## $33^{\circ}$

Vol XXIN No. 608 Fridayduly. 18 1924

## Oil + Dust + Fuel + Water $=$ ?

Look out for this mixture in your crank case

IIOOD oil stays good a long time. But present-day fuel is less volatile than that formerly sold. It is more apt to be drawn in liquid form into the combustion chambers. From there it leaks past the piston rings into the crank case. This thins out the oil. Asmileage mounts up, this oil and fuel mixture is often further adulterated. Carbon is added. Road dust enters through the carhurettor. Water and rust may also be present.

## Then what?

(1) Premature wear of cylinders, pistons, piston rings. crank shaft.connecting rod and gudgeon pin bear ings and possibly bearing trouble.
(a) An incomplete piston ring seal with consequent loss of compression and power.
(3) Foulcd sparking plugs.
(4) Considerably increased carbon formation.
(5) Direct waste of fuel.

The quality of Gargoyle Mobiloil enables it to withstand remarkably well the cutting effect of present-day fuel. The body of the grade specified for your car provides a piston ring
seal which further ensures you against leakage of fuel into the crank case.
But even with this scientific and economical lubrication all used oil should be drawn off regularly and replaced with fresh oil. It will pay you to-day to begin to use the right oil-in the right way.
If your car is not listed in the partial Chart shown here consult the completc Chart of Recommendations at your dealer's, or send for our booklef "Correct Lubrication" which includes the complete Chart of Recommendations. together with information of an insiructive characier for the car owner.



## Remember:

Ast. for Gargoyle IHobiluil by lbe full tille. It is not sufticient to say. "Give me a gallon of 'A' or "BB." Demand Giaryoyle Mobilual "A" or Gargoyle Mubiluil "BB." or wbicbever grude is apecified for your car in the Chail if Recommendalions.


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revelation in power and revelation in power and

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A well-known motoring expert recently tested a Humber 8 h.p. car, and this is what he said atter the test :-
" The engine 'turns' most astoundingly and delivers the goods. Many small motors can be made to buzz merrily, but they don't seem to be bringing home the bacon after about 2,500 r.p.m., whereas this of the Humber gives real and manifest power for every revolution of the crankshaft Another remarkable thing is its flexibility. One can vary one's pace from 5 to $45 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. on top gear, and yet the engine is scarcely more audible when running all-out than when just ticking over. Obviously, this points to exceptional design and very fine workmanship."

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# On the Subject of Lubrication And the Properties of Zero Huile de Luxe 

We are frequently asked -
Whv change to Zero Huile de Luxe?

What advantages shall I gain? Why spend more money?

We would reply that, being a rich compound lubricant, i.e., a blend of refined neutral fatty oils with specially selected pure hydrocarbons, it is much more costly to produce than the average oil for water-cooled engines, which is a pure mineral. On the other hand. ZERO HUILE DE LUXE gives substantially better resultsjustifying the greater outlay.

ZERO HUILE DE LUXE. being rich in fatty matter. is cleaner in working, i.e, gives less deposits than pure minerals, thus calling for less frequent need for decarbonising

ZERO HUILE DE LUXE is lighter than many pure minerals. but, on the other hand, thanks largely to the fatty matter, has a far better ratio of viscosity ; in other words. whilst exceptionally fluid when cold, it maintains its body when hot. And ZERO HUILE DE LUXE neither gums up nor thickens in cold weather. These are particularly valuable features.

Your engine can be readily started from cold without damaging batteries, and runs freely and with great liveliness even when cool. Particularly in the case of high speed engines, this great reduction of fluid friction at medium temperatures is most valuable in saving fuel. During the first few miles of warming up, and at other times when the temperature of the engine is only moderate, ZERO HUILE DE LUXE will be circulating freely to all working surfaces. thus minimising wear and promoting long life. Pure minerals which do not circulate freely till hot are at a great disadvantage in cold weather.

When hot. ZERO HUILE DE LUXE, thanks again largely to the fatty matter it contains, maintains its body well, giving adequate lubrication even under severe conditions of load and speed, and having a high flashpoint does not readily burn away, consequently it is economical in use.

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Specification of this wonderful Value for Money Model includes, $10 \mathrm{~h} . \mathrm{p}$.
Acyl. overhesdvalve engine. Tax 10. tcyl. overhesd valye engine. Tax $\varepsilon l 0$.
Twoorfour-sesterbodles upholstered invorl loarser, aleciric lighting and starting zet, 5 lamps. Dunlod cord inres. All-weatherequipmient includ. ing back screen, etc.

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 for EVERYMAN.WHY stint yourself the pleasure of motoring, when you can get a SINGER for £2110? Somehow or.other I always looked upon a car as beyond my pocket. I'm one of those sort of chaps that want a car if I have one, none of your 'Apologies' for me; 1 would rather go without. But when I woke up to the fact that I could get a Four-Scater SINGER for $£ 210$, and by deferred payments if 1 chose, I cut out the 'ifs' and embarked upon a larger life without limitations. My SINGER has proved an 'open sesame' to health and pleasure. Expensive? Not a bit of it; When four of us can do forty mites to the gallon, and get out every evening and week-end to just wherever we fancy, it's not an expense my boy, it's an economy. My only regret is that I did not begin motoring with a SINGER before."

Here's a Singer to suit every taste.

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10 H.P. 4-CYLINDER STANDARD MODEL £198

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TOOL STORAGE The tools are all clipped in position with special fittings under the rear seat and are entirely free from rattle.

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( $\frac{\text { Features of this }}{\text { week's issue of "The }}$| Motor," July 15th. |
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A Four Cylinder White Wall which is Croled, Conditioned and Charged by a High.Speed Air Siream.
MOTORING MATHEMATICS.
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800 MILES ON AN ARIEL "TEN."
A $£$ mall Four with an Oulstanding Road Performarce.
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THE ALFA-ROMEO GRAVD PRIX RACER The Expected Winner of This Year's Great Inter: ational Race.
MODERN STEERING GEARS.
Modificalions Required to cope with Lowpressure Tyres, Front Whecl Brakes and ふ5, 23

PORIHCAWL \& CAERPHILLY CONTESTS.

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wins the FLYING MILE
AT
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"An interesling feature of the trials was the reappearance of the Salmson in competition work. The Salmson has been resting on is laurels since 1923 so far as sporting affairs are concerned, but this time the firm evidently could not resist the temptation of attempting to beat the two-seater 1,100 c.c. cyclecar record. This they managed to do by a very ample margin."
" Light Car \& Cyclecar," July Ilth, 1924.

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EVERY MODEL can be supplied on Deferred Payment and any Car or Motorcycle taken in Part Exchange. Sole London Distributors:-

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With only a few days to go to the end of this Mammoth Sale. IMMEDIATE ORDERING is ESSENTIAL to secure at these prices All orders from this announcement (whether'by Post or in Person) come under our famous Guarantee of "Satialaction or Money refunded in Full." In our Motor Clothing Dept. too, price-cuts just as drastic have been made-pay us an early visit


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新III| The Famous 'Gamage' $\left\|\left\|\left\|\left\|\left\|\|_{1}\right.\right.\right.\right.\right.$彦FOOT PUMP
 on Saturday last, July 12th.

On the same day at Brooklands an AUSTIN SEVEN also created a new

## WORLD'S RECORD

for 750 c.c. cars, winning the 50 MILES SEALED HANDICAP
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## THE WOLF AND THE HOUSE DOG

 A Wolf. meetins a bis. well-fed house dod with a wooden collar ahout hisnech, inquired of him who was that fed him so well, and yet compelles him to dras that heavy lok atout whereser he went. "Thes Master." he replied. Then said the wolf. "Mas no friend of mine ever be in such a
nitish:, for the weisht of this chain is enoush to spoil the apoctite... IS YOUR PLEASURE IN MOTORING BEING SPOILT by the stress of fnancial difficulties? if you are weithed down hy
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A West Eind Firm recently went into liquidation. We bought the stock of
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Snecial Distributors.
Immediate or early de livery of all wodels.

Standard - £110
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THE ROVER "EIGHT." A most nonular four. wheeler of nroved mrit.
Has been made and soldin thousands. Two Has been made and sold in thousands. Two ar four-seater bosies an new lond chasyis.
Immediate delivery. Allweatherequinmert Motorcycle economy with ear comfort. 180 De luxemodels Rtted withleather unholstery, clock and sisedometer. E172. Startor to Delivery of standard model for frst payment
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GOOD SECOND - HAND CARS ALWAYS AVAILABLE

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 Second-hand WEBB. Four cylinders. Chummy Bods: \& $105: 0: 0$ Second-hand MORGAN
De Luxe. 3.A.P., Water Cooled Dynamo Lighting, 19 zrs. Taxed Year.
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Even if you carry a spare wheel you never know-never feel quite sure that a thorn or a piece of giass will not take "a rise out of your tyres." But why worry? With a New Chemico Repair Kit you can effect a clean, easy, and certain repair, and be on the road again in a few moments. THE SPECIAL, PATCHING SHEET has remarkable self-vulcanizing properties. After application it forms not merely a patch, but an actual part of the tyre. The kit costs but $2 / 6$-a very low price to pay for freedon from anxiety.

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2-SEATER<br>£168<br>4-SEATER<br>\&192<br>Self-Starter $£ 10$ extra on both models.



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EXCHANGES

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1920 SINGER COUPE.
IF SO, RING BATTERSEA 1509
THE CLEARING HOUSE FOR SMALL CARS.

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'BENMOTORS," 30-32, High St., Wandsworth, S. W. 18 SEND FOR LISTS AND TERMS.

LIKE? RICHAROSON, 1921 , 9 hpic 2 . scale-: stunk dickes, electric liyhting, holslery, pant and hood first-ciass,
three-sped nnt reverse, whole in ex-
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SINGER 11 SINGER 1 Irated) dickey, lynarno lighing.

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 10 equal payment, or -h e58.
ROVER 8, 1921 2 water double

 in first-class condition thiringhout:
exceptsonally smart and reliabli,
\&6 16 s . down and 10 equal paymenta, nr cash \&G8. Many others as alimernical condition
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12 months. Sunr prosent machine as

## Easier Filling

 The Gun Charger for the ENOTS' flexible GREASE GUN$\mathbf{S}^{O}$ simple, yet so effective, it makes grease gun filling a cleaner and quicker jub. No bother, no waste.
H)w to use 1t.-Push charger well down into g.ease, rotate in both directions and then withdraw slowly while rotating. Insert into Grease Gun Burrel. and screw Charger Cap on Gun Barrel. Now, holding Gun in one hand, withdraw Charger th ough slots in Cap, as far as it will go, and


FACILITATE, BUSINESS, and ensure prompt attention to your enquirics, by mentioning


"My dear Boy! of course it's an Auster
"The Best's good enough for me. Apropos:-why don't you rig out that little 'Bus' of yours with one of their 'Light Car' Back Shields? A beautiful little job! Only costs a 'fiver' and you can fit it yourself in a few minutes.
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The largest Manufacturers of Back Wind Shiclds in the World.
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## NOTES. NEWS AND GOSSIP OF THE WEEK.

This Year's " 200."
Prospective drivers in the Junior Car Club's annual 200. Mile Race are reminded that entries close at ordinary fees on August 7th.

An Opportunity for Inventors. We recently reccived an inquiry from reader, who wished to know where he could purchase a safety catch to prevent the clutch slipping into reverse gear by mistake.

Wireless Exhibition.
Motorists who, as a body, have taken the keenest interest in wireless developments will be pleased to hear that this year's all-Britisl2 Wireless Exhibition will be held at the Royal Albert Hall, Kensington, London, W., from September 27 th to October 8 th . The price of admission will be 1s. 6 d ., except on tho first Tuestiay, when a charge of 2s. 6 d . will be made.

## E.M.C. Prooklands Meeting

Next Wednesday, July 2 Jुrd, the Essox Motor Club will hold its mid. week meeting at Brooklands. There will be ten events in all, seven of which will be for cars and the remaining three for motorcycles. Admission is only 3 s ., including tax, and full particulars can be obtained from Mr. A. George Reynolds, organizing secretary, 23, Stepney Green, Loondon, E. 1 .

## R.A.C. Hospitality.

Many hundrods of visitors from Overseas have been made honorary menbers of the Royal Automobile Club in connection with their visit to the l3ritish Enpire Exhibition. An official anmouncement says: " Thn Club is glad to show hospitality to nembers of the clubs associated with it throughout tho Empire, and thus to reciprocnte the generous help given to members of the R.A.C. when visiting them. $\mathrm{N}_{0}$ 608. Vol, XXIV.

The methods adopted by competitors at Shelsley Walsh

THE SECOND BEND. in negotiating the second bend differed considerably. In contrast with many other cars the Austin Sevens hardly skidded at all, W. Beck iseen above) making an excellent ascent in one of these machines. The climb which took place last Saturday is fully described io
this issue.
" Small Four" in India.
A very interesting letter has been received by the Austin Motor Co., Itd., from an owner of one of the 7 h.p. Austin cars who lives in Calcutta. Nearly all his motoring is done at an altitudo of from $7,000 \mathrm{ft}$. to $8,000 \mathrm{it}$. above sea-level, while he has successfully climbed to the observation post on the summit of Tiger Hill, an ascent which has been often tackled, but which no car has previously conquered. Two of the hair-pin bends were so acute that the Austin had to be lifted round.

## LIGHTING-UP TIMES

for Saturday, July 19ih, 1924

| London ... 3.35 | Edinburgh | 10.12 |
| :---: | :---: | :---: |
| Newcastle 10.0 | Liverpool | 9.57 |
| Birmingham 9.47 | Bristol | 9.45 |
| Dublin | .. 10.10 |  |

Lighting-up time(rearlights) in England, Wales, Scotland and Ireland is half an hour after sunset.

Noon-Last quarter, 23rd

An Aid to Speed.
A watch and chain were seell on Brooklands track at a recent meeting, thrown there, it is suggested, bv one of the competitors to lighten the car and thus to obtain more speed. On the other hand, of course, he may have been deliberately "losing time" in the hope of being favourably rehandicapped.

## Our Front Cover.

A chummy model Eric-Campbell figures in our front cover picture. The hood of this car lends itself admirably to hot-weather motoring, as, aiter undoing seven turn-buckles, the fabric cain be rolled up as shown, the webbing of course, being left in situ to keep tho hood taut.

New Automobile Standards.
The British Engineering Standards Association lias now issued several new automobile standards, including specifications relating to iron and steel castings. Copies, price 1 s . net, post free 1s. 2d., can be obtained from the British Enginecring Standards Association, Publications Department, 28, Victoria Street, London, S. W.1.

Spar s for Mercury.
We shall be very pleased to receive the name and address of any concern that either stocks or is prepared to make up spare parts for the Mercury light car.

## Closing for Stockt sking

The Villcan Iron and Metal Works (1918). I.Ad., Durdan Works, Southall, Middlesex. will be closed for stocktakiny from midday Saturday, August 2nd, until Monday, August 11 h .

## Disabled Drivers.

The next fixture of the Disabled Drivers llotor Club is a river punic at the invitation of Major Howson, to be held at the Ferry Hotel. Cookham, at 3 p.m. to-morrow (Saturday).

Workers on Ho iday.
The ammal sports of S. Smith and Sons (M.A.). Lid., held on Saturday last, in the company's ground. Dollis Hill Lane, Neasder1, attracted 1,500 spectators, whilst 500 competitors took part in the 20 events which were run off during the aiternoon.

## Improving the Aus in Seven.

The Austin Seven now makes its ap pearance with a body which has been considerably improved. The bodywork is longer and the doors are wider, thus providing more room for the occupants of the rear seat. The back part of the hood is himher than formerly, and gives comfortable headroom for the rear pas sengers.

Southampton-Exeter.
This year the route of the fourth annual Southampton-Exeter trial, organized by the Junior Car Club (SouthWestern Centre), has been entirely allered, and, with the exception of about ten miles, will lie over main roads. The distance will be approximately 180 miles in all: three excellent test hills will Le included, and. following the event. a dmmer and musical evening will be held at the Rougemont Hotel, Exeter. Full details can be obtained from the organizing secretary. Mr. Geo. Smith, 16, Station Hill, Eastleigh, Hants.


MOIOR TERMS TRAVESTIED.
No 21.-Query : What is the Term ?
We offer a prize of Oni Guinea for the miast apt motor term reccived. No Nolathon will be jaffed before $11 \mathrm{a}: \overline{\mathrm{m}}$. on Tucsatay Nex?
Thie solution to last week's picture rill be found in "Around the Trade "o)
B.M.C.R.C. Meeting.

Tho sixth members meeting of the British Motor Cycle Rucing (Club will be held at Brooklands on Saturday, August 2 nd . liacing starts at $2 \mathrm{p} . \mathrm{m}$.

## Readers' Inquiries

We wnuld take this opportunity of particularly requesting temdor, whon send queries to us to enclose a stamped addressed envelope amel alsu tu write on one side of the paper $u$

## Motor Terms Travestied.

Following a suggestime madt ly a considerable number of comopondents it is proposed in futher to awatd the fisize for ow Motor Trims Trasestied Compelition to the scinter of $1 / 1$, mo:t ul, motor term submited. The entry will be judped on Thender immang following publeation of the dataing, as many readers who live in temete districts have complamed that, no hitherto conducted they have lseen manhle to get their entries in to time. If mone than one reader submits the sululton considered to be the most apt the prize will be alwarded to the whilem of the first posteard to be judeded heariner that solution.


NEW SPEEDWAY OPENED


AN IMPROVED $\qquad$ Although retaining its familiar outline, the Austin MODEL. Although retaining its la inar oul me, terial details. See parigraph above.


GENTLEMEN PRAY, SILENCE.

The exhaust leads and expansion box on one of the new Alvis racers. A small tablet sets forth the capacity of both the engine and silencer.

The Road to Cheap Cars
We observe that the number of homemade cars is increasing, and, although unconventional in appearance, the miajority appear to run very well. Such individuality in design may lead to interesting developments.

## Atound Broadstairs.

An extremely useful guide book has been published by the Broadstairs and St. Peter's Urban District Council. Readers contemplating a tour in the district will be well advised to write for a copy to the clerk to the council, Mr. L. À. Skinner, Pierremont Hall, Broadstairs.

## A Screen Wiper for 2s.

Known as the Rightowa, a new screen wiper, which sells for 2 s ., is being narketed by the Motor Necessaries Co. Cookham, Berks. Judging by the above, it would certainly nppear that a neces. sary often regarded as a luxury will sooin be well within the reach of even the nost oconomical motorist.

To Solve Traffic Problems?
It is possible that Sir Henry May bury, well known as Director-General of the Roads Departmeat of the Ministry of Transport, may accept an offer to serve as the chairman of the Advisory Committee on London Traffic, which will be set up under the provisions of the London Traffic Bill.

## Paris-Pyrenees

The fourth Paris-Pyrenees-Paris trinl will be held from August 17th to August 24ih. The principal award will be the Brassard d'ilonneur,-and all categories of cars will be catered for in the entry, including a special class for hight cars up to 1.500 c.c. of the A.C.F. Tho regulations are very much the same as last year, a thousand marks being allocated to each entrant at the beginning of the trial, and ono mark being doducted for each minuto late at controls. The itinerary also will be the same. English-speaking officials will follow the trial throughout, and British riders aro assured that rooms and food will bo awaiting them at each town.

## IV'itnesses Essential.

The Automobile Association emphasizes the need for obtaining the names and addresses of independent witnesses

## Quick Second-hand Sales.

If you have a sccond-liand car for aisposal advertise it exclusively to light car enthustasts throush the small advertisement columns of " 7 he Light Car and Cyclecar," the only small car journal.-It is the directroute to small car buyers.
(See particulars of Special Scheme in Small Advertisement Section.)
for cases where motorists are involved in a charge which is likely to be contested. Cases frequently arise in which the absence of testimony of this character has handicapped the A.A. solicitors in their conduct of a case, whether they he defending or prosecuting on the motorist's behalf.

## Social Run to Edge Hill.

Nearly 100 members attended the social run of the Midiand Car Club which took place on Saturday last, the venue being Edge Hill and the object the annual strawberry tea. The weather conditions during the carly part of the afternoon were far from enjoyable, which reflected all the more favourably on the enthusiasm of the members in turning out in such force.

## The London-Barnstaple Trial

The London-Barnstaple trial of the Surbiton Motor Club was inangurated last year and proved a great success. In consequence it has been decided to make it an annmal fixture, and this year it will be run off on Saturday, August 2nd, starting at the Oak Hotel, Surbiton, at $10 \mathrm{a} . \mathrm{m}$. This year's route will be stiffer than last year and will include Porlock and Begsar's Raost. An invitation is extended to members of the following clubs to take part:-Essex Motor Club, Epsom and District Motorcyclo Club, Brighion and Hove Motor Club, and the Wa!lington Motor Club. The premier award will be the Aron Cup, whilst club silver cups will be awarded to all who make non-stop runs and otherwise qualify. Silver and bronze medals also will be awarded.

## Air-cooled Car Successful.

The Alpenfuhrt, the classic annual touring contest which is held in Austria over an itinerary of about 1,300 miles, and includes some of the worst zoads and certainly the stecpest Alpine passes in Europe, was this year, for the first time, open to cars of $1,100 \mathrm{c} . \mathrm{c}$. It lasted eight days, and included timed hillclimbs over the Katschberg, a noturious freak hill, 5 kiloms. in length. The airccoled Tatia cars, which are made at Nesselsdorf, Moravia, Tcheco-Slovakia, casily won their class.
The Tatra, which is now the topic of the day in Central Europe, is a small four-seater, which is similar to the oncefamous Bedelia cyclecas. It has no chassis proper, but a boat body to which the axles and wheels are fixed.

Air-cooling, having hitherto been thought altogether impracticable for Alpine roads, has scored a sweeping victory, and undoubtedly it will set experts thinking.


SMALL CAR
COMFORT. A 7.5 h.p. Citroen fited with Michelin "Confort" tyres. These are now slandard equipment on all Citroen car:, no extra charge to the buyer being made.

## MOTORING MATTERS IN PARLIAMENT.

1I The House of Commons last week H. Brittain presented a petitoln signed hy 8.990 persons employed in against the abolition of the Mckenna impurt duties.
the question of issaing white overalls to the Metronolitan Police was amain raised on the motion for the adjournment of the llouse a few evenings ago Viscount Curzon pointed out that at cer tain crossings in bad weather it was almost impossible to see the policeman on point duis. He said, if it would facilitate experiment, he would himself provide one or two outfits. Mr. Rhys Davies, onl helali of the Home Secretary. said the Jlome Office liad never reccired representations on this subject from any representative authority. IVhite overalls were used in 34 borough inces and hy 50 county authorities. Thimenn used them in wet weather only, and 70 county forces did not use them. Birmingham, Liverponl and Manchester did not use them: the latter city had tried them and discarded them. The Home Secretary, however, had not closed his mind io Viscoumt Curzon's appeal. ans he would be ready to consider proposals.

