

The **Light Car** *and* **Cyclecar**

1st

Vol V No 114
25th Jan 1915
*Registered at the GPO
as a Newspaper*

4



*The Floods -
Windsor Castle by Moonlight*

The JONES SPEEDOMETER

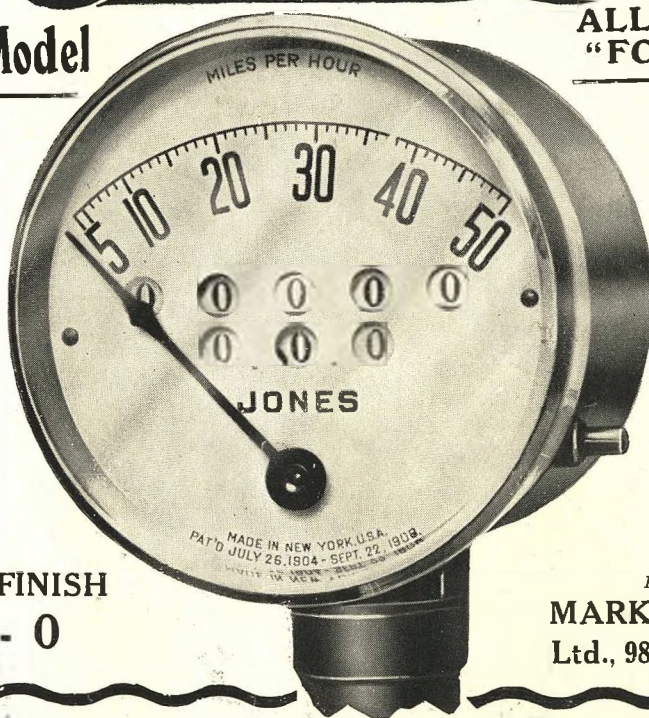
New Competition Model

A genuine JONES with both trip and total mileage recorder.

Showing speed to 50 m.p.h.

The Jones is the Gold Medal (with highest award) instrument in the R.A.C. only official speed trials.

ALL BLACK FINISH
£2 - 15 - 0



WITH ALL FITTINGS for "FORD" CAR, etc.

Known for years as the most dependable—the most accurate speedometer in the world.

Constructed on the centrifugal gyroscopic principle, entirely unaffected by temperature changes or proximity to electrical devices.

Each instrument individually calibrated by expert workmen.

Full particulars of—

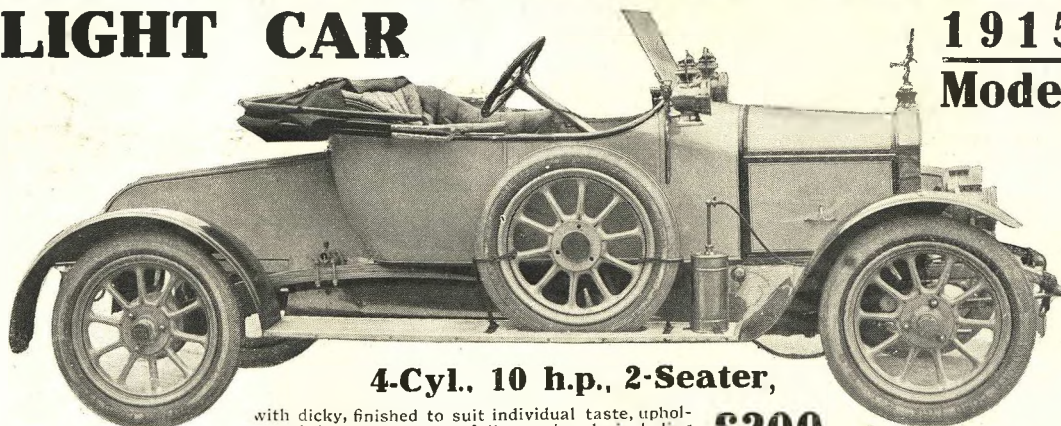
MARKT & Co. (London), Ltd., 98/100, Clerkenwell Rd.

THE ALL-BRITISH

MERCURY

LIGHT CAR

1915 Model



4-Cyl., 10 h.p., 2-Seater,

with dicky, finished to suit individual taste, upholstered in real leather, fully equipped, including hood, screen, lamps, electric horn, dash clock, speedometer and mascot

£200

Manufactured by—

Medina Eng. Co., Ltd.,
Gould Road, Twickenham, LONDON, S.W.

Telephone—Richmond 275.

Telegrams—"Medina, Twickenham."

Works—May Road, Twickenham.

Sole London Agents—

Bodilly & Heap, Ltd.,
110, High Street, Marylebone, W.

Telephone—8973 Mayfair.

Telegrams—"Obotrit, London"

WAUCHOPE'S

MORGANS. MORGANS. MORGANS.
All 1915 Models for Immediate Delivery.



De Luxe.



Grand Prix.

FROM STOCK.

No. 1. **GRAND PRIX, £106**, including extra strong rear tyre.

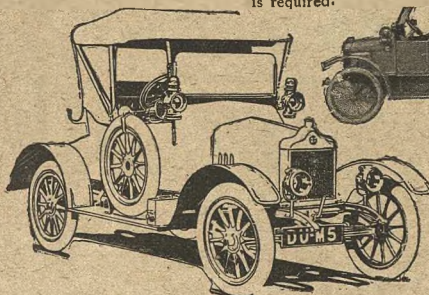
No. 2. **GRAND PRIX, £116**, " " " " " "

SPORTING MODEL, £92, " " " " " "

DE LUXE, £101, " " " " " "

INSPECTION CORDIALLY INVITED.

We will arrange an exchange. Order now, or wire if immediate delivery is required.



STANDARD Light Car, fully equipped, **£195**
Delivery from Stock. Extended Payments or Exchange.

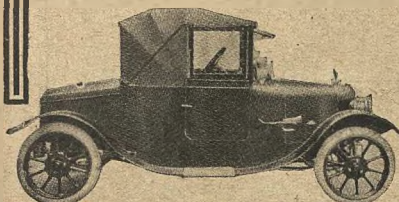


G.W.K. 2-seater de Luxe,
150 Gns.

G.W.K. 4-seater
175 Gns.

Exchange or Easy Terms.

Immediate Delivery
1915 Models.

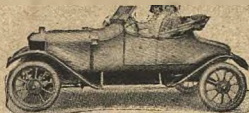


11 h.p. 4-cyl. LAGONDA, £150.
We have the latest 1915 Model
for Immediate Delivery.



CHATER LEA, 8 h.p.,
water-cooled ... **136 gns.**

CHATER LEA, 10 h.p.,
water-cooled, 4-cyl. **165 gns.**

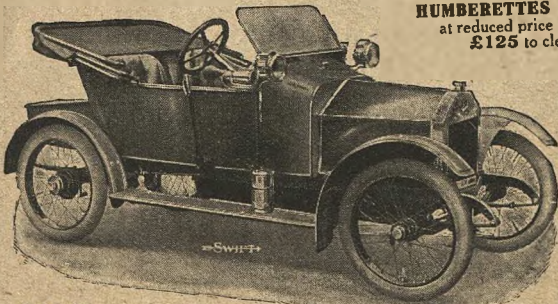


A.C. 10 h.p. 4-cyl., fully equipped,
£175.
Cash or Exchange.



New shop-soiled 1914

HUMBERETTES
at reduced price of
£125 to clear.



IMMEDIATE DELIVERY FROM STOCK

New 4-cylinder 1915 Models can be supplied from Stock **£200.**
EXCHANGE. EXTENDED PAYMENTS.

EXCHANGES STILL BEING NEGOTIATED

SOME firms are now refusing to entertain exchange deals, but at Wauchope's "Business AS USUAL" is the motto, and it is being adhered to strictly. Wauchope's will still take your Light Car, Cyclecar, or Motorcycle in part exchange for a 1915 model, and will still make you a more generous allowance than any other firm. Write for particulars of Wauchope's Easy Way.

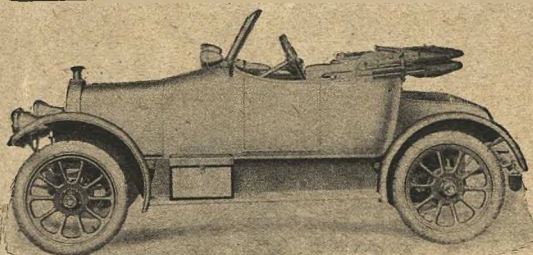
Wauchope's take second-hand light cars, cyclecars or motorcycles in part payment, and always have a splendid selection of second-hand machines in stock. Call and see the new garage, close to 9, Shoe Lane, and inspect the machines in stock there.

Send for Bargain List.

9, Shoe Lane, Fleet Street, LONDON.

(Just off Ludgate Circus.)

Telephone: 5777 Holborn. Telegrams: "Opificer, London."



SINGER Light Car, 10 h.p. ... **£195**
" " " " with Dynamo Lighting Set ... **£204 15s.**
1915 Models for Immediate Delivery.

Delivery (and Tuition) free to customer's address.

G.W.K. 1914 model , fully equipped ...	£105
Humberette , 1913 model, fully equipped	£70
Swift , 1914, with extras ...	£110
A.C. Sociable , 1913, fully equipped ...	£48
Humberette , 1913, fully equipped ...	£65
6 h.p. Rover , 2-seater ...	£25

Also very high-grade second-hand **Sidecar Combinations** at special low clearance prices to clear.

TO THE READER

By mentioning "The Light Car and Cyclecar" when corresponding with advertisers, you will be working for the cause of the new motoring.

A1

Alive—Almost

An Hour's Trial Run on the Calthorpe will Achieve More than a Month's Argument.

