##  checlecars <br> Vol.XXIVNo. 609 <br> Friday July. 25.1924 <br> Registerudtut fse apo <br> *oindedign <br> The only Small Carloumal

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Features of this week's issue of "The Motor," July 22nd.

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A Route that has Lately Undergone Many New
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BALLOON TYRES-A CAUTIONARY NOTE.
SOUTH WALES A.C. SPEED TRIALS AT PORTHCAWL. Joyce (A-C) Makes Faslest Time of the Day.
H. K MOIR (BENTLEY) FASTEST AT CAERPHILLY.
Skids and Thrills in a Well-organized and Interesting Event.
THE OPENING OF MIRAMAS TRACK.
Alzaga on a Sunbeam Wins the 100 -Mile Race at 93.6 m.p.h.

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THE LATEST PRACTICE IN MIXTURE
DISTRIBUTION. DISTRIBUTION.

PRACTISING FOR THE GRAND PRIX. HOW TO BUILD YOUR OWN GARAGE. THE SCOTTISH SIX DAYS'TRIAL.

## HOW HARTFORDS WIL BE FITTED TO YOUR CAR



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#### Abstract

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MEDAL and comes
out 1 st in its class.


A Thirill at An untouched photograph taken at the Caerphilly hill-climb on Saturday lasha fraction CAERPHILLY. of a second after the rear axle of Mays's Bugalti sheared whilat the car was travelling at 60 mph . Note the angle of the off-sicerear wheel and the near side wheel apinning in midair


The American Invasion.
Will America make a direct bid for the British light car market? is the question of the moment. We very much droubt it; in any case, a considerable time must elapse betore developments titke place. Nevertheless, America must be watched.

## American Entry for " 200 .

An extremely interesting development has taken place in connection with the sudden interest which is being taken by America in the light car. The Junior Car Club has recently received a cable gram from one of the well-known American motorear manufacturers asking for full details concernng the annual 200 M:le Race, which takes place this year on September 20th. The interest which would be added to the race by an American entry would be enormous, and it is to be hoped that such an entry will materializc. We deal with the whole question in an editorial article under "Topics of the Day."

## Front-wheel Brakes.

Increasing interest is being taken by light car manufacturers in the possibilitics of front-wheel braking systems. and we hear rumours of experiments being conducted in many quarters. There scema every likelihood that four-wheel brakin! systems will bo offered-if not as stansystems will me ofercd- Motor Show in October on nearly every make of small car.
No) 609
Vol XXIV.

LIGHTING-UP TIMES
for Saturday, July 26:h, 1924.

| London | 9.26 | Fdiuburgh | 10.0 |  |
| :--- | :--- | :--- | :--- | ---: |
| Newcastle | 9.48 | Liverpool | 9.48 |  |
| Birmingham | 9.38 | Bristol | $\ldots$ | 9.36 |
| Dublia |  |  |  | $\ldots$ |
|  | 10.1 |  |  |  |

Lighting-up time(rearlights) in England, IVales, Scotland and Ireland is lialt au hour after sunset.

Moon-New Moon, July 31st.

Another Field for the Cyclecar. The secretary of the Federation Moto. cycliste de 13clgique points out that there is an extensive market open to the cyclecar in Belgium, where no firms make this type of machine. He adds that it has a brilliant future awaiting it, and exhorts British motor cyclecar manufacturers to inquire further into the possibilities which are opened up.

## The "Duckey" Seat.

Some amusement has been caused by ni advertiscment in the "Uganda Herald " which refers to the duckey sent of the Jowett. It appears that the Goan-untive type-setter of the particular advertisement referred to-was convinced that this was the cortect spelling, and refused to take any notice of editorial corrections.

## Recommended Roads

The Automobile Association has issued its usual sheet maps showing recommended roads fur motorists-with particular reference to the August Bank Holiday exodus.

## In this Issue

The Scottish Trial, Caerphilly and Porthcawl sand racing and hill-climb. ing, Brooklands and Bexhill Speed Trials are the main motoring events illustrated and described in this issue.

## Going Through It.

Small cars are experiencing a gruelling in Scotland this week, besido which the R.A.C. Small Car Trials fade into insignificance; but it is all good for the breed, and light carists of the future should have cause to bless the promoters of all such events.

## A Growing Danger.

When will motorists realize that they are causing considerable inconvenience, if not danger, to other road users by drawing up in main cross country roads fur picnic purposes and so forth, the car being left on the roadway itself? Tliere is hardly a single main road in the kingdon which does not provide suitable parking places whore the car may actlailly be runt off the road, and thus leave the highway perfectly clear for up and duwn traffic We should like to see police action taken in this matten

Bl1

## Climbing Screw Hill.

We are informed that at the Liverpool Motor Club's rally at Screw Hill Carnarvon, on July l3th, Capt. Gray driving a two-seater Rliode equipped with low-pressure tyres, was the only competitor to climb the hill.

## A.C. as Hill-climber.

A Royal Automobile Club certificate of performance has now been issued in respect to a four-cylinder A.C. which climbed the folloring hills under obser-vation:- $\boldsymbol{\Lambda}$ lms, Bulch-y-Groes, Alt-yBady, Ionister Pass, Hard Knolt Pass, Wrynose Pass and Newlands Pass.

## "Kim's" New Owner.

' Kim II," Capl. A. G. Frazer Nash's famons two-cylinder air-cooled G.N., has been purchased by J. H. Ball. In the hands of its new owner the car made its debut at Bexhill, but evidently it was feeling homesick, for it did not put up a characteristic performance.

## An Addition to the Ranks

Described in the programme of the Bexhill Speed Trials as a Gwynne Eight, a new racer, assembled by $H$. Eaton, made its appearance on Saturday. It is a strikingly neat littio vohicle, and not the least intoresting of its features is that, whereas the engine is a Gwynne, we believe we are richt in saying that the major part of the chassis is on 1922 G.N. lines.

## A Twin-cylinder Racer.

Miss Ivy Cummings's now famous two-cylinder air-conled Frazer-Nash racing car has been improved in several respects, of which the most obvious is the new single-seater bodv. This is much lighter than the old body and should result in a higher turn of speed. Considerable altention has been given to the tuning up of the engine, lighter tulip valves having been fitted and value bounce climinated to a large degree by a different camshaft contour. The exhaust and inlet passages have been smoothed out, and we are informed that. the engine will now rov. up to 5.300 r.p.m. This car holds several records in class $K$ and is unbeaten so far in any 1,100 c.c. class in which it has competed this year. Photographs appear on the second page of "Rich Dixture.'


MOTOR TERMS TRAVESTIED. No. 22.-Query: Whal s the Term? We offer a prize of Oue Guinen for the most apt motor larm reccived. No So.it icn "ill be judged betore 11 a.m.. on Tues:Jay Nexs.
Tle solution to last weck'a piciure will b. round in "dround the Trade.")

Standardizing Tyre Valves
One of the most important standards issued by the B.E.S.A. deals with valves, pneumatic tyres and also pneumatic tyre rims. The former is an exceedingly comprehensive treatiso on tho subject, and the importance of its rocommendations cannot be overestimated. It specifies the external and internal dimensions, type of thread and manufacturing tolerance of all parts which will ensure accurato fitting when replacements are uecessary. Copies of the specifications are obtainable from the 13.E.S.A. Publications Department, 28, Victoria Street, London, S.W.1, price 1 s .2 d .

## We Could Beat It.

As the result of the amalgamation of two American motoring associations the combined membership exceeds 500,000 but we see no reason why this firure should not bo easily beaten in this country.

Next Jowetl Rally.
Members of the Southern Jowelt Light Car Club arto asked to meet on Sunday next. July 27 th, half a mile north of Elstree, on the Fugware-St. Albans road, at 11.15 a m . This will he another full day rally, the party procending to IVinghoe Beacon via St Albans and Iunstable

Small Cars Pay Less.
Tho scale of garage charges fived at the Mortis Garages, Clarendrin Garage, Oxford, vary accumblat to the horsepower of the cars cuncemed. Simall cars up to 9 h.p. Teasury rating may he stored for 24 hours fur 3s., 3s. 6il. ljeing the charge for cars up) (1) 14 (1.). It is noteworthy that, despite the vastation in storage costs fur difiereat sizes of cars, 4 s . is the fixed rate for washing all types.

An Original Conception.
We are indebted to a morthoountry reader for forwardng its a cuiting from The Manchestor Bu'bumy Nors, wherein there is an article dealing with the sub)ject of strange thefts. We glute tho following:-". Tlie latest crime outbursi in Lomatun is the steal. ing of spare wheels from motorear dashboards. . It may soon be necessary firmly to parllock the carburetter to the back asle!

The Grands Prix of Europe for 1924.

The Grands Prix of biume t:ike place from July 30th until Ang. 3rd. There will be events for cats booh under and over

THE CULT OF THE DIMINUTIVE

(Top) H. Eaton's new Gwynne Eght which is referred to in a paragraph on this page. (Beow) A "close-up" of the tiny French Colombetnreewteeler. Query : where does the driver find ioom for his lege?

A Novel Publication.
"The Car for the Lady Driver" is the title of a booklet just published by Wolselcy Motors, Ltel. The book'et ; dicates tho adrantages of the Wolseley Ten from the point of view of women drivers, and shows how ensy theso cars are to maintain in good condition.
Scoltish Club-house Alterations. During tho alterations to the premises of the Roval Scottish Automobile Club's himadquarters in Blythswood Square, Glasgow tho premises are Closed, but it is hoped that early in
August
femparary accommorlation will August temporary accommotlation
ho provided in tho new building.

Light Cars in Fancy Dress.

## Magnesium Pistons.

Considerable interest is being taken in light car racing circles in the possibilities of magnesium pistons. They can be made lighter than where aluminium is employed, but there have been instances

## Rover Eight Handbooks.

We regret to inform the numerous roaders who have applied for Rover handbooks that no moro copies have come to hand, and that we cannot, therefore, oblige them. The letters


## Another first prize winner. This Crouch car was entered for the Hospital

 Carnival al Coventry, and was decorated by the ataff at the works.Safely First in Africa.
The Royal East African Automolilo Association has now issued an explanation of tho Safety First symbols which are being erected throughout East Africa by this association, and in many respects the systom followed is similar to that adopted by the British Ministry of Transport. Ui:doubtedly the Safety First policy is spreading throughout the world, but it seems to as that it would be better if a standard form of warning signs cuuld be adopted.
The London-Barnstable Trial. According to a preliminary amouncement, concerning the Surbiton Motor Club's Kondon-Barnstaple trial, which takes place on August 2nd and 3rd, the start will be from Thames Ditton at 10 p.m. and tho finish at Barnstaplo about $10.30 \mathrm{a} . \mathrm{m}$. on the following morning. Tho route will be via Guildford, Farnham, Andover, Glastonbury, Bridgwater, Porlock, and Begmar's Roost. Entries close first post on Monday next, July $28 t h$, and all inquiries should be directed to the hon. secretary and organizer of the event. Major A. Warren Lambert, 6, King's Bench Walk, Inver Temple, London, E.C.4.
of the crowns subsiding under the enormous explosion pressure of modern highofficiency power units.

## A Coming Car.

We hear on good authority that arrangements have been mado to put the North-Lucas radial-engined car into production. This vehicle represents onc of the biggest departures from converttional practico which has appeared for several years.

## Quick

## Second-hand Sales.

If you have a second-hand car for disposal advertise it exclusively to light car enthusiasts through the small advertisement columns of " 7 he Light Car and Cyclecar." the only small car journal.-It is the direct route to small car buyers.

[^0]A $9.5 \mathrm{~h} . \mathrm{p}$. Hampton ingeniously converied into a "Hamplon Fighter." Awarded first prize in the Stroud Hospital Carnival procession.
have been filed in the order of rotation received, and, should any handbooks be forwarded to us, copies will be sent to the addresses in strict rotation.

## J.C.C. at Liverpool.

The Junior Car Club has now opened its fourth Centre at Liverpool. It will he known as the Liverpool and North Wales Centre, and will look after the interest of the members of the Club in the western sections of Lancashire and Cheshire, the western corner of Shropshire and the whole of North Wales.

## South Harting To-morrow.

The annual hill-climb of the Junior Car Club at South Harting will be run off to-morrow. Allowing for classes which have been cancelled owing to insufficient entries, there will be six classes in all, these being as follow :Class B, standard two-seater touring cars with ongines over 1,100 c.c.; Class D, touring cars with engines not exceeding 1,500 c.c.; Class E. sporting cars with engines not exceeding 1.500 c.c. : Class $H$, standard sporting cars with engines not exceeding 1,500 c.c., fully equipped; Class I racing cars up to 1,100 c.c.; Class $J$, racing cars over 1.100 c.c., but not exceeding 1,500 c.c. The following are the entrants :-
Miss W. M Pink
D. E . 11 h h.p. Aslon. Martin).

 Ao h.p. Aston-Martin) Mrs. R M W. Eaton (11.4 h.p. Alsis). J. C. Douglas (2) ho. Aston-







 good idriscr, A. $R$ Simming, 8 h.p. Talbo-
Simmins) $B$ E. $\mathrm{Lewis}(8$ h.p. Frazer-Nash),






Aflractions of Motor Racing.
That the possibilities of motor track racing are by no means exhausted is proved by tho interest which is still being taken in proposed projects. A member of the Scarborough Council has suggested the possibility of making a speed track, somewhat similar to Brooklands, round the Mere. Developments will be watched with interest.

## Motorists al Play.

The postponed Middlesex County Auto mobile Club's gymkliana was lield on Saturday last in Tilbury's Field, Potiers Bar. The events included a pegging competition, blindfold driving, musical charrs, and, last but not least, a push-ball event, which had to be abandoned, however, as the giant ball rapidly became defaled, with the result


EXPERT TENT PEGGERS.

The lady passenger of a Rover Eight demonatrates her skill at the Middlesex County Automobile Club's gymkhana, which was held last Saturday.

## Wesimorland Bridge Closed.

We are informed by the county sur veyor of Westmorland that the Bannisdale Low Bridge, $6 \frac{1}{2}$ miles worth of Kendal, on the Kendal-Shap section of the A6 Road (London Lancaster-Carlisle) was closed to trafic as Irom Monday, July 2lst, in order that repairs may be carried out. A.A. patrols and police constables are stationed at various places in order to direct traffic over an alterna tivo route.

## Redditch Trial Awards.

In the Redditch Motorcycle and Car Club's half-day relinbility trial the only two cars ontered mado exceptionally fine porformances, neither; iosing a single mark. If. J. H. Jevons (likey) won the Herbert Trophy and gold-centre medal for the best performance by an amateur member of the club, and W. Swiffen (Horstman) carried off the Thompson award for the best performance by an expert member of the club.

## Standard Petrol Tests

a long-standing cause of conplaint in the oil world has been the variation in the mel hods omployed by different conpanies in the conduct of their tests. This has been largely banished by the formation of the Standardization Committee of the Institution of Petroleum Technologists, under the chairmanship of Mr. Alexander Duckham. This committee bas pablished a book entitled "SLandard Methods of Testing Petroleum and its Products." which deals with the whole subject; it may be obtained by anyone interested from tho Institution at Aldine House, Bedford Sirect, Strand, W.C.2.
that it soon became badly "knocked about" in more senses than one. The Camden Town Police Band, besides supplying musical items, created considerable amusement in the race for the bandsmen. who had to blow their instruments whilst they ran.

## Steamers Full Un.

The A.A. warms intending motor tourists that car space on stemers must be booked well in advance, and it is suggested that at least ten days' notico should be given to the A.A. Touring Department, where triptypus and imternational passes are remuired.

Watford Traffic Diversion Motorists know to ticir cost that Witford has been under repair for a cumsiderable time. According to a notice, the nuthorities have now closed the London Road from the Bushor Arche: to the boundary at Haydon Rivad, iraffic having been diverted along (imange Read, The Arenue, Aldenham Road and l'inner Road.

## Mor Lost Property.

For sheer bad luck the ir,llowing is hard to beat. On Tueslay, Juls 8 th, one of our readers, whilst tavelhing along the Bath road lect woen Humerford and Bristol, hast a skmik fur, and on the following sithard. he further jeltisoned a raincoat betwo... lieltuth and Bodmin (Comes!?) - Sheraht this talo of woe be reard by ita fimites of
 dolph Poad, Maidz Vale,

## Bank Holiday at Brookland

Entries for the B.A.F.C. Aurnst Bank Holiday are numerons and include many small cars. Thic jungramme will be made up of the usual short and long handicaps and the August private competitors hamhapas, senior and junior. The pretiminary announcement sheet agatin draws the at tention of intending sompetitors the notices on the track regarding noise, and points ont that cars will not be allowed to practise or race if they do not comply with supplementary regulation 21 with regard to the precautions which must be taken.

# MOTORING MATTERS IN PARLIAMENT <br> GREAT WEST ROAD-NEW MOTOR WORKS-TRANSPORT OF PETROLEUM-MUD-SPLASHING 

TПHE Minister of Transport Mr. Gosling) has informed Lieut. Col. James that sections of the Great West Road were opened during Ascot Week, so as to make a through road for traffic in order to relieve the pressure on the western exits from London. These sections wero incomplete, and were afterwards closed, but he hoped they would be opened again to traflic in a few weeks' time.
The statement that the Ford Motor Car Co. had purchased 307 acres as a site for the erection of works was referred to by Mr. W. Baker, who asked whether, as the erection of the factory was to be dependent on an alteration in the, las relating to the basis of motor taxation, he would carefully review the question. Mr. Gosling replied that he had no information as to any action which the company proposed to take beyond the statements which had appeared in the Press. As to any possible alteration in the law, he asked Mr. Baker to await the publication of the Departmental Committee's report, which,
he hopred, would shorlly be available. The danger of huge iravelling lanks and lorry loads of petrol passing through congested streets was alluded to by Mr. Baker, who urged the Home Secretary to draw up regulations dealing with the matter. Mr. Arthur Hendorson, in reply, said that under the existing law no central authority had power io makn such regulations, the Petroleum Acls being administered locally. The question of introducing a Bill to give tho Home Secrelary powers to issue regulations for general application throughout the kingdom was at present under consideration.

Mr. S. Robinson urged Mr. Gosling to insert a clause in the Road Traffic Bill protecting the public against mudsplashing by heavy motor vedxcles. The hon. member pointed out that Ixeland already had such a compulsory order in effect. Mr. Gosling's reply was that he believed all anti-mud-splashing devicos had been tested, but he was advised that there was no device sufficiently satisfactory to justify this course.

## SOME SCOTTISH "TERRORS."



THE CORKSCREW .
Known affectionately - or otherwise - as "the Corkscrew," Inverfarigaig rises in a series of terraces each approached by an acute hair-pin bend. The photograph shows four of these terraces, three in the background being identified with arrows. Many cars are forced to reverse in order to negotiate the difficult turns.

## AMULREE.

A long drag culminating in a short Z-bend and a gradient of 1 in $4 \frac{1}{2}$ briefly describes Amulree. Experienced orivers take the corners wide and thus have to surmount a slightly easier acclivity. Amulree is one of the best known of

Scottish "terrors."

## APPLECROSS.

Applecross, or to be more accurate, Tornapress, is one of the most formicable hills north of the border. The photograph gives an excellent impression of the wors'section which develops almost into a grass growa track in places. It is worthy of the mettle of the world's best light car.


> AN OFTEN PUZZLING CONDITION OF EFFICIENCY SIMPLY EXPLAINEDVARIOUS TYPES OF COMBUSTION HEAD AND HOW THEY AFFECT TURBULENCE-THE POSITION OF THE SPARKING PLUG-TURBULENCE AND SPARK ADVANCE-RACING PRACTICE.

TURBULENCE is the name given to the process of hastening the mixing of substances existing in a liquid or gaseous state. It is a simple thing, but made mysterious by a high-sounding name and lack of explanation.

We can see many instances of turbulence in everyday life. The ever-useful cocktail shaker is an example. A lump of sugar in a cup of tea, if left to itself, will take some time to dissolve, but if we stir the tea, thus creating turbulence, the sugar is rapidly dissolved.

## An Interesting Phenomenon.

Turbulence in the cylinder head of an engine is very desirable, as the thorough stirring of the mixture increases the flame rate and so assists combustion. Without turbulence the mixture, as compressed in the cylinder head, is apt to be "patchy"-that is,


Fig 1.-A cylinder head specially designed for turbu. lence. Features of note are the domed head and the concave piston crown to allow a spherical chamber.
some parts of it are highly inflammable and others are dead. Two troubles can arise from this: first, a dead patch may surround the plug points and delay ignition, and, second, ignition having commenced, the flame will be propagated in a series of jerks or pulsations through the patchy mixture, and so, by delaying combustion of the charge, cause loss of efficiency and overheating.
An interesting phenomenon believed to exist in this connection is that when the flame is started a sound wave travels out to the nearest wall and rebounds through the mixture, causing speeding up or slowing down of combustion.
Now, when turbulence is introduced in the cylinder B16
head, the "mixture" is not only thoronghly mixed and the dead spots eliminated, but by reason of the fact that it is still moving at the moment of ignition a great increase in flame-rate is obtaincd, hecause fuesh gas is constantly coming into contact with the spark, so that, in effect, a number of ignition points are established and orderly combustion follows

It will be clearly understood that the whole process of ignition occupies only a very small fraction of a second and that the mixture is burned rapidly enough to form an explosion; that is, a sudden expansion of

Fig. 2.-A conventional type of cylinder head which, while permitting a degree of turbulence, suffers from the disadvantage of eddy currents, shown by the small arrow heads
 gas, but not so rapidly as to cause detonation, which must be guarded against at all costs.

An explosion takes a measurable period of time to attain its full force, but a detonation is almost instantancous, and has a shattering effect. Fulminate of mercury, nitro-glycerine, and acetylene gas are examples of detonating explosives, and their use in engines is almost impossible, because, as they attain their full force in practically no time at all, the engine would be blown to pieces before the piston had a chance to move and so relieve the pressure.