The Lindon Traffic Bill was read a secoud time lat week in the House of Cords. Its rejection was moved by Earl luxton, who said it gave too much puwer to the Minister and not suflicient to the London municipal authorities. Jomd Montagu of Beaulieu said that here was no representation on the advisury committee of the private car cwner, the cyclist, or motorcyclist, all of whom should be represented. Eventual! Lord Buxion withdrew his mo. tion for the rejection of the Bill.

## Turbulence.

One of the least understood subjects, turbulence, has a marked effect on the efficiency of a small car engine. Tho temn is explained, and its various applications illustrated. in an interesting article which will form a feature of an early issue.

## Results of Colwyn Bay Trials.

In the Colwy Bry Speed Trials the Mersey Cup, for the fastest car under 3.000 c.c. has been awarded to J. A. Jove ( 1,496 c.c. A.C.). while the Braid Challenge Cup. for the fastest car under 1,500 c.c., goes to G. S. Boston (1,496 c.c. Horstman).

## Two-stroke Develonments.

An article in this issue describes the working of a new and very interesting twostroke engine. Power units of this type are besinning to attract increasing interest. There seems every likelihood that their wide adoption for small cars will be witnessed in the nol far distant future.

The Scoltish Six Days' Trial.
Organized by the Edinburgh and District Motor Clul, the Scottish, Six Days Trials stat on Mondar next. July 21st. The route and details of the trial are Given elsewhere in this issue, and next week we shall repont the performances of the light cars during the openiniz days. The concluding stages of the trial will be a feature of the issue which follows.

## Madresfield Speed Trials.

There were 26 classes for cars at the Madresfield speed trials organized by the Wurcester M.C. and MI.C.C.. the (iloncester Drive at Madresfield Court. near Malsern, very kindly being placed at the disposal of the club for the event. The cuurse was straight, one kilometre in length. and all runs were from a

Austin Seven Breaks Record At the l3ritish Motorcycle Racing Cluh's fifth Brooklitucls race meeting, on Saturday last. s. J. Bansett (7 h.p. Austin), competing in a 50 -mile handicap race for paswner machines of botween 300 c.e. and 1.100 c.c.. was successful in establishing a new world's cessful in establishng io new works
record for 50 miles 181 (\%has J2 (wo-


AT

## MADRESFIELD

H. C. Lones (Morgan) winning the class for cars up to 1,100 c.c. engine capacity
slanding start. The 1,500 c.c. and 2,000 c.c. classes were won by C. M. Harver (Alvis), while on a re-run between G. S. Boston (Horstman) and 13. E. Tewis (Frazer Nash) the latel obtained tho amateur award. The results were as follow:-
 $46 \quad 3.5$ secs
 40 secs.
${ }_{38}$ Under ${ }^{1.500}$ c.c.- ${ }^{1}$, C. M Harvey (Alvis). 38 2.5 sect: 3 2, it. C. Lones (Morgan), 4.5 acca.

38 Under 2,000 c.c. -1, C. M Harvey (Alvia), 38 2. reca. 2, O. 8. Boaton (Hioratinan)
 40 seca
Unllmited - $\mathrm{Dr}^{\mathrm{D}} \mathrm{J}$. D. Benjafeld (Bentley).
 Lewls (Frazer-Nash), 40 ece.
seater cyclecars up to 750 c.c.). His time for the race was 44 mins. 19d secs., which represents an averago speed of 77.70 mp p . .

In addition to Bassott's Austin, two 10.96 hip. Morgan I3lackbornes Look part in the event, the drivers being ( N. Norris and H Beart, looth startin! from scratch. The Austin received 2 mins. 1 sec. All three were soon lousily engaged in overhauling the limit men. Beart in particulas was very fast, hut, after doing 12 laps and running into second place, he retired with plug trouble. Shontly afterwards Norris came into second position luehind $V$. E. Horsman (5.99 h.p. Triumph and s.c.), who, thanks to a generous time allow. ance, fimshed two laps ahead. Third place was occupied by S. J. Bassett (7.4 h.p. Austin).

## "SAFETY FIRST" HINTS FOR 200,000 MOTORISTS

$T^{1}$HE 19th annual meeting of the Automobile Association was presided over by the Right Hon. the Earl of fonsdale, L.L., and, in moving the adoption of the report, he made reference to the great increase of members, pointing out that on the morning of the meeting the total stood at 207.092. In every rection of the Association's activities advances were shown, and it was stated that the motorist's battle against the present unjust system of taxation was still being frought.
Sir William Joynson Hicks, Bart. M.P., late chairman, showed his coninued interest in the Association by at tending the meeting, and, as Jood Lonsdale lad to leave to attend another function. he presided at the lunchion which followed the meeting, and which is alwavs resarded as one of the
most important functions of the year.
Amongst those who responded to the Loast of "The Press" was Mr. Waller Groves ('The. I/otor), who, after some remarks abont the failings of the new mntorist, said that the vastly increased membership bronght to the Association greater responsibilities. He had seen a draft of "Safety First" hints, which had been sobmitted to him for suggestions by the National "Safety First" Association. They were excellent, comprehensive and yet concise, and he strongly urged that a sel of these hints should accompany overy renewal membership card, and new member's card.
In the few remarks from the secretary which concluded the interesting function, Mr. Stenson Conke assured Mr. Groves that his suggestion would receive full and careful attention.

## SEEN AT SHELSLEY WALSH.



The Midland Automobile Club's Hill-c'imb at Shelsley Walsb is one of the most importan: events of the year. A report appears elsewhere in this issue.


IT IS SELDOM VERY HOT IN GREAT BRITAIN, AND CONSEQUENTLY, WHEN IT IS, MOTORISTS ARE ILL-PREPARED 70 FACE IT. METHODS ADOPTED BY THOSE WHO DWELL IN TROPICAL CLIMIATES ARE DESCRIBED IN THIS ARTICLE.

IIANY readers will remember the lively correspondence which was conducted in this journal concerning "The Menace of the Closed Car" and it was then winter-time. There were some readers who considered that closed cars were not only uncomfortable but dangerous at any season of the year, while others protested loudly that if comfort was to be had at the cost of enjoying a few days' open-air driving in summer-time, then there was no sensible reason why saloon bodies should not become ereu more popular than they are to day.


> A two-panel windscreen which can be folded as shown, allows a coal draught to blow on the driver's body, and deflects downwards any objects which might otherwise get into his eyes.

It is questionable, however, whether an open car is really cooler and more pleasant to drive in the summer months than one which is enclosed. On any very hot day it will be observed that more cars are seen, particularly in towns. with their hoods erected than with them folded, while if a hood lends itself to the treatment depicted in the photograph which is reproduced on the corer of this issue, cooler and more comfortable motoring can certainly be enjoyed than when it is left folded.

## The Windscreen Helpful.

It will be remembered that in the correspondence to which referemee has already been made there were some light car owners who were of the opinion that even windscreens should be abolished; but just as it is extremely useful for deflecting the cold winds of winter so is a windscreen extremely valuable for creating cooling dragghts in summer.
The sercen of the single-pane type may certanly be folded down flat over the scuttle. but this, is wot altogether an ideal arrangement and cannot fail'to B20
make the car unsightly. Such screens mossess the added disadvantage that. no matter at what angle they are placed behind the vertical warm air from the engine accumulates behind them so that the man at the wheel drives perpetually in a " fug.

The Continental type of windscreen, which consists of a single pane of glass which may be hinged aboul its centre, is very useful indeed in hot weather. With a little care the argle can be so arranged that hot air from the engine does not reach the driver, while llics and dust are deflected over his head. In winter these screens are a failure, however. because in rain, fog or snow, maless a screen wiper is fitterl it is gencrally necessary to fold them to a horizontal position, when they afford no protection whaterer.

## Two Panels Best.

The two-pane sceen built up of two adjustable panels is recognized to day as being by far the most satisfactory both for winter and summer driving, there being a considerable number of positions in which the panes of glass can be set so that a strong draught can be deflected into the driver's lap, his face or over his head.

A screen of this pattern used with a hood, the rear part of which is rolled up, can be adjusted so that a strong current of air is blowing contimously through the car without making it uncomfortable for front-seat passengers. This is effected by folding the lower


A screen of the type which is so popular in France is very useful in hot weather. Arranged horizontally as shown it keeps none of the cool breezes from the occupants of the front seats.
pane slightly backwards and the upper pane slightly forwards. If a strong draught is required the lower pane may be Tolded farther back and the upper farther forwarde, and to allow a gale of wind to blow

ПEEPING COOL I.V TIIE CdR (contd.).
through the car both panes may be set horizontally. If an individual driver has a preference for keeping the hood lowered, which is certainly an advantage if one's view of the surrounding country is mot to be restricted, a delightful draught may be created by folding the lower pane of the cercen forwards and the upper ecreen backwards to a degree when it is almost horizontal. This arrangement eliminates any annoyance which might otherwise be caused by hot air from the engine, while if care is taken to set the panes at the correct angle the need for wearing goggles can be obviated, dust and flies being deflected over the driver's head.

## Fly Dodgirg.

When Hies and dust are troublesome the lower pane of the ecreen may be inclined forwards at an angle of about 45 degrees from the vertical, the upper pane being extended in front of the windsereen frame and almost horizontal, but with the forward edge about 3 ins. higher than the rearward.

So soon as experiments with the angle of the windscreen are tried, it nearly always happens that one of the occupants of the car gets some foreign body in one of his eves, an occurrence which may spoil the pleasure of the whole party and involve extreme discomfort if not actual agony, to the sufferer:
The contingency, unfortunately, cannot be guarded


If a single-panel windscreen is folded horizontaliy, the hot air which comes through the floorboards does not unduly trouble the driver. Whin folded back, however, little advantage is gained.
agairst except by wearing goggles, and as these are almost invariably uncomfortable the best plan is to carry a camel-hair brush on the car and so be in a position to relicve the sufferer without delay. It will be found that where a passenger, or maybe the driver, has in his eye an object which resists all efforts of removal a chemist will always oblige, and the writer would take this opportunity of publicly thanking a considerable number of chemists about the country who have very kindly come to his assistance and made no charge whatever for their services when he has been in this unhappy predicament.
In rery hot weather the pleasures of motoring are coneiderably enhanced if ventilators of a suitable type are fitted in the scuttle.

## Job for Bodybuilder.

Apart, howover, from the type which may be described as miniature models of those used on board ship the writer knows of no scuttle ventilators which can be readily fitted by the owner-driver, it being generally consiclered that the work must be done at the time the body is built. It is a very good plan in the casc of cars provided with no ventilators to have these fitted by a coachbuilder just before the car is repainted for the summer season.
The most efficient vontilators are probably those which are fitted low down on each side of the scuttle, a hinge being provided at the rear of each and a ganze fitted to keep out dust. In choosing scuttle ventila.
tors care should be taken to select a design which embodies some positive means for holding them rigid both in the open and closed positions.

A very useful and serviceable typo of ventilator which is commonly used on American cars consists of a hinged flap fitted to the top of the scuttle and operating in much the same manner as a skylight. I control in the form of an ebonite knob is generally fitted on the facia board so that the amount which the ventilator is open can be readily controlled by the driver. This type of ventilator is not applicable, however, to most small cars on account of the fact that petrol tanks are commonly fitted in the space between


Some popular types of ventilators which may be fitted into the seuttle. These are invaluable in very hot weather, but unfortunately they are not always too easy to fit.
the dash and facia boards, and this prevents the draught from the scuttle-type ventilator reaching the lower part of the car and consequently does away with its principal advantage, namely, the ready manner in which, when properly fitted, it disperses the hot air which makes its way through the pedal slots.

These can be plugged up fairly readily by attaching strips of rubber insertion or old inner tube to the floorboarde, a piece of rubber being attached on each side of the brake and clutch pedal slots.
For kecping the interior of a car really cool there is


For motoring under a tropical sun it has been found that the best way to keep cool is to remove all the doors from the body. In this manner cool air is always in circulation through the car.
no plan so effective as removing the doors, and this is frequently done in tropical countries. The job is easily effected as a general rule either by withdrawing the hinge pins or removing the wood screws which attach the hinges to the body. Once the doors hare been removed $\Omega$ current of cool air can circulate around the passengers' legs, and the hot oily smell, which is so objectionable in very hot weather, will be conspicuous by its absence.

## NEW 85 m.p.h. FOUR-CYLINDER FRAZER-NASH LIGHT CAR.

Water-cooled en. gine of 1,496 c.c. capacily. Greatiy improved dogclutch changespecd mechanism and final chain drive. Acar which should be capable of a remarkable road performance. Two models; at $£ 275$ and $£ 330$.



FRONT AND BACK These photographs sive a general impression of the now Frazer Nash al a glance The body is construcled of aluminium, mounted on a light but sturdy skeleton. The general lines aro distinctive and pleasing

FOR a considerable time past, Capt. A. G. F. Nash, of Frazer Nash, Ltd., Akela Works, Kingston. has been engaged on the design of a new four-cylinder light car, but he has steadfastly refused to allow any details to be published until the finished product was tested and perfected. We are now able to give a full deseription.

Faithful to his old love, and confirmed in the


The new bevel box showing extra bearing extension at the front and inspection hole on top. The latter is covered by a platecarrying interlacking mechanism.
opinion that the general layout of the 1922 G.N. cannot be bettered in principle, Capt. Nash has followed it up to a point, but beyond that there is a number of departures, most important of which is a four-cylinder water-cooled engine. By no means blind to the shortcomings of the old chassis, he has, in addition, sought to eliminate all weak roints, and as a result he has produced a machine with a performance far superior to the old G.N. and, we are convinced, with none of its disadvantages.

## A Three-bearing Crankshaft.

The four-cylinder water-cooled engine has a bore and stroke of 69 mm . and 100 mm . ( $1.496 \mathrm{c} . \mathrm{c}$.). The overhead valves are operated by push rods and the head is, of course. delachable. Lubrication is by pressure feed from a submerged pump to the main hearings and o.h.v. spindles. Oil circulates through the three-bearing crankshaft, feeding not only the bearings but the bigends as well. The magneto is a B.I. I.C. and the entburetter a sthenos. The camshaft is driven by helical spur gearing, both dynamn and magneto being skew-driven. Three-point suspension is idopted for the engine, the single point being at the front with bearer arms at the rear.
n2 2

A three-plate dry clutch, reminiscent of the 1922 G.N., transmits the drive from the engine to the propeller shaft, lout the clutch is far lighter to operate, longer toggle arms being used. The spigot bearing consists of a Skefko ball race, and a ball thrust washer takes the weight when the fibre lined clutch-withdrawal fork is operated. There is no end thrust on the engine at any time, either with the clutch in or out.

## Spiral Bevel Drive.

The propeller shaft is solid and terminates in a star-type universal joint immediately in front of the level box. The latter is provided with an extra bearing which is supponted hy an extension at the front, this part of the bevel hox, together with its bearing, being securely bolted to an adjacent crossmember of the frame.

An improvement on the straight-cut bevel is the


A general view of the 1,496 c.c. engine, showing the generator and magneto drive (abovel and the neat induction "hot spot" (circle). The lower photograpb also showa the alteration in the dis. position of the steering drag link which prevents steering-wheel wobble.

## NEN FOU゙R-CYLINDER FRAZER-NASH (contd.).

introduction of a spiral bevel with a reduction of 31 to 1 , this, by the way, being the direct drive ratio on top gear. The remaining ratios are 6 and $11 \frac{2}{2}$, the drive being transmitted from the countershaft to the differential-less rear zxle by sprockets of large diameter.

The level shaft and back axle are made of high tensile stecl, heat treated, the axle heing mounted on four standard annular ball bearings.
Particular care has been taken to make sure that


Many-leaved springs, saddle bolts and spherical joints at the forward ends of the radius rods are noteworthy points in the rear assembly of the Frazer-Nash chassis.
the springing will be up to its work, and also to climinate the possibility of fracture. Quarterelliptics are adopted all round, but the leaves are ${ }_{13}^{3}$ ms. wide, whilst in the back assembly there are no fewer than cight individual leaves for each Epring. The U-bolts are substantial and mounted on semi-circular aluminium saddles, a design which gives the maximum strength.

## Stronger Front Axle.

The front axle is of the tubular type, of heavy section and 13 ins in diameter. It is located by the master leaves of the quarter-elliptic springs, which are anchored to the top of the axle clips, the parallelism of the axle being maintained by Hartford shock absorbers, which also act as radius rods and thus maintain the pivot pins at the correct angle. The castor action permits the stecring to be light without being low geared. The necessary reduction is obtained by improved hevel and sector.
Tlic steering pivot pins are bushed and thrust washers are fitted, $\Omega$ dustexcluding cap being a refincment which will appeal to the ownerdriver. The front wheels are, of course, mounted on ball races, and it is interesting to note that these are of 30 mm . diameter-larger than is found on many light cars.
Large ball races in the wheels, and several other points where extra strength has been provided, were considered advisable because of the high speed of which the car is capable. An appearance of solidity is given to the whole vehicle by the fitting of standard Rudge-Whitworth wire whecls shod with 700 mm . by 80 mm . Avon cord tyres.
The brakes are extremely powerful and take the form of expanding aluminium shoes lined with Ferodo acting within pressed-steel drums $1 \frac{1}{3}$ ins. wide. The brake-cam spindle and fulcrum shaft are mounted at the back end of the radius rods, the forward ends of these rods terminating in spherical seatings, so that no twist can be imposed on the rods owing to wide variation in the lift of either rear wheel. The master leaves of the rear springs slide on fibre pads.


## SUGGESTIVE OF SPEED, STRENGTH

 AND COMFORT.The seats are staggered, ample leg-room is provided, and the windscreen is of the sporting V-type. Rudge-Whitworth wire wheels add a note of distinction-and usefulness-to the tout-enserable

Both gear and brake lever are mounted on the outside of the body, the dog-clutch principle oif gear change, with four chains each providing a different ratio (one reverse), being employed. i patented and very ingenious interlocking lever operating directly and automatically on the dog-clutch actuating mechanism positively prevents two gears being accidentally engaged at one and the same time.
The car boasts of a distinctive radiator, which tapers towards its base so that it merges gracefully into the body lines and presents a semi-streamlined form. The seating is staggered and the pedals are adjustable. The hand controls include a slow-running lever which protrudes from the upholstery of the body adjacent to the driver's right hand, and a spark control mounted on the dash.
Although the accommodation in the boot would appear to be somewhat limited, there is ample room for a large suitcase, in addition to tools, spare oil, and so on. The lid of the boot is not hinged, but can be removed bodily, its place being taken by a loose waterproof cover when it is desired to carry more than the usual amount of luggage. In the photographs the car appears without a hood, and it should be mentioned that this folds down neatly and generally harmonizes with the lines of the body. No side curtains are provided.
The equipment consists of C.A.V. lighting and starting, with combined head and side lamps, hood, spare wheel, specdometer, horn and tools. The standard "Fast-tourer" sells for £275 complete, $80 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. being guaranteed, whilst the price of the super-sports model is $£ 330$, with a guaranteed speed of $85 \mathrm{~m} . \mathrm{p} . \mathrm{h}$.

## On the Road.

We were able to enjoy a brief run in the car preparatory, by the way, to one of our usual road tests, and we were more than favourably impressed with its comfortable seating accommodation, springing, acceleration, fine hill-climbing powers, and easy stecring.

The engine started up easily and ticked over quietly. Thanks to the dog-clutch type of changespeed mechanism, the gear lever could be whipped through the gate at lightning speed, the resulting acceloration being extremely rapid. The bucket seats are comfortable and well placed, and the leg reach is such that one commands excellent control over the clutch pedal, which, by the way, is extremely light in operation.

The springing was good, especially at speed, the front axle being noticeably steady, as a result, no doubt, of the fitting of shock absorbers. The car could be stcered with one hand, and even over rough roads there was not the slightest trace of oscillation in the wheel.
The Frazer-Nash will certainly take its place in the ranks of the best sporting light cars of the day.

# MOTORCYCLE PARTS FOR CYCLECARS. <br> a valuable contribution to the informative series of articles DEALING WITH THE DESIGN OF CYCLECARS WHICH MIGHT BE SOLD FOR £100. MOTORCYCLE COMPONENTS F, GURE PROMINENTLY. 

THE large price gap between the cheapest light car and a very satisfactory sidecar outfit should make the marketing of a $£ 100$ crelecar a lucra tive proposition, provided that its design was of a type which permitted economical construction while ensuring for it a ready market.

The use of propictary engines and gearboxes has a number of advantages, not the least of which is the reputation of the manufacturers of these units Your erclecar owner will largely be recruited from the ranks of motorcyelists, and to him such names as


Fig. 1.-A cyclecar transmission design which compels the use of very long chain centres and which is consequently considered to be undesirable
J.A.P., Blackburne, MI.A.G., Sturmey-Archer and Burman have a very reassuring meaning.
The reliability of these units is beyond question, and they have proved their capacity to stand up to hard work in numerous speed and reliability events. Competition is keen in the markets which their ranufacturers serve, and, consequently, prices are very reasonable, while the standard of efficiency is universally high.

All the proprietary motorcycle engines have the advantage of being particularly compact, while their mounting in the frame should offer little difficulty. Starting, in most cases, could be by means of the kickstarter, which is always fitted to motorcycle gearboxes, the only necessary alteration being, perhaps,


Fig. 2.-This chain-drive layout closely follows a plan adopted for Bleriot-Whippet cars. It allows a compact machine and reasonably short chain centres.
the extension of the shaft on which the kick-starter pedal operates.
For the established cyclecar maker who has marketed a satisfactory touring model the fact that a D21
snorts engine is available, which ann be fitted into the same mounting plates, is a great advantage, and is the gearbox manulacturers supply their wares fitted with either close, medinm or wide ratios, a careful selection of size of ensine sprocket cnables almost any combination of gears to be secured at little expense.