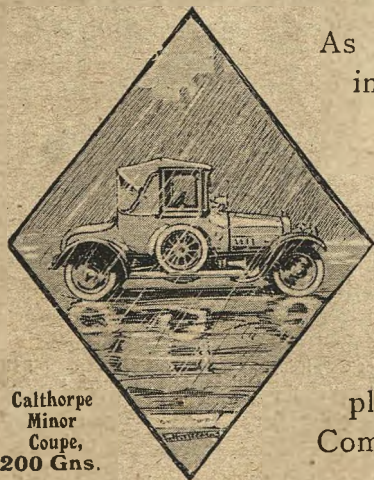
ONE RUN on the wonderful little Calthorpe Minor and you laugh at arguments. You SEE with your own eyes how sweetly she creeps along at ten—eight—six miles an hour on top, and how, at the merest touch of the accelerator, she bounds away like a hare.

..... Now watch her take this hill—the hill your old car had good cause to remember. Up! up! up! she romps—no slackening of speed, no changing down.



Calthorpe
Minor
2-Seater,
170 Gns.

CALTHORPE MINOR.



Calthorpe
Minor
Coupe,
200 Gns.

As the "Light Car" says, she "simply revels in mountaineering."

Keep your eye on the speedometer along this level stretch: 30, 40, 50!! Will she touch 60? Yes! And how beautifully she holds the road!

An hour's trial run is worth more than a month's argument. Let us fix up a run for you with your nearest agent. It will place you under no obligation whatever. Complete illustrated catalogue now ready.

CALTHORPE MOTOR Co. (1912), Ltd.,
Bordesley Green, Birmingham.

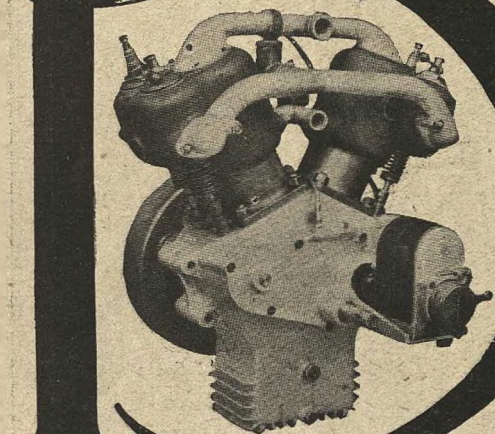
Telegrams—"Chassis, Birmingham."

Telephone—135 Victoria.

Sole London Agent—R. D. STOREY, 118, Gt. Portland Street, W.

THE FAMOUS BLUMFIELD

Air and Water-cooled
V-Twin Engines

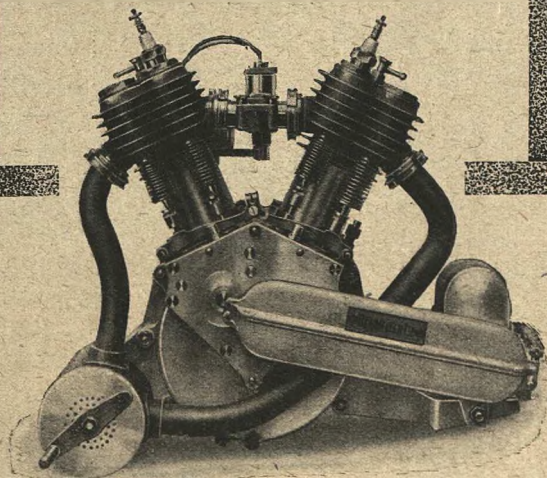


The Blumfield
8-10 h.p. Twin
Water-cooled
cyclecar engine.

THE BEST ENGINE FOR LIGHT CARS.

Our distinctive designs, together with the finest materials obtainable and high-class British workmanship, enable us to offer to the public the most reliable and most efficient engines yet produced. Blumfield Engines do more work and do it better, on a given fuel consumption, than any others, and bring advantages that are enjoyed every time they are in use.

CHEAPEST IN THE LONG RUN.



The Blumfield 8-10 h.p. Air-
cooled V-Twin cyclecar engine

Write for Particulars—
BLUMFIELD, LTD.
70, Lower Essex Street,
BIRMINGHAM.

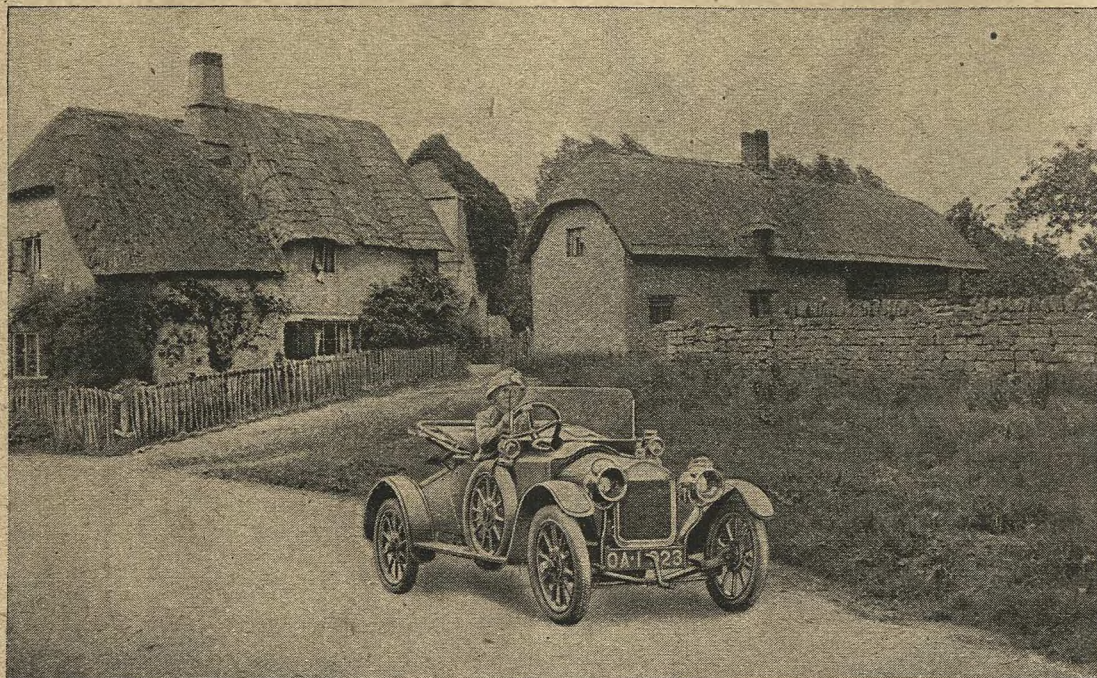
TO THE
READER

By mentioning "The Light Car and Cyclecar" when corresponding with advertisers, you will be working for the cause of the new motoring.



Capable of Speed.

Free from vibration, the running is remarkably smooth and silent. Four cylinder engine, 9.45 h.p., R.A.C. rating.



STELLITE CARS

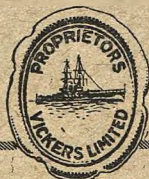
Wolseley Design

are of admitted excellence. Every mechanical detail is well thought out and becomes a proven factor in ensuring safety, reliability and low motoring costs. Appearance and finish is stylish and pleasing.

Two-seater, with hood, screen, horn, side lamps and tail lamp, £157 : 10 : 0, Three-seater, £170 : 0 : 0.

THE ELECTRIC AND ORDNANCE ACCESSORIES COMPANY, LTD.,
ASTON, BIRMINGHAM.

London Agents:
WOLSELEY MOTORS, LTD.,
York Street, Westminster, S.W.

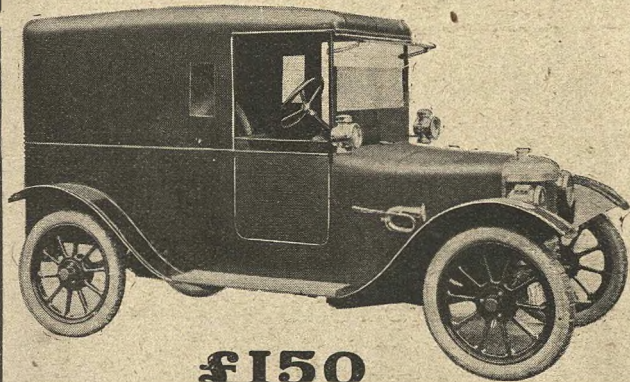


Telephone : 6220 Victoria (6 lines).
Telegrams : "Autovent, Vic, London."

AGENTS.

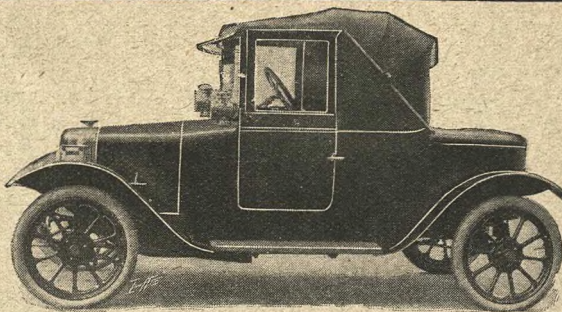
LAGONDA

11 h.p. 4 cyl. CARS.



£150

5 cwt. Light Delivery Van.



