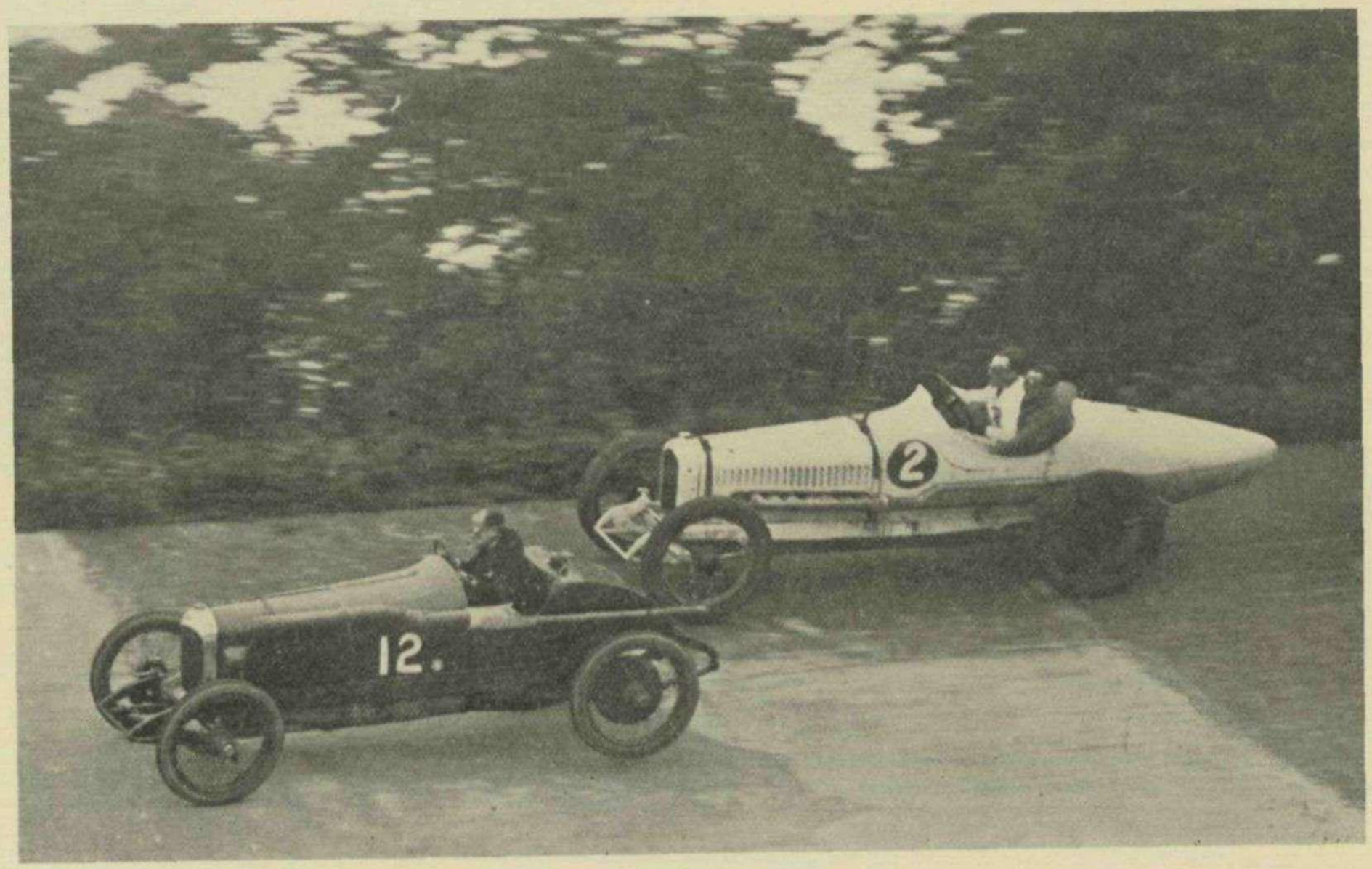
tests, readers may be safe in assuming that he hopes the car will not be *any slower* when it comes to the starting line at the first meeting this year.

Though Dr. Benjafield has little time to devote to mechanical details, he invariably supervises any "hotting up" processes on his car, and the extent of his keenness in this side of racing may be judged by the following incident.

Prior to one of the important races last year, the engine suddenly "went Bolshie" during a practice trip, and some of the connecting rods saw the light of day through apertures in the crankcase they had made for the purpose. This meant some hurried repairs, and thanks to the good services of the Bentley Service Department, the wrecked machine was towed to the works, where it was rebuilt from old parts in stock, the job going on from Saturday afternoon, through the night and on through the following day and night. The Doctor worked almost continuously during the whole period, then drove the car to Folkestone and back, to run the engine in, and turning up in time for the race, was successful in getting first place. Incidentally, on the day of the race he went to the post with a temperature of 103 degrees, which reminds us of the old saying "Physician heal thyself."

Dr. Benjafield is an out-and-out Bentley enthusiast, has a very good opinion of the Memini carburettor and uses a very fine Bentley saloon for his professional work. The latter is sometimes thrown out of commission temporarily when parts are borrowed to use on "Baby Bentley," but as far as we are able to judge, neither suffers from the transfusion.

In discussing motor racing generally, Dr. Benjafield remarked upon the surprising ease with which one may gain fame, but our readers will agree that this is a matter of opinion, for any success entails much skill and hard work, even if the necessary facilities exist.



DR. BENJAFIELD AT CLOSE QUARTERS WITH A BALLOT.

Notwithstanding his enthusiasm for motor racing, the Doctor has no intention of robbing his beloved germs of the fatherly attention he bestows upon them, so that motoring cannot be accused of depriving the world at large of researches, about which it knows so little, but from which it benefits so greatly.

The BROOKLANDS GAZETTE, March Issue.

The contents of the March issue will include the following articles:—

MOTORING SPORTSMEN:	*An Interview with Capt. Malcolm Campbell.*
THE EVOLUTION OF THE SPORTING CAR	*By Lionel Martin.*
HOW SPECIAL CAMSHAFTS ARE MADE	*By W. F. Bersey, M.I.A.E.*
FACTS ABOUT BROOKLANDS	*By Capt. A. W. Phillips, M.C.*
THE RECORD BREAKING LANCHESTER	*A Descriptive Article.*
"HOTTING-UP A STANDARD MODEL"	*Continued Article.*
MOTOR CYCLES ON TEST	*By "Open Throttle," Junior.*

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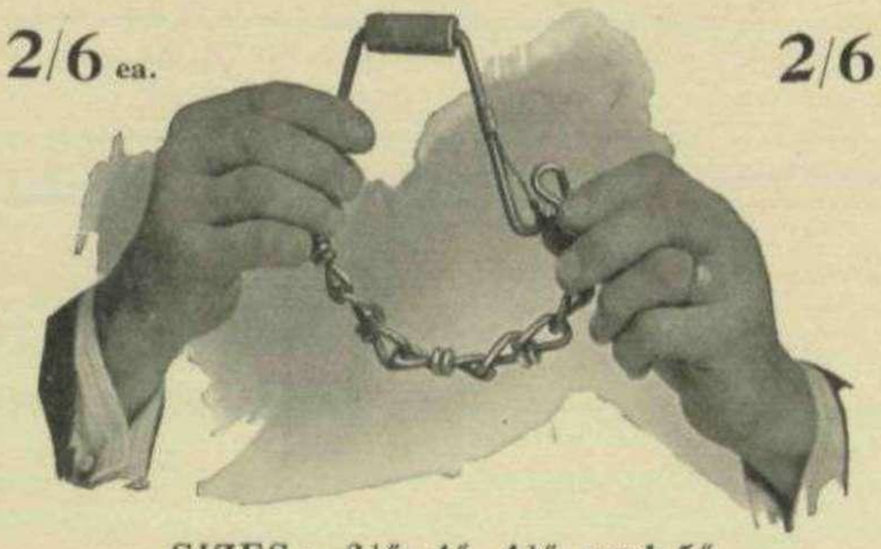
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NOTES ON ALUMINIUM ALLOY PISTONS.

By a TECHNICAL CORRESPONDENT.

NOTWITHSTANDING the fact that sporting motorists, devoted to car or motor cycle speed work respectively, are unanimous as to the theoretical advantages offered by the employment of light pistons constructed in aluminium alloys, it may be said that the application of such alloys to high speed internal engines presents several problems to the designer and manufacturer alike, to say nothing of the racing enthusiast, who sometimes unintentionally undertakes the duties of experimental research.

Scientists tell us that aluminium is the most abundant metal in the crust of the earth, but it was not until the early eighties methods were devised for purifying the natural ore in sufficient quantities and at such a cost as to permit the use of aluminium for commercial and industrial purposes.

Immediately the latter possibilities became generally recognised, two groups of potential users developed, one crediting aluminium with properties it does not possess, and the other, disappointed as the result of the reckless use of the material, was afraid to continue research operations, save on an extremely limited basis.

One of the main objects of the designer of sporting machines is to combine lightness with adequate strength and therefore recent researches include the study of old and new alloys, improved methods of production, and especially careful investigations concerning the parts lending themselves to construction in aluminium alloys.

Physical Properties of Aluminium.

When first produced commercially, aluminium suffered the great disadvantage of its lack of strength, for in the pure state the tensile strength of aluminium is only 13,000 lbs. per square inch. This factor naturally led to the introduction of other metals as alloys, copper being used extensively for the purpose, but in the early stages of use, the tensile strength was a more or less uncertain factor.

According to the S.A.E. specification No. 30, the total impurities shall not exceed 1.7 per cent., of which not over 0.2 per cent. shall be zinc and no other impurities than carbon, silicon, zinc, iron or manganese are permitted. The actual specification is given as follows :

Aluminium, not less than ...	90.00%
Copper	8.50 to 7.00%

The above is one of the lightest aluminium alloys, possessing a high degree of strength and can be used where a light tough alloy of these characteristics is required in automobile construction. For a number of years the tensile strength of alloys similar to the above was given as 20,000 lbs. per square inch, but though obtained in standard test bars, the figure had to be lowered to 18,000 lbs. per square inch, to allow a reasonable margin for commercial production.

Tensile strength, however, is not the only physical property of moment in automobile calculations ; and, when used constructionally, aluminium must have rigidity. This depends upon the *modulus of elasticity* which in the case of most aluminium alloys is approximately 10,000,000 as compared with 20,000,000 in the case of cast iron. To continue the comparison, it follows that if two beams were constructed in cast iron and aluminium respectively, both having the same dimensions, it would take twice the load to deflect the former than would be necessary to affect the latter in an equal degree.

At first sight, it would appear futile to compare the two materials for construction purposes, but we must recollect that our iron beam weighs approximately two and a half times more than the one made of aluminium, so that actually the latter can be made two and a half deeper than the former.

In automobile practice this feature becomes extremely valuable ; for with correct distribution of metal and suitable webbing aluminium parts have a decided advantage. A further advantage of aluminium consists in its ductility, which in cast iron is very low, being roughly ½ per cent. The ordinary casting aluminium alloys have an elongation factor of about 1½ per cent., whilst some run as high as 5 per cent. without any reduction in tensile strength.

Heat Conductivity.

For such components as automobile pistons, strength, rigidity and ductility are not the only requirements in a material of construction, for one of the duties of the piston is to waste as easily and efficiently as possible the heat in combustion chambers which cannot be converted into power. It might be supposed, therefore, that with a piston made from an alloy with a high heat conductivity factor, considerable loss of power would result. As a matter of fact the surface resistance to heat is approximately the same for all metals and the heat flow into the piston is practically determined by the exposed area of the metal. As soon as the piston has absorbed a proportion of the combustion heat, high conductivity helps to dissipate or waste the unwanted degree of the heat as we have already explained. This is one of the arguments in favour of aluminium alloy pistons, which as a rule work cooler than those of cast iron, as appears to be emphasised by the decreased tendency to carbonising, both above and below the piston, when aluminium is used for its construction.

To meet the special needs for strength at high engine temperatures, special alloys are used for piston work, the one given above being more suitable for castings called upon to withstand ordinary stressing alone.

Practical Piston Problems.

From a thermal point of view aluminium pistons may be divided into two classes : firstly, those designed in such a way as to permit the dissipation of heat from the head to the skirt and thence to the cylinder walls ;

NOTES ON ALUMINIUM ALLOY PISTONS—continued.

and secondly, those intended to partially insulate the skirt from the heat of the head.

In the former type the designs are usually of a conventional character except that thicker walls are used and internal ribs are adopted on the inside to assist heat conductivity. An aluminium piston of this class is shown in Fig. 1. The second type of piston is exemplified by the Zephyr and Ricardo slipper designs shown in Figs. 2 and 3 respectively, which are well-known among racing men.

The Zephyr, originally a steel piston, may be supplied as a combination of aluminium and steel or cast iron. Modified forms of the same design are made entirely in aluminium by other people.

The " Specialloid " Piston shown in Fig. 4 is claimed to be the only alloy piston which is able to conduct the heat fully to the skirt and still give no slap, and although for racing purposes slap is immaterial, the ordinary touring car of these days must not slap.

For racing purposes with aluminium alloys of a fairly low melting point it is essential that the thermal conductivity is not curbed in any way by designs in which the heat is prevented from running freely to the lowest

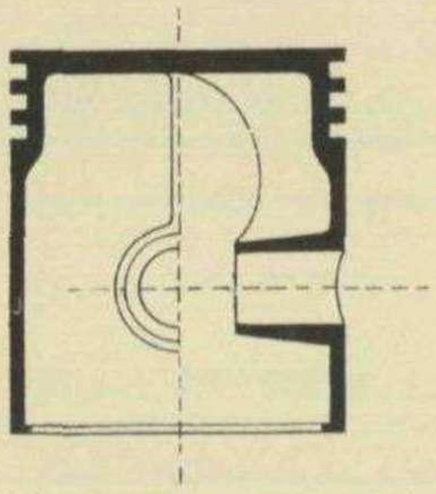


Fig. 1. ORTHODOX TYPE.

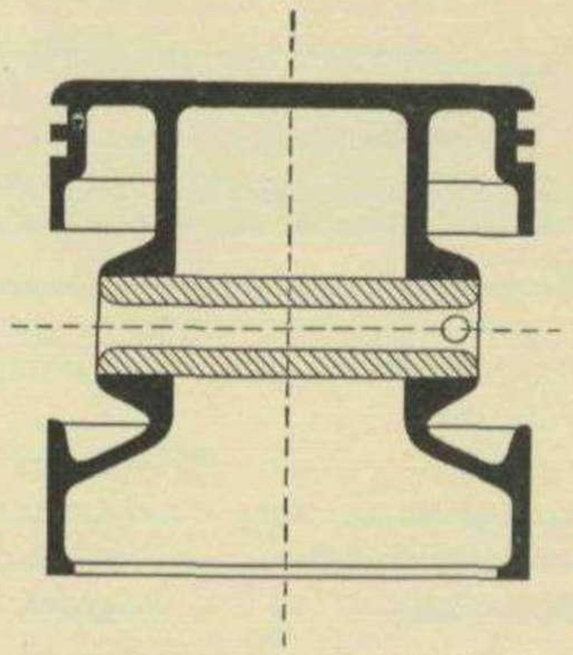


Fig. 2. THE ZEPHYR PISTON.

extremity of the piston, otherwise burning of the head is inevitable on account of the extreme heat caused by the high compression ratios now used.

The melting point of the alloy used in the " Specialloid " Racing Piston is just over 700° cent. whereas the usual alloy of most other pistons is about 630° cent.

Piston and Cylinder Wear. Wear is not so important in racing circles as in touring and commercial propositions. In the touring class there are distinctly two types of motor manufacturer: (1) the manufacturer who builds his car to sell and price is the main point, irrespective of quality; (2) the manufacturer who builds his car to last.

Unfortunately neither the manufacturer nor the expert motorist fully realises that the piston is really the most important part of his car, and has, in fact, greater hardships to put up with in cases of ill treatment. Neither do these gentlemen realise that the making of an efficient, economical and sweet running engine depends to a great extent on the piston.

Certain objections have been raised from time to time in connection with the use of aluminium pistons, but, generally speaking, such objections are commonly encountered when cast iron is used and comprise: wear, tendency to piston slap, heavy oil consumption, and fuel dilution of crankcase oil.

1. *Piston and Cylinder Wear.*—The amount of wear taking place on the skirts of aluminium pistons and the cylinder bores is largely a matter of original smoothness of finish. If aluminium pistons are fitted to an engine of which the cylinder bores are rough, one naturally expects a considerable amount of wear to follow. Alloys of this description will provide good wearing surfaces, but the character of the surfaces in contact determines the amount of wear that will subsequently occur. A smooth aluminium piston fitted to a relatively rough cylinder bore is equivalent to adjusting a crankshaft bearing to an imperfect journal. As a matter of fact many cylinders taken direct from the grinding machine have decidedly rough bores; which, though unimportant when cast iron pistons are used, becomes a very serious matter if aluminium alloys are employed. This accounts for the fact of the increased durability and efficiency obtained from engines which, after having been used for some time with cast iron pistons, have subsequently had special aluminium ones made and fitted.

Whilst the general public hears little of the manufacturer's difficulties, authentic instances could be quoted where lack of experience and imperfect production methods have led to considerable trouble with aluminium pistons, but *usually the pistons are not to blame.* The writer knows of a case at the present time where experiments are being conducted with steel pistons, simply because the conditions necessary for the successful adoption of a good aluminium alloy cannot be reached.

Dust drawn into the engine with the mixture has a great influence on piston wear and in course of time racing men will probably realise the advantages of some efficient form of air-filtering device. It is at present receiving very considerable attention, and it is anticipated that the trouble will be entirely removed in the near future.

NOTES ON ALUMINIUM ALLOY PISTONS—continued.

2. *Piston Slap.*—Piston slap is largely a matter of determining the correct amount of working clearance for the piston, though the practice of " off-setting " the gudgeon pin helps very considerably in this respect. Provided the piston and cylinder are of correct design and the piston is made of a suitable alloy, properly well balanced and free from local hot-spots, there should be no difficulty with piston slap. Many forms of piston with split skirt have been introduced from time to time, but in the opinion of the writer this appears to be tackling the problem from the wrong end. In the case of the split skirts, off-setting the gudgeon pin and sloping heads, considerable wear is experienced, and also considerable loss of power through friction at high revolutions.

3. *Excessive Oil Consumption.*—In cases where excessive quantities of oil are thrown up into the cylinder bores, light fitting pistons and special rings will not always cure the trouble entirely, but the following results from some tests carried out by the Chief Engineer of the Packard Company, Detroit, U.S.A., provide interesting data.

(1) With no control on the oil being thrown into the cylinder, rings which seal the top and bottom edge of the groove reduced the oil consumption.

(2) When the oil is properly controlled, the oil consumption is very low, even with rings having an up and down clearance of 0.004 in.

(3) With the oil controlled and hot water circulating through the engine the volume of liquid in the base chamber increased, indicating the dilution with fuel which passed the piston and rings. This was independent of the kind of rings used.

Subsequent experiments, with the fuel mixture heated to about 160 degrees Fahr., the dilution in the crankcase was diminished and the viscosity of the lubricant was not impaired.

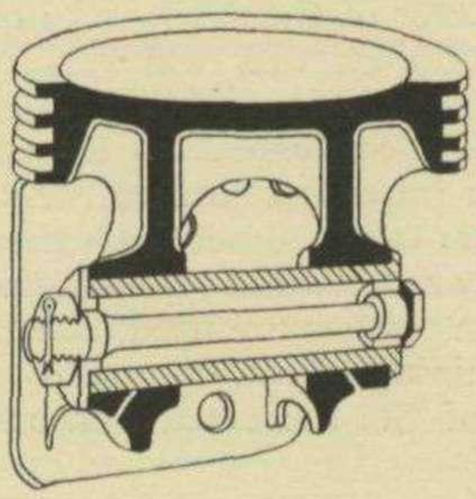


Fig. 3. RICARDO PISTON.

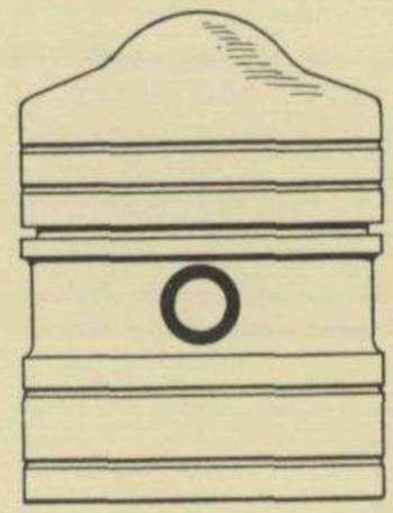


Fig. 4. SPECIALLOID PISTON.



T. R. ALLCHIN MAKING A SPECTACULAR TURN IN THE SENIOR T.T. RACE, 1924.

MOTOR CYCLE SPEEDMEN.

T. R. ALLCHIN.

MR. T. R. ALLCHIN first became associated with the motor cycle industry in Australia, where he was connected with the Indian concern, and although he did not ride for them in the Commonwealth, the experience he gained in handling these machines over typically Colonial roads and tracks was of very great value in his after career.