The manufacturer can get ahead with his production and, by simply bolting in the required engine and gearbox, make a standard, sports, racing or Colonial model, as requiremonts dictate

## Weight Limit Fixed.

It is necessary to remember that motorcyile gearboxes are not fitted with a reverse, and as the law requires that all mechanically pronelled road vehicles weighing over 7 cwt. shall bc capable of travelling forward or backward under their own power the weight limit of a car not using a reverse gear is automatically fixed
In designing a suitable car a number of points have to be borne in mind. The engine should he air-cooled and a plentiful supply of cool air should be allowed to play on the cylinders and crankease. If the air is at all baffled a fan is advisable.

Owing to the increasing adoption of leg-shields and very large mudguards oa motoreycles, the cooling fins provided are invariably of ample area, so that the


Fig. 3.- On the Gibbons cyclecar a plan such as that depisted was followed; the chains are short and the engine and starter are extremely accessible.
question of keeping the cylinders cool, which proved so awkward for cyclecar designers prior to the war, should now give little trouble

As chains are used for transmission, easy adjustment nast be provided for, either by allowing the engine and gearbox to be moved or the gearbox and rear axle. Unless the adjustment is easy to make it will be neglected, and provision must be made to keep the units in line, as bad alignment shortens the life of the chains and sprockets.

## Protecting the Chains.

The chain from the engine to the gearbox runs at very high speed, and it is therefore essential that it ho protected from dirt and water. A supply of Inbricant, which may come from a pipe led from the crankease release valve, is most desirable. The protection of the rear chain is not so vital, but it greatly

MOTORC'TCLE PARNS FOR CTC'LEC'ARS (contd.).
lengthens its working life by excluding mud and grit.
It has been found in many cases that a chain protected by a simple guard survives almost as long as onc that is completcly cnclosed in an claborate and costly case, aud it is suggested that in the designs figuring in the illustrations on these pages chain guards would be more serviceable, less complicated, and more generally desirable than cases of the type used on the more expensive motorcycles.
Chain centres should be kept short. Long flapping chains look bad, they are noisy and cause vibration and engine snatch. The life of a very long chain, owing to the heavy strains it is called upon to bear, is seldom satisfactory, while it may cause difficuity in kecping the sprockets tight on their shafts, and certainly is not conducive to economy in tyres or upkeep costs generally.

## Long Chains Undesirable.

Fig. 1 shows a method of arranging the engine under the bonnet, but as it forces the use of very long chain centres it is thoroughly bad; providing cooling is not negiected, the arrangement shown in Fig. 2 is better. In this case the occupants legs come alongside the power anit, and a very short compact car is the result. The arrangement is st:ongly reminiscent of the chain-driven Bleriot Whippet. It will be secn that with both arrangements the gear lever is in a reasonalbly convenient position, while the location of the kick-starter would call for a portion of the rumning hoards-if any were used-to be cut away in much the same manner as that adopted on the carly G. WT K, models. Fig. 2 certainly depicts a layout which causes some complication so far as engine cooling is concerned, but this difliculty is one that can be overcome by an ingenious designer. Jig. 3 shows $n$ modification of Fig. 2, and this method


Fig 4.-With the engine behind the axle the need for a conjentional type of chassis frame does not exist, the power unit is accessible and the chains are short.
of mounting is used with success ont the Gibbons and Seal cyclecars. It makes the chains rather difficult of access, however. The layout is identical with that adopted on nearly every make of motorcycle, and it possesses the advantage that short chain centres are secured, while the engine is very accessible. Slightly stronger springs would, of course, be necessary on the off side of the car, to compensate for the majority of the weight being out of centre. Left-hand drive, incidentally, would be an adrantage with this design, as the driver's weight on the near side of the car would help to keep the balance normal when only one person was riding in the car.

## An Ideal System.

Besides its many other adrantages the rear-placed engine shows chain transmission at its best and, providing that an efficient means of engiae cooling is incorporaled, this arrangement is ideal. Figs. 4 and 5 show two alternative arrangements and in each case it will be noticed that the drive is taken from engine to gearbox and then past the engine
thaft to the axle. The reason for this arrangement is similar in both cases.
In the scheme shown in Fig. a the weighty engine is kopt as near the axle as possible, and the gearbox is just far enough afis to allow an extended kick-starter shaft to be placed behind the rear whenl. In Fig. 5 the gearbox is placed under the seat in such a position that the gear control comes readily to hand.

The starter crank projects through the body side just in front of the rear whecl, and all the weight in this ease falls between the axles. This layout shares with the one shown in Fig. 4 the adrantage of providing an almost ideal chain lavout, and the final chain length is such that a supple paiy of quarterelliptic springs can be fitted in conjunction with racius rods.

So far the writer has confined himseif to the fourwheeled cyclecar, but some of the arrugements shown are applicable to the three whecler:

In this conncetion the reader's attention is specially


Fig. 5. This illustration indicates how desirable is a rearward position for the power unit. The provision of adequate cooling is the principal difficulty to be met.
drawn to Fig. 6, which depicts a type of three-wheeled cyclecar which the writer feels convinced will some day enjoy an cxtensive market. No propeller shaft and no bevel gearing is used, and only one chain drives the rear wheel. The engine and gearbox units can be bought from manufacturers who supply these parts for motoreycles, and there would be no reason why models with different units should not be listed.
The cheapest types could have a simple single-cylinder engine, the cost of which is quite small, while sports models could be catalogued fitted with costly power units representing the last word in motoreycle engine efficiency.

It is beyond question that the designs which the writer has submitted are by no means above criti-


Fig. 6.-It wou'd be difficult to imagine a more simple layout than this for a cheap cyclecar. The units are mounted in almost the same manner as on a motorcycle.
cism, but he belicves that the orly way to popularize cheap cyclecars is to build them from motorcycle components and thus to attract the motorcyclists who are tired of the poor weather protection, skidding propensities and other disadvantages of the two-wheeler to buy them.
The principal consideration, so far as motorerelists are enncerned, is performance; if the change from two whecls to fonr involved lower average speeds they would never make it.
J.H.

B25


## At Shelsley Walsh.

THAVEN「T missed the Milland Club's hill-climb at 1 Shelsler Walsh for several seasons, and this year's event was as big a success as ever. The course was kept absolutely clear, the weather was perfect, and spectators and drivers alike were in the best of spinits. It was very hard luck on Mays when it was found that he had been "pipped" for fastest time of the day by a fraction of a second after having first heen acclaimed the victor, but it is impossible to deny that Cyril Paul thoroughly deserved his success.
llis ascent impressed everyone standing around me as being so steady that it seemed impossible that he had clocked a better time than Mays. The latter's average speed, by the way, was a triffe more than $40 \mathrm{~m} . \mathrm{p} . \mathrm{h}$., while the best of the little $\Lambda$ ustins with an engine only half the size averaged just over $34 \mathrm{~m} . \mathrm{p} . \mathrm{h}$.

Shelsley Walsh is, of course, one of the most tiring of the speed hills for an engine. It starts with 200 yds . of 1 in 113 , steepening then to an average of 1 in $7 \frac{1}{2}$ or so for 400 yds ., when the two sharp corners are reached on a $200-\mathrm{yd}$. patch of 1 in 6.8 . The gradient flattens out towards the finish, 180 yds. farther on, but falls lower than 1 in 11 only for a very short distance.

## A Wayside Forty Winks.

MY principal difficulty during the long drive home after the hill-climb at Shelsley is always keeping awake Last year my passenger happened to notice that I was dozing at the wheel only just in time to save the car running on to the grass, while this year I was so slcepy midway between Worcester and Oxford that it was impossible to continue and a halt had to be called for a nap by the roadside.
It was then not long after midnight, and my pas-senger-unable to relieve me at the wheel because the war left him short of some limbs-and I did not wake until $5.20 \mathrm{a} . \mathrm{m}$. The sun was then well up and our continued journey along deserted roads was one of the most enjoyable I ever remember. Our protracted nap was a most convincing demonstration of the value of pneumatic seat cuehions--as a general rule an attempt to sleep in a car proves a horrible failure. but on this occasion even the traffic of a main road that is busy until the early hours of the morning failed to rouse us.
There are doubtless many motorists who, like noyself, frequently have to make very long journeys in the shortest possible time, and, as a result of my homeward iun from Shelsley I can thoroughly recomment the wayside nap idea at this time of year. 426

From, say, six o'clock in the evening it should be possible to cover at least 120 miles bofore midnight and another 100 before the world is astir, learing one the whole day in which to complete the run, 220 miles of which have been wiped off.

## Queer 'Private Garages."

I$T$ is a sign of the times that the present-day househunter frequently insists on a house with a small garage rather than one not so provided, or at least he expects to get a suitable piece of ground on which le can have a garage put up). Consequently some sellers of houses, appreciating the demand, are now offering property with weird ramshackle amateurbuilt structures which they term "garages."

One has only to make a tour of investigation of some of the more popular residential suburbs round London to see what are offered as garages. Glorified chicken-houses and coal-sheds might be a more apjropriate description of the junk one sees adjoining many small houses, and they are supposed to be capable of housing a small car! A recent advertisement stated "room for a small car," but, assuming that to be true, there cortainly would not have been room for anything else, not even a wireless mast!

## "Lions of Fiction," No. 3.

IPROMISED last week that we should have a little plagiarized W. W. Jacobs, but, truth to tell, the bargee and the small-car owner are such very different beings that the matter has caused no little difficulty. Here is my effort:-

## THE ingiratitule of wildiam rugg.

"There's men as is ungrateful by natcher and mo matter what you do for 'em you never get no Chanks," said the garage hand.
"F'r instance," he strited munching his Spearmint, " a month or so ago I was sitting in the 'Red Jion' 'aving a drop of dinner, when a man comes in and sets down opposite and calls for a pint.
"He was a short, fat chap, dressed careful and smart like, with a yellow weskit and a big gold watch-chain stretched acrost it.
" Be-and-by he upsets some of 'is beer and he whips out a handkerchief and starts morgin" it (a) ."
"' Dear me,' he ses, 'I reely thought it was goin' to spill hover you.'
". ' Don't menshun it,' I ses, very polite.
" After that we gets talking, and I tells 'm the joke about the old lady wot was run over by a bus and about the trouble we'd been having getting Mr. Ragg's new twosseater going. He was very interested and said 'o liked 'earing about cars more than anythink.
"He calls for a couple of pints and wouldn't 'ear of my treating hack. Me said it was a plesher to 'avo the akwaintance of a motor hengineer.

## RIC'II MIXTURE' (contd.).

By the way, what was the name of the owner of the new two-seater?' he arst quiet-like after the beer had been brought.

William Rugg's 'is name,' I ses, 'and a pretty little car 'e's got too.'

I think I know the gentleman,' he ses; 'tall with grey 'air and a red nose?'

No,' I answers, 'short and bald with a red nose.' Ho yes, that's 'im,' 'e goes on, 'that's 'im as sure as my name's John Smith.'

Well, we talked a good deal-im insisting on standing treat-and then when I told 'im I 'ad to go back to the garidge to relieve the boy, 'e asks my name, shakes hands and says he 'opes to see me again. Pleasant-speaking feller' e was.

## RETURN OF Mr. SMITII

It was one day about a week later that I gets a telegoarpht addressed to me personal.

Am sending Mister John Smith to fetch car for me. Uryent.

Soun after the pint treatin' feller 'William Rugg.' ming up.

Quick,' he shouts, 'it's urgent-I've got to take old Rugg's car to 'im-has he sent you a wire?

Jes,' 1 answers.
Ah, I told 'im to send one to you personal, you being really manager of the garidge.'

Well,' 1 ses, I don't mind sayin' I have orthority 'ere. Are you taking the car now?

Yes, yes, at once.' He gets in and starts up the engine.

Suddenly he begins searchin' through all 'is pockets and makin' clicking sounds with 'is teeth

T'ch, tch,' 'e splutters, 'if I ain't bin and forgot my treasury note case in the 'urry'-and 'e searches like mad.

I suppose you don't happen to 'ave a fiver on you?' he arsts; 'I've forgot to bring my money with me.

No, I haven't,' I answers casual.
How much have you got?'
I goes through me pockets, 'im 'urrying me and clicking his teeth all the time, and found a two-shilling piece, a halipenny, a sparking plug terminal and a bit of insulating tapo.

That ll have to do,' he ses and takes the two shillings and drives nway like fury.

Irell, Mr. Ruge come round soon arter, and I tells 'im I liad done ns ic said in the telegrarpht, and arsts 'im for the two shillings wot I'd lent is friend Smith. He didn't seem to understand the first time, so I
told him again; and when I 'eld out me hand for the two shillings he suddenly went white in the face, trembled somethink awful and shouted out some words I wouldn't like to repeat.
"And that's all the thanks I got for trying to do someone a kindness.'

## Punctures Past and Present.

ADOZEN years ago very. few light cars, and no cyclecars that I can remember, were fitted with detachable whecle, and rather than burden our constantly overheated engines with the task of hauling a Stepney wheel about, we used always to mend punctures by the roadside immediately they occurred.
In those days I could whip a cover off its rim, repair the tube, patch a jagged rent in the cover, inflate. and be off again in about a quarter of an hour. With my mind dwelling on such hefty exploits a week or two back, I decided just about lighting-up time to mend a puncture in my spare wheel. The cover, if my memory serves me. was off the rim in about a quarter of an hour, the tube was patched about a quarter of an hour later, and it was not until about an hour after I started the job that I discovered that the whole business would have to be done orer again because the tube was still leaking.
Now what has happened since 1912? Have my hands lost their cunning or are tyres really much more difficult to remove and replace on their rims? I am afraid that the trouble is that we are so seldom called upon nowadays to remove the tube and patch it, that when the time comes for the job to be done we find we have forgotten those invaluable little tricks of the trade which used to help us out of our difficulties years ago when half-a-dozen punctures in a hundred miles were by no means uncommon occurrences. The puncture to which I have just referred is actually the first I have mended for at least two years.

## Cutting it Fine.

IT is impossible," I recently heard the new owner of the last word in sports models remark, " to call a man a real driver unless he can scratch the varnish off his front wings against a traction engine and leave the paint undamaged!"
S.S.


# DEVELOPMENTS IN TWO-STROKES. 

HOW THE WHITE-WALL HIGH SPEED AIR STREAM CHARGES, CONTROLS THE EXHAUST, AND COOLS A TWO.STROKE ENGINE BOTH INTERNALLY AND EXTERNALLY.


A CeEAN - Despite its ingenious internal construction the exterior EXTERIOR. - of the $844 \mathrm{c} . \mathrm{c}$. White-Wall 4 cyl. two-stroke is remarkably clean

THE advent of the supercharger on the modern racing car has directed the attention of designers to the possibility of employing a similar device on a twostroke engine. The possibilities of the latter have always appealed to engineers on account of its simplicity and consequent cheapness, but in its ordinary form this type of engine has not been able to produce so much power from the same capacity as its more complicated four-stroke rival.
The supercharged two-stroke, on the other hand. seems to hold out great hopes in this direction, and already several concerns specializing in this type of engine for motorcycles are proceeding with extremely interesting experiments.

To Messrs. John White and Arthur Wall, of 5, Edmond Strect, Birmingham, however, must now be given the credit for producing in practical shape an extremely interesting supercharged two-stroke emploving certain remarkable new principles the ex ploitation of which may be followed by really


In this detail sketch the arrows show how the air is conducted from the rotor, round the cylinders and crankcase, and, finally, out of the exhaust.
astonishing results. This White-Wall engine has been in course of development for a considerable timo past, many thousands of puatd having been spent on experimental work and a scries oi single-cylinder engines having been built before the present fourcylinder unit was constructed. The general principle on which the engine works is ats follow
On one end of the crankshat is filted a compound rotor which provides a controllable and correct volume and velocity of air. This ligh-speed air stream is carried by sumable passiges to the top of the cylinder heads, whence it hlows dorn upon the sparking plugs, and down the outside of the cylinders.
As is usual in two-stroke engines, the exhaust emerges through the cylinder wal! at the bottom of the stroke, and the high speed ait stream which is projected past the exhaust ports in this case aids its exit and even enters the cylinder through the exhaust ports, thereby not only charging the combustion chamber with conl, clean air but also cooling the interior of the chamber. The air which passes on with the exhaust helps to cool it, and eventually encrges with it into the atmosphere, thus not only having cooled the exterior and interior of the cylinder, but assisted to silence the exhaust, charge the engine and maintain the oil at the correct temperature and tho mixture in the correct proportions.

A more detailed description of the engine will enable readers to nppreciate the manner in which the air stream conduces to efficiency. The present unit consists of a four-cylinder two-stroke the bore and stroke of which measure 62 mm . and 70 mm .. while the capacity comes out at 844 c.c. Separate cylinder barrels coristructed of thick iron eastings and provided with short and stout exterior cooling fins are equipped with detachable heads. the air stream which is generated by the compound rotor on the crankshaft being forced down between these vertical fins, which terminate abore a complete ring of triangular exhaust ports extending round the lower part of each cylinder.

## Regulating the Mixture.

The thickness of metal at the base of the cylinder wall is greater than is usual and accommodates a serins of verlical holes. At the bottom of the cylinder wall is a ring which can be moved 'concentrically and contains a number of holes which can be made to coincide with. or close, the vertical holes in the cylinder wall, the position of the latter alternating with the vertical fins which are found on the exterior of the wall.

## DEVELOMAKITS IN THOSTROKES (contel.).

The function of the rertical holes and the control ring is to provicle a method of regulating the mixture between the crankcase and the cylinder, the mixture entering the cylinder by means of a series of V.shaped ports, a ring of which extends round the cylinder in the same way as do the exhaust ports.
The formation of the wo sets of ports is such that they overlap slightly both in a vertical and horizontal plane.

The four cast iron cylinders are retained in position by ernse-bolts which join the halves of the combined one-piece cast aluminium air jacket and crankcase, this unit being split rertically in a fore and-aft direction and incorporating on each side an inlet pipe which conducts the mixture from the carburetter to crach of the four separate crank chambers.

The battle plates in the mouth of each crank chamber are drilled to allow the gas to pass from the crank chamber to the combustion chamber via the ports in the drilled ring at the base of the cylinder, the rertical holes in the lower wall of the cylinder and the $V$-shaped ports already mentioned.

## Five-bearing Crankshaft.

A built-up crankshaft running on five Hoffmann roller bearings, machined connecting rods also fitted with roller bearings, and flat-topped pistons complete the interior details of the engine

Each cylinder is crowned by a detachable head carrying the sparking plug, the head itself being held down by a plate which forms four collars and is secured by vertical bolts attached to the cross-bolts which clip the halves of the air jacket together and in doing so locate the cylinders in position.

As the engine now stands the cylinders are covered by the aluminium air jacket which also forms the crankease, the exhaust issuing through this air jacket by means of suitable ports. The whole of this struc-


A rear view of the engine showing the large diameter rotor or blower and the air delivery duct therefrom.
lure is, however, enclosed in a two-piece aluminiun cover crowned by a cap which fits snugly over the top of the cylinder heads and scrves as a means for directing the air strean from the rotor into the air jacket, and thus, after debouching on to the plugs and heads, down the outside of the cylinders and inside the air jacket.

The outer casing entirely covers the air jacket and so acts as a silencer and exhaust expansion chamber, the burnt gas finally reach. ing the atmosphere by means of an extension pipe cast on the outside of the lower part of this outer cover.
The air stream passing down the outside of the cylinders is approximately six times as fast as the speed of the piston. As the exhaust emerges through the ring of ports in the cylinder wall these ports are


The peculiar construction of the cylinders, of which one is shown above, is an quickly sealed by this highinteresting feature of the speed air stream, which not only prevents any resurgence of the exhaust but actually enters the cylinder through the same ports.
The effect, Mr. Wall states, is that instead of there being a pressure in the cylinder at the bottom of the stroke a depression, or vacuum, is obtained. The exhaust and the air stream after combustion pass out into the expansion chamber formed between the outside of the air jacket and the inside of the outer jacket, where the exhaust is rapidly cooled and quietened before entering the atmosphere.

## An Interesting Experiment.

Meantime, the new mixture from the carburetter and crankease enters the combustion chamber as soon as the piston uncovers the ports communicating with the crankcase, where a charge of gas is already compressed. A large charge of gas may force a portion of air alrady in the cylinder back through the exhaust ports, but it can preserve itbelf intact as it is held more or less centrally by the high-speed air stream outside the exhaust ports until the piston returns and so seals the exhaust ports again.

The er:gine bas already completed its preliminary tests on the bench, where we have seen it running. It is equipped with a C.A.V. combined starter and gencrator and starts readily as soon as the starter current is switched on. One of the strangest features is demonstrated by squirting petrol into the mouth of the combined rotor, which consists of two largediameter steel discs mounted side by side and fitted with duralumin vanes inside an aluminium housing. The introduction of the petrol in this manner causes the engine immediately to speed up and indicates that tho petrol is actually reaching the combustion chamber, whither it is conveyed through the exhaust ports by the high-speed air stream.
Various developments are contemplated for utilizing the enormous scope of this remarkable engine which in its later stages, may embrace a castiron construction with aluminium outer casing, $\Omega$ diecast aluminium unit or perhaps a complete stamping.
The possibilities of the two-stroke engine for cyclecar work have always appealed 'o the imagination of designers, but, so far, few vehicles have appeared in which it has been installed. It has, presumably, just lacked that degree of perfection for which manufacturers are looking.

# COMPETITIONS REVEAL CAPABILITIES. <br> a few pointers for those who study performances closely. 

IT is often said that competition results possess little value so far as providing figures, which allow different makes of cars to he compared, is concerned because standard cars are seldom used. Such statements, however, may be misleading and not always true.

Cars which are entered in competitions are, of course, well tuned before the start of the event, and no pains are spared to eusure that all parts are adequately lubricated and properly adjusted, but it does not necessarily follow that the cars are not standard. In point of fact, it is only in exceptional cases when non-standard parts are used in reliability trials, and even then the parts concerncd are generally of an experimental nature and destined some day to figure in production cars.
it is, of course, extremely difficult to decide whether a car is absolutely standard or not, but in this connection it is noteworthy that in trials where freedom is allowed to the entrants the percentage of complete breakdowns is not materially, if at all, lower than in events such as the R.A.C. Six Days', when severe penalties attach to the entering of a car which differs in even the smallest, way from standard practice as set out in the makers' catalogue.

Those who study performance closely, then, may depend upon it that the capabilities of different makes as revealed by competition results do not differ materially from those of privately owned machines of the same make. This fact is further proved by the principal events organized by the Motor Cycling Club, in which the percentage of gold medals which are won lys private entrants compares most favourably with the awards gained by trade members, who in some cases might be described as professional competition drivers.