£150

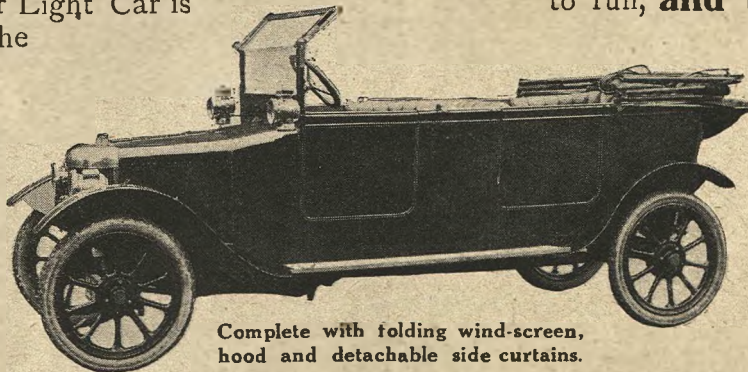
Write for Catalogue.

TOLLEMACHE &
GRIFFIN, — Ltd.,195, Hammersmith Road,
London, — W.Messrs. Edgar Harding,
241, Deansgate, Manchester.Messrs. St. Stephen's Autocar Co.,
40, Dawson Street, Dublin.Messrs. Neath & Dist. Auto. Co., Ltd.,
21-22, Alfred Street, Neath.Messrs. John Huie & Co.,
62-64, Longrow, Campbelltown.Messrs. T. Green & Son, Ltd.,
Smithfield Iron Works, Leeds.Messrs. Travers, Ltd.,
77, Pilgrim St.,
Newcastle-on-Tyne.Messrs. J. Mather & Co.,
Lombard Street, Newark.Messrs. Goad & Grillage,
Plympton, Devon.Messrs. F. G. Cox & Co.,
Garage, Perry Road, Bristol.

A Splendid Car at a Wonderful Price.

The new Lagonda four-seater 11 h.p. four-cylinder Light Car is absolutely the **cheapest** four-seater car in the world. Not the **lowest** in price, but the very

best value for money, the **cheapest** to run, and the **lowest** in price but one.

Complete with folding wind-screen,
hood and detachable side curtains.

Large and expensive touring cars provide no more leg room.

Price——150 GUINEAS——Complete

TALKING OF VALUE ——— !

The

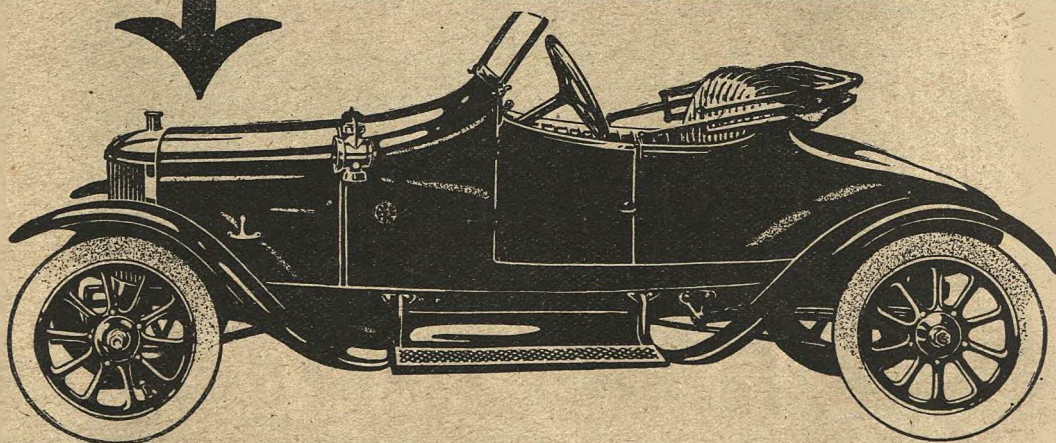


**AUTO-
CARRIERS
(1911), LTD.,**

Ferry Works, Thames
Ditton, ——— Surrey
Phone: Molesey 245 & 246

1915 Model 10 is equipped with two acetylene headlights and separate generator *without extra charge*, and sold complete, ready for the road, for — £185!

Potential light car owners and those contemplating a change can make no better choice than the A.-C. 1915 Model 10. Although in general design identical with the eminently successful 1914 model, many detail improvements, such as petrol gauge, addition of two headlights and separate generator, box of spare parts, etc., now form part of its standard equipment. As we pointed out in our announcement in last week's issue, the price of this model has—owing to the increased cost of material and labour—been raised to £185. It needs only an inspection of the A.-C. 1915 Model 10 to be convinced that even at this price it presents unequalled value.



NEXT WEEK—A NUMBER OF SPECIAL INTEREST TO LADIES.



NOTES, NEWS AND GOSSIP OF THE NEW MOTORING.

The lady driver—

Will find next week's issue most interesting.

It will appear in a striking cover, printed in two colours,

And contain a great deal of information specially appealing to the lady who is taking an interest in a light car.

In the Importers Show, held recently at the Astor Hotel, New York, a Baby Peugeot was the only example of European light car construction.

A Calcott light car, registration number LL5143, was found in the Thames at Molesey last week, and it is feared that the owner has been drowned.

A North of England motor show is proposed, but as yet we hear nothing about a light car show at Olympia, although practically every motor paper has urged its importance since the suggestion was made in *THE LIGHT CAR AND CYCLECAR*.

A suggestion comes from Birmingham that the speed of motorcars should be reduced to that of tramcars. From what we see of the L.C.C. service at times, we would like to propose that the speed of tramcars should be reduced to that of motorcars.

Our editorial on central control for brake and gear levers (see *THE LIGHT CAR AND CYCLECAR* of 7th December last), has led to considerable attention being paid to this subject. It is surprising that previous to this so important an innovation had escaped the notice of the Press.

Peace was declared the other week-end—by the elements.

The floods are receding quite nicely, ready for a fresh deluge, or a snowstorm for a change.

Zeppelins in the air. Why not a light car corps to chase these airy monsters, in the expectation of their coming down?

Lighting-up time now 5.42, and it is usual to remark at this season, in case it has not been observed, that the days are drawing out.

We think readers will agree that the front cover illustration this week is the best photographic one that we have ever had, being an attempt to reproduce a moonlight effect. The car is a G.W.K.

According to the "Evening News," an official of a motor insurance company (name suppressed) says that if we do not get more light very soon "some of the motor insurance offices will have to close down."

Dogs that have gone to an early grave are consistently the basis of claims." Tail-lights on dogs, obviously.

We certainly wondered why motorists should carry "four headlights," as alleged in the Midlands, but now a "Motorist" who has an unblemished licence at the end of five years, in spite of only carrying two headlamps, suggests that it is "simply a question of Mrs. Jones trying to go one better than her neighbour Mrs. Smith." Dear, dear; the eternal feminine at the bottom of all trouble, of course.

THE HIGHEST POINT OF THE NORTH DOWNS:



The view from Botley Hill, 868 ft. above sea-level, is almost unsurpassed in the county of Surrey. At the foot are the hills which does not come out in the photograph. The view extends southward to the South

The Philosopher.

In the long, dark shadows cast by a masked lamp in the district of New Malden (Surrey), a pedestrian was bowled over by a cyclist and both were hurt. Whereupon the injured pedestrian had some pointed suggestions to make regarding the comparatively innocuous character of Zeppelins to the local district council, and if they could not see their way to unmask the lamps, would they pass a strong by-law compelling pedestrians to carry rear lights? This display of Mark Tapleyism is pleasing to record, but why did not the injured gentleman keep his eyes open in a public roadway? It might have been a motor.

Very Good of Him.

The chairman of the Bench at Northop Petty Sessions remonstrated with the superintendent for bringing forward trivial motor cases, such as licences left at home (although produced the same evening and found to be in order). Whereupon the superintendent remarked that they did not press any of them.

The Chairman: "That is very good of you. Defendant, pay costs"—(5s. 6d.).

No doubt the defendant thought this also was very good of the Bench.

The G.W.K. headquarters are being transferred from Datchet to Maidenhead.

The tyre department of W. T. Henley's Telegraph Works Co., Ltd., has been removed to larger premises at 18, New Union Street, Moorfields, London, E.C.

Estimates of Speed.

Two cyclecarists passed each other on the road. Next day. No. 1: "I say, you were hogging it, weren't you, on your Victor? I should think you were doing 40. Much too fast!"

No. 2: "When you passed me on your G.N. you went by like a flash, you road hog!"

Both together: "What a fabrication. I wasn't exceeding 20, at any rate not more than 25."

Higher Prices for 1915 Light Cars.

Light cars are ascending in the price scale owing to the increased cost of labour and materials. Thus Auto-Carriers, Ltd., have raised the price of their popular 10 h.p. model from £175 to £185. In their advertisement in THE LIGHT CAR AND CYCLECAR last week they stated: "In renewing contracts for raw material for our 1915 cars, we are confronted with an all-round price increase of 15 per cent. Further, owing to the demand for skilled mechanics in Government works, we cannot retain the services of our staff without paying 7½ to 10 per cent. increase in wages. Notwithstanding this, the actual increase in the price of our standard models is only 7½ per cent. Thus, Model 10 is now £185, and Model 12 is £215." With each car a parcel of spare parts is supplied, which is an excellent idea, while increased value is given in the way of numerous detail improvements, including a petrol gauge, and Model 10 is equipped with two acetylene headlights and a separate generator without extra charge. This increase in price is, we note, becoming general.

A MARVELLOUS VIEW-POINT IN SURREY. (SEE PAGE 251.)



Limokilns of Oxted and the red tiles of the village. Left, is seen the road from Titsey Hill to Limpsfield—and Westerham, Downs and westward to Hindhead and Haslemere. It is described on page 251.