## Gases Must be "Mixed."

It may be said that the explosion which occurs in the cylinder of a petrol engine should resemble as closely as possible the positive, yet reasonably progressive, expansion of steam in the linder of a steam enginc. A hammer-like blow on the piston head which would be obtained by using an unsuitable explosive inaterial would call for the use of extremely heavy parts, and power developed would naturally be much less than where an impulse was exertod

## TURBULENCE (contd.).

during the whole of the piston's downward travel. To bring about this desirable state of affairs it is necessary for the gas in the combustion chamber to be thoroughly mixed-a process materially aided by turbulence.

In the average engine turbulence is obtained by high intake gas velocities. That is, by so designing the inlet pipe and valve ports that the gas is caused to whirl on entering the cylinder, and, given a properly designed head, this whirling will not have died down by the time the gas has been compressed and ignited.

## Spherical Combustion Heads.

In Jig. 1 is shown a side-valve cylinder specially designed for turbulence. The path taken by the mixture is shown by the dotted arrow-lines, but the position of the sparking plug might tend to cause knocking. It will be noted that the combustion chamber might be described as spherical, the cylinder head being domed and the piston head concave. By this means a good swirling effect is created.

A more usual head is that shown in Fig. 2, and the plug might be placed in the centre of the head or, possibly, over the inlet valve. The small curling arrow-lines show the paths of eddy currents which tend to slow down turbulence but can hardly be awoided. Cylinder heads of this pattorn are very widely employed, and the illustration may be described as depicting a conventional side-valve tayout.

Fig. 3 shows in interesting shape of head from a turbulence standpoint. It will be seen that the valves are located overhead in a chamber connected by a venturi-shaped orifice with the main head. The theory of this design is that the mixture, on being comwressed by the piston is forced at high velocity, and consequent great turbulence, into the valve chamber, and is fived at the exact moment of greatest whirling.
A disadvantage of a cylinder head of this shape


Fig. 3.-An interesting shape of cylinder head from a turbulence slandpoint. Whirling of the charge would be set up by the up ward piston stroke promoting a good degree of turbu-
lence.
is that it would he almost impossible to obtain adequate compression of the charge, while the com plexity of the pattern would create almost insuperable manufacturing difficulties. The idea, nevertheless, is interesting and is commented upon on that account.
An overhead-valve engine, with valves set at a slight angle and having a flat topped piston (as shown in Fig. 4), whilst allowing of a high compression ratio, is apt, unless carefully designed, to set up eddies, which impede the main flow and so lower the efficiency to a certain extent.
The position of the sparking plug is of great importance in any engine, and should, in general, be placed at the point of maximum turbulence. Of course, the ideal position is in the exact centre of the volume of gas. because then the flame would travel outwards in all directions at uniform velocity, but this position is obviously impossible. It remains, then, to effect a compromise, and it may be taken for
granted that most engine builders have been at some pains to arrive at the most suitable location for the plug in their engines.

The methods of measuring turbulence involve some rather exact mathematics. and so need not be entered into here, but readers may be interested to learn that experiments in the flame-rates of explosive mixtures are often carricd out by means of tubes of varying diameter, and with one end closed, in which the charge is fired. Measurements of the time taken for the flame to reach its full velocity and pressure, both with and without turbulence, are thus fairly easily obtained, and the results form the basis of the calculations in connection with petrol-engine turbulence.

There is a direct relationship between turbulence and spark advance, because it can be proved that,

Fig. 4.-This arrangement depicts common practice among high-efficiency engines It will be will be noted that the overhead values are set at a slight angle. A high-compression ratio is ob tainable, but small eddies are set up and these impede the main mixture flow.

other things being equal, the greater the turbulence the less the spark need be advanced for the samo results.

In the case of the overhead-valve engine in Fig. 4, where the turbulence is not very great, it will be noticed that much more spark advance can be given than for an L-headed engine of othervise similar characteristics. On the other hand, the very high compression pressures obtainable in the o.h.v. engine and the compact shape of its combustion chamber, with consequent low heat loss, largely outweigh the disadvantages arising from low turbulence.

## Sleeve Valves and Turbulence.

Turbulence is the greatest possible asset in an engine running on paraffin fuel, as the tendency of this fuel to detonate except at very low compression pressures or by diluting the charge with exhaust gas or water injection is effectively prevented, simply due to turbulence governing the explosion and making it orderly and progressive throughout its working range.
The sleeve-valve engine allows of a high degree of turbulence, and because of the absence of valves its combustion space "can be made almost perfectly spherical, and, with the plug in the centre of the head, all the conditions for high combustion efficiency are fulfilled. It is to be regretted that more of these engines are not scen in regular competition work, but their representatives are all too few.
The admission of gas to the cylinder head of an engine provided with sleeve valves might be described as approximately similar to that depicted in Fig. 1, while a piston crown and cylinder head almost identical to that illustrated is commonly employed.

Amang engines used in racing cars it is only natural that every possible care is taken to ensure that the full combustion of the mixture is eflected at as rapid a rate as possible.


## Road Repair Dangers.

IAM not well up in the law of malfeasance or misI feasance or what constitutes a road obstruction in the meaning of the Act, but if someone cannot be proceeded against for leaving 50 sds . of road metal a foot deep right across a main road without warning signs then, in my opinion, it is time the law was amended.
I encountered such an obstacle on a recent Sunday while on a journey through East Anglia. The road, a main thoroughfare, was being repaired from the foundations, and a section 50 yds . long had been left "in the rough." The metal stretched from hedge to hedge, and was so deep that heavy vehicles had ploughed it into veritable furrows. Of warning sign, of even road-repairing kit, there was none. Drivers simply came suddenly upon it, and were fortunate if they did not find themselves right in it. Fully a dozen cars and motorcycles were held up, the owners not caring to risk their tyres driving over it. They had no alterwative but to push.

## Callous of Our Safety.

NOW it seeras to me that in this age of universal road travel such callousness to the safety of motorists should be made actionable. The danger does not lie in the immediate consequences of unexpectedly meeting such an obstacle-although these can be perilous enough. There is a more insidious danger arising from damage to the tyres.

A cover may be cut to the canvas and an incision made which later on produces a disastrous burst. For this the authority that blocked the road is directly responsible, but there would be great difficulty in bringing guilt home to it. Here is surely a case where the Ministry of Transport could safeguard road users and live up to its title instead of being, what it is fast becoming, a mere haggler with local authoritics over the matter of grants.

## Poisonous Exhaust Fumes.

ANUMBER of fatalities to motorists has occurred as a result of exhaust-gas poisoning when running the engide in a motor house. One recent case occurred at Guildford. The gases invariably contain a very small amount of carbon monoxide mixed with the comparatively harmless bulk of carbon dioxide, but as so small an amount as 1 per cent. of carbon monoxide in the atmosphere is fatal if inhaled, there is always a serinus risk present. This can be eliminated only by carrying the gases well outside the motor-house by means of a flexible metallic tube extension fitted to the silencer outlet. It is sometimes B18
convenient to run the engine in the mator house for test purposes, but there is a real risk unles: precautions are taken to lead off the exhaust fumes.

## Finding the Squeak.

AQUAINT cause of a continuous squeak considerably puzzled a driver of iny acquaintance, who even went to the extent of taking his engine down in an attempt to locate the cause of the troublo. After eeveral days' work the squeak was traced to a pinhole in the induction pipe through which tho air passed and thus produced a shrill and continuous squeal which varied with the speed of the engine.

## Lost Opportunities.

MOTORING has come too late. Had there been light cars a century or so back how much more thriling would have been the elopements, the prose and verse, the adventure and romance which has been handed down to us by our "great-greats." It requires no vast effort of the imagination to picture a light ear figuring prominently in much of the stuff with which our form-masters used one-time to beguilo us in those tedious so-called "literature" lessons. For example :-
(Scene: A Blasted Heath. ENTER JAMES, chauficur to SIR HORACE HOGSBODY.)
James: Sir Horace Hogsbody-most loathsome knightHas vowed to take my life. But he shall see. The march of Grim Revenge is slow but sure, And with the aid of the all-conquering Jove, I'll bash him.
But, soft, who comes?
(Conceals himself behind a gols of fuzz.)
(ENTER SIR HORACE HOGSBODY.)
Sir H. : Methinks young James has iked my potent 32 calibre Bilberry and Podson automatic pistol (magazine holding 10 cartridges, price 15 s ., from any gun dealer), and well he mighe.
The blitherer did willingly offend me.
When I cried "right," with trumpet roice, ho turned, And turning sneered, cried "Brighton's over there!" And swung the nimble wheel with dexterons twist, In a direction contrary to that
I had ordained. I knew the road he took And dreaded it. 'Tis pocked and pitted damnably, So that a man might think he travelled o'er A field, but lately seared by plunging plough; Or ocer an ocean, wind-lashed to furious foam, Which, in an instant. had been finzen stiff; Or o'er the parapet of ancient castle, Sn that the wheels, doubly rebounding 'gainst Machicolations, and in fall despite
Of cantilever springs (of extreme length)
Bruised, bumped and bounced the bones of him who
rode, So that he thought he were in Blackest Hel,

PlC'Il AHIXTURE (contd.).

# Or on the Hounslow road. But, soft, who comes? 

 (Conceals himself belind a budge of fudge.)(ENTE r lady bedelid hogsbony. she athers the conipression ratio of her lips with the nidd of a lipstick
Lady and a small mirror.)
: (Smiling reminisccntly.)
Jaines!
His strength, his nerve, his manly courage. When Wo met. Dread Embassy of Boanerges, A three-ton loryy on the Brighton Road, How excellont his flaming repartec Each sentence like a cantun ball expelled
From his smoke telching jaws. Striking the driver Dumb with dull, tonguc-tying dread. Ny James
Sir II. (Stepping forward)
Itimes: (Stepping forward)
мхzzzx
(HE Strikes SIR HORICE ou the compression tap with a tendinch spanner.)
Sir 1I. : (Sinking.) Consider yourself dismigsed my service without notice. (1)ies.)

Laidy 11: Dear James !
James: An And now awa, the car is yonder By the olimp of clomps. We must escipe, Nor hieed the coppers all-conpeliting arm But flanit him. 'There's no time to lose. This corpse: This bleuding cornse, cries for revenge, and you And I (and I and you) must fle full out : Nor ought oll carth our dash from here will hinder (So long as she don't miss on one cylinder).
(IAMES phaces his arm round LADY HOGSbODY'S waist and hoth EXIT Hghtly tripping.)
curtain talls slowly.

## Improving All-weather Equipment.

ONE of the features of the Motor Show, which is being held in October this year by the way, will be, unless I am much mistaken, still further improvement in all-weather equipment for small cars.

An interesting idea recently introduced on a wellknown four-seater is the provision of pockets in the doors for storing all-weather side curtains so that each curtain goes in the appropriate door, and no mistake can consequently be made when erecting it. This idea will probably be copied widely, but, in addition to improved storage arrangements, I believe that the side curtains themselves will also undergo modification. Too many existing types last only for
a few weeks cither because the frame is not sufficiently strong, the transparent material is of poor quality or the borders are of a material which soon gets dirty and makes the whole car look shabhy.
During a recent visit to the A.C. works at Thames Ditton I saw three two-seaters fitted with a new and very interesting form of all-wenther equipment. It appears that Mr. Edge set the designers the problem cif producing an equipment which, while superior to that normally filted did not make the car more expensive nor encroach too far on the preserves of the coupe. The resulting body has a normal type of hood constructed on Calso lines and capable of being folded very neatly. When raised, it makes a perfect joint with the top of the windscreen, and metalframed celluloid windows, for which folding metal guides are provided, may be hoisted from the door in which they normally repose to meet it. 'The celluloid panels are raised and lowered with a strap in much the same manner as a railway window. They are unobtrusive when in place and should be good for several seasons' motoring. The actual design of this A.C. equipment was somewhat complicated by the fact that the windscreen is of the sloping type, but small triangular celluloid panels which, like the main windows, open with the doors, are used to get over the difficulty. To my mind the idea possesses vast possibilities and is likely before very long entirely to supplant existing types of equipment.

## A Hint from France.

ASTRIKING point which occurs to me in connection with the Parisian voiturette is the type of windscreen which is almost invariably fitted to it. A single pane of glass is used, the edges being reinforced with a stout nickei-phated brass framework. This is mounted on uprights secured to the scuttle in such a manner that it hinges about its centre. An advantage of the plan is that it could easily be adapted to screcns of the sloping $V$-type, thus adding yet another advantage to this, the only really sensible screen which onc can have fitted to a super-sports model. The sloping V -screen gives better protection than any other type, but most examples suffer from the disadvantage that they are fixed in one position, thus making the driver solcly dependent upon the screen wiper in bad weather.
S.S.



> CALLED UPON FREQUENTLY FOR LONG FAST RUNS, OFTEN OVER VERY ROUGH ROADS, THE PERFORMANCES OF "THE LIGHT CAR ANU CYLLECAR" STAFF CARS ARE ALWAYS INTERESTING AND INFOR.MATIVE.

T| HE principal reason for the writer choosing one of the Lagonda cars was becauso the priuciple on which theso cars are built is distinctly novel, no chassis, in the accepted sense of the term, being used.

It was clear that with an engine of 1,421 c.c. and a car weighivg only $12 \mathrm{cwt}$. a very good performance should result, and this surmise has proved to bo accurate.

The 1924 Lagondas embody a number of features which have been employed this year for the first time on these cars, principal amoug these being an entirely redesigned rear axlo with a spiral bevel arive and embodying brakes operating directly on arums on the rear wheels.

The 1924 engine dificrs from earlier types in that all components are positively driven, a silent chain being used even for the fan drive. Attractive features of the two-seater model are the pneumatic upholstery and very large dickey seat, while the $\mu$ se of a Cialso hood and rigid side curtains of admirable design make the car equally comfortable in summer or winter.

In addition to the more obvious advantages such as those which have been outlined, the Lagonda was found to be a car which calls for very little everyday attention. There are six screw-down greasers on the front axle, one for each steering pivot and four on the spring shackles. Two further greasers are fitted for supplying the rear spring ends, and there is ono for the ball joint at the forward end of the torque tubes.

Apart from occasional attention to these greasers the car needs practically no attention. Thick oil is used in the rear axle, and this needs replenishing only at intervals of three months or so, while the gearbox, in which engine oil must be used, can be B20
left alone for an equally long period. 'l'he engine sump when filled to the correct tevel needs no oil adding for about a chousand miles.
When delivery was taten of the car, all the bright work was carelully polished and coated with a preparation of the nature of varmsha, and, after four months' use, it still remains bright, although it has not been touched with metal polish.

During the first few miles the suspension of the car-particularly at the rear-appeared to bo extremely poor, but before the thousand-mile mark was reached the springs began to settle down to their work and since then, provided they are oiled from time to time, an excellent degree of comfort is enjoyed.
Another trouble experienced during the first few weeks when the car was in use was the difficulty in starting on cold mornings; it was impossible, in fact, to get the engine going unless the bonnet was raised, the air port stopped up with a rag and the carkuretter flooded. This annoying waste of time was overcome by obtaining an air strangler from the Zenith Co., and with the aid of this the first touch of the electric-starter button produced an instant start.

Before the strangler could be added it was necessary to fit a flanged extension piece between the induction pipe and the carburetter so that the strangler should not foul the oil-pump-drive housing. The extension piece was provided by the Zenith Co., a large number of theso in all sizes being kept in stock.

The only other additions which have been made to the standard specification are the fitting of a Folberth automatic screen wiper, a Stadioscope mirror, and a rubber strip along the lower pane of the windscreen. These rubber strips are fitted as

## 5,noo MLLE'S WITII A LAGQUVA (contd.).

standard on the latest Langoda saloon models. The first long run attempted with the car was from London to Land's End and back, and at the outset of this journey about 1,200 miles had been completed. Before starting all the oil was drained out of the engine, gearbox and rear axle, the respective units being refilled with clean new lubricant.
The long run to Land's. End was made in the company of the competitors in the M.C.C. Easter Trial, the return journcy being easily accomplished on the following day. Three passengers were carried throughout the run, Porlock, Lynton, Beggar's Roost and lluchills Mine being climbed with the greatest of casc and with a freedom from anxicty which has seldom been enjoyed on these West-country terrors.

## Low Gear Scores.

The capabilities of the car on hills are due to the fact that the engine is of a very efficient type, while there is no unnecessary weight on the car and the lowest gear ratio is 18 to 1 . Second gear, which is $\Omega$ to 1 , has pulled the car with two passengers from, Ambleside up Kirkstone Pass to "The Struggle," this being the only car in which the writer has climbed so far up Kirkstone without any recourse to the lowest gear ratio.
Top gear is 5 to 1 , and allows all main road gradients to be ascended with ease without a change to second. It would be better, perhaps, if this ratio were altered, as the maximum specd of the Lagonda $-\overline{5} 3 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. -would certainly be increased if the top ge:tr ratin were higher. The best obtainable speed on second gear is 32 m.p.h., and on bottom gear 16 in.p.h. The highest comfortable speeds respectively are $26 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. and $12 \mathrm{~m} . \mathrm{p} . \mathrm{h}$.
On long runs petrol consumption has invariably exereded so m.p.g., a journey from Carlisle to the south with driver and one passenger showing a con-



VIEWED FROM
FRONT AND REAR.
$\qquad$ Regarded from any quarier, this Lagondatwo seater presents a nea! and serviceable appearance, while four months' work has left its finish almost unimpaired.

## 6,000 MILES W'ITH A LAGONDA (contd.).

when extolling the merits and disadvantages of its accossories and equipment, but owing to the fact that procumatic cushions of the Morley typo are fitted, some mention of how the arrangement has proved under everyday conditions should not be overlooked. During the four months that the car has been in use the need for inflating the cushions has not arisen, no air having been added since the car left the works. Incidentally, for the benefit of others using upholstery of this type, the most satisfactory air pressure is the maximum which one can blow with the mouth-a pump is quite unnecessary:

To obtain the best and sweetest running of this particular Lagonda, it has been found that a mix-


A positive silent chain dive is used for the fan and dynamo, while a filler of ample area is provided for replenishing the sump.

菅
ture of half petrol and hale benzole is necessary, while National Benzole mixture gives every satisfaction. When pure petrol is used it is necessary to retard the ignition every time acceleration in top, gear irom a speed of $10 \mathrm{~mm} . \mathrm{ph}$. or lower is attempted, but with a benzole mixture the ignition control may be disregarded and acceleration from as low a speed as 5 w.p.h. in top gear is smooth and unaccompanied by any suggestion of knocking or pinking.
The stecring gear if well oiled and greased is light to handle and very pleasing in action. A few drops of thin oil should be fed from time to time into the bearing at the upper end of the stecring column, and every two or three months good thin grease in plentiful measure should be foreed into the worm and sector housing.

## Protected Joints.

The yokes at the extremities of the steering track rod are covered with leather gaiters, which successfully exclude dirt from the working surfaces, and if these are once well packed with fairly thick grease they need no attention for months at a time.

In connection with the steering it should be noted that much more satisfactory results are obtained if a reasonable amount of backlash is allowed at the steering wheel. It is possible by means of the convenient adjustments which are provided to reduce backlash almost to the degree when it does not exist, but if the adiustment is carried to this extreme the steering is stiff and the car will not respond in the same delightful manner as when there is a certain amount of slack.

The hand brake on this car-to which the writer at first took very strong objection, on account of the fact that the ratchet operates in the reverse to the customary manner-proved, on better acquaintance, most convenient to operate. One is tempted, in fact, on any future cars which one may own so to adapt the hand brake that, as on the Lagonda, the ratchet works only when the hutton is depressed.

Both brakes which, as already mentioned, act direct on the rear wheels, are operated by cables, which naturally give automatic compensation. The adinstments, which consist of a form of "bottle B22
screw," need seldom bo touched, as the friction surfaces of the brakes are large, and if one brake requires adjustment before the other it is only a matter of moments to transpuse the cables on tho brake-cam levers and thus to make the pedal operate the shoes previously worked by the hand lever and vice versa.

A feature of the car which might be improved is the folding lid of the duckey seat, which it is impossible to lift unless the hood cover is first partially removed and the hood lifted a few inches. This feature is found on many twoseaters and is one which, in the writer's opinion, designers should take great pains to eliminate, as one of the principal charms of the dickey seat is the fact that, when shopping or on tour, valuable arliclus can be securely locked in it.

If it is necessary, however, first to undo half a dozen press buttons securing tioe hood cover and then to disarrange the hood before access to tho dickey seat can be gained, ono is tempted to use it less frequently than one would wish and thus be robbed of one of the principall advantages of this type of body.

The petrol and oil fillers are other points at which improvements could be made with advantage. The oil-filler orifice is of ample area, but the filter gauze which it contains is much too shallow, so that when the sump is being replenished several minutes are wasted. This difliculty can be overcome, of course, by first straining the oil through a large filter and removing the filler-orifice filter hefore attempting to replenish.

The petrol filler, which is fitted under the bonnet, is of ample size and very conveniently situated. It has been found, however, that owillg presumally to the vent which connects it with the upper part of the tank being too small, petrol can be poured into the filler only at a comparatively slow speed-


This view of the engine shows the accessible positions of the magneto and carburetter. The exhaust valve cover plate is hinged to permit easy removal.
much slower, in fact, than the average at whick a kerbside pump delivers the spirit. The need for care arises particularly when the tank is nearly full.

So far there is absolutely no suggestion of body rattle, and the car runs just as sileutly as when it was delivered. Engine compression still remains good, and there is no evidence to show that decarbonization will be necessary for some considerable time. The brake linings, owing to their largo dimensions, show litile signs of wear and the clutch remains as sweet and positive as ever. An examination of the front axle and steering was recently carriced out, and, with the front wheei jacked up clear of the ground, no noticeable wear could be detected.