After a few years experience in the Colonies, he migrated to the United States of America, where, in 1921, he entered the works of the Harley-Davidson Company, and for a time was occupied in tuning up and testing various types of their products. While in America, Allchin gained experience of the peculiar conditions obtaining in dirt track racing and also became initiated into the arts and mysteries of tuning motor cycles for high speed work. Thus, on his return to England, he was fully qualified to take up competition work on Harley-Davidson machines in his own country.

His many successes on road and track are well known to our readers, including as they do, the side-car record for Kop Hill. His solo attempts at this climb have been a little unlucky, for on two occasions he made second fastest time, but was denied the record, being beaten by Baldwin with the narrow margin of one-fifth second both times.

Allchin holds the following British records at Brooklands for the solo 1,000 c.c. class. The 200 Miles (Sept., 1924) at a speed of 87.27 m.p.h. The 200 Kilometres (Sept., 1924) at a speed of 140.86 km.p.h. The 300 Kilometres (Sept., 1924) at a speed of 141.58 km.p.h. The latter records were made when he was riding for Zeniths and were accomplished on a 998 c.c. side valve Zenith J.A.P.

He also shares the record for the 400 miles in the 1,000 c.c. solo class with C. F. Temple, when the Harley-Davidson 989 c.c. put up the average speed of 77.24 miles per hour.

The fastest lap achieved by Allchin at Brooklands worked out at 107.5 miles per hour, this being done on a Zenith, though on several other occasions he reached 106 miles per hour on another machine of the same make.

Allchin's Impressions of Speed.

In relating his experiences to us, Allchin described how, though accustomed to lap at 92.5 m.p.h. on a certain make of machine, he felt he could do better if only the opportunity would present itself. At last his chance arrived, and a fellow competitor lent him a now famous machine, capable of "going round the saucer" at 100 miles per hour. During the first run on this machine his maximum speed went up from 92.5 to 98.6 m.p.h. and though the difference may not appear to amount to very much, Allchin states that the sensations of the extra speed were altogether novel. For example, he explained that when coming off the Members' banking at the greater speed, he felt as if he was in one of those dreams in which one experiences the sensation of falling, falling and falling. We are under the impression that this kind of experience is produced by some action on the heart, which no doubt is influenced during very high speed work.



An Unlucky Number.

On both occasions when Allchin's number has been 39 he has come to grief, and naturally he regards it as his particularly unlucky number. As No. 39 he had a spill from a well-placed Douglas in the Isle of Man, but managed to run into the eighth position at the finish, and a more serious spill fell to his lot when Ware's Morgan, No. 39 in the last 200 Miles Race, crashed near the fork at Brooklands.

Allchin cannot be regarded as a heavyweight, but his exploits with big twins show that what he lacks in avoirdupois is more than counterbalanced by skill.

Future Ambitions.

Upon being asked if he aspires to car racing in the future, Allchin replied that he certainly had ambitions to take the wheels of some of the monsters of the track; but that, for the present, he was keen on riding something on two wheels, which must be faster than his mounts of last year, for he feels that he is capable of riding at much higher speeds than he has attained up to the present.

Though he is hardly yet out of the convalescent stage after his smash in the 200 Miles Race, his nerve does not appear to be affected in any way, and he is looking forward to the hopes of figuring prominently in the leading events of 1925.

Sporting Cars on Road & Track

By 'Open Throttle'

The Super-Sports Austin Seven.

WHEN the ordinary model of the Austin Seven made its appearance in the year 1923, few motorists had the slightest idea that it was destined to reach the high position it occupies to-day in the esteem of the sporting motorist, and the present " Brooklands " Super-Sports model certainly opens up possibilities for many a keen owner to whom the ownership of a really fast car had previously been a cherished ambition.

If the successes of this model have caused astonishment among racing men in our own country, its remarkable feats on the Continent have created something in the nature of complete bewilderment to the followers of road and track events across the channel, where it has literally swept the board in competition with ultra-light cars of long-standing reputation.

I had long looked forward to an opportunity of trying one of the latest models over my own pet testing ground, to see whether the little Austin, in racing trim, possessed roadworthy qualities comparable with its track performance, and the car used for the purpose was taken straight from the stock of Messrs. George England, Ltd., who are responsible for the various modifications of this particular model, the chassis being, of course, supplied by The Austin Motor Company, Ltd.

Observations as a Passenger.

In accordance with my usual testing practice, I decided to travel for the first few miles in the passenger's seat, in order to observe points about the car which one is liable to overlook when taking the wheel immediately. The first thing that impressed me was the amount of room for a passenger of average dimensions, and that no sensation of being cramped exists. The pneumatic upholstery is quite delightful and the riding position gives one the impression of being part of the car, which is increased by the correct angle of the squab and the foot-rest, the latter providing a housing for the accumulator.

The first hill was approached by a blind right hand bend, and though the driver had no previous knowledge of the somewhat tricky turn, his quick manipulation of the gear showed that the Austin is certainly very handy to control. In fact, at this early stage of the test, it appeared as if there was at least 20 h.p. available under the bonnet, instead of a modest " Seven."

Part of the course included some long straight stretches, with a very rough surface, and this provided an excellent test for the suspension system when travelling at high speed. On one occasion the rear springs " bottomed " over a double pot-hole, but as the combined weight of the passengers amounted to well over 23 stone, this could not be wondered at. Subsequently I discovered that the rear shock absorbers were adjusted rather too tightly, which undoubtedly had some influence on the suspension generally.

Hedsor Hill is somewhat deceptive as a brake testing gradient, for the sharp turn half way down necessitates the sudden application of the brakes, but the car was kept well in control by the use of the front and rear wheel brakes alternatively, even when making a very fast descent. On this particular car, it appeared that the brakes were a little fierce in action, probably due to want of a good run in, but otherwise I could make no adverse comments.

Hill Climbing Tests.

I took over the wheel at Bisham and being well acquainted with the hard climb through the woods to Winter Hill, wondered if the Austin would require a spell of bottom gear. At the foot of this hill I dropped into second gear and the rev. counter immediately went up to 3,500, which dropped slightly on rounding the hairpin bend. At first it seemed as if bottom gear would be needed, but I had underestimated the Austin acceleration, for on getting into the straight again, on the next part of the climb, the revolutions rose to just over 4,000, thus enabling me to use top gear before the summit was reached.

The greasy surface at the hairpin bend seemed to present great opportunities for a first-class skid, but though I actually tried one, the little car kept to its even course and refused to oblige even with the slightest suspicion of tail-wag.

Though the car is not obviously intended for colonial conditions, I could not resist the temptation of trying it at a " stunt " hill in the neighbourhood. I think this particular hill is very little known at present. It boasts of a very greasy limestone surface, crossed by two deep water courses and a maximum gradient of between 1 in 3 and 1 in 4. The severity of the hill may be judged by the fact of a notice board stating : " Motor Vehicles Not Allowed Through Here," it having been discovered last year when attempting to find a gradient which an Alvis Sports would not climb.

Perhaps I was guilty of attempting the first part of the climb at too high a speed, as unfortunately one of the wheels slipped into a water course, which pulled the car up with a jerk. As this occurred at the very steepest part of the climb, it was intended to run down and try again ; but on making an attempt to get away,

SPORTING CARS ON ROAD AND TRACK—continued.

I found to my surprise, that with the aid of the 14.5 to 1 bottom gear, the car pulled itself out with ease and finished the climb on top without the least signs of distress.

Touring Comfort.

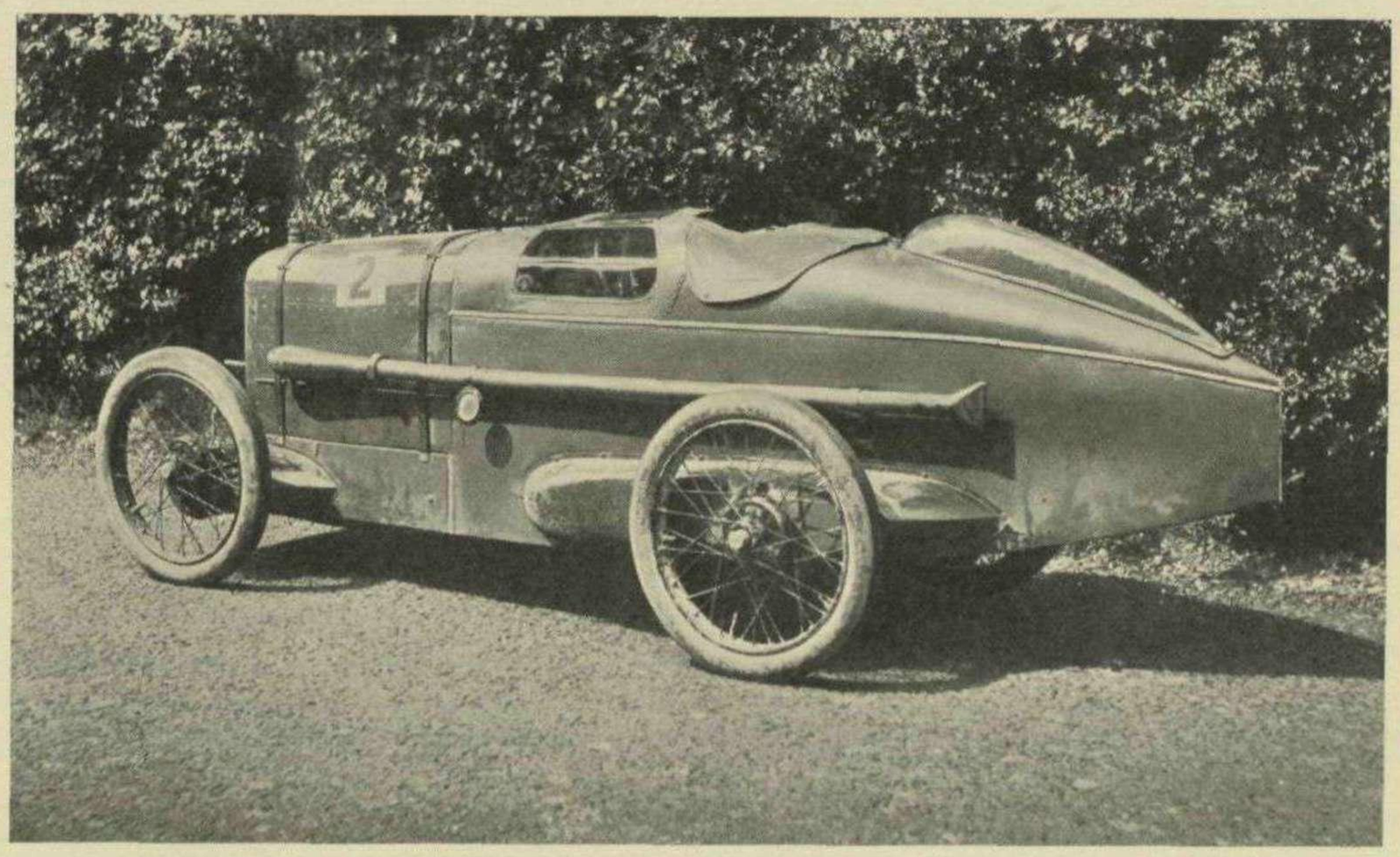
On concluding the test for hill climbing, the return journey was made over good roads, which gave the opportunity of judging how the car would behave under ordinary fast touring conditions. At a speed of 50 miles an hour, it seemed as if one could keep on driving for ever without fatigue, though naturally one has to become accustomed to the difference between driving a miniature car and one of the ordinary dimensions.

Whilst it holds the road admirably, the Austin Sports is distinctly lively, but gives no suggestion of the "pea on a drum" effect, of which it is sometimes unjustly accused.

that it was called upon on many occasions for the purpose of getting up a good speed on the level, as well as for surmounting steep gradients.

On second gear there is no difficulty in attaining 4,000 revolutions per minute, and at no opening of the throttle can any trace of a "flat spot" be detected. Two Zenith carburettors of the 30 H.K. type are employed, these being mounted on two induction pipes arranged between the three exhaust pipes leading to the manifold.

A casual examination of the engine reveals very few departures from the standard lay-out, but consist in a high compression cylinder head, a high lift camshaft, and special pistons and timing gear. To permit of the high engine speeds, light Celerity valves are used in conjunction with double springs and specially designed tappets. Particular care has been paid to the lubrication system, which is effected by forced feed to the big-ends through the drilled crankshaft.



THE "BROOKLANDS" MODEL SUPER-SPORTS AUSTIN SEVEN.

The engine gets on with its business in a contented kind of way and the careful selection of gear ratios never gives rise to an undue screaming, if the gear change is manipulated properly. The exhaust has a pleasant note and the careful tuning to which all models of this type are subjected results in a rhythmical roar, free of all spluttering or other irregularities at all engine speeds.

Technical Observation.

At the finish of the test, the Boyce motor-meter, fitted to the radiator cap, proved that the engine was remarkably cool, even after the long spells of second speed gear work in which we indulged. I can truthfully use the word "indulged," as the second gear is so delightful,

The gear box is quiet in action and by the use of a special crown wheel and pinion, in the rear axle, the following ratios are provided: First speed, 14.5 to 1. Second speed, 8.17 to 1. Top speed, 4.09 to 1.

In its general construction and dimensions the chassis is standard, which is a tribute to the design of the original Austin Seven, but the body work is of a patent construction, framed in three ply and white wood, with aluminium panelling. To aid in securing a perfect streamline effect, a special undershield is fitted and both front and rear axle are "faired" in accordance with racing practice. Normally, the bucket seats are staggered to the extent of nine inches; but can, if so desired, be made to suit the requirements of individual purchasers.

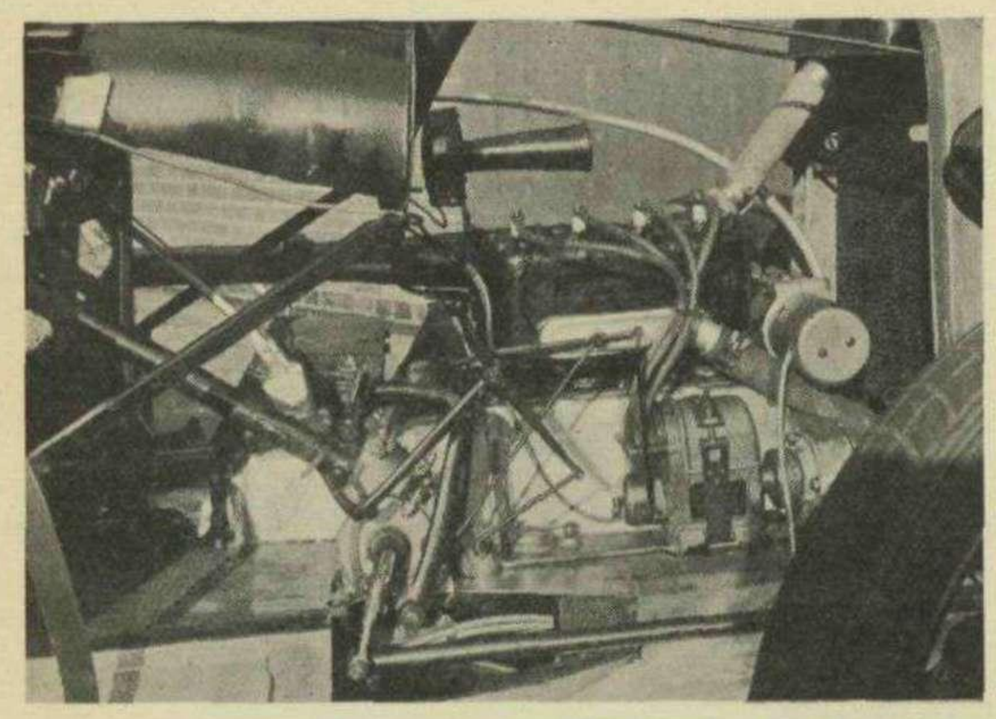
SPORTING CARS ON ROAD AND TRACK—continued.

The equipment includes Hartford shock absorbers, specially adapted to the springs, C.A.V. electric lighting and an A.T. revolution counter, calibrated to show miles per hour on top gear.

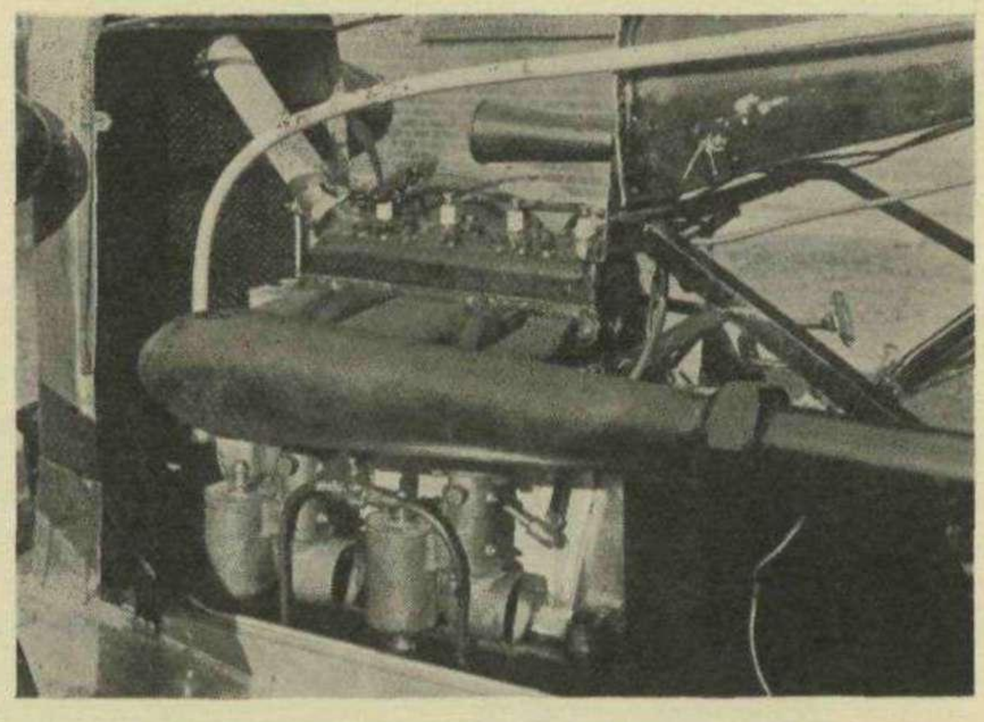
A Boyce motor-meter is included as standard and the spare wheel is carried in a very ingenious manner in the tail, being readily accessible by the removal of the streamlined cover which projects a few inches above the top of the body. Plenty of luggage room is available behind the seat squabs and another feature of the body construction is four sliding panels, giving access to the brake adjustment and regulators for shock absorbers.

The engine capacity being only 747.5 cubic centimetres, qualifies the car for all sporting events in the 750 c.c. category, and as each example is sold with a "Brooklands" certificate of 75 miles per hour, it may be taken that there is every reason for expecting a track speed of at least 80 miles per hour after the necessary amount of running in.

The price of the machine in racing trim is £265, and a hood screen and wings can be fitted as extras if desired, though these take nearly 10 m.p.h. off the maximum speed.



CLOSE-UP OF BROOKLANDS MODEL AUSTIN SEVEN.



TWO ZENITH CARBURETTORS ARE FITTED TO THE AUSTIN.

NORTH LONDON M.C.C.

Prof. A. M. Low presided over the fifth annual dinner, a large party of members and guests were present.

Professor Low spoke of the amenities of club life and the excellent record of the club in particular. He quoted as an example the London rally of motorists, held each Whit Monday, which attracted over 1,200 enthusiasts to the Alexandra Palace last June.

Mr. Alan W. Day, the hon. secretary, stated that the 1924 season had been spoiled to a great extent by the continued bad weather, and that several of the more important events had been cancelled. He dwelt upon the inadvisability of the formation of numerous local clubs, a direction in which there has been considerable activity in the past few months, and pointed out that the best interests of the sport as a whole were not served by a multitude of small organisations who could never run events on a large scale and who rarely survived beyond their first season. During the past three years no fewer than eight local clubs have been formed in North and North West London, seven of which are now defunct.

The various trophies and awards secured during the season were distributed, and special mention was made of the handsome Ivison Cup, presented each year by Mr. A. J. M. Ivison, vice-president, and of the Cuffe Cup, given annually by Mr. G. E. Cuffe, the late trials organiser, who is now in Assam.

The Bentley Range of Models.

As the Bentley Speed Model has achieved a world-wide reputation, one is rather too ready to think of the name in connection with sporting machines alone. The Bentley range of models includes all types, such as the two-seater, the four-five seater tourer and saloons, these various models being suitable for motorists other than the racing and sporting owner.

Bradshaw Engines.

We have received from James Walmsley & Co. (Preston), Ltd., Frank Street, Preston, an interesting booklet giving full details of the 350 c.c. overhead-valve Bradshaw engine. We understand that readers desirous of obtaining a copy can do so if they apply to Walmsleys, mentioning The BROOKLANDS GAZETTE, and enclosing stamps for postage.