Bargains in Second-hand Light Cars:

While the price of new cars is increasing, low prices are the rule in the second-hand market. This is not surprising, for so many owners who have enlisted have had to dispose of their cars at a sacrifice. The result is that there are splendid opportunities for obtaining light cars and cyclecars at from £30 to £50 below their real second-hand value. At the same time, now that the manufacturers are putting up the price of 1915 models, last year's machines are sure to go up in value on the second-hand market. The best medium for the sale of a light car or cyclecar is, undoubtedly through the columns of *THE LIGHT CAR AND CYCLECAR*. The purchaser always goes to the market where a large number are advertised, and instead of only four or five light cars advertised privately, which seems to be as many as are to be seen in one issue of other motor journals, and these lost amongst a lot of trade advertisements, there will be found a very large number—several hundreds each week in the season, which is now starting—in *THE LIGHT CAR AND CYCLECAR*. An additional advantage for the public is that all advertisements of second-hand cars from trade sources are designated "Trade."

Two Singer "10's" were recently seen at —, on their way to the Front, where they will doubtless play their part as well as they have performed in trials.

Mr. H. F. S. Morgan says that disc wheels on Morgans are becoming very popular, as besides being easier to clean, they do not throw up so much mud on to the body.

Had "The Jumps"!

An amusing correspondence is going on in "The Birmingham Post," where "Pro Bono Publico" alleges "that he saw several cars with *six* headlights and any number with *four* lighting up the road for *several miles*." To which Mr. Walter B. Goodwin, a well-known local motorist, replies and suggests, not unreasonably, that the first writer must have had a very bad attack of the jumps, and that it is about time the Universal Lighting Bill was applied to Birmingham. But why on earth should people fear Zeppelins in an inland place like Birmingham?

Test of Mex Spirit.

For the last six weeks we have been carefully testing Mex spirit, which is claimed to have a regular specific gravity superior to No. 2 petrol, and to be an all-British product, while it sells at the low price of 1s. 6d. We have been entirely satisfied with it. The spirit varies from .715 to .730 sp. g., gives an excellent acceleration, and is clean. It has a smell something like benzole, but belongs to the petrol family. So satisfied are we with it that it is now being used by all our staff. We recommend the light car owner to buy it when he gets an opportunity, as the saving in cost of 2d. or 3d. per gallon is worth making.

Undoubtedly the most interesting feature of motoring to-day is the coming of the two-stroke engine. A new book on this subject by Dr. A. M. Low will shortly appear, and will be published from the offices of *THE LIGHT CAR AND CYCLECAR*.

NOTES, NEWS AND GOSSIP (contd.).

A Map of the Lighting Area.

"The Motor" this week publishes a specially-prepared map of the Metropolitan Police District which will be of particular interest to all motorists in connection with the lighting order. It is not generally known that it is possible to run in and out of the prohibited area several times on some roads.

A North* of England Show.

An exhibition for motorcars, light cars, motorcycles, commercial vehicles and accessories of all descriptions will be held at the Ice Palace, Manchester, from Friday, 16th April to Saturday, 24th April. The exhibition will be open to the public from 11 a.m. to 10 p.m. daily. Spaces are already being allotted to exhibitors, and the secretary is Mr. F. Bullock, 135 Great Ducie Street, Manchester.

Candid.

The following passage, which is taken from a leading American motor journal is illuminating. "The use of wood screws is one of those evils that seldom trouble the builder because they do not, as a rule, become a nuisance *until after the machine has passed into the rickety decline that so often begins with its second year.*" The italics are ours.

Renovating a Light Car.

Can the ordinary owner renovate, repaint and re-varnish his light car satisfactorily? In the opinion of Hall's Autopaint and Varnish Co. this is quite feasible, and they are selling a complete outfit, containing everything necessary for the complete renovation of a light car, including paints, varnish and brushes, at the price of 16s. 6d. per set. They also publish a booklet of hints on cleaning bodywork, hoods, metal work, etc., which would be useful at this time of the year when we want to sell our old cars. Their address is 175, Pancras Road, London, N.W.



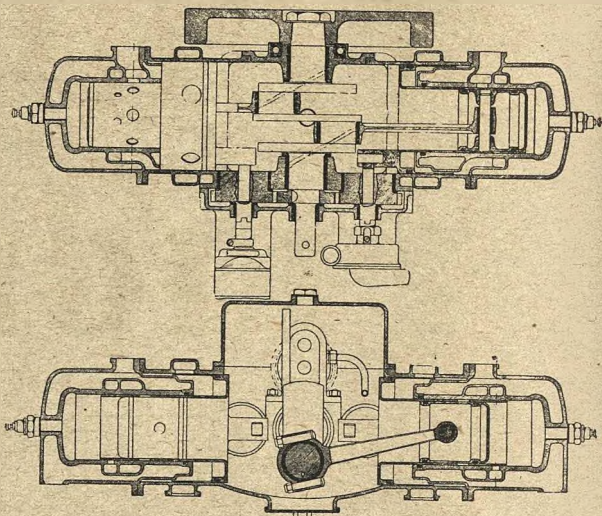
A CYCLECAR THAT APPEALS TO LADIES: THE £100 VICTOR.

A New Horizontally-opposed Two-stroke.

Much interest has lately been shown in the horizontally-opposed two-stroke engine, and the latest to be designed is the Davies, which has a bore and stroke of 88 mm. by 90 mm., giving 1095 c.c.

Crankcase compression is not employed, an annular pump and a sliding sleeve being used.

The sleeve has a stroke of half the stroke of the piston, that is, 45 mm., and it receives an elliptical



The Davies two-stroke engine.

motion which allows it to uncover a port when it moves one way, but not to do so when it returns.

In the inner part of the sleeve there are two rows of ports, the lower ones being exhaust ports and the upper ones transfer ports. In the outer part of the sleeve there are five large ports, which place the pump chamber in communication with the carburetter.

The working of the engine is as follows:—In the sectional plan the piston is shown on the top of the compression stroke, whilst the pump piston and sleeve are at half-stroke, and mixture is being drawn into the pump cylinder. On the return stroke, the mixture is compressed in the pump cylinder until the engine has finished exhausting, when it is forced rapidly into the working cylinder through the transfer ports.

When the working piston has moved on its explosion stroke 120 degrees, the exhaust ports register and remain open until 45 degrees on the compression stroke. Ten degrees before the exhaust closes the transfer ports register and the fresh charge is forced in. At 90 degrees on the compression stroke the charging of the cylinder ceases as the sleeve and pump are on the end of their stroke, and on further movement the working piston compresses the fresh mixture prior to combustion, whilst the pump cylinder draws in fresh mixture from the carburetter.

The bearings are large and lubrication is by a pump to the main bearings and big ends. The designer is Mr. E. O. Davies, of Llanidloes, Mid Wales.

Next Week
A Number
of Special
Interest to
~Ladies~

The Alldays

"LIGHT 4"

comprises all those features which a 250 years engineering experience has proved essential to the ideal Light Car. Supplied complete with hood, screen, detachable wire or steel wheels, spare wheel and tyre, electric lighting installation, including head lamp, side and tail lamps, dynamo, switchboard, etc., at the inclusive price of **£185**, the "Alldays 4" represents the best value in Light Cars on the Motor Market.

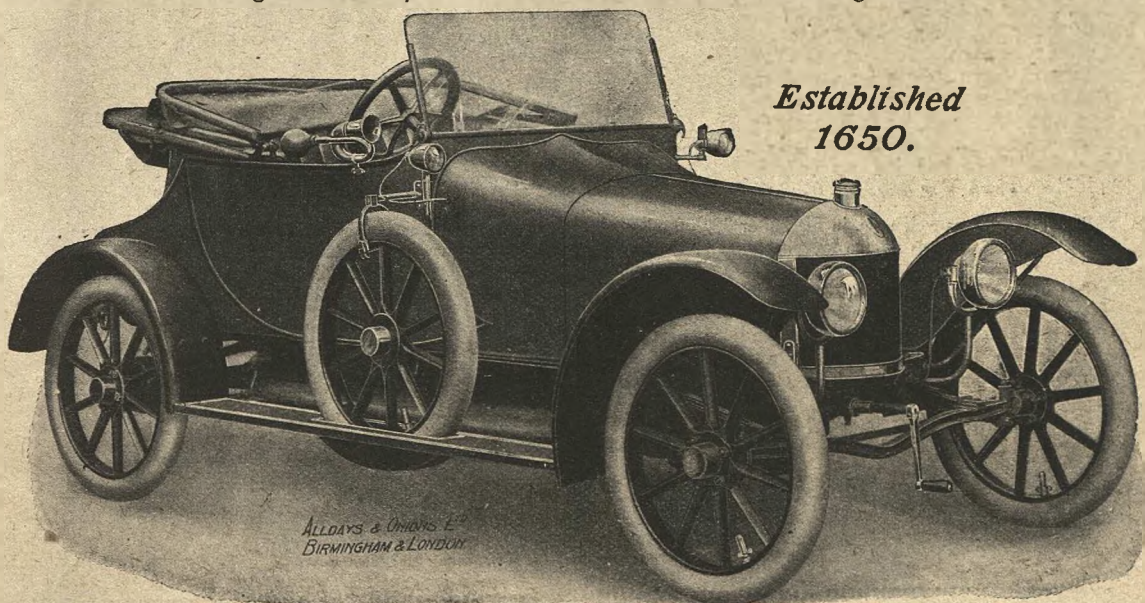
Write for Catalogue post free.

ALLDAYS & ONIONS (PNEUMATIC ENGINEERING) Co., Ltd.

Matchless Works, BIRMINGHAM.

LONDON: 58, Holborn Viaduct, E.C.

Agents are requested to write for terms for Sole Agencies.



