


# Motorists and Public Garages <br> W. BOYLE <br> Editor of The Gavage 


ometimes moterists complain that their instructions for repars or adjustments to be carried out to their cars are not attended to by public garages. The fauit is not always that of the garages.
Motorists are inclined to regard any mechanic or other employee whom they first encounter in a repair works as competent to receive orders direct from customers. In any well-managed garage this is not so, for it is obvious that justrictions must pass through the office if they are to be property recorded and executed under supervision.
It is therefore important to ask for a member of the staff of a garage who has authority to accept instructions and advisable to see that he makes a written note oi the details, so that there may afterwards be no difference of opinion as to what was ordered to be done.
Many up-to-date garages now make a point of confirming all instrustions for repairs, an ncknowledgment form being made out while the motorist is giving the order, which he is then asked to sign. 'This system is obviously to the interests of all concerned, for a copy of the form is retained by the garage, and there camot be any subsequent misunderstanding.
If a car has to go into a repair works and remain there for longer than a day, all loose artucles should first be remored and left at home. Odd tools and other articles lying about in the door pockets and under the nest cushions are a source of much worry to garage proprietors; not because of pilfering, but because such oddments easily become mixed up with their own or other customers' property. The owner should, if the car is likely to be in dock for two or thrce days, go over all the
detachable equipment that is on the vehicle with one of the garage staff, and agree it written list with him.
This system is greatly to the adrantage of both parties, for not only does it mable the rarage people to have cverything ready when the vehicle is to be fetched away, but it also prevents the owner himself from making the mistake of insisting that, a tool has heen misappropriated when, in fact, the tool was not on the car when it was sent in. Of course, any special implements, such as valve and hub-cap spanners, should accom pany the car on its going into dock. A garage proprictor has a lien on any car for work that he may do to it ; that
 is to say, he is entitled to retain possession of the vehicle until his account has been piaid. When dealing with a garage where one is unknown, the usual banker's or other substantial reference should be given, if credit is desired, so as to avoid delay in delivery when the repairs are finished.
Practically every garage concern disclaims, by notice and by conditions printed on their stationery, all responsibility for damage caused by fire, theft, or road accidents. Motorists need not worry much aloout this, for their own insurance policies, if those policies are on standard lines, cover these risks. If, however, a car is not insured, the owner should ask the garage management to have it covered temporarily, and should at once pay the appropriate premium; it will not be a great sum. The disclaimer does not relieve a garage proprietor of responsibility for damage calused by the neglgence of his men; what is "negligence" is a question depending on the circumstances of any' given case, but, roughly, it means failure to take such care of the property in his charge as a reasonable man would take of his own goods.

# PRATTS <br> PERFECTION SPIRIT <br> Uniforns everywhere <br> Reliable always 

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D. A. 318 .
paense neier to "the light car and cy clecar " in your hettens io adverinsers,



Designed and built by Armstrong Siddeley Motors Ltd.
(Allied with Sir V. G. Armstrong Whitworth \& Co., Ltd.)


All Morgans gain Gold Medals in A.C.U. Stock Machine Trials with the new

## STEPNEY

 HEAVY ROAD-GRIP CORD TYRE Extract from "The Light Car and Cyclecar":-"On the afternoon's run heavy rain made the surfaces most treacherous, the STEPNEY HEAVY ROAD-GRIP CORD COVERS, which were not assisted by chains, succeeded in gripping the greasy track very well considering that they had been through such a severe gruelling."
 THE TYRE WHICH GOES ALL THE WAY.

Manufacturers :
STEPNEY TYRES LTD., Llanelly, \& 170. Gt. Portiand St., London, W.1.
 proved. All Prices Guaranteed till October 1st.

Petrol Consumption : $39^{-1} 1 \mathrm{~m} . \mathrm{p} . \mathrm{g}$.
Oil Consumption : 2,000 m.p.g.
Speed round Brooklands on completion of Trial48.91

Seabrook 9•19 (Occasional
Four) $\underset{\text { - Price }}{\mathbf{~}} \mathbf{2 5 0}$
This matter, in so far as it refers to an R.A.C official trial, is approved-H.H.G.
New Model $12 / 24$ SEABROOK DE LUXE, with frent wheel brakes, full cantilever springs, right hand gear change. 3 -piece screen, antique English leather upholstery, Michelin Comfort tyres, etc. Without front wheel brakes ... £295
SEABROOK BROS. (Est. 1896), 57, Great Eastern Street, London, E.C.2. BURNLEY LEEDS - Auto Express Engineering \& Transport Co., 160, Woodhouse Lane.



## STANDARD MODEL £198

de luxe model £2 10 Tax $£ 9$.

## ARJEL

10 H.P. 4 CYLINDER

MIME.SSIONS: Oierall length 10 ft .10 in ., orerall width 4 If .10 in . Weight ENGEt. For-eylinder, water-cooled, bore 60 mm . stroka 97 mro . Crank haft supported on three bearings. Lubrication by pressure. Pressure Gauge on Dash. Lucas Magneto. Smith's Crirburetter. Clutcb-conc. GEARBOX: S-sperls for-
ward and reverse. Side control in gaic. REAR AXLE: Spiral-bevel drive fited with diflerential. SPRINGS: quarterelliptic. Iront and rear and wheol. BRANES: hand and fol. beth acting on rear whecls. WIEFLLS
 Dunlop Clippor Cord Tsres. Lacag Draman Threc-lamp Lighting Set BoDY: single shell lour-seater. Dooble-panel windscrenen, nll-wcather hood nad sido cu
tains, horn, liconce-holder, etc. Coach painted crimson lako or dark bluc.
DE LUXE MODEL: Same specibeation ns abore, but completely equipped, in. cluding: Lucs Fivelamp Set, spring gaiters, Iucas driving miror, hood corer, foor mat, ocreen wiper, Hush fiting trip tspe Smith speedometer.

Sead for Cataloguc.

## BLACK \& FINCH, $\mathrm{L}^{\text {º }}$

222, GT. PORTLAND STREET, W.1.
'Phonc-Musenm 2271.
SOLE LONDON DISTRIBUTORS.
EARLY delliveries.
MODELS CAN NOW $\operatorname{bI}$ VIEWED AND TRIAL RUNS ARRANGED YOUR OLD CAR IN EXChANGE. deferred payments.




CAN BE RELIED UPON UNDER ANY CONDITIONS OF SERVICE.
Their scientific construction ensures this, hence their great popularity.

THEY ARE FITTED ON ALL THE LEADING BRITISH CARS AS STANDARD EQUIPMENT.
W. GOODYEAR \& SONS LTD., DUDLEY.

WHEN REPLYING to advertisements, mention "The Light Car and Cyclecar." It helps the


## $A B J E L$ <br>  <br>  <br>  <br> -that is what it costs to run the "ARIEL TEN"


Not the least of the many "ARIEL" advantages is its low running costs, which place it well within the reach of thedamily man of moderate means. The "ARIEL TEN" is a most economical car, yet the service it affords compares very favourably with that of the larger and higher priced cars.
PETROL - - 45 m.p.g.
OIL - - - 1,500 m.p.g.
TYRES (Dunlop) 10,000 miles.
STANDARD MODEL
£198
DE LUXE MODEL £210

Tax 89. Lucas Electric ' Iarter
£ 12 extra to either model.

Send for Catalogac. ARIEL WORKS LTD. Selly Oak, BIRMINGHAM



PROTECT jour passenger with a
"STARLING REAR SCREEN."
It will fit your car, no matter what the size or make.
Your friend will enjoy the open road behind a "STARLING," because it gives complete protection and a ciear riew. Order at once, you can have immediate inelivers. All that is is necessary. is to name the mane of four car. A STARLNG., which will only take sout a few minutes to fit, will then be despal chied to you per return.
We are confident you will be pleased with the STARLING, therefore. we invite you to irs one at our expense, oul our SATISFACTION OR CASH REFUNDED principle.

The "V" 4 -Pavel. Celluloid Screen with Standard Fitting.

## PRICE - £3: 7: 6

With Sliding Fitting $10 /$ extra.
Supplicd with Black or Khaki Apron.
The "Empire" 6-Panel Glass Screen is scientifically coustructed for strength and gives added distinction to ally car when fitted.


Nickel or Black Finish.

$$
\begin{aligned}
& \text { Our Illustrated Booklel will fell sou all about } \\
& \text { our Screns. it is vours for the asking. }
\end{aligned}
$$

THE STARLING CO., LTD., "L," Empire Works, Highgate Road, BIRMINGHAM. distribetors:
-Hobday Hfos.: Ltd.
LONDON: Fred. W: BItrray. SHEFFIELD. Timson Bros.inse
NEWCASTLE ON:TYE



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| 1924 MOTOR CA |  |  |  |  |

The small advertisement columns of "The Light Car and Cyclecar" form a unique marl for the disposal of all goods of inlerest to small car users.

# Bayliss Thomas unc <br> ILIGHT CAR 

## Immediate Delivery．

$10-23 \mathrm{~h} . \mathrm{p} . \mathrm{t}$ ．cyl．，water－cooled， $63 \times 100 \mathrm{~mm}$ ．， 1247 c．c．．forced feed lubrication Comfori－ able，well－finished coachwork．
We most strongly recommend the Bayliss Thomas and invite your inspection and trial．

Yourpresent car， and－or terms of payment will receive attention．

Delivery from stock，from the West End Distribulors－

Trade Supplied．


> B. S. MARSHALL LTD., i7a, Hanover $\begin{aligned} & \text { Sq. } \\ & \text { MMayfair } 5906 / 7 .\end{aligned}$

AGENTS for－Beniles，Bugalti．Singer，and Standard． $\qquad$ $\square \mathrm{Cl}$
$\square$ $\square \square$



## Is gear changing your greatest difficulty?

## PRICES:

10.8 1.p. Two-Seater Staudard Model ... 200 gns. $10.8 \mathrm{~h} . \mathrm{p}$. Two-Seater Coupe Model ...
$10 \%$ L.p. Four-Seater Staudard Model ... 225 gns.
10.S L.p. Four-Seater De Luxe Mode ... 255 gns. Syuchronised Four-Wheel Brakes on "H " Models, £10-10-0 extra.

It is most probably. Every owner of a G.W.K. is an expert, because the operation is so simple -a novice can make a clean, noiseless change at the first attempt. There are other charms, too, of friction disc transmission as embodied in the G.W.K., which must be experienced to be appreciated. Hill climbing has no terrors for the G.W.K. 'owner, because there is a gear for every gradient. There are no teeth to crash, no clutch to burn out. Think what this means when you are touring in unknown country. The G.W.K. is the "different" car -therein lies its fascination.
G.W.K. Ltd. (Saceessors to G.W.K.(1919),Led.) CORDWALLES WORKS MAIDENHEAD Telephone . . Maidenhced G2. London Distributors: 0 54. Whitcomb ${ }^{\text {Streot, }}$ W.c.2. Agents: W. W. DARTON, R. THELYETREES,


## Little Pictures by Pen and Sun ON THE ROCKS BUT NOT SHIPWRECKED



This delightful little snap at Brimham Rocks shows the extraordinary utility of the JOWNETT.
It can be handled equally well by my lady as by her lord, who "pays the bill."
And the paying will not place his finances "on the rocks."
No other can be run for less. BUY HER ONE


## IT COSTS ONLY £168

> JOWETT CARS, LTD., IDLE, BRADFORD.


T N loading a car you don't try to put more weight on one side than another. You try to distribute the load evenly. It is more comfortable, and better for the car. Carry this argument to your tyres. When inflation is uneven, when one tyre is too hard and another too soft, the body balance is upset, steering is more difficult, and the
 endency to skid when brakes are applied is greater. Apart from these disadvantages you lose many miles of tyre wear through incorrect inflation.

Balance your car by making sure that the near side tyres are inflated to the same pressurc as the offside. You can do this with the "Schrader" Tyre Pressure Gauge. This records the air pressure instantly in lbs. per square inch and you can tell in a moment if your car is balanced. You get increased riding comfort and maximum tyre mileage.
The price of the "Schrader" Tyre Pressure Gauge is $6 / 2$. From all dealers.

## Other " SCHRADER" Necessities.

"Schrader" Valve Caps; prevent valve leaking and seal in the air. "Schrader" Valve "Insides." "Schrader" Dust Cap: covers the entire valve and keeps it clean. OI all dealers.

Be sure it's a "SCHRADER": look for the name. (Regd. Trade Marh.)
'A. Sclirader's Son, Inc. Offices and Main Distribution Stores, 26-29, New Street, Westminster, S.W. 1
Schrader
Makers of Pneumatic Valves Since 1.674 Tyre Valves - Tyre Gauges

## CONSISTENT RELIABILITY

BRITISH EMPIRE EXHIBITION
see our exhibit int the MOTORECYCLE SECTION palace or cncineterinc WEMBLEY April-October 1924

EXHIBIT Nos. 116-117

## The R.A.C. Small Car Trials

gained for the

## 12/24 h.p. Lagonda All-

 weather Saloon Model "R"
## A SILVER MEDAL

in Class "G."

The Lagonda which was the only Saloon Model entered in the Trial, put up a wonderful all-round performance with a speed of 48.51 m.p.h.-a petrol consumption of $34.9 \mathrm{~m} . \mathrm{p}$ g.-an oil consumption of 5 pints 13 ounces, and NO LOSS OF MARKS FOR RELIABILITY. In fact, "The Lagonda Saloon ran like clockwork throughout the Trial."

Vide "The Light Car and Cyclecar."
Prices from £295

Full particulars from apy ixotor . Igency orn
LAGONDA LIMITED,
195, Hammersmith Rasd, London, W. 6 And at Staines, Middlesex.

WHEN REPLYING to advertisements, mertion "The Light Car and Cyclecar." It helps the advertiser and you, and assists the small car mocement generally.


IFrite for descriptive booklet-

10 h.p.
SINGER
$£ 50$ down.
(Balance to suit your convenience.)

No References; No Bills; Absolute Privacy Guaranteed

Speciffeatlon of th'r wonderful Yalue
for Money Model Includes: 10 h . for Money Model includes: $10 \mathrm{~h} . \mathrm{p}$. 4cyl. oyerhead valve enginc. Tax E10. Inoor four-seaterbodies, upholstered in real leather, electric lighting and
starting set. 5 lamps. Dunlop cord tyrea. All. weather equipment. Including back screen, etc.

ANY MAKE OF CAR SUPPLIED ON OUR UNIQUE CREDIT SYSTEM.


10 h.p. Singer De Luxe, £235


10 h.p. Saloon, £275

Telegrams:
" Runabout, London."

## H. B. COOK LTD.

202, Great Portland Street, London, W.1.


\section*{Coun SNCER and be satiefied

\section*{A Story of Satisfaction

## A Story of Satisfaction from THE TENNIS COURT.

"ITH a SINGER at my service, I have no cause, these days, to dress in haste, arriving hot and flurried on the courts, completely 'off' my game. No longer does a foot-weary enthusiast tramp home tired and weary after many 'hot' sets. All that sort of thing is relegated to the past. The service of the SINGER makes all the difference to my own 'service.' No 'faults' with either of us. She's 'game' for anything. A 'deuce' of a fine car. Time was when sodden courts after rain took all the zest from the day, but now, whilst courts are drying, we pack up our troubles in the SINGER and go off for a joy-ride, seeking health and pleasure in a different way. Plenty of room for the 'mixed double,' we're a happy, comfortable, contented lot, serene in the service of the SINGER."

Here's a Singer to suit every taste.
10 h.p. Popular Two-Seater, £200. 10 h.p. Popular Four-Seater, £210. 10 h.p. De Luxe Two-Scater, £225. 10 h.p. De Luxe Four-Seater, $£ 235.10 \mathrm{~h}$. p. Saloon, Weymann Body, £275. Rotax Lighting and Starting Equipment. All Singer cars can be purchased on Deferred Payments through any Singer Agent. Ilfustrated Catalogues and full particulars sent with pleasure.

SINGER \& CO., LTD., COVENTRY.
London Showrooms: 17, Holborn Viaduct, E.C.i London Service Depot: York Works, Brewery Road, Holloway, N,

## The Story of the Singer is always a Story of Satisfaction.



TO the man who "knows a good thing when he sees it," the

## CROUCH

 Thelve / Thirty h.p. at $\mathcal{L} 295$is irresistible. You cannot buy more for its price of 1295 -you caniot get in any other car for the money, or anything near it, the "life," the real power, the refinement; or the quality, or the completeness in every way of the CROUCH. Compare the Crouch with anything you like at the sume piice, or more. There can be no more decisive test-and youll be bound to admit that the Crouch comes out of it with more than oredit. Let us put you in touch with fae nearest CROUCH agent.

CROUCH MOTORS (1915), Ltd.

Tower Gate Works, COVENTRY
${ }_{\substack{\text { Cowentry } \\ \text { B19 }}}$




## G.N.Limited, a new company,

anr.ounce a car of surpassing performance, having a chassis with the G.N. chain and dog-clutch transmission and a 4 -cylinder 11.9 Brilish Anzani Engine.
The Sports Model is
guaranteed to exceed 70 m.p.h.
and the Standard Model 60 m.p.h. Improvements in the chassis include ball-bearing front hubs, anchored bevel housing, silent universal joint in clutch shaft, etc.

## PRICES:

SPORTS Model, with electric lighting set, Smith speedometer, adjustable screen, hood, and polished
aluminium 2-seater body
$£ 285$

STANDARD Model Equipment as Sports $£ 250$ TWIN-Cylinder, Air-Cooled Model, iU h.p., equipment as
above 198

Send for particulars to:
The II-9 G.N. has been entered in only 2 events: one car in the London. Land's End, and one in the London-Exeter.

Both gaised
GOLD MEDALS

> G.N. Limited, East Hill, Wandsworth, S.W. 18
G.N. BallBearing Sets forfront hubs. G.N.Repairs and Spares for all G.N.'s
Original G.N. Service Scheme still maintained.
G.N. Safety

Hub Caps.

is renowned for its long life and trustworthi-


## MODELS AND PRICES,

10 h.p.2-seater with Dickey or "Chummy " C?35 10h.p. ${ }^{3}$ Coupe- $\frac{\mathrm{C}}{2} 205$ ness under the most arduous conditions. Thus it evidences the excellent design, workmanship and material devoted to it. Some of the pre-war two-cylinder Swifts are still giving every satisfaction in strenuous daily service.

Here is what the owner of one of them writes :-
Buckinghamshire, 28/4!24.
"I must again thank you for having met we so gchsrously in the matter of spare parts for my old Saift car. I was informed aftervards that the parts wocre not really requived as the old ones only required readjustment. Though I had visioncl a nere Swift car for this year I an afraid that the Herculcan strength, wonderful longevity and continued reliability of my cld car will not alloz me to throw over its services while it still promises to go on and on. Long before I had it, it apparcutly belonged to some vigorous Scot in the Highlands, and cven now it goes up freak hills on top gear and the monotonous consistency of ils two-cylinder beat strikes shame into the hearts of those medern car ozuners who happen to be BEHIND!"

The 1924 Swift Models are better value than ever. May we send you the new Swift Art Catalogue?

## Manufacturers:

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SWIFT OF COVENTRY LTD., COVENTRY
London Depot:
133, Long Acre, W.C. 2 .
15-17, South King Street.
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# STILL SCORING! 



CHAS. JARROTT \& LETTS, LTD., 40-41, Conduit Street :: :: $:$ London, W.I. Telephon:-Gcrrard 5594.7.
TO THE READER.-Bu mentioning " The Light Car and Cyclecar" when replying to
what about the R.A.C. Small Car Trials? which entailed fines of hundreds of pounds for the slightest deviation from standard.
In these Trials the RHODE proved once again its 100 per cent. efficiency, for with only two cars entered it gained

## Class C (£170-£205) Silver Cup and Gold Medal (only car to finish). Class D (£205-£240) GoldMedal

(first in merit of the only two Competitors who finished out of eight!) and petrol consumption - in Class C $36.8 \mathrm{~m} . \mathrm{p}$ g. and in Class D 394 m.p.g. Now it's time you looked into this. Let your Rhode Agent give you a demionstration. His name is on this list.

RHODE MOTOR Co. TYSELEY. BIRMINGHAM


Ficlill

## Bayliss Thomas

TRIALS work is far more exacting than motoring for the pure joy of the thing, yet the Bayliss Thomas is as much at its ease when scaling the heights of Lynton or Beggar's Roost as when purring along the Great North Road. For power, acceleration, and flexibility its engine proves a revelation to everyone who sits behind the wheel of a Bayliss Thomas car. May we give you a demonstration of its capabilities?
In the London-Land's End Trial 2 Bayliss Thomas Cars entered. Both were awarded Gold Medals.


THE BOY
FILBER
sERVICE SIMILES No. 4.

ABOY put his hand into a pitcher of filberts and grasped as many as he could hold, but could not withdraw his hand because of the neek of the pitcher. His mother advised him to try taking a few outata time. This he did, and soon emptied the pitcher $r$ MORAL: DO NOT ATT MPT TOO MUCH AT ONCE. If you want © LIGHT CAR and feel you connol alford to pay out tho Whoie yum, do not seconvonicace yourrell by doing soo buu inke advan-
 baslance in easy notalment
This system is so eaty and the payments can be quito small and spread over a number of month, to that you never notice the cost. Abiolute secreey assured, as we do all our own E.P. busincss.
WRITE FOR FULL DETAILS.

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|  | or Four - Seaters |
|  | DE LuxE : £172-8-0 |
|  | Delivery on Deposit $£ 34$ and |
| YMMEDIATE DELIVERY O |  |
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| ARIEL, 10 h.p. 4 -Seater. Marcon All above ceas hive All-weather rouiomentElectric Starter-Five Lamps and Socedometer. |  |
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|  <br> MORGAN: 8 h.p.. Grand Prix. Red... … .... 天 148 <br> All above cars have Dynamo Lighting with three lo p pa |  |
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| DEFERRED PAYMENT ORDERS placednow can be executed for WHITSUN. |  |
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| ANY MAKE OF NEW CAR SUPPLIED A Good Kange of SEC ND.HA D CARS is always available-write stating requirements. |  |
| SPECIAL BARGAIN. |  |
| 1924 ROVER DE LUXE. Latest. type 2 -seater with dickey. Clock, Speedomcter. Taxed for year. Only done 3,519 miles ... ... £ 147 |  |



$\mathfrak{\sigma}$HE Royal Automobile Club always recognise outstanding merit and created a

## Special Prize

 and bestowed it upon the 10 h.p.
for its unequalled performance in the 1,000 Miles Small Car Trials
SPECIAL GOLD MEDAL
for CONSISTENT RUNNING
HILL CLIM BING and
CONDITION after TRIALS
SILVER MEDAL in Class E.


This is what the Lea-Francis did :
Made fastest time of the day irrespective of class in 10 out of 11 officially timed hill climbs.

The IIsll Mavk of Quality.
BRIEF SPECIFICATION. cylinder engine $63 \times 100$. Thermo - syphon cooling; pump lubrication: magnelo ignition, electric starting and lighting, 5 lamps, 3 speeds, reverse; cone clutch. Right hand gate control: $700 \times$ So cord tyres; spare wheel and tyre, tools, side curtains opening with doors, etc.

MODELS AND PRICES: 10 h.p. Family Mode! (ocecasional oun reater. complete wi th sellin5 etc. 250
10 h.p. Coupe (folding hood). complece ${ }^{5}$ with sell-starter. sineedometer, 5 lamp iel and $1 . .1825$
10 h.p. Two-sester with Dickes. omplete with self-warter, soecda. merer. 5 lamp sel.
ele...
250
10 h.p. Coupe (fired head), comple'e with self - starter. specdo-

55.55 miles per hour at Brooklandshighest speed in Class E.
Petrol consumption, $35 \cdot 4 \mathrm{~m}$.p.g.
Lubricating oil consumption, $1,600 \mathrm{~m} . \mathrm{p} . \mathrm{g}$.
Under a Bond of £250 we guaranteed the R.A.C. that this car was in every detaileven to carburetter setting and engine timing-exactly similar to that supplied to every purchaser of this model. Just one of our ordinary production cars.
At the end of the Trials the car was in perfect condition-nothing broken, nothing loose, nothing lost.

## LEA - FRANCIS QUALITY COUNTS.

Exhibit No. 280, Bay 32, Motor \& Cycle Section, Palace of Engineering, Brilish Empire Exhibition.

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# MAXALDING MAKES YOU FIT WITHOUT DRUGS OR APPARATUS 

## READ BELOW THE ACTUAL WORDS OF A FEW OF THE THOUSANDS OF CASES THAT HAVE BEEN TREATED SUCCESSFULLY BY POST.

Age 4T. "Constipation cured. Sleep more refreshing, and I do not feel fatigued after undue strain as $I$ used to."
Age 23. "Indigestion has ceased; appetite increasing. I am beginning to lose that teeling of fear that 1 experienced so much. The head pains have entirely yanished."
Age 28. "Development is improving rapidly: mental concentration rood; insomnia. depression and languor yanished and replaced by almost dynamic enerky. You have my eternal gratitude.'
Colonel, age 4t. "I consider the exercises as laid down by you superb for the body. I have discussed your extraordinary system with my officers, and some of them propose enrolling as your students. They are interested in the wonderful difference in me already."