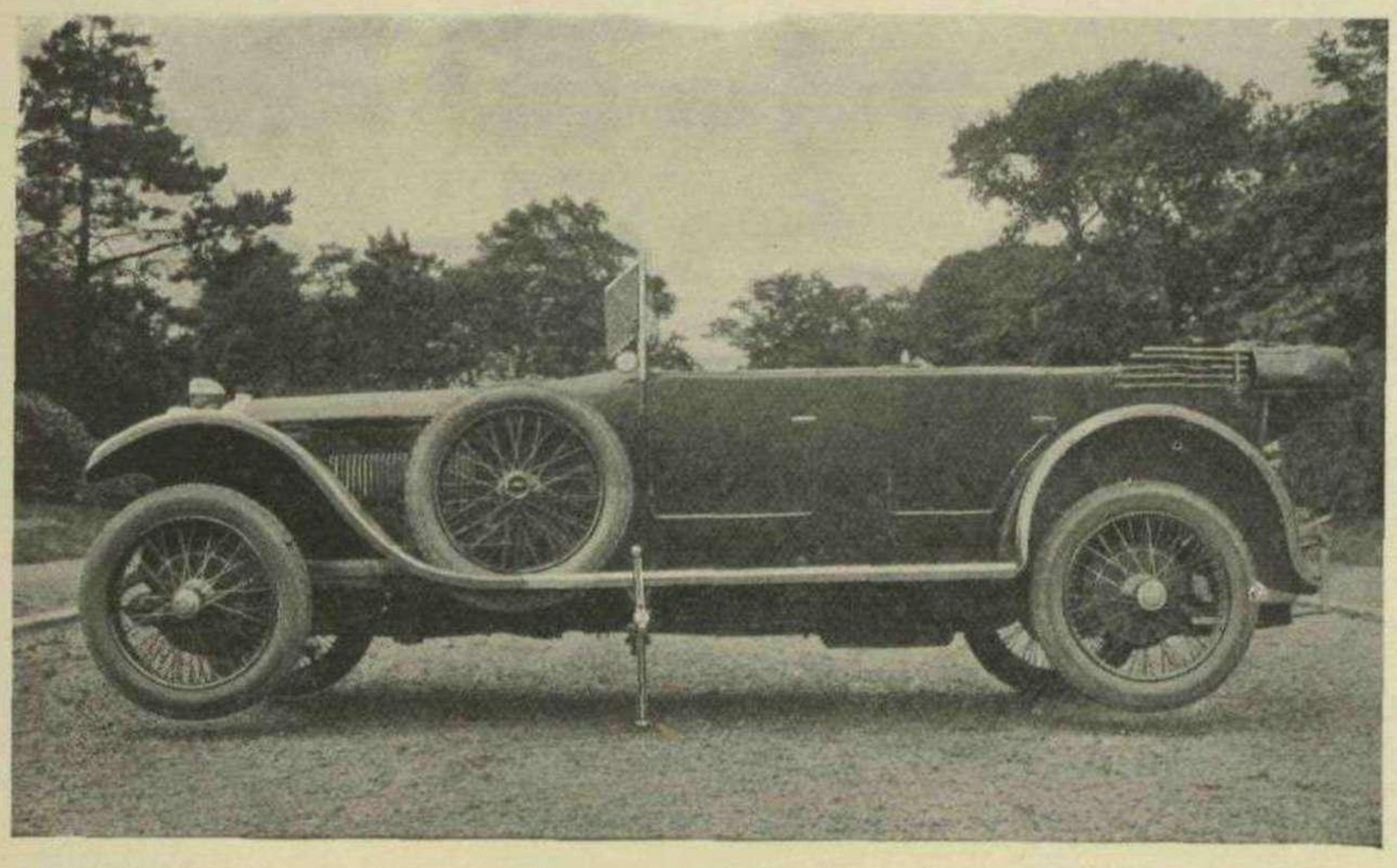
M.C.C. Souvenir.

The Motor Cycling Club is issuing an artistically designed Souvenir to past and present members of the Club who have gained Gold Medals in any London-Edinburgh Run. It is 2½ in. in diameter, enamelled in two colours, and costs 10/–.

Application for the Souvenir should be made to the Captain of the Club, Mr. W. H. Wells, Moss Hall Lodge, North Finchley, N. 12.

SOLVING THE WHEEL CHANGING PROBLEM.

How to Save Time in Competition Work.



By the Aid of the Stevenson Jacking System Cars can be Raised for Wheel Changing in Less Than Thirty Seconds.

THERE are few competition drivers, who at some time or other have not suffered inconvenience and delay when endeavouring to raise the wheels of their cars for the purpose of effecting changes necessitated by punctures. In such hurried operations the jack is almost invariably to be found in the wrong place, the handle succeeds in becoming wedged beneath tools, and other irritating factors, too numerous to mention, are apt to harass the driver who wants to change a wheel in the minimum of time.

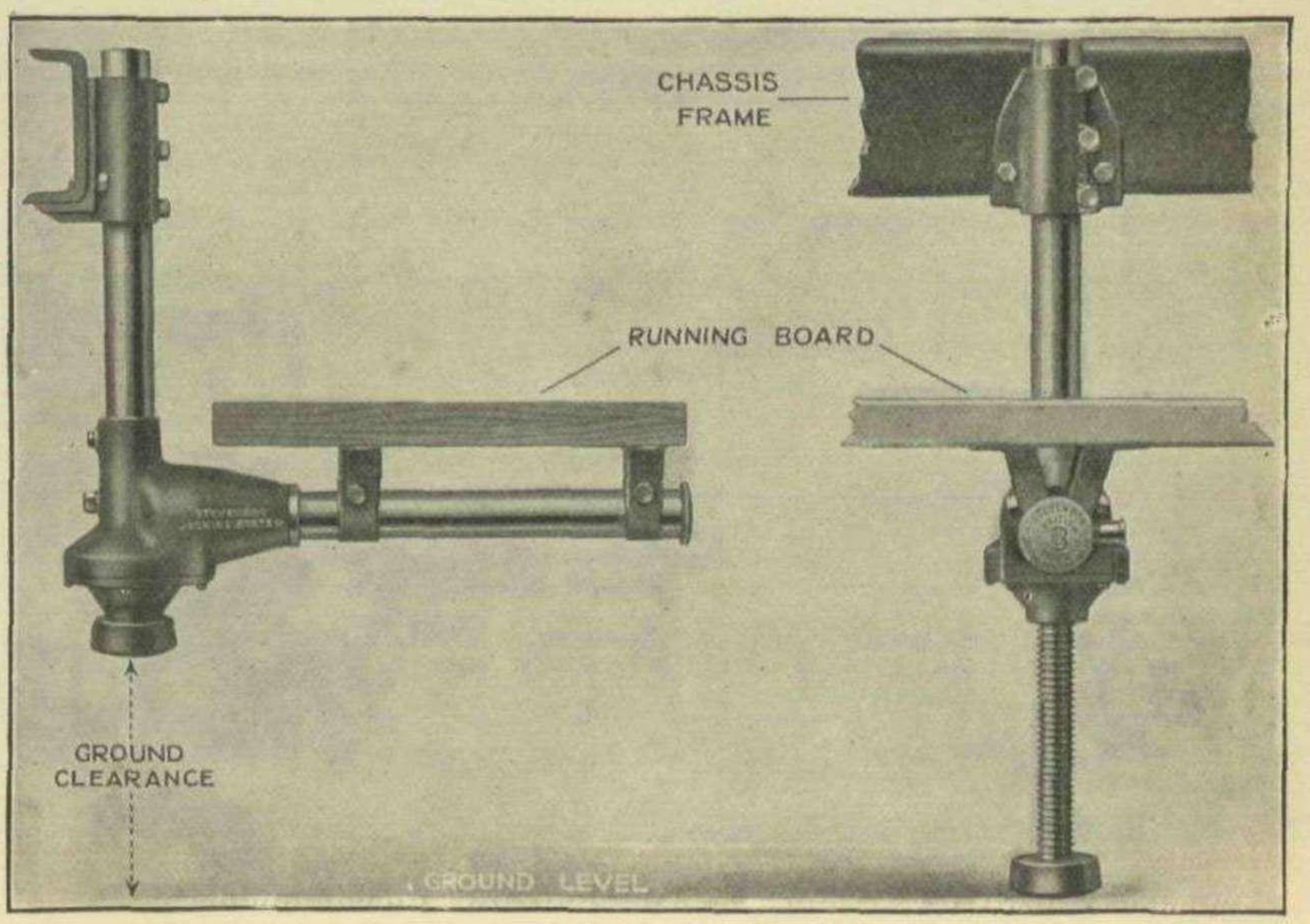
All these points have evidently occupied the attention of the designer and manufacturers of the Stevenson Jacking System, the main features of which are shown in the accompanying illustrations.

Briefly described, the system comprises two brackets, permanently fixed to the side members of the chassis, approximately at a point equidistant from the two axles. These brackets form the support for the screw mechanism of the jack, which is operated from the edge of the running board by a shaft enclosed in a second tubular support. The handle used for raising the car is detachable and the hole in which it fits has a removable cap, so as to exclude dust, water or mud from the mechanism.

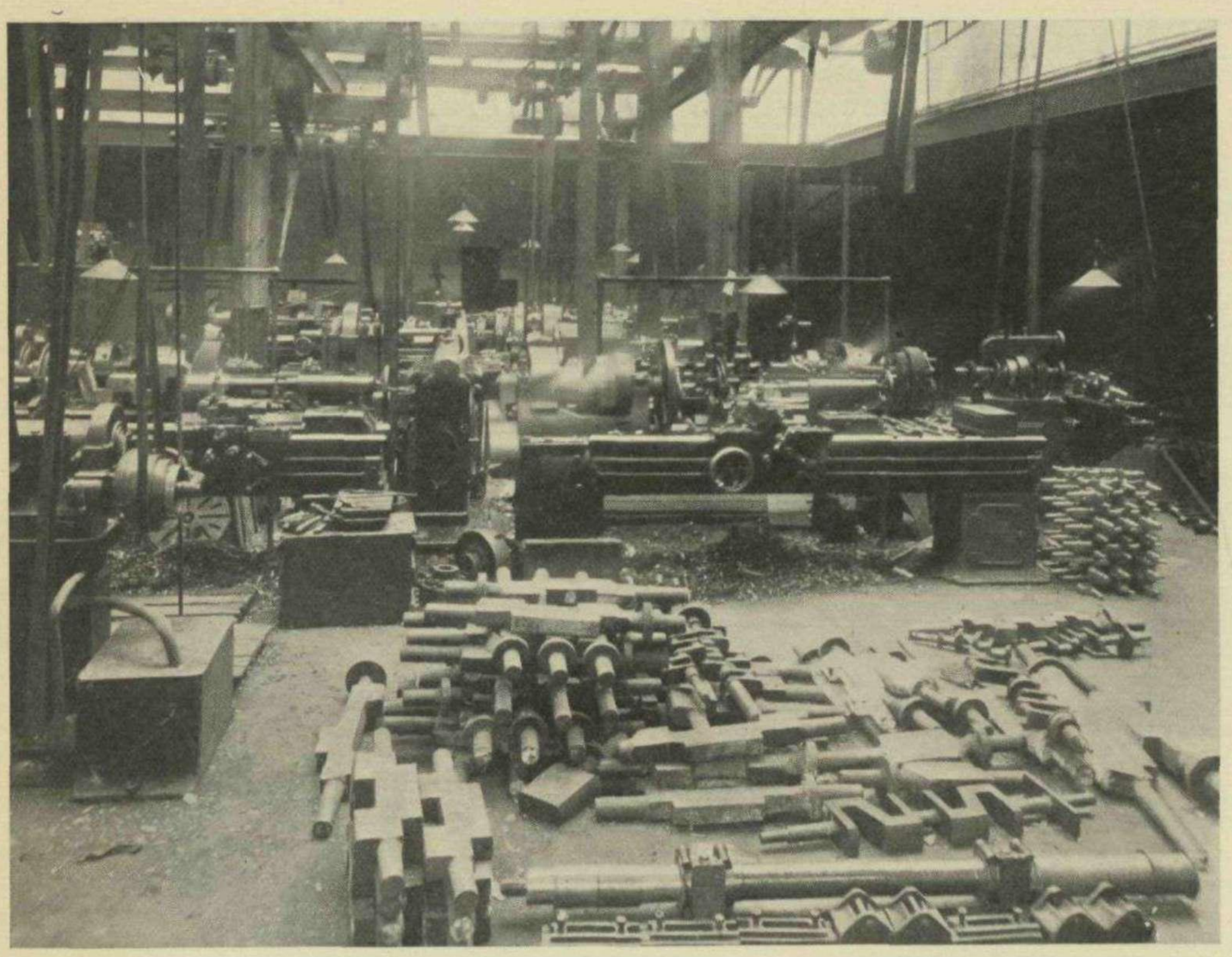
The jacks are made with various lengths of lift to suit different makes of cars, and the operating shaft, with its housing, is supplied in any length to suit the varying widths of running boards. Seven-and-a-half inches is found to be the correct ground clearance in the majority of cases, but this can be regulated as required to meet individual needs. In the case of a car with cantilever springs, it may be necessary to link the axle to the chassis by specially designed flexible straps, which do not interfere with the normal operation of the road springs.

The system was invented about sixteen months ago by Mr. J. F. Stevenson, of Belfast, who is well known in the motor trade, and although it has only been on the market for some seven or eight months, approximately two thousand systems have been fitted to motor cars.

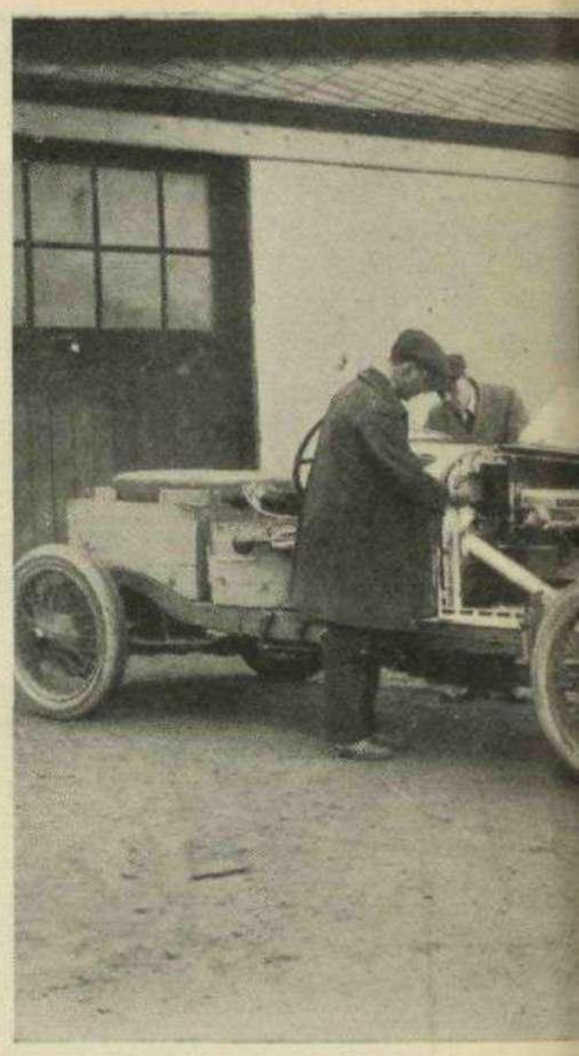
This very convenient method of jacking, therefore, has long passed the experimental stage, and prior to its being submitted to the public was tested on a car weighing over 30 cwt., which was raised well over five thousand times in all conditions of roads and weather. The Stevenson Jacking System is a product of The British Tool and Engineering Co., Ltd., of Wolverhampton, and appears to be well worthy of the careful consideration of all motorists.



Showing the Constructional Features of the Stevenson Jacking System.

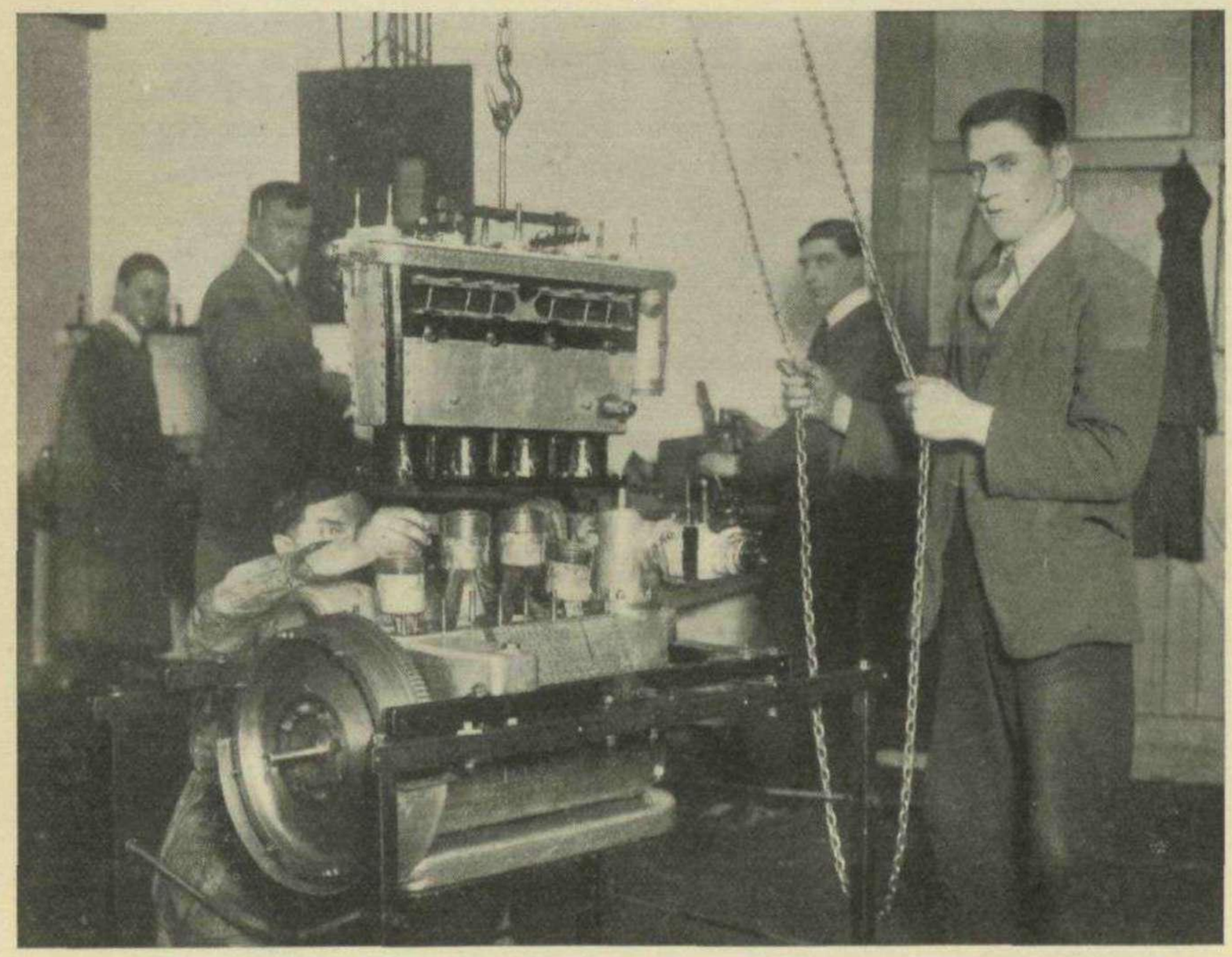


THE LAYSTALL PLANT INCLUDES MACHINES FOR MAKING OR REPAIRING CRANKS.