## THE TALBOT-SIMMINS SPORTS CAR.



DURING the present and past season the name of Mr. A. IR. Simmins has appeared on the programmes of many events, and his specially tuned Talbot leight has figured prominently in the results. Mr. Simmins, of Simmins Garages (Winchester), Lut?., is now marketing this model, the prico inclusive being £350. Tho following is a brief description.
The Talbot four-cylinder monobloc engine is fitted with an auxiliary oil foed to tho overhead rocker shaft, Celerity valves with two springs per valve, and inlet valves of a larger valce, The compression has been diameter. and a special alloy gasket is raised and a special and head. Both used betw and exhaust manifolds, which induction redesigned, are cleaned ont have heen redesitate the passage of the in order to facilitate the passage of the gases. The bore has been increased from 57 minly to 987 c.e.
capacity

Considerablo attention has been given to crankshaft, connecting rods and flywheel in the matter of balance and reduction in weight, the flywheel, for instance, being cut down consider ably.

Induction and exhaust are made up of two separate units, the internal diamoter of both being larger than standard, and a single vertical Solex carburetter heated by a coiled pipo from the exhaust neatly introduced. The petrol tank is carried in the dash, but an auxiliary hand-pressure pump is fitted for use when high speeds are required. Ignition is by Delco battery and coil
Customers have a choice of alternativo gear ratios. These are 4.5, 7.8 and 12.7 to 1 or $4.5,8.5$ and 15.6 to 1 . The gear control is central. but the brake is on the right hand of the driver. Both brakes are, of course. of the expanding type operating in drums on the rear
wheels. The back axle has no differen tial, the final drive being by spiral bevel. The wheels are of the Dutlop wire type, with fauge fitting. 28 ius. by 3 ins., or 26 ins. by 3 ins., the tyres being Pirclli racing cords.

Springing is quarter-elliptic all round, but in addition Hartford shock absorbers are fitted. The body is of streamline form with bulbous tail, the scuttle dash being brought well up so as to give the driver and passenger the maximum of protection.

An ingenious fitting is the concealed hood which folds up and is stowed away in the boot, it being necessary merely to remove the seat squab in order to gain access to it. Naturally, the absence of a hond for ordinary competition purposes results in a far neater appearance and tends to preserve the streamline form of the car. The Talbot-Simmins has already performed remarkably well in a number of speed events.

# AN OUT AND HOME ROUTE FOR THE LONDON BUSINESS MAN, WITH BOURNEMOUTH AS THE OBJECTIVE. 

$\Gamma$ ПHE average business man's week-end starts at 1 p.m. on Saturday and concludes at whatever time it is customary to relapse gently into the arms of Morpheus on Sunday night. To the majority this respite after the week's work is all too short.

Lengtiny tours are out of the question, and routes which necessitate hard going from the time the engine is started to the moment the road-weary travellers find themselves once more at home do far more harm than good. Unfortunately, a tour is hardly considered of absorbing interest by many light car owners unless several hundred miles are covered, and this is much too ambitious for the week-ender who wants a lazy, restful run.

## A Delightful Itinerary.

With the object of meeting the requirements of tho business man, the accompanying tour has been mapped ont, and the writer makes no apology for following so far as Bournemouth the route planned for the recent half-day reliability trial of the Middlesex County Automobile Club. It is a delightful itinerary, passing through stately cities as well as slumbering villages, never far from a main road and taking in the exhilarating run across a corner of that vast area of solitude-Salisbury Plain.


Thames bridge to Egham and Virginia Water, but the turning to Ascot, about 300 yards past the Wheatsheaf Hotel at Virginia Water on the right, should not be missed. Thence via Ascot (and a jeep of the magnificent race-course) to Jracknell and Wokingham.
At the last-named place care is necessary. The wording of the M.C.A.C. route card is as follows:"Bear right in centre of town and follow Reading road for 200 yards; then hy Clock 'Tower, tura left to station and to Barkham.

## A Seven-mile Switchback.

The tourists will now begin to experience that slightly-off-the-map fecling, and they will be lucky if they make Basingstoke without having to inguire the way on several occasions-which, after all, adds materially to the excitement of a week-end tour such as this.
The going is then fairly straightforward, and, no matter whether our tourists are strangers or old


THE HALF.WAY HOUSE, EOURNEMOUTH
". . one gets the punjent but life-giving breath
from the pins as welf as the clean cut biceze from
the sea, and be would be no 'business man' who was not up be imes on Sunday morning."
All is straightforward-throngh Staines, over the


## AN TDEAL WEEK-END ON TOUR (contal.).

friends of the road between Basingstoke (via Sutton Scotney) and Stockbridge or not, they will certainly revel in that dead-straight seven-mile switchback run which brings this part of the journey to a fitting conclusion.

By now it should be close on five o'cluck, and although there miay be a temptation to linger over tea at "The Grosvenor," no more thirn half an hour should be allowed, as there is still a $50-\mathrm{mile}$ stretch to cover, much of it on picturesque by-lanes calling for a reduction to 18 -20 m.p.h. for several miles.

Salisbury is often the undoing of the unwary Lourist, for be he ever so careful, he finds that he :s rapidly losing his bearings. Again an extract is taken from the M.C.A.C. route card, which is e as ily followed: - "Continue straight through to A.A. signpost
To Sonthampton,' but take opposite direction turning right. At Cathedral Gate turn left, A.A. sign 'To Bournemouth,' and follow round Cathedral Wall to Bournemouth road; but at top of hill turn right along Blandford-Dorchester road A351 to Coombe Bissett.'
In the cool of the evening this is a magniticent rum, with its fast stretch across the plain and its more leisured section in the leafy lanes between Rockborno and Wimborne.


## OUTWARD JOURNEY.

Shepherd's Bush, Staines, Egham, Virginia Water, Ascot, Brackrell, Wokingham Barkham, Abor: field Cross, Swallowfield, Riseley, She: field on-Loddon, Basing. stoke, Sution Scotney, Stockbridge, Salisbury, Coombe Bisselt, Rockborne, Damerham, Cranborne, Wimborne, Bournemouth.

RETURN JOURNEY.
Boscombe, Christchurch, Lyndhurst, Winchester, Alion, Farnham, Guildford, Ripley, Cobham, Esher, Kingston, Shepherd's Bush.

Time, perhaps, for a bathe as well as a stroll round before taking to the wheel once again; but one is anxious to pilot our tourists back to town in time for a late tea, so that they can settle down comfortably for the night and compare notes which may become misty and only half recollected after the worries of Monday.
So away through Boscombe to Christchurch (and do not forget that $20 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. along this stretch is really considered too fast by the eagle-eyed police officers.). A waysude notice acts as a warning-also as a signpost-for in telling the traveller to beware of straying cattle it lets him into the secret. $\mathrm{H}_{8}$ is on the threshold of the Now Forest.
The magnificent resurfaced road cuts through avenues of stately trees which send one's thoughts flying, back to times of which historians can only write in vaguest terms. In daytime the ponies appear to keep to their own domain, but at night time beware!
The length of the trip does not permit of a visit to Southampton, so. with Lyndhurst behind, the main Southampton-Winchester road is joined some miles to the north-east of the first-named town.

## Homeward Bound.

Winchester, at one time the capital of England is a treasure house for the seeker after historical relics, and, if desired, he may spare the time to obtain a brief glimpse of the cathedral, Winchester College, and the County Hall, leaving the city by way of King $\Lambda$ lfred's statuc. Follows a moderately stiff climb-second gear with the majority of small cars-then one is well on the way to the final tit-bit of the run, namely, the Hog's Back, between Farnham and Guildford.

Many new motorists learn with a certain amount of awe of the existence of this "shy-high pass," and decide that it were better to leave it to more powerful vehicles than light cars; but it is not to be likened to Kirkstone, the run between Porlock and Lynmouth or even Hindhead with its miles-long ascent.

The tourist finds himself on the Hog's Back almost without knowing it-certainly when approached from Farnham-for it is an easy direct-gear climb.
Along the top a magnificent panorama is commanded. From an elevation which one estimates roughly as being 800 to $1,000 \mathrm{ft}$., one may look down on typically English countryside, the green of the fields being splashed with dark patches, denoting the existence of some tiny hamlet, the whole fading away into the haze of the distance.
Through Guildford ono rejoins the main London-Portsmouth road and encounters an increasing amount of week-end trafic. Jog aong at a nice easy pace, but keep well in to the left; other people may wish to pass you.
The shadows will start to lengthen as Ripley, Cobham, Esher and lingston are passed through.
is lucky; supper if one has tarricd by the way. Accommodation should be booked in advance.
At Bournemouth one gets the pungent but lifegiving breath from the pines as well as the clean-cut brecze from the sea, and he would be no "business man" who was not up betimes on Sunday morning.
but the evening will yet be young when, bronzed and happy, it is optimistically hoped, our travellers onco more cross old Father Thames at Hammersmith and wend their way homeward, with the pleased conviction that the week-end has been well spent and that another slice of Mother Country has been investigated.


1T must be a good light car on which one can cheerfully set forth to cover 300 miles in the day. When the starting time is delayed until nearly 10 a.m. and a five-hour stop has to be made in the afternoon, one cannot afford to waste much time on the road, and only a first-class vehicle can be relied upon to do the job

Colwyn Bay is just about 150 miles from the writer's starting point in the Midands, and owing to a mistake in reading the railway timetable it was found necessary at the last moment to go by road instead of making a composite journey by road and rail.

## Fine Top Gear Performance.

The car was one of the new $\Lambda$ ricl Tens, fitted with a 1,097 c.c. side-valve engine. Starting at 9.45 a . m., Corwen ( 106 miles by speedometer) was reached at $12.45 \mathrm{p} . \mathrm{m}$., the run down the Holyhead road having been covered on toj. gear and the considerable climb near the Chirk aqueduct negotiated on the 4.82 to 1 ratio in fine style with two up.
Half and hour laier the car was on the road again
and reached Colwyn Bay before 2.30 p.in. Had one gone by train one would have caught the Irish mail, which would have beaten the car's gross the by only half an hour ; therefore, cutting out the


The more cumbersome tools, such as wheelbrace, pump and jack, are neatly clipped in position under the rearseal. This minimizes ratule and leaves ample room for the usual tool kit.
luncheon stop, the Ten would have equalled the perlormance of the express.
Colwyn Bay was left again about 7.30 p.m., home, in the Midlands, being reached all $1.30 \mathrm{a} . \mathrm{mm}$., the five hours gross time including linree-quarters of an hour stop for dinrier, the change of a wheel and the repairing of a punc-


SAFETY FIRST. B26

A usoful signalling flap is provided in the side screen, but with only the forward screens in position the drivor can comfortably extend his arm behind the screen as shown. ture. The wholo of the return journey was made in pouring rain, but, despite this, an excellent average speed was maintained. Again comparing the performance of the car with that of the train, one finds that the car beat the railway by half an hour, despite the slops to which refer ence has already been inade.
Two other journcys of over 100 miles each were covered in under three hours on this wonderful little four-cylinder and enabled the time of the equivalent train jourrey to te approximately halved, although the starting and stopping places were large and important cities.
The lessons to be learnt from these cross-country spurts are the wonderful improvements that have been made in the modern light car

## THE ARIEL TEV TESTED (contd.).

design. In the case of the Ariel Ten the engine runs so smoothly at all specds that it is a positive joy to drive on the wider throttle openings.

When running at $40 \mathrm{~m} . \mathrm{p} . \mathrm{in}$ there is not a tremor from the power unit or tramsmission, the throttle is a. bout half open and the car will maintain this speed without effort. On the level it could be speeded up 1.) $50 \mathrm{~m} . \mathrm{p} . \mathrm{h} .$, but the averages referred to were attained by maintaining a speed of $-10 \mathrm{~mm} . \mathrm{p} . \mathrm{h}$. and hardly ever touching the maximum

The rapid acceleration after slowing down for crossroads and corners, combined with the excellent liraking, also materially assisted one in maintaining a high average, a feature of note on this car being the friction grip for the hand brake, which replaces the usual ratchet and enables one to apply and remove


The gearbox is mounted on the forward end of the torque tube, the ratios being $482,8.67$, and 15.61 to one. Thirty m p.h is possible in second.
the brake simply by pulling or pushing the side levor, Which, like the gear lever, is mounted on the off side of the driver.
The second astounding feature of this little car is its ceonomy in petiol, for at an average speed of a 5 m.p.h. the consumption worked out at $35 \mathrm{~m} . \mathrm{p} . \mathrm{g} .$, , and at the legal limit would doubtless average the $45 \mathrm{~m} . \mathrm{p} . \mathrm{g}$. which is claimed by the makers. The secret of its success is undoubtediy its high power-weightratio, for the vehicle only weighs if cwt., while the engine develops $22 \mathrm{~h} . \mathrm{p}$. at $2,500 \mathrm{r} . \mathrm{p} . \mathrm{m}$. The engine is a thoroughiy well-built and compact littlo job. The canshaft is driven by helical gears, the crankshaft runs on three bearings and all bearings are lubricated by pressure fecd.

The chassis work is no less sturdy or neat. The three-speed gearbox is mounted on the front end of the torgue tube, the ratios being 4.82, 8.67 and 15.61 to 1 . On second gear $30 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. can be allained, and it must be an exceptional hill which cannot be scaled on this speed.

## A Fascinating Car

On top gear the car with two up climbed with some reserve of power certain well - known gradients which many other cars of the same class will just stagger up or else require second gear. This combination of speed and power at a comparatively low r.p.m. is very gratifying, and is one of the reasons for the charm of driving this litile vehicle.

With a car capable of such high speed, steering and suspension arc important facters. The stcering is cffected by worm and wheel, while the suspension relies on quarter-elliptic springs. While one cannot pretend that the car can be driven to a fraction of


By lifting the floorjoard in the front compar men: the gearbox is instantly accessibe. To preservea tidy interior in the cockoit stout clips are fitted which hald the mat in position an inch at speed over $b u \mathrm{mpg}$ roads, the combination of steering and suspension is well up to the average of light cars of this class. As with many vehicles employing quar-ter-elliptics for the front springs, there is some tendency to slither when cornering fast on rutty surfaces, but on the straight one possesses an adequate command over the vehicle.

Themodel tested was a de luxe edition, and incorporated a Lueas five-lamp set, driviny nirror, hood Lag, Smith's speedometer, which was tested against the watch and milestones for speed and distance, spring gaiters, sercen wiper and floor mat. With this equipment the price is $£ 210, \mathcal{L} 12$ extra being charged for the Lucas electric starter which was fitted. The last-named accessory gave absolute satisfaction, starts from cold being facilitated by the strangler to the Smith carburetter, and the slow-running setting control which, like that for the strangler, was convenicntly fitted on the instrument board.

The rear side curtains are stored in a pocket on the near side of the shell, so that it should not be necessary to disturb any of the passengers in order to remove them. The following details of the car are of interest:-Potrol capacity, $1 \frac{1}{3}$ gallons; wheelbase, 8 ft. ; track, $4 \mathrm{ft} .2 \mathrm{ins}$. ; R.A.C. rating of engine, S. 96 h.p.; Goodyear stecl artillery whecls fitted with $26-\mathrm{in}$. by $3-\mathrm{in}$. ( 700 mm . hy 80 mm .) Dunlop Clipper cord tyres. 'The makers' address is Aricl Works, Lid., Bournbrook, Birmingham.


Brake adjusting ecr:ws are easily reached, and it takes only a few momen' to giva each thumbscrew the ne cessary haf-turn, which manlans the sistem it its maximum efficiency.

## Every Motorist Should Know That-

## HOME GARAGES MUST BE SANCTIONED. <br> TEMPORARY BUILDING FORMS-POWERS OF LOCAL SURVEYOR.

TTHE motorist who is fortumate enough to have room beside his house, whether it be a new building or an old one, for a garage, should bear in mind that, before any structure is erected, he must conform with certain building regulations.
At the outset, the front of the building must be erected so that it does not trespass beyond the recog nized building line of the road. As a general rule, it will be found that the designer of the house has availed himself to the fullest extent of the space at his disposal and that the front of the building, which is probably represented by the face of a bay window, renresents this line.
The next step is to obtain a " temporary building form" from the offices of the local engineer and surveyor. On this certain details will have to be given, and, what is of equal importance, a site plan of the ground, also plans and elevations of the proposed structure itself will have to be drawn.
There is no necessity, however, to call in the services of an architect, as the drawings are hardly of a detail nature, and any intelligent motorist should bo able to complete them. This form is returned to the district engineer and surveyor, who brings it forward at the next meeting of the council. If it be in order it will be sanctioned, and work may be started forthwith.
In some districts the order giving sanction for erection is accompanied by another form, upon which must be filled in the date upon which the work is started, this form being returned in due course to the engineer and surveyor. Examination of the building as it is being erecied may be made subsequently by the surveyor, but the owner is seldom informed offi-
cially of such an examination, unless there are points in the design not shown on the plans which call for modification.
No home garage is complete without a proper concreted washing area, but when mapping out the plans for submitting to the local surveyor particular care must be given to tho question of drainage. It is not sufficient that a channel be provided with an outlet on to soil, grass or gravel, nor is it likely that the council will permit the chatunel to fall towards, say, the paving of the road. The owner must, in fact, provide a self-contained system of drainage, and bis best plan is so to arrange the: level of the concrete floor of his washing shelter that a good fall will be obtained to the nearest gully un his own premises.
The system of drainage should be plainly marked on the plans submitted to the council, for should it become necessary to make any altexations afterwards at the request of the council, it might prove an extremely expensive undertaking.

This necessity for clearness is, in fact, a sine qua non throughout the negotiations which the owner has with the local engineer, for it must not be forgotten that the authority of the latter is practically supreme and that he can condemn the finished work, even though it might have been passect on maper. Such condemnation would be warranted not hy the general design, however, but by the detail workmanship.

Where the pathway in front of the house is not " made up," i.e., kerbed and paved, the owner would do well to apply immediately for an eatimate for a light foot-crossing, the work to be put in hand at such time as kerbing and paving ire undertaken. This will reduce the cost.

## TO IMPROVE REAR.WHEEL BRAKES

AFREQUENT cause of annoyance to owners of cars fitted with certain types of suspension and brake layout is that when the back seats are fully loaded the springs flatten out, thus moving the centre line of the rear axle sligintly backwards. This often causes the adjustment of the brakes to tighten and, consequently, the brake shoes rub against the drums.

The most obvious cure for this complaint is, of course, to slacken of the brake arljustment so that sufficient clearance is obtained, but it will usually be found that if this course is adopted the brakes are inoperative when the car is only iightly laden, and the consequent need for frequent adjustment according to whether the car is fully laden or not is dangerous, as it is a small matter which one is apt to forget in an emergency.
but, in any case, ipart from the danger of such a condition, it is more or less of a nuisance, according to the degree of ease or otherwise with which this adjustment can be made. liur thermore, the operation of adjusting brakes is sometimes a "messy" iob, and, from the average owner's point of view the less frequently it has to be performed the better
A more salislactory cure can be
B28


Brake controls which "joggle" when applied on rough roads and brake shoes which rub when a car is heavily laden may be remedied in the manner depicted.
made in two ways, the first of which conaists either in stifiening up the rear springs or fitting stronger ones, but these would be somewhat costly undertakings, and it is very likely that comfort would be sacrificed when only one or two passengers were in the car, due to the natural harshness of comparatively unyielding suspension.
The second and more simule cure consists of finding the point about whici the arc struck by the rear axle is centred. This point is, of courge, at tho extremity of the efinctive radius of the spring, nod, in the case of rear springs, will be at the edge nearest to the back axle of the spring anchorage platform. ?he brake rod is then divided at a point slightly to the rear of this centre (that is, away from the back axle), and a yoke is inserted, thus the brake rod will have a movement in sympathy with that of the springs, and the ares described by the rearward extremities of the springs and the brake rod will be concentric -a state of affairs which wili pre vent the lirakes from rubbing when the cal is heavily laden.
It is, of course, necessary to fit some form of support adjacent to the point of division of the brake rod, and on the side nearer to the brake lever-that is, awav from the rear axle.

Conducted by Edmunid Dangerfield.
IEMPLE PRESS LMMITED pronrictors of "זн\& motor," " MOTOR CYCLINg." 7-15, IRosehery Avenue, London, E.C.I.

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196, Deansghte, Manchester.


## 1erters

liditomial Communications should be addressed to The Eilitor, "The light Car and Cyclecar," 7, 9, 11, 13, and 15, Rosebery Avonue, London, E.C.1. Letters telathg 10 AdVERTISEMENT and Publishing Departments shoukl be addressed to The Manager.
Anvertisement Copy, Blocks, \&c., should come 10 hind by Tuesday morning to ensure careful attentoon and allow tume to submut proofs, except when an zarloer time is specified.
Sulincrimtions.
"The Iight Car and Cyclecar" will be mailed egularly at the following rates:-

United Kingdom $12 \mathrm{~ms} . \quad 6 \mathrm{~ms} . \quad 3 \mathrm{~ms}$
United Kingdom 12 mis.
19 s .0 d.
$19 \mathrm{~s} .0 \mathrm{~d} . \quad 9 \mathrm{~s} .6 \mathrm{~d} .4 \mathrm{~s} .9 \mathrm{~d}$
Fisewhere... ... 21 s . Od. 10s. Gd . 5s. 3 d .
Single copies 3d., post free $4 \frac{1}{1} \mathrm{~d}$. Subscriptions should be addressed to the Manager. The iournal is published every Friday, and should any difficulty in obtaining it be experienced, we should be obiiged to recelve the name and address of the reader's newsagent

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# Topics of the Day 

## Newspaper Scaremongering.

THE period of the year when the newspaper-reading public is least critical of the news and views served up to it is approaching, and already the well-worn features are beginning to make their appearance. "Motorist" heaclines are growing in
 reading about "Reckless Motorists," who, lower down the column, are revealed as bus drivers under whose wheels pedestrians have almost flung themselves, and "Drunken Motorists" who are grudgingly admitted to be trade drivers.
It is our considered opinion that most of the anti-motorist propaganda which appeare in the daily papers at this time of the year cam be described only as a deliberate and utterly unjustifinble stirring up of class hatred. If this were not the case, why should taximen and drivers of buses, vans and lorries be described as motorists when the term "motorist" is univereally regarded as applying only to those who motor for pleasure and to those who drive their own private cars? We ask the newspapers to be just this "silly season" and to temper the attack which has been conducted so unmercifully against the true motorist with a few headlines that describe more accurately the news which they purport to convey.