It now remains only to indicate how a motorist,
from the competition reports which he reads in the Press, inay determine for hinself which of the small cars which do well in sporting events are best suited to his needs.
A gold medal, it must be reatized, is awarded in relialifity trials not only for rmang to schedule time, but also for hill-climbing, ascents of cbserved hills calling for a climb which is both fast and steady if time is not to be lost. It must not ise thought that maintaining an average speed of $20 \mathrm{in} . \mathrm{p} . \mathrm{h}$. is easy; it is often so dificult that a reasomaly good car in the hands of an expert driver is found to be unable to do so. This may be due to the route being narrow and winding or to long gradual climbs just beyond the capacity of the engine in top gear. Poor lrakes are also the catuse of many gold medals being lost, for if a two-mile hill can be climbed at, say, only $15 \mathrm{~m} . \mathrm{p} . \mathrm{h}$., the only way to gain time later is to "blind "-an impossibility without good brakes. Another point which must be taken into consideration when comparing the performances of specially tuned cars is that the conditions are the same for all, and the car which puts up the hest performance undoubtedly veflects wery creditably on the factory fron which it emanated. Its designers and the craftsmen who built it and tuned it un must be men who know their jobs, and their skill is apparent in the standard as well as the racing model.
It would, of course, he foolish to suggest that a perfectly standard production model can equal the performance of a purely racing type from the same factory. Ir the forcgoing we have been discussing the performances of the former compared with an apparently standard production which, however, may have been specially "hotted up" for the occasion. Such cars usua!ly rereal the ntmost capabilities of their type and therefore provide invaluable data.

## TO SIMPLIFY MAGNETO TIMING.

Now as to the method of timing. It is assumed that the magneto coupling has heen slacked off and that the engine has been turned so that No. 1 cylinder has its piston in the correct firing position and the magneto cam ring is positioned. With the lattery and lani;) in circuit, as explained, so long as the platinum points are touching the lamp will light, but the instant they are separated by the cam the lamp will go cut. It is obvinus, then, that there is no need to watch the contact breaker, to see when the points "break." as the lamp. fixed in any convenient nosition, will indicate by going out the exact instant that the break occurs.
Having set the timing, the wires may be disconnected, the binding screw replaced, and the coupling tightened.
The plan which has been outlined is of great value in the case of engines fitted with dual ignition, as, by using two lamps side hy side, and sceing that they go out together, the two magnetos may ho exactly synchronized.
B. M.J.

TNHE following method of timing a magneto by means of an electric lamp is the easiest and most accurate way of carrying out what can be-in the case of an out-of-the-way or inaccessible contact breaker-a very awkward iob.
All that is required is a small battery, lamp and holder, and a fer feet of insulated wire. A pocket-lamp hattery with screwed bulb and holder will serve excel lently. Connect a length of wire to each battery terminal and the other end of one of these wires to a terminal of the lamp holder To the other terminal of the lamp holder connect another wire.

It only remains now to remove the contact-breaker binding screw, which holds the breaker on to the armature, and to connect the two free ends of the baltery wires-one to the insulated brass block carrying the adjustable platinum screw and the other to platinum screw and the other to The contact-lireaker will slav in place quite well without its binding serew. Will slavin place quite well without is be barious connections are show in the sketch.
The var

Connected as ahown, a pocket lamp bulb and battery are invaluable for singlehanded magneto timing, especially when
extreme accuracy is essential. The handed magneto timing, especially when
extreme accuracy is essential. The light goes out directly the points of the make-and-brake are separated.


Connected as ahown, a pocket lamp bulb


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## LIGHT CAR \& CYCLECAR

 was founded in 1912 to cater for the nceds of users and potential purchasers of various new types of cyclecars and light cars, and it has consistently encouraged the development of this new motoring movement for nearly twelve years.Only cars the engine capacity' of which does not exceed 1,500 c.c. (1,t hitres) come within the scope of "The Light Car and Cyclecar," that capacity being generally recognized and accented as the limit for a light car engine.

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## Topics of the Day

## Shelsley Walsh Hill-climb.

AT Shelsley Walsh, probably the most important, and certainly the best attended, hill-climb of the year, light cars again revealed their extraordinary capabilities. Last year a light car proved unbeatable, and it was only by less than half a second that the best time by a car with an engine of less
No " Just
Outsiders.' than 1,500 c.c. was beaten by a larger car this year. The degree to which this type of power unit has been developed is more than remarkable. The brake horse-power which it is capable of producing in its most highly efficient form is more than five times its rated horse-power, while it will propel a comparatively large car a distance of 100 miles in an hour. We emphasize the foregoing as a striking indication of the infinite pains which have been taken to perfect the $1 \frac{1}{2}$-litre unit. All this effort may have to be repeated unless inmediate steps are taken definitely to establish the 1,500 c.c. limit. for if a ruling is not made in the very near future, competition will compel designers to introduce new engines which will not be hampered by being matched in public, and on a level basis, with units of larger capacity.

The Midland Automobile Club, we were pleased to observe, would have nothing to do with the "just outsiders" at their Shalsley Walsh hill-clinb. C'lasses were provided for machines with engines up to 1,000 c.c., 1,500 c.c., 2,500 c.c. and so forth. As a lightweight is not matched against a heavyweight in the boxing ring, so were light cars matched, in their classes, only against other light cars. Opportunities were afforded to them, however, for winning events in which large cars were also permitted to compete, and the fact that they secured premier awards against all comers in the ladies' and closed classes and second fastest time of the day, in addition to figuring prominently in the placings on formula, does them the greatest credit.

We note that in the Scottish Six Days' Trial cars with engines up to 1,600 c.c. will take part, but there is no significance attached to this because the event is not described as a "small" or "light" car trial and the fixing of the limit is consequently purely a matter for the organizing club to decide.

## British Victory Possible-

CONSEQUENT upon a decision to limit engine sizes to $1 \frac{1}{2}$ feeling that British small cars may have to face competition is a the U.S.A. in the future. We suggest, however, that, assuming British manufactarers are successful in demon--In America's strating to the Americans, on their own soil, that

Big Race. British light cars can hold their own against the best that the Inited States can produce, it is quite posible that the fancy of the American public may bo :.t.racted by the invaders. The race in question does not take place until 1926, but the present is not too soon to invite lightcar manufacturers very closely to consider the possibilities that might exist if it proved to be a win for Britain.

With the forethought that seems to typify the business methods of the country, the organizers of the Indianapolis race have given their countrymen plenty of time to experiment with the-to them-unexplored possibilities of 1.500 c.c. engines, but two years is not long compared with the dozen or more during which the type has been patiently developed in this country. Allowing that the rpparent possibilities of a British win are, at the timu the race is run, as far-reaching as they now appear, it seems that no effort should be spared to put a win, at least, within sight. The 200 -Mile Races held by the Junior Car Club will go far this year and next to assist designers to produce suitable types.


Over 40 ascenta of Alms Hill, Henley, were made on Saturday by members of the Junior Car Club. (1) D. Chinery makes light of ON ALMS the climb in his Gwynne Eight. 2) Stanley Watson (Surray) passing HILI. -- the famous "Cannons." (3) W. H. Oater (Lagonda Saloon). Note the inactive "chock marshal" on the left. The surface of the hill was perfectly dry and undoubtedly a different tale would have been told had it been wet. Many used low pressure tyres on Saturday.

SELECTION OF STRIKING HOTOGRAPHS SHOWING fGHT CARS IN THE PRIN IPAL EVENTS OF THE WEEK END.

(McKenzie) ascending Beacon Hill in the 1.Athletic Club's 24 hour Trial. (5) A scene $s$ tart of the same trial. ( 6 B.M.C.R.C. dibnd Norris 'right), both in Morgans, getting tained second place in the 50 mile Handicap. Austin Seven lapped with remarkable consucceeded in lowering class records.


This year's climh was a marked success. (7) Raymond Mays (Bugatti) made fastest light car time of the day and established a AT record. (8) The crowd on the second bend. F. J. Boahier Janes SHELSLEY - (Gwynne Eight is seen ascending. (9) J. A. Joyce (A.C.) skilfully WALSH. skidding the first bend. Fastest times of the day were made by Cyril Paul's Beardmore, which beat Mays's Bugatti by the merest fraction of time. (See reports of all events in this isaue.)

# AL.MS HILL EASILY SCALED. <br> OVER 40 SUCCESSFUL ASCENTS ON SATURDAY LAST BY MEMBERS OF THE JUNIOR CAR CLUB. 



## ON THE STEEPEST STRETCH

Beginning at the Cannons, a romantic tit'e which owes its origin, we believe, to the giant pipes by the side of the road, the gradient of Alms Hill stiffens to 1 in 2\%. Above, A. A. Pollard (4-seater Aston-Martin) is seen negotiating this difficult stretch, whilst, in the circle, Prior, controlling a G. W.K. entirely from the running board, and with iwo hands only, ia seen approaching it

WHEN Alms Hill, the notorious 1 -in- 23 acclivity near Henley, is in a dry condition as it was on Saturday last, it presents few difficulties to modern light cars, but is, nevertheless, interesting, as it reveals the capabilities of each on a gradient wbich is far more severe than anything likely to be encountered in a cross-country tour over main or secondary roads.
In perlect weather, members of the Junior Car Club once again tested their cars in an impromptu event which lasted from 3 p.m. to 5 p.m., during which time over 40 ascents were made, the majority being entirely successful.
The first ascent was that of an Austin Seven driven up by I. Bradley, and no one appeared to be more surprised than the driver when it failed within a lew yards of the summit. Bradley restarted, however, having dropped his passenger, and had no difficulty in finishing the climb.

## On the Running Board.

The next attempt created considerable interest, as it was accomplished by Prior in the type of G.W.K. specially design:ed for disabled drivers and having no pedals: the car experienced no difficulty. When Prior ascended again, he was standing on the runnirig board. a feat of daring which created favourable comment, as it demonstrated strongly the utility of this particular model. Owing to the rough surlace of the ground, however, Prior was unable to obtain proper control in his precarious position, and he failed after successfully negotiating the Cannons. Following this, the same driver ascended solo and with a passenger with ease

B34

A lady driver next piloted a fourseater Albert car, making an excellent ascent; she was followed by Stanley Watson in a Surrey, boasting, by the way, of a new design of radiator, W. H. Oates in a saloon Lagonda with lowpressure tyres, and a privately owned A.C., all of which made light of the ascent. Watson ascended again with a passenger in the dickey, and, on a subseguent attempt, restarted on the steep portion ahove the Cannons.
I. Bradley now had his revenge on the hilt, for he literally streaked up in a racing G.N. with glistening aluminium body. Oates followed with a second ascent in the Lagonda; then came an 11 h.p. Standard, which just managed the climb; A. A. Pollard's Aston-Martin (a four-seater with aluminium body, which has been referred to previously in this journal by its pet name, the
${ }^{\text {C Char-a.bancs. }}$.), a $10-20$ h.p. Calthorpe driven by Whale, whose success at Brooklands in his racing Calthorge will be recalled, and a Sports Riley. All made fine clean ascents.
A privately owned Gwynne Eight imitated the endeavours of the Austin Seven by failing high up and had to be assisted over the top. Pollard now essayed to climb the hill fully loaded with four passengers, but this was just too much for the rapabilities of the engine, which hecame resentiul above the Cannons and necessitated the unloading of Pollard's passengers before he could get away.
Holt, in a G.W.K., which, we believe, is an old Scottish Six Days veteran, made light of the ascent, and, Yateran, the same car was driven hy Miss Lamb, who, however, came to rest in
second gear under the impression that she was in first. She subseguently made a clean ascent.
The Sports Riley made two more ascents, the last with three up, and fairly devoured the hill; whilst V . Chinery, in a handsome dark jellow Gwynne Eight with flared wings, sailed up smilingly.
As thongh to wipe out his previous failure, Pollard now purred easily up to the summit, two up, and was followed by a four cylinder A.C. with three up, the passengers, by the way, all being accommodated on the front seat and appearing to have plenty of renal. A Windsor chassis, with two up, made one ascent with ease, a fact which seemed to satisfy its pilot, who did not appear again.

## Petrol Feed Troubles.

During the course of the afternoon several large cars essayed the ascent, V. A. Bruce demonstrating the powers of the six-cylinder A.C., which all but negotinted the hill on second gear. A. I. Logette made a sensational attack on the gradient in his $30.98 \mathrm{~h} . \mathrm{p}$. Vnuxhall, but petrol feed gave trouble at the top and the car failed. He afterwards mado a clean ascent $F$. Maney made a clean climh in a $14 \mathrm{~h} . \mathrm{p}$. Vauxhall.
Although the very idea of fitting Parsons chains was preposterous, it was noticed that several drivers had adopted low-pressure tyres, and that, as aresult, there was very little wheel spin; in fact. the event may be said to have proved once more the value of such tyres for hill-climbing purposes, whether the surface be wet or dry.


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## SHELSLEY <br> WALSH <br> HILL-CLIMB.

NEW RECORDS ESTAB. LISHED-THRILLING ASCENTS WATCHED BY LARGE CROWDS BUGATTI JUST BEATEN.

Iis punsthie to judge by the Iey Wery satusinctory attendance at Shelsdraw a crowd to a hill-climb is to make a charge for tha mertainment which is provided. Men had to pay 5s. and women 2s. for admission to the ground in which the Midland A.C. held its hig annual firture pat, despite this, motorists thromed to the venue-about half-an-how's run west of Worcesterform all panas of the country
It will ho remembered that Raymond Mays established a record time of 51.9 secs. for thas hill last year, beating, with his Bugatli, in considerable number of very much lasger cars. This year it was clear from the entry list that the likelihond of Mays's old record standing was distinctly remote.
As usuai, the cars competing on formula were sent up first, and some very fine ascents were made. Miss Pink, with a fully loaded four-seater AstonMartin, came up first, heralded by the ringing of hells at the corners where marshals were stationed to warn the crowd of an approaching car.


Miss Pink handled her car admirably, R. 1F. Summers, who followed with another Aston-Martin, being equally steady and judging his skids oll the corners to a nicety.
Harold Heath climbed at speed with a $1 \frac{1}{2}$-litre Darracq; the Hampton was slow but steady, and Beardsell (AstonMartin) cut the corners very closely and put up a very crechitable climb. The passenger in B. S. Marshall's Bugatti (which, by the way, weighed $1,900 \mathrm{lb}$. with its complete equipment) helped at the corners ly leaning well out of the car, which clocked 67 secs. -the best time for the first 11 ascents.
Marshall's climb was followed by the ascent of eight large cars, most of which were heavily laden.
R. Ince (Austin Seven) made the first climb of the cars which were competing on a time basis only. His engine was
missing slightly, and the ascent was consequently not so impressive as that of L. T. Kings's car of the same make which followed. D. W. Beck's all-aluminiuın Austin Seven appeared to be missing slightly, his time being 613 secs., 2 secs. slower than Kings and 16 secs. faster than Ince.
F. J. B. Jones, driving a Gwynne Eight sports model painted black and orange, and boasting a delightful exhaust note, was the fourth and last car in the class up to 1,000 c.c. to climb. Ilis time was not so good as that of two of the Austins-a surprise, in view of the "smappiness" of the ascent.
It appeared from the Class 1 performances that it is the smallest types of racing car which are most easy to handle rodnd the tricky bends of Shelsley Walsh, for the few skids which were witnessed were obviously intentional.


HOW THEY
The course shown to the left was followed by most of the crack drivers, the skids being CORNERED timed to aid the turn. A wide sweep (right) at the lower corner led invariably to severe skids higher up the hill. Skids are represented by broken lines.


## AMATEUR

EXPERTS.
Raymond Maya and his "chief tuner-up" Villars, in the Bugatti which beal last year's record for Shelsley Walah hill. The engine revs. al more than 6,000 .

Class 2, for cars with engines between 1,001 c.c. and 1.500 c.c., was opened by C. M. Harvey driving one of the two new racing ilvis cars. From a point midway between the two worst bends, where the bulk of the spectators was stationed, the high-pitched note of the Alvis exhaust could be heard almost from the starting point.
The difficult left-hand bend was approached at a very high speed, and Harvey appeared to take it with admir. able judgment, the car rounding the bend apparently well under control. A slight back-wheel skid which had been perceptible immediately the car came into sight developed, however, with amazing rapidity into a tremendous slide, which carried the car completely round so that both front and back offside wheels cannoned into the near-side lank.

## A Complete Circle.

The road is very broad at this point, and Harvey, taking his foot off the accelerator only momentarily, loctied the wheels round and executed another alarming skid, which again pointed the radiator up the hill. With a tremendous burst of acceleration the car continued its climb with the off-side rear asle shaft very badly bent and the wiro wheel huckled so much that it seemed impossible that it would hold together to the finish. The tyre, of course, had hurst.

After the thrilling performance by the Alvis, Mays came at the bends in his llugatti apparently even faster than the Alvis, but his wonderful touch on the wheel and the extraordinary controllability of his car did not lead spectators to anticipate anything thrilling in the way of skids.

Actually, the rounding of the bend was apparently accomplished at a higher speed than any other driver who attempted it. the climb being completed in the record time of 501 secs., which was more than a second faster than the previous best time ever recorded by any car at Shelsley Walsh.
Mays appeared to have an uncanny knowledge of the best means for taking corners, and it was only on the last right-hand bend that there was the least suggestion of a serious skid occurring. B38

On that occasion the near-side hack wheel appeared just to skim the bank on the outside of the bend.
N. T. Beardsell's Hodgson, which followed the Bugatti, took the left-hand bend very successiully at a high speed. but the series of skids which resulted appeared to put the car practically out of control beiore it reached the righthand bend; and, in attempting to negotiate this the car got into a severe skid and both the front wheels hit the bank, three of the tyres bursting.
Righting the car, the driver continued up the hill, still with his foot hard down, but with only one tyre inflated. The car ultimately dashed off the road. climbing a bank a foot or so high and ending up off the course and almost at right-angles with it. When it came to rest it was bridging a ditch about 2 ft . deep.
Joyce, at the wheel of the М.C. racer, was very fast and steady, his time being within 13 secs. of last year's record for the hill. Davenport's FrazerNash skidded almost broadside at both the upper bends, but tho driver kept the car on its course by wrenching violently at the steering wheel, and then steadying the car with a series of minor "wobbles" of the wheel. It seemed that the gear ratios were hardly suited for the hill, $61 \ddagger$ secs. being clocked.
E. R. Hall's Aston-Martin was very steady and put up the excellent time if 52 secs. The left-hand bend was rounded with only a very slight skid, and the driver steered a beatiful courso round the right-hand bend which followed. It was noteworthy that he cut out several times before reaching the most difficult corner. On this hill goud acceleration evidently pays better than selnsational cornering.

Raymond Mays followed at the wheel of his other Bugatti. This car is nor-
nally faster than the one with which nally faster than the one "ith wheh
he had made the first climb, lut it his not vet fully recovered from the gear-
box derangement which it suffurd at the Skegness speed trials, and tho ascent was. consequeutly, no faster than that of his other Bugatti.
Mays skidded much more on his second climb, than on his first, as the pick-up of the car was comparatively poor, and he was trying to gain time by taking the corn
possible to do so.
Then followed Classes $\overline{3}$ and 4 , Cur cars between 1,501 c.c. and 2,500 c.e.: and from 2.501 c.c. upwards. None ni the spectators believed that it was porssilile to improve on the Bugatis time, ran off the times revealed the fact that Mays had apparently proved too fast for the rest of the field.

The times posted on the hoard, however, were not, it transpired, the official times. Mays being actually heaten ly 4 of a second by a 13.5 hp . Beardmore.

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## LIGHT CAR WINNERS AT A GLANCE

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 11 bp Bugatil), $504-5$ seca. $=40 \mathrm{~m} . \mathrm{ph}$.

## SIDELIGHTS ON THE CLIMB.

TTIIE cloudburst which occurred earlier in the year washed away the concrete from the hill, and the subsequent repairs which wore necessary cost $\pm 600$. Part of the road was treated with a new mixture of granite and glutin, which is produced from pinewood.
The Aston-Martin driven by Benrdsell is no cotton-wool car like some of the special racers, but is used daily by its owner for business purposes.
The wisdrem of employing lwo or three different methods of timing the competitors was open to doubt, and was probably the cause of a number of erroneous times being announced on the hill.

That sporting amateur, E. R. Mall, sent on his Aston-Martin to Shelsley on the back of a trailer constructed from Ford parts. The trailer was towed by a 190845 h.p. Renault, which Hall had secured for a little over $£ 30$.
The R.A.C. guide counted 1,100 cars and over 400 motorcycles in the big car park at the foot of the hill. Theso cars and motorcycles took some hours to dehouch through two narrow gateways leading to the main road.

The new formula upsel some of the compelitors' calculations. In one quarter it was suggested that an Austin 7 with four up might have proved a diffi. cult car to lieat.

Midland Automobile Club-July 12th. 1924.

## again- <br> RECORD BROKEN <br> for

"The classic hill climb of the year"


Record for hill and fastest time of the day -50.5 secs. made by
Mr. Cyril Paul on his Beardmore.



# THE LAND'S END TO JOHN O' GROAT'S. 

## Long-distance Trial Provides Remarkable Proof of Small Car Reliability.

TПlle majorty of the cars which com1peted in the 11 C C. s Jathd's Find to John of Gemot traal cetze within the light car delitut:min and it is a noteworthy fact that nut a simgle car whech actually started inh to reach the end. There were wind thece light car non starters, these being P. D. Walleer starters, these bemig (Siuynne) and
(Seatronke),
 was minotis - $11 . \mathrm{p}$. Austin instead of the 7 h.p. ©it athe same make
lunctuatls at: 5 pm , the two official cars cummersed the lone trek under an overeast sks
At Zelali am tho Austin Sevens was noticed :cank a broken-down motorycle computitu into Jhodmin, the extra weight apmonety not affecting the Austira phanion prown At Exeter a stup of thras quaticis of an hour for supper at Deller's Cafe was allowed The service was quick and the food excellent.

## A Wet Night Drive.

One entered Jeller's in fine weather and left to find the rain streaming down. Curiously enough, the first half-dozen motorcycles expmenced ino rain until Worcestor, heing all the time just in front of the following storm. The mojority, however, were driving all night in the wet. The tarred road across Bridgwater Flats was very treacherous, and it was here that D. G. Prentice (Morgan) overturned ist attempting to avoid a motorcyclo competitor who had skidded in front of him. Unfortunately, ho was unable to continue.