FINAL ADJUSTMENTS TO

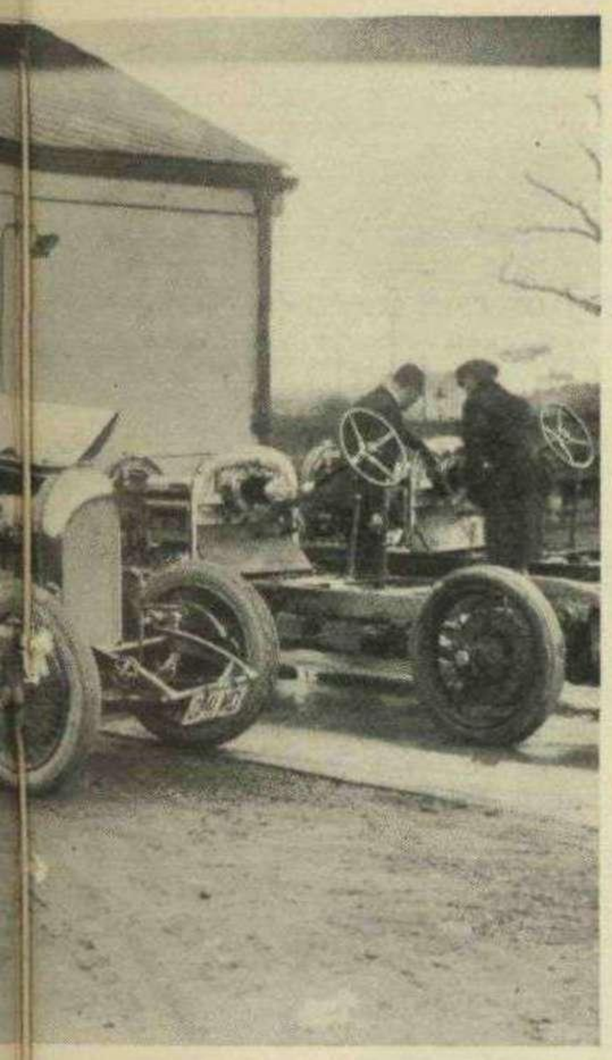
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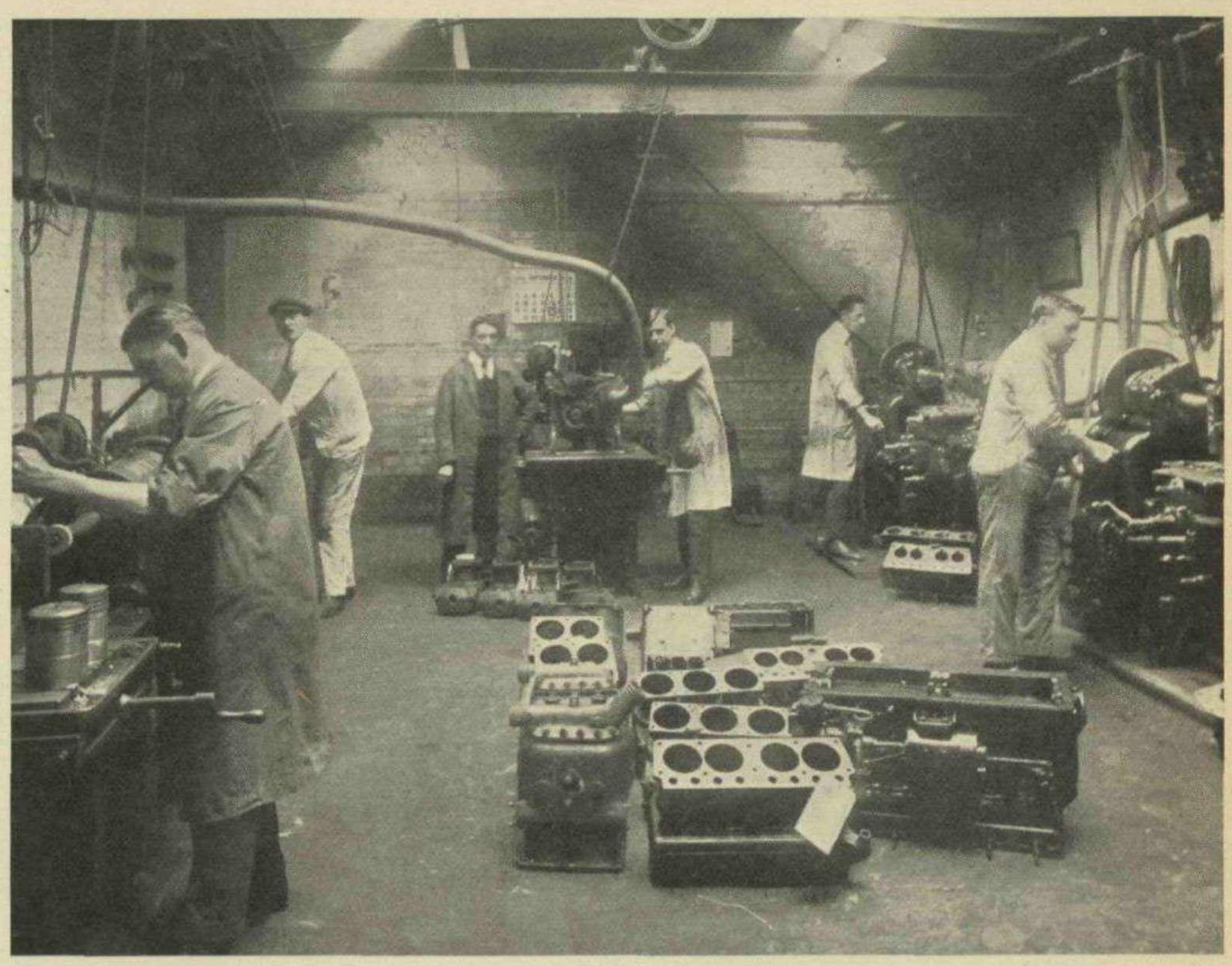
LOWERING A BENTLEY CYLINDER BLOCK. NOTE THE RING-RETAINING SLEEVES.



SCHOLARS FROM HIGH WYCOMBE G



A Bentley Sports Chassis.

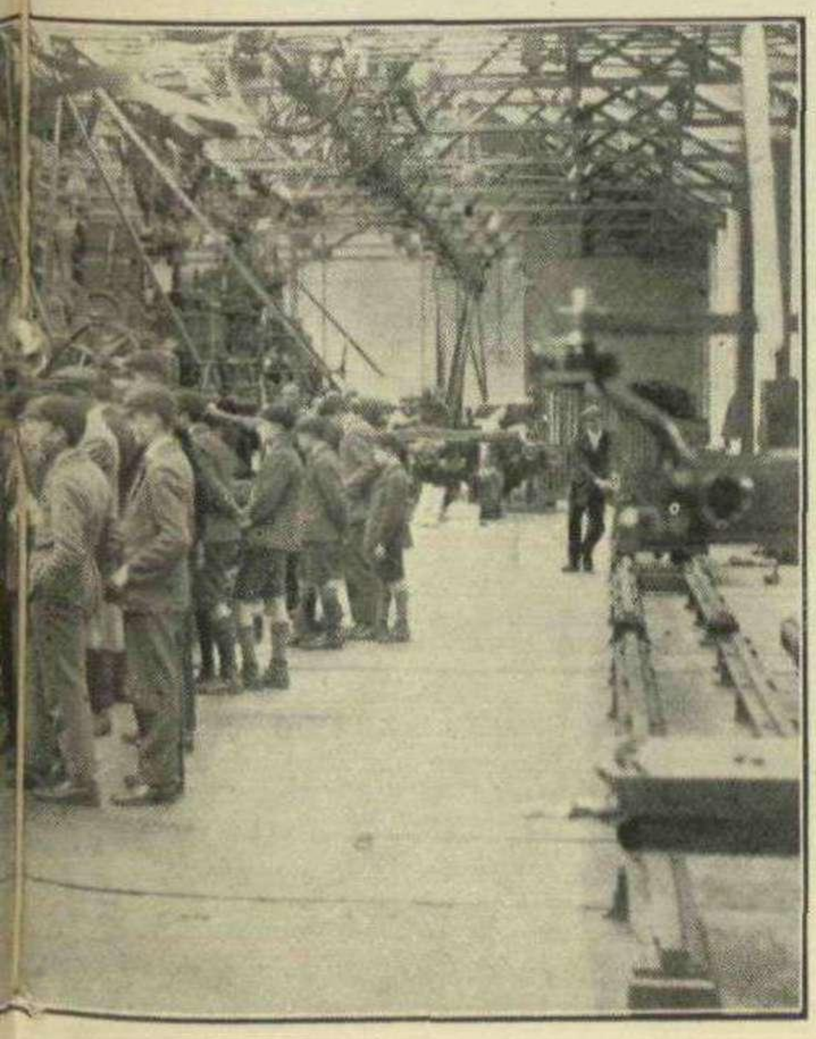


A Batch of Oval Cylinders Being Re-ground at the Laystall Shops.

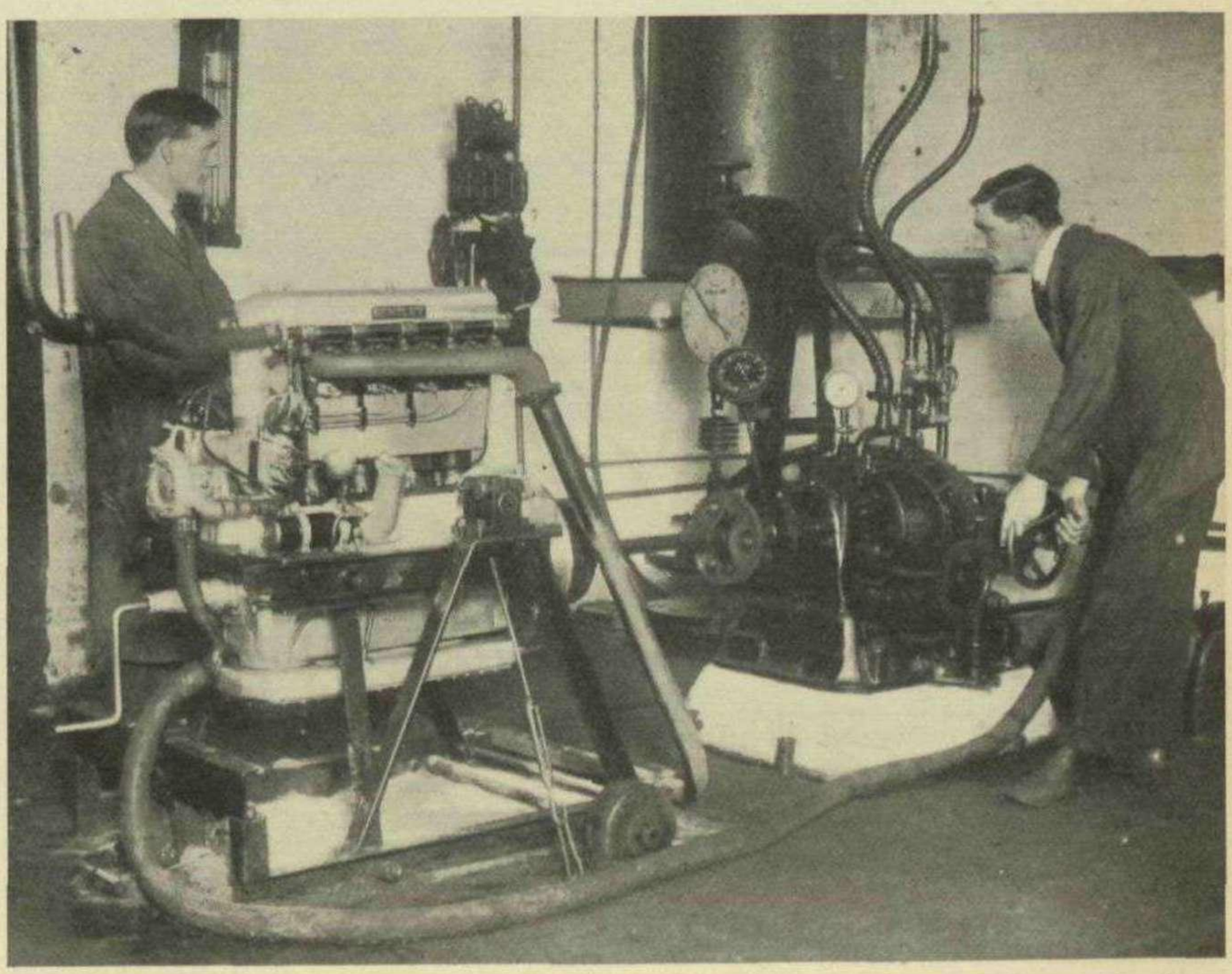
RATIONS

925 SEASON

AFTER.



mmar School at the Cubitt Works.



This Dynamometer Tells the Tester When a Bentley Engine is O.K.

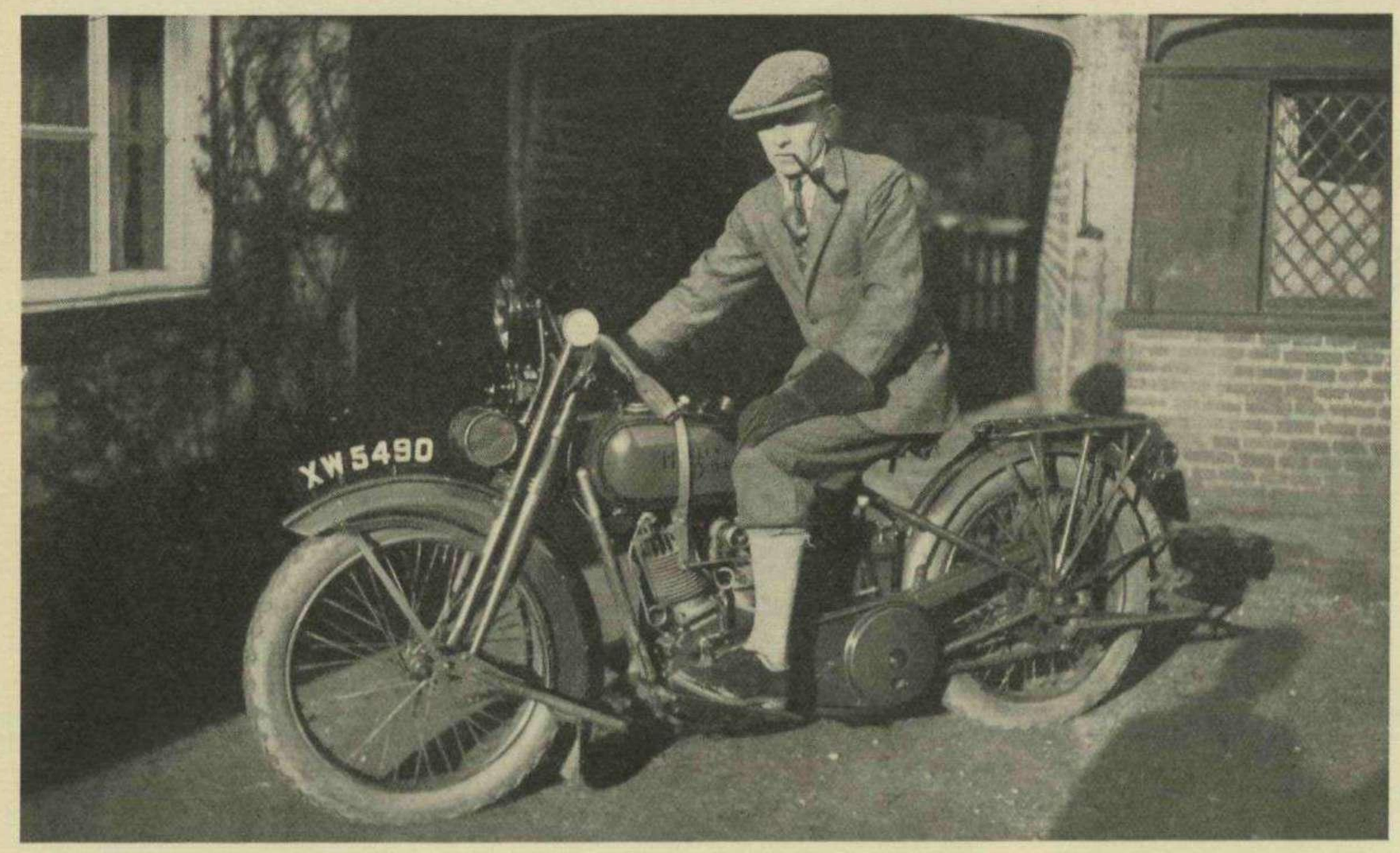
SPORTS MACHINES ON TEST.

A RUN ON A 1925 989 c.c. HARLEY-DAVIDSON.

By "OPEN THROTTLE Junior."

A GLORIOUS winter morning, the call of the road, a Harley-Davisdon—and that's life; at least so it appeared to me the other day, when I took one of the new 1925 models out on test.

In such circumstances one finds it difficult to get down to drab technicalities, but stern duty calls and therefore I will try to get over the business part of the description as quickly as possible in order to recount some of my road experiences on this ultra-sporty machine. Possibly that description is not altogether accurate, for from a business point of view the powerful twin has distinct possibilities, and I can well imagine people in various occupations, who find such a machine of the greatest value as an aid to business activities.



THE 1925 HARLEY-DAVIDSON IS FULLY EQUIPPED AND STURDILY CONSTRUCTED.

The machine chosen for the test was one of the solo type, which, fitted with battery ignition and electric lighting, is known as the "Electric" Model, to distinguish it from the other model, which has a magneto and acetylene lighting.

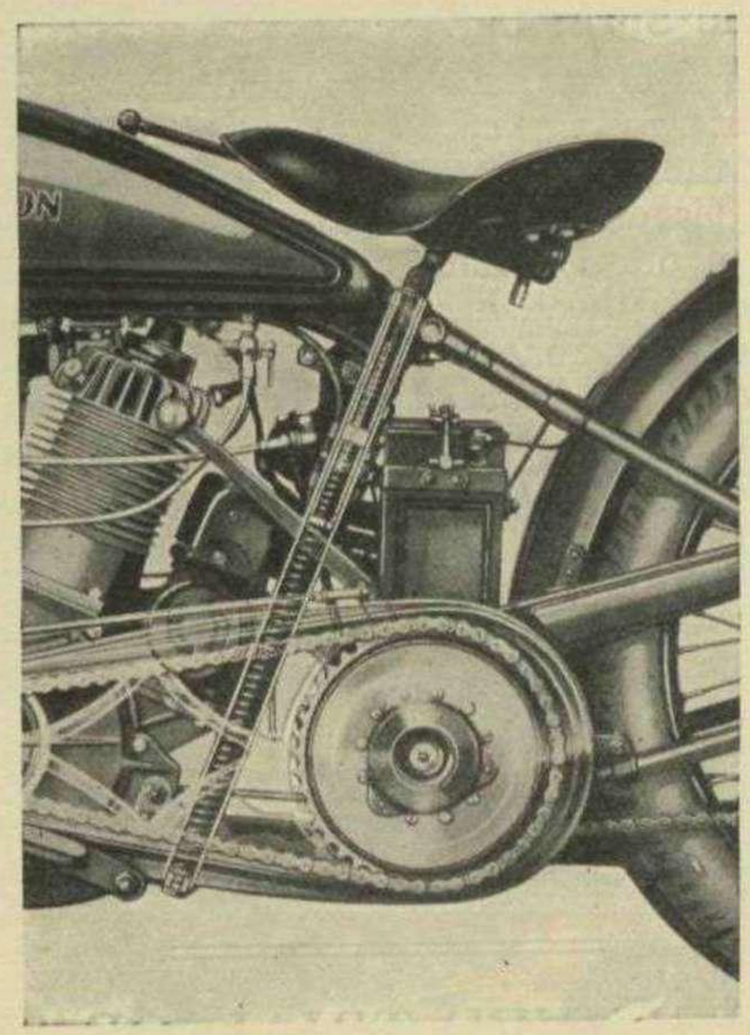
A Test in Congested Traffic.

The first part of my test run took me along Great Portland Street, and in making my way through this motor-infested thoroughfare, I arrived at an unfavourable conclusion with regard to the position of the clutch operating pedal. At first it seemed as if a spare foot would be needed, as the other one might be wanted for the brake in the absence of a handlebar lever. To be quite candid, the idea of balancing myself on the saddle alone without the steadying influence of one foot, did not strike me as being particularly attractive. These, mark you, were my first impressions, but being entitled to change my mind, I modified the opinion later, when it was proved that the virtues of the clutch had been underestimated.

That clutch had certainly cultivated engaging ways and a sweetness of operation withal, which permitted any amount of slipping. Although the clutch pedal has a large range of movement, only about ten degrees of the total arc through which the lever passes, is necessary for engagement or release, and furthermore, it can be adjusted for traffic work, so that the machine will move forward slowly on releasing the brake.

Nevertheless, be it noted, my early views were only modified and not entirely reversed, for I still feel, after having run the machine for a couple of days on very rough routes, that a handlebar clutch lever would be desirable. It may be that American riders do not cultivate the same kind of competitions we do at home, but for such climbs as the Camberley Club promote, it seems that a different, or at least an additional control would be a considerable improvement. That, however, is my personal opinion and I would not go so far as to say everyone should think the same. For sidecar work and ordinary touring the normal pedal control for the clutch leaves nothing to be desired and certainly permits of very quiet and rapid gear changing.

A RUN ON A 989 c.c. HARLEY-DAVIDSON—continued.



SHOWING ARRANGEMENT OF SEAT PILLAR.

Foot Rests or Foot Boards?

The only other criticism, before starting on the pleasant duty of describing the virtues of the Harley-Davidson, concerns the design of the footboards. The machine is naturally capable of very high speeds, with the result that, at speed, one's feet are a little inclined to slide towards the ends of the footboards. This, again, is purely a matter of personal preference, and in fact, if a ballot were to be taken, it is probable that the well-known collapsible footboards would head the poll.

Having ridden for some thousands of miles on a Harley-Davisdon of an earlier date, I was taken by surprise at the increased comfort of the new model. This, of course, is due to a slight modification in frame construction; which, together with a semi-sports handlebar and pillar sprung seat, gives a position defying the criticism of the most fastidious of riders.

Then the new saddle itself is quite an improvement, its shape being readily observed from the illustrations. Without going into anatomical details, to prove how it fits as it should, the saddle is as different from the ordinary flat type, as the cowboys saddle differs from an English hunting saddle. Those cowpuncher chaps *can* stick to their steeds and the shape of the Harley-Davidson saddle gives some little idea as to how it is done.