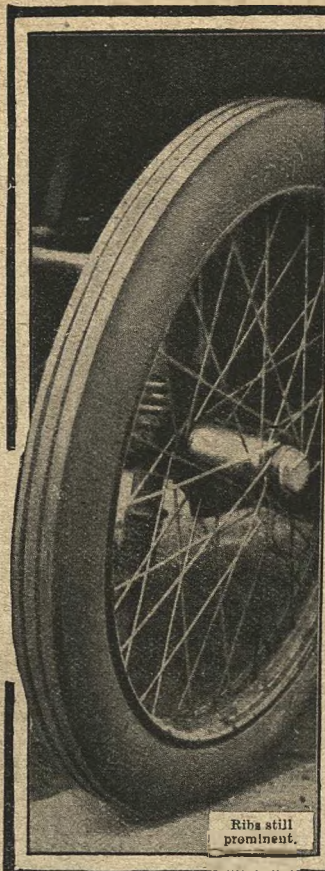
*Established
1650.*

*ALLDAYS & ONIONS LTD
BIRMINGHAM & LONDON*

**TO THE
READER**

By mentioning "The Light Car and Cyclecar" when corresponding with advertisers, you will be working for the cause of the new motoring.

All



Ribs still prominent.

After 5923 and 9238 miles.

These reproductions are from untouched photographs kindly sent in by Mr. H. Bradley, of Leeds, who, up to the moment of writing, had obtained 9,238 miles from the Palmers on the front wheels of his Morgan, and 5,923 miles from the back tyre.

He goes on to say "The tyres (26 x 3 in.) seem good enough for another 10,000 miles."

This is quite unsolicited testimony to the outstanding durability of

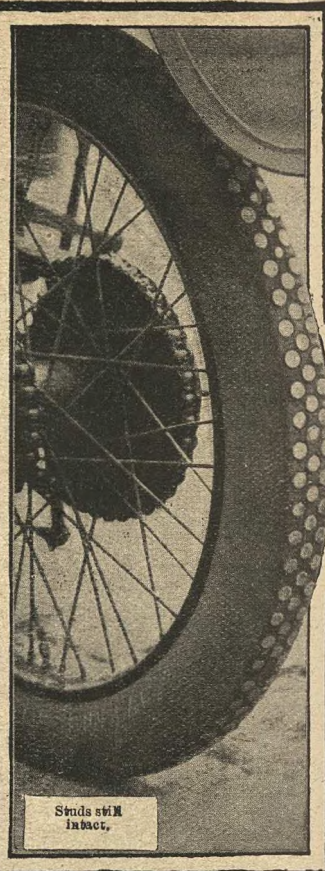
PALMER

CORD TYRES

THE PALMER TYRE, LIMITED,
119, 121, 123, SHAFTESBURY AVENUE,
LONDON, W.C.

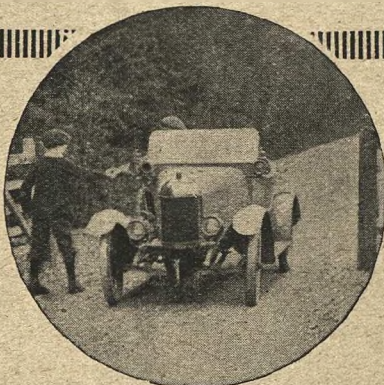
Cycle & Motorcycle Tyre & Repair Department:
103, ST. JOHN ST., CLERKENWELL, E.C.

'Phone: City 1485 & 1486 (2 lines).
'Grams: "Inwheeling, Smith, London."



Studs still intact.

30,000



MILES

And Still Going Strong

RUNNING as well now, in fact, after 30,000 miles of the most arduous service imaginable, as on the day it was delivered to its proud owner. This particular car is used by the representative of a well-known tyre firm and, consequently, is called upon to traverse all sorts and conditions of roads in all kinds of weather—roads which the average motorist would give a wide berth at any time. Thousands of other Morris-Oxfords

are doing just as well in many lands—some under tropical, others under arctic conditions. If you are not personally acquainted with the Morris-Oxford we shall be delighted to give you a trial run. Catalogue with pleasure on request.

PRICES Including five wheels and tyres.
Popular Model: Model de luxe 190 Gns.
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165 Gns. Lucas dynamo lighting set, with 5 lamps, £15:15 extra.

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NOTES, NEWS AND GOSSIP (contd.).

FROM THE FRONT.

Motorcyclist Despatch Riders Going in for Light Cars.

By the courtesy of Horstmann Cars, Ltd., we have been favoured with an interesting letter from the Front from a motorcyclist corporal, from which we make the following extracts. He requests that a catalogue should be sent out to him, and adds: "You may think it a funny request to be asked to send one to the Front. As a matter of fact I am a motorcyclist despatch rider, and had badly got the motor-cycling disease when I came out here in August. However, bad roads and weather make me think that when the war is over, when I come home, as I trust I may, I shall be more inclined to go in for a light car."

"Now, instead of having 'Motor Cycling' sent out to me I have THE LIGHT CAR AND CYCLECAR, and you can imagine how I and the other despatch riders appreciate it."

"At the present moment we are resting and so have got a fair amount of time with nothing to do but write letters, read old motorcycle papers, and argue over the Buyers' Guide of THE LIGHT CAR AND CYCLECAR. I may say that I am with the headquarters of Artillery for our division, and there are only two despatch riders, so that the arguments do not wax very furious. However, we have both been struck by the sporting look of the Horstmann and are keen to get further details."

"I sincerely trust that I may, before many months are passed, be up at your showrooms having a good look round, but at the present moment it is hard to say when that may be. We are simply entrenched and barely moving. Now and again we capture a trench and sometimes we lose one. In the meantime I am looking forward to getting that catalogue and any other interesting news concerning your car that you may send."

How Many Cyclecar Owners Are There?

When one comes to consider the large number of Morgans that have been sold, together with the Buckingham, G.N.s, Victors, Warnes, Duos, Bedelias and other cyclecars, it is apparent that there must now be quite a considerable body of cyclecarists—and we mean those who use the simple machine. They, of course, are readers of THE LIGHT CAR AND CYCLECAR, and probably no other motor journal, and when, in the natural order of evolution, they take an interest in a light car, they will derive their inspiration from their favourite journals, which shows that our policy of covering both types of machines is a sound one. It would be interesting to know how many cyclecar owners there are now. We should say at least 2500.

The "Modern Light Car."

The daily Press often recommends and "puffs" all sorts of "light cars," so called, without regard to whether they are of the modern type of light car or not. The 10 h.p. "this" and the 18 h.p. "that" may be very nice cars, but as they do not represent that ideal of economical running which is the basis of the "new motoring," they are scarcely "modern light cars."

With Umbrella Up.

There are many substitutes for Cape-cart hoods, but there was a touch of novelty about the driver of a light car who was recently seen going down Oxford Street, London, holding up an umbrella while he was driving. He had no passenger, and it says a good deal for the handiness of a light car that he did not hit anything en route.



The Ladies' Number!

The Crompton Medal, for the best paper read before the Institution of Automobile Engineers during last session, has been awarded to Mr. L. H. Pomeroy, for his paper on "The Elements of High-speed Automobile Engine Design."

The A.A. have brought to the notice of the responsible contractors the exceedingly bad and highly dangerous condition of a portion of the Great North Road. As a result of this action, the contractors have arranged to repair the road at once.

The shortage of benzole is explained by "The Motor" as due to the requirements for Government purposes. Benzole contains toluene, and tri-nitro-toluene is one of the best explosives used by both Germans and British, particularly the former.

A motorist summoned for dangerous driving before the Bradford City Police, is reported to have answered that his car was incapable of being driven at a greater speed than eight miles an hour. Asked what make it was, it appeared it was not a modern light car.

A sporting trial for private owners will be organized by the Bristol M.C.C., the outward and return runs taking place respectively on the Saturday after Good Friday and Easter Monday. We say for "private owners," as we fear that there will be few trade entrants, there being few trade riders now.

American Cyclecars.

"There are no 'cyclecars' this year, their absence indicating how completely the so-called cyclecar movement has fallen flat," says "Automobile Topics" of America. No wonder, seeing that, after two years, they have failed to produce a cyclecar that is as practicable as the Morgan, for instance, or any other English simple machine. We confess we are disappointed with America, from which direction we looked for original and practicable machines at moderate prices. Now it seems unlikely that anything to beat the £100 Victor, G.N. or Morgan will be produced from the States.

THE RAID ON RICHMOND.

Another Field Day for the U.A.F.

THE Motor Section of the U.A.F. paraded at 10 o'clock in Hyde Park for the weekly manoeuvres, and was divided into sections. The light car section was augmented by an A.C. armoured car, which created some amusement by the difficulties it underwent in reversing into its position against the railing. Eventually a thud was heard, and it came to rest against a post which had very effectually, though unexpectedly, acted as a scotch. The armour plating was quite proof against damage and resisted this rearward attack splendidly. The driver is completely out of sight, and drives by means of an arrangement of mirrors.

The plans for the day were as follow:—The boundary line of the Red and Blue country ran approximately from Roehampton to Kingston. The Red force (Motor Squadron) was attempting to make a raid on London and had been reported in the neighbourhood of Robin Hood Lodge, Richmond Park. The Blue force (the U.A.F. infantry) were instructed to intercept and rout the Red. The light car section made its headquarters at the Lodge. Motor-

cycle scouts and the armoured car went out reconnoitring. The armoured car was caught by two of the Red force, who disguised their identity by walking up to the car in civilian macintoshes. Suddenly producing their rifles they demanded that the car should be surrendered, but, as it would be impossible for this to happen in warfare, Major Gordon Casserly, who was acting as umpire, disallowed the capture and calmly proceeded to use the car himself as a movable observation tower, which also might be rather difficult to carry out in real warfare.