At Preston the hotel yard was full to overllowing, and much good-humoured banter was flying as "early numbers" endeavoured to extricate their machines, which had been hedired in by later urrivals. Mans left somewhat late, and extra spoed was necessary to make up Inst time

Between Penrith and Carlisle a motorecelist fell asleen and crashed; he received first aid from E. G. Bromhead (Austin), who afterwards took him into Carlisle. Both garage and hotel arrangements were beyond reproach at Carlisle, and after an excellent dinner the first 24 hours were run over again is the smoking-room.
J. Harers (Riley) piloted a number oi drivers from Dingwall to Colspic, as he knew this tricky section of the road intimately. Hereabouts rain fell again at intervals. The whore road followed through Evanton Alness and Invergordon in the red dawn will he remembered, as the light effects on the water wers particularly fine.


## THE AUSTIN __ The two "sevens" and a "twelve" lined up ready TEAM. for the start at Linds End.

July $10 t h$ dawned with a promise of rain, later fulfilled as the last numbers left. Good roads lead to the Border past the board directing one to the famous blacksmith's shop, the goal of so many eloping couples in the good old times

At Dingwall, the breakfast stop ( 1.50 a.m.), few were hungry enough to participate, and as the manageress refused to serve tea or coffec many continued the journcy without refreshment. In conseyurnce of this the short stop arranged at Golspie found the good lady of the house besieged by hungry competitors


NEARING: $\qquad$ A group of cars headed by A. W. Morrish (8 h.p. Rover FRESTON whose hood is erected as a protection against aunnot rain.

The Ord passed, the severe drop down to Jerriedale caused several smoking brakes, whilst those who knew Berriedale Hill had done their best to instill terror into the hearts of those who did not!
All made clean ascents, although the first hair-pin bend caught several unawares. Thereafter it was plain sailing to Wick.

## The Finishers.

Finally, the last check and mutual congratulations. The route card gives the distance as 875 miles, but all who checked the distance by speedometer found it to be over 910 miles.
The following checked in at the finish :-A. Conville ( 10 h.p. Morgan), I. W. White ( 12 h.p. Lagonda), V.: Bolton (13.9 h.p. Westwood), IL. Siraker ( 10.12 h.p. Straker-Squire), II. A. Schenke ( 10.12 h.p. StrakerSquire). J. W. Eren (11.9 b.p. Palladium), J. H. Arthur ( 12 h.p. Iaconda), C. A. Abbott-Brown ( 12.50 h.p. SportsC.A. Abbott-Brown (12.50 h.p. SportsHromhead (12 h.p. Anstin). W. J. Milton ( $7 \mathrm{~h} . \mathrm{p}$. Austin). V G Wallsyrove ( $11 \mathrm{~h} . \mathrm{p}$. Riley Sports), J. Havers ( 10.8 h.p. Wilev), A. If. Abbutt ( $11 \mathrm{~h} . \mathrm{p}$. Clyno), E. E. leverett ( 20 h.p. Arrol-Johiston). V. E. Leverete ( $10 \mathrm{~h} . \mathrm{p}$. Galloway), D. 11 . Healey ( $10 \mathrm{~h} . \mathrm{p}$. Ariel). H. Sanyster 110 h.p. Ariel), C. IS. Moss-Blundell (9.5 h.p. Rhode), W. V. Fadford (10 h.p. Swift), S Griffiths (14 h.p. Bean), C. Guthrie (11 h.p. Riley), G. Braga ( 24 h.p. Nurant), P. H Calcutt (15 h.p. Durant. linguy). A. W. Morrish ( $8 \mathrm{~h} . \mathrm{p}$. Fover). F. E Tatlow ( 10 h.p. Lea-Francis). WV: Tomlin ( 9.5 h.p. Rhode), 11 . Richoux (12 h.p. A B.C.), J. A. Driskell ( $9.5 \mathrm{~h} . \mathrm{p}$. D.F.P.), IV. E. Bliss ( 10.15 h.p. Fiat), and W. Lawlins (12 h.p. Alvis).

## THE SCOTTISH SIX DAYS TRIALS.

## THREE MORGANS AND ELEVEN MAKES OF LIGHT CAR REPRESENTED.-COURSE INCLUDES NEARLY ALL THE MOST DIFFICULT HILLS.

S
YOME of the most severe hills nortla of the Tweed are included in the route of the Scottish Six Days' Trials which beyin on Monday next

The event, which has been organized by the Edinburgh and District Motor Club, has attracted 111 entries. Ninetytwo are motorcycles, three threcwheelers, 13 light cars and three are cars with engines the capacity of which exceeds $1 \frac{1}{5}$ litres.

These, together with their numbers, are as follow:-(101) A W. Brittain, 9 h.p. B.S.A. ; (102) W. H. Oates, 11.9 h.p. Lagonda ; (103) D. S. Milne, 11.9 h p. Morris-Cowley; (109) V. G. Wallsgrove 11 h.p. Riley Sports; (105) M. v. de Satge, 11 h.p. Riley Sports; (106) T. A. Mckenzic. 8.9 h.p. McKenzie; (107) A. R. Croal, 8.9 h.p. Ariel; (108) J. M Inglis, 11.9 h.p. Alvis ; (109) C. P. Pul linger, 10.9 h.p. Gallowny; (110) J. I) Johnstone. $10.9 \mathrm{~h} . \mathrm{p}$. Galloway; (111) E. P. Paxman, 9 h.p. Frazer-Nash ; (112) II. B. Denlev, $10.8 \mathrm{~h} . \mathrm{p}$. Khode; (113) B Alan Hill, 108 h.p. Rhode ; (114) A.J. C Lindsay, 7.9 h.p. Humber; (115) J. Holt 10.8 h.p. G.W.K ; (116) J. W. Leno, 10 h.p. Hampton ; (91) F. Spouse, 10 h.p. Morgan; (92) H. F. S. Morgnn, 8 h.p. Morgan; (93) W. A. Carr, 10 h.p. Morgan
This entry cannot be described ns par ticularly representative, only 11 different makes of light car competing.
The performance of the little Humber will be watched with special interest, as these cars are not often seen in competitions, while the Rilev enrs, both of which are sports models should pive some fine pxhibitions on the hills. The Lagonda which is taking part will he a salcon model. Both of the Rhodes are fitte. 1 with $10.8 \mathrm{~h} . \mathrm{p}$. engines.
It will be seen from the dailv rontes which are given below that the run
stirts from Edinburgh on July 21st, the first night being spent at Inverness, which is the centre for Tuesday and Wednesday's rums. On Thursday the competitors leave Inverness, spending the night at Oban and returning to Edinburgh on Friday. A southerly out-and-home route has been mapped out from Edinburgh for Saturday.

Many of the test hills which figure in the routes given below are described in an interesting article dealing with Scottish test hills, which appears elsewhere in this issue. The trials will, of course, be fully reported, so far as the light cars are concerned, in this journal

## tonday, luly 21st

7.0 a.m. Edinburgh.
8.16 am . Camelon.
9.28 n.m. Braco.
$10.50 \mathrm{a} . \mathrm{m}$. Amulree (observed hill)).
12.3 p.m. Pitlochry
2.18 p.m. Spital Inn
2.33 p.m. Devil's Flbow (observed hill).

49 p.m. Corgarff (observed hill).
5.48 p.m. Carr Bridge.
7.3 p.m. Inverness.

## Tuesday, July 22nd.

$8.0 \mathrm{n} . \mathrm{m}$. Invernes
$928 \mathrm{a} . \mathrm{m}$. Achilty Inn.
$111 \mathrm{a} . \mathrm{m}$. Kinlochewe.
$1134 \mathrm{a} . \mathrm{m}$. Torridon (nbserved hill).
12.5 p.m. Drabing (nbserved hill).
2.39 p.m Kinlochewe.

412 p.m. Achilty Inn.
4.36 p.m. Dingwall
5.40 p.m. Inverness

Wednesday. July 23rd
$8.0 \mathrm{n} . \mathrm{m}$. Inverness.
$919 \mathrm{n} . \mathrm{m}$. Strathpefier
$10.34 \mathrm{a} . \mathrm{m}$ Auchnasheen
$11.38 \mathrm{n} . \mathrm{m}$. Teantown
11.56 a m Tornapress (observed hill).
12.38 p.m. Applecruss (observed bill).
3.8 p.m. Jeantown
$4.12 \mathrm{p} . \mathrm{m}$. Auchnasheen.
5.27 p.m. Strathpelfer.
6.45 p.m. Inverness.

Thursday, July 241 l.
8.0 a.m. luverness
8.12 am . Blackfold (observed hill)
9.0 n.m. Simon's Hill (Cudrish) (observed hil!.
10.45 am . Fort Augustus.
12.21 p.m. Vort Willian.
1.51 p.in. Mamore.
2.21 p.m. Bridge of Coe.
4.9 p.m. Dalmally.
4.22 pm . Loch Awe.
5.26 p.m. Oban.

Friday, July 2 äth.
$8.0 \mathrm{a} . \mathrm{m}$. Oban.
$8.40 \mathrm{a} . \mathrm{m}$. Loch Losgoinn (observed hill).
$10.15 \mathrm{a} . \mathrm{m}$. Ford IIotel (observed hill)
11.27 a.m. Port Sonachan.
1.6 p.m. Inveraray
2.8 p.m. Top of Rest and Be Thankful.
2.41 p.m. Gien Douglas (observed hill).
3.29 p.m. E: 1 loch.
5.14 pm Camelon
$5.39 \mathrm{p} . \mathrm{m}$. Linlithgow
6.30 p.m. Edinburgh.

Saturday, Iuly 2Gth
8.0 a m. Edinburgh.
8.25 a m. Dalkeith.
9.11 a.m. Gifford
"Last" Hill (observed hill).
9.30 a.m. Garvald.
$11.12 \mathrm{a} . \mathrm{m}$ Gordon.
1144 a.m Melrose
1214 p.m. Selkirk (observed hill).
$132 \mathrm{p} . \mathrm{m}$. Galashiels.
2.8 p.m. Innerleithen.
$2.29 \mathrm{p} . \mathrm{m}$. Pcebles.
$3.8 \mathrm{p} . \mathrm{m}$. Penicuik
3.40 p.m. Blackford IIill (observe.l hill).

## MC. AND A.C. 24-HOUR TRIAL. BIRMINGHAM-HOLYHEAD EVENT HELD IN BRILLIANT WEATHER.

THE annual 24 hour trial from Birmingham to Holyhead and back was held on Friday and Saturday last by the Midland Cycling and Athletic Club. the start and finish being at the Robin Hood Garage on the Stratford road. Twenty-five light car entries were received nnd, with the exception of Best's McKenzic and Williams's Marseal, all started

The route led to Beacon Hill, on the outskirts of Birmingham, and thence to Holyhead via Shrewsbury, where n halt was called for supper. The following morning a succession of stiff hills were negotiated, including Cefn Du, Bwleh.v. Groes, up which the cars were timed, Cefn Coch, Bwlch-y-Ddnr. Peniarth, Braniarth, and. finally, Beacon Hill ngain.

At the first ascent of Beacon Hill the Morgans made creditable ascents, B42
H. F. S. Morgan being particularly good Goodall arrived late and came up fast frantically blowing his horn for room to pass Mathews (Swift), who merely turned round and grinned, thus causing Goodall to hang behind all the way up the hill. The Austin Sevens, driven liy Harcourt and Kincain, were good, while the larger cars climbed well almost with out exception. Sidwell (Bayliss.Thomas), McKenzie (McKenzie), Dixon (Singer) the Clynos and Barnes's Salmson being particularly good.

Cefn Du caused Edwards (Calthorpe) to fail. This driver also come to rest on Bwlch-y-Gines, as did Fiarcourt (Austin Seven) and Neal (Ariel), who missed his gear. T. A. McKenzie retired near this point with a broken valve cotter, while Arthur (T.13.), who had been going very well, retired near Beddgelert with sheared clutch driving pins.

Denley (Rhode) made fastest time and as usual, made a faultess performance everywhere. Bwlch-y-Ddar, previously known as " Gough's Conscience," caused an unusual failure in the person of II. F. S. Morgan (Morgan), while Begley (Bayliss-Thomas) was baulked by some farm labourers. Meredith (T.B.) spoiled a clean sheet by skidding into the ditch on being given the word to go by the marshal in control at the foot of the hill, while Barnes (Salmson) took the acute corner on two wheels, and scattered the terified officials.
On the final ascent of Beacon Hill Kincain (Austin Seven) came up at specd and pulled a cover off, completing the hill with a huge balloon of inner tube exposed.
The finishers were:-J. IV Meredith (T.B.), B. W. Harcourt and E. Kincain (Austin Sevens), H. B. Denley (Rhode), E. Neal (Jowett), L. Mathews (Swift), A. J. Dixon (Singer), P. H. Jones (Ariel), G. P. Law, F. Hallam and J. Cocker (Clynos), F V Edwards (Calthorpe), F. S. Barnes (Salnison), H. F. S. Morgan, G. HI Goodall, R. T. Horton and J. C. Chippendale (Morgans).

# * A Review (*) of A.A. Activities 

during the past year will convince all motorists of the wisdom of joining the World's Largest Motoring Organisation. 9,167,880 Miles covered by Patrols. 29,335 Members received Road Service. 26,741 Roadside 'Phone Calls. 60,000,000 Miles of Routes issued.

The work of the Automobile Associa tion is revealed in the Annual Report for the year ending 30th April. 1924.
It is impossible to deal with the Report in extenso, but an idea of the ramifications of the A.A. are perceived by the subjects set forth and which include:-
ROAD PATROLORGANISATION. ROAD SERVICE OUTFITS.
NIGHT ROAD SERVICE
rROADSIDE TELEPHONES. AGENTS AND HOTELS.
CAR PARKING. ROAD SIGNS. TOURING AT HOME \& ABROAD. PALIAMENTARY. TAXATION. LEGAL AND ENGINEERING DEPARTMENTS, Etc.

## A FEW FACIS AND FIGURES.

ROAD PATROL The Patrol Servicehasbeen ORGANISATION. considerably increased, and the total mileage covered by patrols during the period under review was 9.167.880.
$1 \mathrm{~h}=$ Night Service, n!though only inaugurated at Enster, has rendered valuable help and is being enlarged.

ROADSIDE Additional Roadaide TelaTELEPHONES. phones have been installed. the usefulness of which is perceived by the fact that during the year 15,319 runk and 11,422 local calls were made.

TOURING: HOME Routes were prepared and AND ABROAD. issued to members at the rate of two minute. the talal mileage approaching $60.000,000$. Itiner aries and day drives totalled 184,000.

The Foreign Touring Department has experienced a phenomenal year. Triptyques and carne:s were prepared for belween 50 and 60 per cent. more membara than the previous year.

LEGAL DE- The calla upon the Legal DepartPARTMENT. ment for Free Legal Defence show a considerable increase over the previous sear, and several thousands of members have taken advantage of the services of the Association's solicitors throughout the country.
The Aasociation has also successfully conducted severalappeals to the High Court and Quarter Sesaions againat decisions of local Benchep, which were either wrong in law or against the weight of the evidecce. In one case n conviction and fine of $£ 10$ and iwelve montha: suapension of the driver's licence, was quashed. wi'h costs against the police.

> ENGINEERING Thousands of membera have DEPARTMENT. consulied the staff of Engi neers al Headquarters, and there has been an increasing demand for advice regarding the purchase of new and second-hand vehicles, and for detailed reports on inspections of farticular machines.

> If you are not yet a member, why not learn for yourself what A $\mathbf{A}$. membership means to you? Full particulars are given in a booklet, "Always Ahend." which can be obtained from the Secretary. The Automobile Association, 29, Fanum House, Whitcomb Sereet, London, W.C.?. Send a postcard for a copy to.day

That is the keynote of Clyno construction. To buy a Clyno is to own a car built, not by haphazard methods of " mass preduction," but with the painstaking care of skilled fitting. That is why your Clyno KEEPS its splendid efficiency and maintains its wonderful economy figures-40-45 m.p.g. petrol, and 2,000 miles per gallon of oil. That, too, is the reason why Clyno value fears $n$ s comparison. Be individual in your car choice-buy a Clyno, and let your mo:oring satisfaction grow with the miles.
11 h.p. Popular 2 -scater ... £198
$11 \mathrm{~h} . \mathrm{p}$. Occasional 4 seate
£205
11 h p. De Luxe 4 -scater
£225
Right hand gear change $£ 3$ extra.

## CLYNO CARS



BRITISH EMPIRE EXHIBITION SEE OUIK EXHIBIT No. 45 MOTOR and CICLE HECTION PAIA 4 FH F ENGINEERING

a Rover Cat
foi $2 /=$
eichi rover cars $14 \mathrm{~h} . \mathrm{p}$. and $8 \mathrm{~h} . \mathrm{p}$.
TO BE WNON tickets $2 /$ en each
or 3 for 5/CROSBY HALL COMPETITION
organised bythe Committee of the Crosby Hall Endowment Fund. Promoted ly
The British Federalion of University Women.

## PRIZES

## Two $\mathbf{1}^{4} \mathbf{~ h . p . ~ R o v e r ~ C a r s ~}$ <br> Complete with self-starters and full equipment

Six 8 h.p. Rover Cars - all 2 or 4 seaters, optional, and 100 other Prizes

## Get your Ticket and win your Car !

It only costs $2 /$ - to enter for no less than 8 chances of winning a fine 1924 Rover Touring Car. For a single florin you may be grasping your own driving wheel in a very short while. If you mean to have a really good try for these magnificent prizes, send 5/and have three tickets-that will give you 24 chances of a Rover Car for the price of a driving licence.




#### Abstract

A SPECIAL INTEREST IS LENT TO THIS ARTICLE ON ACCOUNZ OF THE FACT THAT THE SCOTTISH SIX DAYS TRIALS BEGIN ON JULY 21. severe as they are all the hills mentioned have been CLIMBED BY SMALL CARS.


'IHE severity of the Scottish test hilds lies more in their length and the acuteness of their turnings than in steer gradient. A long approach with a steady 1 -in-10 graduent kills an engine before the final stretch, which is often 1 in 4 or 1 in $\overline{5}$, is reached, and as the crest of the hill may be prefaced by one or two extremely acute hair-pin beads, knowletge of what is to come is of enormous value to a driver.

In England and Wales we have plenty of hills:as steep as those in Scotland, Porlock, the Old Wyche at Malvern, and Bwlch- $y$ Groes being fair cxamples. Only the last-mamed can approach the aserage Scottish test hill in length, for in two miles it climbs some $1,200 \mathrm{ft}$.
The most tiring hill in Scotland is that which climbs from Tomapress to Applecross and in the course of its 12 miles rises from sea level to a height of over $2,000 \mathrm{ft}$. and then drons again to the water's edge. In other words, this hill is roughly four times as high as Birdlip Mill in Gloucestershire. It is made all tho more severe by the series of acule zig-zalg turnmgs and grass-grown surface near the summit. One believes that this mountain road was constructed several hundred years ago by some general in order to garrison Applecross against invasion.
The strain it imposes on an aircooled engine may well be imagined, yet in prewar days it was elimbed hy M. F. S. Morgan in an air-cooled Morgan and hy Sam wright in an Sh.p. Humberette. In a post-war

Six Days' Trial the Rover Eights repeated these performances.

Au interesting specimen of freak road enginecring is provided by the corkserew at Inverfarigaig, which has been included in the last two Scottish Six Days' Motorcycle Trials. The problem set the engineer was to cross the almost vertical side of a steeply coned mountain. He solved it by making his road in the form of eight perfect hair-pin bends, the distance between each bend being equal throughout the ascent.
The path-one can hardly call it a road-is two yards wide and the hair-pins are so acute that the hill is said to be the only one in Scotland which certair: cars cannot surmount. The bends are built up on vertical stone embankments, and are quite unprotected, consequently, if a car over-reverses, an accident is inevitable, and it is understood that this has already nccurred.

Viewing the hill from above or helow, it is possible, in the winter-time, when the foliage of the trees has distppeared. to see all the cight hair pins, for each one is separated only by some 15 or 20 yards from the next. Looking at the hill, wach set of four hair-pins is dead in line on the side of the mountain. There is nothing quite like this hill in England, the nearest approach to it being nrovided by some of the ziszalg paths that one sometimes encounters on clifs in the south and west.

Amulree and Kenmore, which go hand in hand as

## SOME SCOTTISH TEST HILLS (contd.).

the way leads up one and down the other, are hills where it is easy to fail through ignorance and inexperience. The steepest gradient is never worse than 1 in 5, but the acute and narrow $S$ bends on Amulree need careful judgment. Any car that is driven steadily round the outside of each bend should make the climb successfully. The widest part of the hairpins is 33 ft ., whilst on Kenmore the bends are rather hroader.

Here again the widest possible sweep should be taken, as the road is narrow and rock-bound on the turns. Nowadays its use is practically confined to trials, as there is a flat detour through Aberfeldy which can be negotiated almost as quickly as the mountain road. The hill is not nearly so steep as Alms Hill near Henley, but, like Alms, possesses a treacherous surface and lies under trees.

As a matter of interest, the highest road in Scotland is found between Aviemore and Braemar, the distance being 27 miles and the summit some $2,771 \mathrm{ft}$. above sea level. There is a road for the first two miles from Aviemore and a rough track for the last ten miles into Braemar. For 15 miles over the summit there is only a footpath.

## Blocked with Snow.

Another famouss climb on quite respectable roads leads up the Spittal of Glenshce, round the Devil's Elhow, to Cairnwell, 2,200 ft. During the early part of the year this road is generally blocked with snow, and must not be confused with the easier climb over Cairn o' Mount, between Banchory and Edzell. Cairn $0^{\prime}$ Mount is about 1.450 ft . high and, like the Spittal of Glenshec. more tiring than steep.

Glendoe, at the southern end of Loch Ness on the eastern road from Fort Augustus to Inverness, is a
hill that always surprises those unfamiliar with its peculiarities. It starts practically from sea level and climbs steeply with $\Omega$ gradient of 1 in 6 for nearly a mile. The tourist then fondly imagines that the worst is over, and continues gally down hill through wonderful scenery. Then a highly dangerous lefthand turn over a burn brings him to his senses. He twists right, and finds more hill in front of him. In goes second gear and then first.
As the road unwinds itself, it suddenly discloses some 50 yards of 1 in $3 . \%$, made all the easicr or more difficult, according to how it is taken, by an $S$ turn somewhat resembling that on Amulree. The man who knows the hill puts on full power long hefore the \& turn is reached. The ignorant delay, and are almost always caught.