A SKILLED

Age 32. "My confldence which was almost nil is now great. I have not had a recurrence of mental depression for weeks. My Nervous system, to my great joy, is getting stronger eyery day. Sleep better, health bettor, and step more "buoyant."
Age 75. "I have not that tired feeling that I used to have when walking. 1 am teeling benefit from Maxalding.'
Age 39. "I have put on muscle and weigh 16 pounds heavier. Reserye energy has greatly increased, and I can indulge in my favourite sports without any ensuing feeling of exbaustion."
Age 52. "I feel a lot lighter on foot and indigestion is quite gone. A flannel band I used to wear round my waist now falls over my bips, so you can judge there is a difference. "
You can find out all about maxalding
and its application 10 your case by writing a letter, or striking out the unnecessary items on the coupon. adding your name, address, age and occupation, and posting it to-

Mr. A. M. SALDO, 40P, PALL MALL, London, England.

BY AN EARLY POST OR MAIL, you will recoive an ILLUSTRATED EXPLANATORY BOOKLET, 10 gether with Mr. Saldo's pertonal diagnosis of your case.


## THE

## PETROL ENGINE

## A Manual of Motor Mechanics.

 UNIQUE work, dealing in simple language with the secrets of engine tuning for speed, power and economy, and the tuning of carburetters of all makes, and for any purpose.The functional working of an internalcombustion engine is also dealt with in a complete and concise manner.

Send for this free booklet containing useful information, and giving particulars of many other books on motoring.

## TEMPLE PRESS LTD.,

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Wholesale Agents:<br>E. J. Larby, Ltd., 30, Paternoster Row, E.C. 4



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The Jational ATotor Tournal
Features of this week's issue of "The

## Motor," May 27th.

A 2000-MILE TRAVELLING DEMONSTRATION?
An interesting suggestion-Motor-shy Walee-Where Pcople still Travel on Horseback. By John Cilpid, Junr.
NORMANDY IN BLOSSOM TIME
The legends and antiquities of Calvados-The Mecca of ArtistsA wonderful old lan By R. D. F. Paul.
TROUBLE-FREE ENGINES.
Improving the durabilisy of sparking pluge and valves.
REQUIREMENTS OF A GO-ANYWHERE CAR. Some interesting experiences on hilly router. Cooling. brakine and gearing problems.
THE LUBRICATION AND LIFE OF BEARINGS. Why a hard shaft wears more rapidly than its soft bearing. Factors affecting durability.
NEW CARS AND CARS TESTED ON THE ROAD: The 21 h.p. Lanchester, the $12.30 \mathrm{~h} p$. Six-cylinder Ta:bot, the Bean Fourteen, the new 20 h.r. Arrol-johnston).
VENTILATING THE ENCLOSED CAR.
Foul air extracted autematically and without draught. Ingenious device.
DETACHABLE DISCS FOR SPOKED WHEELS. Special features of the ace spun aluminium discs. Device illustrated.
PROPOSED RIM FOR LOW-PRESSURE TYRES. The Cooper one-piece atraight-sided rim.
A NEW AUXILIARY GEARBOX FOR FORDS Silance and easy changing chief features.
THE TOUR DE FRANCE.
Remarkable reliability in strenuous 2,400 -mile Trial.
LESSONS OF THE SIX DAYS TRIAL. Outsfanding performances and some faults criticised.
THE FOURTH VESEY CUP TRIAL. Sealed bonnet trial notable for remarkable fuel consumption.
EALING AND DISTRICT M.C.C. BROOKLANDS MEETING.
A new Alvis Sports Model wins two racer.
A SIX DAYS 1,250 -MILE AUSTRALIAN ALPINE TOUR IN WHICH BRITISH CARS DEMONSTRATED THEIR SUITABILITY FOR OVERSEAS USE.

Special featurea of next Tuesday's issue of The Motor, the Whitsun Holiday Number: RECOMMENDED ROADS AT WHITSUMTIDE. Showing alno roads under repair or in bad conditina. THE HICHWAYS OF THE ROMANS AND HOW THE EXPLORING MOTORIST can trace THEM TO-DAY.
SWITZERLAND'S MOST BEAUTIFUL PASS.
the elan valley waterworks.
One of the beauty ypolt of Wa'ce.
NATURE LORE FOR THE MOTORIST.
all about the whitsun holiday events.


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IINCOLN MCEGUSTRALIA McFARLA
MOON MOON
MORT
METEOR:
PAIGE PAIGEJENETT
PEEREESS -
PIEDMONT
PREMIER
PRESTON
RIDDLE
ROCK FALLS: R. SVEKNIGHI :STEARNSKNIGHT STERLING- KIGHI STEVENS-DURYEA STUTZ YEILONTAXICAB AND OTHERS

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In Classes $C$ and $D$ the Rhode Cars, also using "CASTROL," secured first places and
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[^1]"The Light Car and Cyclecar," Mav 30, 1924.


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## Notes, News and Gossip of the Week.

The R.A.C. Trials.
As announced exclusively in The Light Car and Cyclecar last week, D. Chinery (Gwynne) was the winner of the $£ 250$ cup offered for tho most meritorious performance in the R.A.C. six-days' trials. The complete official list of awards gained by cars with engines of less than 1,5C0 c.c. capacity is given in this issue.

## Supercharging in Italy.

It is generally believed that Continental manufacturers have considorable faith in superoharging dovices, but we undorstand that, so far as Italy is concerned, the Fiat Co. is the only prominent manufacturer expressing a direct interest in these devces.

## For Theatre-goers.

In responso to continued demands, we liave reprintod The Jight Car and Cyclecar "London Theatre Guide," which, in addition to a comploto list of thantres and a block plan showing their locality, gives a detail list of garages in the West End area which cater especially for theatre-going motorists. Copies of the guide will be sent free on receipt of a stamped and addressed envelope. and quantitics up to 50 wili bo forwarded to garages, etc., on application.
No. 601 . Vol, XXIV.

## LIGHTING-UP TIMES

for Saturday, May 31st, 1924.

$$
\begin{array}{lllr}
\text { London } & . .9 .34 & \text { Edinburgh } & 10.13 \\
\text { Newcastle } & 10.0 & \text { Liverpool } & \ldots 9.57 \\
\text { Birmiagham } 9.47 & \text { Bristol } & \ldots 9.44 \\
\text { Dublin } & \text {... } & 10.10 &
\end{array}
$$

Lighting-uptime (rearlights) in England, Wales and Scotiand is half an hour after sunset, and in lreland one hour after - sunset.

Moon, New Moon, June 2ad.

## Thou Shalt Not Covet!

 Speaking of motorcars, Lord Sumner is reported to have said recently, "I doubt if any invention has done noro to sow, to water and to ripen a feeling of jealousy between classes." But surely this applies to every luxury beyond tho reach of tho multitude. Does not a cigat "ripen ar feeling of jealousy" in the heart of the vagrant collector of cigaretto onds?. And do not costly iurs and jevellery arous 3 feeliugs of anvy asmong those who cannot afford them? Oi course they do, but are not such feel ings often akin to ambition?Scottish Show Date Altered.
It has been considered in some quarters that the Scottish Motor Show, held in January, comes too late, and, now that the Olympia Show has been advanced to early October, it is felt that the interval between the two national Shows is too great; therefore, the date of the next Scottish has been fixed for November.

## Lower Tax Next Year?

Nearly 100 Members of Pariiament, who are also members of the A.A., met at dinner in the Houso of Commons recently; all political parties were well represented at tho gathering. 4 dis* oussion took place on the question of motor tavation, the trend of the speeches indicating that the basis of taxation should be altered from the present system to a duty on motor spirit, but it was recognized that a radical change such as this cannot bo brought about at present. It was, however, the view of nearly all the speakers.that light pneu-matic-tyred vehicles were at present over-taxed, and that they considered they were justified in asking for the inclusion in the Finance bill of a reduction for next year of 25 per cent. of the existing tax.

## One Guinea Offered

Our Motor Travesties competition, in which readers are invited to supply tho missing titlo of the sketch representing a well-known motor term is catching on. Instead of the artist's original drawing, we now offer a weekly prize of one guinea to the sender of tho first postcard bearing thu correct solution (beginning with No. 14). No solutions aro judged before 11 n.m. on the Salurday morning immediately following publication.

Royal Air Force Pageant. Readers are reminded that tho fifth Royal Air Force Pageant will tako place at the Jondon Acrodrome, Hendon, on Saturday, June 28Lh. 'This year It is hoped to introduce new features, which should make the display even more comprohensive and attractive than on previous occasions. Presumably there will be ample accommodation for cars.
Air Cooling in the Tropics.
Mr. Tet Riley, the youngest of the woll-known Coventry motoring family, writes from the Gold Coast, where he has been shationed for some time past, and says-how much the has been impressed by the performance of air-cooled cars in the district. The water-cooled cars apparently havo to stop about every 50 miles to rcplenish their radiators, wiaich are then nearly at boiling point, while the little air-cooled Rover twins go plugging along merrily without any trouble whatever.

## Great Dolomite Road Open.

The London offices of the Italian State Railways and State Tourists' Depart. ment announce that the Great Dolomito Road (fiom Bolzano to Karersee, Cortina d'Ampezzo and Dobbiaco, about 90 muiles), passing through the leart of tho fanlous Dolomite country, is now acces. sible for motor trafic. The snow cleared nway about-a fortnight earlier than usual, on account of the warm and sunny conditions that have prevailed for several tweeks past. It is amticipated that the Stelvio Pass (the highest rond in Europe, 9.051 ft .) will be open by the middle of June.


MOTOR TERMS TRAVESTIED. No. 14.-Query : What is the Term?

We offer a prize of One Guinea for the First Correct Solution. See an accompanying paragraph.
(The solution to last weeclis picture will be found in " Around the Trade.")

Trials Inquiry.
Wo understand that a committee has been appointed by the Gloucestershiro Standing Joint Committeo to inquire into the question of reliability trials, hill-climbs, otc., held on public roads.

## Light Cars at Clipstone.

Two Morgans, driven by R. Blaka and J. Silvester, competed in the A.-C.U Speed Trials organized by the Huddersfield Club at Clipstono Drive. They wero successful in gaining first and second places in tho passenger machina "General" class up to 1,100 c.c., the speeds being $76 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. and $75 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. while Silvester also gnined third place in the Manstield Club Championship.

The Most Northerly Club? A new association, known as the North of Scotland Motor Union, hits been formed for the purpose of hold ing trials, competitions, elc., amongst motorists in the North. The Union is made up of a number of affiliated clubs, and the president of the Union is the Hon. James Stuart, M.P. Full detai!s can bo obtained from Mc. William Law, Junr., 87, High Street, Elgin, N.B.


Generously equipped, this new Rhode two-seater and dickey body, mounted on an $11 \mathrm{~h} . \mathrm{p}$. chassis, will sell at $£ 235$.


CLYNO OWNERS
"GET TOGETHER."
B16
On Sunday last Stonebridge was the scene of a very successful rally of Clyno owners and their cars. Altogether there were twenty -eight Clynos present. The example might be copied.

## Insuring the Car.

The Royal Automobile Club is now in a position to effect insurances with all the leading companies, and every assistanco will be given to members in carrying out the necessary negotiations. Tho insurance department is situated in the now touring offices at 83 , Pall Mall, London.

## Skegness Speed Trials.

Five cballenge oups are among the 11 trophies offered in connection with the Skegness neck-and-neck-motor races, to be held on the foreshore on Weduesday and Thursday, June 18th and 19th. There are classes for touring and sports models up to 1,500 c.c., up to 3,000 c.c. and also unlimited. Both scratch and handicap events will be arranged. We leam that the course is in even better trim than last year, and there is sufficient room for four cars to run abreast. The event is being promoted by the Skegnoss Advancement $\Lambda$ ssociation. Entries close on June 4hh, and forms can be obtained from the secretary. Mr. R. J. G. Dutton, Councll Offices, Skegness.

Petrol Tax in Sweden? Tho Swedish Government has introduced a Bill proposing it tax on motor spirit. If the Bill becomes law the revenue thus raised will bo used for road improvement.

## The Garage Problem.

Motaring house hunters will be interosted to kno that ampls provision will be mado on the Langfield Eslate, Nazeing, Broxbourne, for soace besido ench house to accommodate ange. The

## Tyre Tester's Mileage.

Of the six mon in charge of the tyretesting flect of cars attached to Fort Dunlop, ne has covered 93,085 miles in the 17 months between November 1st, 1922, and Maren 31st, 1924.

## Developing the Social

 Side.Endeavours are being made by the Junior Car Club, South-West em Centre, to hold a social funclion at the Whito Horse Hotel, Romsoy, after the annual climb at Dean Hill, which dakes place on June 14th. Dinner will probably be followed by music and dancing, and members desiring tickets are invited to communicate with the hon. secretary, Mr. I. G. HayLer, Union Bank Chambers, High Street, Southampton.


Our Cover Picture.
The picture on wio cover this week depiets Swain's Lane, near the Old Gate House, Highgate. The two cars shown are buth staff cars of T'he Light Car and Cyclecict, that in the foreground being a $12-24 \mathrm{~h} . \mathrm{p}$. two-seater Lagonda and tho following car being at $10 \mathrm{~h} . \mathrm{p}$. do luxe two-senter Eric-Campbell. Wo : hope shortly to be able to publish our impressions of the performances of these two cars during the first 5,000 miles of their "lives."

## R.A.C. Issues Wembley Tickets

 Tickets for admission to the British Simpire Exhibition at Wembley are procurable by members and associato members of the R.A.C. upon application to the touring department. This arrangemont has been made with the nuthorities in order that members and associate members may obtain their tickets actually in the Club building without any trouble.Light car users contemplating the nurchase of a new car. have in the small aducrtisement columns of "The Light Car and Cyclecar" a unique mart for the disposal of their present vehicles.
No other journal calers exclu. sively for small car molorists, and for this reason "The Light Car and Cyclecar" is the most effective advertising medium for all goods of interest to them.
estate is within $1 \frac{1}{2}$ miles of Broxbourne Station, and is close to the termination of the new North London to Broxbourne arlerial road, Every house will be detaclied, and the smallest plot will have a frontags of 60 ft . Squire, Herbert and Co., 4, Lencaster Place, Strand, W.C., are planning the estate.

Two views of the 8 h.p. Maximag light car, one of the outstanding exhibits at the Geneva Show. Judging by appearances it is a very neat and workmanlike job.

## Madresfield Speed Trials.

Prominent amongst the forthcoming gvents of the Worcester and District Motorcycle Club is the Madresfield Speed Trials, which are fixed for July 10th.
For South-West Londoners.
Barkers Motors have just opened a very fine garage in Balham High Road, London, S.W. This is fitted with electric charging plant and overhead washing gear suitable for the owner-driver who likes to look after the car himself.


## HUMBER EIGHI AS PRIZE.

The premier award in a competition which bas been organized on behalf of the Coventry and Warwick Hospital is the $8 \mathrm{~h} . \mathrm{p}$. Humber saloon shown above.

To Venice and Back.
"To, Venice and Back in a Twoseator" (Cassell, 6s. net) deals with a rollicking motor trip undertaken by two beginners. The narrativo is humorous and instructive, and can be recommended particularly to those of our renders who may be contemplating a tour on the Continent.

## Information for Travellers.

A complete touring service burean, organized by the Dunlop Rubher Co., at 43; Kingsway, London, W.C.2, is now at the disposal of motorists. Up-to-date maps, guide-books and works of reference may be examined, and the advice of the Dunlop staff is placed at the motorist's service.

## New Four-Cylinder Rover.

One of the most interesting fartures of this issuo is tho dotailed description of the new 9 h.p. four-cylinder Rover, which will sell for $£ 180$ and will be marketed as an additional model to the existing two-cylinder air-cooled car.
Best Roads to the Exhibition.
An invaluablo guide issued by the Commissioner of Police of the Metropolis outlines the best approacli routes from the main trunk roads to the British Empire Exhibition at Wembley; also the ways of approach in tho London area which will avoid, so far as possible, congested traffic centres.
Constantinesco Car on View.
A recent addition to the Palace of Enginecring at Wembley is the famous Constantinesco converter, which is shown mounted into a stripped chassis, and already has aroused considerable intarest. A striking feature of the whole layout is the diminutive single-cylinder ongine by means of which the veliclo is propelled.

## Kerbside Pumps.

A Bill will shortly be introduced into Parliament by Mr. S. Webb whereby kerbside potrol pumps and other measuring instruments will automatically be governed by regulations similar to those oxisting under the Weights and Measures Act. Inspectors will examine the pumps in order to check their accuracy and, if passed, such pumps will be officially stamped.

The Great West Road.
In the Houss of Commons recently Mr. Gosling, the Minister of Transpori,

## The Lycett Trophy.

Three-wheeled cyclocars and fourwheeled cars will bo eligible to compete for the Lycelt Trophy in the Birmingham Motorcycle Club's Birmingham-Linndudno Trial, which takes place on Satur-

Morgan Obtains a "Gold." IF. F. S. Morgan natifies us that tho stowards of the Colmore Cup Trial have docided to allow the clam which ho put forward for a gold medal. The published award was a silver medal.


A ipecial coupe body, by W. J. Hardyman and Co., Ltd., Fulham, on a Clyno chassis. A comfortable double dickey seat is provided.
day, Junc 7th, starting at 12.30 p.m. The trophy will be awarded for the most meritorious performance of the day, whilst, in addition, the club silver cup is offerel for the best performance in eaoli class: there are also gold, silver and bronze medals. Entries close on June 3 rd, and all communications in connection with this event should be addressed to Mr. MI. Turner, 16, Legge Lane, Birmingham.


> LEAVING THE CHECK.
J. L. Murray (Hampton) starling in the second section of the Newcastle and District Club's $24 \cdot \mathrm{~h}$ sur trial to Edinburgh and back.
informed Ll..Col. Howard-Bury that it was intended to mako provision for through traffic from Chiswisk to the Bath Road by June 16 hh. It was not expected that the road would be comploted in all delails for 18 months, as it was necesssury to build a number of houses for tenants who had leeen "turned out" on the line of the road. The total cost of the highway so far had heon 8635.000 .

D18

## Racing at Herne Bay.

A special feature of the motor races which have been organized by the Kent Automobilo Club for June 21st is it special class for novices. Another interesting point is that classes have been arranged for cars with ongines under 800 c.c. Full details can be obtained from the hon. secretary, Mr. F. J. Hyam, Orange Court, Dorno, Kent.

Surbiton Club on Holiday. Following the South Harting Hillcliund, which has been organized by tho Surbiton Club for to-morrow, May 31st, and which has altracted a very fine ontry list, it is proposed to hold a sucial week-end att tho New City Hotel, Middleton, near Bognor. Thoso who aro unable to go to NLiddletou on Saturday, but wish to join the party, should arrive in lime for lunch at one o'clock on Sunday.

The Bol d'Or.
Twenty-ons light cars and cyclecars are already entered for the Whitsuntide 24-hour trials, known as the $\mathrm{Bol} \mathrm{d}^{\prime} \mathrm{Or}$, which takes place in the Forest of SaintGermain, near Payjis. The total entries up to date number 89 , including the motorcycle and sidecar classes. Tho trials should bo interesting this year ins the Saint-Germain circuit is officially recognized by the Automobilo Club do France, and there is a possibility that world's 24 -hour records may bo established. The ovent is organized by the Association Motocyclecariste de Franco.

## The London-Holyhead.

The light car results in the LondonHolyhoad Trial organized by the Ealing and District Motor Cyclo Club aro as follow:-The Maude's Challenge Sliceld for the best performance was won by Rex Mundy on an Ansaldo car. F. A. Longman (Palladium), gold; V. G. Walsgrove' (Riloy Sports), gold ; V. G. Brownsort (A.C.), gold; S. Griffit (A.C.), gold ; P. H. Jones (Ariel Ten), gold ; Mi. P. do Satgo (Riloy Sports), gold; R. Ewen (Palladium), no award; S. Marr (Palladium), silver; J. W. Ewen (Palladium), gold, Ian Mocdonald (Calthoppe), gold; W. White (Lagonda), gold; J. Cocker (Clyno), gold; A. C. NLaskell (Morgan-Blackburne), award under consideration; H. E. K. Sawtell (Morgan), gold ; A. G. Gripper (aIorganBlackburne), non-starter.


TYPICAL " BRITISH EMPIRE CARS, No. 3.

This week's selection of small cars at the Wembley Exhibition is of more than ordinary interest. The Lea-Francis performed with conspicuous success in the R.A.C. six-days ${ }^{\prime}$ trials, the Jowett is one of the most popular small cars on the market, whilst the Wolseley and Belsize have a world-wide reputation. The SuperSports Alvis is one of the most striking exbibits.

# OFFICIAL AWARDS IN THE R.A.C. TRIALS. 

GWYNNE WINS THE CUP. BOTH RHODES AWARDED GOLD MEDALS. SPECIAL GOLD MEDAL FOR THE LEA-FRANCIS. CHEAPEST TYPES SCORE.

TIHE prowess of Chinery's Gwynne and the winning of two gold medals by Rhode cars are the outstanding performances revealed by the official list of awards won in the Royal Automobile Club Six Days' Small Car Trials. The list is published in full on this page, all the starters being shown so that readers may see exactly how they have fared.

It will be seen in the case of four classes, i.e., Class B, Class C, Class D and Class F, that there were only two finishers. In Class F there were only two starters. The most keenly fought class awards were in Classes $E$ and $G$, there being five starters in the former and four starters in the latter.
Tatlow, who wins a silver medal as a class award, has been given, in addition, a special gold medal for the splendid pace he showed on hills, for his consistent running and for the excellent condition of his Lea-Francis car at the conclusion of the trial.
The Class $F$ gold medal might be described as having been won on power-weight ratio, and much the same applies in the case of Class G. In both these classes the gold medal was carried off by speedy performances on the bills, on the acceleration test and on the speed test.

## Marks Lost.

In Class F, Bruce lost a total of 153 marks, while the Galloway lost 590. In Class G Smallwood lost 460 marks, Oates 524, Brimlow 708 and Parker 812. As we forecast Jast week, Gray (Rhode) and Deverill (Gwynne) were very close together in Class D, the actual numLer of marks lost by them respectively being 418 and 486.
The smaller cars did extremely well in Class E, and it is unfortunate that with so comparatively large a number of entries, only two competitors could gain a wards. The marks lost were as follow: Chinery 337, Tatlow 410, Wood 532, Mason 629, Johnstone 741.
The Wolseley would have been still nearer to winning an award had it been faster on hills, on acceleration and on the level, while the Seabrook would also have losi many fewer marks had it not been for a series of minor mishaps which caused a total of 160 marks to be deducted on the score of relisbility. The Wolseley ran extremely well throughout the trial.

Noteworthy for the remarkably small number of marks lost for at tention to the cars either in the depot or on the road are the following: W. H. Oates (Lagonda), D. Chinery (Gwynne), J. S. Wood (Wolseley) and C. Gray (Rhode). In "he order given these cars losi for "Reliability": $10,12,13$ and 13 marks respectively: Next best on this count was H. E. Tatiow (LeaFrancis), who lost 15 marks, while B. A. Hill (Rhode) lost 20.

The best performances on the hills were by H. F. Smallwood (Palladiuni) and H. E. Tatlow (LeaFrancis), who each lost only one mark. Next in order came D. Chinery (Gwynne), who lost 15, C. Gray (Rhode), who lost 57 marks, C. A. H. Mason (Seabrook), who lost 60, and J. C. Wood (Wolseley), who lost 70.
It is clear that in one respect at least-that of petrol consumption -there was room for improvement in the method of allotting marks. In all other tests of petrol consumption it is usual to employ a

formula which takes into account the size of the engine and the deadweight carried. In the case of the trial which has just concluded, however, the question of power and weight was not regarded in deciding the number of marks which each competing car should lose on the score of petrol consumption.
The actual plan adopted was simple but by no means conclusive, entailing, as it did, the deduction of one mark for each threc-halfpennyworth of petrol consumed. This plan favoured the lightest cars while imposing a considerablo handicap on such cars as the Lagonda saloon. In this respect as well as in the marking generally, the results are not quite so conclusive as they might have been, and this is emphasized by the fact that the runner-up for the Cup would receive only a silver class medal if it were not for the fact that the Club decided to award a special gold medal.
Where Lighter Types Score.
Perhaps the most outstanding lesult of the trial is the further convincing proof that in events designed to test roadworthiness and general eficiency, the lighter types of four-whecler score over the larger and more luxurious types.
The Gwynne, which wins the cup in the R.A.C. Trials, was also the joint winner, it will be remembered, of the Westall Cup in the Junior Car Club's General Efficiency Trial, and the long list of successes secured by these little cars is undeniable evidence that they are roadworthy to an extreme degree. The history of the Gwyme dates back only a. matter of three years, and the presentday chassis is almost identical with that which characterized the first car of this make. It has recently appeared as a light four-seater and "sports."
We should like again to draw our readers' attention to the very exhaustive tabular matter relating to actual performances of the competing cars which appeared in last weck's issue of T'he Lighte Car and C'yclecar. These tables, it will be remembered, were published in conjunction with informative articles analysing the tables and indicating exactly how those cars which had engines of less than 1.500 c.c. performed throughout the trial.