The motorcycle scouts having reported the enemy in overwhelming numbers the position at Robin Hood Gate was suddenly evacuated. Twenty minutes later the Reds were attacking the enemy from the rear, having gone round by Kingston and Petersham to the Star and Garter at Richmond, thus proving the useful mobility of a motor force on these lines. The afternoon ended with severe attacks on the luncheon wagon, the Reds and Blues having a quiet meal beside each other, afterwards being dismissed to their several homes.

WHAT VOLUNTEER CORPS ARE DOING.

The Optimists.

The Optimists National Corps is steadily growing in strength, and the transport company now numbers over 100 and is under the command of Company-commander R. D. F. Paul. A platoon additional to the usual company formation is formed for those motorists physically unfit for the strenuous exercise entailed by military drill. All inquiries should be directed to the Headquarters, 26, Pancras Road, N.W.

Golder's Green.

The Golder's Green Training Corps is arranging a motor mobilization parade on Sunday, 31st January. It is intended to transport the battalion to Harpenden, about 20 miles, and a large number of cars is needed. Offers of cars should be made to the Quarter-master,

Mr. A. Gordon Raymond, Windy Brae, Basing Hill, Golder's Green, London, N., stating type of car and seating capacity, exclusive of driver.

The U.A.F.

There are still a few vacancies for light car drivers in the motor section of the United Arts Force, and the Motor Commandant, Mr. Dreydell, will be at Headquarters, Burlington House, Piccadilly, to interview recruits from 7 p.m. to 9.30 p.m. on Thursday next. Special lectures for the motor section are held on Wednesdays and Fridays at 7 p.m. It is hoped shortly that arrangements will be made with some well-known aviator to make a flight and come down 20 miles away, and the U.A.F. Motor Section will have to locate and capture him when he descends: this should be a most instructive field operation.

Tail Lights Not Being Carried.

The following letter appearing in "The R.A.C. Journal" from Mr. C. F. S. Perowne endorses the views expressed in our columns since the rear lighting Order was made:—

"I was much surprised to read in your issue of 8th January, with reference to the Home Office Order re the above, that the writer 'during the course of a 20-mile drive through the district scheduled saw very few vehicles which were not complying with the new requirements.' My experience in this district has been entirely different. I suppose there are more horse-drawn vehicles to be seen in the Marylebone Road than in almost any other part of London, and, so far, I have not seen one carrying a rear lamp of any sort. I spoke to a police constable and asked him why the new Order was not enforced, and he informed me that the drivers or owners could not get the necessary lamps. It is much to be hoped that if this is a fact suitable lamps will soon be provided, but if, as I suspect, the lamps can be procured, then the Order should be enforced without any further delay."

It is extraordinary this indifference of the police, and we wish the R.A.C. would make strong representations to the authorities on this matter.

The Engineering Standards Committee has issued an interim report of British standard sizes of single-row ball bearings for automobiles.

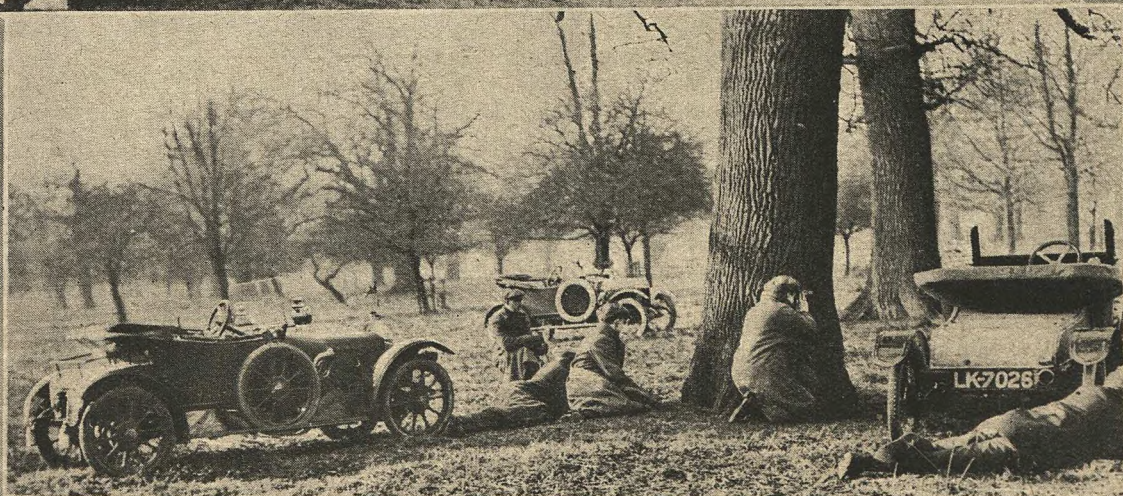
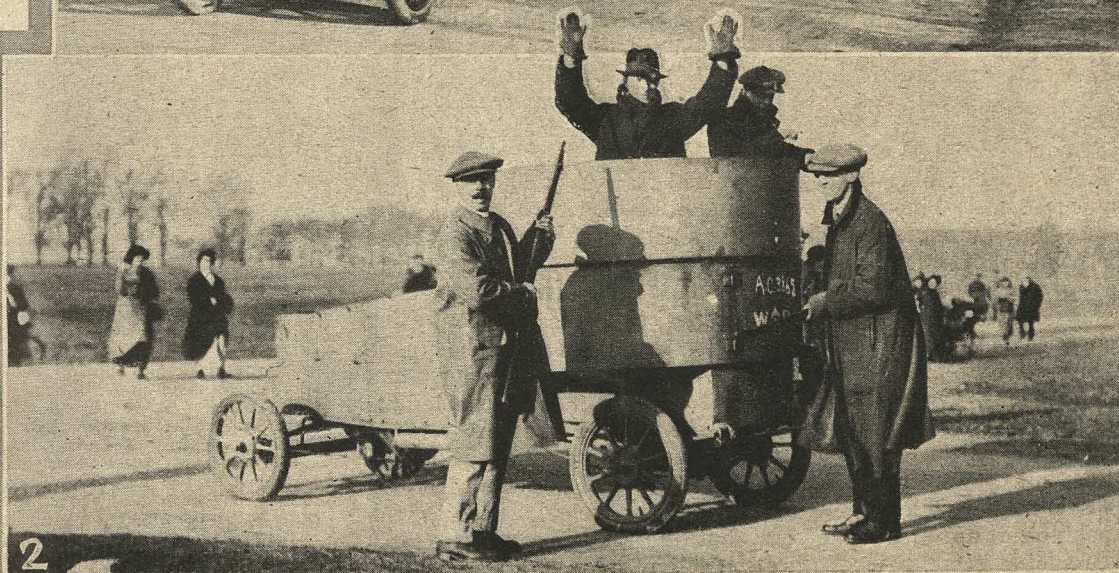
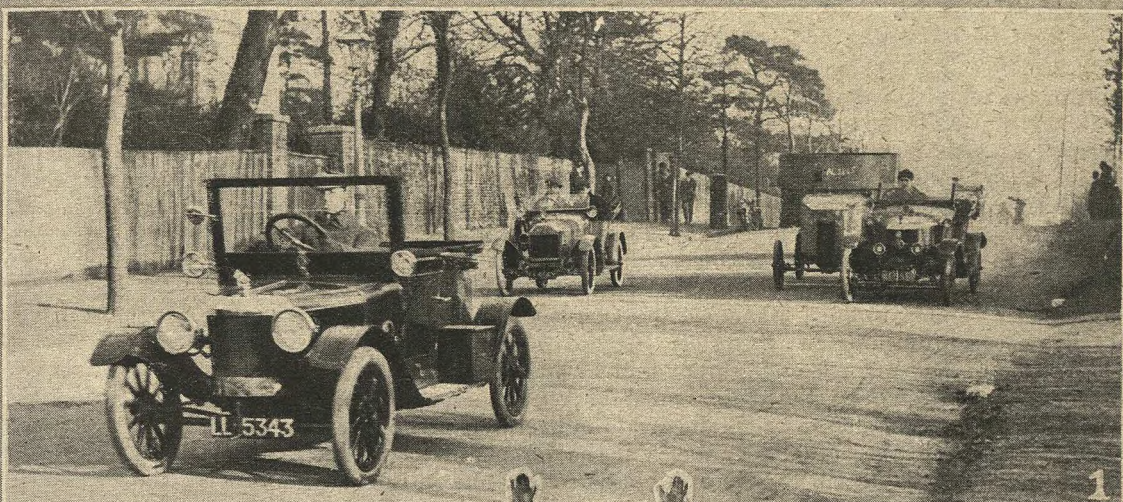
An Appeal to Doctors.

The Enfield Autocar Co., Ltd., had a telling advertisement in the last issue of THE LIGHT CAR AND CYCLECAR on the advantages of a light car over a horse and trap for a doctor. The announcement reads: "A turn of the starting handle and his mechanical 'gee-gee' is ready to take him anywhere. A turn of the switch and the electric lamps are alight. With the hood up absolute protection is afforded, no matter what the weather may be. No necessity to have this 'horse' rubbed down when it gets back home. An Enfield light car is not only the most useful thing a medical man can have, but it will cost him less to run than a horse conveyance. It will carry him over his journeys in one-third the time. It is smart and dignified in appearance, and brands the practitioner as up-to-date, not only in medical lore, but in facilities for reaching his patients with the utmost speed in their urgent need."

Where the Light Car Scores.

Reference was made last week to the necessity of a doctor maintaining his position, and a smart appearance is therefore necessary. An inspection of the leading 1915 light cars will show that very little improvement can be made in this direction. As regards colour, a dark finish appears conventional; but if it is desired to show mud and dust as little as possible, a dust-colour is very serviceable.