## Chains are Advisable.

On a light car wheel spin may occur on this last and stecpest stretch, for which reason it is not ? had plan when out looking for trouble in the shape of freak hills to have a pair of Parsons chains in the toolkit. These chains should have had the original stretch taken out of them hefore being required for really serious work. Otherwise, they may rattle against the mudguards. If Parsons are not available, the passengers can be concentrated on the rear seat or in the dickey, when their weight, combined with a good pair of rear tyres, should ensure a perfect grip.
The nature of the country and the long tiring drags with a steady gradient of 1 in 18 and 1 in 25 tax a small ear very severely, this being especially the caso if the vehicle be a three-speeder geared on the high side. A low geared car (four-specd for preference) is the most suitable for Scottish roads, wheh vary from the long climbs described to narrow, winding lanes beside the lochs. Good brakes are almost as essential as a really low bottom speed.

## DUNLOP BALLOON TYRES FOR LIGHT CARS.

STEPS have been taken by the British Tyre Makers' Committee of the S.M.M. and T. and the S.M.M. and T. Standards Department to provide a range of balloon tyre sizes which have been officially recommended for adoption by all motorcar and tyre makers. The Dunlop Rubber Co., Ltd., has accepted the recommended range of sizes for the wired-on type of balloon tyre and details of their two types which are suitable for light cars are given in the accompanying table.-
enter into the production and use of tyres. Perhaps the most important factor is that with a low pressure tyre it is sound practice to avoid relying on the inflation pressure to maintain the attachment of the tyre to the rim. The wired-on type is, of course, held mechanically by the wire and not by air pressure.
The Dunlon Co. is not fitting the actual straightside rim, but has produced a form of well-base rim, which is made in a single piece. The essential dimensions of the well-base rim, namely the internal width,

| Size and description of tyres. | Carrying uapacisy per asle. | Pressure !us. per sig. in. | Overall diameter for clearance. | Eflective radius for gear ratio. | Displacing normal sizor hnving dimenslons as under | Overalldinmeter for clemranec. | Piffective radius for gear ratio. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Cuta. | 50 | Ins. | Ins. | Normal size, m.m. | Ins. | Ins. |
|  | 4 $!$ | 22 | 28.9/8. | 191 |  | 263 274 | 197 |
| 150 wheel. | 10 11 10 | 23 29 |  |  | $2 \mathrm{~N} \times \mathrm{SH.E}$. | $29 \%$ | 142 |
| $28^{*} \times 4.95^{\prime \prime} 8$ its | 8 | $\stackrel{20}{20}$ |  |  |  |  |  |
| 9t- rim. lf wheel | 10 | 24 20 | 20.5/8 | 14 |  | 284 | $\begin{aligned} & 191 \\ & 14 \end{aligned}$ |
|  | 121 (20ax.) | 88 |  |  |  |  |  |

Lt will be seen that for the first time the actual sectional measurements are given, the diameters being the normal measurements as usual. $\Lambda$ study of the figures reveals the fact that the balloon tyres, when used to displace the equivalent normal pressure sizes, do not seriously alter the necessary clearances or the gear ratios of a car.
In adopting the wired on type of cover, the Dunlop Co. has very carefully considered all the factors that B46
the flange height and the tyro seat diamcter, are exactly the same as those of the standard straightside rim sections.

The Dunlop well-base rim incorporates certain advantages. It possesses a much lighter rim section than is available with the ordinary straight-side rim: it provides an extremely simple means of fitting and detaching the tyre and allows the valve to come through the side of the rim.


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


#### Abstract

Aluminium |V elding I, C. (Lumglalomagly)-Although it may mut 'Io actually dangerous to rum your laght cat with a piece broken off the crown whacl housing, as tho strenimit of this fat whll he practically unafiected, we should advise yon ti have the place patched in some way it order 10 exciude dirt. Aluminium can be quite sitisiactomly welded, and many of the leading firms specialize in this lranch ai the business.


## Clutch Trouble

T.O'G. (Athy). - Your difficulty in getting moto low gear from neutral celtainly suggests a slightly sticking clutch. The following is a remedy which might be tried. After declatching, and before endeavouring io engage first gear, smantly depress the accelentor pedal. The mertia of the foating member of the clutch should cause it to free itself from the member which transnits the drive.

## Gear Slips Out

H.II. (C:hilwell).-The trouble which you are experiencing with your gear lever which jumps out of top-gear position may be due to need of adjustment in the gear selector mechanism. Great care must be taken in making this adjustment, olherwise it may happen that, when the top gear adjustment has been correctly olstained, the trouble will recur with one or more of the remaining positions. There is a more serious possibility of badly, worn top-gear pinions or dogs, in which case the only cure is to have the gearbox dismantled and the worn parts replaced. We oresume that the selector locking device is properly adjusted.

## Difficult Starting.

IID. (frigh Wycliffe). The starting trouhle which you are experiencing with your Jowett car would appear to he due to the mixture supplied by the carburet. ter being too rich. This fact would account for the sooted plags and also for the case of starting from cold when it is so diffioult to do so once the engino has got warm. We would advise you in try the effect of fitting a smaller jet, or, alternatively, of lowering tho potrol leser in the float chamber, oflerwise we can only suggest that the needle is cither not seating properly (due to the presence of foreign matter such as. grit or dust), or that the needle value seating is pantially unscrewed, thus cansing constant flooding in the carburetter.

## Inland Revenue Tax.

C.II. (Wolverhampton).-There is no four-whecled cyclecar which comes within the $£ 4$ Inland Revenue Tax. The minimum amount payable for cars of this type is £6, for those which have in engine not exceeding $6 \mathrm{~h} . \mathrm{p}$. (Treasury rating). A three-wheeled cyclecar is only taxed at $£ 4$ provided that its unladen weight dees not exceed 8 cwt.

## Tyre Trouble

F.I. (Eblw Vale).-Yon do not say whether the frequent splitting near the joint applies to the tubes fitted to all your wheels or to one tyre only, but, in either case, the tronble is an unusual complaint. The only suggestion which we can make is that the tube for tubes) is of a size unsuitable for the rims of your Rover Eight. We do not for. a moment think that there is any possibility of the Impervo being the cause of the trouble. The pressure of 50 lb . per sq. in. for the rear tyres and 40 lb . per sq. in. for the fromt ones is quite in accordance with the manufacturers' recommendations.

## Steering Wobble.

J.II. (Blackwater).-We do not think that the stecring wobble of which you complain is caused by either the front springing or the general layout of the steering system, particularly as the trouble has only just developed. Our suggestion is that the wobble is due to tyre wear, and we should not be at all surprised if on examining your front covers you find that the tread is switchbacked, as it were, all the way round. A temporary cure may be effected by rumning your tyres fairly fat but you will be better advised to replace them with new ones.

## With or Without a "Diff."

W.P. (S.E.5).-It las heen our experience that. provided the weight of a differentialless car is not tooggreat, and if the ratio of track to wheelbase is correctly propontioned, it is extremely difficult to tell whether a car is fitted with a differential or not under oedinary drixing conditions, whilst tree wear does not seem to be adversely affected by its. ahsence. The only disndvantage of a "diff"-less car is exprerienced when it is necessary to manhandle the car in the comfines of a garage. On the other hand. a car which has no differential fitted will generally obtain a better mrip with its rear wheels on steep bills or grasy and rough surfaces.

## Shock Absorbers

R.C. (Ballymena).-The fitment of shock absorbers to your light car will be a decided improvement, especially if your journcys take you over rough roads. The adoption of oversize tyres will also be beneficial and, combund with shock absorbers. will do much to increase your motoring4comfort.

## Pre-ignition.

'T. F'. (Brixton).-Pre-ignition is a term used to describe a case in which the spark ignites the mixture too earlyi.e., before the piston has reached the top of the compression stroke. This complaint is usually caused either through the use of an unsuitable sparking pling or by the fact that the ignition timing is too far advanced.

## Insurance

A.J. (East Sheen).-It is not usually necessary when taking out a policy with one of the "tariff" risurance companies to specify by name the persons who are likely to drive the car in question. The car is covered to the full extent of the policy, provided that it is driven by a licensed driver, unless otherwise stated in the contract.

## Sulphated Plates.

S.M. (Dulwich).-If your accumulator plates have become only slightly sulphated, rinse out the cells, renoving any loose pieces of paste, and fill up with fresh electrolyte, the acid being of low specific gravity. Then charge the cells at a low rate for a long time until the white has completely disappenred, replace the electrolyte with fresis of the correct specific gravity, and charge the cell in the usual way A badly salphated battery might as well be scrapped, unless the manufacturers can put it right.

## Fitting Piston Rings.

F.C. (Bournemouth)--To fit a piston ring satisfactorily so that it is neither too loose nor too tight it should be first of all put in position, when it will no doubt be found that in some places it is a perfect fit. but in others it will not enter the grooves. If this is so, it should be taken out and placed tlat on a piece of sand-paper or emery-paper, and turned first one way and then the other, being pressed hard on the sand-paper or emers-paper meanwhile. In this way any high spots will be levelled and the piston ring will be a perfect fit.

## Buying Second hand.

W.T. (Wigtown).-There have been no material alterations since 1921 in the design of the three-wheeler that you mention, which, in fact, remains substantially the same as when it was introduced. In examining a second-hand machine, the usual procedure should be followed with regard to trying compression. iesting the steering gear and machine parts generally, noting the condition of the tyres, accessories, etc. ; but, in addition. it is especially necessary when considering the purchase of a velicle of this particular type to discover if there is any play in the back wheel. It may be said that if the rear wheel appears to he truly vertical when the car is fully loaded. the bearing is in satisfactory condition, but if it leans over at all, a careful test should be made to ascertain the amount of wear which is present.

## More Pecords

WORLD'S RECORD BROKEN, on June 26th, at Brooklands by Mr. J. G. P. Thomas. driving Leyland-Thomas, lubricated with Wakefield Castrol. I mile fying. mean speed 129.73 m.p.h. (Subject to confirmation.)

At Brooklands on July 5th, Mr. J. G. P. Thomas, driving Leyland-Thomas, won fastest race in hislory of rack. averase speed $117 . \frac{1}{2} \mathrm{~m} \cdot \mathrm{p}$.h. i and established new lap record of $12414 \mathrm{mp.h.}$. using WAKEFIELD CASTROL Motor Oil.

$$
\text { 129"73 М.Р.Н. } 124^{\circ} 14 \text { М.Р.Н. }
$$



FACILITATE BUSINESS, and ensure prompl altention to your enquiries, by mentioning
B52 "The Light Car and Cyclecar" when writing to advertisers. They will appreciate it.

OUR REDDERS' OPLYIONS (contd.).

## Buying Second Hand-Age No Drawback-Which is the Fastest Standard Car?

## An Unfortunate Transaction.

It is no use trying to run before you can walk. Whilst sympathizing wilh li. Ilumphries in his mufortune, I should like to pont out that $£ 45$ scarcely represents the cost of a

Grear
Expectations. goud motorcycle.
No one in their right senses would ex:und Mr: Humphaces had far better have purchased a motorevele, or failing this have waited until he felt moro inclaned to play the sum necessary for tho purchase of a relable cat
R.W.F.

Your curvespuntent, II. Humphries, is paying for his experience, but what chows he expect in the way of a car for e45? Exen it he las it thoroughly overhauled at the price

## Call in an <br> Expert.

 siated, it will only hayonly was also unwise to take a friend with him to test it. It would have been cheaper to have emploved an expert at a small fec.

The deprectation on a new car in :he first vear is from 25 per cent. to 35 per cent., and a purchaser that saves this depreciation by buying a second hand car should be prepared to spend a portion of it on repairs.
An inexperienced beginner will do far better to go to a local motort trader with a reputation and either buy hio secondhand car from him or call in his assiatance in making a selection, as there are a number of absolutely worn-out wrecks advertised from private houses which no reputable trader would dream of foisting upon a vovice without first overhaulang.

Penge, S.E. 20.

## Manufacturers' Advice.

With reference to the letter by $\mathrm{Mr}^{2}$. J. Nicolson in a recent issue, do makers of cars always recommend the best brand of oil for their engines? My car is of well-known make, and

## Is it Always Sound?

 at first-i.e., for some 12 months-I used the oil advised by the manufacturers-a very well-known brand-with most unsatisfactory results. The engine was difficult to start up, and was frefuently overheated.I was advised to try a different brand of oil, and the improvenent in the running of the engine has been simply marvellous.

> Verb Sap.

## The 8 h.p. Talbot.

Some fow weeks ago you published a very interesting criticism of a Talbot 8, and the writer mentioned the fact that rain gained ready access to the interior of the car, due A Criticism. of the petrol tank, which is placed in the of the petrol tank. Which is placed in the In order to remedy this, he suggestod that a domo be made, and I am anxious to place an order, but, up to the present, have found no one who can suggest anything suitable, the difficulty being the slope of the scuttle. the top portion of which would foul anything attached to the screw cap.
During a run from Bath Lo Portsmouth I had the "happy" experience of baving my hoot soaked with water white depressing the accelevator, and I am not anxions to undergo a similar ordeal. Can uny reader offer a solution? It is a coiocidence that, now tho car is £70 cheaper, the makers have discovered this snag, and placed the filler under the honnet. I lad thought to inquire the price of a tank as now fitted, but such an alteration will leave an mosightly patch on the scuttle. Apart from the above, the car is all that the makers clain for it and I am a very satisfied owner.
Portsmouth.
E.G.B.

The Capable Age.
I ans very much surpised at Mr. Clias. Simpson's letter in a recent issue. I consider a man beween 50 and 60 vears of age is more capable of driving a car than at any other age. Ho does not "scorch" so much, and can
Motoring at see danger more guickly than cau a young 70 Years. man. I may acld that I am 70 years old, and have had eight cars. I have driven a distance equal to twice round the earth, and have not paid a penny for damage. I. Hetcher.

Sunderland.
Wiih reference to Mr. Charles Simpson's letter, in which ho mentions most unfavourably the driving of elderly men. May I say with humility that I do not remember reading of

> any case in which an old gentleman has

Careful been charged with driving to the common
Driving. danger, or even exceeding the speed lim t.
For misself I realize that I have not th:o quick decision and masteriy control of a younger man, and I Lake no chances, rarely averaging more than 20 miles per hour, and slowing down to $4 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. or $5 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. at main road crossings and blind corners.

I plead guilty to shrinking from attempting to pass anything alicad of me if it travelling at anything like a.high speed.

From another point of view. if there were no old gentlemen, who would bail out the perfect (!) young men when they get into trouble for dangerous driving? AGs 66.

## Where are the Speedsters.

Like "N.N.," I, too, rould be interested to see a few of these hot-stuft merchants. Recently I drove a $7.5 \mathrm{~h} . \mathrm{p}$. Citroent from Alanchester to London, via Birmingham and Oxford, leaving at 12.30 p.m., 6 topping for lunch,

High Average
Speeds. tea and replenishments of oil and petrol, reaching London at 9.30 p.m. Not a great average speed, but I can truthfully state that I was not passed on the road; maximum speed of Citroen was about $38 \mathrm{~m} . \mathrm{p} . \mathrm{h}$.

I am not so fooligh as to believe the Citroün was faster than any car I passed, or to disbelieve the driver of a Sports IIllman, who leguiled the tea interval with hectic tales of speed. We started together for London, the Citroen slightly leading and I never saw him again. If this letter should catch his eve, perhaps he would hike to tell me what hap pened. Did he lose his way or-? 'Trusty.

## The Fastest Standard Car.

One so frequently reads letters from enthusiasts claiming positively astounding maximum speeds that I venture to invite a few opinions as to which is the fastest standard light car. It is possible to buy cars guaranteed

## Which is it ? to do $80 \mathrm{~min} . \mathrm{h}$. and even $90 \mathrm{~m} . \mathrm{p} . \mathrm{b}$., and

 sulumit has common ase mever called upon to fulfil the guarantee, and it is very doubtful if the majority of them could do it. So far as I know, there are only three makes of light car which will arcomplish their guaranterd speeds under ordinary rond conditions.liurthermore, many of these cars with high-speed guaran. tees, when driven at Brooklands by experienced amateurs, fail to attain their guaranteed speeds by many m.p.h., even though they be stripped of wings, windscreens, etc
I ani quite certain that many of these people who buy $80 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. cars wonld fall out of them through sheer fright if they touched half that speed.

Now, then, ye anateur speedmen, which is your choice?
Croydun.

TEMPLE PRESS Ltd. 7-15, Rosebery Avenue. London, E.C. 1.

## OUR READERS' OPLNIONS (contd.).

"On" or "In" a Car.
May I be permitted to suggest that the correct use of "on " or "in" a car is not dependent upon correct grammar so much as on the design of the car? It would be neither good grammar nor truthful to say that wo
Depends on sit "in" certain American and othe
Nationality. foreign cars. With the average English car, however, wo can truthfully say that we sit "in" it, undoubtedly a more comfortable position lernaps this will assist your various correspondents to apply tho correct interpretation in each particular case.
H. G. Mitchell.

I have been amused at the discussion as to whether one should say " on" or " in " a car. Surely it is a question more of accuracy of statement than of grammar. "On" implies riding where there is no provision
The Obvious against falling "off." One used to drive
Application, "'in" aecarriage, "on a wagon-lond of hay " or a "buckboard," and if one has to open a door to get into any conserance surely one is "" in"," it! A man testing a stripped chassis would be driving "on" it, and I have driven "in" a Humberette with my daughter "oll" the tool locker at the back. E. W. Smin.
Wedmore.

## Difficult Starting.

I wonder if any of your readers have experienced difficulty in starting a twin-cylindered engine in hot weather once it bas got warm? I used to run a eyclecar fitted with an $8 \mathrm{~h} . \mathrm{p} . \mathrm{J} . \mathrm{A} . \mathrm{P}$. engine, and now I run one
Hard Work 1 It is an extraordinary feature this diff it goes with frrst or second pull.
I rum for perlxps 10 or 20 miles in hot weather, and if I stop the engine it is sometimes 20 minutes before $I$ can restart. I managed to start after 20 minutes yesterday under these circumstances first by snapping the valve-lifter cable, then fully advancing the ignition, shutting the air and opening the gas fairly liberally. Previously I opened the compression taps and turned the engine over about six times. It occurs, I must say, to a greater extent with a J.A.P. engine than with the Anzani, but if there is a real cure I am just aching (literally) to hear of it.
In the meantime I will try different jets, starting with 33.
Hoping to hear of some useful hint from a reader which may erable me to cure this complaint. Very Worhied.

## Coasting with the Clutch Out.

A statement in a recent issue of your journal to the effect that coasting down a hill with the engine in gear and the clutch pedal depressed is not recommended because it imposes a strain on the clutch withdrawal

## An Inadvisable <br> Practice.

 mechanism, requires some elucidation is the lay mind is to understand it. In the course of a day's run about town the clutch is withdrawn many times (perhaps amounting to hundreds), and the total length of time during which it is held out would prolably run into some minutes. This may go on day after day and week after week, and no apparent ill-effect follows.One supposes that the clutch-withdrawal mechanism is designed to stand up-and, ordinarily, does stand up to this strain. Where, then, is the harm in a very occasional withdrawal of the clutch for a period of two or three minutes while one coasts down a hill?
Personally, I never coast with the gear in neutral, because, even though I may know the hill, I like to have the engine ready for use as a lorake in the event of a sudden emergency. On the other hand. when conditions are favourable, I have been in the habit of coasting with the clutch withdrawn and the engine stopped altogether or just ticking over. But if the practice is a bad one I must discontinue it. Ouly the mere statement that it is had is not convincing in view of the constantly necessary use of the clutch when driving in the congested traffic conditions of towns.
C.W.T.

- The less work that any part of the mechanism of a car is - called upon to do tho longer it will last. Furthermore, there is a great difference between frequently depressint the cluteh for a few moments at a time and depressing it for sustained periuds of several minutes.-ED.


## INFORMATION WANTED.

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

Rover 8
Can any reader loan or sell me a Rover 8 handlook for a 1920 model of this car? M. A. Culimnook. Sana Souci- Lim Grova Road, Marrow.

I shall be pleased to receive any readers' experiences and opinions oi the 1922 model Rover 8, pantacularly with yegard to general running and maintenance.
H. C. 1'meit. 31, St. James lRoad, Hastings.

I wonder if any reader who has fitted F.E.W. aluminium radiators to his Rover Eight could supply me with information regarding them: Whllam P. Nectarthy. Cippamore, Holmewood Road,

Brixton Hill, S.W.2.
G. W.K.

I should be glad if any reader could either lend or sell me an instruction book for at 1921 model G.W.K. car.
87, Bellingham Road, 1921 model G. W. G. '1'. Snitir. Catiord, S.E. 6.

Kingsbury Junior
Could any reader tell me where I can get an inceruction book on the Kingsbury Junior car? Also any idens for a better braking system tlian now fimed. F. Chowley.
12, Sotheby Road, Highbury, N. 5.
Scott Sociable.
Information sought as to hill-climbing powers of the Scott Sociable, iwo up and laggage, in Devon and similar districts. Does it ouffer from lack of power, or any other important defects?
C. R. Junes.

Boscobel, Wembley l'ark, Middlesex.
Callh rpe
Could any reader suggest a cure for excessive oil vapour which comes up into the cockpit of my 1922 Calthorpe? It appears to come from the oil filler, and is worse when running slowly.
G. E. Beall.

25, Sydney Street, Cambridge.

## Salmson.

I should greatly appreciate hints on tuning and general upkeep of the do luse model Salmson, especially regarding the Zenith carburetter. Present petrol consumption 40-45 $\mathrm{m} . \mathrm{p} . \mathrm{g}$. I am in need of an instruction book, and would buy one if possible. F. Bradley.

Care of Sanitary Dept., Hong Kong, Soutl China.
Oil Pressure Gauge.
Can any reader either supply me with, or inform me, where I could obtain a Viking oil-pressure gauge for a 1922 model Rover 8. It appears that Aston, Taylor and Co., of Liverpool, were the sole distributors for this acceesory, but so far as I can discover this firm is no longer in business.

Rogart, Sutherlandshire.
W. Macaular.

## Bleriot Wrippet.

Will any reader please oblige me with hints and tips concerning the Bleriot Whippet, particularly with regard to the cure of back-lash in the steering gear, and tuning of the carburetter, a Dogory, which, although economical, does not give the required power on hills?
C. W. Daughtry.

Aill House, St. James, Chichester.