WINNERS OF PRINCIPAL AWARDS IN THE ROYAL AUTOMOBILE CLUB TRIALS.
A full list of apecial and class award winners is given on the opposite page. The pictures shown above depict some typical portions of the difficult thousand miles course chosen by the R.A.C. as a suitable testing ground for up-to-date small cars. The cara shown are those winners of principal awards which had engines of less than $1,500 \mathrm{c}$ c. capacity. (1) V. A. Bruce (A.C.) on Erwood Hill. (2) B. A. Hill (Rhode) negotiating a water-splash. (3) D. Chinery (Gwynne) on Bwlch-y-Groes-he was awarded the $£ 250$ Cup for the most meritorious performance in the trial. (4) H. F. Smallwood (Palladium). (5) H. E. Tatlow (Lea-Francis) to whom a special gold medal has been awarded in addition to a silver Class medal. (6) C. Gray (Rhodel.

## REDUCING THE LABOUR OF MAINTENANCE.

## Ways in Which the Tasks of the Owner-driver Have Been Lightened.

THERE will always be a certain number of owners who thoroughly enjoy such processes as washing, lubricating and adjusting - a car, but to the majority of people these tasks are an irksome toll paid for the joy of motoring. This. fact has been realized by manufacturers in recent years, and a number of detail improvements have been made wilh the object of lightening the labours of the ownerdriver.
The all-important question of lubrication has at last come in for due attention, an important step in the right direction being the widespread adoption of grease-gun systems for chassis parts. In this conrection should be mentioned the improvement in the accessibility ff the oil-fillers provided on the crankcase, gearbox and back axle. In some cases the crankcase filters are exceedingly well arranged, so that they can be removed and cleaned without the necessity for dismautling other parts. It must be recorded, however, that in certain instances the removal of a filter is a long and laborious process, and involves the wastage of a considerable amount of oil.

## Fabric Universal Joints.

Noteworthy progress has been made in the adoption of designs which entirely obviate the need for lubrication. A good example of this trend is the substitution of fabric universal joints for those of the metallic variety. The fabric joint is perfectly noiseless, easily renewed, and requires no adjustment or lubrication during its working life. - We may also cite the so-called "oilless" bush in which the fibre surfaces are impregnated with a graphite composition. These should be quite suitable for parts in which very little movement occurs, such as spring

The photograph shows the accessible oil filler orifice and sparking plugs of the 10.23 h.p. Talbot. Owing to the clean design of the cylinder block it can be kept spick and span with a minimum of trouble.
shackle pins, and still further reduce the labour of lubricating the chassis.

It must be remembered that by reducing the number of parts requiring periodical oiling the life of the chassis is materially increased, because many private owners are apt to be lazy, and a neglected part, which ought to have frequent lubrication, is bound to wear rapidly. The use of ball and roller bearings is to be commended for similar reasons, as theso useful devices only require suficient lubricant to prevent rusting and reduce the small amount of friction present between the balls and their cages.

Other parts which require adequate protection and lubrication are now arranged on more sensible and accessible lines, and frequently felt washers are provided, which prevent the ingress of dirt or the egress of lubricant, where a rotating shaft projects from a housing. In this connection spring gaiters should also bo mentioned, as these prevent the leaves of the spring from rusting and retain the grease.


PRESERVING
COACHWORK MADE EASY

A Singer car with Weymann Saloon body. The surface of the "coachwork" readily can be cleaned with a sponge. There is no varnish to crack or blister.

## Two Points of View.

As regards ease of adjustment there are two points of view, one held by the exasperated owner, and the other by the irate manufacturer whose engine may have been irrevocably damaged by undue tinkering. The writer remembers the case of a lorry, the crankcase of which was provided with two wide doors through which the big-ends could be reached. It was found that, whenever the driver imagined that the engine was producing a knock, he removed the doors and tightened up the bigend bolt-with disastrous results.
This is an extreme case, and it cannot be denied that parts requiring fairly frequent adjustment should be made as accessible as possible. Particular attention should be given to the brakes, as, when adjustment is difficult, the owner is apt to run. the car for such a long period without attention that the brakes gradually get

REDUCING THE LABOUR OF MAINTENANCL' (contd.).
.nto a generally inefiective condition. In several chassis a large hand-nut is provided, which can easily be reached by removing a floorboard, and by means of which the brakes can readily be adjusted.
Nothing makes a car look more disreputable than damaged bodywork and sadly neglected fittings, but it must bo admitied that in many cases the finish given to the body is so delicate and requires such careful handling that no owner-driver could reason-


SAVING TIME AND rROUBLE.

The upper photograph shows the pressure-feed or grease gun system of lubrication as fitted to the $10-20 \mathrm{~h} . \mathrm{p}$. Turner. The lower photograph shows the reward of constant attention to cleanliness. A car frequently cleaned is easily kept clean.
ably be expected to maintain the pristine beauty of the car for very long. An all-black finish for fittings, such as windscreen pillars, door handles, and the like, may not look so pretty as the nickel variety, but it is certainly far more serviceable for those who subject their cars to really hard usage. Similarly, the grey matt finish often given to the bodywork of French cars cannot comparo with the highly polished product turned out by the best coachbuilding concerns, but it is nevertheless infinitely less trouble to i.he owifer who may be called upon to look after it.


It is worthy of note that the more simple a car is the less will it require atlending to, and in this connection the really simple cyclecar is worth mentioning. When working parts are reduced in number to an absolute minimum it is obvious that the attention which the driver must give his machine is also reduced, and when at last the £100 ideal cyclecar appears in numbers, owners will appreciate the advantages to be derived from a vehicle in which one of the essentials is simplicity.

One obscrves that considerable attention is being given to the $£ 100$ Ideal Specifications in the pages of Theilight C'ar and Cyclecar, but the whole subject seems to appeal to designers from the mechanical point of view only. Of course, a practical layout is one of the most important features of such a car, but also attention must be given to the probable amount of labour which will have to be expended in looking after the finished product.
Taking a typicai specification point by point, ample provision must be made for preventing oil being splashed in all directions by the engine; carburetter, magncto and dynamo must be accessible, and, if the final drive is to be by chains, they must be of large section and enclosed. The aim of the designer should be to provide a final drive which will last as long as the car itself: : thus in the case of the chassis a bigh factor of safety must be adopted, so that there will be no possible chance of breakage.

## Beauty or Utility?

To sum up: it is a question of whether beauty or a really serviceable finish is the main requirement, and the answer to this, of course, depends to a large extent on the use to which the car is put. Personally, the writer prefers to use a car which, after 200 miles have been completed in a day's run, does not require a couple of hours' hard labour with the hose and a sponge.
There is uo doubt that the Weymann body, an innovation of 1923, will continue to make steady progress, for it represents a type of body which not only cheapens production, but lessens considerably the labour of maintenance. It boasts of no glossy varnished finish and has merely to be sponged down in order to restore its initial pristinc appearance.



## A Wonderful Week-end.

ACORRESPONDENT writing to me from India runs into many thousands of words explaining what he describes as "a wonderful week-end" spent motoring in the Ghats. His destination was only 75 miles from the starting point, but the journey took from 4.30 a.m. until nearly lunch time, the run consisting of "climbing about for hours on rough, hilly tracks which wind round the mountains."
After breakfast the following morning, when a run to a village 25 miles away was suggested, it was found that a back tyre was flat; the wheel was changed, but when only two miles out another tyre burst
" Having no more spare wheels," he writes, 'we had to mend the burst tyre. The road was so hot it was unpleasant to stand on it. We put the spanners down after we had got the wheel off, and when we wanted them again they were so hot we could not touch them until we had poured the contents of a water-bottle over them. When the repairs had been completed we had to proceed very gingerly," he writes, "because the roads were so hot we were afraid of the tyres melting. Every time we passed any water we drove through it to cool them off."
Personally, I have no conception how they ever made their solution stick, but my correspondent's experiences certainly go to show that much as we malign our climate, there are many worse-at least, from the motorist's point of view.

## Taxation Relief.

IWAS very interested to learn that a hundred members of Parliament who met at a dinner at the House of Commons recently were almost unanimous in agreeing that the $£ 1$ per horse-power tax acted unfairly on light cars. In suggesting that 15 s . per horse-power would be a suitable scale for next year, I think that they will have the co-operation of all small car owners.
Actually the M.P.s, or at any rate most of them, were in favour of the abolition of the existing horsepower method of taxation and the introduction of a tax on fucl, but they realized that it is hopeless to expect such a drastic change for next year, as it is exceedingly improbable that the report of the Departmental Committee which has investigated the matter will be available in time for any modification in next year's motor taxation to be made, even presuming that the report will favour the change, a very doubtful presumption in view of what has already been said on the subject.
824

## Are Grease Guns Perfect?

NTUMBERS of readers seem to agree with my views relating to the relative merits of chassis lubrication by grease gun and by the older method of using small serew-down greascrs. Several readers write to say that they agree that the greasc gon with nipples and flexible connection is anything but perfect. They think that many examples provided as standard with small car equipment are too small and consequently need very frequent replenishment.

One correspondent says that the means provided for connecting grease guns to the nipples are seldom ideal, while the time which must be spent in greasing up-if the filling of the gun is included-is not materially less, he says, than by the older method.

I am beginning to think that for chassis lubrication a combination of the grease gun and grease cup system is needed. Cups could be fitted to such points as steering connections, spring shackle pins and so forth; but at the more important points, for example, the stub-axle pivot pins, cups could be fitted which were, in effect, miniature grease guns. These could be arranged to hold, say, an egg cupful of grease, and their internal organization could, in my opinion, follow closely the design of a greasc gun so that considerable pressure could be exerted without the grease escaping round the threads.

## Messy in the Extreme.

WITH a car so equipped, when one was on a long run grease could be forced to all parts concerned in a matter of a few moments, while the cups would not be empty if they were of an adequate size until at least a fortnight's tour had been completed. As it is I find that when I am away with a car for a week or so it is necessary on at least two mornings to find a very dirty grease gun in an equally dirty locker, to fill it up from a disgustingly filthy grease tin, and engage its connections with a number of more or less accessible nipples, most of them liberally coated with grime.

How much more simple it would be merely to give half a turn to grease cups of adequate size or a similar movement to grease-cup-cum-gun fittings arranged as permanencies at the points where it is most essential for an adequato supply of lubricant to be fed.
Doubtless readers will write saying that the idea has possibilities, but that they deplore any measure which may add to the cost of small cars. I would

## RICII MIIXTURE (contd.).

counter by saying that if any material increase $\mathrm{j}_{\mathrm{i}}$ cost would be incurred by the adoption of such a pian, that increase could readily be catalogued as an extra.

## Screen Wipers.

SINCE writing at some length on the question of windscreen wipers a few weeks ago, opportunities have been afforded me of testing nearly all the most popular makes.

I have found that they are all satisfactory provided the! are properly fitted, and this latter question must not be overlooked if they are to give any real satisfaction.
The criticisms I have made when commenting on wipers was that the cheaper types were not always as satisfactory as they might bo, but $I$ have since found that it is possible to get very good results from a considerable number of them.
Among those which I have found completely successful are the Stadium Bowden-wire-operated wiper, the Terry and the Desmo. The Stadium wiper needs to be fitted very carefully; and has proved especially satisfactory in my case on a car fitted with a single-pane screen, as with this type of screen a simple and very rigid bracket can be used.
The Terry wiper consists of two strips of impregnated material clipped to the screen by means of a hairpin-shaped leaf spring which passes over the top of the screen. This wiper is slid along the glass half a dozen times when the glass is wet, and thenceforward rain ceases to form in drons. The effect of the wiper is approximately equivalent to that
obtained by the old-fashioned apple and potato methods. The advantage of the Terry accessory is that it needs no fitting and that it is merely clipped on, while it is always handy and cannot possibly go wrong.
The Desmo wiper I deliberately fitted upside down, that is with the centre about which the squeegecs strike an are at the lower instead of the upper part of the glass. This plan is very satisfactory, as the squeegee wipes the rain downwards and clear of the screen, whereas when the conventional plan is followed it mexely lifts up the rain and, on the second sweep, !ets it all run down again.

## F'or "Gadget" Fiends.

ON the subject of accessories I should like to point out to all those of my readers who are really enthusiasts-I mean the type who would never dream of wearing a waistcoat the pockets of which did not house a No. 0 King Dick, a pocket screwdriver, a magneto spanner and so forth-that there is a new gadget, which, if they are to retain their local reputation as pukka experts, they cannot possibly afford to be without.

This novelty takes the form of what is technically known as a "pocket propelling pencil." In its design is embodied a small glass tube containing, I believe, Neon gas, making the pencil also an admirable plug tester. The gadget is called the Runbaken Ignition Pencil Tester. It is very little larger than an ordinary ; oocket pencil, and I have found that it acts extremely well both for writing and for detecting dud plugs. It deserves to oust the micrometer from the pocket of every enthusiastic and critical small car " expert."
S.S.

## THE NE W ROVER.

A full description of the new 9 h.p. Rover appears elsewhere in this issue. The car, which is, so far as dimensions and general layout are concerned, roughly similar to the existing two-cylinder model,

has a four-cylinder watercooled o.h.v. engine and a robust workmanlike litule chassis. It is accessible and should prove as easy for owner-drivers to keep in first-class condition as the renowned two-cylinder model. It will be seen from the chassis plan and complete car illustration shown herewith that apart from the new engine no outstanding alterations from conventional Rover practice are embodied.


> IN THIS ARTICLE IS SHOWN HOW, BY MEANS OF SIMPLE CALCULATIONS, THE ROADWORTHINESS AND HILL-CLIMBING POWERS OF A CAR CAN BE DETERMINED SIMPLY FROM CATALOGUE FIGURES.

IN the past the car owner had only a hazy notion of the horse-power of his car; he knew that it came within certain limits, and he paid the tax accordingly. But to-day the owner is only too aware of the R.A.C. rating of his car, as it costs him the equivalent number of pound notes each year.

It is obvious, therefore, that an owner or prospective buyer will ask what other factors are there and their relation to each other, besides the Treasury rating which must be taken into account in order to determine the merits or demerits of a car.
It is hoped that the following formula will be of service in such a case, viz:-
The R.A.C. rating of a car should not be less than $25.5 \times \mathrm{W} \times \mathrm{D}$

G $\times \mathbf{S}$
Where $W$ = weight of a car laden in tons. $\mathrm{D}=$ diameter of tyres in millimetres. $\mathbf{G}=$ gear ratio on bottom gear. $\mathrm{S}=$ stroke of engine in millimetres.
It will be shown later that this formula is the h.p. sating required for a gradient of 1 in 4, with a bad road surface (i.e., a resistance equal to 100 lb . per ton). It is obvious, thercfore, that this h.p. should not be greater than the R.A.C. rating, otherwise the car will fail to climb a hill of this magnitude.
The question will probably be asked at this point why should the merit of a car be determined by the ability to climb a freak hill-a hill that will possibly be met only once or twice in a year. There are two answers to this question, the first is that the lowest gear should be such that the driving wheels are almost on the point of slipping when- the engine is developing maximum torque, and this point is being rapidly approached when climling a 1 -in-4 gradient; secondly, this formula represents the performance of a car when new and in good condition. When the engine gets dirty and loses its compression, due to wear of piston rings and valves, the hill-climbing capacity diminishes, and unless there is a reserre of power failure to climb hills of 1 in 6 or 7 will be a common occurrence.
Assuming. therefore, that this formula represents the performance that any new ear should be capable of, it should be an easy matter to figure out what the Treasury rating should be and compare it with the engine of the car under consideration.
The various particulars required in this formula can be nbtained, usually, from the makers' cataloguc. The following examples have been worked out from s20
the actual data given for various cars, and show the scope and usefulness of the formula.
Car A.-Data: Diameter of wheels, 710 mm .; weight of car laden, 15 cwt. (. 75 tort); bottom gear ratio, 12 to 1 ; stroke, 109.5 mm .; bore, 66 mm .; number of cyclinders, 4. The h.p. rating should be:$25.5 \times \mathrm{W} \times \mathrm{D} \quad 25.5 \times .75 \times 710$

$$
\mathrm{G} \times \mathrm{S}=12 \times 109.5
$$

Now, h.p. of this car by the R.A.C. rating equals 10.8. This car, therefore, fulfils the conditions specified.
Car B.-Data: Diameter of wheels, 650 mm ; weight of car laden, 12 cwt . ( 6 ton); bottom gear ratio, 10.5 to 1 ; stroke, 98 mm .; bore, 81 mm . ; number of cylinders, 2. The h.p. rating should be:-

$$
\frac{25.5 \times .6 \times \mathrm{D}}{\mathrm{G} \times \mathrm{S}}=\frac{25.5 \times .6 \times 650}{10.5 \times 98}=9.75
$$

The R.A.C. rating of this car is 8.75. Wo are, therefore, I h.p. short of our requirements. We can, however, find what the boltom gear ratio should be to fulfil the conditions.

$$
\text { H.P. }=\frac{25.5 \times \mathrm{W} \times \mathrm{D}}{\mathrm{G} \times \mathrm{S}} \mathrm{G}=\frac{25.5 \times \mathrm{W} \times \mathrm{D}}{\mathrm{H} . \mathrm{P} . \times \mathrm{S}}
$$

$$
=25.5 \times .6 \times 650
$$

$$
8.75 \times 98
$$

Car C.-Data: Diameter of wheels, 700 mm .; werght laden, 7 ton; bottom gear ratio, 17.4 to 1 ; stroke, 95.2 mm . ; bore, 66.7 mm . ; number of cylinders, 4. The h.p. rating should be :-

$$
=\frac{25.5 \times \mathrm{W} \times \mathrm{D}}{\mathrm{G} \times \mathrm{S} \text { R.A.C. rating is } 11 \mathrm{~h} . \mathrm{p} .}=\frac{25.5 \times .7 \times 700}{\text { The }}=7.6
$$

This car shows a surplus of $3.4 \mathrm{~h} . \mathrm{p}$. This iesult was not altogether uncxpected, owing to the low bottom gear ratio. The drawback to having such a low gear with only a three-speed box is the great skill that is required to change quictly from the first grear to the second gear ; another disadvantage is the high stressing of the driving and propeller shafts.

The gear ratio that would have given really better results is:

$$
\begin{aligned}
\text { is : } & =\frac{25,5 \times \mathrm{W} \times \mathrm{D}}{\text { H.P. } \times S}=\frac{25.5 \times .7 \times 760}{11 \times 95.9} \\
& =11.9 \text { or } 12 \text { to } 1 \text { in round figures. }
\end{aligned}
$$

## A FOUR-DAYS' TOUR FOR $£ 3$.

WITH A CAR IN WHICH IT IS POSSIBLE TO CAMP OUT TOURING CAN BE MADE VERY INEXPENSIVE.

Dy G. L. MOSS

"LET'S go to North Wales for a weck-end and sleep in the carr." It was my wife's suggestion. Accordingly we left. Leamington on a liriday morning with the idea of sleeping in the car if the weather was fue, and, if wet, of spending our rights at hotels.
The car, an 11 h.p. Riley four-seater all-season model of the two-door type, with tip-up front seats, lends itself admirably for use as a dormitory. Tho removal of the two front seats takes only two minutos or so, while the spreading of a mattress and blankets on the floor occupies a few more minutes.
Uur kit was easily packed in the back and consisted of the usual cooking utensils, a Primus stovo (which had seen its best days in the trenches), a mattress, three blaukets, one enamel basin, an old canvas valise, a change of shoes and stockings, pyjamas, and a good supply of food, fruit and dhyks, for Wales can be a thirsty place on Sundays.
Wo took the usual route through Stonebridge, Castle Bromwich and Cannock to Shrewsbury, where wie pulled up a few miles outside the town for lunch. The weather was glorious, the roads good, and the car was runming splendidly. Business worrics were forgotten and we enjoyed a feeling of satisfaction that wo were entirely on our own, with no rooms to be found and no hotel bills to pay.
Dinas was easily climbed on second gear, and ahout two miles from Dolgelly we started to look for our frst camping ground. Wo crossed the river on the right-hand side of the road by a pretty bridgo and eventually found a glorious little glado by a brook about 100 yards off the road. The car was backed in, away from tho sight of man, the side curlains were erected, the bed made, supper cooked, and then-sweet slumbers.

## That Camping Feeling.

Two blankets with the windscreen open were quite suflicient ; there was ample legroom for a full stretch and both of us slept weil. By removing the back-seat cushion and spreading the mattress over the wooden portion of the seat an excellent pillow of jublt the right height was easily improvised.
Those who have not experienced the wonderful sensation of waking on a spring morning with the sun shining brightly, the birds singing. and a brook babbling nearby have missed one of the greatest joys of. life. I am not a poct and am as fond of iny bed as any man, but the sensation of climbing out of a car into bright: sunlight and of enjoying a muick sponge down in cold water are things never to be forgotten.
After breakfast, packing up was only a matter of minutes, and then-the open road again. We took the road through Dolgelly to Barmouth, where wo pulled, up for a supply of fruit, bread and "prickers" for the Primus. Thenceforward the run from Portmadoc through Aberglaslyn Pass to Beddgelert is possibly the finest in Wales. The road surface is good and the gradient well-engineered, while the scenery, which is well-wooded, with a typical Welsh river in the valley, would rank among the first six leauty spots of tho kingdom.
A hasty visit was mado to the Swallow Falls at Bettws-y-Cocd, but there were too many trippers and


Camping kit must be cut down to the minimum, but it is unwise so to reduce it that meals cannot be taken in comfort.
chars-d-bancs for, our prevailing mood of leading the " simple life." We climbed the old Roman Pass frou Penmachno on second speed, this hill being one of the finest passes in North Wales. The sur, face is good and the gradient for about two miles is exceptionally stecp. It much resembles Bwlch-ygroes, but is not so long.
The run down to Festsiog is wild and rugged, with an expansive view from the top which makes it hard to believe that civilization is only a few miles away. Saturday night was spent a few yards off the shores of Bala Lake. An inviting lane lead. ing up from the main road looked promising, and on inspection was found to he a long winding drive to an unoccupied louse. The car was driven in under the trees among the fallen leaves of last autumn and a better camping ground would have been hard to find

## Breakfast-and Squirrels.

On waking in the morning two squirrels wero playing in the trees ten yards away, and not a soul was seen or heard until we took the road again. We climbed up the Bala side of the famous Bulchy -groes about 10 a.m. The gradient is stiff and the road wild and rugged. There is a sheer drop down into the valley on the right-hand side. The Riley climbed the entire way on second gear and, although the fan belt was off, there was no overheating.

Lake Vyrnwy was the site of our last camping ground. The lake is surrounded by railings, and some difficulty was encountered in finding a good camping place. At length an inviting track through a gate up a short stiff gradient led to the back of a clorious pine wood.
The front seats, we found, made excellent chairs when placed on the grass, and the old arny valise kept them and other articles dry throughout the night. Monday again proved fine and a good splash in the river, a hasty breakfast, and an excellent run home finished the chenpest and most enjoyable four days' outing of our lives.
Throughout the trip the Riley, which is a 1921 model, ran perfectly and the tool kit was not touched. The petrol cousumption worked out at approximately $33 \mathrm{~m} . \mathrm{p}$.г. Only one quart of water was added to the radiator and no extra oil was required.
Our list of expenses (tntal, £3 1s.5d.) proved that, given good weather, the heart of a gipsy and a none. tou-deen pocket, a touring holiday can be achieved at considerably less expense than staying at home, having a good dinner, "doing a show", and the other usual ways of spending a week-end in town.

## DETAILS OF THE LONDON-EDINBURGH.

ENTRY LOWEST FOR THREE YEARS, BUT MORE CARS THAN LAST YEAR.
CARS AT HALF-MINUTE INTERVALS. ROUTE THE SAME AS IN 1923.
KIRKSTONE PASS THE ONLY TEST HILL. KIRKSTONE PASS THE ONLY TEST HILL

T
HE entry for the London-Edinburgh run, held at Whitsuntide every year by the Motor Cycling Club, seems to be snowing a steady decline. It will be seon from the panel in the centre of this pago that in 1923 there were nearly 40 fewer runners than in 1922, but this was apparently attributablo to the fact that inero was a hitch in the arrangements, due to-the M.C.C. failing until the last moment to got the sanction of the Royal Automobile Club for the run to be hiold.
It was thought last year that this fact was probably the sole reason why the entry was rather disappointing, but it seems that the influence of last-minute arrangements.did not make itself feli so much as was popularly believed at the time.

## Representative Entry.

This yoar there ane 345 entries all told, and although this total is nearly 50 forver than in 1922, it is, nevertheless, extremely satisfactory. Wo suggest that it is disappointing only because it is an M.C.C. run which, as all the world knows, ensures for it greater popularity and better support than any other event held under the auspices of any other club. This year's run will start at

Wrotham Park, near Barnet, which venue has been kindly placed at the disposal of the Club by the Earl of Strafford. The first competitor is due off at 7 p.m., the order of starting as regards type of machine being sole motorcycles, sidecars, three-wheclers, and finally cars. Competitors will start at half-munute intervals, No. 1 starting

| London-Edinburgh Entries. |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | royclos. |  |  |
|  | Solo. | Sidecar. | s.wheel. | 4-mbee |
| 1929 | 119 | 110 | ${ }^{20}$ | 133 |
| 1938 | 126 | 91 | 90 | 119 |
| 1924 | 127 | 83 | 13 | 129 |

at lialf a minute past seven. As there are 345 entries, the Last man will start at 9.53 .
The route, which is the same as last year, is by way of Potters Bar, Hatfield and Stevenage, the competitors following the main North Road through Retford, Doncaster, and then brancring off for Ferrybridge, Aberford, Ilklev, Sottlo and Kendal to Windermere. Kirkstone Pass, beyond Amblesido, is the principal
tost hill. After Kirkstone Pass tho route lies by way of Moffat to Edinburgh.