To get the full benefit from the saddle spring, however, it is better to put one's full weight on to the saddle in order to avoid bouncing. (Mem.—Would Hartfords effect an improvement in this direction).

An Unchanged Power Unit.

The engine is practically the same in design as that used for last year's machine, but it certainly runs rather more quietly and even at low speeds, the suggestion of the enormous power available inspires the rider with a feeling of absolute confidence.

The bore and stroke of the cylinders 84.1 mm. and 88.0 mm. respectively, which—as the technical scribe would say—gives a total capacity of 989 cubic centimetres. As in previous models, the inlet valves are located over the exhaust valves and are operated by push rods from the cam gear in the timing case, where the mechanical pump is also situated.

The latter is of excellent design; but all the same, nothing is left to chance with the oiling system. The makers know the little habits of the sports rider, and so unassumingly mount an extra hand pump on the tank, by means of which additional supplies of oil can be forced into the engine as required.

We have many good carburettors in this country, but one has to admit that the Schebler possesses more than mere talking points. This carburettor is of the single lever type, with three adjustments for regulating the strength of the mixture, its quality and for adjusting the setting to suit varying atmospheric conditions. All these adjustments can be done without pulling the carburettor to pieces; in fact, the ease of regulating the various settings almost tempts one to make more alterations than are actually necessary. The throttle is controlled by a twist grip on the handle bar and with the slow running setting, the engine ticks over very quietly. On opening up, when running on second gear, the acceleration is instantaneous and progressive.

It was good to be back on a machine with handle bar twist grips, for apart from the ease of control, the clear handlebar leaves one's attention free to concentrate on the road ahead and is specially useful in surmounting hills with bad surfaces; for in such cases it needs all one's attention to keep from falling off. Readers will know that this applies to any make of machine, and so the remark will not be taken as a criticism.



A "PHANTOM" PHOTO SHOWING SPRING FORKS.

A RUN ON A 989 c.c. HARLEY-DAVIDSON—continued.

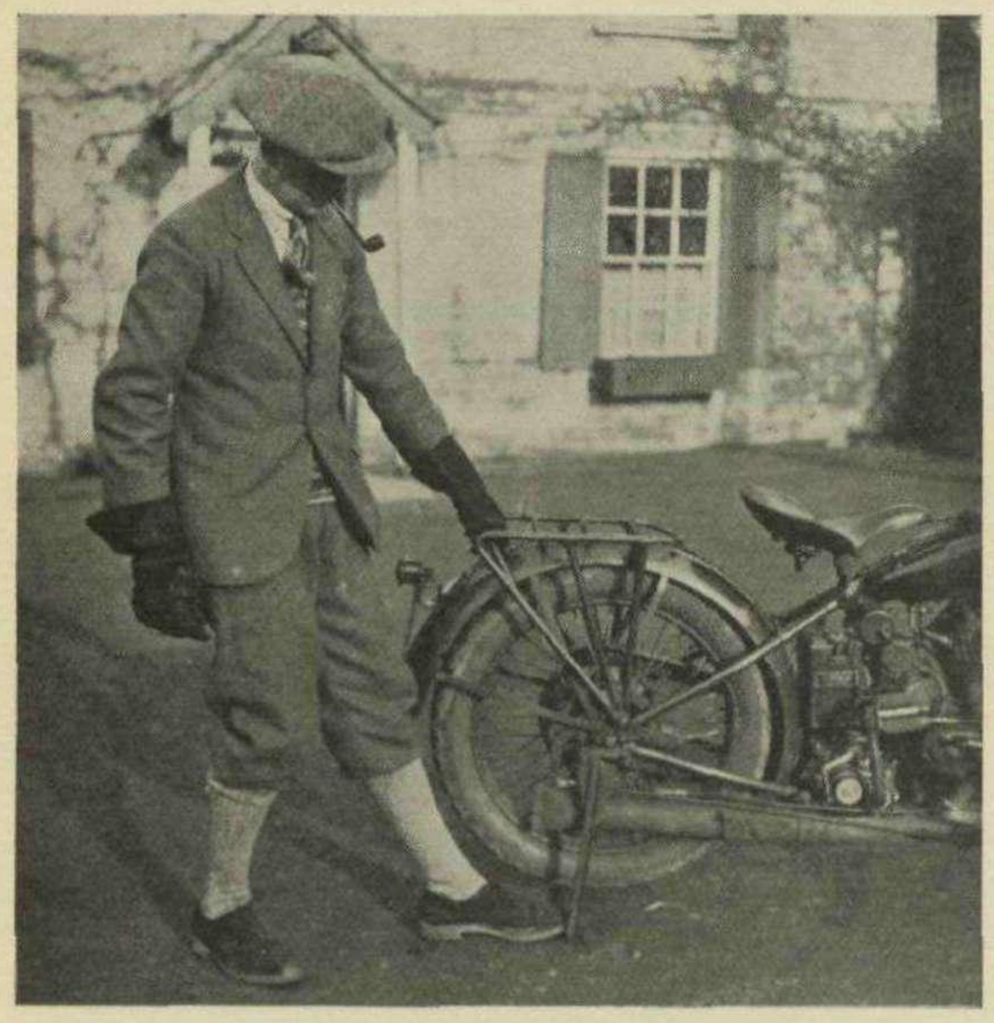
A Convenient Rear Stand.

From the photograph reproduced on this page, one will observe how small an amount of energy is necessary to raise the heavy machine on to its stand. This is partly due to the good design of the stand itself, and also to the fact that the wheel is only raised three inches off the ground when the stand is in use. The shape of the carrier and back forks may also be seen from the same illustration as well as the new exhaust pipe, which is remarkably efficient. One notices, too, the neat and accessible position of the battery and the adjacent dynamo and switch.

Though quite unobtrusive, the new design of tank holds four gallons of petrol, this feature being influenced by the demand for the machine in the colonial markets, where supplies of petrol are often few and far between.

It is quite interesting to notice that the Harley-Davidson Company have returned to battery ignition on this model, especially at a time when car manufacturers are inclined to discard it altogether, or else to fit the system as an alternative means of ignition to the magneto. The advantages of battery ignition on a motor cycle intended to be supplied with electric lighting in any case are obvious. It dispenses with the use of a separate dynamo or some combination of dynamo and magneto, the former being somewhat of an eyesore and the latter a troublesome inconvenience, which absorbs an extra percentage of the engine power. The battery system provides a good spark at all engine speeds which renders starting a very simple operation and nothing extra is needed to supply the lamps with current.

On the other hand, one has to be careful not to discharge the battery by carelessness, to avoid which a trembler emits a warning to remind the rider to switch off the current.



THE REAR WHEEL MAY BE RAISED WITH BUT VERY LITTLE EXERTION.

Forks and Springing.

The front forks have been unaltered save for the addition of two large springs mounted behind the metal tool case, these only coming into action when a "super pot-hole" is encountered and are really unnecessary on most of our English roads.—(Optimist! ED.)

The steering head has generous dimensions and the steering evokes none but favourable comments. I do not know the exact speed reached during my test run, but at the fastest rate attained it was quite easy to ride "hands off" without the slightest apprehension. I am told the maximum speed is somewhere about 85 miles an hour, and from what I noticed of the accelerating qualities of the machine, this estimate does not appear to be much too high.

* * * * *

(That concludes our official new summary of the Harley-Davidson. "Open Throttle Junior" now closing down. Good night, everybody).

AN OBSERVED TRIAL OF SPARE PARTS SERVICE.

The Auto-Cycle Union has recently completed a test of the spare part service of Messrs. B.S.A. Cycles, Ltd. All the component parts necessary to build up a complete 350 c.c. Model "L" B.S.A. motor bicycle were obtained from stockists at fourteen different points in England and Wales. The components were ordered locally by the Union's representatives, in accordance with the B.S.A. Spare Parts List, no intimation being given by them that their orders differed in any way from an ordinary retail transaction.

44.11 per cent. of the parts were supplied over the counter at the time of the order being placed.

15.73 per cent. of the parts were supplied within twenty-four hours of the order being placed.

34.42 per cent. of the parts were supplied within forty-eight hours of the order being placed.

5.74 per cent. of the parts were supplied within seventy-two hours of the order being placed.

2.67 per cent. of the parts supplied were, after delivery, found not to be in accordance with the specification of the motor bicycle, and were accordingly exchanged for the correct parts.

The various parts were conveyed to the A.C.U. offices in London, where they were built up into the complete motor bicycle by three assemblers; the time occupied being 4 hours 44 minutes, only hand tools being used.

After assembly the motor bicycle was driven over a course of 104 miles in length, including such hills as Succombs, Biggin, Cudham, Pebblecombe, and Reigate, no difficulty being experienced in ascending any of them. There were no involuntary stops during the road test, and the only adjustment made was to the clutch operating lever. This was slackened off to allow for the bedding down of the clutch plates, the time occupied in making the adjustment being 50 seconds.

THE LUBRICATION OF HIGH EFFICIENCY ENGINES.

AS the term "high efficiency" applies to most modern engines it is perhaps as well to point out that these notes refer mainly to such engines as may be used for road and track racing, hill climbing, reliability trials and general sports purposes. It is proposed to discuss the matter under these heads, since, with various tasks, different grades of oil can be used in the same engine to some advantage.

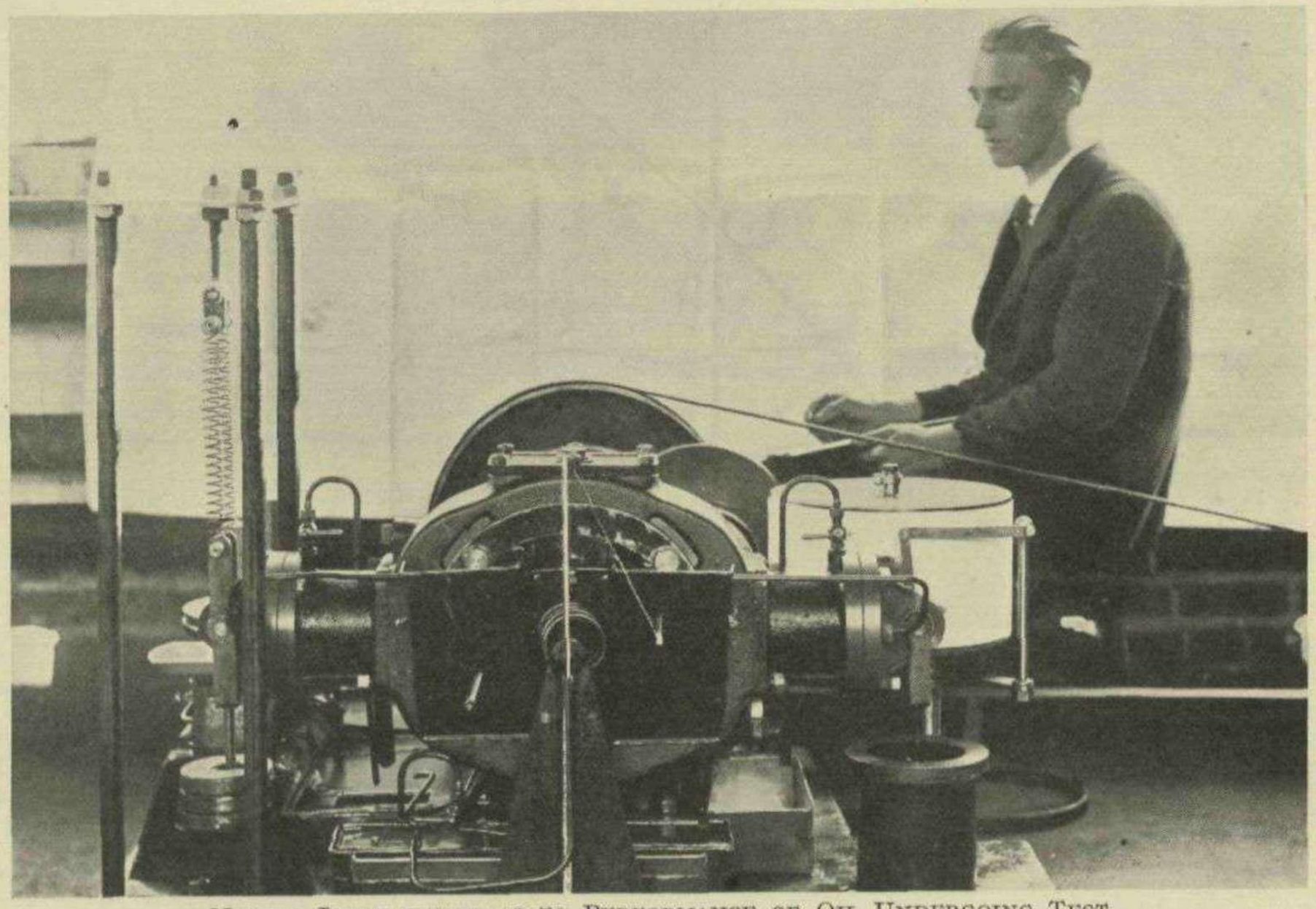
Road and track racing make very similar demands upon a lubricant, except in the case of short runs comprising the usual Brooklands meetings—practically all the work is done on full throttle, and the oil becomes extremely hot, it is therefore necessary to use a lubricant which when heated still possesses a high lubricating value, and remains sufficiently tenacious or viscous to resist those forces tending to eject it from the engine (so setting up a high oil consumption) and to enable the oil pumps to maintain a reasonable efficiency.

Castor oil was long ago found to possess these qualities and was adopted for use in many of the early air-cooled aviation engines, it was also known to resist the tendency of an air-cooled engine, overheated by much full throttle, to seize up and, in addition, was reported to remain fairly fluid at low temperatures.

These appear to be the reasons which brought about the use of castor oil as an engine lubricant, but the feeling is now growing among engineers that its general use to-day in racing car engines may be due to custom rather than the lack of possible alternatives.

In addition to lubrication, an equally important duty imposed upon oil is that of cooling, and a very large quantity of heat which would otherwise cause serious trouble is removed from pistons and bearings by the oil. Thus, any racing machine should be designed to carry an adequate amount of properly cooled oil.

At present we have very few oils from which to make a selection for racing purposes, and probably nine-tenths of all racing machines are run on some form of castor or castor compounded oil, the remainder using some form of mineral distillate braced up with animal and vegetable fat.



NOTING INFORMATION AS TO PERFORMANCE OF OIL UNDERGOING TEST.

In actual running these castor oils give very little trouble; the after-effects, such as dirtiness, gumminess when cold, and carbon deposit, being the main objections to their use—these are very real objections too, and effectually preclude the use of the oil for touring purposes.

Dried or semi-burnt castor is extremely tenacious, and sparking plugs once oiled up on this lubricant can seldom be cleaned.

Unless an engine be used solely for racing and is constantly being stripped down, castor oil is best avoided.

Probably the limited amount of oil used by the racing fraternity does not justify the production of an alternative, especially as racing oils are seldom bought, but the general public might very well be impressed by an ordinary lubricant which was proved on the race track.

THE LUBRICATION OF HIGH EFFICIENCY ENGINES—continued.

Therefore, for long distance racing, no particular advice can be given as to the selection of a lubricant, but attention is again directed to the necessity of carrying an adequate amount of oil and of providing means of cooling.

The bulk of the oil in a racing machine soon attains a temperature of 120° F. and then rises to about 160° F., as a general rule. In aviation 130° F. is regarded as the correct temperature to be maintained.

Short track races and hill climbs present somewhat different conditions, for very slightly increased accelerations may mean everything and oil consumption is not a factor to be reckoned with, it is therefore permissible to use a thinner oil and thus add to the mechanical efficiency of the engine by reducing the friction losses caused by using thick or sticky oils such as heavy castor compounds.

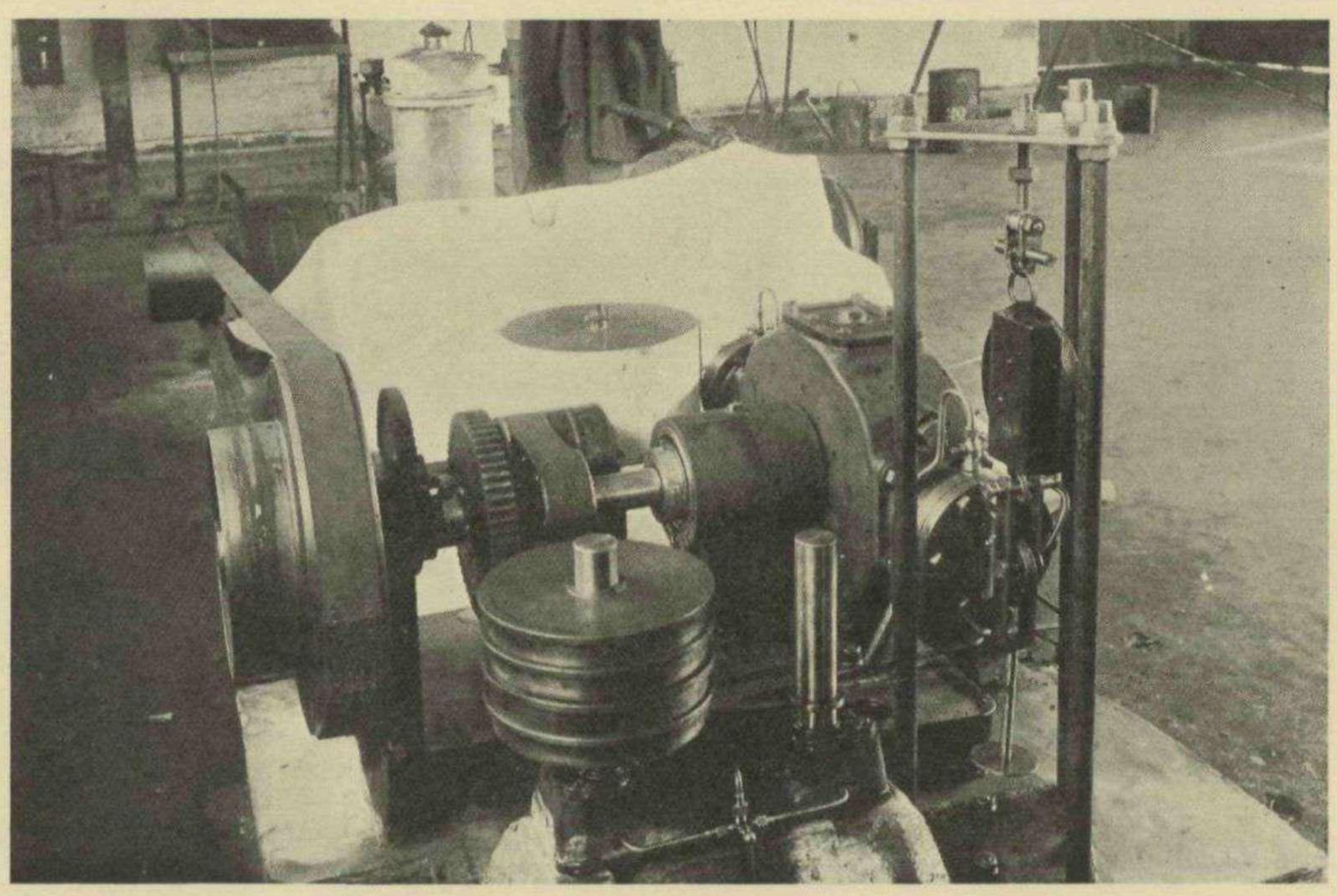
A thin, but extremely durable oil has been produced by one of the great oil companies, and is now on the market.

Experiments with this oil showed that Brooklands lap times might be improved by a second or more merely by changing to the thinner oil, and this confirmed increased power readings noted on the test bench. It was also shown this oil would stand up to its work at least as well as castor, this being proved by a success in a long road race. The only objection to the general use of such an oil for racing is that a " sloppy " engine or one with external oil leaks will suffer from a very high oil consumption—" consumption " perhaps being a misnomer, since " waste " would be a more accurate description.

For reliability trials and general sports purposes, either straight mineral or slightly compounded mineral oils are advisable, and here a very wide range is available from which a selection may be made.

The thin oil previously referred to comes in the slightly compounded category.

It is unfortunate that no definite classification of automobile lubricating oils exists, neither have we any concrete method of describing the qualities found or requisite in oils—thus beyond accepting the oil maker's recommendations or making comparative running tests for himself, the engineer has little to guide him, and as in carrying out of running tests is an extremely difficult, lengthy, and expensive progress, the recommendation of the oil company is usually accepted.



Oil Testing Machine : Lubricants are Tested at a Pressure of 15,000 Lbs. per Sq. In.

Specifications of oils are, of course, used—these generally being confined to the physical characteristics of the oils and serving merely to identify them rather than to indicate their behaviour when used in an engine.

The main points of interest to be extracted from an oil specification are the figures indicating its thickness or viscosity over a temperature range of 70° F.—200° F., its cold test and the nature of the compounding agent or agents, if any.

The viscosity figures may serve to indicate how suitable the oil is in conjunction with the oil ways, method of oil distribution, oil-filters, type of pumps, and piston design, but no arbitrary judgment of the lubricating value of any oil must be made or based on its viscosity curve or even on its viscosity at any particular temperature.