## CONDENSED CORRESPONDENCE

J.D. (Leeds) writes in appreciation of the after-sale servico of the Rover Co., Lid. He recently called at their works and they very courteously fitted sevewn new parts to his car without charge.
J.D. (Hull) warns readers of the attitude of the police in Selby, Yorkshire, towards motorists. Ho was recently stopped at midnight and subsequently fined for a very slight lechnical breach of the Motorcar Act namoly, that his side lamps did not indicate the full width of the car. Ife goes on to spenk of the discourteous way in which the police officers treated him.

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 amazing results of fitting "Rectaskid" to various cars. Driven at speed on a greasy surfacebrakes hard on, and yet no appreciable skid! Driven over a rough surface and no jolt transmitted to the chassis or passenger. These facts mean real safety and comfort.
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## " <br> Sobex"-and <br> summer

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## Ask your local Earage for full tarticulars or write for folder to:-



## AROUND THE TRADE

The increasing business of the Runbaken Magneto Co., Ltd., in Newcasile-on-Tyne las made it necessary for larger premises to be taken, the new address in that town beng 29, Ridley Place.
Mr. W. H. Lymas of Alfred Giraham and Co., asks us to advise his many friends in the trade that correnpendences normally sent to him should be addressed to the conpany, as he is leaving firs the United States, on July 26th, in connection with the American company

Mr. Bermard Norris, well known as a successful compelition driver of Rhode cars, has opened up in bushess as liermard Norris, Ltd., Autumobule Agents, Ecomomy Huns:, 13 rand Street, Birmingham. He is the sole distributing akent for Rhode cars in the counties of Warwickshire, Wurcestershire and Staffordshire.

We are advised that Ward and Drislell, Ltd., of 36 . North Audlev. Strect, Iondon. W.1, sole concessionnaires for the
 The address of the service department is still Slide Worlis, She!don lioad, Cricklewood.

In coranection with a recent paragraph in "Rich Mixture," relating to the choice of a camera, we are advised low The
Service Co., Ltd. 273.4 Hight Holborne Londun Service Co., Ltd., 273.4. High Holborn, Londun, W.C.2,
that, as they ave also light car specialists, their photorimphic department should specially interest our readers. fo whom they will be pleased to afiot the benefit of their wide experij; ence.


A group of Exide service agents - part of a large gathering recently convened at Hencion.
Messis. Barmar. Itd., of 14.18, Lamb's Condnit Street, Landon, W.C. 1 , inform us that they reccive almost every day at least one consignment which does not bear the sender's name. Among the parts they lave on hand received without the sender's name are some valves from Peckham, a piston from Sleaford, another pistun from Nottinglam, as well as heavier parts, including a set of cylinders, an aluminium crankcase and a large gearwheel. If any of these parts havo been sent by our readers, will they please communicate at once with Messrs. Barimar?


## TERMS TRAVESTIED.

Solution to No. 20.
A splendid entry was received in comnection with this competition last week, both with reference to numbers and originality of suggestion. The winner proved to be Mr. M. E. Moseley, Knowle load, Marple Bridge, Stockport, whosn solution was "Overgeared." "'wo :ngenious efforts specially Leserving of mention are,
An overheated 'crask' case," and
"Phews" (fuze), neither of which is, however, so directly applicable to motoring to be called a motor term.
One of our most persevering readers, who has sent in an ontry practically every week, this time suggested " $\boldsymbol{\Lambda}$ Furred hadiator," and other good attempts were, "Time to Change" and "In Wrong Gear." lioaders are referred to our news pages for particulars of a change in the rules governing this competition. The change will take immediate
effect.

## Common Sense Method of Reducing Petrol Consumption is by Preventing Waste

Sucry time the throtthe is closed after running fast there is an overflow from the main jet which is wastedit is abcut half-a-Leaspoonful, and this small quantity mounts no in a month's running. The simple method

## The BINKS 3-jet JET-DAMPING CARBURETTOR <br> saves its owner money because no petrol can overflow the

 main jet when the car is running on small throttle openings.G.N. And LIGHT 2 -SEATER CARS 2 OR 4 CYLINDERS. Owners are invited to send for lists and statement how petrol can be economically used without sacrif. cing speed, and at the same time gaining a truly marvellous fexibility on top zear in Iraffc.
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## MAP OF ENGLAND AND WALES.

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

A.B.C. Gordon Watuey and Co., Lid., 31 Brook St., W I fPhone, May fair 2966 ). London agents. Several second-hand, all models in stock.
guaranted, frotn $\mathcal{L} 100$; deferred paymenta and part exchango. zzz-164 A.B.C., 1921 2-seater, dsnamo lighting, speedometer, tools, all new Michelin cord tyres, taxed lor year, 275 . 21 Pennant Mews, Earl's
Court. 6684 Western. Court. 6684 Western.
A.B.C., sports, fully equipped and as new, 86 guineas, or exchange
motorcyclo and cash. Si Upper Jichmond Kd., East Putnoy. 608-01.a7 A.B.C.s. Choice of $\bar{J}^{\circ}$ Ward and Co., Putney. Itelow
192. aports, dark blue, super tuned engioc, good tyres, absolutely as now throughout, fll6. Helow. dickes seat, clock, specdometer, selfstarter, good condition, $£ 1121$ U. Helow.
1922 aports, fully equipped and as new, 85 guineas, and excbango Ward and Co., 51 Upper Richmond Rd.. East Putney. 'Phone 2754 A.B.C. A P. Rey. 1922 sports model, excellent condition. f97 108. extended terms. 378.384 Eustou IRd. Museum 7600 . 6 . 608.635 A.BC. 95 guincas. Fitted with 2 doora and large dickey seat, just overhauled and repainted, beautilul oder, extended payments and exchanges. White and Mcars, Sa Brick SL., Piccadilly. Phone, Grosvenor
1804 .
A.B.C., 1115,1922 , 2-scater, with dickey, lighting, starter, tas paid. excedingly fost. good Lill-climber. Whale, 36 Jevonshire Mews East, A. C. 1922 2 $608-367$ A.B.C. 1922 2-seater special sports, 8115 also 1921 2-seater and
dickey wath starter, \&ios. Bartleti', 93 Gt. Portand St. 608.714 A.B.C., 1922, Regent 2 -sealer. dickey. dynamo, speedometer, fully equipped licensed, exceptional condition, 110 guineas; exchanges ar deA.B.C., 1921 superenorts, outsido exhaust, $£ 125$; cash, delcrred, exchanges. Railton, Cabliam and Co., Ltd., 5 Cumberland st.. Duansgate
Manchester. Central 2681.
A.B.C., late 1923 , samall 4 -seater, many refinements, all-weather curtains sell-starter, perlect, unscratched, \&140. Apply, 13 Cromford Rd., East
Putncy. S.W. 18.
A.C. Wanted, second-hand A.C. C in part exchange for new models; medis delivery of new models. Caithneas aed Co., Lid. 65 Gi. Port layd St., W. 1 . Tel., Langham 2172.

 A. C. Hoyal. 1923, unscratched, foished blue, inxed Hecember, 608 -m564 car. 240 gumeas. James, over Alexander's. 482 Harrow Rd., Padding-
Lon.
A.-C., 1922 sports model, polished aluminiam body, dynamo lighting. starter, clock, 6 pecdometer, revolution counter, electric horn, disappearing bood, many other extras, exceptionally smart and last, as new
throughout. only wants seeing. \&220 cash; exchanges, deferred paythroughout. only wants seeing, $£ 220$ cash: exchanges deterred pay-
ments. W. T. Uunn. Lid. 326 Euston Rd., N.W.1. Phone. Auseum A.-C. special sports model, 1922. 2-scater, aluminium body, dynamo and startcr. speedometer, revolution counter, elock, excellent condition and emall milcage, £265. Maudes', 100 Gt. Portland St., London. 608.345 A.C., 1922 aluminium sporta, starter, speedometer. rev. countor, taxed
1924, beautiful car, $\mathcal{L} 190$. Clark, 7 Exhibition Mu., S.W.7. 6O8-707 A.C. Black and Finch, 222 Gt. Portland St., W. 1 . hare aporting model A.C., taxed year. lighing and starling. aluminium body mag.
nificent condition. £195. Phoue, Museun 227 . $608-703$ A.-c., 1915, 2-seater, dickey, smart. Royal blue, unnsed since 1919
proots, $608-0169$ A.C., $101 \mathrm{p}, 1914$, 2 -seater, blue, 5 lamps, Smith's specdometer mechanical horn. detachable uheels, good tyres. taxed for year, exce
 Si, W. 1. Phone, Iangham $22 \overline{0} 0$. A.C., £145, 2-seater, with double dickey, latc 1920 . registerel Febru


 A.-C., 1920, 2-seater, dynamo and starter, excellent condition throughout E150; exckange or hire-purcbasc. The Light Car Co, 331,410 to
$\rightarrow 14$ Euston Rd. London. A.C., 1921, 2 -seater, starting and lighting, excellent condition, taxed extended payments. Meara and Bishon, 2253 IIammersmith MJ. Wh. Wi. liammeronith 2230 .
ALeDAYS, 1915 2-seater, dynamo lighting, f50: exchango
purchase. The Light Car Co. 531,410414 Euston Rd.,
ALVIS. New or second hand. Iry Kenlys. The Sole London Uistribu


Readers are referred also to "THE MOTOR" (Tiresday's, 4d.), which contains each week many hundreds of advertiscments of new and secomd-hand cars of all kinds.

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ALVIS, late 1921. 2-seater, electric lighting and Etarter, in first-class

ALVIS, 1924, super sporls, 12-5Chp. fulls and elnboratels equipped, snecinl sereen, shock nbsorbers, etc.. small mileage 400 guineas, or ex



 AMILCAR, 1923 , long wheelbase, coupe, dynamo, 5 lamps, dickes, 5 Rudgo whecls, real loather. clock, specdomotor, spring gailurs, Snecianioid


AKIEL G. Black and Finch, 222 Gh Portlnnd St, W 1. Main London

 AUSTIN 7. Potential purchasers of this make of car. cither new or secoud-hand, nre invited io send their requirements ${ }^{2}$ (the Garago, 12 hand cars wanted urgently. Only thoso in really excellent order. Cash.
 AUSTIN, 7 hp. 1923 (August). fiue .. running order, bargain, $£ 115$ : 6U8-m799

AUSTIN 7 chamms. ready for immediate use, flls, exchanges. Commmings and Simpson, 5 Pciney Bridsc Rd., Wandsworth. Pulnes $2728.08-329$
Austin 7, 1924, 500 miles, orersize tyres, taxed, £150. 37 Went
 AUSTIN 7, April 1923 , Enecial chassis extensions filted hy Austing,
 AUSTIN 7, 1925 , mileaso 1,000 , toxed, 8125 , cash, delinrred, exchanges. Haileon, Coliham and Co., Lid. S Cumberland St. Deansuate,
Manchester.
Central 2681 . Austin 7 hn chummy model, 1923 model, $f 120$. Apmly. the Telephone 1307 I.anchim. 608.711
A.V. Family runabout. fitted with latest improvements, 578.
A.V., 8 bp monocar, in good condition, $£ 25$.
A.V. Motors, Park Ra. Teddington. Telephonc, Kingston 710. Onen
Arit 5 ocloct on Saturdnjs. A.V.: 525 ; oxcuanges, defcrred payments. 1921 A $v_{\text {monocar, }} \mathbf{6 h p}$

A.V. blear. 1921 model, accommodates 2 adults and 1 chikld under same hood. 8 bp J.A.P., 2 speds, reverse, Lucas Nagdyno lighting, specdo meter. x45. Below.


A.V. 2.seater, special sports model, guarantecd to exceed $60 \mathrm{~m} . \mathrm{p} . \mathrm{h}$., Hilished alnminium bodywork and mudgunrds, 3 speerls. reverse, electric
 w
 Cars. Phone, Putney 1827. Andrew's Mctor Mart, 151 White 608.384
AEBE PEUGEOT, 7 hp . 4 -cylinder, water-cooled, good condition, mechanicalls perfect, tax pald. $£ 45$ or oller. 2 Pembray Villas, Cobham,
 BELSIZE.BRADSHAW. Gordon Watncy and Co., Ltd, 31 Brook St

BELSIZE.BRADSHAW, 1922,2 - 2 seater, dynamo lighting, 2 spar
 BELSIZE.BRADSHAW, 1922, 2 -seater Royal bluc, specdometer. gradimeter, step Mat, a
silo. See below
BELSIZE-BRADSHAW, 1923, 2-sentcr, dynamo lighting and acli-atarter.
 Portand St., W. 1. Phone, Langham 2200. GELSIZE.BRADSHAW, 1922 model 2 -seater, dsnamo lighting recently

BELSIZE.ERADSHAW 2-scater and dickcy (reglstered April, J Sical dyamo lighting, self-starter, specdometcr all-weather iquiliment, far, licence pew onnd
Ct. Portland St.
BELSIZE.BRADSHAW, 1922, 2-seater, tan pald for tho year, exsellent $\begin{array}{ll}\text { mechanical rondition, } 90 \text { guincas. } 118 \mathrm{~ms} \text {. Crescent Motor Co., } & 2511 / 2 \mathrm{sil} \\ 608-427\end{array}$
BLERIOT WHIPPET, 1923 model, purchased Felruary last, 9hp, 2


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

BLERIOT.WHIPPET, 1920 , splendidy condition encincer driven, elce-
 BLERIOT-WHIPPET, 1921, 2.scatcr, 8-10hp Nishackburne engine,

 GLERIOT.WHIPPET, 1923, 8hp, 2-sealer, hrancl now, clectric: $\because \%$ htug.
 Ple.tiand ser.
 BUCKINGHAM, 1925, $10 \mathrm{hp}, 2$-scater, dickes, dynamo lighting, all-



CALCOTT cource, 1916, 10.5 hip, dickey, dynamo lifhting, Eelf-utrior
 CALCOTT. 1919, 10hp 2-seater, dickes, dynamo lighting.
 CALEOTr, 1921,2 -seater, dickes. Lucas liphing nid slartw, pecdo lax pald December. \&140. Maudos', 100 Gt . मortland st., Jasylan
 axchange or hire purchase. Thac Light Car Co.. $351.410-414$ (Finctin)
Rd., London.

 CALCOTt, 1923, perfect, only run few milce, © 198: tako matotevele CALTHORPE. Moores Presto, Croydonagents Callhornc cars Yromptest celirers new models whith ellicient scrvice to iollow. Largo stock second
Delerred payments and exclanges arrangell

 CALTHORPE 10hn 2 -scater all-weather, 5 , hetachable whecls, electrio Chornton IIcath 1howo 1572 .





 Pnikers, Led., Bradshawgate, Bolton; also 246-52 Dran gate Gos-655 CALTHORPE, late 1923, 2-scatcr, run under 5.000 miles, annearance

 e1.30. Strelton and Smith, 12 Woorlshock St., Oxford St., Londan. 608.381 CALTHORPE 10 hp 2-scater, 1921 model, self-starter, trres lil:c new,

 worth Motor Exchange, Elincr St. Wandsworth (Town Station). 608-682 CARDEN official repair depot.
All spare for Carden cars stocked; completo overhaula underlaken. Send
 CARDENS. Cardens. Carilens. Again wo reneat that wo handle moro eccondband Cardons that any other form in the trade. A dizen to Nect iroll at prices from $\mathbf{x 2 5}$ to fos. Think it over-a nice litho 2 . lighting, hood, screcn, horn, etc, etc., cost little to run, and can be 151 Whito Mart Lane, Barnes.
$608 \cdot$ ड85
CHARRON, 1915 , 9hp. 4-cylinder aturdy 2 -scater, new hood, 5 inter-
 Rd., Woodford, E.18.
CHARRONLAYCOCK, $1922,10.5 \mathrm{hp}$, 2 -seater, dickoy, dyanmo lighting


 CITROENS. Try Iicnly's You cannot bent their terms. 91 and 155
GI. Portland St. W. Waylair 4201 .

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

 CITROEN. Antocars, Letd., authorized ngents. Exchanges and de-

 CITnOEN, 1922 , 11 hn A Aater in sound condition throughout tax
 CITROEN, 3923, 11.4 , de luxc 4 -seater, lizhting, sfaring, speeda neter,
 Gl. Jotliml Citroom. Wi II loncs and Cis anthorized agents offer
Cl55. ] 1 Ahp (imoon, 1922, 4-seater French de luse body. speedo-
 under 3.UU0).
e265, 11 4 lil Cilroct, 1923 English coupe, 2 -seater and dickey, tax Exchngers arme checrai jeferred terms arranged. 7197 Masfair CITROEN, 1922 , Ls bat Lul the year. self starler, electric lighting.


 CITROEN $19237511 p$ 2-srater, slarting and lighting, aplendid condition


 CITROEN. Smith and IIunter have anteral shap sailed and second-hang Museum 8136 slock, prices from . 125.90 GL. Purtiand St. 608-455 citnoen, $1920-21$, 10.5 , 4 -sealer, lighting and etnrting tinx December. 608.h288

 CLYNO, 1924 10.8lip de luxe 4-jetler, used anly for a few demenser
 CLYNO, inte 1923, 10.8 , occasional 4-senter, indistinguishable from now, lleult linl:ting and starling, all-wealber eqnipment, hood cover, full Greon. 608-041 CLYNO, 11 hp, lato 1923 , occasional 4 , all accessorice, condition as new. guaranted mileaga 2,000. fully taxed and insurance, price £ 185 . wris
 COVENTRY-PREMIER, 1921-22, 2-seater, in perfect running order and conditıon. run 2,538 miles, 875 . Stevenson's Garage, Tunbridge Wells.
Tci. 425. COVENTRY-PREMIER, ふै-wheeler, Tuno, 1921, in good order, run 4.000 miles only, owrice having larger car, dynamo limhting. sparo wheel and tyre, 3 nearly now tyres, rar recently done up, cose e2655, Erice s.75: open to offer. Apply, H. S. Wood, Bult Meadow Garage,
Excter. COVENTRY-PREMIER, 3,922 , 4-whenler, just overhauled, good tyres,
 COVENTRYPREMIER, 1921 , 3 -wheeler, 2 -seater, dickey, dvnamo lighting, spare wheel, everything in excellent conditiou, nny tria), E65. Can
be seen nnd tricd at Jackson's Garage, Kendal, or Mount Pleasant, Gatebeck, near Kendal.
COVENTRY-PREMIER. F.O.C I. T.th, offer 1922 Corentry-Premier 2 seater excellant condition, tax paid, bargala. 5 Heath St, Hampstead
(uear fube). COVENTRY-PREMIER, 4 -whecler, water-cooled $8 \mathrm{hp}, 3$ speeds, renerse,

 | White Jrart Iano, Barrcs. |
| :--- |
| $1008-587$ | COVENTRY-PREMIER, 4-wheel modet, dickey, dynamo lighting, spare

whed, ctc., as ncw, £65. C.S., Clayhall Tavern, Old Ford Rd., Bow 608-×185 COVENTRY-PREMIER, 1922, 4-whegter, 2 -seater and dickcy seat, dy-
 CRESENT. smart e-seater, IOhp, wec, running order, drive awas, must ecll, c20, seen ovenings or Saturday. 198 Gipsy Rd., near Crusial $608-0180$
Palace.


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

CROUCH, $10 h p, 1923$ Economic, 2-seater, dicicy, light bine, black wings, dynamo lighting selt-starter, specdometcr, dash lamp, all-weathar coupe, petrol can and carrier, car in practically new condition fully
cquinped. $\& 165$. Melmes and Mel)es (Established 1893). Tho Original equpped, R165. Nebes and Mehes (Established 189S. Phone, Janghain DEEMSTER, 10hn, 2-seater, romy body and dickey, bluc, sparo wheel,
 DEEMSTER, 1924, 4-seater, all-westher, long wheclunse, lightigg and starting, specdometer, revolution counter, clock. special oif gavze, ungol-
 DEEMSTER, 1920, 2-seater, dynamo and starter, excellent condition. t85: exchange or hire-purchase. l'he Light Car Co.. 331. 410.414
Euston Rd., London.
$608-750$
 hinaiion or solo cyclo part. balance extended pasments. W. T. Jefwards.
Canton. DERBY S. 1922, 2-seater, roomy lušame hoot, Smith's clock', aucedometer, C.A.V., 5 lampa, dynamo, mertect ordur, 55 m.p.h. rery smart toria 1138 . D.F.P., $1923,8.5 \mathrm{bs}$, English 4 seater body, real leather upholatery, Etarter, all-weather equipment. splendid order, 165 Guineas: exchanges or
defercel. Edwards, 175 Gt . Porthad St. voUCLAS 1921 2.feater, dickey, dynamo lighting, etarter, tax paid, hhis sircet orer 14 ycars), 12 Cornwall Tice. Mews, N.W. 1, rear Haker
st. Tubs Station. Phone, Langham 2953. EnIC-CAMPEELL 2 -seater, oluminium Lody, dynamo lishting, Lax naid.

ERIC-CAMPEELL 1523 1Ohp o-seater, dicley, epecial de luxe allweather model, 2 spare whecls, Hartiorde fitted nil rannd, just becn orerner of gild medals in J.C.C. and Mic Cet trinis, in splendid condition.

ERIC-CAMP日ELL, 1922, 10 hp . special errall 4 -seater, starter and light-
 ERIC-LONGOEN, 1923. 10hp, aports 2-seater, polished alomininm, red chassis, speed $50-60$ m.p.h. inlly equipued, 5 detachable wire wheels. hood. specdometer. electric lighting. shlendid condition. Wiliamge Five-
wents FIAT, 1921 . 10-15, 2 -eater, repainted, in excellent mechanical condition, shove, Ken. 5301 .
'Pa
G.N., 1922 , 8hp, 2 -seater and dickes, special Frazer-Nash ah.f engine. dynamo, speedometer, clock, side corlains, shock absorbers, 2 horns. spare wacel, ctc., exceptional conditon, gule Below.
G.N., 1922, 8hp, 2-seater and dickey. djnamo, epeedometer, clock, sido curtains, spare wheel, ctc., excellent order, 75 Euineas: exchanges or de-
ferred. Edwards, 175 Gt. Portland St.
$608-4 C 6$ C.N. spectalists. Ilepairs: spares of erery description in atock; largese service agency in Midiands. The Redditch Garages. Lid., Eedditch
zzz-546
Pbone 117 . C.N. Several gooll second-hand G X.s, touring and Fitesse, 1920, 1921 , 1922, for sale. Wuarc southera service shicion for thde cars. Experi GN. mechanics. All spares stocked. The I'astgate Garage and Works. C.N. 1921 Jegere, new chn?amy hods, coach painted nary, new side
 specty, econamical car. wearest ulfer ft5 41 Vairlawn Ave. Chiswick. 609 -m485
Phone, Cliswick 248 J . G.N., special racing model. winner of 7 silver cups, 34 medals, silver cup oest performance any car London-tand's End, 80 m.p.h. guaranted. 4 speeds forward, numerous spares, $£ 70$ just spent in renewals and apecial parts, cost owner $£ 235$, will accept $£ 150$ or close offer: any trial: Pl., Eastbourne. Eivias up racing on medical advice. Nole, 608-m983 G.N., $\boldsymbol{e} 52$, exchanges. deferred pasments. 1921 G N. 2-seater, hood, gcreen. clectric lamps, elock, speedometer, nice conditiou. Seabridge. 35
Hansler Ru. Enst Dulwich. Sydenham 2452 . $608-338$ C.N. 1921 2-seater, Letcss dynamo lighting. npednmeter, coach-nainted
 C.N., 1921, dynamo, spare whel, specjometer. Dunlop cords, mechanica change motorcscli ard cash. 51 Upper Richmond Rd. East Putney.
$608-0138$ G.N. 1921, 8hp, dynamo lightige (Lucas) spare whect good tyres. G.N., splendid coudition, fiJO. Apply, 367 Italles Rd. Manor Park. E. 12. .