Kirkstone l’ass is difficult by reason of its length rather than its gradient, and it is generally considered to form a fairly severe test. The climb starts almost in Ambleside; it is threo miles long, and at tho summit the road is 1,500 ft. above sea-level.

## Gradient of 1 in 6.

The long pull generally causes the cars to be enveloped in a cloud of stean when they near the summit, which is approachod for the last quarter of a mile by an average gradient of 1 in 6. The surface of the hill is seldom very good, and in the event of rain it is generally extremely sluppery, prosenting considerable difficulty for thee-wheelers, the single driving wheel of which must grip a muddy, slimy surface already churned up by somo 200 motorcyolists.
Full details of the slithering route of the London-Edinburgh will form a foature of The Light Car and Cyclecar nest week, while in the following issuonamely, that dated June $13 \mathrm{~h}-\mathrm{h}$ full illustrated report of the event will be included.

## COMPLETE LIST OF CAR ENTRIES.

THREEWHEELED CXCT,ECARS.
211
212
213
214
215
216
217
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219
220
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222
CARS. poitior, L. A. Baddelce ( 11.9 h.p. Riley) is 8.51 名, tho other competitors following at baif
$223^{\circ} \mathrm{L}$ A. Baddeles, 11.9 h.p. Rilloy.
224 W .0 Oopor, 11.9 h p. Morris Sports.
225 O. R. 13. Chiesman. $1 i .9$ h.p. Morris-Oxiord.
226 F. Broomfiold, 11.9 h.p. Morris-Cowley.
P. W. White 12 u.p Lagondl.
J. F. Devenili, 8 h.p. Gwsanc.

Carless, 9 h.p. McKenzle.
W. Britaln 10 l h.p. B.S.A.
G. Mundy, 14 h.p. Ansiddo.
B. Buinbridge, 48.2 h.p. Rolls-Royce

Shephasd 11.9 h.p. R:lcy.
L. Alen, 12 h.p. Auxtin.
i. P. Shates, 14 h.p. Vauxhall-Princeton.
A. Olark, $12 \mathrm{~h} . \mathrm{p}$. AJPls Sports.
A. H. Roa 11.9 h hp. Riley.
J. Ven Ifoojdont, if. 5 h.p. Estex
. M. Jonces $10 \mathrm{~h} . \mathrm{p}$. Ariel.
Hach, 10 b.p. Ariel.
N. Lotto, I' 1.4 h.p. Mumber.

II Gloe, 15.9 h.p. Dentley.
G. Grpper. 15.9 h.p. Bentey.
G
${ }^{1} 8$



II. F. Smallwood, 12 h.p. Palla
A. B. Chadwick, Io h.p. Trojan.
G. Finch 10 h.p. Trojan. Woodhouse. 10 h.p. Trojan. M. Keod. 11.9 h.p. Rilloy. Havers, 10.8 h.p. R. R.ley. S. Maria, $10.5 \mathrm{~h} . \mathrm{p}$. Eric-C
W . Olivo, $14 \mathrm{~h} . \mathrm{p}$. Siendard. W. Olivo, 14 h.p. Stendard.
Hilary, 9 h.p. Dooby.
L. Whito 11.9 h.p. Riley Sports. G. L. Whito M.p. 1.9 h.p. Riley Sports.
G. O. Formilh. 6.7 h.p. New Carden. G. O. Formilh. 6.7 h.p. N. W. N. Bcard, 10 h.p. IIands.
G. Pottyl. 14 h.p. Beza. G. Pottyt, 14 h.p. Bean.
A. G. Accorquodalo, $30-98$ h.p. Vauxhall A. G. McCorquodalo, $30-98$ h.p.
B. Monk, 10 h.p. Trojan.
H. Rikkwood. 10 h.p. Trojan. F. J. RitkNood, 10 h.p. Trojan. D. S. stone, $10 \mathrm{~h} . \mathrm{p}$. Singor. E. Kinchin, 7 h.p. Austin. R. O. H. Daris. 10 h.p. Wolsolog. R. Strakcr, 10.12 h.p. Straker-Squirc.
V. $\Lambda$. Schonko, 10-12 h.p. Straker-squiro. Spuira Buddell, 14-60 h.p. Lancia M. Audchll, $1460 \mathrm{h.p}$. Lancia. o. A. Hall, $14-30$ h.p. Loyd-Lord. Ewen, $11.9 \mathrm{~h} . \mathrm{p}$. Palladium Goodman, 12 h.p. Whitlock Clark, 12 h.p. Whitlock.
A. Driskell, 9.5 h.p. D.F.P. A. Driskell, 9.5 h.p. D

Leno, 10 hp . Inanipton.

- Lekonzio. 16.5 h.p. Essex. - Marman, 8.7 hip. G.N. V. Eva.1s. 12 h h. Swift. Collyer, 10 h.p. Swift.
Stevens,
$12-30$
h.p. Horstman Stevens, $12-30$ h.p. Horstman Sporls.
Bragg, 15.6 h p. Daranl-Rugby. Brage, 16.6 h p. Darancinugby
 . A. Nonolos Craveling marshal.

OFFICTAT, CARS.
J. F. Grundall (15.9 h F. Finmber) and W. K . Nolis $i 27.3 \mathrm{~h} . \mathrm{p}$. Buiok will precedo tho comnetitors, starting at 7 p.m.

## SIGNS OF THE TIMES.



It has been suggested that drivers suffering from any physical defect should be compelled to bave signs the matter will not bect for the guidance of other road users. We hope the matter will not be carried too far !

## Every Motorist should know that-

## "TRAPPING" IS NOT ABOLISHED.

## Sidelights on Speed Limits and Driving to the Common Danger.

DESPITE several contradictions which have nppeared in the technical Press there is still a prevailing impression that the $20 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. speed limit and "trapping" have been abolished. Nothing could be farther from the truth, but the rumour has arisen as the result of discussions which have takeu place centering in the advisability of either abolishing the speed limit or raising it to $30 \mathrm{~m} . \mathrm{p} . \mathrm{h}$.
The motorist whe sets out to conform entirely with the letter of the law as it stands at present is embarking upon an almost impossible feat, that is, if he is but for business and not for pleasure. Thus it is that millions break the law every day and take the risk of being "trapped." The authorities do not like the term "trap" and they describe an endeavour to catch motorists who are exceeding the 90 m.p.h. as a " control."
The usual procedure is as follows:-Threc men are engaged, only one of whom is in uniform. The first, in plain clothes, endeavours to camoulage both his mission and his appearance, but as the unsuspecting motorist passes him he gives a pre-determined signal, neting upon which the second plain-clothes man sets his stop-watch going. Thus the motorist is timed over a certain section-generally a furlong-and it remains for the third man (in uniform) to stop the motorist after he has passed out of the control. The system is not dead accurate, but, in fairness to the police, it should be stated that a prosecution is
seldom undertaken unless the average number of miles per hour through the control works out at over g1 m.p.h.
Motorists who endeavour to dispute the figures given by the police are wasting time-moreover, they will probably prejudice their case, and, as fines derived from " trapping" do not beaefit either tho police or the district in which they are imposed, it is better to look pleasant and pay up when the time arrives. As a general rule it is unnecessary for the notorist himself to appear in a case of this kind, but he must be represented either by his own solicitor or by a legal representative of an association to which he belongs.
The case having been heard and the amount of ths fine fixed, the defendant will be notified that he musi pay the amount into court by a certain date. He may also be required to sulmit his driving licence for endorsement.
In addition to the recognized control there is the question of estimated speed through a 10 -mile limit, and a summons can be issued on this count on tho evidence of one police constable only.
He is not called upon to state the definite speed, but can put forward the plea that, in his opinion, the molorist was travelling at, say, $26 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. As in tho caso of a proper control it is uscless to argue with the arm of the law unless proof can be produced to show ihat his approximations are valueless.

## STARTING AN OBSTINATE SCREW.

THERE are two golden rules to be observed when withdrawing a screw, particularly when it is difficult to move. One is to use a screwdriver of the correct size and with a properly ground edge, and the other is not to let the screwdriver siip out of the slot when attempting to turn the screw. Directly the slot in the head is damaged the difficulty of removing the screw is increased tenfold.
Greasy hands, an inaccessible position, or a small handle to the screwdriver, all create difficulties, and the following hints will save much time and temper and many screw heads.
After placing the screwdriver squarely in the slot of the screw, grip the blade as close to the screw as possible with an adjustable spanner.
This will enable sufficient pressure to be exerted on the head of the screwdriver to prevent it slipping out of the slot in the screw head whilst the spanner is used to undo the screw.
Screws with rounded heads are more easily damaged than those with flat or "cheese" heads, and additional care should be taken, remembering always that nothing looks worse than a screw head that has been damaged as the result of careless treatment.
If the screw is extraordinarily obstinate, a good plan is to pour paraffin over it and leave it for some time. The paraffin will penotrate between the threads, and this percolation often has the desired effect of loosening the mud or rust which is causing the trouble. Vinegar, being a B30


The use of a movable spanner to tighten or loosen a serew.
very dilute acid, may, by slightly corroding the metal, attain the same result.
If the refractory screw still does not yield, an attempt should be made to move it with a hammer and a metal punch, hitting the latter in such a manner that the force of the blow impinges on a point at one or the other end of the slot.
This treatment will, of course, ruin the head of tho screw, but there are occasions on which this fact would be of minor importance compared with the necessity for removing the olfending piece of metal. Should this treatment be of no avail, nothing remain. 3 but tho almost infallible cure, namely, drilling out the screw, and retapping the hole. There are caser where the thickness of surrounding metal will not stand this drilling-out process, but where it will, cars should be taken to see that the operation is comnenced in the exact centre-of the head.
It is always advisable, after removing a tight screw, to replace it with another, as the threads of the former may be slightly out of pitch, or the slot in the heasl may loe insufficiently deep to provide for the necessary leverage.
Prevention being undoubtedly better than cure, it is suggested that the threads of anything in the nature of a screw (or valvo cap) which is liable to stick, either through mud, rust, or heat, should be liberally conted with graphite before screwing in into position. If this precaution were always taken, the necessity for the above remarks would hardly arise.


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## Topics of the Day

## Short Cuts to "Experience."

$\mathrm{I}^{\mathrm{F}}$F you are prepared for an emergency it is likely, when it arises, to have much less serious consequences than when it catches you unawares. This is an age-old axiom with an application that is universal, but it applies with special emphasis to motorists. The man who has been driving for a number of The Art of years will probably have encountered almost every Being Prepared. condition of road and traffic, and he will therefore
be a much safer driver than those who have held driving licences for only a year or so. Among the latter, unfortunately, are many who have the impression that, because they have mastered the controls of their cars under normal conditions, they must necessarily be expert drivers.
In this issue there is an article which tells Londoners where they may find test hills near home which will call for handling of their cars on second gear in a manner approximately similar to that which is necessary in bottom gear for ascending the hills of Devon and Cornwall, of Wales, Scotland, and the Lake District. We advise readers who have no experience of the gradients in these comparatively distant touring centres to acquire some skill at hill-climbing on the hills we mention or on any others with single-figure gradients which may be within reasonable distance of their homes before starting for Whitsun tours in any of the districts named. When practising, it is well for a driver to learn the knack of restarting on a gradient and also to familiarize himself with the general "feel" of a car which has a strong tendency to run back. If, after such practice, he is baulked or misses a gear on a 1 in 3 gradient he will be prepared to act promptly and to handle his controls in the most effective manner.
The same advice applies with regard to circumstances other than hill-climbing. He is a wise man who learns on broad, quiet roads the best means for correcting a skid, and he is a still wiser man who spends monotonous moments at the wheel when on a long run in picturing emergencies and making a mental note of how he would act should those emergencies arise.. Only by such means or by years of experience is it possible always, no matter what may happen, to be prepared.

## The Police and Road Trials.

WE wholeheartedly agree with any action taken by the police with a view to preventing club secretaries from holding trials on public roads which are entirely unsuitable for the purpose. Cycling, walking, and running, as well as motor events, were, presumably, alluded to in the recent warning Commissioner's issued by the Chief Commissioner of Police, and it Common-sense cannot be too strongly emphasized that the
Protest. greatest care should be exercised when organizing trials to obtain the co-operation of the local police.

The Commissioner plainly states that he does not wish to interfere unnecessarily with legitimate sport, from which it may be gathered that he is fully conversant with the value of speed trials and hill-climbs. The issue rests, then, with the promoters of competitions, on whom falls the responsibility for seeing that the arrangements are above reproach. That the Commissioner is very generously conceding a point in the interests of genuine sport is proved by his remark that "the use of the highway for purposes other than bona-fide travelling has no legal sanction." Putting two and two together, it is clear that he has no quarrel with organizers of trials, but that he wishes it to be known that such events must not interfere in any way with the use of the roads by persons employing them for the more im. portant purpose of travelling from one place to another.

NOMBERS of our readers are unfortunately debarred from visiting the far-distant test hills of which they read so much in the pages of The Light Car and Cyclecar, but doubtiless they often wonder how their cars would perform on such gradients.

It is frequently said that nobody knows less about London than the Londoner: and, with regard to the many test hills which exist witinin a 10 -mile radius of Charing Cross, it is undeniably true. The photographs on these pages show only four, but they are representative examples, and, if inquiries are made, it will usually be possible to discover some sort of test hill in the immediate locality of every reader's home.

At the outset it should be explained that these hills do not boast of gradients of 1 in 4 or even 1 in 5 , but their usefulness lies in the fact that they are axcellent second-gear climbs. It is quite possible by judging the performance of a car on this gear to estimate its probable performance on a far worso gradient using bottom gear.
The heights of Hampstead and Highgate need no introduction to Hetropolitan motorists, but there must be many who are familiar only with the well-known approaches, such as Fitzjohn's Avenue and North End lioad. If the motorist makics his way to Kontish Town Road and continues along Highgate Road to the Parliament Hill Fields tram terminus, he will be at the parting of two ways, both of which entail second-gear work for practically every small car.

## A Stretch of One in Seven.

If he continues straight on he will strike the lower slopes of West Hill, and he will be surprised how soon it will be necessary to drop into second, for the gradient rapidly stiffens to about 1 in 10, and it cannot safely be rushed. Following a fairly easy right-hand bend, the steepest streich of about 1 in $8 \frac{1}{3}$ is encountered; there is a matter of 40 yds. of this, which finishes the climb. The total length of the hill from the tram terminus is about $\frac{1}{3}$ mile.

Returning to the tram terminus, a second and even steeper bill maỹ be tried by turning sharp right along Swain's Lane and bearing left in a gentle curve. This hill is deceptive, inasmuch as the major part of it can be surmounted in top gear; it rises to exactly the same elevation as West Hill, but the last part necessitates hard pulling on second. Mreasurements which we took recently showed that on this section, which is approximately 150 yds. long, the gradient is about 1 in 7.

## LONDON'S TEST HILLS.

Netherhall Gardens, which rises abruptly out of Finchley Road and leads into Fitzjohn's Avenue, is an old but often untried friend. Its severity lies not so much in the gradient, which is about 1 in $r_{4}^{3}$, as in the fact that the driver eannot get a rum at it, and must perforce tackle it almost from a standing start. As a result, it brings many cars down to bottom gear.
The same may be said to apply to Campden Hill Square, which lies to the Ieft as one approaches


## ㄹ. Car's Performance by Its Efficiency nd Gear-Four Excellent Test Hills for the Owner-driver.

Holland Park Station (Central London Tube Railway).going towards Shepherd's Bush.
This is not by any means so stecp as Netherhall Gardens, and, if the latter is found too much for a. second-gear climb, it is interesting to tackle Campden Hill and see whether it can be surmounted on this gear.
Although other test hills exist within a ten-mile radius of Charing Cross, it would be hard to beat the four named, which represent progressive stages


in severity, regarded, as has been stated, entirely from the point of view of second-gear ascents.
Of equal importance to the pulling power of the engine is the efficiency of the brakes, and, when testing the former, a unique opportunity for trying the latter is provided. When the braking, power is a decidedly uncertain quantity and the driver is, perhaps, unaccustomed to holdifig the car on a steep acclivity, precautions mast be taken, and there will bo no danger if the following recommendations aro followed:-

Assuming that the car is in second gear when it reaches the steepest portion of the hill, the driver should declutch and apply both foot and hand brakes, leaving the lever in the second-gear notch and holding out the clutch. If both brakes are unequal to the task of preventing the car from running backwards, the clutch can be slipped and the engine switched off with the left hand. This should either stop the vehicle or enable a safe backward run down to more level ground to be accomplished. In the former case the wheels must be securely scotched before attempting to declutch and engage first gear preparatory to making a restart.
It is not advisable in the first instance to change from second to first. The gear might be missed, when, if the brakes were inelfective, the car would run backwards.

## Measuring Gradients.

The methods adopted by us for measuring the gradient of these hills may be of interest, the necessary adjuncts being a small spirit-level, a ten-foot line and a two-foot rule. One end of the string is held on the road surface whilst the operator at the other end pulls it tight and moves it gently up and down until, by means of the spirit-level, he is satisfied that it is dead level. The distance from the string to the ground is then measured and divided into 120 ins., which at oncc gives the gradient. It is possible to estimate the gradient to a couple of decimal places, but owing to the rough surfaces of the average hills such fine results are hardly


IN TWO SEATER FORM.

The body lines are distinctly pleasing, and it will be noticed that the familiar Rover radiator has been retained. A view of the four-seater appears on the second page of "Rich Mixture."

THE amnouncement that the Rover Co., Ltd., of Coventiy, are about to produce an o.h.v. watercooled four-cylinder $9 \mathrm{~h} . \mathrm{p}$. car as an additional model to their already famous and extremely popular $8 \mathrm{~h} . \mathrm{p}$. two-cglinder air-cooled model will arouse very great interest among light car owners.
In general appeairance the new "Nine" is very similar to the "Eight"; in fact, to a casual observer the radiator cap and the rather lower position of the starting handle are the only distinguishable features. Apart from the engine the two chassis are very similar, the 9 h.p. chassis and body being built of components which have been thoroughly tested for several years on the $8 \mathrm{~h} . \mathrm{p}$. model. The water-cooled engine, too, has undergone the most gruelling trials, and in one month alone covered over 10,000 miles without any adjustment being made, climbing such famous hills as Bwlch $y$-Groes with ease.

## Three Models of the "Nine."

The new "Nine" is being made in three models. In its simplest form with two-seater and double dickey or full four-seater body the price is $£ 180$, with clectric starter the price is £192, and in de luxe form, with either two-seater and double dickey or full four-seater body the price is $£ 12$ extra. The standard equipment includes a three-lamp 6 -volt Lucus lighting set, bulb horn, spare wheel and tyre and all-weather equipment, while the de luxe equipment consists of clock, speedometer, black leather upholstery and a choice of body colour.
Interest naturally centres in the new engine. This
is a cleanly designed push rod-operated, o.h.Y. unit, in which simplicity is combined with accessibility to a very high degree. Particularly notable is the thoroughness with which the lubrication system has been carried out, while another point of interest is the fact that a water pump is incorporated in the cooling sy'stem. The unit, which has a bore, stroke and capacity of 60 mm ., 95 mm . and 1,074 c.c., develops over $20 \mathrm{~h} . \mathrm{p}$. at 3,000 r.p.m., utilizes a 5 to 1 compression ratio and, complete with its three-speed and reversc gearbox, weighs 329 lb ., as against the 221 lb . of the "Eight." A normal oil consumption of 1,000 miles per gallon, a petrol consumption of about $45 \mathrm{~m} . \mathrm{p} . \mathrm{g}$., and a maximum speed of over $50 \mathrm{~m} . \mathrm{p} . \mathrm{h}$. indicate its general performance in a car weighing about 11 cwt.

## Engine Details.

The upper engine casting is an aluminium valve cover, which is secured to the detachable head carrying the valves and rocker shaft by four studs and nuts. The second casting consists of the head in which the valves are set vertically side by side, the whole of the combustion space being machined and the plugs being locaied on the near side under the exhaust manifold, which discharges to the rear. The cylinder barrel block is the third member, the cylinders being equally spaced along its length and the head with its gasket being attached to it by a number of long studs, several of which are also used to support the rocker-shaft bearings.
The barrel block is held to the aluminium crankcase by-six studs, all easily accessible and of a larger


## NEW o h.p. ROVER (contd.).

size than is usually employed for this purpose. The crankease is a very comprehensive casting, which incorporates the housing for the front main bearing, most of the timing casc, oil-filler chimney, magneto platform and flange. The rear main bearing housing is bolted to the rear of the crankcase.

## Neat Crankcase Casting.

The lowest member incorporates the oil sump, the mouth of which is covered by a perforated zinc shect, below which is a gear-type pump, which is submerged in oil and draws its supply through a detachable cylindrical gauze filter laid across the sump. The oil is forced to both main crankshaft and camshaft bearings, big-ends, overhead-valve gear and timing chains. The oil then drains back from the overhead platform through the push-rod passages in the side of the cylinder block, the pushfod chamber being rendered oiltight by means of a detachable aluminium plate secured by two nuts.
The timing cover is sealed by a plate into which the starting handle and housing is screwed and then locked by a grub screw, the timing gear itself being arranged in the following manner. First there is a Duplex roller Coventry chain to drive the Lucas $G$-volt dynamo, the flange holding this instrument being pivoted about its lowest bolt to enable


The top left-hand photograph showe the crankshaft complete with rear bearing, being threaded into position. The remaining photographs present three views of the complete engine.
the chain to be tensioned when necessary, and the other bolts being accommodated in slots for the same reason. Inside the case there is an oil thrower to prevent excess lubricant working through to the dynamo.

In front of the roller-chain sprocket on the crankshaft is a second sprocket for accommodating tho
silent chain which drives the camshaft, the latter being located on the off side of the unit and being housed in two plain bearings. A second silent chain drives from the camshaft to another shaft, which is housed in a phosphor-bronze bearing in the back of the timing cover. The rear end of this shaft is coupled to the Lucas magneto by a single-peg drive


The combustion head, showing overhead tulip-type valves, cored water passages, sparking plugs and exhaust manifold.
disc, while the front end is prorided with a jaw which drives the spindle of the rotary vane water pump. The -Binneys graphite packing can be easily adjusted by means of two accessible nuts, while the total removal of the pump if necessary is also a simple matter, as it is fitted on to the outside of the liming-cover plate.

## The Lubrication System.

As in the case of the dynamo, provision is made by means of a quick pitch groove on the driving spindle to prevent oil leaking out of the cover, while the magneto base is secured to the platform by two fairly accessible studs. On the top of this portion of the timing cover is the oil chimney, which is provided with a spring-held lid and conical gauze filter enabling the oil to be decanted straight on to the timing chains.
The details of the lubrication system are as follow. The pump is skew-driven from the rear of the camshaft, a T-piece feed pipe being fitted outsido the crankease on the delivery side of the pump. One lead is taken externally to the white metal rear main bearing. The crankshaft is drilled and the oil passes on to the plain big-ends, while a further lead by external pipe is taken to the camshaft bearings. External piping also leads upwards to the cylinder head, from which the oil is taken by duct pipe to the centre of the hollow rocker shaft. This is supported and fixed in five clips. It is cross-drilled so that the oil will lubricate the rockers, the latter also being drilled to enable the surplus to.squecze out on to the spherical adjusting pieces and cupped hardened steel tips of the duralumin push-rods, which have been adopted on account of their lightness.
The second lead from the delivery T-piece is taken to the front main bearing, thence via the drilled crankshaft to the front big-ends. A duct cast in the crankcase leads to the timing cover and camshaft, the oil being squirted on to the timing chain and falling into a well into which all the chains dip. Holes are drilled in the rear face of tho timing cover to allow the oil to return to the base chamber when the lerel in the well has reached a certain height. Splash is relied upon for the castirou pistons and small-ends. The former are equipped with two rings above the fully floating gudgeon pin and a scraper ring, the groove for which is provided with oil holes. The gudgeon pin is prevented from moving sideways by split-spring rings.

## NEW o h.p. ROVER (contd.).

Cast-iron valve guides are pressed jnto the head and extend just above the rocker platform level, thus preventing a pool of oil from flooding the guides. The rockers themselves are kept separate by springs coiled round the shaft, the adjustment being by lock nut and spherical-ended screw. A lead is taken off the main lubrication system to a pressure gauge in the instrument board, and thus completes a very thoroughly thought-out scheme.
The valves are semi-tulip shaped, being provided with deep slots to facilitate grinding-in, duplex springs and taper-split cones completing their fittings. The push-rod tappets have flattened sides to prevent them turning in their phosphor-bronze guides, all of the tappet guides being prevented from moving axially by means of a screwed-in strap which extends along the side of the crankcase. The upper ends of the tappets are hollowed out to receive the push-rods.