ANOTHER U.A.F. FIELD DAY. (SEE OPPOSITE PAGE.)



A piquant interest was lent to the last U.A.F. field day by the appearance of an A.-C. armoured car. 1. The light car section, led by a Lagonda, a Swift, the A.-C. armoured car and another A.-C., hurrying to cut off the enemy. 2. Captured. The man with the gun: "How long do I aim before I fire?" (Moral: Don't look at the photographer). 3. Waiting for the enemy in Richmond Park.

Topics of the Day

The Unit System.

ONE of the questions which 1914 has done little to decide is the location of the gearbox, whether this shall be kept as a separate unit in the middle of the chassis or combined with the engine or back axle. The usual practice of English manufacturers is to make the gearbox a separate unit, but there are those who place it with the engine, such as the Morris-Oxford, Jowett, and Lagonda, and those who prefer to combine it with the back axle, such, for example, as the Singer, A.-C., and Horstmann. There is much to be said for each of the three methods. The usual arrangement gives great accessibility of the gearbox for oiling and inspection, the combined engine and gearbox unit makes trouble through frame flexure non-existent and makes a totally enclosed transmission system very easy to obtain, while this can also be said of the back axle and gearbox unit with the added advantage of silence, although here the clutch must be enclosed for a totally weatherproof transmission to be obtained. Manufacturers do not seem at all certain as to the actual advantages of the various methods, but where employed they seem to give every satisfaction, and in the case of the combined gearbox and back axle the practice has been adopted on large cars to a considerable extent.

American Design.

THE tendency of American design is undoubtedly towards the engine-gearbox unit, and at the recent New York show this was very apparent, both among light cars and their bigger relatives. Why this should be so pronounced when English design is, as yet, undecided on this point is difficult to see, but it may be on account of American methods of manufacture. America is the land of specialization, and we find a few large concerns turning out engines, and others concentrating their energies on front axles and steering systems. Probably the engine manufacturers were quick to see that if they turned out the engine and gearbox as a unit they would be saving the assemblers a considerable amount of trouble, both in designing the finished chassis and in assembling the parts. The back axle manufacturers might well have done this, but they were handicapped by the lack of decision regarding final drive. Four-cylinder engines have very quickly become the principal power unit for light cars, but the transmission hesitates between sliding gears, epicyclic gears, friction drive, worm and bevel drive. It is claimed that the unit system lessens the cost of production, and this is probably true, for no elaborate sub-frame is necessary, at least one universal joint is saved, and the controls may be placed centrally, which saves a certain amount of control gear and fittings.

The Price of Light Cars.

OWING to the scarcity of skilled labour and the rise in the cost of materials, the price of light cars in some instances is being advanced slightly. We rather fear that there will be a further advance before the spring, and those who are contemplating purchasing a light car will do well to place the order as soon as possible. One of the factors affecting the situation is that a light car turned out complete to sell at a certain price based on a considerable output becomes quite a different thing when, through the war, the prospects of disposing of that number in a reasonable time are not very clear. The labour question is, however, the most serious, and we are wondering if it could not be tackled by a Government Department to collect information as to the classes and numbers of mechanics required and those available for filling temporarily the positions vacated by men now serving the Colours. Possibly, also, some of the unskilled labour could be trained to fill better jobs, although of course a skilled mechanic is not easy to produce efficiently in a short time.

The Light Car and Cyclecar

Mondays—1d.

Conducted by EDMUND DANGERFIELD.

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Letters relating to ADVERTISEMENT and PUBLISHING Departments should be addressed to The Manager. SUBSCRIPTIONS should be forwarded to the Manager (rate, 6s. 6d. per annum, or pro rata).

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Press Times.

IMPORTANT LATE NEWS and Photographs can be accepted for insertion in the following Monday's issue by special arrangement previously.

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Drawings, Photographs and MSS. not suitable for publication will be returned if sufficient stamps are enclosed for this purpose, but the Publishers cannot hold themselves responsible for the safe keeping or return of contributions.

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LIGHT UP

Next Saturday, 5.42 p.m.

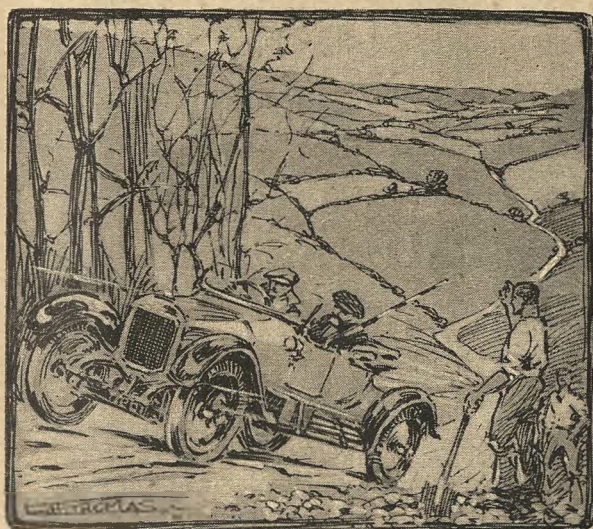
THE LIGHT CAR AND THE PROFESSIONAL MAN.

The Requirements Peculiar to the Different Professions, Such as Those of a Doctor, a Surveyor, and a Commercial Traveller.

II.—FOR THE ROAD SURVEYOR.

THE first article in this series (see THE LIGHT CAR AND CYCLECAR of 18th January) dealt with the doctor's car, and the type of vehicle required was clearly outlined. The present article is concerned with road surveyors, many of whom are already making use of the light car in connection with their business.

The three qualities which particularly fit the light car for this class of work are its handiness, economy, and reliability. Probably no feature is more desirable in a light car for road maintenance purposes



The light car for the surveyor must be able to climb practically any hill—

than handiness. By this term, it is implied that the car is easily manoeuvred, however narrow the lane, it is easily controlled, and it is practically non-skidding, even on the worst surfaces.

In the course of their business, road surveyors have to cover considerable distances over the roads under their control. Hitherto many have used pedal-cycles, motorcycles, or even a horse and trap, but for a very large proportion the light car would serve as the best solution of the problem.

Now, the car for the road surveyor will differ in several ways from that of the doctor. Reliability and economy are still among the most necessary features, but protection is not nearly so important. Thus an ordinary open body, with hood and screen, will be all that is necessary. As a surveyor has to be out in all weathers, whether on a car or not, he will make personal provision against the effects of the weather. A self-starter would be more in the nature of a luxury, as the work of the starting handle will not be so distasteful to a man who is out in the open most of his time. As his work is usually over at dusk, the question of lighting is comparatively unimportant, and the standard equipment of lamps will be all that he needs.

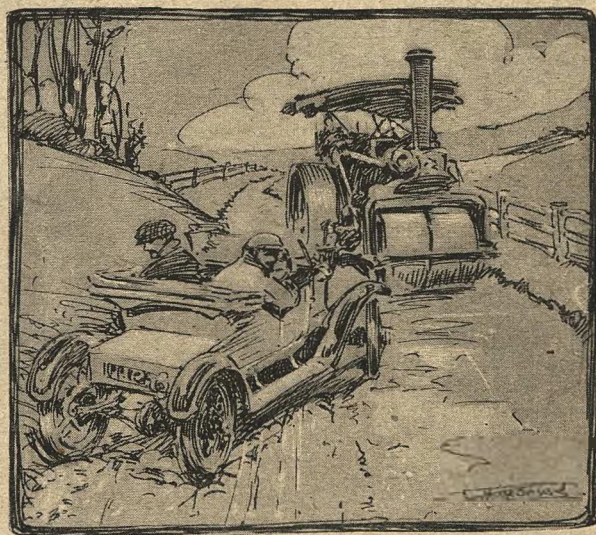
Next to reliability and economy, an equally important feature is that the car shall be easily handled in narrow roads. It should be a particularly good hill-climber, and should be able to make good pro-

gress over unmade roads and through thick mud. It should therefore have a large steering lock, a short wheelbase, and a low bottom gear.

Another point to be remembered is that an appreciable percentage of the mileage covered will be passed over at slow speed. Ample cooling will therefore be necessary. The negotiation of floods and watersplashes will be part of the day's work, therefore the carburettor and magneto should be situated as high as is convenient. The clutch should also be of the totally-enclosed type, and the transmission should be as "weatherproof" as possible.

In the course of his work the surveyor has often to carry with him two chainmen, as well as a considerable weight of surveying instruments. A dickey seat and large locker space are therefore desirable. The lengthy tripods for the theodolite and the level can be carried in straps on the running board, while the instruments in their cases can be stowed in the locker.

If it is borne in mind that a country surveyor has to cover every main, secondary, and by-road in his county, it will be seen that only a first-class make of



—and easily extricate itself from awkward places.

light car will be suitable. For instance, the test hills selected by the R.A.C. for the Light Car Trial last year may be among the easiest covered in each day's run. And in addition the yearly mileage is enormous.

From the details given of the requirements of a road surveyor, it will be seen that a Colonial type of car is really necessary. A car too lightly built may not prove suitable for this arduous work. For maximum satisfaction to be given, the car must be as sturdy an example of light car construction as it is possible to obtain.

We would impress upon county surveyors and their assistants the advantages that would accrue from the use of a light car. Grants for the running expenses can usually be obtained from the authorities, and from actual figures the cost per mile is least with a light car when large mileages have to be covered.

(To be continued.)

THE CALL OF THE ROAD.



THE JOTTINGS OF JOHN GILPIN, JNR.

OTHER PEOPLE'S CARELESSNESS.