## America and the Light Car.

WE hnve already dealt with the Indianapolis decision to limit the engine sizes of competing cars in 1926 to $1 \frac{1}{2}$ litre, and we pointed out the obvious deduction to be drawn from this, namely, that American designers are turning their attention to the possibilities of the light car. Hot on this

## A Significant Development.

 interesting development comes the news that an American concern has sent a cablegram to tho Junior Car Club asking for full details of the annual 200-Mile Race. It would appear that with characteristic energy our American cousins are following up their interest in the 1,500 c.c. machine, and it is even rumoured that, given time, they will build a special racing car for the 2CO-Mile Race.We should not be sportsmen unless we welcomed such developments, and we feel certain that not only the Junior Car Club itself but every driver who has entered or who is thinking of entering for the great race will welcome \& competitor from across the "Herring Pond." It previous races italy and France have been represented, and, be it said, British competitors have been more than able to hold their own.
Tarning to the aspect of a possible American light car invasion, it must not be forgotten that in this particular branch of automobilism British manuiacturers are literally years abead, but they would have to expect an invasion on a quantity production basis at cut prices. Nothing but his reputation and the uniform excellence of his production would then serve to protect the British manufacturer, but undoubtedly these would form armour which even the keenest competitor would experience difficulty in piercing.

As we suggested in our editorial article last week, British manufacturers must forestall the would-be invader and show the U.S.A. public that if light cars are wanted Great Britain ca: supply them. Whilst this would hardly check American activity, it wonld have the effect of strongthening the position of the home manufrcturer. In the meantime attention will be fixed on the 200-Mile Race, and an American entry will be eagerly awiated.

## THE SCOTTISH "SIX DAYS'."

## DETAILS OF COMPETING CARS—WEIGHINGIN AT EDINAURGH-CARS START AT THREE-MINUTE INTERVALS.-TACKLING "THE CORKSCREW."-AMULREE AND TORNAPRESS.

TPecbles Were busy scencs at the Pecbles Co.'s garage in Edinburgh last Sunday morning, when competitors roported for the Sicottish Six Days' Trial, which started on Monday and will be concluded to-morrow (Saturday 2 : Seventy-six solo motorcycles, 16 sidecar machines, three Morgans and 16 cars are taking part. Of the last-named four hare engines excceding 1,500 c.c., theso being an Alvis, a Morris.Cowley and two Galloways. Full details of their pert formances in the trials will be given in our associated journal The Motor.

After all the motorcycles had been checked in, examined and sealed on Sunday morning the genia! offcials turned their attentions to the cars. All competitors had to turn out their tool boxes and declare the nature and number of the spare parts which they were carrying.

## Contraband

Small parts, such as chain links, valvo springs and magnoto spares, were per missible, but spring U-bolts, complete magnetos, pistons and the liko wero strictly verboten.
H. F. S. Morgan, with Mrs. Morgan, attired in spotless white, reported with a very smart litule car, painted blue and fitted with an 8 b.p. J. A.P. engine. Their team mates, W. A. Carr and Frank Spouse, are driving Blackburne engined models.
A. WV. Brittain turned up smiling with the B.S.A. Snowdon Ranger, W. H. Oates's extremely smart Lagonda saloon -a veteran, by the way, of the R.A.C. Six Days'-a fifording a striking contrast to the somewhat battered pillar-box red body of tho B.S.A.
T. A. AcKenzie's car was finished a spotless white, a colour which probably shows up the litile McKenzie sports model to the best advantage.
V. G. Wallsgrove and M. V. de Satgó arrived at the depot each with two chain-clad wheels adorning their spolless sports models. Wallsgrove's car has a burnished copper oxhaust pipe, a feature which certainly improves the appaarance of the car. De Satgé, to guard against flying stones, had fixed a piece of close mesh wire netting across the front of his radiator.
The two Rhodes, a grey two-seater with Dunlop balloon tyres driven by H. B. Denley and a red ocensional four driven by B. Alan Hill, both looked businesslike. They have 10.8 h h. engines and four-speed gearboxes. The oxhaurts, by the way, have been materially silenced.
An Ariel Ten and a Humber Fight are other chummy bodied cars. The Ariel arrived, like most of the others, with two spare wheels much in evidence, the Humber having only one and chains on the off-side rear and spare wheels.
T. Holt's two-seater G.W.K. seemed in excellent fettle, although it has cer tainly lost the bloom of youth. Leno's Hampton had Michelin Confort tyres on the rear wheels only and normal. B30


DIFFICULTIES OF INVERFARIGAIG.

As usual, the famous "Corkscrew "' look its toll, and clever driving was necessary in order to pilot the cars round the acute bends. Here is A. R. Croall (Ariell negotialing one of the eight hairpin bends encountered in the climb.
pressure covers on the front. Oates had Michelin Coniorts on all wheels and tho two spares of his Ligonda.
E. I'. Pasman seemed, however, to fear tyre trouble more than any other driver. His Frazer-Nash arrived with two spare wheels and three spare covers arranged precariously along the running boards. His car is an all-aluminium bodied sports model similar to the Lecero G.N. but with a four-cylinder Ruby engine.

It was noleworthy that many of the cars were fitted with Hartford shock absorbers, these being noticod on Brittain's B.S.A., both Rileys, the McKenzie, the Frazer-Nash and Alan Hill's Rhode.

After the toolboxes had been ransacked the cars remained ander the care of the Edinburgh and District Motor Club-promoters of the event-nothing being allowed to be done to them until
the following morning, and then only in the runnurg time of the trials.
In this event a margin of only thice minutes early or late is permitted, silver cups heing awarded to all competitors who keep within the timo limits and make clean non-slop ascents of the sixteen test fills. In addition, not more 1 han 20 marks may be lost for "condition "-an examination to determine the penalty for which will be conducted at the conclosion of the trial.

Gold medals are to be awarded if a silver-cup porformance, savo for failure on one hill, is put up, and silver medals will reward those who fail on a certain mumber of hills and lose no more than 60 marks for "Reliability," which is, in effect, time-kceping.

The first motorcyclist left the depot on Monday morning at $7 \mathrm{a} . \mathrm{m}$. The solos, sidecars and Morgans run at half-minute intervals, while three minutes separate

NCOT'lSll SHA D.A'S' (contd.).
each four-whecler from the ear immediately in front and behind. This plan is very satisfactory from the point of view of the car drivers, but the Morgans are simndwiched in aniong the sidecars and laive to take thelr chance of getting a clear run at the hills.
The intervals mencribed make the last car driver 98 mmutes belinide the first motorcyelist, while the first and last car are 48 milmion apart.
Frouse led the Morgan team out of hic deport on Mondian monning and Bintain headed the cirs. He was away at 7.50 for the 220 mile run to Inver nes.

The mu:s nrigimally decided upon for Alonday 11 as changed, so that tho lovils Ellow was omitted, hut in place If this fammus acclivity the Inverfaribatig corkeme was included Anoller insorved hill, 30 miles out, was als-1 wh the new route.
All want well to the new hill, but mreats of rail made matters rather diflicul!. Tle first bit of trouble in the trial w.as foreshadowed by directing IIM:Ms which sent the competitors down a marross lane to the right. For 29 miles the route had lain along main wouls. Sturely after entering the lane overe ditticult liy the marrowness of the way and the steep gradient. By now tho rain had stopped.
The sugnce was rough and stony, lint aflurded a good grip. Spouse's Morgan had to be pushed back at the descent hair-pin, hut II. F. S. Morgan ant Carr just scraped round.
Eyery four whecler had to reverse suce, some of them, including the two RLeys, twice. Following the hair-pin lienil came at further short dessent and then a winling rise of 400 yards or $5 .$. with n maximum gradient of about 1 ${ }^{14} 6$.
Carr's Murgan failed on the ascent, apparently hecause the change down was unduly delayed, and, with the exception of the G.W.K., all the four wheelers ascended successfully.

## On Sheriffmuir.

After a few miles of by-lanes, the main road to Stirling was joined and foilowed into the lown. A furn to the right was then made, and this commu. nicated with the foot of Sheriffmuir Hill, which was observed.
The hill is long, has many sharp leetids and two difficult hair-pins. Trees spanned the road, and the surface was n mixture of clay, wet leaves and slippery pebbles. Considering the difficulty of the ascent, it was truly surprising that there were no failures aniong the cars and cyclecars. The only thrill was afforded by E. l' Paxman (Frazer: Nashl, who took the worst bend at speed, and leaving the road, dashed through a bed of stinging-nettles. Ho managed to regain the road however and continued with his dashing climb.
Specially good climhs were made by the Rileys, the Rhodes, the Lagonda athd the Humber.

Fight miles of mountain tracks were fullewed from the summit of Sheriffmui: before the main road to Crieff was joined. Aiter about 3 miles, slippery lanes. which were very narrove, made the going dificuls, espec:ally as torrents of rain were again falling.
'Twenty miles farther on the fool of Amulree was reached. The hill is very long and lias two hair-pin bends disposed not unlike those of Porlock and equally difficult to negotiate. The surface was not too bad, but tho sidecar and solo men had churned it up at tho corners.
Failures among the cars included 13. A. Mill (Rhode), whose gearbox suf. fered a slight tomporary seizure, and $\mathbf{J}$. Leno (IIampton), who was too fast and failed to negotiate the last hair-pin bend.


Many drivers gave their Parsons chains an initial stretching. Sam Wright (Humber) is seen removing his chain previous to the weighingin.

Paxtuan, in the Frazer-Nash, was again sensational. This time he hit the lank hard on the second corner and was precipitated with his passenger into the road. The car had partially overturned, but not much damage was done, and when it was righted again the climb was completed.

Amulrce formed a fine test of cooling, and among the light cars the Rileys scemed, at the summit, to be the only
one which were not showing signs of boaling.

Oates was again steady and very sure in his Lagonda, the liumber and the I3.S.A. drivers made no mistake, while Croal (Ariel Ten) made a neat and polished climb.

The G. W. K., driven by J. Holt, seemed to have plenty of power in hand. Spouse (Morgan) lifted one wheol clear of thie ground as he took the second bend.

This descent from the top of Amulree into Kenmore was precipitous, and the surface was in a glastly condition. The Morgans scemed happy with their front-wheel brakes, but several of the four-wheelers skidded fairly wildly au the corners.

Lunch awaited the compotitors at Pitlochry, 20 miles from Kenmore-and a very walcome meal it was for the sturdy band of mountaincers.

## Inverfarigaig.

The principal and only observed bill during the afternoon was the renowned Inverfarigaig corkscrow, with its oight hair-pin bends. The route to the hill, some 100 miles from the lunch stop, was mostly over mountain tracks alternated by fairly brief spells of main-road going. The magnificent sun-bathed panoramas commanded from the mountain roads were enjoyed by everyone, but it was pleasure tempered by anxiety for the outcome of the afte:noon's run.

The foot of the Inveriarigaig Hill looks innocent enough, unless ono happens to look upwards towards the summit of an adjacent miniature mountain. The winding rutty lane is then seen threading its way among the trees. Apart from the ruts and loose surface, the acute bends and the gladient, the climb, as an Irishman might say, was casy.
(Continued on page 290.)


MORGANS' FINE PERFORMANCE.
$\qquad$ The Morgan team, especially H. F. S. Morgan, did well on Inverfarignig. Our photo shows Carr in the act of passing Spouse, who has had to reverse," on one of the bends.


## ANOTHER BUSY WEEK-I


(1) A new slipway which has been erected as a means of

PORTHCAWL SPEED TRIALS. access to the sands. It is a great improvement on the temporary boards which were laid down last year. (2) Amphibious racers. (Lolt to right) N. Neale (Humber), J. M. Lewis (Gwynne) and M's G. B. Thomas (Humber, accelerating from the start. (3) Owing to the treach arous nature of the sands, bourds were necessary at the starting line.


SCOTTISH SLA DAYぶ (contd.).
H. F. S. Morgan made light of the hill at the wheel of his $8 \mathrm{~h} . \mathrm{p}$. Morgan; but Spouse, driving a 10 h.p. model, slopped at the fourth bend and had some difficulty in restarting. Ile almost haulked WV. A. Carr's Morgan which was just behind, but Carr scraped past and rounded all the hair-pins successfulis.

For four-wheelers the hill proved to be a test of steering lack and driving skill, but wheelspin was also a trouble to be contended with. In this connection it was noteworthy that lowpressure tyres seemed to help Denley's Rhode and to hinder Leno's Hampton.

Denley and A. WV. Brittain (B.S.A.) appeared to share the honours for best climbs. Neither reversed once, and they were both very sure. The Lagonda climhed the bank at the second bend. but did not stop, and had plenty of luck for the rest of the climb.

## McKenzie a Star Turn.

T. A. McKenzie (McKenzic) was another star performer who did not reverse at any bend, as also was B. A. Hill (Rhode).

Wallsgrove (Riley) resersed once and De Satge (Riley) iwice. A. R. Croal was another who reversed twice, as also did the Humber Eight, the G.W.K. and
route led along main roads through Strathpeffer and Kinlochewe to Diabaig, the afternoon run being over the same route back to luverness. There was only one observed hill in the morning and afternoon, the competitors being called upon to climb one side of a mountain on the way out and tho other on the way back. In the morning it was soon apparent that the day was to be a tour; road surfaces were good and the scenery truly magnificent. A long sinuous ascent followed n check some 30 miles out, but the roads were otherwise fairly flat. Several miles were covered through a natural ravine between the moundains. The only observed hill was 74 miles from Inverness and 4 from Diabaig, the lunch stop. The gradient proved to be easy, and the rumoured hair-pins were actually gentle sweeping bends. De Satge (Riley) skidded the lower bend at speed, but otherwise there were no thrills. The McKenzie made one of tho fastest climbs, while several drivers finished on second. Brittain's "Snowdon Ranger" B.S.A. brought up the rear with a climb as polished as usual. About 4 miles farther on there was a second observed hill, and it transpired that the first had heen observed in error. The second hill was more difficult but caused no failures. Following came the descent of Diabaig, which had to be climbed in the afternoon. The descent allowed
pulled well, but the G.W.K. was slow. The McKenzic and Wallsgrove's Kiley shared the honours for best ascente. The roturn along the same route which was followed in the morning was uneventful and somewhat wearisome. Spouse (Morgan), 20 miles from bome, had trouble with an inlet pusli-rod and finished on one cylinder, only just in fime.

Applecross was tho principal test hill on Wednesday. A steadily falling glass and an overcast sky suggested that it was to be a rainy day when the cornpetitors left the depot. Tueveray's courso was followed for the first 50 miles or so, when a turn was made for the droaded

F. S. Spouse (Morgan) on Amulree. This hill caused little difficulty

Tomapress. Which must bee climbed nonstop. On the far side is the descent to Applecross, which has to be climbod in the afternoon. Tornapres: has two hairpins and a severe gadient. The length of the climb is over 5 miles, and the hair-pin bends lis in wait for the not engines almost at the summit.
A stiff culd wind blowing down to Tormapress was helpful. Spouse and Morgan climbed wel!, but Carr hit 1 ho bank and had to retire. The 13 S .4 . was very good. also the lileys, McKenzio and G.lV.K. The only failure was out-


Shrouded in mist at the top of
Kenmore. A Riley sporis with of
Satge at the wheel
side the 1,500 c.c. class. Many used chains, including the Rileys, G.W.W. and Morgans. The B.S.A. W.K. did not reverse. Rain fell most which morning, but the climb was in the the and the surface was good.

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## HEAVY GOING AT PORTHCAWL

# DESPITE WET SANDS, SPEED TRIALS PROVIDE EXCELLENT MATCHINGSJ. A. JOYCE (A.C.) MAKES FASTEST TIME OF THE DAY, BEATING CARS OF MUCH GREATER CAPACITY. 



MAKING A SPLASH
J. A. Joyce's victorious A.C., fitted with improvised sand (and water) guards splashes its way along at high speed and passes H. K. Moir's Bentley. Joyce's time for the mile was $49 \frac{3}{5}$ secs.-remarkably fine going for a light car.

S
§OUTII WALES, last week, was the hub of motoring competition activity, and Friday and Saturday vere given over to sand-racing and hill-climbing

The sand event was held as usual at Porthcawl, but this year the organizers experienced considerable difficulty in ruming it owing to the direction and strenglh of the provailing wind, which prevented the tide from receding as quickly as usual, and blew it in again long hefors it, was, strictly speaking, due to arrive! As a result the sands were covered with a film of wator, and as they sped down the course the competitors sent up a shower of spray, often to the oxtroms discomfort and danger of those behind.

Sand-racing under these conditions is not by any means pleasant for the participants, but causes the spectators a certain amount of entertanment. A fairly lerge cr.swd lined the cliffs which fairly lerge cr.swd lined the clifts which
overlooked the course, and they were kept "au fait" with what was going on by two large microphene amplifiers.

## Light Car Beats All-comers

J. A. Joyce (A.C.) was fastest over the standing mile, his time being 493 sece. H W. Cook's T.T. Vauxhall "Rouge et Noir," made the run in $50{ }_{5}^{3}$ бecc., whilst Kensington Moir-a one-time driver of small racing carspiloted a Bentley, and covered the course in 52 secs.

So acute was the discomfort caused by the flying spray and sand thai Joyce imprcvised a set of mudguards, consisting more or less of flat boards; they were, however, effective, and added greatly to the driver's comfort.
$A_{5}$ representing the capabilities of a stendard car lurned racer, the perform-
ance of Morgan's $10.15 \mathrm{h.p}$. Fiat is worthy of note. This car has covered a hundred thousand miles, has been used as a hack by a number of different drivers, and now appears with a slightly hotted up engine. It covered the mile in 1 min . sec .
Practically all the cars experienced a good deal of wheelspin when getting off the mark, Joyce's A.C. being noticeably handicapped in this respect. Even when the venicles got going they slithered badly in sharp, short sideslips and obviously were somewhat difficalt to handle.

## An Excellent Race.

Although the A.C. actually made fastest time of the day, it suffered defeat in an oxciting battlo with Cook's Dauxball and Paul's Beardmore, this being the handicap event for the winnors of the open classens but it is worthy of mention that the A.C. started from scratch and that it put on a tremendous spurt near the finish, overhauling one of the competitors-the 200 -mile Salmson. It was an exciting strugzle, and ono which was well worth watching, for tho contestants finished in a bunch, and from certain parts of the cliffs it was difficult to say with any degree of certainty who was the winner.
In view of the popularity of the South Wales Automobile Club's Speed Trials the entry was disappointing-in fact several of the classes wero unsupported. A somewhat Gilbertian situation arose A somew towards the finish when the timeso that it should not be caught by the tide. The complete results are given in the next column.

## OPEN EVENT

Two-cylinder Cars Under 1,300

1. A. J. Sgonina (G.N). 1 min. 21 c.c. 2 seco. Under 1,200 c.c.
1 O. WV. Joner (S.smion 1,200 c.c. min. 3 secs, 2. F. Ucwell (Austin). 1 min. 1242 secs.
Lewis (Gwynne), 1 min. 1725 seca.

Between 1,201 c.e. and 1,500 o.c.


Between 1,501 c.e. and 2,000 0.c.
 Keen (Morris Cokley), 1 min. $4-5 \mathrm{sec}$ Yomeroy (H.E.). 1 min. 1425 scos.

Between 2,001 c.e. and 2,500 c.c.
 R.

Hetween $2,501 \mathrm{cc}$. and 3,000 e.e.
 Moir (Bentley). 54 4-5 nees
1 J. Jogce (A.C.) and H . W Cook (Vauxhall tied. 50 1-5 sees. is. H. K. Noir (Bnctley). 5245 secs.: 4. C. Panl (Beardmore). 63 secs. Handicap for Winners of Prevlous Classes. 4 secs. (Beardmore): उ, J. Josce, scratch (A.C.).

## CLOSED EVENTS.

CLOSED EVENTS.
Not Exceeding 1,200 c.e
1, F. Mowell (Austin), 1 mln. 1633 seos.; 2. J. Thoraas (Hamber), 1 min. 2445 seca:

Neale (Humber), 1 min. 251.5 seos
Between 1,201 ec. and 1,500 c.c.


Between 1,501 c.0. and 2,000 o.0. 1. D. Neale (Brardmore), $1 \begin{aligned} & 1 \\ & \text { min. } \\ & 7\end{aligned}$ Ralins (Morris-Cowley), 1 min. 10 secs.

Unlimited c.c.
 Ladies' class.

1. D. Wakleg (Alivis). ${ }^{1}$ min. 173.5 seca, ; 2 ,
 sec. 1. Amateur Members' Handicap


## CAERPHILLY HILL-CLIMB.

FINE PERFORMANCE BY STANDARD DARRACQ -RAYMOND MAYS'S CHAPTER OF ACCIDENTS.

THE second day of the South Wales Automobile Club's meeting consisted of a hill-climb at Caerphilly on Saturday, July 19th, which proved to be an ungualified success in every way, Not only were the entries good and the weather excellent, but the organization attained a degree of perfection seldom met with in such events.

The first car, Sgonina's G.N., was away within five minutes of the advertised starting time, and from then onward the classes were run off with commendable promptitude. In the 1,200 c.c. class Wilson Jones's Salmson, Howell's Brooklands-type Austin Seven, and Bosher-Jones's Gwynne Eight were all excellent; while Sgonina was given a second run in this class, as he had been baulked by a dog on his first ascent. Shortly after this the same dog got in the way of another car-and will trouble motorists no more.
In order to give the spectators a better chance of seeing the fast cars the 1,500 c.c. class was postponed until after lanch, a decision which proved very popular, as to get hir car ready in time.