THE LUBRICATION OF HIGH EFFICIENCY ENGINES—continued.

Lubricating value is not to be measured by thickness, it has something to do with an elusive quality called "oiliness," which no one has yet been able to measure or define.

Various forms of oil testing machines exist, such as the Deeley and others, and they appear to show differences in oils and their "oiliness; but, unfortunately, these differences do not appear to show up in practice, and have even been known to be reversed, in fact one famous German machine shows ordinary Kerosene to be the best lubricant!

The cold test will naturally give us some idea of the suitability of the oil for winter use and will also serve as a warning against running the engine fast before the oil has warmed up and has had time to circulate.

The nature and amount of compounding agents will show whether much carbon may be expected, and in this connection one may remark that over several years work and after innumerable tests it has been found that practically every fat used in compounding mineral oils results in an increased carbon deposit.

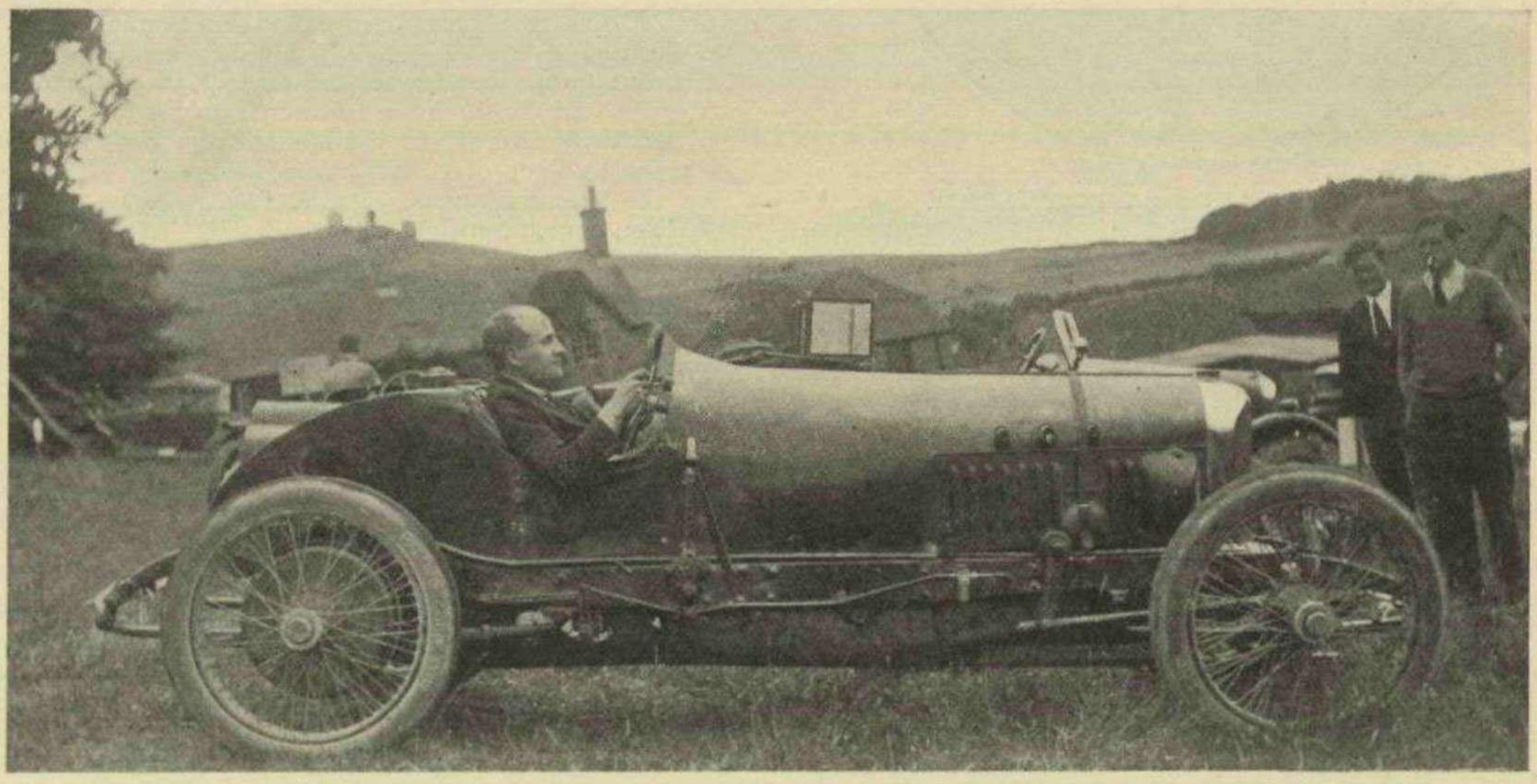
Differences in oil pressures will, of course, be noticed in using oils in different viscosities and at varying temperatures, no undue alarm need be felt if a lower oil pressure is registered with a thinner oil, the material point being to satisfy oneself that the pump is working properly, it stands to reason that less effort is required to force the same amount of thinner oil through the same passages in the same time, and therefore to note a low pressure reading on the gauge.

If the same oil flow is maintained through the bearings, it matters little whether it flows at 5 lbs. or 25 lbs. pressure and it is a fallacy to suppose that a few pounds difference in oil pressure can have any material effect in supporting say a big end loading of 400–500 lbs. per square inch.

It is, of course, possible that some oil pumps are not so efficient with a thin oil as with a thicker one, but it is not difficult to check the delivery.

Furthermore, a thin oil can even show a higher pressure than a thick one in some systems, especially where the suction side of the pump does not deal efficiently with a heavy liquid.

During the last few years an enormous amount of research work has been done in connection with motor-car lubricants, most of this work being of a pioneer nature, but there are now signs of development, and it is hoped that ere long new methods of treating mineral oils, which of course form the bulk of all lubricants, will be in vogue and that we shall be independent of such fats as lard, rape, coco-nut, palm, root-grease, castor, whale, sperm, etc., which are now used to increase lubricating value.



Dr. Benjafield on his Racing Bentley.

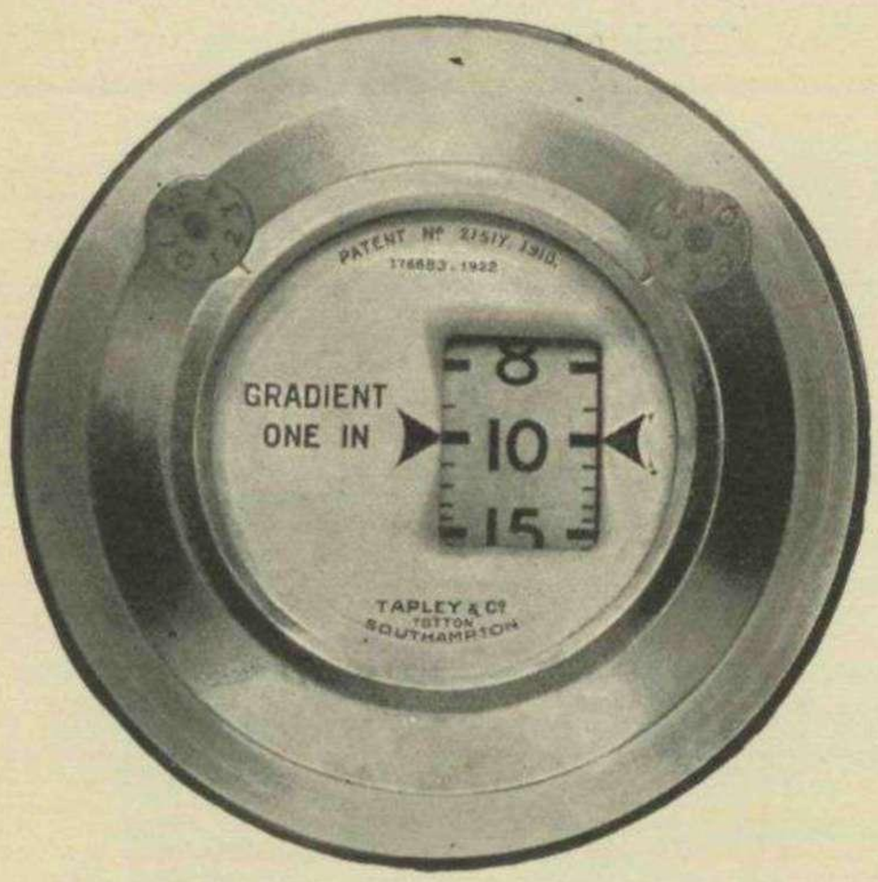
ALBERT DIVO TO RACE FOR DELAGE.

Albert Divo, the celebrated French racing driver, has been definitely engaged by Delage Company to race for them during the 1925 season. For the last four years Divo has been well to the forefront, finishing second in the Grand Prix d'Europe at Lyons. During the whole of this race he was a continual source of anxiety to Campari the winner. By his appointment Divo completes a formidable Delage trio, comprising Thomas, Divo and Benoist.

"NIFE" BATTERIES ON MOUNT EVEREST.

We learn that "Nife" batteries were used on the Mount Everest expedition for operating the cameras. They were transported across Tibet on mules, and, notwithstanding a good deal of rough usage and having to work in intense cold, their operation was most successful and the only attention the batteries required during the whole of the expedition was a change of rubber corks twice, the addition of a little water, and cleaning of the terminals.

Accessories & Components we have tested



THE NEW TAPLEY GRADIENT METER.

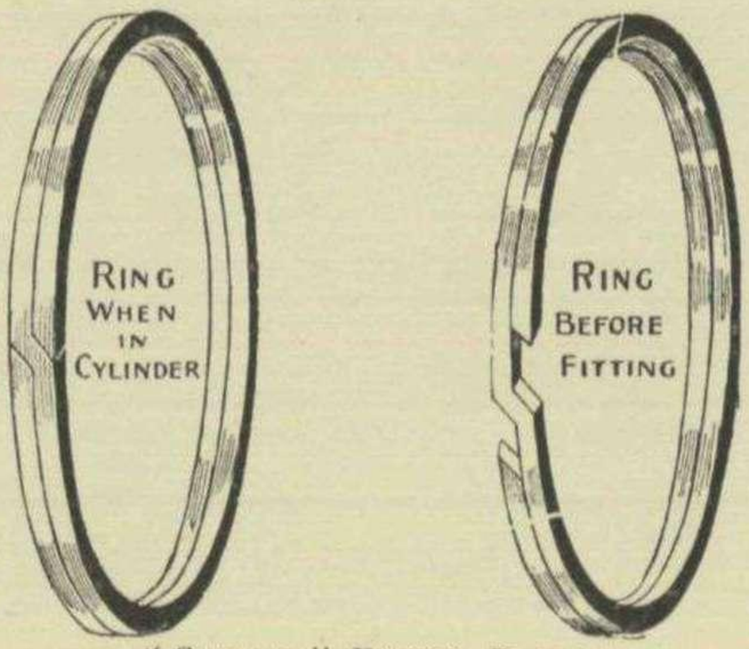
THE NEW TAPLEY GRADIENT METER.

As may be gathered from the illustration, the indications of the new instrument are seen through a window in the face of the meter, the exact gradient being shown by the figure, which is at any time opposite the pointers. The scale is divided from level to a gradient of 1 in 2½, and thus includes the determination of the worst hills encountered during the course of severe competition events.

Other improvements incorporated in the new Tapley meter are the adjustment for setting the instrument exactly level, and an arrangement whereby the sensitiveness of the indication can be regulated to suit the particular car on which the meter is fitted.

When it is stated that a variation in car pull amounting to as little as six pounds, on a car weighing a ton, can be detected on the revolving scale meter, the value of the indications in observing or improving the performance of a car is very evident.

The principle of the Tapley Gradient Meter depends upon the action of a pendulum, controlled by a magnet and enclosed in a fluid with the object of providing a steady movement, but without going deeply into the subject, it is impossible to enumerate the various advantages offered to the car owner, who takes a practical interest in road efficiency. A very useful booklet on the subject of "Intelligent Motoring" has been produced by the manufacturers, Messrs. Tapley & Co., Belvidere Works, Totton, Southampton.



"CLUPET" PISTON RINGS.

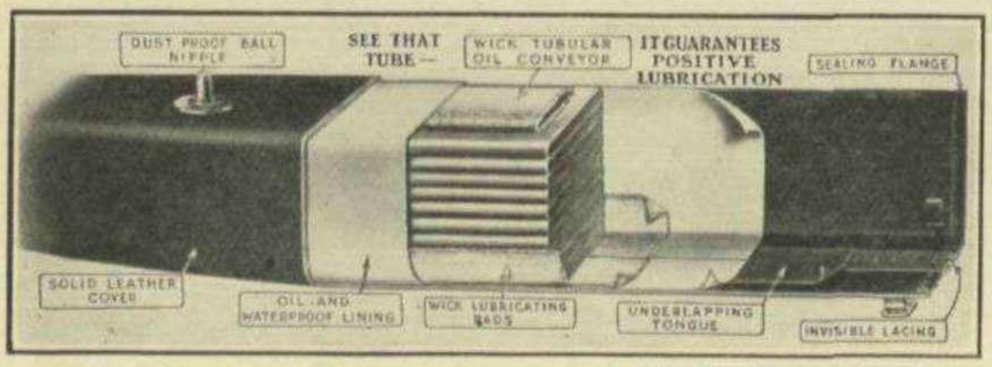
THE "CLUPET" PISTON RING.

The common troubles experienced when using faulty rings may be enumerated as follows :—(1) Weak compression and loss of power; (2) Poor acceleration; (3) Misfiring due to oily plugs; (4) Heavy oil consumption; (5) Crankcase dilution.

All these considerations have been taken into account in the design and manufacture of the "Clupet" ring, which is of very ingenious construction and is made from a single piece; not, as might be supposed on first examination, from two pieces welded together at the bridge.

The working surfaces of the ring are carefully ground, and the design allows accurate fitting, even in the case of a worn cylinder bore.

"Clupet" rings are manufactured by The Clews Peterson Piston Ring and Engineering Co., Ltd., of Mill Hill Lane, West Hampstead, N.W. 6, and are stocked in a variety of sizes, to suit all kinds of engines.



Drawing by *The Motor*.

JEAVON'S LUBRICATING SPRING GAITER.

JEAVONS SPRING GAITERS.

Unprotected springs may lead to several undesirable conditions, such as :—(1) Danger of leaf fracture; (2) Rusting between the leaves; (3) Increased tendency to side slip; (4) Squeaks due to absence of lubrication, etc.

The principle of the Jeavons Gaiter is based upon the idea of conveying a thin lubricant along suitable ducts, formed inside the gaiter, by means of a removable pressure pump. The ducts, or conveyors, are made of an oil retaining wick, and suitable pads are provided to ensure the admission of the oil between the leaves as the spring flexes.

Jeavons Lubricating Spring Gaiters are made by Messrs. Ramsdens (Halifax), Ltd., Station Works, Halifax, and a London Depot is established at 147–9, Gt. Portland Street, W. 1.

ACCESSORIES AND COMPONENTS WE HAVE TESTED--continued.

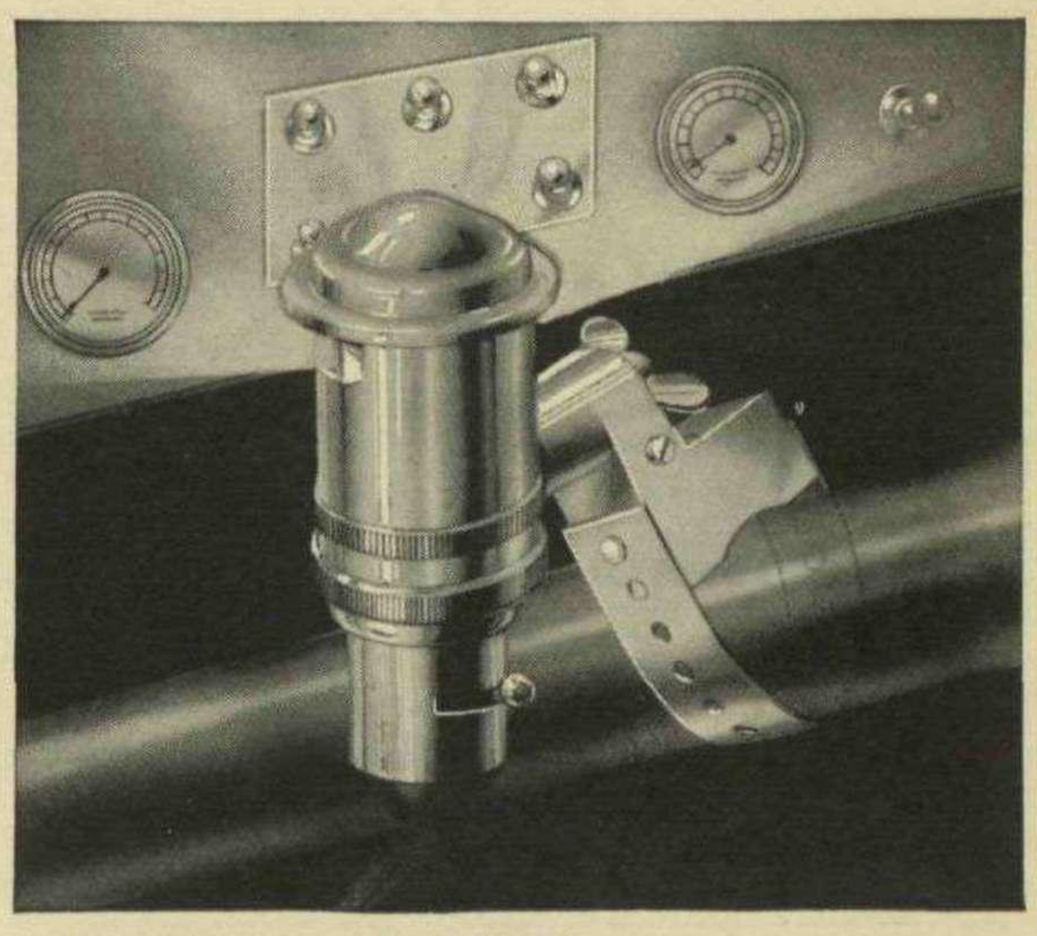
THE BARNACLITE DASH LAMP.

We have had one of these useful little fittings in service for some months, and have found it to possess virtues not usually existing in dash lamps of the ordinary pattern. As shown in the accompanying illustration, the " Barnaclite " is made for attachment to the steering column and is so designed to throw a really useful light from one end of the instrument board to the other.

Readers who have taken part in competitions involving some twenty-four hours on the road, will realise the necessity for adequate illumination of the instrument board, for one can easily become disqualified from winning a " gold " simply because in the semi-darkness it has been impossible to take an accurate reading from the speedometer. If, as is often the case with the advanced type of driver, the instrument board is liberally supplied with various indicators, the " Barnaclite " lamp is more than usually advantageous.

The lamp holder is cylindrical in shape, with an adjustable top arranged so that the beam of light can be narrow or wide as desired. Thus if one only happens to be concerned with a single instrument on the board, the rest of the space will not throw a reflection back to irritate the driver. If, on the other hand, several instruments require attention, the lamp will provide full illumination in a very effective way.

The Barnaclite is one of the useful products manufactured by A. W. Puckert, Elderline Avenue, Norbury, S.W. 16.



THE " BARNACLITE " STEERING COLUMN LAMP.

THE HARTFORD SHOCK ABSORBER & STEERING DAMPER.

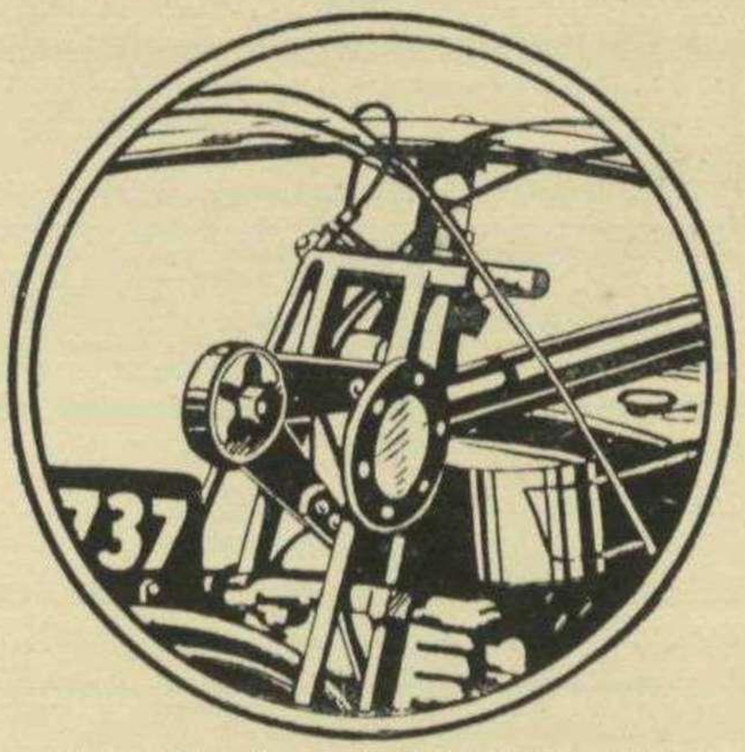
Opinions are divided as to the use of any form of spring damper on the front forks of a motor bicycle, and those who have not tried fitting them, very often ridicule the idea that they are necessary.