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

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

C.N. 1920, 550 , liceneed and insured, dsnanio lighting, variable igntivin and jet, less controls, enfine urerhanted by (i.N.g good condition,
G.N., late 1922, all in good condition, sell cheap. Spurling. 8 Courtliop Gid., Gospel Oak, M1ampstead, N.W. З.' 608 -ol98
 G.N. Black and Finch, 222 Gt. Portland St. W. 1 sole concessiontoursis $x 75$. 1922 Vitesse, nll-aluminium boat-bhaped bods


 G.N.. dynamo lighting. taxed, specdometer dome wings, special bonnct



GRAHAME.WHITE, 1922 , special built body with dickes, domo wings, stp board, wlass windscreen hood. aluminiunl whecl discs clectric light-



 W08-0155
 esaler, nice condition througbout, £100. North Essex Motor Co. 608.666
walden. Phone 16 .



GWYNNE 8. 1923, chummr model, speedometer, rear apron, fully
 CWYNNE. Autocars, Ltd., district diatributors, New models in slock.
 GWYNNE 8, 1923, Jecater, sell-starter, clock, speedometer. fast and
 EWYNNE 8.
Reigate. Surfey. GWYNNE 8, the fuper lifht car of unequalled performance. Alderton, GWYNNE 8, 1924, 4-seater, all-weather, speedometer. starter, new car,
 HAMPTON, 1920 , 4-seater, dynamo and starter. Mulliner body prico Euston Rex., LLondon.
HANOS, 1922. 10hp, 2-seater, double dickes. dynamo lighting, belf-
 hargnin, $\Sigma 115$. Wilkins, Simpson, opposito Olympin, Loudon. 608 -m992
Hammersmith 238 .
HANDS, 1922, 10hp. 2-seater and dickey, starting and lighting, perfect


HILLMAN ears offcinl repaircrs, London district. J. C. Brodie. Itd 94a Chesnc Walk, Chelsen. London. S W. 10 . Telephone. Kenainkton
3200 . All spare jarts in atock. Wellequipped works.
$650-\mathrm{d} 292$
HILLLMAN, 1922 , poris model, nolished aluminium bods dramo lightIof. ${ }^{2}$ spare wheeli, clock, speedometer, many other extras. very nice

HORSTMAN 1924 , 1230hn Anzani engine, 4 -ncater, fouring model
uphotstercd in real leather, apare wheel, tool, 5 lamps speedometer, clock. electric horn. dash lamp. uggage grid: thim car has not donc

HORSTMAN, 1921, 4-seater, dynamo and starlor, fully lifensed $£ 75$; Naxchango or hire-purchasc. The Light Car Co., 351, 410.414 Euston
Rd., London.
$608-740$

HUMEERETTE, 535 or nenrest, aircooled, clectrio light, perfect oriler bargain. 10 Erigh: St., Darlington.

HUMBERETTE, 8 hp . 1914. w.e.., $2-3$-seater, fully rguinped and in
 dowETT. Potentinl purchaners of this make of car. cither new or
 hand cars wanted urectily. Only those in really excellent order. Cailh.
$609-4$

## LIGHT CARS AND CYCLECARS FOR SALE (conlinued).

JowETT, 1925 , 2 -seater, doublo dickey, tax Maid, specioneler, all
weather enuipment, all tools, etc. 120 guiucas. 161 Bowe 12d. N. 11 "Phone, 19 Palmers Lireen.

 JOWETT F.O.C.II., Ltd., the Jowott specinlists, oifer 1924 Trim.te
 JoweTt, 1923. 2.seater, diekes, hotled un, Nith Snecialloid Mivons,
 Porliand St., W


 LAGONDA. Potential purchasers of this make of car. wither mew 126

 LAGONDA 1920, 11 hp , minll 4-seater, dynamo lighting, elertr, ant delerred. 63' solon Rul, Brixton.

 LAGONDA, 12 bn , 1924, 4-ecater, gres, black winge, dsmamo lighting.


 LAGONDA, $11.9 \mathrm{hp}, 1915$, 4 -sealer, excellent condition, any (tial, Iront
 hood, bargain. 65 guineas: exchange considered. Write, B. 54 Abhny $608-0249$
Rd. New Malden.
 LAGONDA colupe, 2-seater, dynama lighting, 1915, very goond condition barrain $x 50$; also Zenith carbureller, whit oflers? M. 20 Grove Villas.
N.13.
 MAMLBOROUGH, gho, 4-rylinder, smonie 2 -scater, painted aluminium,

 MARSEAL, 1924 , 4-senter. moderate milengo, dynnmo lighling rna starter,
Londion-weather equipment, ${ }^{-1555}$. Maudes; 100 Gt . Portland st $608-344$
 $\begin{array}{ll}\text { cte., } \\ \text { London by appointincnt. Boston, Piddington, Oxiordshire. } & \text { nxfory or } \\ 609-0217\end{array}$
MATHIS, 1923-1924, very special 8hn 2 -seater snorts, fitted with every conceivable accessory and to all inients and purposes new, f 245 ,
 MATHIS, 1922 . 8 hn , 2 -seater, 4 -speed, slarter, dynmmn lighting. year's hicence. Enlendid order, 95 guineas; exchanges or delerred. Fdwards. 175
Gt. Porlland St.
$608-401$ MIOLAND,
sacrifico, 59 guincas.
2-senter and dickes,
51 a MORGAN specinlisis. James and Co. (Sheffeld), Ltd, 263 Ecclesall Rd, Sheffield. Telephone. Central 2460 . Good stock of anares carried. stock.
MORGAN Service Denot. OWicial appointed repairars hy the Morgan Motor Co. for London. Full range of spares carricd New and second-
 MORGANS, aew and second-hand, from 535 ; exchange, deferred Clevo land Garage, Ackworth, Yorks.

教 MORGAN, J.A.P., a.-.., 1915, dynamo, hood, кcreen, speednmeler, etc., new chaing, bearings nnd hark yre, thoroughly overhauled, repainted.
excellent condition $£ 45$. 83 Sisters Avenue, Clapham Common, S. W. 11 , $608-032$
morgan, de luxe, 1923, 10hp water-cooled M.A.G., Lucas dynamo lichling, taxed. carcfully used, 100 guineas. 44 Harberton Rd, Upper
liolloway. N. 19. Holloway, N. 19.




SECOND-HAND<br>LIGHT CARS AND CYCLECARS FOR SALE (con!inucd).

## 





 MORGANS. Ifom:- have the fullowing Morgans for disposal, abl 1924 de line w.e..., E:r-cooled J....H., dynamo, brand new, yurple, frora 1925 Family nif..coical Anzani, Lucaa self-starter and dynamo lightin:̆.
 1922 Gravd I's,. M. I G., dymamo Jighting, specdometer, grey. s95.
 Ang of the nl.... mathma, cinn ho supplied on deferred ferms. Vour
 MORGAN de low M A fi, dark lilue, gerlect condition throughout, Gallinglam, Ku, $\quad 608-\mathrm{h} 287$ MORCAN, (i P
 MORGAN, 192., (iravid Prix, Inlly equipned, mileage 3,000 , f100,
 $608-656$ MORGAN, 1916 Grand prix, JA $P$, lighting set, good conditlon, - Phonc.

MORGAN, 1921, de luxe, 10hp M A G. water-cooled, dynamo lighting,
 MORGAN, 1923, da luxe, 101 p w.ec, M AG., dsmamo lighting, speedometer, dash hglats, otc.a cti, L105. 136 Wanstead Park Avenue. E. 12 .

 MORGAN, 1913, G. P., electric lighung. discs, alumintum pistons, hood,
 MORGAN, 1916 , air-coolecl J. A. P' dynamo liphting, laxed, recently renanded and overhauled, running perlectly, f60. Sereral olher tricars, Dunting Molor Exclange, Wenldatono, Middiasex. ready drive nosky MORGAN, 1919, air-cooled J.A.p.e.excellent running order, many new MORCAN, 1923, G.P. Anzanl w. C., dynamo, clock, apeedomater, shock absorlera, excellent condition, Guod tyres, \&98. Sclfe, 5 Marlborough
Itd., Watford. MURGAN, 1923, do luxe, water-cooled Anzani, electric light, horn, marteat Morban built, very last, aljsolutely perlect, sizo. Bullo. 65 Drayton Gardens, s.w゙10. MORR1S-OXFORD, 1914 , 2-scater and dickoy, C65, cash, deferred, exchanges. Itailt on Cobharn and Co., Lid., 5 Cumberland Se., Deansgate. NEW GARDEN, 1925, 2-seater, searecly been need, $\boldsymbol{x} 50$.
NEW CARDEN, 1923, 4-seater, in spledid condition, f55: easy terms arranged. Androw's Motor Mart, 151 W'hito Hart Imnc, Barnes. $608-386$ NEW HUDSON, N゙ovember 1922, 1Ohp w.o. M. G. englne, dynamo Nebting, bluc, in excelleat order, $£ 85$. Orchard, 112 IIigh st., Aylma-
jury. DEUGEOT 1916 2-seator, 8 hp. excellent condition, e65. Mill, 90
Vadelcy IRd., Ealing.
609018 PHCENIX, 1920, 2-senter and dickey, starting and lighting, now teres ilf round, boatsiful condition throlighout, $\& 90$; oxcbanges, extended

QENAULT 8hn 2 -door English coupe (registerci March, 1924), 2 months hldl, painted blye, bluo leather upholelory, leather, -ead, dickey, starter, alloor tyres, electrio rear narning sign, clock, $\begin{gathered}\text { bpeedometer defercel. } \\ \text { imence. nsw }\end{gathered}$ Edwards, 175 Gt . Portland St. 6 ge8-402
RHODE, 9.6 hi, 1923 , all-woather saloon, dynamo lighting, self-starter, spedometer, clock, dahilamp, 5 lampa, jotrol ran and carrier, lucgege


RHODE, 9.5 September, 1922, dynamo, speedometer, Rappa gaiters, Dixon adjustablo jot, Lennox extra sir and other extras, m. 2. 609 -miseo RICHARDSON light cars. Sparo parts in stock. Richardsod's, Mitithorpe, vear Shellield.

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

RICHARDSON, 1921, ${ }^{2}$-acater. with dickey, 8bp, Apcels, reverse, Clectrac
Barces. RICHARDSON, 1921, 2 -seatcr and dickey. £45. casho. delecred. ex-
 RILEYS. Guaranteed by the Riley apeciallata Exchanges. Lewfo Motor RILEY, 1923. snorts, 2 -seater, exceptionally fine condition, small mile-

 noven, 1922 , enlendid condition ${ }^{2}{ }^{2}$ spare ${ }^{\text {trases }}$, side curtains, mirror,
 ROVER, 1923 , 8 hr, couno, dynànoo, sell-starler, clock, apeedometer, real changes or delerred. EJwards. 175 Gt . Portland St.' 130 guincas $608-407$ ROVER B, 2 -seater, with dickey, late 1923, starter, speedometer, shock cartully wad absoluzely £125. Owuer, ड Surbiton Hill P'ark, Surbiton. $608-43$
 Macbange or hirepurchase. Thu Light Car Co., S01, +10.416 E08-757 Rover 8, 1922, tate, do fuxo modal, splendid condition, taxed DecemWer, X90. Jawes, over Nerauders, 482 Harrow led., Paddingtong 608 -691
 341
1998
$602-347$
6
 ROVER, 1922,8 hp, 2-seater, dynamo, overhauled, s82. Barlletlis, 93
Gt. Portand St.
60821 ROVER, 1522, 8bp, oxcellent condition, R80, tas paid. 29 Alma Ru.
 ROVER 8, 1923, 2-ecater, very small mileage, rood lyres, good mechant caly and in appearance, taxed Deccaber, \&88. 30 Harold Rd. NurHOVER 1921 8hy 2 -scater, dickes, speerlamoter, taxed for year. nics
 naw, Baracs, S.W. 13 (aujouang IIammersmith Bridge).
ROVER, 268 ; exchanges, deferred payment, 1921 Rover 8 hp 2 -seater. dynamo, hood, screen, 5 detachables, nice condition. Seabradge. 35
Honsler Rd., Enst Dulwich. Sydenham 2452 . 608 - 39 ROVER, 1924, 8hp, 2tieaies, dickey, tuished blue, many pxtras fayed tor yenr, \& $155 . W$ Boon and Porter, Lid, Rover Agents, $159-161$ Castel- 608.676 ROVER, 1922, dynamo Mghtiag, Epars wheel, Michelin cables through out, bood, screen, speedomster, clectric and bulb borns, etc., and year tax paid, '£78, no oficrs. Delancey St. Garage, Camden Town, N.W. 1,174 ROVER 8, late 1922, 2-acaler, dyramo lighting and starter. 2 gnaro wheels, spectomater, mirror, hido curtains, ctc., taxed for year, excip-
tionally nice condition throughout, f95. 31 High St., Harrow. 0 obool85 ROVER 8, late 1923, double dickey, dynamo lighting, practically new. under 2,000, buying larger car, Largain, f110. Woodcate House. RoVER 8, 1923 llatel, taxed December ingured April, 1925, estraordinary bargaln, £110: after 6 p.in. 147 Ejborough St., Southtelis.
S-W.18. AOVER 8, lato 1931, dickeg scat, taxed vear, insured, speedomoter.
 ROVER 8, with dieikey sast, 1921. Jynnmb lighting spare wheel, taxed,
 ROVER, 8 hp 1921, lighting set, spechometer, painted gres, cecellent
 ROVER, deliverad new Septamber. 1923, 8hp, de luxe coape, self-starter. dickey scat, doue $2,00 \mathrm{O}$ milea only, bargain, fil40, exchanges or easy
terms arranged. Cummiggi, 101 Fulhan Rd., London, S.W. 5.608 .670 ROVER, 1922 model, 8 bp 2 -seater all-weather equipment. tax paid. barCain, fad: exchanges or casy terms arranged. Cummings, 101 Fulham
lid., $608-669$ ROVER 8. The 1 rampton Engince-ing Co offer another special bargain this week. We hare fust taken in jart exchange for a larger car an and insured for the year, nll-weather equipment. condition indistinguish Wjok, Nidulesex. lhone, Kingston 202 .

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 ROVER, ${ }^{1922}$, 8hp, dynamo lighting, ghass side acrecns, ppecdometer,
 ROVER, 8 hp, chummy model, 1923 mollel, s 105 . Apply, Thic TelcPone Motor Wukab Ihlu., 15b Allsop Place, Uurer Baker Slo. Wo. W, ROVER de luxe, 1922 81p, leather upholstery, clock, fpeedometer,
 मOVER 1923 8hp 2 -ecater, dymamo apectometer, sicio eurlnins, excelW.c. Muscum 6594.

 ROVEA 日, hato 1921 , bluc, aluminium bornet, dickey, new hood, good
 SALMSON. Appls to tho London distributors, Gordon Watney and Co. changer and special delerred terma arranged. 31 Brook St., London W. 1. Phone, Maslair 2966 .

SALMSON. Mann and Mandover, Lid., authorized agents for Salmion
 SALMSON, 1922 (Angnst), de luxe. dhekey seat, dynamo lighting. taxed
 SALMSON, late 1922, 2-ccater. aluminium, with black wings, long, bonnet. dynamolightink, good condition, e995. Lilley, Mghburnham, North
wond. Nidóleser. Phone, 36 Northwood.
$608-0193$ SALMSON, lale 1922. de luxe, all. weather, nickes, dynamo, epmedomeler,

 SINGER, 1914 . 10 hn . 2-erater dynamo lighting ededric barn, bulb
 SINGER. 1 OhD 2 -scater saloon'with cickes, upholstered Redlord cord

 6 Solan Ru, 608 bilis8
 SINGER. 1924, 10 hr . 4 senter do luxe, abaclutely as new, $8225 ;$


 aINGER, CB5; exchnngea, deterred Havments, very nice 1919 -20 Singer


SINGER 1914 10un 2-geater, dicker, dsnamo, 5 delachablo wheols and

 SINGER 1921
$93 G t$ Nortiand St. SINGER 19162 seseater. dsnamo lightlng detachable wheels, exceedingly
 SIHGER. 1 Ohp. coupo Doay, smart litho car. excellent running order.
 SINGER and other mall cars. See our diswlaw adeertisement. page 24.
Nole our new address: Beamotore, $30-32$ IUgh St., Wandswort. Bnt Nole our new address: Benmotore, $30-32$ ILgh St., Wandsworth. 608 Bnt-
ierra 1509 . SINGER, 1921 cenpe, sedistartor, 5 lamps, owned by a lady, as new. 78

STANDARD. Nomres Presto, Crosdon agents SInndard cars. Promplest delivery new models with officient service to tollow. Large rtock sccond-

STANDARD 9.519142 -seater, completely cquipned In first-class running order, low price acecpled. K. Lankester, 39 Eden St., Kingsinh.
zzz- 100 STANDARD, 1923. 9.5. 2-seater, with double dickey, lighting piarting
 STANDARD 192411 6bp 4-Eenter, dynmornd stanct, fully lleeneed,


## SECO,VD-HAND <br> LIGHT CARS AND CYCLECARS FOR SALE (conlinued)





 STANDARD, $9.5,1920$ 2-senter, dickey, fully equipned, juet thorongily
 STANDARO, 1924, 1J 4, 4-acater, vers small imileage, pracheciosio tax phid, 2210 . Bclow.


 STELLITE, 1919, overhauled and renainled, guaranteed fint-clase order
 SURREY 1521 cnummy A acater, 20ap Corentry-simplex, years tax, 986. Denaman Motor Agency. 4 Deaman
 SWIFT. Moores Presto, Crojdou agents Swill ers Promptey duwnry







 TALBOT, $8.18,192 \overline{2}$ 2-senker, dickes, djanmo lighting, starter, tax pald dixecllent order and atpenannce. $£ 160$ cnsh or $£ 55$ down, balance
 TALBUT, 1924. 10-23, 4 -seater, with many extras and special fittings, ng new, 255 , wincas a another, unseratched, delivered November, 482 iInrrow Md., Paddingtou.
TALBOT, 1923, 8lip, do luxe model, 2-scater dickey, new mondition,
 TALBOT 1925 8-18hp 2 -seated coupe, dynamo and startar. evellent
 TALBOT, late 1923 , 4 -senter, 10.23 , slarting and lighting, all-weather
 TALBOT 192410.23 4 seater, latest madel, elock, specdometer, all
TALBOT 1924 10.23 4-senter, all-weather equipment, clock, epectometer, year's licence. superb order, 285 guineas, exchanges or doterrel. TALBUT, 1923 , 8-18, de luxe 2 -scaler, many extran, $\& 175$. Strelton and Smith, 12 Woodstock St., Oxford St., Iondon. 608-382
 TALBOT, 1924, 8-18, 2-gealer de luxe all-weather, donble dickey:
 ralBot, 1923, 10-23, 4-geater, lighting, startcr, full equipment over-
 TAMPLIN, 1921,8 hp J.A P, 3 -speed Sturmey gear, in crecllent conilition; ofters wanted. Service Motor Co., Cambridge. 608-631
 Md., linst lutney. ur exchangu motorcycle. S1 Upper 608 -0136

TAMPLIN, 1 YL2 (Auguat) miaroon, 2-scater (sido by side), BhD JA ${ }^{\prime}$. 0 apeeds, reverse. chain drive, electric lampa, retyred, taxed Uecenber.
 TAMPLIN 19228 hp 2 -seater (sile-by-side), 3 -speed and reverso, dys 175 Gt . Portland St. T.B., 3 -wheel car, 1921, interchangeable wheels, 1 sparo, 3 -specd and
 TEMPERINO, 8 9hp, 2 cylindera, alr-cooled, overhead raives, 1921 Dutwich, S. E.t.

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TURNER, 8.9, counc, 2-3.senter, dynamo lighting, detachable wheels, at-
 vimot posle. Dorman engine, very last, eloo; cash, deferred, ex-
cbanges Railion Cobham and Co., Lid., 5 Cumberland St., Deanagate, ancbester. Central 2681.
 dinky litlo car, sacrifice 25 皆ns. exchango motorcyclo. Wandaworth
Motor Exchange , Ebncer St., Wandaworth (Town Slation). $608-683$

 only c24U, unus price © 268 . Barnett. Pambroke and Slater, Led. ${ }^{38}$ WOLSELEY Poteatial parchasera of this make of car, elther now or

 WOLSELEY 7, owner-driven, late 1923 carelully handled, condition absolutely perti-l, small mileago, soml-coupe body, bluo, allerationi and
 WOLSELEY, 1924 , Johp modele da luxe, now, but only slightly obow-
 WOLSELEY, IVAS, 2-scater and dicley, quarantecd condition, all extras, $£ 150$. Cummirgs and Simpmon. 5 Putney Bridge Rd., Wandsworth.
Putncy 2728. WOLSELEY 7, late model, mechatalcally merlect. Waldron. George 8t, 608 , 209 Wolseley. J. 9 Wood bas lor aale IOhp Wolseley 2 -seater car that

 'Phone. Viciorth
 ZEERE, 1922. Bhp, 4-acaler dynamo and tarter, spcedometer, fully equipsed. taxed lor year. \& 130 ; any Lrial. North Essex Motor Co.
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31 Brook St., London, W.1. Phonc, Maylair 2965-2966. zzz-660 AUSTIN, Immediato dellyery 7hD elcetric atarter, f165: exchanges

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