Mays 2 ad an extraordinary run of bad luck, for his mechanic was held up in a tralfic block when driving to the weighbridge, and, on restarting, the rear axle broke. Mays's second car was hardly in good enough tune to secure fastest time of the day, but he weighed in with this, and then pushed the damaged car on to the weigh-bridge, and, towing it back to the garage, immediately started to put in a spare axle. He arrived at the hill just in time to compete in his class, but failed on the starting line with gear trouble on his older car. He then completed a run on the new car, which gained him first place in the 1,500 c.c. class, although the engine was missing badly.

## A Narrow Escape.

He rectified this and started the second run, when ono of the spare axle shafts, fitted that morning and which had already seen considerable service, broke on the second corner. The wheel bounded high in the air and passed the car as Mays, by brilliant driving, brought it to rest undamaged. As a crowning stroke of ill fortane his van also broke down on the way to the hill.

The luncheon hour provided a welcome break, and the refreshment arrangements were admirably organized. After lunch the 1,500 c.c. cars went up, brilliant climbs being made by Joyce's singleseater A.C., Mays's Bugatti, which rounded the top corner amid rousing cheers from the spectators who had heard of his earlier troubles, Harold Heath on a standard sporls model Darracg, who skidded into the loose stones at the edge of the road on the B40


WOMAN AT__ Miss Pink (wih Mr. Lonel Martin as a passenger) slews THE WHEEL. her Aston-Martin round the second acute bend.
middle corner, but was credited with one of the neatest performances of the day on the top hair-pin, and Kaye Don, who drove a four-seater Darracq in a most brilliant manner. C. M. Harvey's Alvis skidded nearly broadside on the treacherous middle corner, which had an artificial wooden banking at one point, but was only able to secure third place on time.

## Fiat's Mishap.

Denis Walklev, a local amateur, made a very creditable climb on a standard sports Alvis, as did Miss Pink, who carried two passengers in her $\Lambda$ ston-Martin Morgan (Fiat) pulled a cover off on the middle corner, which spoilt what would have been an excellent climb, while Marshall (Bugatti), who had started from London at five that morning and returned immediately after the event, did well, in spite of being somewhat overgeared.

Most of the light cars competed again in the unlimited class, and from the top corner we noted particularly good performances on the part of Kaye Don (Darracq), Harvey (Alvis), and Heath (Darracq), all of whom judged the corner extremely well. Miss Pink (AstonMartin), although naturally slower with her heavily laden car, was neat and fast while Marshall (Bugatti) was also good

This completed the racing classes, and the touring cars, which followed, although excellent, appeared relatively slow after the stripped models which had gone before. In fact, in one caso a passenger in a four-seater car appeared to have gone to sleep on the rear seata contrast to Lionel Martin, who, as Miss Pink's passenger in her numerous ascents in the formula class, assisted in no small degree in disposing his weight to the best advantage on every corner.

Howell's Austin Seven was fastest in the 1,200 c.c. class, but Lewis (Gwynne Eight) scored on formula, the liumbers driven by J. Thomas, his sister, and Nelson Neale being neither fast enough when driven light to score on time, nor laden sufficiently to secure a formula award. All, however, made creditable climbs.

Denis Wakley (Alvis) and Miss Pink (Aston-Martin) secured the honours in the next class, the latter competing and usually gaining an award on formula in every class for which she was cligible. In the ladies' class Miss Doris Heath made an excellent climb on Denis Wakley's Alvis, but the class went to Miss Pink. Miss Thomas (Humber) and Miss Halewood (Gwynne) were also good.

## COMPLETE RESULTS.



 Lewis (Gwynne). ce. Time: 1, Raymond Mays
 Up to Heath (Darraca) 2,000 e.c.- Time: 1, Cyril Paul (Denr


 (HI Ein. 302.5 becs. Formula: 1, , $\Omega$, J. Sulty
 Unlmited c.c-Time: 1 H. Kensington Mofr


## closed Evenis.

(Gwynto 1,200 ce, lormula only.-1, E. M. Lewls
 $\mathrm{N}_{\mathrm{E}=\mathrm{ale}}^{\mathrm{Un}}$ to (Beardmare). 2,000 lormuia only.-1, D. $\mathbf{E}$ Unp to 2,500 ece, formula only,-1, II. K. Nenle (Sunceam).
Unimited ce., lormuln only -1 , Miss Pink
(Aston-Martin) Landes Crinks,
(Aston-Mantimited c.e. -1 , Miss Pink (Aston-Martin),
Amnteur Mermbera, up
and Nealo (Bearumare), 1 up to 2,000 e.e-1, D. E


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## BEXHILL SPEED TRIALS.

cushman's bugatti makes fastest time of the day.


The scene al the start on the West Parade, when a large crowd lined each side of the course.
T. ACFLLENTLY organized, well Iisupported and run off within two hours, the Kent and Sussex Light Car Club's Speed Trials. held on the West Parade, Bexhill-on-Sea, on Saturday, resulted in the fastest time of the day being made by Leon Cushman (racing Bugatti), who clocked 28 secs. over the 700 -yard course. His car, by the way. narrowly escaped disaster on the way down, owing to the breaking of the towbar, which caused the car to make A dive for the near-side ditch. Fortunately, its progress was arrested in time.

Tho car's were sent down the courso
in pairs, their times being taken and results based on individual runs; but, in the first few classes, the matchings were hardly equal, and resulted in runaway wins. Interest quickened, however, when the faster cars appeared, and, thanks to a lamentable breakdown in the timing arrangements, Miss Ivy Cummings (Frazer-Nash) and J. A. Hall (lirazer-Nash. "Kim II ") made no fewer than three runs down the course, Miss Ivy Cummings winning on each occasion Apparently "Kim II" has not yet shaken down to his new owner, for, although its acceleration was
marked, Miss Ivy Cummines's car which was suffering from clutch slip, soon overhauled it and left it behind. On the third run "Kim II" went lame and was pushed off the course.
An interesting match was that of Lewis Humphries's G.N. and Leon Cushman's racing Bugatti, and, although the result was a foregone conclusion, Humphries gave Cushman a good run, and finished only 3 secs. slower.
In the class for racing cars up to 1,500 c.c. there were one or two exciting duels, notably that between Miss Ivy Cummings and Leon Cushman. Cushman's time, the fastest of the day, was 28 secs., Miss Cummings's being only ${ }^{3}$ sec. slower. She claimed a rerun, having been baulked by a dog, but the officials would not allow it.
J. P. Dingle's Austin Seven clocked $31 \frac{1}{5}$ secs., while other good runs were made by Ian Bradley (G.N.), 31 ha secs. A. Whale (Calthorpe), $31 \succcurlyeq$ secs.; K. Rolfe (G.N.), $33 \frac{1}{3}$ secs. ; S. Constable (Morgan), 34 sees.; and A. J. Scudamore (Austro-Daimler), 343 secs.
The following were provisional class winners:-
Touring two-seaters un to $\mathbf{C}, 000 \mathrm{cc}$, general. Ditto. up to 1,100 ce.-G. C. Boulding (Amiltar), $40=5$ secs. 1.500 c.c. amateur.-H. Eaton
 Dito, un to 1.500 c.e.. genvral.-H. Eaton Touring Inor-seaters accs to 2,000 c. Teneraing C. $\begin{gathered}\text { inar-senters } \\ \text { A. Rose (A.C.). }\end{gathered}$ to 2,000 c. Minrgan csclecars only, genoral-S. Constable, 40 3-5 secs.

 Dilto, po to 1.500 e.c., gencral.-L Cushman Morgan racing csclecars only.- 9 . Constable, 34 macca
Racing cars up to 1,100 co. general.- Miss Iry Cumminss (Frazer-Nash), 28 Bes gecs (Bugatil), 28 secs.

THEE Surbilon Molor Club beld their fourth annual race meeting at Brooklands on Saturday last in fine weather. The programme consisted of 11 events, six of which were devoted to cars and light cars and the remainder to motorcycles and sidecar combinations.
In the first race, the Surbiton Junior Shorl Handicap, there were seven starters, the limit man being Capt. A. G. Miller on a 1,462 c.c. Bianchi, who led at the end of the first lap, followed by R. E. O. Hall on an Austin Seven and N. Black on one of the new British Anzani-ongined G.N.s. The scratch man, G. N. Norris, on the 2 -litre Binnchi, retired at the end of one circuit, and then R. C. Morgan, on the Aston-Martin "Green Pea," gradually caught up with the leaders, winning by some 30 yds. at an average speed of $78.79 \mathrm{~m} . \mathrm{p} . \mathrm{h}$.
In the Surrev Senior Short Handicap N. Black (G.N.) held the lead from V. Gillow (Riley), A. Bellingham-Smith (Lanchester) and T. Hann ("H.P. 5") for one lap, but the second time past the fork Miller, on the 2 -litre Bianchi, had got into firsl position.
There were soven starters in tho Surbiton Junior Long Handicap, all cars with the exception of one, the 2 -litro Bianchi driven by Miller, being under 1,500 c.c. N. Black (G.N.) was again the limit man, and he made such good use of the start that he held quite a good lead at the end of the second lap from R. E. O. Hall (Austin Soven), whose car was running with outstanding regularity, and Miller (Bianchi). Reaching the aeroplane sheds, however, Miller passed

## SURBITON CLUB AT BROOKLANDS. <br> an interesting but foorly attended meeting.

Hall, who had in turn overtaken Black, and won very comfortably, Hall getting into second place in front of Black. The winner's average speed was $88.78 \mathrm{~m} . \mathrm{p} . \mathrm{h}$.
Another fine race was seen in the Surrey Senior Long Handicap, where J. G. P. Thomas on Mr. Lionel Rapson's Lanchester had to concedo seconds to the remainder of the field. Again Black
(G.N.) was on the limit mark, and, after flattering his supporters by leading after the completion of two laps from R. E. O. Hall (Austin) and Morgan (AstonMartin), dropped back. Hall then went to the head of affairs, followed by Norris on the 2-litre Bianchi, bat, in the run in, the scratch man, Thomas, caught and beat Hall, with Norris third.


The first race of the day. R. C. Morgan (second from the right), in an Aston Martin, won, with Hall (Austin Seven) second.