## Four-point Attachment.

The engine, with its three-speed gearbox and clutch, flywheel and electric-starter cover, is fourpoint attached direct to the side members of the frame. The radiator, which holds $13 \frac{1}{2}$ pints of water (the total amount of water being $2 \frac{1}{2}$ gallons), is supported on the front cross-member and is thus rather in front of the position of the dummy radiator used on the air-cooled model.
The clutch is of the single fabric-lined dry-plate


How the engine is built up. There are four main castings, including a detachable sump. All the working parts are cleanly designed and accessible.
type and requires no attention. The gear ratios, which are controlled by a central lever, are 4.84, 8.7 and 16.44 to 1 , the reverse being 21.51 . These ratios have been proved suitable by the most severe hill-climbing tests that a car can encounter. Within the last fortnight, for instance, one of the new "Nines" has climbed such notable ascents as Buttermere, Newlainds, Hardknott, Blea Tarn and Wirnose in the Lake District-thus proving B36
that it is capable of going anywhere where the whecls can grip. Furthermore, on this test the petrol consumption worked out at $38.5 \mathrm{~m} . \mathrm{p} . \mathrm{g}$. and petrol coil consumption at $1,300 \mathrm{~m} . \mathrm{p} . \mathrm{g}$.-figures upon which it would be difficult to improve with the arerage small car.

## Transmission Details.

The transmission utilizes an open propeller shaft of $1 \frac{3}{3}$ ins. diameter, equipped at the front end with a Hardy fabric joint and at the rear with a sliding universal, the final reduction being by worm, and the


The general construction of the engine is plainly shown in the above cross-section and the special perspective drawing on the left. Of particular interest are the design and method of operating the overhead valves.
torque being taken by a triangulated member, which is spring loaded at its iorward end.

Both hand and foot brakes operate upon the rear wheels, which are of the three-stud, quickly detachable disc type, shod with $3-\mathrm{in}$. Dunlop cords. The hand-brake lever is fitted on the right side, its adjustment as well as that of the pedal brake being by wing nut on the primary length of rod. A point of interest is that all wheel bearings have been enlarged, the front wheels running on special taper roller bearings and being mounted on a new H-section axle, which is very slightly dropped, as against the straight front axle used on the original $8 \mathrm{~h} . \mathrm{p}$. models. The thin ends of the rear quarter-elliptics are now provided with renewable plummer blocks, the housings of which are located in collars round the axle.

## Hand Controls Modified.

Greasers are now fitted to both the top and bottom of the stub-axle bearings, while the twospoke steering wheel is an inch larger than that used on the "Eights." The hand controls have been moved to the right of the column, the sparic lever being advanced to the left of the quadrant and the throttle being closed to the right. The petrol tank holds five gallons of fuel and is housed in the dash, the feed to the Smith single-jet carburetter being by gravity. A neat strangler is provided.
The dimensions of the car are: wheelbase 7 ft . 10 ins., and track 4 ft . The overall length is 11 ft . and the width 5 ft .2 ins. 'The makers' address is the Rover Co., Ltd., Coventry.


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"Lightcar and Cyclecar," March 7, 1924.
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# ANOTHER READER'S IDEAL $£ 100$ CYCLECAR. 

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| :---: | :---: |
| THIS IS THE SECOND |  |
| ARTICLE WHICH HAS |  |
| BEEN PREPARED |  |
| FROM DATA SUBMIT- |  |
| TED BY | A READER. |
| OTHER | ARTICLES |
| ARE ON | $\checkmark$ THE TAPIS. |
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IN considering the problem of how to design a car which could be built for $£ 100$, it must be remembered that its most serious rival would be the motorcycle and sidecar outfit. Consequently, although the construction must be such that cheap production is ensured, adequate weather protection and reasonable comfort must be embodied in the design and the body must be built to accommodate at least three people.
The first essential is to get away from the idea of producing a small car which is really a large car in miniature. The fallacy of this practice can quite readily be demonstrated by a simple mathematical law which states that the volume of any space is proportional to the cube of the linear dimension. Applying this reasoning, it follows that if we design a car with a wheelbase of 8 ft ., which is a reduced facsimile of a large vehicle with a wheelbase of 11 ft ., then the space available for the passengers will be reduced, not in the proportion of 11 to 8, but in the ratio 11 cubed to 8 cubed. This proportion is actually 24 to 1 , which means that there will be less than half the space available for passengers on the small car.
The writer, therefore, considers it essential that the whole length of the frame should be available for the body, no space being wasted by a projecting bonnet. For this reason, he would advocate the location of the engine on a level with the frame somewhere mear to the centre of the chassis, and in order that it might be satisfactorily accommodated, the horizontally opposed two-cylinder type would be selected. This engine, of course, possesses the advantage of a capacity for high revolutions without vibration. In order to cheapen production and avoid difficulties in the location of the radiator, the cylinders would be air-cooled.

## To Ensure Simplicity.

As regards springing, while there are several ingenious methods which could be used for a car of this type, the writer believes that the leaf spring possesses so many inherent advantages, and can be obtained in large quantities at such a low price, that it is not worth while to consider any, other shock-absorbing device. Again to ensure simplicity, the quarterelliptic type of leaf spring would be selected.

At the front, a pair. of such springs could be used to locate a tubular front axle, while at the rear the tips of the springs would slide in guides fixed to the back axle casing, so as to position it transversely. These springs would not, however, be called upon to resist the thrust or the torque reactions.
This brings us to the question of the form of final drive that is most suitable. Despite its obvious disadvantages, the use of an enclosed roller chain is
advocated on the grounds of simplicity and low cost, and, further, because the rigid chaincase, in conjunction with a pair of stay rods, could be used as a secure location for the back axle, and could take care of torque and thrust.

The back axle would then consist simply of a pair of tubes bolted to the chaincase and enclosing a solid driving shaft, at the centre of which the sprocket for the roller chain would be keyed.
At the forward end, this chaincase would be carried upon a trunnion bearing which would be part and parcel with the gearbox. The driving shaft emerging from the gearbox would pass through this trunnion bearing and would carry at the outer end the foremost chain sprocket.

The gearbox would preferably be of the straightthrough three-speed motorcycle type and would be secured by studs to form one unit with the engine crankcase. It would be necessary to incorporate a reverse gear in the box, but the epicyclic principle might be applied for this purpose with advantage. The engine and gearbox unit could be secured to a rigid cross-member of the frame, and the clutch. preferably of the single-plate variety, could be housed between the gearbox and the crankcase.

## Contracting Brakes.

A simple braking layout could be employed for a light vehicle of this kind, consisting of externalcontracting bands acting upon rear-wheel drums. An independent second brake might be placed at the driving end of the gearbox.

As regards minor details, which would have to bo arranged on the cheapest possible lines, only a brief description need be given. The petrol tank, fot example, could readily be housed in the forward part of the body along with an acetylene generator of reasonable size which would supply two side lamps and $a$ tail lamp. The starting handle for the engine rould, of course, project through the. valance at one side.

The raked steering column would terminate in a box enclosing a simple worm and wheel mechanism secured to a side member of the frame, from which in drop arm and limks would extend to the front wheels. The stub axles could well be mounted in steering heads of the Lemoine type. which lend themselves very well to brazed or welded steel tube construction. Such a rehicle would, admittedly, embody a number of compromises between desirable' features and cheapness of production. However, the writer believes it would have a wide appeal to the class of road users which at present employs the motorcycle and stlecar. whereon only the passenger obtains the comfort which the driver would share in a cyclecar.

# A PRIVATELY BUILT SMALL CAR. 

## An Ambitious Effort of an Amateur Enthusiast.

THE average privately built small car is rarely so well finished as to give it the appearance of a commercial proposition, but it will be appreciated from the photographs on this page that at least one amateur enthusiast has achieved this end. This monocar, for such it is, was designed by Mr. S. Atkins, 5, Hadley Terrace, East Barnet Road, East Barnet, and it took him a little over 18 months to build.
'I'he chassis is built up of $1-\mathrm{in}$. by $2-\mathrm{in}$. ash members, strengthened with io-in. steel plates on each side, the assembly being riveted together. An American air-cooled V-twin engine of 7-9 h.p. is used for the power unit, a fan being employed to assist cooling. The lubrication of the engine is by a


It will be agreed that this is one of the smartest-looking monocars yet brought to the practicable stage.
mechanical pump which is driven off the end of the camshaft.
The transmission throughout is by chain, the first step from the engine being to a three-speed heavyweight type of Sturmey-Archer gearbox, which is mounted with the engine upon angle-steel members. Incidentally, the top gear ratio is $3 \frac{1}{2}$ to 1.

From the gearbox the drive is taken to a countershaft running in Skefko self-aligning bearings, and from thence by twin chains to sprockets secured on the chassis side of the rear wheels. The back axle, which is of the solid type, is built up of $1 \frac{1}{8}-\mathrm{in}$. steel tubing of a fairly heary gauge, the same material being used for the front axle.


It is indeed a big car in miniature, as will be gathered from this view.

The wheels are inclined to give true centre-point steering, the actual steering gear having previously done duty on a Ford.

Semi-elliptic eprings are used to suspend the front axle, and quarcer-elliptic springs are used at the rear. The driving torque is absorbed by suitably arranged rods running from the rear axle to the countershaft. Twenty-four in. by $2 \frac{1}{2}$-in. wire wheels fitted with Palmer tyres set off the general appearance of the little car.
'The body, as previously mentioned, provides accommodation for one person. and although the photographs cannot show the effect of the French grey finish and the bright aluminium bonnet there is no doubt, considering that the instrument board is of polished mahogany and well equipped, that the general effect is most pleasing. As will be seen, the windscreen is of the aeroplane type.

## Wood Frame and Zinc Panels.

The frame of the body is built up of birch members, the ribs being steamed and bent into position. Zinc was used for the panels, this metal being chosen on account of its ease of manipulation. The upholstery is finished in red.
The track is somewhat narrow, being only 3 ft ., whilst the wheelbase is $6[t$. and the ground clearance 6 ins.

We are given to understand that this little monocar has given exceedlingly good results and that it provides a high degree of riding comfort. The designer and builder, in the hope that it may inspire other would-he enthusiasts to build their own cyclecars in their spare time, remarks that all the machining was carried out on a $33-\mathrm{in}$. Drummond B.S. lathe, including both the rear sprockets. It is all the more interesting to note that Mr . Atkins is not a motor mochanic, and that this little car was built only for "the love of the thing." He has been well rewarded for his pains.

## HOME-MADE BODYWORK.

THE accompanying photograph depicts what would appear to be a successful attempt, on the part of one of our readers, at body-building.
He jnforms us that the work was done at home and mentions that the sides are constructed of alternate planks of teak and mahogany. The top panels are of aluminium, and the body is mounted on a 1915 A.-C. chassis.

The car, which we should imagine from the photograph, presents a sporting appearance, is equipped with an open exhaust.



## The Wolseley mex

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## BWLCH-Y-GROES

 ONCE AGAIN !Small Cars in the Sutton Coldfield and North Birming. ham A.C.'s Event.


LAST Saturday the Sution Coldfield and North Birmingham A.C. man its nunual Reliability Trial over the usual course from Birmingham to Baln, via Bwlch-y-Groes.
Out of 31 entrics, eight ears oxcooded the $1_{2}$-Litro definition, the light cars consisting of four Austin Sovens, four Rhodes, twr: Gwynnes. $n$ Lagonda, a sporting Ariel Ten, a Rilcy, McK enzie, Bayliss-Thomas, Crouch, Jowolt, Singer, Clyno, Horsiman, and A.C.
The principal event of tho morning rum was, of course, the ascent of Bwlech-yGrees. The bottom corner caused no trcuble whatever, but the sleepest crest, whete the gradient is about 1 in 4 , caused the following drivers to firid:-Parsons ( 1, c97 c.c. Arisl), Faulconbridge $(1,496$ c.c. Crouch), Whitworth ( 1,096 c.c. Singer), and Mott ( 950 c.c. Gwynne). Some of these failures were undoubtedly due to the fact that, in order to perform well in the petrol consumption test, which was worked out on a ton-mile-pergalion basis, the cars wero heavily ballasted and had their jots cui down to a minimum, tho Gwynne and Aricl Ten being notable in this respect.
Faulconbridge's failuro was due to the bursting of the rubber hose connecting the engine with the radiator. He lost all the water, but managed to tricklo down into Bala, where he effected repairs and continued the afternoon's run.
An interesting featuro of the event was the fact that all the bonnots were sealed at the start and every precautior. was taken to ensure the accuracy of the petrol consumplion ligures, the cars being weighed within a short distance of the finish instead of neir the start, in was the case last year.
Incidonts woro comparativelys ferr, most of the competitors experiencing notrouble runs. Norris, who was driving the original No. 1 -engined Rhode-a
veuerable works hack-made a good climb on Bwlel-y-Groes.
Harcourt, on one of the Austin Sevens, was nearly involved in an accident when approaching the "Buckley Arms" at Dinas, where a horse and cart blocked the road and a child ran out. Bromhead reported a no-trouhle run in the identical Austin which Poppo drove in tho R.A.C. Six Days' and which had also done well in the Land's End and Victory Trials. Arthur's Lagonda climbed a good deal of "Bulchy" on second, while Roo's Riloy, which put up an extrenely good petrol consumption figure, was equipped with the new Governor carbureller, as was McKenzie's UcKenzie. The last-named climbed the greater part of Bulch-y-Groes on second, but punctured on a non-stop section and had to run six miles on the rim.
Frank Hallan's Horstman carried four passengers, while Nott's little Gwynne

Left The new sports model Ariel ren, with G. Broughton at the wheel.' (Right) B. W. Harcourt (Austin Seven) checking in at the finish.
actually weighed 17 cwt. with its ballast. Watson, who drove a similar machine, frequently economized petrol by switching off and coasting in neutral.


The Watson Gwynne Roso Bowl fior
bou performance by a mir ander 1,100 bool performance by a Mar onder
c.e.).N. Tcmkinson (Rhode)
60.40

GOLD MEDALS.


## THE SOUTH-WESTERN CENTRE A.-C.U. TRIAL.

OUT of eight entries received, five light cars faced the starfer in the South-Western Centre A.C.U. Trial, which was held over two ont-and-home runs from Exeter. The morning circuit included many miles of greasy lanes and several formidable water-splashes, which worked much havoc in the motorcycle classes, but did not cause any failures amongst tho cars. In the afternoon the course led over 50 miles of main road to the North Dovon, test hills-Porlock, Lynton, Lydiates Lane and Beggar's Roost.
Porlock was in excellent condition and caused no trouble, but Dixon (Singer) took the lower hair-pin on Lynton too fast and pulled a rear tyre off, complet-
ing the ascent on the bare rim-a re narkable achievement. On reaching the summit, he sent a boy down to retrieve the cover, and regained it intact with tho Parsons chain still fitted.
On Lydiates Lane, which was greasy, everyone made good climbs, all using chains, with the exception of W. H. Oates, whose Lagonda coupé climbed excellently on its low-pressure tyres. Eddy's Austin Soven had ample power in hand, while Satterby's A.C. and Healey's A.B.C. were also good. Dixon was somewhat late, owing to his tyre trouble, but he suon made up tume. Beggar's Roost, although very loose, did not cause any failures, all the cars mak ing good climbs.

## DEBUT OF A NEW ALVIS SPORTS MODEL. <br> Wins Two Races at Ealing Club's Meeting.

THE Ealing and District Motor Club held a succossful race meeting at Brooklands on Satorday lnst. Rain fell in torrents up to half an hour after the allotted time for the start, but the weather cleared shortly before 3 p.m. and continued fine for the remainder of the afternoon, the meeting being concluded without any interruptions.

## Four-speed Gearbox.

The feature of the mexting was the appearance of a new special sports Alvis, which competed in and won both of the car events. This new sports model incorporates several interesting departures from the mechanical details of other sports models made by the manufacturers. The o.h.v. power unit, which has a capacity of 1,496 c.c., is identical to that used on other Alvis sports cars, although in this instance the four-speed gearbox is constructed in unit with the ongine and centrallv operated. The wheelbase is much shorter, being only 7 it. 6 ins., while slightly larger wheels are employed at tho back than at the front; the chassis is also approximately 4 cwt. lighter.

Tho hand brake takes effect on tho transmission, while the operating mechanism of the brake is particular!y


## START OF IHE

 C. M. Harvey is seen at the wheel of the new Alvis (nearest camera). Note the larger diameter of the rear wheels compared with those at the front.ingenious, being on the quick-thread principle: It is extreincly powerful, and full pressure can bo brought to bear on it by using only ono finger. No difierential is needed.

## Only Two Starters.

In the first car race, which was restricted to volicles with engines under 1,500 c.c., thero were only two starters, this being due in no small measure to the fact that some were disqualified from laking part, as they had not complied with the now Brooklands silencing regulations. The race resolved itself into a duel between C. M. Harver's Alvis and A G. Nidler's Bianchi. Despite the fact that thore were only two runners, the race proved highly exciting, for after Miller had led the entire distance, Haricy opened out and beat him on the
line by half a wheel, at an averago speed of $75.57 \mathrm{~m} . \mathrm{p} . \mathrm{h}$.

## Against the "Giants."

The other race was a handicap threelap event for cars of any capacity. This race gave excellent indication of the speed of the new Alvis model, for Harvey, with only a moderate start against such cars as Thomas's Lecylarich, Norris's Wolseley Viper and juller's Straight Eight Indianapolis Bugalti, quickly took the iead, winning very comfortally at 85.43 m.p.in., wilh Duller seennd and Thomas thiri.
Several light cars participated in an impromptu onc-lap handicap for touring cars and motorcycles, which was, lowever, won by Mrs.' Gordon on a Studebaker Light Six with a comfortable saloon body.

## MOTORING MATTERS IN PARLIAMENT.

## London Traffic-Bridges and New Roads-Compulsory Motor Insurance-Roads in Scotland.

$T_{T}^{1}$HE condition of London traffic, of the Thames bridges, and of the exits from the Motropolis is being closely watched by Mombers of Parliament. Mr. Gasling (Minister of Transport) was asked by Sir H. Brittain whether. pending the passage into law of the London Traffic Bill, he would put into force emergency regulations to ameliorate the present congestion? The Ninister could only reply that until the Bill was passed he had no powers in this direction.
According to a statement by Mr . Clynes (the deputy leader of the Houso), the London Traffic Bill cannot be further considered until after the Whitsuntide recess, which is to extend from June 6th to June 161h. Although the Bill is through Committee, there will be a lot of discussion on tho Roport stage, aftor which the Third Reading bas to be taken. Subsequently the measure has to run the gauntlot of the Houso of Lords. - It is obrious, therefore, that some consider-
able time must elapse before the Bill is transformed into an Act of Parliament. Sir W. Davison asked whether the Ministry of Transport intended to hold an inquiry into the question of the Thames bridges, and Mr. Gosling replied that tho London County Ccancil was studying this problem. The Council would probably call into consultation other Metropolitan authorities. Any assistance which the Ministry of Transport could give was, he added, freely at the disposal of the responsible authorities, should thoy desire it.

The urgent need of improving the roads in Scotland was brought out in a question put to Mr. Gosling. The Minister replied that he was making considerable grants for this purpose. A special invastigation was being made into the condition of roads in Inverness-shire. He could not agreo that the GlasgowEdinburgh road, which would be a valuable improvement, should be postponed.

No contracts on this road had yet been let, but ho hoped they soon would be.
AIr. Gosling informed Mr. Baker that the question of compelling motorists to insure against accidents had been, and still was, under consideration. Mr. Baiker had suggerted that the Government should insist on the compulsory insurance of all motor vehicles, in ordel that injured persons might. be able to obtain compensation. The Minister. however, pointed out that there were many difliculties in the way of compulsory insurance, and, in any case, logislation would be needed.
The question of level crossings over main arterial roads was raised by Viscount Curzon, who asked it the. Government wero making any efforts to do away with them whenever possible. Mr. Gosling replied that he recognized that such crossings were a hindrance, and he was anxious to get them abolished wherever possible.

Full Programne of all the Whitsuntide Small Car Events Including Further Particulars of the London-Edinburğh Run.


The Adventures of SternOlive \& SternOliver-No. 5.


## Sense of Humour

ASENSE of humour is the great lubricant of life. Some cars are badly lubricated. Note the result. They never see the light side of anything, work dourly, complain incessantly, groan and sigh at hard work, and scalding tears run from their radiators if they have to climb a long hill.
But a well lubricated car has the imperturbability that comes from a full sense of humour. Does it waste time moaning over hard work? No. It meets it with amiable equanimity, takes the rough with the smooth, and is as fine a pal as a good-humoured man or woman.


## THE SUPER OIL, SUMMERORWINIER



Obtain your supplics in the 5-gallon de. corated drum
FREE
with TAP. If your usual dealer does not stock. write us and we will see that you are supplied.
"this has considerably surprised me." We received the following ramarkable lelter this year from
Mr. Leslie Marshall, of "Holly Lawn," 17, High Raad. Mr. Leslie Mar
${ }^{*}$ Centlemen-You will. no doubt. be intereted to learn that my $30 \mathrm{~h} . \mathrm{p}$, t-cyl. $1914-15^{\prime}$ Napier 'has iust completed 30,000 miles nince June last. during which time it has not been found necergary to decar bonitictie Engine in any way or touch the halves. the Ot Wernol W. I must way that this has considerably surprised your as when the ('ylinders were lifted (more out of curiosity) it was me, as when the (ylinders were litted (more out of curiosity) no was
found that all the Valves were perfectly clean and gatight, no trace of pitting in either Valves or Seatiogi, and comparatively vary littlo earbon oi tops of Pintons and which wns easily removed. It was not found necessary to make any adjistments to big ends, sma'l ends or main bearings, showirg that efficient lubrication must have been taking place.
"I might mention that your " Magikoyl' has been frequently used, and whether it is due to that or not lannot say: a'so engine washed out and freshoil put in on an average cvery 5,000 miles. Persorally, I consider it a. most extrnordinasy performance. My only reason in writing you is that perhsps my experience may be of use to other Motorists and sou are quite at liberty to make use of this."

STERNS LTD., 4 , ROYAL LONDūN hOUSE, FINSBURY SO., E.C.?.


We are the official suppliers of Lubricants for all plant in the Palace of Engineering, British Empire Exhibition.


> The services of the staff of "The Light Car and Cyclecar" are always at the disposal of readers. Queries of general interest will often be 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.

Piston Head Lubrication. D.MoM.S. (London, S.L.8). - The trouble with tho automatic inlet valves on your engine is probably due to them sticking in their guides. The use of a reliable "upper-cylinder" iubricant, such as Mileago oil, might help matters. The addition of the correct proportion of an oil of this nature is also most useful in all engines, especially where there is a tendency for valves to stick open.

## Ackermann Steering

E.E. (Manchester).-Practically all modern cars ano fitted with thus type of steang Referenco to the drawing will show that the front axle is fixed permanently to the car, and that the wheels aro mounted on small hinged extensions, which are known as stub axles. These stub axles aro linked together by a rod in such a manner that when the car


Sketch demonstrating the principle of Ackermann steering.
turns both fron't wheels swing on a radius from a common centre in line with tho back wheels. This method obviates all drag between the road and the front-wheel tyres. It also gives the car a better "lock"; in other words, it enables it to beyturned in a smaller circlo witlout-unduly reducing the width of the chassis in front.

## Fitting a Carburetter

N.O. (Oalcutta). - i carbarelter should, whenever possible, bo fitted with the float chamber towards the front of the engino, as, when going up-hill, the petrol level is thus slightly raised in the jot, which is an advantinge. Similarly, when travolling down-hiü, the petrol lovel is nutomatically lowered, and this tends to prevent any wastuge as the resuit of petrol flooding from the jet.

## Charging New Accumulator.

O.F. (Aberdeen).-It is recommended that a new accumulator should bo fully charged, discharged and washed out and filled with fresh acid before recharging for service. Tho additional cost incurred will be well repaid by the lengthoned life of the battery.

## Slipper Pistons.

S.O. (Anersham).-Experiments have shown that a considerable amount of power is absorbed by oil friction between: a piston and the cylinder in which it works. Especially is this so at high engine speeds. In order to reduce this friction, pistons have been designed in which the surfaces touching the cylinder walls have been reduced, so far as is possible, from the point of view of mechanical strength and other important factors. Pistons of this type are termed "slipper" pistons, and are largely fitted in present-day cars:

## Valve Timing

A.R. (Cork).-It is seldom that an alteration to the Eiming used by the manufacturers of any particular engine will make an improvement in its performance. Alteration to the shape of the cams requires special machinery, and is outside the scopo of anyone who is not equipped with a knowledge of practi-


How a small difference in tappet clearance may largely affect the valve timing.
cal engineering. A detail frequently overlooked by motorists, and whian materially affects valve timing, is tappet clearance. Refercnce to the drawing will show that-minute difference can make a large variation in the timing of the velres, often amounting tc several degrees. Unequal warr of the rams will affect valve timing, as will also a twisted camshaft.

## " Topping Up."

T.H. (Dartmouth).-This is a trade term used to denote the process of mak. jog up any deficiency of acid solution in an accumulator by adding distilled water or dilute acid as may be nocessary to maintain the correct specific gravity and level.