Hartfords not only increase the comfort and stability of the machine, but their influence on the life of the springs or spring is very noticeable. The shackles and joints of the forks and head are kept tight and the wear on the pins will be found to be negligible.

The steering damper is generally mounted on the top of the steering head, and is attached to the top tube. This has a special feature, apart from the feeling of security that it gives at all speeds, in that it permits correctly adjusted steering heads —a thing seldom in evidence except on new machines—and takes the tremendous strain generally imposed on the ball bearings and cups.

Hartfords are becoming a necessity on the track, owing to its patchy state, and the high speeds which are the order of the day, and the time is past when machines were raced with bare springs and the head screwed up almost to the danger point.

The Hartford Shock Absorber is handled by Messrs. T. B. Andre & Co., Ltd., of 5, Dering Street, W. 1.



THE HARTFORD SHOCK ABSORBER.

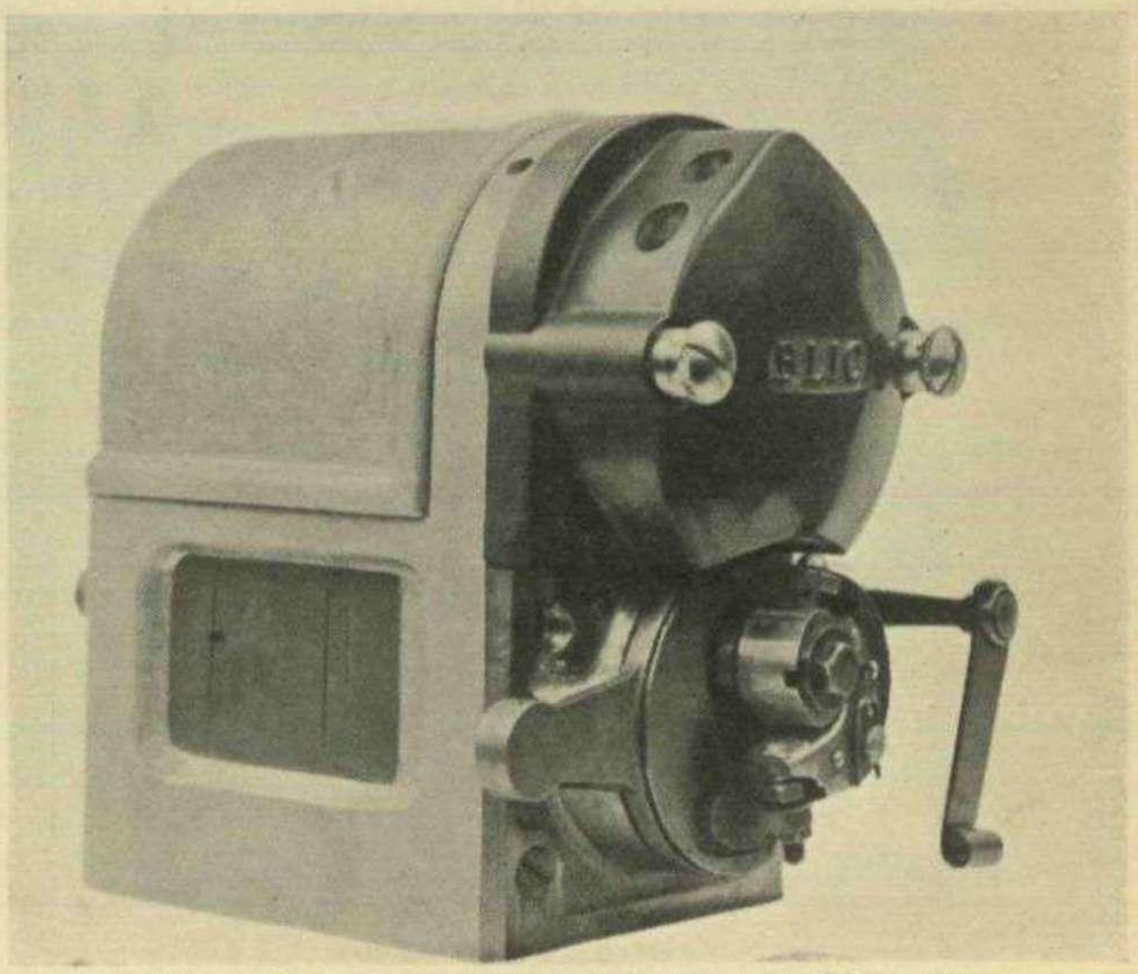
THE B.L.I.C. MAGNETO.

Perhaps the most interesting feature of this magneto is the employment of a stationary armature and rotating magnets, which is a complete reversal of the ordinary method of construction, though it has been applied with varying success by other manufacturers.

Possibly the motor car owner is less interested in the theories of any given piece of apparatus than in its performance, so while leaving any interesting technical details, we may confine our remarks to personal experience of performance.

We tried one of the B.L.I.C. Magnetos last Whitsun, and it has been in continuous use every since. As far as trouble is concerned, we could have forgotten there was such a thing as a magneto on the engine. A few weeks ago, prompted by a smitten conscience, we took the instrument down for cleaning purposes. To our surprise no adjustment of any kind, not even the setting of the contact points, was necessary and from the general condition, we expect it to be running just as well this time next year.

The magneto stands up well to high engine speeds, having been actually tested up to 4,000 r.p.m. before being fitted to the car in question, and its general performance leaves nothing to be desired.



THE B.L.I.C. STATIONARY ARMATURE MAGNETS.

"HOTTING-UP" A STANDARD MODEL FOR COMPETITION WORK. (PART I).

Practical Suggestions for Increasing Car Efficiency.

IF the title chosen for this article has an ungrammatical flavour, I think readers of THE BROOKLANDS GAZETTE will pardon the expression "Hotting-up," as it most aptly describes the results obtained by the kind of attentions required to bring a car up to the stage of mechanical efficiency that gives its owner every confidence in entering for the various competitions, which hold so remarkable a fascination for the enthusiastic motorist.

In the issue of August last year, I had the pleasure of contributing an article on the "vetting" of a sporting car, but as the information contained was necessarily abridged, it is now proposed to go rather more fully into the subject and to describe the exact methods to be followed by the car owner who has the ability and necessary facilities for carrying out the work on his own account.

We all know the difference between handling a car in a competition, prepared for the event by somebody else, and the feeling of satisfaction that exists when the entered machine has been brought up to concert pitch by our own efforts. As a matter of fact, the competitor who enters a comparatively old car, which he knows from the front spring greasers to the rear number plate, has often a far better chance of success than the person who rushes in at the last moment with a super-sports car, delivered but a couple of days before the critical event.

Then again, the super-sports car is not everybody's machine, and many of us who use cars for business purposes or ordinary touring have to be content with a more or less standard model to carry us through the daily routine as well as for such competitions as may excite our interest.

Before deciding as to the methods of "hotting-up" to be adopted, it is important to make sure that the car falls within one of the standard categories regulating the entries for competitions, though of course there are certain events of a sufficiently severe character where such limitations do not apply.

As far as my own personal tastes go, I always find a great deal of amusement in experimenting with some type of car from which one does not expect to find anything extraordinary in the way of performance; for provided the car is of reasonably good design and possesses substantial constructional features with ample factors of safety in all parts of the mechanism, one has a fair amount of scope for turning an ordinary touring model into something approaching a car of super-performance.

"Hotting-up" Time.

Possibly the present time is as convenient as any for commencing work to prepare the car for the season's competitions, and many owners make a point of putting their cars into dock after the London-Exeter, in order to treat them to a really first-class overhaul in readiness for the Land's End trip. Work of this kind should never be hurried, and needless to say the closest personal attention is necessary at every stage of the proceedings, for many of the processes are simply elaborations of those which characterised the best built cars before the era of mass production and keenly cut initial costs came into vogue.

Preliminary Tests.

In order to carry out the whole business in a methodical manner, the aspirant to competition honours should make it his first objective to discover the best performance of which his car is capable before any work is commenced. One of the most useful of tests is to take the car to a really stiff hill and observe the speed attained at various points in the ascent. As the surface of some of the well-known "stunt" hills varies from month to month, it is preferable to select a main road, or secondary road gradient, so that comparisons may not be rendered futile by possible variations in wheel grip.

If the car boasts a reliable gradient meter, the instrument can be used to record its accelerating capabilities, as well as the actual gradients over which the tests are being carried out. There are several other accessories that can with great advantage be added to the super-standard model for use in competition work, but for the moment we will confine ourselves to mention of the gradient meter, by the aid of which it will be possible to obtain sufficient data of car performance to serve as a starting point for the "hotting-up" processes.

Hints on Dismantling the Engine.

The limitations of working space in the private garage may prompt the car owner to attempt a partial overhaul of his engine without removing the entire unit from the chassis, and in such a case he will be working under a very great disadvantage, for whilst it is possible to undertake such jobs as adjusting a set of big-end bearings from beneath the car, a complete overhaul cannot well be effected under such conditions. The first thing, therefore, will be to remove the engine bodily from the frame and mount it on a suitable trestle upon which the remainder of the dismantling work will be done.

Some amateur mechanics make a practice of doing as much work as possible single handed and getting "casual labour" when additional help is needed; but if one is fortunate enough to be able to call upon the services of a fellow enthusiast—one's observer, for example—not only will the job be done very much quicker and better, but there will be the companionship, which counts for so much during long hours spent in the workshop.

I need not take up useful space in discussing methods of dismantling the engine, but will pass on with a few observations. Firstly, the engine must be taken to

"HOTTING-UP" a STANDARD MODEL for COMPETITION WORK – cont.

pieces entirely, and during the process, figure stamps should be used liberally to mark the positions in which various components are fitted. (This will save a lot of trouble in the subsequent re-assembling). Then as the process continues it is a good plan to locate all bolts in their proper places as far as possible, in preference to throwing them all loosely in a box from which they would have to be sorted out later. This advice *does* seem elementary I admit, and yet how many experienced mechanics can recall hours of valuable time wasted simply because untidy methods of engine dismantling have been practiced.

At the same time, there will be an opportunity of examining the condition of all engine bolts, particularly those subjected to stresses such as those holding the halves of the connecting-rods together. Just before the London-Exeter, I discovered a badly stretched bolt on one of my connecting rods, and an extra pull on the spanner caused it to break in two, which would have made a nasty mess of the whole engine had it not been discovered in time. The first indication of a stretching bolt is the buttress shape assumed by the threads and when this stage is reached the bolt is unfit for further duty.

Assuming that our engine is now carefully dismantled and that all the component parts are arranged for inspection, we may now begin the important business of providing for a perfect balance, which is absolutely essential to secure the maximum "revs." and sustained power output.

Testing the Crankshaft.

A rough and ready test for accurate alignment of the three bearings of a four-throw crankshaft consists in laying the shaft in the two end bearings, with the centre one removed. By fixing a small scribing block on the centre web of the crankcase, the pointer is arranged to fall over the centre journal and by turning the shaft slowly, it can be seen whether the journal runs concentrically with the other two. If at any point of the revolution the journal falls away from the scriber by as little as 0.003 in., it will be impossible to fit the main bearings accurately so as to prevent periodic vibrations of the engine.

Further accuracy in testing the crankshaft is possible by using the simple contrivance illustrated in Fig. 1, which comprises a substantial piece of channel steel A, cut away at the base as shown, with a machined upper surface. Two solid steel Vee blocks B, are used to support the crankshaft to be tested and a scribing block is used as in the previous case. This simple appliance has the advantage of permitting the shaft to be trued if any discrepancy exists, for by means of the stiff clamp,

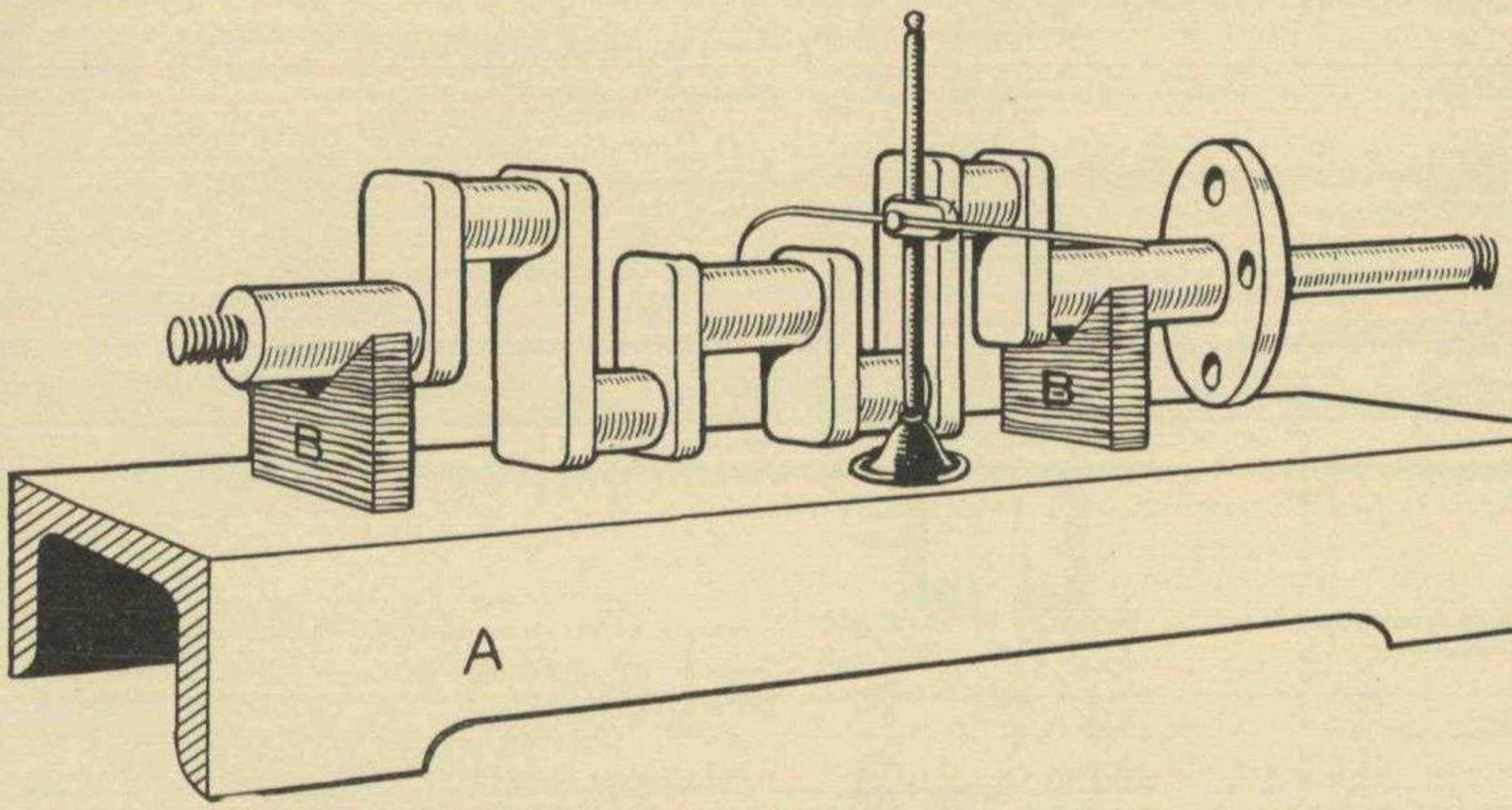


FIG. 1. SIMPLE ARRANGEMENT FOR TESTING AND STRAIGHTENING CRANKSHAFTS.

shown in the illustration, pressure can be exerted on the centre journal to spring it back into line with the others. (See Fig. 2).

At first sight, it may appear that this is somewhat of a crude method for dealing with crankshafts, but it all depends how the process is carried out, and a person of average skill can achieve satisfactory results by working methodically. Let us assume that on testing the shaft it is found to be out of truth to the extent of say, 0.005 in. at the centre journal, this dimension having been measured by inserting a five "thou" feeler between the point of the scriber and the journal at the position where the eccentricity is greatest. We now have to spring the shaft in the opposite direction by means of screwing down the clamp screw and in doing so the scribing block is used to determine the amount of counter distortion required to remedy the defect. Here is where the trial and error process comes into play and for a start we will exert sufficient pressure

"HOTTING-UP" a STANDARD MODEL for COMPETITION WORK—cont.

on the screw to spring the shaft to the extent of 1–32" to overcome the natural elasticity of the metal.

On releasing the clamp, the scriber is again applied to the centre journal for a further check, and it will be observed whether the eccentricity is increased or diminished. This will give an indication as to whether the counter distortion has been correctly estimated and the process must be continued until the journal is found to be in accurate alignment with the other two.

A Simple Crankshaft Balancer.

The problem of ascertaining whether the crankshaft itself is properly balanced, presents something of a difficulty to the amateur mechanic, but by the exercise of a little ingenuity it is fairly easy to construct a suitable device for the purpose in the home workshop. What we require is some means for supporting the shaft whilst

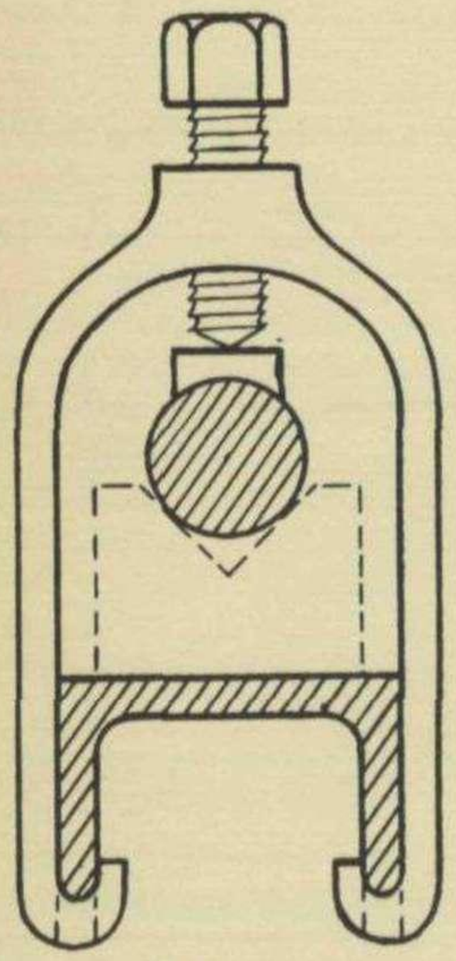


FIG. 2.

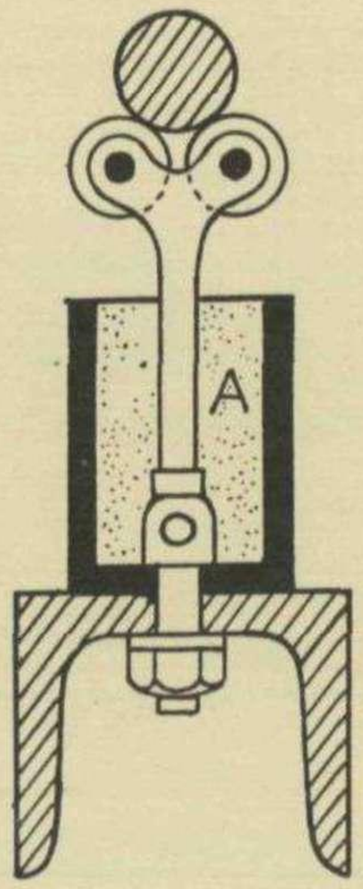


FIG. 3.

it is revolved at a high speed, the supports being so arranged that they will vibrate unless the crankshaft has no unbalanced masses.

The use of ordinary Vee blocks creates too much friction and therefore some other method must be adopted. Fig. 3 illustrates a fairly simple contrivance, which consists essentially in a pivotted support, with a double fork at its upper end, in which two knife-edged hardened rollers are mounted. This support is surrounded by a metal cylinder, the space between the support and the inside of the cylinder being filled with rubber crepe, A. Two of these devices will be required to take the place of the Vee blocks upon which the shaft will be mounted for the balance test, and the shaft is made to revolve rapidly by means of a rubber belt on its centre journal, the movement being provided from a pulley on the overhead shafting of the workshop.

Immediately the shaft is made to revolve at a high speed, it may be that the supports will vibrate considerably, and it will be found that by attaching small pieces of lead to the webs with insulating tape that the vibrations will either increase or diminish, the experiments being continued until the correct disposition of the weights has been found to create a vibrationless motion. The final part of the job consists in removing the required amount of metal from the webs, opposite to where the weights have been attached, until a perfect balance is secured.

The final attention to the crankshaft before one commences the work of re-fitting the bearings, consists in trying the big-end journals for wear. This is done by means of a micrometer calliper gauge, careful measurement being taken at various places on the journal to see that there is no ovality, such as would prevent a good fit for the connecting rod bearings. If a discrepancy to the extent of a couple of " thous " is detected, the journal can be restored by careful filing, using the micrometer gauge at frequent intervals as the job proceeds. The final stages should be performed with fine emery cloth, so as to remove all traces of the file marks and a specially made lead lap will be needed for the finishing touches to provide a smooth and regular surface for the bearing.