# WHY NOT RUSTPROOF CARS? 

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HOW THE OWNERDRIVER'S IDEAL COULD BE OBTAINED. - TOO MANY SMALL PARTS TO CLEAN.-SUGGESTIONS FOR DEFEATING THE RUST DEMON.
```

Our contributor deals with a subject which is very close to the heart of the conscientious and painstaking owncr-driver, but we tear that his remedies would prove far more expensive than he imagines. Rustless steel, for inslance, is not only expensive in itself, but costly to "work."-Ed.

WHY cannot a car look practically as smart at the end of three ycars' hard usage as vhen new? " Impossible," it will be said; but it is not impossible, and manufacturers could, with little extra trouble and expense, give us an improved vehicle practically immune from the rust demon
The average owner is well pleased with his new car, resplendent in its bright nickel-plating and glossy paintwork, but after a year's hard worls in all weathers the appearance of the coachwork, nickelplating, and so on, is decidedly disappointing

Mud-wings have become rusty round the edges, headlamps reveal bright patches of brass, the radiator and windscreen frame probably being in the same condition ; valances have rusty patches showing here and there, and a dozen other points add their quota to this deplorable shabbiness. How can it be remedied?


The underside of wings, rim edges, and nuts and bolts exposed to mud and water, are sion attacked by rust. All eventually lead to trouble and expense. e44

Not all of us are so fortunately situated as to be able to possess a new car every year, and we would be only too glad to know that our cars could bs made to look presentable for several years with ordinary care. A few suggestions are given which would remedy matters very efiectively.

## Why Not Galvanize Them?

Road wheels, mud-wings, valances and number plates should be galvanized before painting. These are some of the parts that are swamped with mud and water on every wet run, and in time rust begins to form under the paint, which peels off. Once the rust gets a start it will rapidly spread. In the case of the rims, galvanizing would be a great advantage, and save many a tyre bead from destruction. No matter how carefully an ordinary steel rim is painted, the first time a tyre is taken off some of tle paint is removed with it ; also it must be remembered that when the car is running there is a certain amount of friction belween the tyre wall and the rim, which gradually wears the paint away, hence the rust demon gets his chance-3nd takes it.

Other parts of a car that suffer from rust such as steering connections, brake drums, spare-wheel carriers, ete, might also be galvanized before painting.

It has been said that galvanizing adversely affects the strength of steel, but the writer has not heard of any conclusive proof that it is so, or to what extent. Possibly, it may interfere with parts that are heattreated, but such parts on a motorcar are alroost all "internal," and these do not concern us here.
Lamps, windscreen frames, radiator casings, footboard edgings, door handles, hood-rest brackets, dickey-seat handles and body beadings ould be made of aluminium alloy. Wings, valances, and numberplates can also be satisfactority made in this metal. The lamps could be aluminium die-castings burnished all over. In the case of the headlamps, the reflectors could be cast in one with the lamps. Aluminium takes a very high silvery-white polish, does not tarnish readily, and is easily cleaned.
Rear brake rods, adjustment finger nuts, and all knuckles and joints exposed to mud should be made of stainless steel. Exposed nuts and bolts, such as
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EXTRACT from "The Motor" editorial, July 1st, 1924.

The Popularity of Balloon Tyres.

ON a recent tour the popularity of low-pressure or balloon tyres was forcibly impressed upon me. A survey of hundreds of cars on a fine day on the Bournemonth Undercliff drive revealed the fact that particularly in the case of cars up to 12 h.p. a very big percentage were so equipped: itiofact, it seemed to prove that the latest innoyation in tyre construction has come to stay."

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## ir //Y NOT RUST'-IROOF CARS? (contd.).

those securing mud wings, road springs, petrol tanks, footboards, etc., should also be made of this material Eyery owner who does his own little repairs and adjusiments knows how awkward a rustedup nut and bolt can be. Usually ho has to get to work with a cold-chisel or hacksaw-and it is a thoroughly awkward, heartbreaking and profanitymaking business! $\Lambda$ few other parts might be made in stainless steel, such as bonnet catches and hoodstick support hinges

The instruments and facia board are items that could be improved with advanage on many small cars. The instruments are often arranged with anything but an cye to symmetry, and are, of course, mostly of the nickel-plated species, requiring the usual cleaning, with consequent deterioration of the plate. Make the metal parts of the instruments of aluminium, preferably with $n$ frosted finish; no cleaning would then be necessary at all, and the effect of the frosted aluminium, with. ay, a black polished facia board, would be most pleasing.

Small-car manufacturers might also give their customers the option of having a superior hood material in place of the Msual canvas, which soon rots and leaks if the cat is used every day. For a pound or two extra a cloth lined mohair hood could be fitted. This is infinitely superior to canvas, and well worth the extra experise. Road springs should be enclosed in leather cases-not so much for the purpose of containing grease for luhricating the springs, as for the prevention of rust. The valance directly beneath a door shouid be protected by aluminium or rubber protectors from recidental kicks when getting into the car.

Battery hoxes often become dilapidated owing to the acid spray enllecting in the lid of the box when chargirg. In time it finds its way down into the box by the side of the cells. A coating of anti-sulphuric paint inside the hox is not good enough-it should be
lined with sheet lead or ebonite. It is the only way to save the paint from eventual damage.
A final grumble concerning the nickel-plated "bugle" type of bulb horn. If the manufacturers will insist on this type of horn, let it be enamelled, for it is an atrocious thing to keep clean.
When will motorcar and accessory manufacturers give us something on the lines indicated I The maker who marketed a rust-proof car would reap his reward by increased sales. After all, nowadays there is very little to choose between leading makes of small cars, so far as mechanical efficiency and economy are concerned, and the maker who would give a little more attention to the important subject of sustained good appearance would have a good pull over bis rivals, other things being equal.

The discerning light car owner, and certainly every lady owner, would choose such a make in preference to others, and would realize also that, a good price would be obtained for the old "bus" when selling time eventually came along.

In the meantime, and until such a happy state of affairs as that outlined in this article actually materializes, we must make the best of the present situation. In spite of the vulnerability of the presentday motorcar, much can be done by the careful owner to protect it from the ravages of rust.

For instance, every time the car is washed, the underside of the wings and the chassis generally should be thoroughly cleaned. This is rarely done, with the result that mud accumulates and rust forms. As already stated, spring gaiters are recommended, and the plated parts (such as windscreen fittings and lamps, etc.) should not be constantly polished, as this procedure, in course of time, removes the plat: $\alpha$ They should be treated with some form of transparent preservative, which obviates the necessity for cleaning. There are numerous preparations of this nature on the market, but one should be chosen that does not contain celluloid, as this gives the plateworta tarnished appearance.
C.F.

## QUICKLY REMOVABLE UPHOLSTERY.

## A Simple Method for Obtaining Dual-purpose Utility.

TMIVE fact that it is possible to purchase a thoroughly relialile and satisfactory small car for a sum of money well under $£ 200$ has induced many people to become notorists.
Mary more, we feel sure, would join the ranks if they knew that their purchase would not only provide them with pleasure, but would also assist them in their business.

The manufacturers of the Jowett car have evidently realized this fact, and have taken advantage of it accordingly. With their fourscater model it is possible to remove the entire rear upholstery in a few seconds, thus ieaving that part of the car free for the transport of bulky, and possihly heavy, articles without fear of any damage resulting.

The seat. in this instance, is located by a strip running along the front of the seat aupport, whith in turn forms one of the three tooiboxes fitted to the car. The squab is held in position by means


An interesting feature to be found on four-seater
Jowett cars, allowing for the coinbination of business with pleasure.
of two plates attached to the back of it which engage with slots in the rear body member.
The advantages of this arrangement are too cbvious to require elaboration, but the fact that one can use this car as a light delivery vehicle for business purposes, and also for pleasure will surely commend itself to many peoplo who would hesitate to spend nearly $£ 200$ on what they perhaps regard as a sheer lusury.
The farmer on his journeys to market, the country housewife who has a fairly long trip to make when she has shopping to do. and the small trader whose deliveries are otherwise made either on foot, or by means of a slow tricycle, all would benefit by the use of a car so equipped.

The whole idea is undoubtedly sound and is a lead which might be advantageously followed by other manufacturers, particularly those engaged in the construction of cars coming within the class mentioned.


The services of the staff of "The Light Car and Cyclecar" are always at the disposal of readers. Queries of general interest will often be ansuered under this heading. but a stamped addressed envelope should always be enclosed. Correspondents are requested to write upon one side of the paper only.

## Coil Ignition

D.C. (Southompton).-It would be quite possible to tit coil igmation to juut car in place of the existing system, but we very much doubt if it would be possible to use a magueto comact. breaker.

## Jet Sizes.

P.S. (Gravesend). -The size of n carburetter jet is determined by the amount of petrol which will flow through it within a given length of tinie (a minute). This is an arbitrary slandard, and it should be understoud that the ligure given, as, for instance, 85 main jet, is in no way a dimension.

## Difficult Starting

A.F. (Hampstead).-The difficulty that you are experiencing in starting up would probably be largely reduced by the fitting of an impulse starter, but in the first instance we advise you to make a thorough examination for air leaks and other possible causes of difficult starting

## Weak Audible Warning Note. F.G. (Ruthin). -The fact that the note given by your electric horn is weak when the lights are switched on is due to the terminal voltage of the battery being slightly reduced. With a larger battery ihis would not be noticeable. Perhaps the best course you can adopt wou!d be to readjust the horn with the lights on

## Engine Balance

F.S. (St. Albans).-If the new gudgeon pin which you have fitted to the engine of your car is different in veight to the old one the balance of the engine will be affected. To ascertain whether or not an engine is correctly balanced is a job which should be undertaken only by a reallv skilled mechanic and is not one which we advise an amateur to attempt.

## Misfires When Idling.

G.D. (Holland Park). The cause of irregular firing with your Riley when the engine is idling-a complaint often described as "hunting"-is probably too rich a mixture, and we suggest that you cut down the nilol jet size until an improvement is effected. Care should be taken, however, to see that this size is not unduly diminished, otherwise a difficulty in starting may be experienced owing to the weakness of the mixture.

## B48

## Steering Backlash

N.H.H. (Weybridge).-Backlash of approximately one inch in the steering of your car is neither considerable nor dangerous, and we do not think that you need to worry about it at presont. There is usually some form of adjustment provided in order to take up this play. With reference to the universal joint fitted between tho clutch and the gearbox, if this is of the Hardy type the nuts which secure both spiders in position should be absolutely tight.

## Wire Wheels.

H.S. (Brighton).-The accompanying sketch shows the gencral arrangement of the spokes in a wire wheel, the example illustrated being a Rudge- Whitworth as


Il uatrating the design of wire wheel. A typical example of modern practice.
fitted to the new Frazer-Nash light car You are wrong in your first supposition, for actually the car is suspended by the spokes and does not rest on them as in the case of a wooden artillery wheel.

## Extra-air Inlet.

J.E. (Worthing).-The best position for the extra-air device is in the induction system between the engine and the carburetter-that is, on the engirie side of the throttle and close to the carburetter. When the air inlet is controlled by hand, as it usually is, it is necessary to operate it with care and discretion, otherwise it is quite possible to "lose, one's engine (due to a weak mixture), when the throttle is practically closed in traffic or under similar conditions.

Bendix Gear Sticks.
A.S. (Stockton). -The trouble which you are experiencing with the Bendix gearing of your electric starter, which To "sticks," is not altogether unusual. To effoct a cure we suggest that you clean with potrol the quack-thread on which the Bendix pinion operates, and the lubricate it thorourhly with thin machine oil. This will allow the pinion instantly to become freed when tho instanty to become farts, and should last for several weeks.

Road Racing in the U.K.
G.T. (Sheffield).-The last road race for light cars held in the United Fing dom was organized by the R.A.C., and took place in the Isle of Man on June 22nd, 1922. The winner was Sir Alger non Lec-Guimness, his average speed being just over $53 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. (a figure which would doubtless have been higher but for unfavourable weather conditions). The event has not been repeated for various reasons, and it is mpossible to say when it will be held agan.

## Whittle Belts

A.f. (I'erth).-One of the drawbacks of belt-driven dynamos and fans, etc., is the tendency of the belt to stretch when new. The only remody is to kecp on laking up the slack uital all the adjustment provided has been utilized, when it will usually be found possible to take a link out of the belt. After a time it will become fully stretched. and no further trouble will be experienced in this direction. Obviously, the fitting of a new belt will be worse than useless.

## Locating a Tap

E.J. (Finchley).-A tapping noise such as you describe is hardly likely 20 emanate from the interior of your engine, especially as it is new. The most likely solution is a wrongly ad justed tappet, which gives too much clearance. This is all the more probable as you state that the noise is more noticeable when the engine is cold. However, a complaint such as thas is sometimes very ballling, and often may be traced to a place some distance away from that whence it appears to emanate. Dashboard instruments, the horn, spare wheel, mudwings, lamps and petrol tin carrier are all possible causes of noise.

Air Leaks and Easy Starting.
J.A. (Wellingborough).-Your diffculty in starting would appear to be due to air-leaks, probably in the induction system. This seems all the more likely in view of the fact that your engine is of the twin-cylinder type. We should, therefore, advise you to test all joints where air-leakage is likely to occur This can be most easily done by smear ing oil over the joint and then turning the engine by means of the cranking handle. The presence of leaks and their location will then be obvious. Your trouble might also bo accounted for by the fact that the petrol level in the flowt chamber has become lowered, thas weakening the mixture. Although you say that the contact-breaker and sparking plugs appear to be in order, there may be some dofect in the magneto itself which prevents the occurrence of a good spark at low speeds.





#### Abstract

H'emelcome at all times letters sent us by readers for publication in these columis, and, vhile taking no visponsibinty for the opintons expressed therein, give preference to those letters which deal with subjects  pleme if desirci. Leffers should be as brict as possible, but not abbreviated. We reserve the right to


 make any altcrations or deletions which we decm necessary
## The Value of First-aid Outfits-What is the Most Common Touring Speed?

## The Limit for Light Cars.

With referenco to the correspondence regarding the 1,500 c.c. |mimit, can anyone give reisons why this figure should be altered? Most of us can think of several good reasons why it should not be increased, but I fail utterly to understind, nor havo I beard of, any satisfactory excuse for this apparently retrograde step. It would appear to require a convincing explanation.
Manchester.

1) Intre.

## First-aid Outfit.

For tho last 30,000 miles my two Rileys have carried, ono after tho other, a small unobtrusive tin with a wellfitting lid. This little box contains a first-aid oulfit. One competitor on the recent End-to-End trial
A Necessity. crashed, after an extraordinarily plucky effort to keep going and as a result of the exhaustion of lis stock of endurance during 24 hours of continuous trouble.
Badly cut about, ho was in need of stitches in several places, and it was guite obvious that the cleaning and covering of his wounds with iodine and boracic lint respectivoly, assisted the doctor in doing the real job later.
I submit to motorists in general that we should all consider it our bity to have a first-aid outfit with us, and I tentatively soggest the following:-Iodine (diluted), water, boracic lotion, horacic lint, court plaster, bandages, gauze, clean linen, cotton wool (for swabs), scissors, and safety pins.
Will some doctor-man give us his opinion?
Barnes.
Jotn Havers.

## The Camaraderie of the Road.

As a cyclist who has recently taken up motoring in selfdefence I was interested, on experiencing my first roadside broakdown last Sunday, to discover the genuineness of the much-talked of camaraderie existing among An Unusual the motoring fralernity. I was stuck for

## Complaint.

 two hours and a half with a seized tack axle between Baldock and Stevenage waiting for the local garage to tow me in, but during that period, although some hundreds of cars passed in both directions, not on3 profiered assistance. 'To any discerning person it was fairly obvious that something was wrong, because the back wheel was jacked up and the car was standing where it had stopped some 4 ft . from the roadside. Many drivers slackened to shout offensive remarks on the subject of drawing the car in nearcr, which was in fact an impossibility, but the only inquiry I received came from a motor-cyclist engaged in a competition between Bradford and London, whilo another motorcvelist eventually ran me to the station on his carrier.
I an not surprised that the thoughtless people who drive cars should havo been so unsympathetic, but I expected them to have more sense than to think that a person would leave his car more or less in the centre of the road, not so nuch because ho was afraid of causing an accident, but rather that he would not like to have his vehicle smashed.
F. M. Introod.

- Our correspondent's case emphasizes the necessity for
- some form of distress signal. Motorists are not so callous as suggested.


## Average Speeds.

With reference to the question, "Where are the speedsters?" asked by correspondents in recent issues, I think the true explanation of their absence is that, on the open road, most motorists travel at a more or less uniform speed of $30-32 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. It has been my experience that if I travel at $35 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. or more I am constantly overtaking other cars, whereas if my speed drops to $28 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. I become the overtaken.

Tolerist.
Surbiton.

## A Talbot Disadvantage.

Your correspondent, "E.G.B.," complains that with his 8 h.p. Tillbot the rain "gains ready access to the interior of the car, due to the large aperture surronnding the filler of the petrol tank, which is placed in the scuttle and immediately below the screen."

## Another Cure:

 I endeavoured to get a dome fitted as recommended in your article dealing with the Talbot, but the experiment we made with an aluminium top was not a success. The top did not appear as if it would bo quite watertight, and it was certainly ugly. Messrs. James Parker and Son, of Kendal, then hit upon an ingenious idea, which was as follows:-Cut a piece of black generator tubing the exact length of the diameter of the opening by measuring it round the base of the tank cap; thread a length of copper wire through the tubing; tighten the rubber in position by twisting the two ends of the wire, which have been left slightly longer than the tubing, upon each other; bend the twisted end and force it back inside the rubber.This cure appears to be completely successful. The tubing is almost invisible, and the black colour harmonizes with the rest of the paintwork of the car. There is not the slightest penefration of wator, even when the car is allowed to stand the whole day in a Lake District deluge.
Kendal.
Eric Nicholson.

## OUR READERS' OIMNIONS (comtd.).

## "In" or "On" a Car?

I am certainly surprised that such a long time should plapse before a reader slould come forward with the real solution of the "in" or on a car controversy.

Mr. Mitchell in a recent issuo hits the

It all
Depends- nail on the head; for some years past I have always understood that one sat "on" American cars, and have certainly been n.ble to confirm the opinion in the course of over a year's sojourn in that country. E. C. V. Rutter.

## More Rover 8 Figures.

As an owner-driver of an 8 h.p. Rover car I was much interested in a letter from Mr. Handford, which was published in a recent iscue of your journal.

Mr. Handford states that by careful

## Information <br> Wanted.

 carburetter tuning he can get $52 \mathrm{~m} . \mathrm{p} . \mathrm{g}$. , but I am only getting ahout $40 \mathrm{~m} . \mathrm{p} . \mathrm{g}$. Would it not be possible to get this gentleman to describe his exact method of tuning? Amongst the readers of your most interesting journal there must be many who would wolcome any such information,Trusting that I am not overstepping the privileges of a reader.

## Clutch Trouble with a Rover 8.

With reference to the letter which appeaved over the name " Rosorate," in a recent issuc.
I havo experienced the eame form of clutch trouble, and A Suggested cotters on the clutch cuide pins, and the Cure. cotters on the clutch guide pins, and slack off all the nuts until he has the same tension on each spring, I think ho will find that the trouble lias disappeared. As he state6, grease effects an improvement, but it is only a temporary one.
Shonld the clutch slip after the above adjustment has been made he will find it necessary to tighton up each nut approximately one full turn.