## Tapping Threads in Aluminium.

C.A. (London). - When tapping threads in aluminium, great care must be used, and the tap removed frequently in order to claur away the metal swarf. Turn the tap only a short distance at a time, and use paraffin or tarpentine as a lubricant.

## Aluminium Pistons.

T.H. (Loughborough).-Pare alumiaium is not used for pistons, being unsuitable in this state. It is used as ons of the constituents of an alloy, magnesium and copper in varying proportions being most frequently used in conjunction with it.

## Excessive Oil Consumption.

W.O. (Leeds).-We should advise you to have a "scraper" ring in the skirt of each of your pistons. This means replacing pistons; the illustration is selfexplanatory. Large baffle plates at the


## A scraper ring fitted as shown tend

 to keep oil consumption low.bass of the cylinders may also assist matters, but care should be taken not to make them of such a size that insufficient oil and oil-" fog" can reach the cylinder walls.

## Exhaust Gas Analysis.

M.I. (Belfast).-It is quite possible to analyse the exhaust gas of an engine after trapping it from the exhaust pipe or from any individual cylinder, as may be desired. The gas is conducted: by means of piping to a specially constructed chemical apparatus, where each constituent is absorbed by chemicals and the amount mieasured. Exhaust-gas anslysis, however, requires scientific training in the handling of apparatus of this nature.

## Dynamotor Construction.

U.N. (Oxford).-"Dynamotor" is a coined word describing an electrical accessory which serves the purpose ofe a combined starter and lighting dynamo. Its construction entails special winding, and its chici advantamo is the saving in space, an impartant. detail with modern light cars. A dynamotor is permanently in engagement with the engine, and for starting purposes takes its current from the accumulators nutil the engine speed is sufficient to drive it as a generator.


We welcome at all times lefters sent us by readers for publication in these columins, and, while taking no responsibility for the opinions expresscd thercin, give preference to thosc letters which deal with subjects of general interest. No anonymous communications will be accepted, but the writer may use a nom de plume if desired. Letters should be as brief as possible, but not abbrcviated. We reserve the right to make any altcrations or deletions which we decm necessary.

## WHICH TYPE OF HORN?

## Bulb or Electric, but Not Mechanical.

## The Buzzer-type Electrical Horn Preferred.

The avorage mowrist dematids four things from his horn: Roliability, power, dignity and ease of operation. On these points, the choice of electric, mechanica! or bulb horns must Electricity be made. It is essential that the driver Electricity should not be "let down" by his lorn; Points but this reliability entails responsibility. It is absurd to expect any contrivance to function rithout being looked after. Given reasonable allention, electrical and mechanical horms ars equally reliable, hut inattention affects electrical horns more seriously. Bulb horns are not generally reliable, as dust easily chokes the reeds.
Power givas the driver time to act; here the bulb horn fails, while the other horns carry equally far.

Dignity in horns shows consideration; mechanical horns have no dignity due to their intermittent, action; motordriven electric horns cannot help rasping. Buzzer-type electrac horns, unlike the bulb horn, can have great dignily combined with power.
In easo of oferation, electric horns obviously are vastly superior.
Surely, then, the choice must be the electric horn, because it is first in reliability, except when it is not looked after, and first in power, ease of operation and dignity, in which the ibuzzer typo leads the motor type.
I consider, a well-made buzzer-type horn ideal.
B. W. Galpin.

## Mechanical a Poor Third.

For reliability fit a bulb horn, but for clearing the road give me an electric horn. The latter may go wrong in many ways; therefore, the former should be fitted on a new car.

## The Politeness

of the
Bulb Horn. Let its owner add an electric one if ho desires. I like both. Apart from reliadesires. bility, circumstances are many where the bulb horn calls attention effectively, and in a tar more gentiemanly way. The electric horn can be aggravating.
If might be argued that it is cheaper for the new car to be filted with an electric horn and for the owner to fit the bulb horn if he desires. Rest assured the purchaser pays-always.
Tho mechanical horn belongs to a class which has no outstanding claim to merit. It is not so reliable as the bulb nor as penetrating as the electric. Moncover, it is often amkward to fit, and invariably develops an annoying rat.te.
St. Andrew's Vicarage,
H. Crowther-Alwix.

## Bulb Horn Operated by Radiator Fan?

Most motorists will admit that the pross-bulton electric horn is the most convenient to use in traffic, but it has its disadvantiges, and few molorists rely on it alono. Tho chicí

Simplicity and
Reliabilitv of these is that the functioning of the horn Hand-operated provided the bulb is moderately sound of gear, and generally they give a very unpleasant note. Taken all round, all three types are fairly reliable, and i think I may say absolutely reliable, if they get \{air play and moderate altention.
I have forgotten most of my "Light, Heal and Sound," but I thank it ought to be possible to produce a horn with a penetrating note which would not be unpleasant to hear. Would it not be pessible to operate a horn of tho bulb type from the radiator fan? Probably a sufficient air pressure could be oblained by fitting a funne! immediately behind it.

Co. Down, Ireland.
If. H. Brownrigs.

## Another Supporter of Electricily.

We may fairly assume that, for effectiveness and reliability, the present-day electric horn is at least equal to the bulb or mechanically operated warning device. The circuit is simple, and the consumption of current

## Ease of

 Operation. is not excessive. The mechanism can bo housed under the bonnet or in any conveniont shaltered position, and long or short sotes of warning can be given with minimum effort.This ease of operation is an outstanding advarrtage, ns the driver can steer and warn with one hand, leaving tho other free for traffic signals, gear change or hand brake. Indeed, it can easily becomo a habit-an exceedingly useful oneto drop the hand to the brake lever when giving a prolonged warning to playing children or in view of other potential dangers.
I strongly favour the electric horn, controlled by a rocking ring within, and concentric with, the stcoring whecl. Wrists, thumbs or fingers are available to "sound an alarm," and to beginner or expert, speedman or potterermore especially in grease or narrow lanes-this is of value, as steering control is not affected to any appreciable oxtent. Furthomore, this type is the only one which will penotrato to the ears of a char-d barcs, elc., driver.

Exeter.
W. R. Bright.

* The winner of the grinea prize will berannounced in - next week's issue.-ED.


IF you are thinking of having a new car within the next six months-get it now.
Second-hand values are pretty good-they will not get better-and. I can give you a good price for your present car in part exchange for a new car.
The balance you can pay in instalments to suit your convenience, and in practically every case, no further initial payment is necessary-just hand over your car.
It does not matter what make of car you have to exchange-1 can give you the best price for it-because I am a Specialist.
You do not want to deal with General Practitioners. Go to a Specialist right away.
Remember, it does not pay to run a sick car-let me take your liability from you and supply you with an asset in its place. That's sound business !


## WARWICK WRIGHT, LTD.,

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## The <br> NEWNHAM



We are prepared to issue a written guarantee to the effect that if the prices of A-C or Singer cars are reduced before the lst September, 1924. we will refund the difference in full, providing such cars have been purchased direct from us at the makers' current prices and a signed guarantee obtained at the time of purchase. The mere fact of having bought a car from us does not entitle the owner to a refund, production of the guarantee being essential.
In most cases we are also prepared to issue the guarantee in EXCHANGE deals, where a new car is purchased, and also in some cases where a new car of different make, but for which we are agents (see below), is concerned.

FULL PARTICULARS WILL BE FORWARDED ON REQUEST.


10 h.p. 4-cylinder. BALLOON TYRES on $10 \mathrm{~h}, \mathrm{p}$. MODELS, $£ 6: 6: 0$ EXTRA.


" POPULAR" 2-scater with starter, $£ 200$
" DE LUXE" 2-seater, $\mathbf{\$ 2 2 5}$

" DE LUXE " 4-seater, $£ 235$
" POPULAR" -seater, $£ 210$

CARS IN. STOCK FOR IMMEDIATE OR EARLY DELIVERY.

## MOTOR COMPANY, <br> 245, Hammersmith Rd., LONDON, W. 6.

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Mr. D. Chinery's Gwynne " 8 " was awarded the DAILY CHRONICLE CUP for the most meritorious performance, irrespective of Class, in the R.A.C. Six Days' Trial, and the GOLD MEDAL in Class E.,

## FIRST AND SECOND IN FUEL CONSUMPTION,

 AS WELL AS THE BEST ACCELERATION.FIT ONE ON A MONTH'S APPROVAL.
S.U. COMPANY, Ltd. (Dept. F.5)
Shipton Works, Prince of Wales Road. Kentish Town. N.W 5

## "Dagenite" the Fiwourite

Next week sees the Derby run-a test of endurance last ng a few minutes only-but-to-day, '
to-morrow, next weeh;
mecxt month, and next year the endurance of
"Dagencite"
is being subjected to the severest of acid tests-and Dagenite wins every time!

Dagenite one-piece C• tains will not crack and carnot leak. Ask your denler for particulars or write to us for Catalogue "L"

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The small advertisement columns of "The Light Car and Cyclecar" form a uniquc mart for the
B52 disposal of all goods of inlerest to small car users.

## - THE IDEAL £100 CYCLECAR.

## A Second-hand Bargain Preferred-Criticism and Comment.

With reference to the recent correspondence on this subject, may I suggest that it would be more profitable to invest $£ 100$ in a sound seconddiand proposition rather than on a new machine which has been buile £100 Too Cheapdown to a (comparatively low) price? In to be Good. this case, the sum mentioned would purchase a used car in good condition having a far more comprehensive specification and a better performance than a new car, cheaply constructed, and in which it is admitted that overything would be of the simplest description, could be expected to have.
A.B.C.

## Manufacturing Difficulties.

As an automobile mechanic of some years' standing, and one who is very interested in the development of the cheap light cyclecar, perhaps I may be permitted to criticise the design of a threo-whecled ayclecar which An Impracticableappewed in your issue of May 23 rd .

Design. I consider the design impracticable, both from a rechanical and from a financial and manufacturing standpoint.
I have myself built two three-wheelers, sorapping many components in doing so, and found my greatest trouble was tho lying over of the rear whec when cornering. This, your contributor states, cannot possibly happen with his design, but I would submit that a wide, rectangular, horizontal framework is the worst possible type of construction to deal with this trouble. It also entails a very long rear-wheel spindlo, unsupportod, except at its extreme ends, which is obviously bad.
With regard to the position of the engine, I admit that, whilst the nearer tho driving wheel the better, in that a short transmission becomes possible; the position shown would bo very unsatisfactory for an air-cooled engine. It is completely cowled in, the only entry for cool air being beneath, and no exit for the heated air is visible. In the drawing the ongine is shown attached to the frame by long bolts passing through the engine plates and projecting several inches before bolting to the frame-a very insecure and flexible method.
Regarding gears, your contributor may be satisfied with two-speed epicyclic gears. Personally, I am not, and I do not think that two speeds would be sufficient for a vehicle which must be primarily a go-anywhere-fully-loaded bus.
The suspension system would answer very well, and, notwithstanding the joints, bearings, etc., involved, is the best
part oi tho design. Tho Ackermann systom of stcering has already been proved satisfactory for light veluicles.

The suggestion to hinge the rear portion of the body would cortainly add to the accessibility of the chassis, although, if a dickey is providod, much would depend, and suspend, on the hinges. Incidentally, in the drawing no accommodation is provided for the lags of the dickey passenger!
From the manufacturer's point of view the design is unsound as a cheap job. There would be too much work in it. It must not be forgotten that, for a machine to be sold to the public at $£ 100$, the actual cost of manufacture should not exceed $£ 70$, leaving $£ 15$ manufacturer's profit and overhead charges and $£ 15$ for the agent, who also bas overheads to meet (and very often sundry "commissions") before he finally takes his profit. It is important, therefore, that labour charges be kept down to the absolute minimum. For instance, in this design there are three separate frames to be assembled, 14 lugs to be riveted on, two transver'se arms, fork ends, spring boxes, etc., to be machined, and a body requiring a heavy framework, inasmuch as only the centre portion actually rests upon the chassis, both front and rear overhanging.

Therofore, if the manafacturer is to provide a good, powerful engine, as ho must to obtain the performance vour contributor demands, combined with a presentable body, electric lights, etc., and ii ho avoids shoddy material or unsatisfac. torily cheap labour, I do not think he could do the job at $£ 70$.

Should this letter catch the eye of your contributor, I hope that he will not be offended at may frank criticism, and if he would care to send his address to a fellow-enthusiast, I should have pleasure in forwarding him my design for tho ideal $£ 100$ cyclear, that he may treat it in a similar manner. Birmingham.
T. W. WYNCOLL.

## A Comment on Lieut. Galpin's Letter.

I have taken much interest in this correspondence. The sketch and description of Lieut. Galpin's conoeption skows that it is both practicable and pleasing.

If he will figure out the approximate £120-not $£ 100$. cost to his specification, I am afraid l:e will not be able to sell it, allowing for advertising and agents' commission, below £120. Perhaps you could induce him to writo further on the subject.
A. E. Paziiacott.

## Detection of Crime.

It may be of interest to those of your Joondon readers who intend touring in the West of England during the Whitsun Holidays to know that police traps, are habitually worked by the local police on Bank-holiPolice Traps in day Mondays on the two main roads runthe West. ning to Exeter and Plymouth. The one trap is situate at the village of Middle Wallop, between Andover and Salisbury, via Salisbury Plain, the other being worked at the Park House cross-roads, approximately half-way between Andover and Amesbury, on the alternative route.
In both cases the police adopt the questionable principle of stationing the "trapper" in plain clathes, usually negli. gently leaning against a telegraph pole or other support.
Furthermore, tho speed of the motorist is only estimated by the "Lrapper," who, as is usual with all traps of this description, would seem to fail to make allowance for the fact that the smailer the car the faster it appears to be travelling, in comparison with larger cars, which, although travelling at tho same speed, ara allowed to pass freely without being stopped.
In view of this, the molorist would do weht to remember that the most eflicient speedometer in the world is of no avail against the estimato of the law, ne matter if he be travelling well within legal limits. Nor does the defence that the road was perfectly deserted, and consequently clear, creato any impression on couniry magistrates when druvers are bofore them.

耳.K.S.
East Twickenham.

## A Troublesome Point.

I am an interested reader of The Light Car and Cyclecar, and was unfortunate enough to see your remarks with regard to Morgan number-plates and Wilmslow too late, as I was fined 10 s. there last week for using cycle-

## Should be Car

 Size. size. The front plate was car size. I have since looked up old copies of The Iighe Car and Cyclecar to find out the correct size plates for Morgans, and it took me some time to find whit I wantel It seems that it is absolutcly essential for threewheelers to carry number-plates at front and rear of exactly the same size as those used on four-wheclers.I often remember having seen a reforence in your paper, but when I have wanted to refer to it I have been unable to trace the issue among my stock of back numbers.

May I suggest that a portion of some page be reserved for an index of outstanding itens. I believe it would bo very useful as a reference, particularly as I feel sure that many people must keep their old copies. C. Ordfield.

35, Milner Street,
Old Trafford, MIanchester.

* We regret that it is mpossible to provide a longer index
* in The Light Car and Cyclecar than that afforded by tho contents table published every week on the same paye as "Topies of the Day." For the benefit of readers who retain their back numbers for binding, we publish every six months a printed rolume index which is ubtainable irom these oftices.-ED.


## OU'R READERS' OPINIONS (contd.).

## Where the Manufacturer Fails.

Is it not strange that manufacturers of light cars cannot give more attention to detals. A car round about the £250 marls is looked upon as something specially good in More Attention theso times by many of us, and it is most to Details
Wauted. disappointing to find faulis which could obviousiy be remedied by any thoughtful person after one year of manufacture.
My first disappointment was to find, after my initial ride of 60 miles, that the side curtains, which were packed in the dickey, wero rubbed-a brand-now car and side curtains looking second-hand. Avart from looks, it is essential that these should be very clear. $A$ little soft material fitted between them would have prevented this.
Second annoyance: the filler to tho potrol tank (under the bounel) is on the side of tank, and one cannot tell, even by the primitive method of poking with a slich, how much petiol there js. If the price of the car does not allow for a dashboard petrol gauge, surely a rough indicator could be fixed on the lank itself.
Third complaint. : pedals not adjustable-year 1924!
Fourth complaint: dickey seat will not close with the cushion in its place. Another inch in the denth of the dickey surely would aot entail much cost or spoil the appearance.
N. 13.
W.C.B.

## Driving to the Common Danger.

Whilst travelling recently, from Southport towards Ormskirk I had occasiou to overtako another car on tho outskirls of the latter town. Just as I was in the act of doing so, a two-seater Alvis, bearing a Coventry num-

## A.Bза <br> Case.

 collision involving all three vehicles.I followed th elvive into rowness of tho street, he endenvoured to "cut-in" betwen it hunch of cyclists and a car coming towards him. It was only due to the driver of the latter pulling up dead that an accident did not occur.

These incidents happened on Sunday, the 18 th inst., between 6 p.m. and 7 p.m., and should this letter catch the eyo of tho oflender I should like him to note that I have lis number, and that, in the event of my witnessing a similar occurrence, in which he is the guilty party, I can either iaform the police of his identity or prosecute him myself.

Sarety Finst.

## Air v. Water Cooling.

Under the heading, "Air v. Water Cooling," you ask if 10,000 miles without decarbonizing is possible. It certainly is. With large cars I imagine it happens frequently, but $\mathbf{1 0 , 0 8 0}$ Miles it is not beyond small ones, for mine will Without Decarbonization. 9,400 miles, and is ruasing as well atos decarbonization. when new. Not even a tappet has beer adjusted, and I havo no idea when it will need decarbonizing, but should have no hesitation in starting on a tour now. l.ast munth it climled Red Bank with four up, so, at any rate, its tune is nol bad. The car is a Riley. Usual disclainos.

Coverley.

## Does Self.decarbonization Occur in Air-cooled Engines?

I should be interested to know if other readers of your paper have noticed the following phenomenon in the Rover Eight engine. Last Enster I completed a tour of over 1,00; miles in Scolland on my 1922 Rover Eight

## A Pleasing

Phenomenun. which already has more than 10,000 miles to-its credit), finishing up with a practically non-stop rum from Glasgow to Southport ( 212 miles) in the grod time of $8!$ hours. Thinking that the engine would benefit by a good cleaning oul, I removed a cylinder head, and found that I might have saved myselfí the troublo, as a iight deposit of soot on tho piston hoad was all that was reverled. The base of the valve caps was absoJutely bright and clean. also tho l'cads of tho valves and plug points. I scrapped drip feeds some months ago and fitted a new central oiling system.

- Is it passible that the high normal running temperature has the effect of burning out carbon as per oxygen process? Ainsdale, Lancs.
B51


## INFORMATION WANTED.

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

## Address Wanted.

Will the reader who wrote us on the 19th inst., asking for a route from Leicester to Tivetshall (Norioll). kindly forward his address, in order that we may lot him have the required information?

Rover 8.
Has any reader had an air inlet fitted to the induction pipe of his Rover Eight? If so, would he be good enough to let me know the result?

Polters Bar, Middlesex.
H. W. Timdory.
G.N

I should be very grateful if any reader would either lend or sell to me a 1922 G.N. instruction book.

Orchard Cottage,
Totternhoe, near Dunstable.
Ronald A. Burr.
Austin Seven.
I shall be glad of any information regarding the Austin Seven sports-average speeds, comfort, ruming costs and performance or rough and hilly roads.
55, Abboy Road,
F. Hugir Tiprett.

Torguay.
I wonder if anyone can give me his experiences of the Austin Soven sports as regards durability, springing and quietuess after heving run some 1,C00 milos; also general running?
R. Bonner.

Worcester College, Oxford.

## Aero Morgan.

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Will some reader please inform me of the best sotting for a Cox Atmos carbureticer on a 1922 model of tho above car? MIy petrol consumption works out at $30 \mathrm{~m} . \mathrm{p} . \mathrm{g}$. , which, i should think, could be improved upon by at least 50 per cent. Also, is petrol and benzolo mixture suitable? If not, what is recommended?
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## AROUND THE TRADE

Out of tho 16 makis of cars which competed in the recent 1R:A.C. Small Car Trials, 13 were equipped with speedometers, those fitted to 10 of them being of Smith manufacture.

A new catalogue relating to the Ariel Ten has jast been issued by Ariel Works, Ltd., J3ournbrook, Birmingham. Readers of The Light Car and Cyclecar are invited to write fur copies.

Mr. D. Chinery, winner of the £250 cup for the most meritorious performance in the R.A.C. Six Days' Trials, is the proprictor of tho Olympia Mator Co., 1, Hammersmitn hoad, Loudon, W. 14.

Dunhills' new sectional catalogue is now available for those who care to apply to Dunhills, Ltd., 359-361, Euston Road, N.W.1. Provision is made for tho insertion of extra pages as these are issued.

We gather that readers requiring tuitior may obtain it at the inclusive feo of 5313 s .6 d . in tho various makes of 1924 cars at the British School oi Motoring, Coventry House, Coventry Sticet, Piccadilly, W.1.

We are advised by Messis. Burroughs Wollcome and Co., that they wit! be pleased to supply copies of their new photographic booklet, "Foresight in Photography," to ally of our readers who may care to apply.

The title of a new company which will confine its activities to the distribution of P'eto and Radford's portable batteries is Northern Distributors, Ltd., the address being 16, Princes Chambers, John Dalton Street, Manchester.

Ashton Evans Motors, Ltd., Floodgate Street, Birmingham, have secured the sole distributing rights throughout the Midland area for the Lennox air valve. This valve is of special interest, due to its scientific construction and unusual principles.

The booklet issued by Benton and Stone, Lid., Bracebridge Street, Birmingham, dealing with the Enots grease-gun system is probably one of the most exhaustive works on greasegun chassis lubrication which has yet been issued, and should prove of considerable help to all owner-drivers.

The Goodyear Product Bulletin, as its name implies, is a paper contrining an illusimated review of tho Goodycar products which are in more general demand. Copies of this pullication may be obtained upon application to the Goodycar Tyre and Rubber Co., 162, Shaftesbury Avenue, W.C. 2.

## MOTOR TERMS TRAVESTIED,



Up on Top. Top." "Gallery Pipe" was an attempt tho exaol meann! of which is rather obscure, "On Easy Torms" being, perhaps, in the same category. A guinen is offered for whe first correct solution of this week's Notor 'Term, the Travesty of which will bo found, as usual, on the second page of "News."

# How Amateurs equal Coach Painting and save £10 to £20 



MANY Car Owners are securing a perfect finish on th eir cars and eaving money by adopting the following plan. First, the work must be satisfactorily prepared. This is simple and easy, and is explained in the Robbialac Instructions Leaflet. Second, the anaterials must be suitable for amateur use, and this requirement is fully met by Robbialac. Third, the Robbialac must be correctly applied, as indicated in the Robbialac Instructions Leaflet. Fourth, after giving the car its coat of Robbialac Colour, give a coat of Robbialac Transparent Finish and use Robbialac Brashes. You will then have a coach finish equal to first-class professional work and the cost for renovating a 2 -seater with two coats will be under $15 /-; 4$-seater under $25 /-$. The professional coach painter's charge for the same work would be $£ 10$ to $£ 12$ and $£ 20$ to $£ 25$ respectively upwards. Robbialac is sold by all Motor Accessory Dealers. Write to Robbialac, Dept. "C," Warton Road, Stratford, E.15, for Instructions Leaflets, Colour Cards and Price Lists.

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ALVIS, $1922.23,10.5 \mathrm{hn}$ sports, dicker, dynamo ligbting, self-starter, grid, extra sparo tyre, new Lood, tax paju, bargain, 2172 10s.i cash or
Gasy payments Wikins, Simpson, opposite Olymph, London. 601 -e603
ALVIS, 1921-2, semi-sports, dickey, starter, speedumeter, clock, extras 60 mp.h. guaranted, exceptionaly good condition
or exchange motoreycle and cash. 51 Upper Richmon Rd, Enat Hutney.
$601+92$

Readers are reforved also to "THE MOTOR" (Tuesdajs, 4d.), which contains each week many hundreds of advertisements of new and second-hand cars of all kinds.