In view of modern repair shop facilities, one may ask why it is recommended that the owner mechanic should take all the trouble to carry out this kind of work himself; but I think if one enjoys the advantages of his own workshop and a reasonable amount of leisure, half the pleasure of competition work consists in bringing the car up to scratch by personal efforts, such as those described above.

In my next article on this subject, I propose to deal with some of the niceties of bearing fitting and explain how many of the faults, common in this very important part of engine work, may be avoided.

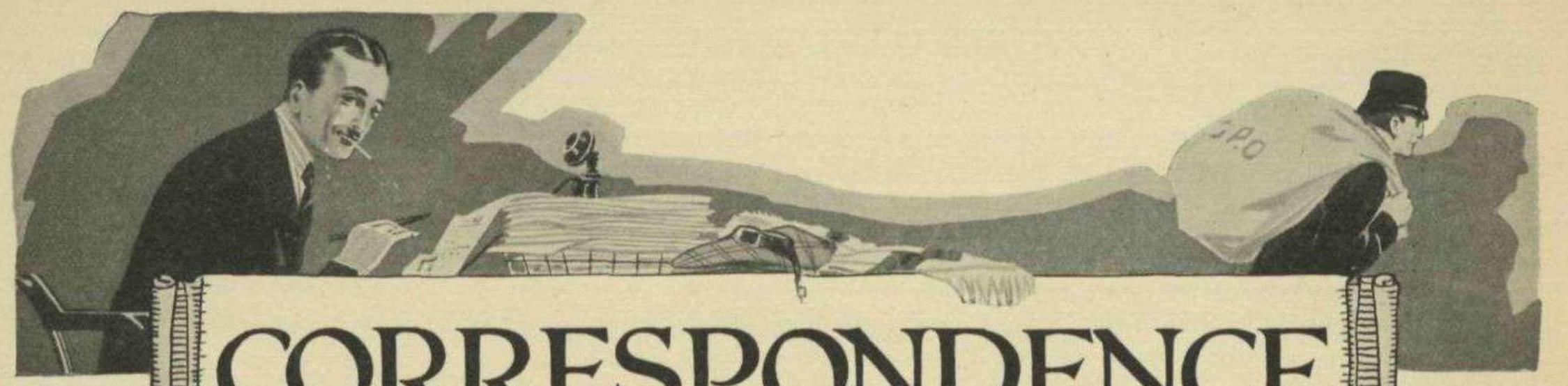
(*To be continued*).

BRIDGES METHOD OF MAP MOUNTING.

A new method of mounting maps, which is particularly suitable for the purpose of motor cyclists and motorists generally, is being placed on the market by Edward Stanford, Ltd., 12–14, Long Acre, London, W.C. 2. The map is so mounted that it can be read like a book, it being only necessary to turn the pages over either from right to left or from top to bottom when reading the map. The same concern also sells a suitable holder for use in connection with these maps which clips on the steering wheel or handle-bars, and leaves the driver with both hands free for driving or turning over the leaves of the map.

TOTTEY IN HARNESS AGAIN.

We understand that Mr. G. E. Tottey has now almost recovered from an accident which he sustained during the T.T. Races, and that he will shortly be seen in speed events on a 500 cc. overhead valve engined J.A.P.



CORRESPONDENCE

The Editor, THE BROOKLANDS GAZETTE.
DEAR SIR,

I read through the copy of your November issue, and must say that I found it quite interesting, if only because it is a little different from the usual run of motoring publications. Of course, I quite appreciate that, being, in a manner of speaking, a " baby," it will take some time to become established, but I feel sure that, if kept going upon its present lines, with a few minor improvements, it will in time take its place as a " regular."

According to my view of these things, you are doing a wise thing in cultivating the Country Clubs and I should imagine that in that way you are going to obtain the faithful adherence of Club men in general, all of whom are willing to buy the paper which takes a real interest in their doings, especially if they realise that reports of their own club's activities will appear therein as a general and regular thing, instead of, as so frequently happens, only occasionally, when some special event has occurred.

I was glad to note that both cars and motor cycles receive a fair share of attention, and I hope that instructive articles, written in such a way that they can readily be understood by the not too technically endowed reader, will in time become a regular feature. I think articles about fuels and dopes would be interesting, as well as descriptions of various carburettors, both those types which are standard, and also the models which are specially adapted for racing purposes.

In your articles on Motoring Sportsmen, do not overlook the lesser lights. The mistake is often made of giving publicity only to the cracks, while lookers on at the various events are perfectly well aware that it is many a time the case that an outsider puts up quite as good a performance as the big trade expert without however his work getting the attention which it really deserves.

Yours faithfully,

Stalybridge. B. WATTS.

SIR,

The sugary trifles on page 261 of this month's (December) issue are too bad. I foresee that their influence on your venerable editorial head will ere long occasion you great inconvenience—your hat will not fit and your feet will trip over unseen obstacles. So that in telling an unpleasant truth or two, I may be doing you a bon turn. Mind you, I do not undertake this task in a spirit of levity ; but rather with fear and trembling in my bones. For I fear the possibility of a huge car, driven by an infuriated editor, hurling itself against my humble mobike and I on one dark night. Might I suggest, when the method of revenge is in contemplation, that the Borgia family had clean, efficient and aesthetic ways and means of——?

Having arranged for my extermination, I'll hurry along to the Colonial section—the rough stuff.

Grouse I. or adverse criticism the 1st :

Why should our monthly motor sports journal devote 4 *precious pages* to description of a car? A colossal advertisement. A superfluity. A wicked waste of our reading-matter space. We are victimized, *ad nauseam*, with these camouflaged advertisements in the weekly motor papers. For the love of Mike resist the temptation to become a sheep ! Who hasn't seen the reader flick over these pages of boring battalions of words with a snap, a wet forefinger, a supervising jaundiced eye ? Who reads 'em, other than the manufacturer concerned or his publicity agent's office boy ? Don't do it, it's sinful. The ordinary unashamed advertisement we *do* read—especially if conceived in a humorous vein.

Grouse II. :

Nine to twenty-three is unfair fighting, a nine to twenty-three gear on a twenty-three in nine gradient is absurd ; yet we find there are roughly 23 parts of car to 9 parts of motor cycle. In a fifty-fifty journal, should the proportion not be a fair and square fifty-fifty of each car and motor cycle ?

BEMSEE.

[*We appreciate this correspondent's views, and thank him for his criticism, with which we deal in our Editorial Notes this month. We should be glad to have other reader's views on these and other matters of interest.*—ED.]

The Editor, THE BROOKLANDS GAZETTE.
DEAR SIR,

MERITS AND DEMERITS OF BALLOON TYRES.

Balloon tyres are heralded as effecting great improvements in the comfort of light cars, in some instances they are almost considered to be necessities, and it is from the light car point of view that most of your correspondents write.

Many pros and cons are discussed, but I believe that anyone who has had actual experience of the best types of balloon tyres will swallow all the theoretical " cons " with a gulp, and try to forget them.

CORRESPONDENCE—continued.

I have lately run some very considerable distances on Dunlop balloon tyres fitted to a car which is beyond the light car class (a 1925 model 16 h.p. Cubitt), which is exceptionally comfortably sprung, so much so, in fact, that the necessity theoretically of departing from normal high pressure tyres was not thought to exist.

Road experience with balloon tyres, however, has proved beyond any question of doubt that even the best sprung tyres are improved with balloon tyres and the improvement is under the three heads of comfort, braking power, and cornering. I can imagine that there may be great differences between the behaviour of various types and designs of balloon tyres but, so far, using the broad base straight side Dunlops as now fitted as normal equipment to 1925 Cubitt cars, I have not yet run up against any set of conditions where the balloon tyre has shown any disadvantages with the one single exception that when the car is standing, the steering wheels are harder to turn than with high-pressure tyres. Once under way the steering is actually better than with any previous car of the type I use, but as the new Cubitt steering is improved and very good, I am not able to allocate exactly between the steering and the tyres the proportions of merit.

Anyway, it is clearly proved that with correct steering design balloon tyres do not impose any appreciable handicap on ease of handling.

Yours faithfully,
For CUBITT'S ENGINEERING CO., LTD.,
ERNEST H. ARNOTT,
General Sales Manager.

55 & 56, Pall Mall,
London, S.W. 1.

The Editor, THE BROOKLANDS GAZETTE.
DEAR SIR,

I notice in the October issue of your Gazette, in the account of the interview that took place between Mr. Scott Hall and myself, a paragraph at the end which would almost lead me to suspect that perhaps you had not quite got hold of the idea I wished to convey.

What I meant by the expressed desire to please the owners of A.C. cars was not merely a question of giving them, as it were, idle pleasure, but what I had in mind was this—When a man buys a car from us, we regard him as having joined the happy family of A.C. Cars as a sort of sleeping partner, and we think that it is up to us to maintain the value of the purchase he has made in every shape and form, so that the second-hand value shall not decrease; and this can only be done by maintaining the good name of the A.C. This can only be done by constant effort and research, and trials, races, and public performances are the outward and visible sign that we are able to present to the public of the progress we have made or are making.

It is true that practically every A.C. car that we make can reasonably hope to be a more desirable possession than the one that was made say three months ago, and this in turn helps our business, and as one might say, "makes the mare to go."

Mr. Scott Hall will readily appreciate that if this constant and unceasing improvement were not taking place in motor cars, probably it would be the only exception in the whole world to the constant evolution and improvement which to-day has arranged that we all come to business in an erect position instead of on all fours, as the scientist would have us believe was the original mode of progression of our ancestors.

I suggest, therefore, that the policy enunciated could not be considered an absurd one by any reasonable-minded man, but rather it is based on sound and convincing facts.

There is one other little error that has crept in, on page 180 of the same issue, with regard to the six-cylinder Sports Model. It states there that the Sports Model is guaranteed to do 80 m.p.h. In point of fact, we guarantee the chassis to do 85 m.p.h., and of course Mr. Scott Hall knows how difficult it is to put on the extra five miles.

For the rest, I should like to congratulate you on the production of THE BROOKLANDS GAZETTE, which I consider a most interesting and convincing effort.

Yours faithfully,
S. F. EDGE.

[*The final paragraph of our published interview with Mr. Edge was written in the hope of "drawing" him. We seem to have been successful.*—ED.]

The Editor, THE BROOKLANDS GAZETTE.
DEAR SIR,

As one who was fortunate enough to obtain a copy of your excellent paper, THE BROOKLANDS GAZETTE, shortly after its first publication, may I be allowed to congratulate you and also to make a few suggestions.

In its capacity as a review of motoring events of the month, I maintain that the greatest attraction of THE BROOKLANDS GAZETTE will be its photographs. Those published in past numbers have been really excellently produced, but in some cases have been distinctly scarce.

I confess I was rather disappointed with the Olympia show reports. The scope for photographs of sporting machines, particularly in the case of motor-cycles, was almost unlimited, but the photographs which were published were in most cases hardly the type of machine which readers of THE BROOKLANDS GAZETTE would choose to ride.

However, I do not wish my letter to consist entirely of criticism. I consider your paper to be quite the most interesting motoring publication which can be obtained.

In your December issue, you mention the "Brooklands Year Book" and the B.M.C.R.C. Handbook. Are these available only to members of the two Brooklands Clubs or can they be obtained by the general public, and if so, from whom?

Wishing your paper the greatest success in the future.

Yours faithfully, ALLAN HARTLEY.

[*The Handbooks mentioned can be obtained from the Clubs named.*—ED.]

The Editor, THE BROOKLANDS GAZETTE.
DEAR SIR,

Congratulations on the December issue of THE BROOKLANDS GAZETTE, it is indeed a very fine effort.

Yours truly, ARTHUR WAITE.



Round the Clubs



INTERNATIONAL MOTOR CYCLING POLITICS.

France holds 100 miles 500 c.c. solo motor cycle record : Full programme of events for 1925.

The first meeting of the newly created International Competitions Committee—a sub-committee of the Federation Internationale des Clubs Motocyclistes, was held in Paris on 15th December, the British representatives being Colonel Brereton and Mr. Ebblewhite, Chairman and Vice-Chairman of the A.C.U.

It was agreed that in future no competition may be described as "International" unless International Timekeepers are appointed, and the following British Timekeepers were given International status :—F. T. Bidlake, A. V. Ebblewhite, Col. Lindsay Lloyd and A. G. Reynolds. A large number of World's Records were passed, including a number made by British riders at Brooklands which had already been granted for various distances in miles, but were now claimed for the corresponding kilometrical distances. It is interesting to note that the coveted hour and 100 miles records in Class C (500 c.c. solo) are now held by France: Richard on a Peugeot having recently beaten the record set up by Horsman on a Triumph just before Brooklands closed in November.

The regulations for the International Six Days' Trial, including the high speed test at Brooklands, were approved. This Trial takes place in August, 1925, over a course in the South and West of England, and there is every reason to expect a strong Continental entry.

On the following day, 16th December, a full meeting of the F.I.C.M. was held, when the Automobile Club of Austria was admitted as the representative Association of that country. The following Calendar of International events was then agreed upon.

		MARCH.	
1st to 12th	Germany	.. "Deutschland-fahrt 1925" (Reliability Trial)	
		APRIL.	
13th	.. Czecho-Slovakia	International Hill Climb	..Autoklub Republiky Ceskoslovenske
19th	.. France	Grand Prix	Motor Club de Marseilles
26th	.. Italy	VI Giro Motocyclistico d'Italie	Motor Cycling Circuit of Italy.
26th	.. Italy	1° Gran Premio Cyclecars	
		MAY.	
3rd	.. France	Records Meeting at Arpajon	
8th	.. Italy	5° Gran Premio of the Motor Club d'Italia	
17th	.. Hungary	"Tourist Trophy" Races	
17th	.. France	Grand Prix	Moto Club de Lyons
21st	.. Spain	1,000 Km. Road Race	Barcelona
23rd	.. Italy	XI Circuit of Cremona	Automobile Club of Austria
		MAY—*continued*.	
24th	.. Germany	"Gros Preis of Germany" (Road Race)	
25th	.. Austria	"Summering Renner"	Automobile Club of Austria
30th/31st & June 1st	Czecho-Slovakia	Second International Reliability Trial	
31st and 1st June	Switzerland ..	Grand Prix of Switzerland	
31st	.. Austria	Tourist Trophy Races	Automobile Club of Austria.
		JUNE.	
1st	.. Czecho-Slovakia	Hill Climb of Keilberg.	
6th/7th	.. Belgium	Holland-Belge Trial	
15th/19th	England	Tourist Trophy Races	Auto-Cycle Union
15th/18th	Hungary	Jubilee Circuit	
18th/21st	Denmark	Danish-German Trial	Danmarks Motor Union
21st	.. Germany	"T.T." Eifel (Road Race)	
21st/30th	.. Austria	"8 Tage Tourenfahrt" (Coups des Alpes)	Automobile Club of Austria
27th	.. Spain	24 Hours Race, Madrid	Royal Moto Club of Spain
28th	.. Italy	Circuit del Lario	
28th	.. Germany	Road Race, Swinemüund	
		JULY.	
19th or 2nd Aug.	Belgium	Grand Prix Motocyclettes	Federation Motocycliste de Belgique
19th or 2nd Aug.	France	Grand Prix Motocyclettes	Union Motocycliste de France
19th/26th	France	Grand Prix Cyclecars	Do. do.
26th	.. Switzerland	Grand Prix sur route	Union Motocycliste Suisse.
27th	.. Austria	Grand Prix d'Autriche	Automobile Club of Austria
29th	.. Germany	Reliability Trials through the Alps	
		AUGUST.	
8th/9th	.. Switzerland	Klausen Pass Hill Climb	
15th/16th	Italy	Raid "Nord-Sud"	
17th/22nd	England	International Six Days' Trial	
		SEPTEMBER.	
6th	Czecho-Slovakia	Pilsen Circuit	
6th	France	Gran Prix de France	Motorcycle Club de France.
8th	Italy	Gran Premio della F.I.C.M.	
20th	.. Germany	"Avus" Track Race	
27th	.. Hungary	Hill Climb at Svabhegy	

In consequence of the French and Belgian delegates desiring the same date, viz., 19th July for their Grand Prix Races, it was agreed that one or other must postpone its Race until 2nd August, and it was left to the two countries to settle this matter between themselves.

It was also agreed that in future each country should contribute as its subscription to the F.I.C.M. not less than ten per cent. of the revenue it obtained from the issue of competition licences, with a minimum of £10. The present subscription for membership of the F.I.C.M. is £6 for each affiliated country.

ROUND THE CLUBS—continued.

THE JUNIOR CAR CLUB.

At the Annual General Meeting of the Junior Car Club the following officials were elected for 1925:—

President :
THE HON. SIR ARTHUR STANLEY.

Vice-Presidents :

Lt.-Col. Chas. Jarrott.
H. M. Hobson.
G. F. Smith.
Prof. A. M. Low.
H. P. McConnell.
T. G. Hayter.
Major Frank H. Bale.
G. W. Lucas.

Hon. Treasurer : Major Frank H. Bale.
Hon. Secretary : A. Percy Bradley.

Council for 1925 :—

B. H. Austin.
S. C. H. Davis.
Lt.-Col. Chas. Jarrott.
B. S. Marshall.
H. P. McConnell.
W. H. Oates.
R. W. Billinghurst.
F. J. Findon.
A. R. Linsley.
L. Martin.
L. H. Mills.
J. Gordon Offord.
A. J. Crump.
H. R. Godfrey.
Prof. A. M. Low.
C. A. H. Mason.
A. Frazer Nash.
Major H. O. D. Segrave.

MIDLAND CENTRE A.C.U.

PROVISIONAL LIST OF FIXTURES, 1925.

February	21.	SUTTON ...	COLMORE CUP (Open).
,,	28.	Birmingham ...	Opening Run.
March	7.	BIRMINGHAM ...	VICTORY CUP (Open).
,,	14.	West Birmingham	Opening Run.
,,	21.	Coventry ...	Manville Trophy.
		Birmingham ...	Concert Run.
,,	25.	A.C.U.	Silencer Trial.
,,	28.	University ...	Opening Run.
		M.C. & A.C. ...	Opening Run.
April	4.	WEST BIRMINGHAM	DOUGLAS CUP (Closed).
,,	11–13.	Birmingham ...	Sangster Cup.
,,	18.	Sutton	Speed Trial.
		Walsall	Novices' Trial.
,,	25.	M.C. & A.C. ...	Invitation Team Trials.

BARROW & DISTRICT MOTOR CLUB.

FIXTURE LIST, 1925.

March	29.	Captain's Run ...	... (Social).
April	5.	Reliability Trial ...	... " Roberts Cup."
,,	10.	Skipton Rally	
,,	12.	Social.	
,,	13.	Open Hill Climb ...	... W.M.C.C. Event.
,,	19.	Social	
,,	26.	Social	
May	3.	Reliability Trial ...	... " Members' Cup."
,,	10.	Social	
,,	17.	Social	
,,	24.	Social.	
,,	28.	Gymkhana	

BRISTOL MOTOR CYCLE & LIGHT CAR CLUB.

1925 *PROGRAMME.*

Sat.,	Feb. 28th.	Social Visit by Bath Club.
Sat.,	Mar. 14th.	Propaganda Trial.
Sat.,	Mar. 21st.	First Light Car Trial.
Sat.,	Mar. 28th.	1st Wessex Centre League Trial.
Sat.,	April 11th	EASTER. Social to be arranged.
Sat.,	April 18th.	Wessex Centre Open Hill Climb.
Sat.,	April 25th.	1st Aggregate Trial. Mystery Run.

AUTO-CYCLE UNION.

DATE.	PROMOTER.	EVENT.
	FEBRUARY.	
21st Sat.	... Midland Centre	... Colmore Cup Reliability Trial.
	MARCH.	
7th Sat.	... Midland Centre	... Victory Cup Reliability Trial.
14th Sat.	... Sth. Midland Centre	Southern Scott Scramble
21st Sat.	... B.M.C.R.C. ...	... Members' Meeting.
25th Wed.	... A.C.U. ...	... Silencer Trial.
28th Sat.	... Eastern Centre	... Kop Hill Climb.

REPAIRERS

SCORED CYLINDERS. Scores in cylinder bores can be filled in by Barimar Metallurgical (Patented) Process, to fit existing pistons and returned in two days under money-back guarantee, at low cost.—BARIMAR, Ltd. (Scientific Welding Engineers), 14-18, LAMB'S CONDUIT STREET, LONDON, W.C.1. Branches in Birmingham, Manchester, Leeds, Newcastle-on-Tyne and Glasgow.

WANTED.

100 MOTOR CYCLES (any make)

CASH OFFER AT SIGHT.

Bring, send, or write particulars to **PALMER'S GARAGE,**
187, HIGH STREET, TOOTING, S.W.17.
Nearest Rail Station Wimbledon.

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The Organ of Motor and Motor Cycle Sport

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