Tho adjustment must be made with the clutch out, and a pointer" must bo inserted through the clutch cover to locate the highest point.
Birmingham.
W.G.

## "Tuning" a Rover 8.

My letter which you published in your issue of July 11th has produced such a volume of correspondence that it is impossible to reply to all the letters which I have reccived.

One half of them want to know how I

Good m.p.g.
Figures. can get 52 m p. with whe Rover Eight The other half want to know why I do not get much more (one man claims 65), and all of them (not only Rover owners) are suffering with oil gelting on to the brake drums. I had no idea this trouble was so general; some of the letters are quite pathetic. and one correspondent (not a Rover owner this time) says ha feels like giving his "bus" away!

The information that all these correspondents want is best answered as follows:-
Petrol consumption.-Use a fully large jet so as to save continual gear changing, and an air plug with a larger hole to reduce jet suction. I cannot give the size as I made n needle value for this purpose, and if this makes starting difficult adjust the slow-munning device. Most important of all. ensure perfect compression, perfect valve condition, correet magneto timing, and no drag when the brakes are "off."
Oil consumption.-Fit Rover scraper rings with larger diameter to piston top (in hottom groove of course), enlarge the ten holes below this ring to t in. I have not reduced the dinmeter of piston at this point, as recommended by the Rover Co.
Oil on brakes. - Nost of the lelters are from those who are in the same trouble and. liko myself, want help. The best suggestion is from a gentleman in Yorkshire. who had two washers made of soft chrome leather to take the place of one of the felt washers on each axle end (presumably he refers to the small washers on the actual axlel. Another puts only half a teacunful of oil with a gun through the nverflow plug every 1.400 miles, thus keeping a very low level, which he claims has proved satisfactorv over 12.000 miles. Surely this is a case for redesigning the bark axle, as most cars seem to be liable to this serious trouble.

Arciie Handfond.

## INFORMATION WANTED.

Owing to pressure on our space it is impossible to include readers' replies to quertes in "Our Readers" Opinions," and correspondents an.xious to help fellow car owners are courteously requested to communicate direct with the address which is given in most cases.

> G.N.

I should be obliged if any reader would sell or lend me a 1920-21 GN. instruction book. D. C. Tisitor.
Holmside Avenue, Dunston on-Tyne.
Autocrat.
I should be pleased if any reader would either sell or lend me a copy of the Autocrat instruction book.
R. A. Liviemone.

141, Hoe Street, Walthamstow, E. 17.
Touring Companion.
Owner of a G.N. would liko a companion for a tour during the last three weeks of August, camping out if weather is good.
33, Dorset Square, N.IV.I.
Grahame. White.
I should esteem it a great favour if any readers could give me thoir experiences in connection with a (irahameWhite cyclecar. A. G. Shirimg
Homeside, Brislington Mill, Brislington, nr. Bristol.

## Clyno.

Information sought as to the general ruming albilities, pulling and staying powers, petrol consumption, mileage of tyres, comfort, etc., of the four-seater $11 \mathrm{n} . \mathrm{p}$. Clyno car. \&. C. Gowns.
" Coldthorne," Ardenham Street,
Aylesbury, Bucks.
Salmson and Mathis.
I should be much obliged for any information concerning the Mathis and the three-seater Salmson, particularly with regard to speed, comfort, wear, hill-climbing and upkeep.
42, Cannon Hill, Southgate, $\mathbf{N} .14$. W. S. Wirson.
Jowett.
Will any reader please give me information as 10 the cure for a heavy oil consumption with a Jowelt? During the last 5,000 miles this figure has dropped from $800 \mathrm{~m} . \mathrm{p} . \mathrm{g}$. to $300 \mathrm{~m} . \mathrm{p} . \mathrm{g}$.
63, Chatsworth Road, Bournemouth.
Harper Runabout.
I should be pleased to receive the opinions and experiences of any readers with reference to the Harper Runabout, particularly stecring and comfort over rough roads.
C. Lawrence Gif.l.

Thurso, High Street, St. Peter's, Thanet.

## Waterproofing.

Can any reader recommend a preparation for the treatment of holland which will make it waterproof without adding greatly to its weight and which will not crack when folded? 39, Wiverton Road.
A. D. Pankhurst.

$$
\text { Sydenham, S. F. } 26 .
$$

Morgan Runabout.
I should be much obliged if anv ieaders who are Morgan owners could tell me of some kind of grease which will minimize the noise in the bevel box. At present I have Vacuum Heavy, but the wheel cuts a way through it.

42, Carr Road, Flectwood, Jancs. II. Ronerte.

## CONDENSED CORRESPONDENCE

The driver of an A.B.C. car tenders his sincere apologies to the driver and passengers of $n$ Morris-Cowley, who were, he fears. inconvenienced by n lapse of road manners on his part when driving along the Bexhill-Tewes road last Sunday evening.
C.W.M. (Ashford) writes in sav that he has found the Western Tyre Mospital, of 28 , London Road, Staines, to gire every satisfaction with regard to tyre repairs, their workmanship being sound and quick, whilst their charges are reasonable. They undertake repairs to covers and tubes by the dry-vulcanizing process, also retreading operations.


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Yours f:ithfully.
COTTENHAM.

91 and 155-157, Great Portland Street, W. 1
Telephone-Mayfair 4201 (Privalc Brancb Exchange).

## AROUND THE TRADE.

We !earn that sevoral Lagonda cars are being shipped abroad. Five were despatched to South Africa recently.
A pamplete giving the latest prices and particulars of Pelo and Radford Gravity Float batteries for wireless work has just been issued.

Philip Chapman and Co., 5, Copthall Buildings, E.C., aro the sole distributors for Cleeneeze, a preparation which cleans the hands without the uso of water.
The employees of Messis. Rimsdens (Halifax), Ltd., Station Works, Halifax, the mannfacturers of the Jeavons lubricating spring gaiters, recently spent an enjoyable day at the British Empme Exhibition.

Loudon Motor Supplios Co., 1, London Road, 'Twekenham, are now marketing at improved form of the Mitchell Glareslield, for which great advalltage is claimed when fitted tu a car driven facing the glare of the sun.

Among several important administrative changes which have occurred recently in the Sunbeam 'lalbot-Darraces combine is the appointment of Mr. V. W'. Shorland to the post of commercial and sales mataager of Clement-Talbot, Lid.

Mr. H Dermigny, who has been for many years works manaze of the English branch of l'engeot (England), LAd., hae been appointed manager of the company in place of Mr. Charpentier, who has taken up a position with the company in Paris.

We have received an interesting ard instructive catalogue of S.R.O. bearings from the manufacturers of this wellknown component, who will be pleased to forward a copy in any reader on application to S.IR.O. Ball Bearing Co., 115 , Southwark Street, Lundon, S. W.

The voiture Leyat, n "prop-driven" car of French manufacture recently described in this journal, is not yet handled by any agent in England, and all inquiries concerning this novel vehicle should be addressed to गlessrs. Arnnud 13ros., 17, rue Le Brun, Paris XIII.

The well-known motor agent, A. P. Rey, of Euston Road, N.W.1, makes a speciality of hiring out cars for periods extending from a short week end upwirds. The cars whelh aro used are all of first-class and modern manufacture. An example of the scale of charges is f4 for a two seater A.C. hired from Friday ovening to Monday midday
Indispensable in the repair-shop, a good electric drilling machime is also most useful in the private motorist's garage. An excellent selection is offered by Siemens-Schuckert, which concern has offices at 109, Kingsway, London, IV.C.2, and stores at 96, Southwark Street, S.E.1. It addition to electrical dilling machines, a range of emery wheels and other useful electrically driven touls is offered.

"All out on top."
Solution to No. 21.
Before proceeding any farther, it would appear to be necessary again to warn readers against submitting more than one brain-wave on one post-card. Readers may send in as many postcards (not lellers) as desired, but each post-card must bear one attempt only. The guinea this woek is awarded to Miss S. M. Atwell, 10, Braid Hills Road, Edinburgl, whose effort, "All Out on 'lop," was adjudged to be the most deserving. Mr. H. F. Hoare, of Windsor, one of our most regular competitors, also submitted the same solution, but his suggestion arrived much later than Miss Atwell's. "Opening Out" and "Well Sprung " are two good efforts, whilst allusions to "acceleration" were numerous. But how does one apply "Up She Goes" and "Water is His Sump "?

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WHEN REFLYING to advertisements, mention "The Light Car and Cyclecar." It helps the advertise: cits you, and assists the small car movement generally.


Some A-C 1925 Models \& Prices

 ALVIS AUSTIN CLYNO CROUCH. HUMBER. RILEY ROVER. SALMSON, SIVGER, STANDARD. WOLSELEY and MORGAN

## The

ALLEN-BENNETT Motor Co., Ltd.
ज्ञIIIIIII| 8-9-10-11 Royal Parade, |||||||||||| WEST CROYDON.


The (more than ever) AMAZING
C. Have you seen the new model at $£ 275$ ? It is truly " a revelation in value"-and you'll find that ALLEN-BENNEIT'S Extended Payment and Exchange Facilities are also a revelation in advantage and convenience.
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If a car is displayed for sale in our Showrooms, you can be sure it has been examined and tested by our own experts.
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| :--- | :--- | :--- |
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WALTHAMSTOW, LONDON, E. 17.
(Opposite Hoe Strect Station.)
12 minueilram liverponal Sticet Station, (four No 2 or 4 Plafforme.
Yhone: Walthametow 1111 (four linet).
5O, HHGH ROAD, WOOD GREEN, LONDON, N. (Ten doore from Haspire.) Phone: Horusey'19:6 E USTON ROAD. LONDON, N.W. 1.
(Opposite Great Portland Street Station, Met.) Phone: Murenm 4978.





READERS, NOTE.-It assists the small car movementand the adverliser, and ensures you prompt

## SECOND-HAND <br> AND NEW

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WAllNING.-Acknowledgments of deposits or instructions to forward bears a lacsimile of the tille of thin journal. To provent traud. the adrerhiser thould ACKNOWLEIDGE iMBELIATELY any such letier apparonity coming from us, and delay forwarding tho goods for a day or so. houl on recelving ach an acknow advertised.

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Clerkenwell 6000

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## SECOND-HAND

## LIGHT CARS AND CYCLECARS FOR SALE

A.B.c. Gordon Watney and Co Led., 31 Brook St., W 1 , Phone, Blay tair 2966). London agonts. Several second-band, all models in sloct
suaranted, from 2100 ; deterred paymenta and part exchange. z2z-164
 weather equipment, licenaed and absolutely as new, 125 guinear. Below. A.B.C.i 1923. Snorts, 2-noater, Jynamo, speedometer, etc., Heensed. A.B.C., 1923 Sports, 2-scater, dynamo, sell-starter, Heonsed, fully A.B.C., 1922 Regont, 2 -seatce and dickey, dynamo, specemomeler. 2

 guincas Mhorp, 4 pper se. Marlin lano. W.C. 2. Regent 609.590 A.B.c. 95 guincas. Fitted with 2 door, and large dickey seat, Just overhauled and repainted. beautifut order, extence pasmonts and enchanges White and Moars, 93 Erick St., Piccadaliy. Phone, Grospenor
1809.
60973
 A.B.C., super sports, outside oxhanat, very fast, $£ 125$, casb, deterred,

 A.B.C., 2 - 5 -seater, dickey, self-starter, twin carburctlers, clock, speedometer, very fast in absolutely now condition, genuino. 105 guineay or
exchango. 51 Upper Richmond Rd., East Putney.
$609-069$,

 A.B.C., 1923 Regent model, with startor, excentionally fine condition.

 A.B.c. 1921 louring arar. self-starter dynamo lighting. gocd condition ${ }^{3}$ ? bargain 250 or bost ottcr. Manchester. Box No. 6357, c.o." The
Light Car and Csclecare."
A.B.C., 1922, Regent 2 -sealer, dickey, dynamo, spedometer, side curtiang, taxed and insured to December, privately owned, running beautifully. new appearance, nearest 2105.500 Plumstead migh St. $9 . a 108$ A.C. Wanted, second-hand A.CCs lor cash or in part exchango for hey Inmediate delivery of new models. Ceithnoss and Co...Led.
609488
65 Ge . Portland St., w.1. Tel., Langham 2172 . A.C., 1923, royal 4-seater, painted A.C. blue, fully equipped. in firgi-

 A.C., 1924, 2 -soatcr, double dickeg. startor, a.- ${ }^{2}$ curtaing 2 months

A.C., 1919 2-seater, dickey, excellent condition, dynamo lighting, taxed,

A.C. 5130 , 2 -seator, with double dickeg, late 1920, registered February. 1921, no atartcr, but otherwise rery completo equipment: syres execllent. ronning splendidly. Thomson bin 31 Irerna Cort, W.a. Phone. Western
$609 \rightarrow 0189$
A.C., 1923, Rojal, lurariously eqnipped, taxed, extras, nem eondition, dington.
A.C. 1922 apocial sports madel 2 -seater. aluminlum body, dsnamo anil



 ADLER sports 2-seater. 11bp, extra good job, f75. Leighton Motar 47 i . ALBERT, G.2. Moasel 1921, 2-seater. doublo snken dickey, dypamo

 dington, W. 2.
ALVIS. New or second hand. Try Henly's. The Sole London Distribn.

ALVIS 10hp, 2-seater, 1922 , in rery good eondition. \&160. Jarris,
Lld., 205 Edgware Rd., London. Tel., 2512 Paduiugton. $609=10$ i

> Readers are referved also to "THE MOTOR" (Tuesday's, 4d.), which contans each week many hundreds of advertisements of new and second-hand cars of all kinds.

## SECOND－HAND <br> LIGHT CARS AND CYCLECARS FOR SALE （conlinued）．

ALVIS，Scpl．，1923．suncr－sports $12-50 \mathrm{hp}$ model，fittrd with epecial Alster sercen and bood，fiJ75 or reasonablo oflcr owner taking ham．East 540 ． $767-x^{245}$ ALVIS，
shock absorbers，
red Putnes．
ALVIS 1922 shop－soiled coupe，Morgan lieds，dsnamo nad siarter， 8325

 ARIEL，${ }^{2} 923$ ， 9 hp， 2 －cylinder，wher－coulcd，Jynamo lighting，Chnmmy hody hirtiand St．，London． ARIEL 10， 1924 de luxo，all－wenther，eloct，EDecdomeler，mistor，electrio
 AuSTINS．Try Menlys．You cannot beat their ferma．91 and $\begin{gathered}\text { and } \\ \text { zez－} 299\end{gathered}$

AUSTIN Polential purchasers of this make of car，cither ne
 hand cars wanzed urgently．Onls thoso in realls eacelleat order．${ }_{609}$ Cash

 | fion．©125．Pickworth and Hull． 107 Gt．Porlland St．，W．1．Lamgham |
| :--- |
| 998.767 | A USTIN 7，1923，mifeage 1,000 ， 8125 eash delarred，exchanges．

 AUSIIN 7．The Ilampton Eng．Co．have dust taken in part exchango Aur larger car an exceptionally ici hor dion

 AUSTIN 7．fate 1923，littlo and carefully used，belling for no fault，

 AUSTIN． 1924 all－alum！nium euper eports Austin 7 mileago under 1，000．sloping Weowindsewene mudguards，plated exhaust，numerout


AUSTIN 7．1924，as new mileago 1．400，accept．A155．Another，brand


AUSTIN 192.4 7hp Chummar．starter，apecdometer，inxed for gear．©145 Nowrinam
smith 80 lotor Co．， 245 Hammersmith Ru．W．G．＇l＇hone，Mrammer
609.606

 Longbam
ed nnc
AUSTIN 7．Cummings and Simpaen baro $\Delta u s t i n 7$ fullg taxed nna


A．V．2．seater， 1922 model．8hp， 2 specds，reverac，electric lighting，
A．V．monocar． 1921 model，Ehp，fully equipped，f35；exchanges and Wieferred pasmente．Phonce．Puiney 1827．Audrew＇d Mator Marl． 151 A．V．，$£ 25$ ；exchangea．delerred paymenis． 1921 A．$V_{\text {j }}$ monocar． 6 hn Fast Dulwich．Sydenliam 2452 ． BABY PEUGEOT，late，dynamo lighting，splendid， $\mathbf{f 3 3}$ ．Forgo Garage

BABYPEUCEOT， 1916 ，de luxe， 2 －scater， 7.5 hn ，Hghaing，nef tyres（5）


BELSIZE－BRADSHAW．Gordon Whiney and Co，LLd．， 31 Brook St． slock，eurantend from e100，delcrecd pargients and gart exchand

BELSIZE－BRADSHAW，1922．2－3．geater， 12 －roit lighting and starting peedomeler，edork inicrior ligh，side curtains，step mal 500 godelend uppearance，rear covered rubber，fillo．90 Alblon Rd．，Sloke Nowng
BELSIZE．BRADSHAW 2－scater and dickey（registcred April，JGE4）， licence，new conditlon． 1,35 gns：exchanges or deterred．Edwards． 175
609.574

BELSIZE－BRADSHAW，1923， 2.3 －nenter，dynamo lighting，specdometer clock． 98
Surbiton．

## SECOND－HAND <br> LIGIXT CARS AND CYCLECARS FOR SALE conlinued）

BELSIZE－BRADSHAW，1922，2－scalcr，Royal hluc，specdometer，gradi－ metcr， Etep riat，ald－wealber curtains，Michelin cord tyres，filly equpped， BELSIZE－BNADSHAW，1923，2－acater，dynamo Hghting and gelfalarter
 BELSIZC－BRADSHAW，I 922，2－seatcr，lax paid for tho scar，ex acllent
 BLERIOT－WHIPPET，192．J，8hp，2－scater，hrand－mew，shop soiled，lull


 Porland St．W 1．Maylair 4027 ． BLERIOT．WHIPPET，1921，8hp Rackburno，Lucas dymamo lightaga ctanges，deforred＇terme，＂Phove，Putney 1827．Andrew＇s Ahoor Arart．
151 Whito Mart Lanc，j3arncs
$609-560$ BLERIOT．WHIPPET．F．O．C MI．，Itd．．olfer Bleriot－Whippre，qully equipped excelical condicion，bargasn，£30．o Meath st．，Mampstead BLERIOT－WHIPPET， $192 \overline{3}$ 2－seater，electric lighting，r．rikinal tyrea，

 Garratt Lano，Larlafeld，S．W．18．609－510

 609－a91
 BUCKINGHAM，10hp，1915，water－coolnd，o．b．v．aluminium，TCd
 BUCKINGHAM，1923， 10 hp madel，by Aivis Co．，Eaod dickey，taken 4
 BUGATTI，1914，Brescia model，sporis 2－scator body，rery fast，i 125 cash，delerred，exchanges．Railton Cobham，and Co．，Ltd．， 5 Cumberland
St．，Deasgate，Manchester．Central 2681 ． BUGATTI， 1914 model，otted with rery handeamo 2 －3－scater all－weathe
 EUGATTI，1921， 16 －valie 4－scaled saloon，dynamo and elarter，excel－ Ient condition，ع275，exchango or hire vurchase．Tho Light Car Co．．
331， 414 Euston Rd．，London．
609642 CALCOTT，1919，10hp，2－snater，dickey．dynamo lighling，completo


CALCOTT， 2 －sealer 1922 model，dickey，starter，very，good fyres，lovely

 CALCOTT，1916， 1 Ohp，2－scalor，dickey，dynnmo lighelng，delachable and hood very cood，in first－class mechanlical condition，upholeterg，pain orerhauled，oxecplionally last，smart and reliable，open to any examina Llon willingly，C68．Noto our now address：Bonmotors，30－32 11igh SL．
Wandsworth，S．W． 18. CALCOTT，1921，2－senter，dickey，I，ucas llghting and starter，specdo
 CALTHORPE．Moores Presto，Crosdon agents Cathorpe cara，Promptes delivery now models with edscient service to lollow liarge stock second hand cara to aclect Prom．Deterred payments and exclianges arranged，
North End
zroz 754 CALTHORPE，1921，4－scater，Hghting，starting， 2 spare whecla，ncy Garmge，W＇olverbanpion．Telephone $1 \overline{5} ⿹ 勹 巳 5$ ． CALTHORPE， 10 hp ，2－sealer， 1921 model startcr，lyres liko new，
 CALTHORPE，1Ohp．A－acatcr，dynamo lighting，electric horn，specdo－ new very smarl car，\＆69． 83 Penshurst lid．，Thornton Ieath．＇Phono 1572．609－a45
 CALTHOAPE，1921，sports，4－scatcr，aclf－atarter，electric Hzhting，tho－ mont entertained．Claronce Cory，IIigh St．，Gosport．609－a 53 CALTHORPE，2－seater and dickey，Mulliner body，£75，cash，detorred， Manchester．Cintral 2681. CALTHORPE，10hp 19224 －spater do luxe，complete with all－weatber Gquipment luggage carricr，shock mbarberi，ete．perlect condition，
\＆150．Jox No， 6333 c．o．＂The Light Car and Cyclecnr．＂609－0421

## SECOND-HAND <br> LIGHT CARS AND CYCLECARS FOR SALE (continued).

CALTHORPE 1917 10hp 2-acater and dickey sent, good oondition, 870. PALTHORPE 1917 Johp 2-acater and dickes sent, good oondition, fio.
Parker's. Ltd., Dradshavgato, Bolton: also $246-52$ Dcansgake, Man-
aheator. CALTHORPE, late 1919, 10hp 4-acater, dynamo ughting, complete
 CALTHORPE, coupe, 10 hp . dynamo lighting and starting detach uble archway Rd.. Kighigatc. CALTHORPE coupe, 1923 , Bediord cord, fullost cquipment, excellent Mruncum 8136 .

 cellent concition, 140 i cxchango or hire purchase. The aight far Co.
$331.410-414$ Lunton Lid. London.
609608 CALTHORPE, ©lS', 1923, 10-15, do luxe, 2sealcr, new condition. entique
Donman Piaco, lijecadilly Circue legent 986 . CALTHORPE, 1.210 2923, 2 acater, run ander 5.000 mlles appearanco
 CALTHORPE, 2 ? £115 Firetson -ad Smith, 12 W'codstock St., Uxford Š., London. 609-656 CARDEN Gltin ondon cars stocked; cornplete overhauls undertaken. send

 CARDENS. Curcicns. Cardens. Wo always bave a fow in atock at
 Jart laide, B CARDEN, 19:T. 7 hp twin-cyllnder, 2 -seatcr, electrio lamps, 2 specds,

 Ausher kincol, ypaolweiv, etc, hinner many hill-cllmbs, garaneed Newingtum M, Jimburgh. Garago, East CHARRON-LAYCOCK, lato 1521 , 10.5 hp , 2seater, dickey, dynnmo
 ChARBON-LAYCOCK, ] $922,10,5 h p$. 2 -scater, dlekeg, dynamo lighting, Deoniber
 CHATER-LEA, 1914 , Jhp 2-scater, in rery nico order, $£ 30$. Nownham
Motor Co.,
$609-597$ CHATER-LEA cougc. IIhp, Coventry-Simplex engine, dynamo lighting,

 CITROEN, 1923, 11.4, do luxa 4-seater, Hghting, starting, speedomeler. all-weatict eaupment, fear's licenco, new condition, 165 gas. CITROEN, 1923, 7.5 , lighting, starting, all-weather equipment, specdo-
moler. splendid order, 110 gns exchanges or deferced. Edwards. 175 moter. splendid order, 110 gns : exchanges or deferred. Edwards. 1758
Gt. Potland St. W. W. May CITROEN, 1923, 11.4, do luxe, sound condition thronghout, tax. insurCITROEN. 2teatur 11 hp 1921 . Just been thoroughly overhanaled and repainted, starung nnd lightimp, laxed for jear. ello. Greares, 6
8heldon Rd. Cricklewool, London.
609 o675 Cirfoen, 1921 4-sester, dynamo lighting, etarter, specdometer, all-
 CITROEN, 1920 , 10 hp , new hood, splendid ranaing condition, coachwork slightly damagod. $\mathcal{L} 60$, exchange. Boothman. Mannineford Bruce,
Marlborough. CitROEN, $1923,7.5 l \mathrm{hp}, 2$ seater, aclf-starter, all-weather equipment. 2
 CITROEN 19:2 2-seater, 7hp, tax paid for the gear, sell-starter, electrio payments. Mcara and Bisliop. 225: Wammersmith Rd., W. $6 . \quad$ Itammer-
609.618
GITROEN. W. II. Jones and Co.
 el75, clock. perlect. 114 hp Citruen, 1923, 4-acator French do laxa body, tax padd. f235. 11.4 hp Citroen, 1923, Englagh 4 seater bodg. tax paid, milesga 2265114 hp Citroen, 1923 English conge, 2-seatcr and diekey. tas pald, painted bluc. periect
Wcbaliges and special deferred lerma arranged. 7197 Maylair.
CLULEY, 1924, 2-enter, 10-20N27, hop-solied, fullest equipment, s230. Smith and IIunter, 90 Great Portland 'st. 'Phone, Mueman 609.540
8136 .


## SECOND-HAND LIGHT CARS AND CYCLECARS FOR SALE

 (continucd).CLYNO, 1924. 10.8bp de luse 4-seater, uaed only for a tew demonstra-609-311
COVENTRY-PREMIER, 1921-22, 2-scater, in perfect runnlng order and Cel. 425. TUD 2.538 miloa, £75. Stevenson E Garago. Tunbridge Well
 COVENTRY.PREMIER, 1 late 1922 model 2-seatcr, dynamo lighting. 1827 . Androws Motor Mart, 151 Whito Hart Lacc, Barnes. $609-559$ COVENTRYPREMIER. 1322. coupe dynamo lighting, double dickey. starts casily. Hecnsed, ncarest f 75 . Wood. 59 Darenth' Rd., N. 16 .
COVENTRY-PREMIER. F.O.C.F... Itd., oflcr 1922 Casontrr-Premicr 2 acatcr, excellant condiztion, tax pald, bargain. 5 Heath 8t., Hampstean
(ncar Tube).
$609-482$
COVENTRY-PREMIER, 3-wheeler, 1921, dynamo, sparo whcel, dickey
 COVENTRY-PREMIER, 1922, ghp, doublo dickey. dsnamo lighting, 5 detachable whecls, aplendid goer, 875 . 32 Strode Rd., 8tation $\dot{\text { Ad }}$.
COVENTRY-PREMIER 1922 2-reater with doublo dickey. fared for
 COVENTRY-PREMIER, 4 -whecl model. dtekey, dynamo. spare whecl. pecdometer, etc., just repainted as new, any trial, 265 or exchanio.
Clayhall Tavern, Old Ford RL, Old Ford. CROOCH, 1922 , 8 -18. 2 seater, aunk deuble dickey, dyamo lighting,

 ampton.
$609-0682$
CROUCH, $10 \mathrm{hD}, 1923$ Eeonomic. 2-seater, dickes, light blue, black oupe, petrol lighting. selt-starter, speedoraetcr dash lamp. aition, fully equipped. 2165 , 3lebes rnd Mebes (Entablished 1893). The Crikinal

CROUCH, 1924. 10hp. tull 4-seater, dynamo starting and lighting, ronition practically new. accept 2160 . Barnard, Batcher, Spencers Wood
DEEMSTER, 1920. 2-2eater, dynano and starter. excelifnt condition. Eu5: exchange or hire-purcbase. Tho Ligbt Car Co., 331. 410.414 D.F.P., 1923. 8.5 bp . English 4 -seater body, real heather opholstery. deferted. Edwardi, 175 GL. Portiand St., W. Wi. Enineas: exchanges or ERIC-CAMPBELL, 1922, 10 kp , special arrall 4 -seater. starter and bight-
 FIAT, 1921 . $10-15$, 2 -anater, repainted, in excellent mechanical condi-