## SECOND-HAND LIGHT CARS AND CYCLECARS FOR SALE

## (continued).

 ARIEL, 192J, 9 hp, 4 -senter Chummy, few months old only, dynamn
 ARIEL, new, soiled, 1924, de luxe Ariel 9, selfstariey, 4 seater, painted
 AUSTINS. Try IIenly's. You cannot beat their terms. 91 and 155
Gt. Portland Sz., W. Masfair 4201. AUSTIN. Polential purchasers of this make of car, either now or cecoud-hand, are invited to send their requirements to The Garage, 12,
Cornwall Terrace Mews, N.W. 1 (by Mme. Tussaud's). Extenled mayCornwan terrace Mew
601.550

AUSTIN 7, 1925 , in particulnriy good condition throughout, speedo-
 AUSTIN, 7hp, sperts morke, in stoek, milpage from the works registered,
A17.0. Box So. 5841 , c.o. The Light Car and Cyclecar." 601 -e414 AUSTIN 7, 1923, Chummy, $\mathbf{E 1 2 5 \text { . Smith and Funter, } 9 0 \mathrm { GL } \text { Portland }} \mathbf{6 0 1 - 3 2 0}$ AUSTIN 7. 1924 . electric siarter. jnst delivered. miteage
nati, 200 tax
1998. AUTOGRAT, $1924,10 \mathrm{hp}$, 2-scater, nll-wcather, double dirkey, fully Motor Garazr. Wincheomlen St.. Cheitenhana. eltenham
$601-\times 955$
A.V. monoears from . £25; 2-seaters from f35. Open Saturdags nntil 5
oclock. $4 . V$. Motors, Park Rd., Teddington. Telephone, Klngston 710 . A.V." 6lpp. 1920, overhnaled and repainted as new, £2J, taxerl, insured. $601-\mathrm{e} 828$
1- Belgrare Rd, Wanstead. Phone 407 . A,V, monocar. first-class conditinn, rery litile used. J.A.P. engine, ns new.
ê 35 or near offer. B., 91 Cavertham Ave., Palmers Green, N. $601-371$ A.V. monosars, from $\mathbf{2 2 5}$; 2 -seaters from $\mathbf{C 3 5}$ to $£ 70$. We apecialize in buying, selling, and exchanging and supply on deferrel terms. Phone,
Putney 1827. Audrew's Motor Mart, 151 Whito Lart Lanc, Barnes. $601-572$
 BEBE PEUGEOT, 4 -crlinder, w.-e., 2 epects, reverse, hood, windscreen, ide curtajus, rpare rim, lamps, taxed, good condition, what offers?
Jarender Cotiage. IIenth Rd., Millingdon.
601 -c860 BELSIZE-BRADSHAW. Gordon Watney and Co. Ltd. 31 Brook St., tock, guaranteed, from £100; delerred payments and part exchanges.

ELSIZE-BRADSHAW 2-3cater inl 1922 dsnRmo lich wheel avit other accessuries. carefnlly used. mileage under 5,000 and in excentionally gnol rondition hood nui paintwork like new, filly
taxed, £100. Moore, 62 Arenue Rul., Highgate, N.6. Clerkenwell 6788. BELSIZE-BRADSHAW, 1922, 2-seator, tax paid for the sear, excelient nechanical condition. So guineas. Manx Cresecut Motor Co.. 25 Basil ELERIOT-WHIPPET. Astoundiag ofler. 79 , Euineas. Brand-new $192 \overline{5}$ (not shop soiled) Bleriot-Whippet 2 -seater, with full makers guarantee, electric lighting, spare wheel with tyre, hood, screen, magneto ignition, merbanical hand starter, pump, jack, tools, belt drive and mechanical
horn: eny car or matorcycle haken in exchange; easy payments. Write. horn: any car or motorcycle haken in exchange; casy payments. Write.
phone or call. Short and Glass, Lta.. $362,487,489$, 491 and 493
Upper Richmond Rd., East Sheen, S.W. 14 . 'Phone, Richmond 2362 under Rich 2363.
BLERIOT-WHIPPET, £38: exchanges, deferred payments; 1921 Bleriot-Whipnet. 2 -seater, hnod, sereen, lamps, 5 detrichables, nice con-
dilion. Seabridge, 35 Iizasler Rd., East Dulwich. Sydenham 2452 .

BLERIOT.WHIPPET, 1923,
Dobhing, Bishopton, Ferrshill, Co. Durham. ILERIOT-WHIPPET, late 1920. 2-8eater, 9hp, hand starter, electrio and gas laups luggage grid, ete, spare wheel, s28, caslartor, defered, or eralagiges. Teddington Garage, I60 IIigh St., Teddington. Kingston
2562 .
BLERIOT-WHIPPET, 1923, 8hp, brand new, 2 -senter, electric lighting. fully equipped, makers guaranire, 79 guineas; cxchanges or deferred.
BLERIOT-WHIPPET, 1923, 9hp, 2-seater, spare wheel, hood, electric lghting, run 1,200 miles, as vew, Largain, sis5. D:, 5 Priory Gardeus,
Shepherd's Hill, Hightate. BRITON 1920 4-scater, dynamo and starter. E95; exchange or hire601.887
 BUCKINGHAM, 1925. 10hp. 2-seater, dickey, pastel blue, dynamo lightin! spiendid condition, \&90. The, Oak, Feltwell. Norfolk, $601-0772$ BUCKINGHAM, 1932, praclically new condition, guaranteed, f60. 28 BUCKINGHAM, 1923. 10hp, 2-scater. dickey, dynamo IIghting, allWeather equipinent, vear's liceuce, 100 guineas; exchanges or deferred. BUGATTI, 1921.4 -seater model, first registercd 1923 , dynamo lighting, starting small mileage, f195; 1921 Brescia model, dual ignition, Bosch

 Smith and Jiunter, 90 Gt. P'ortland St. 'Phone, Museum 8136. 601-325 CALCOTT. 595,1919 , JOhp, 2-seater, dickcy, dymamo lighting, year's


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

 (continued).CALCOTT, $10.5 \mathrm{hp}, 1919,2$ secater, dickos, dynamo lighting. 6 detach| able whects, smart appearanec; offers. Alderton, Reigate. Surrev. |
| :--- |
| Phono 154. |
| $601-909$ | CALCOTT, 2-seater, sacrifico, 68 guincas: apdointment. Owner. 7 Park CALTHORPE. Moores Presto, Crosdon agents Calthorpe cars. Promptest hand cars to select from. Deferred pasments and exchanges arranged

North End, Croydon. Phono 2624,
 7600 .
CALTHORPE racing single-scater, wiro wheels, 80 m.p.h., $\boldsymbol{E} 150$
CALTHORPE, 1920, 4-scater, dynamo lichling, e125; eash, deferred, gatc, Nanchesler. Central 2681 , Co., Ltd., 5 Cumberland St Deans:
 Lxammation, bargaln, $£ 36$ 15s. Wilkins, Sinppson, opposite olympia,
 CALTHORPE 1920 sports 2-seater, dynamo lightiag, electric horn.
 GALTHORPE, late 1921, 10hp, super-sports 2-seater, dymamo lighting. specdometer, elock dash iamps, polished aluminium body, very fist has
 CALTHORPE, late 1923, 2 -scaler, run uader 5.000 miles. appearance
 CALTHORPE, 1922, 10 hp , 4 -seater, electric soli-starter and lighting.
 CALTHORPE, 1921, 10hp, 4-scator, lighting, starting. clouk, repainted,
 CALTHORPE 1922 do luxo 4 -senter, sell-starter, all extras, fully faxal,
 CARDEN oflial repair denot.
All spare for Carden cars stocked; complete overhauls undertaken. Send lor list of improvearents.

 elc., £24, bargain. Wood, 79 Fcrnhead Rd., Westbourne Park. W. 601 - 958
 CARDEN, 1921, 2-seater, year's tax, new lyres, specdometer, fully

 iss. Mane, Barnes.
 CITROEN E125, 1921, 4-seater, tased jear. English mudgnards, smart, pertect order, near olfer; exchange combination and cashi. 181
Newton Rd., Burton-ou-Trent.
601 CITROEN. W. II. Joncs and Co.
The Citroen car specialists and authorized agents oller:
£155. 11.4hp Citrocd, 1922, 4-scate: Freach de :uxe body, speedometer, clock, periect.
£175. 11.4 hp Citruen, 1923, 4 -scater French do luxo body, tax paid. ¿235. 11.4hp Citroen, 1925, English 4-scater body, tax paid, milleage - 2265 . 11.4 h n Citroen, 1923 English coupe, 2 -sealor and dickey, tax - mide. painied and bue pherfect.
W. I. Jones and Co., 101 Gt. Porlland St., W. 1. 7197 Mayfair.

6 C.1-917
 E120. Sirolton and Smilli. 12 Woodstock St., Oxford St., Londion.
 purchase. Thn Light Car Co., 351,410 to 414 Euslon Rd, London. $601-889$ CITROEN, 1925, 7.5 hm dynamo lighting, sell-starter in excellent condition, 5115, or small deposit and the balance over 18 monthly instal-
 CITROEN 19204 -seater, dsnamo lighling and self-starter, right-hand drive. Tuis car has only been in uso 18 months, and is in exceptlonally Tho Gables, Sylvan Hill, Crystal Palace. 'Phone, Sydenham 223.' 601-×961
CLULEY 1924 2-scater, demonstration car, licensed, little used, 2250. CLULEY 1924 4-seater, taxed rear, many extras, only done 1,000 milles, owner going abrand, it230. Smith and Kunter, 90 Gt . Portland St. $601-322$
Phone, Museum 8136. COVENTRY-PREMIER, late 1922 , 4-whecler, splendid condition throughout, small mileace, new tyres, improved gearing, numerous add.
tions, best otter over $£ 75$ accepted. Vicar, Eccleshill Vicarage, Bradford. 601-c850 COVENTRY-PREMIER, 4 -whecler, lato 1922 , nnder 6,000 milles, selfstanter, perfoct mechanical condition, new tyres, 2125, cost 2250 , lixch
insured. Knight, Outfiter, Soham.

## SECOND-HAND LIGHT CARS AND CYCLECARJ FOR SALE (conlinued).

COVENTRY-PREMIER (Singor), 1923, engine 434, chassis 428. 2 comfort, nus reasonable trial, \&ij5. 10 Manor Parade, Sution, surrey, 601 e8j7

 COVENTRY-PREMIER, 1921, J-wheeler and dickor, dsnamo ligbting.
 COVENTRY-PREMIER, Inte 1922, 8hp, double dicker, dfnamo lighting, sell-starler, speeflumeter, mats, Fastiug sicle screens, milcage under 5.000 . taxed till December, condition liko noty, barty in, E95, cash or easy pas.
ments. Wilkins, Simpson, opposito Olympia, London.
601 e640 COVENTRY-PREMIER, 1922 , dynamo lighting, 2 -seater and dicker. very fine order, d85. Balchelor, St. James Rd., Kingston. 601 -c 766 COVENTRY-PREMIER, 1922, 2 -scater, double dickes, dynamo, speedo-
 COVENTRY-PREMIER 1922 4-wheeler, dynamo lighting, spare wheol.
 crouch, 101 ping 1923. Economic 2 -senter, Hickes, light bloo black wings. dynamo lighting, scil-starter, Eneeclonacter, dash lamp. all-wenther coupe, petrol can and carrier,
ectupped,
E17.
Sec beloti:
CROUCH, $9 \mathrm{hp}, 1921$ who 2 -scater, gres, black wings acetyleno light-垛,

CROUCH, 1923. 8.18hp, rosal bluc. Luens dynamo ligbting, slde curlitcs, very lithe used, tas paid, ns new, e 120 , cash or cass mamments. Villins, Simpson, opposito Olympia, London. 601 -e636 CROUCH 1Obp 2922 2-seater, douhlo dlckey, all-wenther cartains, Lucas
 GROUCH, 2 -3-seater. double doors, Lacas dynamo, Sankeys, zood tyros
 Crouch 1921 2-senter. excellent order. electric light. impulso starter. DEEMSTER 10hp ail-weather coupe. dark blue, leather upholsters. Triplex Elass ett., in excellent condition not done 13.000 miles, 50 m . owner taking delivery lareer car in a few days inspection and triai by appointment. Box No. 5859 , c.o. ${ }^{\text {a }}$ The Lizht Car and Crclecar. DEEMSTER, 1924 model, 10 hd . 2 -seater, sunk dlekey, lighting, starting, specdomeler, year's licence, splendid ordicr, 155 gns . : exchanges or
deferred. Ed nards, 175 Gt . Portland St., W. DEEMSTER 1920 2-scater, drammo and starter, execlicat condition. 885 ; exchanier or hire-purchase. The Light Car Co.., 351,410 to 414 Eus- $601-892$
ton Ru., London. DE MARCAY, 1921, 2-seater, 89 Anzani, detaclable whecls, dynamo

 ERIC.CAMPBELL, $1922,10 \mathrm{hp}, 2$-scater, polished nluminium body, rers

E.S.A., 1924, 10hp, 2-seater and dickey, Erglish bodjwork, 4 -cylinder,
 Zenith cantilerer springs, £165, or exchange or ternis. Milne. Watson
Rd., Wood Green.
$605-\mathrm{c} 768$ FIAT, 1921, 10-15, 2 -sanater, repainted, in exeellent mechanical condi-

FRAZER-NASH specd model, 2 -cylinder, 4 spectls, exceptional condition, ninner of mant premier nmards; what ollers or exchauges? Headingley Iotor Co., Ltd., 8 Olley Rd., Leeds.
FRAZER-NASH, 1924, 11.9 Anzanl sports engine. enclosed transmis. sion, rery chic $\overline{3}$-scater bod, list price $£ 450$ will accept $\delta 325$; would
 C.N. specialists. Repalrs; spares of ercry description in stock: hargest
 G.N., 1921, good mechanical condition, fast, dynamo lighting, speedo-
 G.N. Black and Finch, 222 Gt. Portland St., W. 1, sole coneessionazaircs havo Frazer-Nash G.N. boat-shaped bodly, Euarantced 60 m.p.h., £160:


G.N., 1921, 2-seater, dynamo lightiog, detachable wire wheols, spare, tyres ns now., oll accessories, full equipmont. upholstery. hood. and
 G.N. 1923 do luxo. in excellent condition, done under 3,000 miles. 5 wheels, electrio lighting, specclometer, calicious dickery get tools, ete.

G.N., 1921, 1922, cylinders, aluminium pistons, chassis jast completels orcrhaulad, dynamo nitated red, air cushion, aluminium dises, shock

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

 G.N., 1920. improved body, dynamo lizhting, speedometer, sparc wheel.

C.N., 1921, dynerno, spare wheel. mechanical ciling, new hood, scattle,
 G.N., 1920, 2-enter, dynamo lightinz. speedometer. nice appearane.

 G.N., 1922, 8lip. Z-scater, Sezaro aluminium bods, dynamo lizhtinz. gparc wheci, atct.. splondifl condition. 79 zuicess. Below.
 G.N., late 1921 de luxe medel, 2-seater 2 nd dickicy, side screens, speedometer, dyramo lighting, spare wheel, tax till end of scar, \&58. N「. cx-
chnrge combination or Mlorgan. 7a Northwick Terrace, Maida Vhate. C.N. 1920 or 1921, 2 -seater, dynamo lighting. 5 detachable wheels. clock, spsedometcr. tools, etc. jast repainted, new hood filted vers smart. cxcellent condtion thronghout, year's tax paid, 250.83 Penshurst fidi
Thornton Heath. Phone 1572 .
 C.N.s and other small cars alwass in stock; write, call, or 'phone. Pouney
1827. Andrew's Motor Mart, 151 White Mart Lino, Barnes. $601-374$ G.W.K., 1922. 10hp, 2 -senter, Grey, black winzs, dickey seat. dsamm lighting, speedorocter, mirror, all-wcather side cortains. pood tyres, lubll eguipped, excellent condition throughout, $£ 110$, Mebes and Yebes
(Established 1893), The Original Light Car Specialists, 144 Gl . Porthnd (Established 1893), The Original Light Car Specialists, 144 Ge . Porting
St. W.1. Phonc, Langham 2230.
60156 G.W.K., $£ 85$, exchanges, deferred pasmonts, $1920-21$ 4-seater, djnamo, 5 detachables, taxed, insured, fasl, smart Seabridge, 35 Hansler Rd. 601.81 i
East Dalwich. Syderiham 2452 . C.W.K., de luxo 2 -scater, 8 -10hn, water-cooled, hood, screcn, lamps, any worth Motor Exchinge, Ebner St.: Wandsworth (Town Station). G.W.K., 1921. 4-seater, excellent condition, just oserbanled, drnamo lighting, £100 or near olfer. Newman, Radles College, Abingdnn. 601 - 854 C.W.K., 2-cylinder. 2-scater, pre-war Brooklands model, just overbauler C.W.K., 1919,2 -cylfader, 2 -scater, all-weather fittings, perifet condition,
 G.W.K. 1921, 4 -seater, perfect condition and appearance, dynamo

 C.W.K. 1925, 2 -saater, dynamo and starter, splendid condition through
 C.W.K., 1921, 4 -seater, cream, dynamo, speedometer, rear screen, nearly new hooa, angine just tharoughly overhauled, extras, 2 new tyre3, ex ceptional hill-climbor, owner-driven, getting motorcycle, deliver anywhere
crauino boyer, 885 . Clappen, Scacrott, Lessdowa, Kent.
601 -c824 G.W.K. 1920 2-seater, dicker, dynamo lighting, excelleat condition, 575. C.W.K., 1922, 4 -seater, dyammo and starter, fully licensed, excellent
 GWYNNE
Woodlands Rd.,
1925, chummy, complete, tax pald,
£155. Latrellle, 88
601.819 GWYNNE 8, 1924 ehummy model, $£ 195$; buylag 4 -seater. Alderton.
lleizale, Surres.
Phong 154 . HANDS, E125, $^{12522}$, 10hp, 2.seater and dickey lighting and starting, $n$ bsol
on-Treat.
HANDS, 1922, 10hp, 2-seater with dicker, $£ 110$ cash, or 227103. dowu and 12 payments of 27 4s. 5 d , with option of a special rebate.
 HILLMAN cars Officlal repairers, London district, J. C. Brodie, Lld.
 HILLMAN speed model, 1922 , little used, any examination. Euaranteed pertect, vers last, aluminium bods, copper exhanst. Hartiords itted. prirate owner bargain, s
lon S., Birmlngham.
HORSTMAN, £125: exchanges, deferred pasments: 1920-21, 11 hp .4 seater, separate frout seats, dynamo starter
lion. Seabridge, luggage grid. speedometer, taxed, nice
Rd., East Dulwich. Sjdenham $\mathbf{2 4 5 2}$.
> "HOW TO DRIVE A MOTORCAR." Drioing doubls dispelled Written by an expert driver. 3s. net. 3s 3d. post free.

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


 Himmber
2001.
HUMBERETTE, 1914, 535 . clectric lights, tax paid December, good oondition, any irial; defersel paybuents. liervert hobinsen, Lid. Cam-
bridge.
 HUMBERETTE 1913 J-senter, goot ordor, all tyres good 12 घer orer size: secn ans timi bs appointment. Phone, Totienham 178 . Corte, 15 Ethorley ld., N. 15. JOWETT, 1923 (June), 4 -seater, tased, insured, electric, shock ab gorbers, sparo whe of England. Box No. 5775 , co ${ }^{\text {pratirate }}$ The Light Car and Cyclecar." 601 -e5l JOWETT, 1925, as new, 2 -scater. dicker, year's tax, email mileage Williams, 14 Sumpuerland Rd., Minelicad, Somerset. JoweTr, 1924, 7hp, 2-seater and dicker inmediate delivers: exchanges;
 JOWETT, 2 -scater, with dooble dicker and self-startor, £180; we can delirer this ronderlul car trom stock: J. Proudman and Son, i56 Park
St., Grimsber
JOWETT, 1921, model de luxe, perfect condilion, 2 -seater, doublo dickes, electioic horn, nirror licence nolder, milcago 7,000 , reason selling
bought leren
JOWETr 1924 2.eenter, starter, perject and practically brand nem, sOWETT Inte 19254 -scater, sell-starter, orersize tyres, hardty soiled, practically a new car taxed to December, e175. Wratrith, 30 Harold
Rui. Norwood, S.F. 19 .
KINGSBURY JUNIOR, 1921, 2 -reater. sunk dicker, 3 -speed and reverse (central change), drnano lighting, delachable disc wheels, spare, tyjes very bood, all nccessoricg, laxed, upholsters. hood and painitwork periect, in first-class condition throughout, open to any examination, 558 . Ben
Motors, 165 Lower Richmond Rus, Mortlake, S. W. 14. Richmond 2258 .

LAGONDA, 1920 Ascater, perfect condition and appearance, $\$ 85$, licensed. $4{ }^{\prime}$ G Green Lane, Penge. Telephone, Syclenham 604. 602-756 LAGONOA, 2-seater, all-weather model. K.K.', painted dark bluo, black hocd, folly equipped, in Food condition small milenge, owncr parchasing
coupe model, price $£ 210$, Lagonda, Lid., 195 Hammersnith Rd. W. 6 .

LAGONDA. 12hr, 1924, 4-seater, drnamo lighting, ell-slarter, speedo iveter. clock, all-weather, spare petrol can and carrler, back screen, in chactically new condition. delue under 4,000 milos, 8275 . or will ta-
 LAGONDA, 1924, z-ecater demonstration car, litile used, bargain, 8260. ber.
LAGONDA, 1921, coupe, Hebting, starter, excellent condlion, £155. LAGONDA, 10hr coups in perfect mechazical condition, and exceptionally smarl appearance, nill tyres alruest now, s58. Naylor and Kirk LAGONDA, 1922. 4 -seater, rear ecreen, fino condition thronghout, tax Hasialr 5129 Stretton and Smith, 12 Woodstock St., Oxford St., Jondon LAGONDA, 1925. KK model 2 -seater, 2165 : 1921 2-sested coupe, E120; exchango or hire-purchase. The Light Car Co., 351,410 to 414

Jamses's St., Brighton. 1024 chummy nolel, specially anished blue and
 Castelnau, Brice f2rues, S.W.10.
MARSEAL 192510 hp 2 -seater, Sports medel, hood, sereen, speedometer,〔115. Maudes', 100 Gt . Porilaid St., London. Telephone, $\frac{M y s t e v m ~}{601-832}$
mathis, 1918, 2-seator and dickey, in enlendid rondilion, dynamo Jetachables, full tax, £68. Maynard, Woolhampton. Reading. 601 -v 827 MERGURY, 1920 noodel, 2 -seater, dickey, sparc wheel specdometer, dynamo lighting, electric horn, like new, taxcd 1924, 1120; Mould accept

MORGAN specinlists. James and Co. (Sheflieid), Ltd., 263 Ecclesal Phl. Shemeld. Telephone, Central 2460 Good slock of epares carried II in dificults wire us. New and second-hand machincs nearly alwars in
zeock.
ze 37
MORGAN Scrvice Depot. Offcial appointed repairers by the Morgan Motor $\boldsymbol{i o}$. for London. Full range of spares carricd. New and secondhand machines niways in stock. Trade supplied. Oصlcial agente, Homac's.
245 Lower Clapton Rd., E. 5. Dalsion 2408 .
MORGANS, new and second-hand, from £55; exchange, deferred. Clere-
608-b128
land Garase, Actworth, Yorks. land Garase, Actworth, Yorks.
MORGAN, late 1921, de luxe model, 10 hp , thorough!y orechauled, repainted, in splendid ranning ur
MORGAN, late 1921, do luxe, 10 hp , aircooled mageto ame uF, Nisc wheals, watlorl speclometer match, mirror Klayou light picirol can and carricr, tools, spare cbain, otc. tyres and condition ex cellent, bargain, $x 66$. Whlkins, Simpson, opposite Olsmpia, London.

601-c641
${ }_{93}$ MORGAN, 1920 Porland St.A.G., 1Ohp, water-cooled. do Juxe, £69. Bartletts
 TNord, now condition, any testi evenings. Challen. 64 Waln, Lane,

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

MORGAN, G.P., Mr.A.G., tased year, special body, orerhauled, repninted,
spoedoneter, electric and gas, $£ 65$. 300 South Lambeth lid., S.W. 8 . spoedometer, electric and gas. ג65. 300 South Lambeth ldd., s. $601 . \mathrm{g} 29 \mathrm{~g}$ MORGAN, wearing parts recently revewed, rebushed, thoroughly good order, Braddons, bills shomu, bought car, 850 , ollers. 129 Chahhan St. 601 geadiog.
Ren MORGAN, Gradd Prix, 192ड oh. oh. Anzni, w.-c., dynamo lighting, tric horn, bulh. dives, hood, tax paid, colour crinison. \&ilis or near 20 Manchuria Id., Clipham Common, West Side. $601-\mathrm{g}^{297}$ MORGAN, 1922, Grand Prix, 8 hp w.-c. J.A.P., dynamo lighting, specio-

 MORGAN, 1921 family, 10hp, M. A.G. W.-c., new tyres, Rapson on

MORGAN, J.A.P., late model, engine as new, benutiful appearance, ta

 MORGAN, de laxe, $1919-208$ lip J.A.P. excellent rondition, dynamo

MORGAN do luxe, 1922, 10hp MI.A.G., w.e., dynmo lighting, running oards.

morgan, 1922, Family, dynamo, M.A.G. water-cooled, ofecdometer, re MORGAN, 1922 . Familr, dynamo, M.A.G. water-cooled,
painted, taxed for sear, excellent order,
Lillo.
Below.
Morgan, Grand Prix, J.AP. engine. Highting set, good orter and taxed E. Junc, s65. Elc, Lid., $11-15$ Bishonsgalo Arc., Camomilo St. Morgan, 1922, 8bp, Family model, M A.G enfine, finithed mave, all
 MORGAN de luse, 1923, water-cooled M.A.G., mileago under 2,000, jnst been revarnished, tax paid, 895 . or small deposit and balance over 18 monthly parments. Allen-Benneit Motor Co. Ltid., 8, 9, 10, 11 Roya $601-899$
Parade, West Crosdon. Telephone, Crosdon 2450 -1. MORGAN, late 1920, Acra 10 hp w.-c. M.A.G., special racing bods. olectric lighling, clock, thoroughly overhauted, any trial, $\mathcal{L 6 5 .}$ Korkin,
275 High Holvorn, Lonclon. Phonc, Holborn 666 .
 Choughout, any trial, £63. 50 Park Parade, Wembley, Midelicser. $601-6314$

 PERRY, 1916, 2-seater, dynamo lighting. ©75: cash. deforred, ex changes. Raillon Cobham and Co., Led., $\bar{\circ}$ Cumberland St., Deangsate, Manchester. Contral 2681.