 C.N. specialists. Repairs; spares of every description in stock; largest eervice agency in Midlands. The Redditch Garages, Lid., Redditch.
zzz- 446 C.N. 1921 Incere, onew chummy body. coach painted nary new side ccreen and hood, overhauled 2 months ago at cost of $83 J_{\text {chiswick }}$ smart

 painted, new hood. 50 sulneas. 51 Upper Richmond Rd East Purncy 609 G.N., 1920. tax paid to end gear, 12-volt dynamo lighting, practically Rd. Whyteleato electrio born, spare whel, 6090684 G.N., 1920, Lucas dynamo lighting. speedometer, very smare. sparo

 S.W. W.
C.N., 2-scater, dynamo lighting. specdometer, tpare wheel. fully canipperd and in excellent ranniag order f55 Phone. Putncy 1827. Andrew' $E$ ny tria, osamination. $£ 110$.
 Q.N., 1921, sports. 2-seater, dynamo lighting, detachable whecls. spare, painted, excoptionally fast and smart. in firstelass condition throughout.

 C.N., gewr November, 1921, brand-new hatk tres and hood. Aluminium dasb. Marge sleering , ieel, tax pasa 192 many spares and extras per-
 G.N., sports, $t 40$, 1921 , 2 -seater, painted red. tax paid, good tyres, in excelient mechanical ordor. any trial or examination Ingraw Sandle 3nd
Co., Lld., 168 Regent St. Gerrard 3852.
$609-782$ G. N., 1922 , 8bp, 2 -seater and dickey, special Frazer-Nash o.b.v. engine. spare whect, etc, exceptional condition, 35 sainese Below.
O.N. $1932.8 \mathrm{hp}, 2$-seater and dicker, dynamo, upendometer, clock, wide



## SECOND-HAND <br> LIGHT CARS AND CYCLECARS FOR SALE (conlinucd).

 for use, excellent order, \&59. Calner. Olnes C N., 1921, sports, fully ceuipped, with dynamo lighting, electric and Unlb horns, specdometcr, elc., S detachable wire whecis, overaized yres in condition, tax pald, one if the smartcit and mon ellicicnt on the road $\begin{array}{ll}\text { open } & \text { any expert exaraination, } \\ \text { RU. Thone, Strenthum } 3055\end{array}$

 Concessionnaires lor G.N. cars. Phor
 G.N., $x 52$, exchanges, delerred payments. 1921 GN, 2 -seater, hood


GRAHAME.WHITE, 1922, special bulle hody with dickey, domo nings stap onard, wlans aindacrect, hood, alnminimm wheol disch electrio light Ing. chains invisible, excelinnt condicion ibroughout. bargalng. 538.
C.W.K. 2-senter, repainied, Good running ordes, $£ 30$ or near ofler
Horgsnn, Schoolla, Busbridge, Godalning.
$609-m 334$
C.W.K. 1920 108hp 4 -scaler, engine completely overhauled dynamo lightign, Eide curtinns. tyres Rood. new dinc. excellent condition. E75 G. W.K. Zeenter, just overhauled, 5 new Dunlop cords, pers accumulator, now hoorl ride screens. ds uamo, apano wheel, purfect and guarantocd con mand Rd., Eaat Puincy. C.W.K. 1922 2-seater. Works orerhnol. repainted, e95; also 1922 4. Walden phone 16
 G.W.K., 1920. 10hp, 2 -seater and dickey, dynamo lighting, specdometer
 C.W.K., 1921, 2-ucarcr, all-weather, double dickey. C.A.V. dynamo light-
 GWYNNE 8, 1923 , chummy model. specdoneter. rap apron. fally
 GWYNNE 8, 1923, self-starter, clock, specdoneler. tast and aboolutely an new lhroughout, guaranteed, 135 guineas. 51 Upper lithmondi Rd 609.0695
Eni Puiney.
GWYNNE, 1923, chummy, original car, new condition, tax paid. $£ 135$.
CWYNNE, ${ }^{1923}$, ppecial last 2 -seatcr, new tyres, pax pald, s130 Gwynno epecialist Denman Motor Ageucs. 4 Denman Place, Pircadilly
Circus. Regent 986. HAMPTON, 1922, 2-seater, starler and lighting, newly painted, taxed,
 HAMPTON, 1920, 4-seater. dynamo and starter. Mulliner body price Eusion Rd., London HANDS 192310 hp 4 - eater, 2 doors, all-weather equipouent. S.S. dynamo lighting, cleck, speedometer, luggnge frid, licensed, practically new 17 oner No dealers
N.
HANDS 3922 10hp 2-ecaler, double dickey, dynamo lighting, selt-startcr, erimourtais, excllent condition throughout, Including all tyres, bargain El15 Wikina. Simpaon, opposite Olympla, London Phone, Ifammer HANDS, $1922,20 \mathrm{hp}$, 2 -scater and dickey, starting and lighting. pertec



 oondition, E80. Virian Mardic and Lane. Ltd 24 Woodstock St.i New
Bond St. W.
609.650


HORSTMAN ${ }^{1924,}$ 12-30hp Anzani onfine, 4-seater, tourlag model, clock, electrio born, dash lamp. luggagigrid; thlil car has not douc


 HUMBER, 10 p 4-scator. Gne order, dynamo, specdometer, 6 detachable Alexander's, 482 Harrow Hd., Padángton. Euaranteca. Jamef.9.807
HUMBERETTE, E30. 8hp. 2 -scaler with detachabla box body, good
 HUMBERETTE,
bargain
10 Eright St.
or

## SECOND-HAND <br> LIGHT CARS AND CYCLECARS FOR SALE (continued).

 JOWETT. Potentlal purchnsera of this make of car oither new or
 hand cars wanted urgently. Onls those in realiy exceliont order Canh
 JOWETT, 1924. 2-seater, dickey, starter, licensed, milleage under 400. 170.
dowert, ${ }_{\text {ted. }} 1923$ late. 2 -seater, atartor, licenacd, Grst-class order, guaran



 LAGONDA. Folenlial murchascra of this make of car. elther thew or


 W6. 6 . 609.463
 LAGONDA, $12 \mathrm{bn}, 1924$, A-senter, prey, black wings, dynamo lighting. sell-starter, speedometer, clock, windscreen wiper, electric and ordinary
 LAGONDA 1920. 11 hp , 4 -seater, dynamo lighting, all-weather equiplerma. 63 Solon Rd, Brixeon. LAGONDA, 1921, ad-weather 2-acater. sunk dickey, lorely enc. 105
 LAGONDA 12bp coune, 1921, large doublo dickey, epeedometer, clock, 5
 LAGONDA counc with starter anel lighting, 1920 in fine condition,



 MARSEAI, 1924, A-Eeater, modernto miteago, dynamo lighting and starter, all-weather equipment. 1155. Maudes. 100 Great 6 6n9.778
fondon.
 Mery necenory, insurance pald, Manor Park. 12 . 609 -a
 etc., $£ 95$
London by appolntment. MATHIS 1922 2-seater. Cape hond, dynamo lighling, sell-starimp. 5 do-
 MATHIS, 1923-1924, rery special 8un 2-seater sports, fited with

 MATHIS, 1923, 8lip, 2-seater sports, 4.apeed, starter, lighting, excelIIants. MATHIS 1922 8hp 2 -rater. 4-spend, staricr. dynamo Hiphisg, gear's

 MERCURY, 1920, y.5hp 2seater. tront dickey, dyamu lichting. detachable wheela. spare. car very good.

 MORGAN apecinlista James and Co (Shemeld). Led, 263 Eccloasill Rd. Shefficld Telephono Contral 2460 Good stock of anarea carried. atock.
MoRGAN Serrice Denol Omelal appolnted repalicera by the Morgan hand machincs always in stock. Trado supplicd Omeial agenta, Homaces. Lower Clapton Ro, E. Dalston 2408 endid condition


# SECO：ND－HAND <br> LIGHT CARS AND CYCLECARS FOR SALE （con＇inued）． 

MAORGAN de luxc． 1924 ． 10 hp w．e．MA．G．complete per makers＇apect－

 tar．

 moter，clock，Anshamp，Naxion hood side curtaing，wgage carrier．
 Mongans：Homat havo the lollowing Morgans for disposal，all



 1924 Family，${ }_{\text {screcn．}}$ etc．，
 lax paid 2
Ang of the－1，mancliznes can bo supplied on deferred terme．Yoor





 1923 Grand Pra：Anzani，discs，otc．，poedometer taxed year．excellene



 MORGAN 1918．GF．．．electric lighting，disch，aluminfum nistons，hood，
 MORGAN，Finmily model．1922，8hp water－cooled J A P，complete rith
 moncan，dynamn lighting．good tyres，overbated throngbouk，tax patd，
 MORGAN， 272 exchanges，deferred payments． 1921 Morgan do Ince G－acater，with door，MAG．，waler－coaled，hood．screen，lampa fant also
 MORRIS－OXFORD $10 h D$（tax s9）2－ecater，porchazed new 1914，but not osed during war， 4 －cyllader monobloc， 3 speede raverse，gate，very fally equipped with all lamps． 5 delachable wheols and practically now condition throughout，and is noat economical to run，opento any exnmol－ natlon and trial，will Encept £J7 cash．$R$ Watson．Victorin Rd Alde－
burgh．Sulfolk．
609－a679

 to f55 Exchangea，deferred lormas Andrew＇s Motar Mart． 161 White
IIart Inne，Garnes
 PERRY， 7 hp．2－cyllader，2－meater，cetachable wheels good runalag order

 PEUGEOT 1916 日hp 2 －senter，enginc and chasgin completely overhauled， as new．electrio lighing， $\mathbf{Q 5 5}$ or offer，owner golng abroad Najor till，
90 Madelay Rd．Filing
$909-0691$ PEUGEOT OUAD 1921 modol， 62 bp 4 －crlinder angine，Lncasa dynamo J． ghtig ．all recently oprba uled and ln splendid condition． 65 guincas．
609 －a666 PEUGEOT， 72 hp islomn coupe， 1916 ．electrio lighting，Eedtord cord apheard and reverec In perfect mechanical condftion，very last，one of



PHCENIX 1921）2arter 609 －a 60 Fhond，beentiful oondition thronghout， 290 and ighting．now iyren all | monti Mears and nishop．226a Hammernmith Rd．W．6．Hammeramith |
| :--- |
| m230． |
| 609620 |

## SECOND－HAND <br> LIGHT CARS AND CYCLECARS FOR SALE （continued）．

RENAULT 日hn 2－door English conpe（registered March，1924）， 2 montha old，painied blue，bino lcather opholsiery．leather heid，dickey．marter， malloon tyres，clectric rear anarang idgn，clock．speedometer，jear＇s
 RHODE， 9.5 ，September，1922，dyamo，speedometer．Ranpa galters Dizon adjuntable jé．Lennoz extra air and of her extrag，mileage 5,700 RMODE，1922，Occasional Four，in splend order，onls $\boldsymbol{f} 120$ cash，or e30 down and 9 pagments of flo 7h．6d Lomb：Led，opposite flac Greon．609－465 RHODE， $9.5 \mathrm{hp}, 1923$ ，all－weatber anloon，dynamo lighting，nelf－narter， speedometcr，clock dashamp， $\begin{gathered}\text { carrier，Nillbella ballonn tyres tax paid for year，fally equipped，ex }\end{gathered}$ carrier，Mondition throughont， 8175 ．piebes and Mebes（Eige 18931 ．The
 RMODE，1422， 95 ，occnslonal four，dynamo，apedometer，gaiters，ad－
 RMODE chumins， 1922 ，tully tased，splendid order， 2123 ；cash，do－

 RICHARDSON， 1921 model 日hp，IAP， 4 speeds．reverse，electrio
 RICHARDSON，excentional barkaln， 1921 J AP．，8．hp．2－seater．

 RILEY，aports， 1923 －4，2atater and dickey，all－alumintmm body．a－ speed and reverse，wire wheals，outaide exhaust，speedometer，clock，self－ atarter，dynamo lighting，ortremely smart，very fast，as nem，ang trial，
f275：must be acen to be sppreciated，apolntment only．Bennett
 RILEY sports，1923，11．40hp，2－aeater，dickey，hood，starter，smals
 ROVER 8 ，October，1921． 5 new tyres， 4 front lampa，dynamo lighting； hood．side screens．periect running condition tar paid． 100 mile trial ollored．\＆70．Boz No．6347．co．The Lati Car non Cyelecar． 609 －o578
 speedome
（South）．
ROVER 8， 1923 ，Just been overhauled and coach－galnted，tyres groad，
f95．Passes．Winscombe．
 axcellent．285，oxtended tarms．378－384 Eustom Rd Museum 7600．
ROVER，ghp．4－geater，ontaxed．e145．Dover Autocar Co．．Dover 610 － 245
 ROVER， 1923 latel．Oceasional Four，dynamo IIghting，clock，apeedo－ meter，Laxcd，almost new．2125．Greaves 6 Sheldon Rd．．Crickiewood． $609-0674$
London ROVER，8hp，1922，2－seater and dickey dynsmo lightlar，very aice ROVER，2923，2－seater．dygamo lighting，specially fited dash，clock luggage grid，spare wheel，otc．，tax pald to December，very fina mechani cal condition，f90；exchanges and terma arranged Phone．Paddıngron
6049 ．or call．KIrk and Co． 22 Praed St．，Paddingwn．W．609－514 ROVER 1922．Bhp，dpamo lighting，Rlass side screens．mpeedometer． electric born．iyren excellent．mechanically sound． $\mathbf{8 8 3}$ ．G．R．Naylor，
406 Garratt Lane．Earlabeld．B．W 18 ． ROVER，1922，8hp，de ture，leather apholatery，elock．speedouneter．
 ROVER \＆， 1921 ，dickey eat．Insured，dynamo ligheing，opare whee，
speedometer，ide screena，etc．aplendid conditioa， 268 ． 9 Gantshili speedometer，ilde teroena，etc．plendid condition． 268 ． 9 Gantshili
Cresceat，Iford
609 －a4 ROVER B， 1922 ，de luxa 2－seater．Andihed blue，stda ourtaina，clock
sperdometer，electric horn，mirtor，eto．， 1924 oiling system fited taxed sperdometer．electric horn，mirror．eto．， 1924 oiling system fitted taxed
 ROVER 日， 1921 ，palnted blue．speedometer，nlee oondilion，good tyrea，
eG5 Sydenham 2432 Hillier．Aoore Park Fotel．Woorivale．Honor

 Portend St．．W 1．Langham 1998．Pictorth in kal．609－76\＆

> A trial advertisement in this section of of "The Light Car and Cyclecar " will prove to you its value as a publicity medium, reaching users of small cars direct.

## SECOND-HAND <br> LIGHT CARS AND CYCLECARS FOR SALE (continued)

ROVER 8s. We nranlly hare eeveral 2 and 4 -scaters to chooso from, irom s. 65 upwards; canh. deferred, exchanges. Railinn Cobham and Co.
Itit.. 5 Cumberland St., Deansgate, Manchester. Central 2681. 609-760
 ROVER, 8 bp, chummy model, 1923 model, sio5. Apply, The Telephone Motor W
$\mathbf{2 0 7}$ Langham ROVER, £68; exchnoges, deferred paymente, 1921 Rorer 8 hp 2 acater,


 ROVER, 8hp, 1924, 4-scater, model de luxe, aclf-starter, taxed and inEnred. milenge 400, absolutely new, ©150. 112 Stroud Green R R
 for year, 135 , 8hp, 2-scater, dickey, fininhed bluc, many extras, caxer nav, Barnes, S.w.

1 Castel-
609.802
 ROVER, 1922, 8hp, 2scater, dynamo, apecdometer, side curtains, excel-

 609.602 ROVER 8, late 1922 apecial model, small mileage, mechanleal condition and appearance like new, reliablo bargain. 87 guineas, would driro
60 miles to intending purchaser. 32 Bonnersficld Lane, Ilarrow.
 ROVER, 1922,8 bp. 2ecater, dsnamo, orerhauled, \&82. Bartlett'6, 93
Gt. Portland St.
6093080 SALMSON. Apply to tho London distributors, Gordon Watney and Co. lid., for sccona-hand Salmson cars. Several always in stock. Part ex


SALMSON. Mano and Handorer, Ltd, anthorized agents for Salmson cart, alwass havo a selection oi good secondhand models; deferred terms
or part exchange. 116 Gt . Porliand St . Muscum 2878,
SALMSON, late 1922, de laxe, all-weather, dickey, dynamo, sperdometer ovarsize ts res, tared, perfect condition, ciloo. K.J. Motorn, Brameley, SALMSON, 3-4-seater, 9.5hp, has only done 500 miles, absodutely. new Light Car and Cyclecar."* SALMSON. The Mator Monsc, Lid., base a really eparty inst 2-ecatcr Salmson, in wonder!nl order: a trinl run will gell it at our prico of 609.609
20 Finchbey Rd. N.W. 8 . Near Lord.s. SALMSON 1923 2-scater, doublo dickey, A $W$. equipment, many extras, taxed Derember, insurance, oplendid condition, bargaln, el20. Apply,
C., 29 Motham Red. Patney. SALMSON, do luxc, Angust 1923, all-wenther, doublm dickes, dynamo speeriomeler, clock, upholsirred Rhinos leather, well shod, taxed yenr,
£135. Fairall, 284 Farnhar Rd., Slough SAXON, 10hp 4-cyllnder, ang trial, s32. Lovatt, Streatham Rd. SILVER HAWK racer, 1921 , $11 /$-litro Coventry-Simplex enginc, strenmlined tail, detachablo wings, 2 spare whecls, 4 Martiords, good cond
lion, 609.00328 SINGER 191410 hp 2 -seater. dickey, dynamo. 5 detachable whecls nnd rxcellent trres, recently overbanled thronghont, taxed, s40. K.J. Motors,
Bromley. SINEER, 2-scater, ing paid, dickey, 5 whels; 6 lamps, nearly now
tyres, dynamo lighting, sood nppearanco and reliablo, 250 . Thorniot Rd. Ancriey, London. SINGER, 1924, 2-seater do laxe doublo dickey, fully laxed, several Putasy. perioct condition, 165 suineas. S1 Upper Richmovd 609-0692 SINGER, IOhp, 1922 (October), all-wenthor acmi-coupe, plass ade win-
 starilag. 5 lamps, specdometer, dash lamp, dimmer, electric bulb horns, stepmats. ventiatori, lamp, hood corcra, extra aif, potrol gavge, luggago
grid. 4 ncw Dunlops, greasc-gun ssstem, right-hand chango. gearbox not on back smlo; apecial car at special price: one privato owner; mileago
9,000 , taxed. insured, $\& 145$. Mi, Drij Mall, St. Mary St., Muntingdon
609.0687

SINGER coupe, November, 1920, ilicker, apecrometcr, clock, ${ }^{12 v, ~ l i g h t ~}$ 609-0672

SINGER 1924 do loxe 4 -soater, mileago very low, xI85. Grimes. 24
SINGER, ${ }^{1921, ~ 2-a c a t e r, ~ d o n b l e ~ d i c k e y, ~ f u l l e a t ~ e q u i p m e n t . ~ t a x e d ~ y e a r, ~}$ Muscum 8136. 'Phone,
6c:9.542
SINGER, 1914 , 2-senter and djckey, dynamo lighting detachable whecis, Goad onndition
Bydenham 223.

## SECO.VD-HAND <br> LIGHT CARS AND CYCLECARS FOR SAIE (continued)



 SINGER, 10hp, 1919, 2-seater. dickec. ©lectric light, specdometer,
 INGER, 1924, 10hr. 4 seater de luxc, absolutely as new, 2225 ;
 SINGER 10, 1919, drop-hend coupe, dynamo lighting and starter. doachable whecels, sparc, isres good, nill accessorirs, Bedtord cort erphol-
 SINGER 10,1919 , drop-head coupe, as aboro only no starter, just completely orerhatice. $x$. Betow.
SINGER 10, 1918, 2 -seater, dickecy, dymamo lightinge detnchable whels,

SINGERS, 10 s , 1917, all-weather 2 eenter, dickes, dmamo lighting, do
 upholster, io rery good mechanical condition thourhout. C65: all tbo






 1924 singer 4 -scater, tax paid new condition throughout, 5195 .


 STANDARD. Moores Presto. Crosdon ngenta Slandard cars, Promptent


 ning order, low price accepled. K. Lankester, 39 liden St., Kingation
Phoze
Phone STANDARD, 1923 , 9.5 . 2 -esenter. with double dickes. Highting, starting
 STANDARD, 1924, Nilc blue finlsh, 4 -srator fully lleensed. $£ 195$ cash

 ,

 STANDARD 192411.44 -scater, very small milenge, practically new, tax pald, $£ 200$. Below
 STANDARD 9.5 hp 2 -scator. dickey, all-weathcr, 1920 , long wheolbaso
 Ashby. 5462 Groavenor Ral. Vauxhall Bridge, S Phone, Victorn
STANDARD. 1924 Standard, milleago neglisible, rery nico 2-seater,
 Lard s.s.

 tachables. taxed. Hondertol stillo enginc. Easthourne and back on con
 STANDARD, 9.5hp, 2-snatcr, dickey, dynamo Ilghing and atartor, or ceptional condition, 885 . 6een niter 6, or appointment. Meaibfild
Iondon Rd., Norbury, $8 . \mathbf{W}^{2} .16$.
 STANDARD, 9hp, starter and lighting, 2 senter and doublo dickey,


## SECOND－HAND <br> LIGHT CARS AND CYCLEC ARS FOR SALE （continued）．

STANDARD， 1924,114 4－seater，bought end of May，as mew．mileago $\frac{1}{2} 7^{340, g}$ Giartertiouster cost，owner buying 2 －seator．Writc，Percy Newbory STELLITE， 1914 No．1．369，2－seater，overhauled nod repainted green


 STONELEIGH 1922 9hp 4 －sater，clock，apeedometor，electrio llght and in wectile：running order，laxed，any trial，$\varepsilon 60$ for quick ale awner going alirond．Chandler， 3 Roystod Rd，Richmond．Surrey． 609 －a 55 SURREY， 1921 ， 5 ．doublo dickes，dynamo，spare wheel． $\begin{gathered}\text { splendid } \\ \text { condiung，batey }\end{gathered}$ Conditinn，batatly

 SWIFT．Moorcy Presto，Crosdou agents Switt cars．Promptest delivery

 SWIFT，1920，zrantor，dicker，dyoamo lightlog，taxed，car ab ace




 extbibl 609.804 SWIFT， $10 h \mathrm{p}$ ，Nomber．1921，starter specdonoter eloctric horn．Just

 SWIFT，£38：exchanges，delerred paymento，one of lamous atagbered



 TALBOT $192410-23$ 4scaler，all－wenther equipment，clock．spedo－

 TALBOT，lato 1923． 4 －seater， $10-23$ ，atartheg and lighting，all－weather ehan extended payments Mears and Bashoy． 2253 Hamme，ex Md．W6．Hammersmith 2230 ． TALBOT，1923， 10.23 A－sealer，Jighting，starter，overhauled， 225 guinean
8136 Swith aud llunter． 90 Great l＇ortlnad St．Plone $\begin{gathered}\text { dyuseum } \\ 609.536\end{gathered}$
 TAMPLIN side－by－aide 2 －seator， $8 \mathrm{bp} \mathbf{J}$ A $P$ ．． 3 apeeds．dyamolightang apceuometer ere，
51 Upper Richinond lus E．ist Putney．
TAMPLIN 1922 8hp 2－rentor（side－by－side），3－speed and reverse，dy－
 TAMPLIN，1921－22，Bhp J．A．P，3－speed dyammo lighting，bood


 WESTWOOD，sporto． 1921 ，very fast $\boldsymbol{2 1 2 5}$ ，cabb．delerred excranges | Malliton Cobham and Co．Led．， 5 Cumberland St．，Deanagate，Manchester |
| :--- |
| 609.16 | WOLSELEYS．Try Henlytiyou cannot beat thetr terios．91 and 155 WOLSELEY Potential pirchasian of thls mate ol corp．elther new Lt socond－hand，are Mrew $N$ Send beir regairemente to tha Garage． 12 band wanted urgently Only thosalareally excollent onder．Cash

WOLSELEY， 1924 ， 10 hp ．model de luxe nem．but only，olikntis show pnyments Wilkins，Stmpson．opposile Olympia，London．Phone．Ham．
mergmith 238.

## SECOND－HAND <br> LIGHT CARS AND CYCLECARS FOR SALE （continued）

WOLSELEY， 1921.22 ， 0 bp de luxe． 2 －geater hat dickey．Ifghting． tarting．specdometer，side screen！year＇s licence，aplendid order，${ }^{140}$
 WOLSELEY，1921．2－acater，1Ohp，maroan finlah fully Ifcensed latc owner very carelul user，only 2150 cash，or 23715 ．down and 12 nid
 WOLSELEY，1923，10hp，2asater，with dickey，starter，clock，apeedo


WOLSELEY， 127 guineas，1922，10hp．2－seater，magnificent order ex tended payments，and exchanges．Wbite and Mcarn，9a Brick St．Picca．
dilly．Phono，Grosvenor 1804 ．
WOLSELEY，1923，10hp，de luxe，2－seater and dickey．atarting and highting．new condition throughout，tax paid for the gear． 190 guineas
 WOLSELEY 7，1925．lighting，farter，laxed，beautiful conditon £130．Below．
WOLSELEY Ten 2－scater，1923，lulleat equipment．perfect tbroughout， WOL Derow．
WOLSELEY TCD 4 －scater，1922，de luxe model，pertect condition Muscum 8136. ． $609-538$ WOLSELEY，J．S Wood ban tor onle 192310 hp Wolseley 4 －heater do luxe，painted blue．Kingsmay Motor Co．Catberine St．，Aldwjch．
luegent 691 ．
60946 WOLSELEY．J．S．Wood has for anle 10 hp Woleley 2 －seater car that competed In the R．A．C Six Day Trial．Car can be seen and tried at
the Kingan slotor Co．Catherine St．，Aldwy．W．C． 2 ．Regent 691.
ZE日RE，1922，8hp．4－seatcr，dynanio and starter，speedometer，fully
 LE ZEBRE，half tist prico，brand new， 8 hp chassla． 4 cylinders， 4 －speed． LE ZEBRE，half tist prico，brand new，8hp chasla， 4 cylindcrs， 4 －speed，
 LE ZEBRE，1922，2－zeater dyanmo lighting，fully licensed，E125，ex－


## SPARE PARTS FOR LIGHT CARS．

 G．N．spares．Every part la stock；trade aupplied；orerbaula and taning：
 HUMBERETTE Bbp apares for sale，cheap，example，chassis，complete
 LAGUNDA wheols． 5 ，complete mith cord covers and tubas just caken from ca＇；will sell together or separately． 1 Spring st．Paddington，6itw＇ morgan apares．The Stevenage Motor Co．，Ltd．Stevenage，Herta． can upply frow stock all apares at makers＇higt price，plise carringe．Re：
 MORGAN SPAREPARTS DEPOT．Syares for all models trom stock：
 Richarison spare parte to stock Arthur Franks． 34 Lanton fri． Shefleld liate manager
RIChaRDSON lighr cars．Spare parts us stock．Richardaons，Mill－
thorpe，near Shetlield ZE日RE
LODdon． All sparea can be oblained from Kight． 63 Regent St．． LONDON MORGAN SERVICE DEPOT．The only firm officially ap－ pointed as a service deput In London by the Morgnn Mctor Co．Every



## NEW LIGHT CARS AND CYCLECARS


A.c. cars.
 New modelis ond pricea of tho
Amazing A.c.
Govereign model, 2 -acater. $£ 275$.
Empice any-weather model 2-acater, $£ 310$
Royal model 2-tcater, 2330.
Royal model 4-ncater, 3999 .
Our terms Ior oxtended paymenta and part exchatigen unnot bo beaten. Caithneas and Co., Lid., 65 Gh. PorJand St., W. 1. Tel., Langbam 2172


 A.C.. 1924, any-weather Empire model. fited with Marles atoerlng.

A.C. Autoveyors, Lid, anthorized A.C. agenta All 1924 models for
 A.C. G. L. Francis and Co, authorized agents for A.C cars can givo immediate delirery of all models from 2275: exchanges ant deferred pay-
ments. 110 Gt . Portland St., W.1. Phona, Muacum 6231 . $609-649$

AC. 1925 modela at reduced prices now arailable for inalant delivery.
2-seater Sovercign model, $£ 275$; 2-seater any-weatber, $£ 310$; \&-senter Ruyal, 2399 Sccosd-band rara accepted at geod valuntion in part pay ment Excha!iges arratiged in any part of the counlry; deferred terma it
desired. Newinn Motor Co, 245 Hammeramith Rd., W. 6. Phone Hammeramith 1325 and 80 . 245 Hammersmith Rd., W. 6. Phone. ALVIS. Debnain. Atheritonc Mewa, Gloucester IRd Station. Ken, 2917. AmilCAR conceasioanaire Spares and repair serviceo. Vernon Balls.
25 High St. Fulhm. Putnes 1995 ARIER 10. 4 cylinder. 4 -eater, £198; do laye, £210, in atock; tax £9, right,-hand control, 45 mpg ; jour car or motorcyclo part payment: ex-
tended terma arranged; spare parts ntocked lor all Aricls from 1899 modela Ariel Mrtoris ans General Repalra. Lid, Service Depot. 3202 ARIEL. Sole agentif for Bournemonth and district. l'rimasesi.

ARIEL, 10 hp 1924, 4-cylinder 4-Ieater models Cl 195 . de Jaye $2 z z-77$ f2lo, carly dellrery, Scond-hand motorcyales, combinationa or light

 ARIEL 10 Try Jacken's Garage, Guildford, authorized agent, for ARIEL 10, new 4-cyliadel models, proes e198 and e210. Demonsirin


AUSTIN. Wilkina. Simpaon
1924. latest models, 7 hp . whth electric starter, $£ 165$, immediate delivory, car or motarcscle in part exchance arranecmente made anyuher Wilkine, Simpaon, opposite Olympia, London. 'Phone. Hemmersmith 238

## AUSTIN.

Gorrion Watney and Co.. Ltd (Aathorized Agental.
Furliest delivery of all models.
We aspecialize in Part exchangea and deferred terma.
31 Brook St.. London. W.1. 'Phonc, Mayfair 2965-2966. 22z-660 AUSTINS, $7 \mathrm{~b} \rho$, Iatest models, all-weather, el65: on extended paymeuta prom. Station. 'Pro $\theta$ Kengincton 8558. Suarex P1. South Ken AUSTIN. Rooker, Lid. diatributors and specialists. 7 hp , latest models
 AUSTIN 7. Immediate delivery can be given of thia wonderful little car,
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