601-345
 London. hirchase. The Light Car CO., 031,410 to 414 Luston 601.893
HHODE, 9.5hp, 1922, occasional 4-seater, grey, black wings, dynamo lightiug, spedoncier, clock, dashlenp, Klaxnh and ordinary horns, toolbox on wning board, opare petrol can and carrier, step mal, practic-
ally new Dunlon eords, fully equipoed, excellent condition. iaved for ally new Dunlop car
ycar,
$£ 135$. Below.
RHODE, $9.5 \mathrm{hp}, 1923$, all-weather saloon, maroon, black wlogs, dyamo lighting and self-stnrter, specdometor, clock, dash lamp, cigar tray mirror, luggage carrice, hood enrelope, extra-air, stepmats, mascol, spare wheols, excellent condition throughout taxed tor yenr. $\mathcal{A 1 7 5}$. 1.44 Gt . Dortland Sl., W.1. Phone, Langham 2250. $\quad 601-298$ RHODE, 1923, chumamy de luxe model, 1 and s., clock. specdometer.
 RHODE TEN, fine condition, just fitted with new hood, tax paid for
year, 125 . 802 - 550 RHODE 19224 -seater Chumms, dramo lighting, fully licensed. e115; exchange or hire-purchase. The Light Car Co., $5 \hat{J} 1,410$ to 414 Eviston Rd., Londen.
RHODE, 1923. 9.5hp, 4-seater, all-wealber sileon, lighting, starling, Inlls equipped, licensed, 160 guineas; exchanges or delerred. lillwaris $601-851$ RICHARDSON light cars. Sparo parts in stock. Rlchardson's, Mill
zzz-275
thorpe,
RICHARDSON 8, 2-seater, dickes, olectric and acetylene liphting, bood covor, mirror, new tres, jnst orerbanled, splenddd order, 500 d appear RILEYS. Guarantced Rilers fom 1922.3 models wanted in part exchange ior 1924s. Lewes, Motor Works, $601-502$ Sussex.

Small car enthusiasts who have in oiew the purchase of a larger car shiculd read "The Motor," the National Motor Journal, and consull the small advertisement columns.

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

 RILEY, 1922 sperls 2 -seater, aluminium hodr. rery fast, bearatifn Museum 8156
ROGER 1923 2.senter and ply-Climax engine, dise wheels, etc., perlect order, 285, or exchange Willetts, Lanesfield Ettingshall.' Woiverhampton. 'Phono, 61 Sedples. $601-554$

ROVER 8. Potential narchasers of thls make of car cither mew
second-hand, ar in invited to send their requirements to the Garage. 12


ROVER, 1921. Bhn. sound condition, gide shiekls, cleck. eto.. lieensed

 ROVER 8, 1922 (lste), tull equipment, side curtains, falendid condi-


 nerrs insured and taxed to end of vear, 695 . Martin, 10 Merbrand $601-789$ ROVER, 8 hp. 1923. chummy 4-seater de luxe model, clock, epeeclometer leather uphoistery, paintwoik unscratched, mechanically perfect, taxed
and insured for year, 2125 . Cahoon, Westgate Ifouse, Bedford Place. ROVER 8, 2 -seater de luxe, 1924 model, milenge 567, indistinguish. able frous motnrescle lart- 77 Craren Park Rd., Hariesden. Phone, Harrow $601-781$
ROVER, $8 \mathrm{hp}, 1923$, chummy de luxe, self-starter, clock, epecdometer,
 ROVER, 8 hp roodel de luxe, maroon, dickes, taxed year, clock, opeedometer, etc., benutiful condition, £98. Brans, 14 Turle Rd., Finshury
 ROVER 8, 1925 , chummy 4 -seater, taxed sear, like ner, 2120 . Smith
and Itunter 30 Gt. Poriland St. Phonc, Museum $81 \mathbf{j} 6 . \quad 601-319$ ROVER, 8hp. 1921, dynamo IIghting, just returned from the coachpainters, appearance as new, mechanically perifect, £73. Below
ROVER coupe, saloon model de luxe, 8 hp , 1923 , dynamo lighting, selfstarter, speciometer, elock, automatic screen wiper, interior lighting,
 ROVER, Shp, 1920, dynamo lighting, excelient mechanical condition,
$£ 62$ 1d. Iudson, Byiauch, Dereham, Norjolk.

$601-e 822$ ROVER, 8 hp , chnmmy, 1925 , exceptional condilion, unused during | winter, guaranted sound throughout, spares, extras, extended erial |
| :--- |
| 125 cash. Mason, 32 North St. Bishon's Stortiord. 601 -e832 | ROVER 8, iGN: roycl blue, speedometer, Binks carburetter, rabber floor mat, electric horn, now accumulator, R.O. idde windows and cur-

tains, 玉6j. Purves. Garage, Brighton Rd., Horsham. 601 e774
 clock, all nccessorjes, rcal bargain, $£ 110$ Naile, 22 Comeragh Rd. $601-\mathrm{c} 77 \mathrm{i}$
West liensinglon, W. 14 . noven $8, ~ 1922$ oxcention-lly good, many extra fittings laxed Decem.
ber, f80 James, orer Alexancer's, 482 Harrow Rd. Paddington. ber. $£ 80$ James, over Alexander's, 482 Harrow Rd. Paddiagton. 61 ROVER 8, 1924, chumany model, taxed and insured until end of year
 ROVER coupe de loxe, dynamo lighting, starting, elock, speedometer,
 ROVER 8, 1923, licensed, good condition, electrio lightiog, $\underset{602 \text { ee865 }}{\text { fing }}$ ROVER 8's. We usually have sevoral to choose from. Railton Cobham and Co, Lid., 5 Cumberland St., Deansgate, Manchester. Central 2681 .

HOVER 8, 1921, excellent condition, good tyres, speedometer, dynamu Gackey, etc., recently overbauled, 2701-5298 ROVER 8, 1922 , taxed, insured, oxcellent condition, 76 gulacas; after ROVER 8, 1921, cxcellent conditlon, unused 12 months, paint good. tyres woud. Pike, 102a Church St., Chelsea. Tcle. 137 Ken. $601-0872$ ROVER, 8hp, 1921, 2seater, excellent condition, 575 : exchange or
hire purchaso. The Light Car Co., 351,410 to 414 Euston Rd., London.

ROVER, 1923 , Bhp chummy model, tax mald, practically unscratebed nd indistioguishable iroin ne ${ }^{2}$,
 ROVER 8, 1921, mileago 7,000 repalnted, laxed ior sear. excellent

ROVER, 1922, standard 2 -seater, dyamo lightiag, moderate milleage.
\&85. Bolow.
ROVER 1923 2-seater, Iucas dyammo and starter, small mileage, as
now, \&il 15 . Mades', 100 Gt. Portland St., London, W. 1 . Telephone,
now, s115, Maudes, 100 Gt. Porlaan St., London, W. 1. Telephone
Musenm 7676
ROVER ${ }^{8,}$ 1922-23, taxed rear, any trlal, 83 guineas Fiydethorne
Motors, 31 Hydethorpe Rd., Batham.
601.382

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

ROVER 8, 1920, first registered Fcbruary 1921, insured till August 31

 | ROVER 8,1921, any trial ar examination. 62 guineas. Urdethorpe |
| :--- |
| $601-384$ |

 SALMSON, 1924, 2-scater, actnal car on rier at last Olsmpia slow, poses, £160. K.J. Jotors, Bromley. SALMSON. Appls to the Ionclon distributora, Gordon Watnes and Co. thanges snd special delerred tems. Several always in stock. Part ex W. 1. Phone, Maytair 2966. ${ }^{\text {chans arranged. } 31 \text { Brook St., London }}$ SALMSON, 1923, special sports. 2-seater, dynamo lighting, starter. V sereen, enclosed hood, taxed till December, many extras, rery last, aico Dinu, Lta., 326 Euston Rd.. N.W. 1. Phonc, Museam $5391.601-787$ SALMSON, 1922, o.h.r. de luxo 2-seater, donble dicker, leather nphol stery. side curtains, C.A.V. dyuamo lighting, speedometcr. apotight.
 SALMSON 1924 (new) Sports 2-seater, very last, well tuned up. in nise 5 weks, owner going abrand, Eennine hargain, jocloding 12 months
suarantec, 2175 . Leiters onls. Waldock, Rsestead, Manor Waj, Grild iord.
SALMSON 1922 (late) 2 -senter, dickey. all-weather cartalns, dynamo
 SCOTT-SOCIABLE, 1925, almost new condition, Bonnikyen, spare wheel
 SCOTT SOEIABLE, 1924 model, bluc, splendid condition, Bonnlksen Bread St, Fly, Camos. wheel, guarantecd, nearest E115. Giboons SCOTT SOCIABLE, delivered September, 1925, ran 1,000 miles, tax paid lor the year, fully cquipped, 290 or best offer. Brown's, Hawdon
solde, Houghtou-le-Spring.
 SINGER. Potential purchasers of this mabe of car, ofthor new or
second-hand aro inrited to send their requirements to The Garage, 12 second-hand are invited to send their requirements to The Garage. ments and exchanges.
SINGER, 1914, 10hp, 2 -seater, dickey, dynamo lighting, mechanlca throughout, pericet order, taxed, £50. K.J. Motors. Bromloy. $602-141$ SINGER, 1924 Popalar modet, 2 -seater and diciey, onls ased by us to fow
opposite olympla, London. SINGER, IOhp. counc bods, smart tittle car, excplieat ranaing order etachabio whe and spare, tsres good. tull ingred, tox pain Junc


 SINGER, 1921,2 -seater, dicker, starter, perfect condition and appenr . Penge. Telephoae, Sydenham 602.757 SINGER, 1922 coupe, donble dicker, many extras, tax paid, equal to Paddr.glon. exchanges. James lorer Alesander's), 482 Harrow Re, $601-270$ SINGER, 1923, 10hp. all-weather body, engine overhauled, new tyres, ax paid, 10 gulneas. Flick, Rose and Crown Hotel, Tonbridge. $\begin{gathered}605 \text {. } 857\end{gathered}$ SINGER, 1924, Popular model, 2 -scatcr, sell-statter, used onls tor a ew trial' runs, special price 2179 15s. Eagles and Co., 275 High St-
SINGER, iChp, 1921. 2 -seater, starting and lighting. extra large dickey 6eat, specemeter, milcage 7,000. 288, lased. Eagles and Co. 275
High Si.798 Actor.
SINGER, genuine 1921, smart 2-seater, drammo lighting, 10hn, hood,
 (Thivn Station).
SINGER, fy5: exchanges, deferred parmeats, perf alce 1919.20 Singer onpe. dickey, lighting, starter, Bedtord cord, 5 detachables. smart, Hansler Rd., East Duiwich Ssdenham 201-807
 SINGER, 1916, 10 hp . 2 -eeater, dynamo lichting, speedometer, side cur-位, Shene, Slough 240 . $601+864$ SINGER 10, 1917, 2seater, dickes, draano lighting, detachablo wheels, ery cood mechnicails perter exceptionalls emart, reliable, open to any examination willingly; f58: always a bood stock of Singers as abore. Ben Miotors, 165 Lower Richmond Rd., Mortiake. S.11.14. SINGER 19234 -seater de lose, alu-meather, small mulleaze, as new, tax
 INGER, 1921, a-seater and dickey, starting and lighting, repainted, new heod, taxed, bargain, f85, exchanges, बftended payments Memit and SINGER. 1924. 10hp. 4eater de luxe, only need lightly lor demon


## " MOTOR REPAIR WORK," How to carry out your own repairs al home. <br> 1s. 9d. net. Is. Ild. post free.

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

SINGER, 1924. 10 hp . Wermann saloon, highting, starting, Inlls SINGER, 1922, 10hp, 2-seater coupe, lighting, startlug ycar's licence,
 STANDARD. Moorcs Presto. Crosdon agents Standard cars. Promptest tielivery new modols with effelent serrice to tollow. Large slock second-
hand ans to select from, Deferred payments and exchanges arraued
North End. Crosdon. Phone 2624.
STANDARD. Potentinl purchasers econd-hand, aro invited to send their requirements to ihe Garafo, in Cornwall Terraco Mews, N.W, 1. Bg Madame russauds. Extended pay
ments and crelanges.

 STANDARD, 1919. 9.5, 2-seater, dickey, speedometer, all-weather equipment, dynamo. cood isres, taxed, perlect condition, 82 guineas, or es(

STANDARD, 1924, 11.4 hp , 4 -seater, all-weather, mileage 2,000 it toxed
 STANDARD 1921 2-seater, jickes. full equinped, starting and lighting,
i135. Black and Fiach, 222 Gt. Portland St., W. 1 . Phone, luseuni
i271. STANDARD 192311.4 2-seater, large dickey, small mileake, fully taxed,
f185. Jionel II. pugh, 9 South Jlolton St., w. Mayfir $4453,001.920$ STANDARD, 53 guincas, exchanges, deterred pasments, 1914, 2 -seater, dickey, 5 detachawlo wheels, eleciric beadlamps, specdotocter, goed apSTANDARD EIJO exchnoces deteri
STANDARD, £130, exchanges. deferred payments, 1920, long wheellachables, taxed, wonderiul littio eagino. Eastbourno ing back on do


 STELLITE 1914 2-seater and dickes 5 detachable wheels. lamps, etc.,
 STELLITE, 1920, 2 -seater, dickey, dynamo lighting, fully equlpped licensed, 90 guineas; exchavges or delerred. Edwards, 175 Gt . Portand $601-853$
St. W.
STONELEIGH,
rack Square, , milleage 300, tax pald, 2110 . Sumacr Bros., Bar-
zzz. 631 STONELEIGH, 3-seater, dynamo lighting, taxed for ycar , speedometer.
 STONELEIGH, 1923, chassis No. 863, 3-seater, 8.9. 6,500 miles, fully eluipped, exceltent, condition, recently decarbonized, fully insurcd, inApply: Snturday after 3 p.m., or write, H., 20 Mornington Arc. Cran-
brook Parak. Illord. SURREY, May, 1921 chummy model. 3-senter. 11 hp Coventry-Slaplex iric horn, spare wheel, etc., usual equingent, jear's tas apiendid, cond.

 SWIFT. Moores Presto. Croydon agents Switt cars. Promptest dolivery new models with efficlent sericice to tollow. Large stock second-hand cars
to oclect 1rom. Deflerred payments and exchanges arranged. North End.
Crosdon. Phone 2624.
SWIFT, $1920,10 \mathrm{hp}, 2$ 2-seater dickey, Rotax lighling slde screcns, rerently orerhauled, superb condition, recommended wi-h ercry confidence,
vear's tax. 1110 or near ctter. Kinsey and Co., 350 Lower Addiciombe sear's cax. E110 or near ofter. Kinsey and Ca, 350 Lower Addichombe
lac., Crojdon. Phone, Addiscombe 1129. SWIFT, 1920, 10hp, 2 -seater. dynamo, etc., 295. Bartletts, 93 Gt. SWIFI, 1923, 10 hp , chummy, as new. 2165. Bartletts, 93 Gt. Port-

 SWIFT, 1523 de luxe 2 -seater, lorely order, 150 exchanges or deserred. James, wer Alexander's. 482 Harrow Rd., Paddingtion. $601-269$

 SWIFT, £38, exchavges, deferred pasments, one of tamous etagseredseat models, 2 -seater, 7.9bp, hood, screen, lamps. Scabridge 35
Ifansler Rd., Enst Dujwich. Sjdenhann 2452.
SWIFT, 10hp, 1917, coupe, drop head, dyamo Itghting, detachablo wheels, spare, tyres as new, att accessorjes, fuli equpuent. eather upholstery, frameless windows, paintwork, etepilperiect, in urst-class condition
ihroughout, open to any examination wilingly, 265 Ben Motors, 105
 SWIFT, 7.8 hp . 2 -seater, Stepaey, good tyres, acetslene, dark blue, smart roadition, tax paid, driro away, $£ 55$ or reazonable offer. Ifutchison' 40
Derly Rd., Stapleford, Notts.
Derby Rd., Stapletord, Nots.
TALBors, Try Ilenls's. You ennot beat their terms. 91 and 155
at. Portland St., W. Maylair 4201.

## SECOND-HAND IIIGHT CARS AND CYCLECARS FOR SALE (conlinued).

TALBOT, 1923, 10-23, iscater, rery plec condiltion, IIcensed 2250. TALBOT, 1923, $10-23$, sporting 2 -senter, splendid order throughout.
 601-321 TALBOT, 1923, 10-23hp, 2 -seater cic luxe, full enuipment lax paicl. Wepaintel perfect condition, \&250. Thorp. 14 Upper St. Marlin's 1 innc TALBOT, 10-25hp, fato 1925, sell-slarter, dynamo, 4 -seater, in magnificent condition, tax paid year, all-wenther side curtains, runs beautifully,
 TALEOT coupe, 1923, $8-18 \mathrm{hp}$, real lealher hearl and upholsterv, car in excellent condition, $£ 225$. . G. L. Francis and Co., 110 Gt . $\mathrm{I}^{2}$ Ortiand
St., Wi.281. Phone, Muscum 623 . TALBOT 1924, 10.23. practically brand new, 2-seater, taxed December
 TALBOT 10-23hp 1923 -seater, all-weather curtains, luxeage gricl, small
 TAMPLIN 1921 2-seaters, 8 hp J.A.P. 3 speeds, $£ 30$ and $£ 35$. 'Phone,
1'utney 1827. Andrew's Motor Mart, 151 Whit Hart Leve, Barnes. TAMPLIN, 1921. 2-scater, side-bs-side, dynamo, clock, snecdometer

 onlendid condition, G5 sus.: exchanges or deferred.
IIammersmith Rd., w.
Edwards.
$601-859$ TAMPLIN, 1922 , sporting 2 -sealer 8 hp J.A.P. 5 speeds and reserse
 Othite Hart Lane, Barnes.
Whey 1827. Aodrew's Motor Mart. 151
$601-577$ T.B. three-whecler, 1921, w.-e., 8hp J.A.P. engine, spare whece, hood

 and White Kart Lanc, Barnes.
151 WILLIAMSON, 3 -whecler, 1916. Douglas 8 hp water-conted engino.

 WOLSELEY, $1922,10 h p, 4$-seater de luxe, starting, lighting, elock
 WOLSELEY, 1923, 10hp de luxe 2seater, Lullest eqnipment. Mnnv extras, palnted lnke, mileage npproximately 4,000 , 2250 , cost $x 350$
 sion 28.

601-c823
WOLSELEY 192S. 7 hp do Juxe, self-starter. dynamo lighting, allWeather lood and silio curtains, needornter, electric horn. etc., nit dono Simpson, opposite Olympia, London., cash or casy payments. 601 ec642 WOLSELEY 10, 2 -scater, dickey, new Juls, 1923, taxed to Necember.
 WOLSELEY, 160 guineas, late 1922 10hp, 2 -seater do Inxo model tax paid 1924, lighting and statiling, all-wenther sidec curtains; also ism

 land St., W. 601-854 WOLSELEY, 10 hp , 1921, excellent 2-sented coupe. dynamo nnd starter.
E175; exchange or hiro purchase. The Light Car Co., 331,410 to 414 E175; Cxchange or hiro purchase. The Light Car Co., 331, 410 to 414
Euston Rd., London.
$601-888$ WOLSELEY, 1920 . 10 hD . 2 -scaler do luxe, drnamo. starter. dickey, just overravaled and repainted, s140, Strction and Smith, 12 Wrodstock
St., Oxford St., London. Maylair 3129 . WOLSELEY, $1921,10 \mathrm{hp}$, de luxe model dynamo lighting, fully licensed,
 WOLSELEY, 1923, 10 hp de laxe, 4 -cater, nlted with many extros,

 LE ZEBRA, 1921 , uic luse, speedometer, electric born, sell-starter, new


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A.V. spares itd repairs. A.V. Motors, Park Rd., Teddington. Tole-
phone, Kincston 710 .
60654 Dhone, Kingston from steck. Elephant Motors, Lid. Elephant IIonso, 97-101 Newing-
G.N, spares. Every part in stock; trade supplied overhanls and tuning;

G.W.K. twin sparcs. Radiator, magneto, arle, atcoring, conrod, etc:
 MORGAN spares. Tho Stevennge Motor, Oo., Itd., Stevenage, Herts.


## SPARE PARTS (continued).

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 SINEER (genuine) 50 s axle shatls, 28s, carriage paid. Discount to LONDON Morgan Service Depot. The only firn omplally, appointed as $n$


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Cathanss and Co., Ledd. the icading A.c. agents and specialists, oller monm whecllinse, in of ail 2 -seater models; delisery of the new 4 sceater.
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 A.C. arar. Gordon Watnes and Co., J.td
 moleks in stock for immediate dedirery. Mighest market valuc allowed
 A.C., 1924 , any-weather Fmpire moiel. filted with Marles steerring.
 A.C. Antorejors, Lld.e, authorized A.C. agents. All 1924 molets for
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Works, 54
Duke St.,
Bi-k
A. C. crrs in anl models and colours constantly in slock: ${ }^{2} 2$-senters from
 Hic. will male n tefinite niliwance oller bs most on receipe of full parLicnings, or schid to inspect at our own expenser Immodinte delivering. Ilammersmill 1525 and 80 . A.C. Uniess sou get our quotation sou do not know the best allownec ior your old car or cycle: we bpecializo in part exchanges Lenclon

 ALVIS. Nebnam, Atherstone Mews, Gloucester Rd. Slation. Ken. 2917. ARIEL. Solo agents for Bournemolth and district; Primavesi. 222-771 ARIEL, 10hp, 1924, 4-cylinder, 4-seater models, 8198 ; de luxe models. s.210; enaly delivery. Socond-hand motorcyeles, combinations or lipht cars iaken in part payment and iroated as irst payment down: the
remaineler at your convenience. Wauchono's, 9 Shoe Lane. Fleei St.
E.C.4. ARIEL. Norti Tondion age7ls; Exchanges. Delerred nayments. Jones
Garage, Muswell Mill, Ni20. Phone, Hornsey 2917 . AnIEL 10. Try Jackson's Garage, Guildford, authorized agent, for ARIEL, 10 hp .4 -cylinder, 4 -sealer, $£ 198$, delivery from slock, tax $£ 9$, r.h. control 40 to $50 \mathrm{mm.p.g}$. ; your car or notorcyele part payment models, Ariel Notors and General Repairs, Itd. Service Depot. 320-2 Cimberwell New Rd., S.E.S. IIours, 8 to 7. Saturdays Included.
ARIEL 10. Main London distributigg agents, Black and Finch, 222 Gt. Portland St., W. 1 ; demonstrations arranged on the new 4 -cplinder
model. £198 and 2210 'Phone, Museum 2271 .


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AUSTIN. Weybridge Aulomobiles. I.ld., Austin epecialists, ean five immedinto delliery of Austin feven cars; domonstration rar araitable 'Phono 236 .
AUSTIN 7 for immediate delirery, $£ 165$; motorcseles taken in part cx. Porland St.. W. GUSTIN, 7hp. All models for immediaio delivers. Jackson's Garage. AUSTIN 7. Immedinte delireries. We are the authorized agents for this inching and starter, lull equipment, 5165 ; fuition free. Smith eloctric High H., Goodinajes, Essex. 'Phone, llford 1082.
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Authorized agehts for ail hyp models. part exchange and highest market raluo allowed, and speoial deterred terms arranged for long perieds. Continuous serrice after sale and
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 (continucd).
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AUSTIN 7, latelt 1924 models, with electric starter, in stork, ehnmay. s:165; fiorts, with shock ablsorbers, and enecsoneter. s175. exchange;
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AUSTIN 7 for immediate delivers: exchanges and delerreel parments. Ring Regent $3116-7$. W. G. Nichoil, Jitl., $50-54$ Whitcomb St.. W01. 2.2 AUSTIN. Immediate delivery, Thp, eicelric starter, £165: exchanges, Delerred payments. Par
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Smith and linnter, agents. Immediate delivery of Thp mollely. Write for exemptional terms of pirchase spread oree ling perichls. Niotorescte
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not cripple you and, if sou tike. you can spread it over a sear and nay out of income
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Sition. Kensington 2917 . | B.S.A. cars in stock. Delerred payments, exchanges. Birkenhead Motor |
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motorcycle taken in part payment, higbeat price ailowed: arrangenients made for delivery and collection anywhere in tited free tuition, Calcott serrice depot. Alt spare narts stocked. Calcott
 CALCOTT, 10.5, 2-seater, s265; chummy model, 2285 . Ratelitle Bros.
200 Gt. Portland St., W., and Frinlon-on-Sea. 200 Gt Portland St., W., and Frinton-on-Sea.
CALCOTT, 1924, 2 -seater, in stock, immediate delivers: eschanges: de forred terms, $£ 265$. Teate. Museum 6626 . A.S.C., 166 Gr. Portlanil CALTHORPE. Delivery Irom stock of 1924 models; xxchanges 2ud deferred terms a specialits. B. S. Marshall, Lid., 17a Hanover Sq. Mas.
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$605-197$ CITROEN for reliabilits.
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