I HARDLY ever pick up a local paper without finding a "motor case" set forth in great detail below a sensational heading. The evidence against the motorist is usually transparently biased and thoroughly unreliable; and, however reasonable may be the driver's explanation, the bench, whether in doubt or not, convict. Yet it used to be an axiom of English law to give the defendant the benefit of any doubt.

A thoughtful correspondent sends me a cutting from a local paper which is a fair indication of accepting the evidence of one side without over much "weighing in the balance," and further details are given in other cuttings.

The charge was one of dangerous driving, the defendant having run into a flock of sheep at night in Broadwater Road, Worthing, which is a prohibited headlights area. The driver, in accordance with the local regulations, had no headlamps alight and only one side light, and pleaded that he was driving slowly and never saw the sheep. The drovers stated that they shouted when they saw the car approaching, that a bicycle with a lighted lamp preceded the animals, and there were two more lighted bicycles behind. Evidence as to the speed of the car was given by a lieutenant, who considered that it was being driven too fast for the darkened state of the road. In cross-examination, he was asked if he were excited and had said: "Motorcars are a ——— nuisance." Witness: "I don't remember saying that. As a matter of fact they are." Loud laughter.

Now a common sense bench should have considered that, in view of the lighting regulations, it was extremely dangerous to drive animals along the road at night preceded merely by a cyclist, especially on a main road (London-Worthing), over which there is a considerable amount of traffic. There is not the slightest doubt that the driver of the car did not see the sheep until he was in amongst them, nor is there any reason why he should have heard the shouting of the men above the noise of his engine. If there is no law that compels those in charge of animals at

night to protect them and all road users by carrying red lamps, then there certainly ought to be, now that in so many districts headlights are prohibited, and the R.A.C. might get busy with another recommendation to the Home Office. In this case the bench fined the defendant £5, most unjustly, as many sober-minded people will consider.

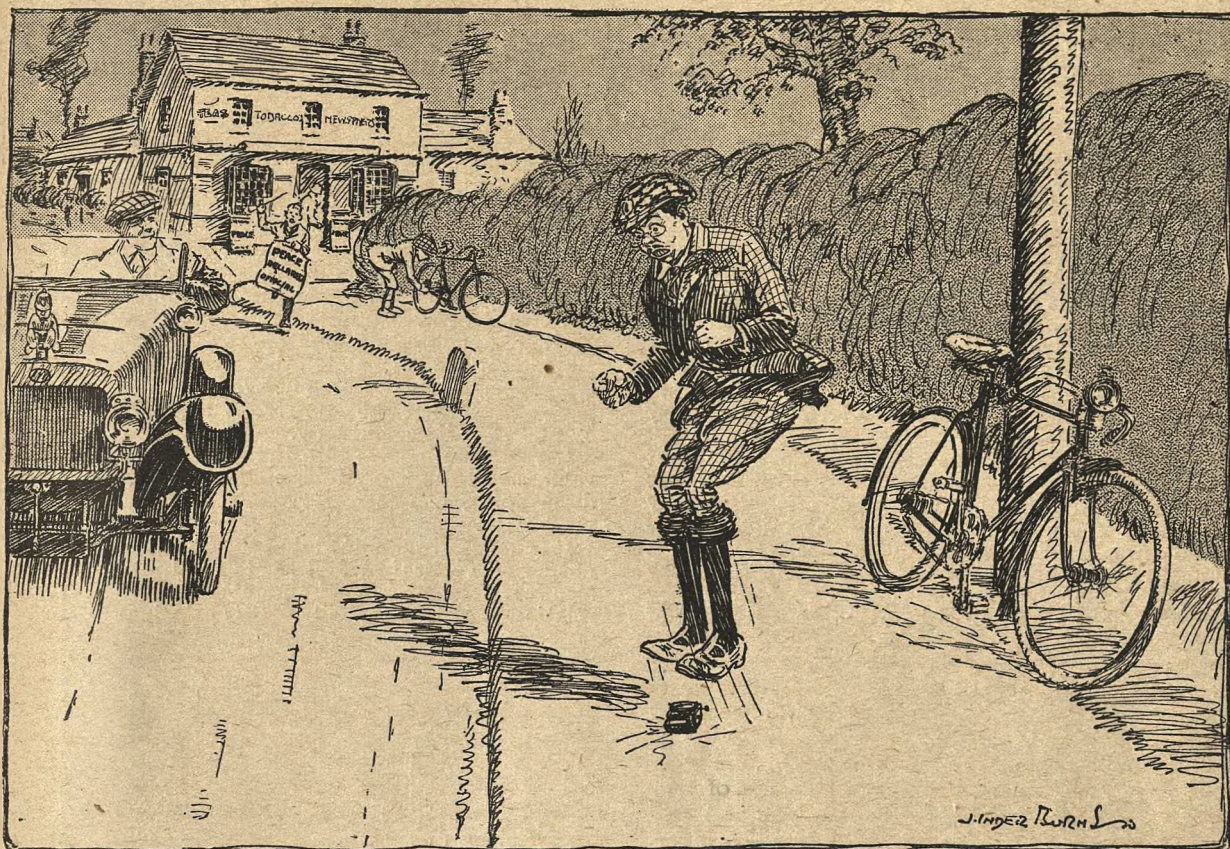
I once saw a flock of sheep driven out of a gate into a road in which there was quite a lot of traffic, the night being very misty, and, naturally enough, a car that was travelling very slowly bowled one over. As it takes only a very slight knock to make sheep into mutton that animal was saved a visit to the slaughter house. Incidentally, a cyclist was knocked off his bicycle by the sheep, but to the owners of the sheep and the drovers no one else had a right to the road when they were about, and they were "going to have the law on the motorist" and every one else. This happening in a particular anti-motoring district, no doubt if the motorist had been prosecuted for "driving to the common danger," he would have been convicted. Unfortunately he was not, as I should have liked to have given my evidence.

Another charge of driving to the danger of the public that was heard quite recently arose in the following way. The motorist was approaching a milkfloat, when the driver apparently pulled the horse up on its hind legs in front of the car, which ran into and seriously injured the animal. The driver of the float estimated the speed at 20 m.p.h., and another witness thought the driver was going faster than a tramcar—a most illuminating piece of evidence! For the defendant an independent witness stated that the driver was proceeding very carefully, and other evidence indicated that the accident occurred, apparently, from the driver of the float first urging the horse forward and then suddenly pulling it up, an additional factor being that the road was very slippery at the time. The bench might have asked the milkman if he did not think that the greasy road would make driving difficult for motors, and therefore whether he ought not to exercise greater care



THE U.A.F. FIELD DAY. — The light car section of the Motor Squadron hold a position in Richmond Park on their Field Day, 17th January. (See news pages.)

Der Tag!



THE CYCLIST : "At last, at last ! This is the day that I have long waited for !"

[The C.T.C. is encouraging cyclists in the belief that when Peace is declared they will no longer have to carry rear lights.]

when attempting to cross the road in front of a car, but they fined the defendant 40s. instead, with an additional 5s. for not carrying his driving licence at the same time.

Evidence of speed is usually very amusing. Thus, one who put the speed (in another case) at 25 m.p.h., told the driver that he was driving as if "the devil was behind him." The driver's estimate was 10 m.p.h., and the bench fined him £10.

Yet another (all these are cases reported in a week), in which a female witness estimated the speed as "like a flash of lightning," resulted in a fine of 20s. It reminds me of the case of a cyclecar owner, who, on the evidence of an old woman who said, as he drove past, "there goes a whizzer," was fined £5, as reported in our pages some time ago.

It is evidently dangerous to have a skid at night time in more senses than one, for grave doubts of a driver's sobriety were raised in another case, because when he pulled up at the command of a policeman the car swerved all over the road, the defendant alleging that the road was very greasy and that the car simply skidded. However, another £10 for driving to the common danger!

I once had a pretty narrow escape from a charge of driving to the common danger, but, fortunately, the incident happened in the City, and the City Police are a cut above the local bumpkin one usually meets in provincial towns. A child ran across a wide road, making a bee-line for me. I pulled into the near

side up to the kerb and stopped the car dead. Just before the child reached me it tripped up and fell down near the car without even touching it. At once, however, a hostile crowd got round; there were cries of "lynch him," and if two policemen had not put in an appearance pretty quickly, no doubt an attempt would have been made to carry this into effect. But I got the evidence of four sober people as to the exact facts, and the inevitable "sea-lawyer" who was urging the mother of the child to go for me hadn't an earthly.

The number of extremely narrow escapes that one experiences, owing to the sheer carelessness of others, is one of the great drawbacks of motoring. It demands that the brakes shall be always in perfect order, a steady hand and a clear brain, with a constant "sense" not only of what is upon the road, but what is likely to appear upon it in the fraction of a second, and an instinctive knowledge of the road surface. In an emergency it is useless to apply the brakes and skid the wheels, and this depends largely upon the surface. I owe my escape from many traffic mishaps to the ability to bring a vehicle, like a light car or a cyclecar, to a very quick stop, owing to its light weight, and the rapidity with which its course can be deflected, but I expect one of these days I shall "take delivery," other people's carelessness being what it is, and my driving in traffic being many thousands of miles a year.

JOHN GILPIN, JR.

THE CASE FOR THE TWO-STROKE MOTOR.

Causes for the Early Failures—Why We May Expect a Revival of Interest and Increase in Efficiency.

AT the present time the two-stroke engine, or what is sometimes erroneously styled the "two-cycle" engine, is receiving a large amount of attention.

Interest has not been aroused in the question of the design of this type of engine a day too soon. In fact, the two-stroke principle has been treated with the greatest neglect, and there is no doubt that if it had received the same amount of concentrated attention as has been lavished upon the ubiquitous four-stroke engine, it would be in far better position to-day than it is.

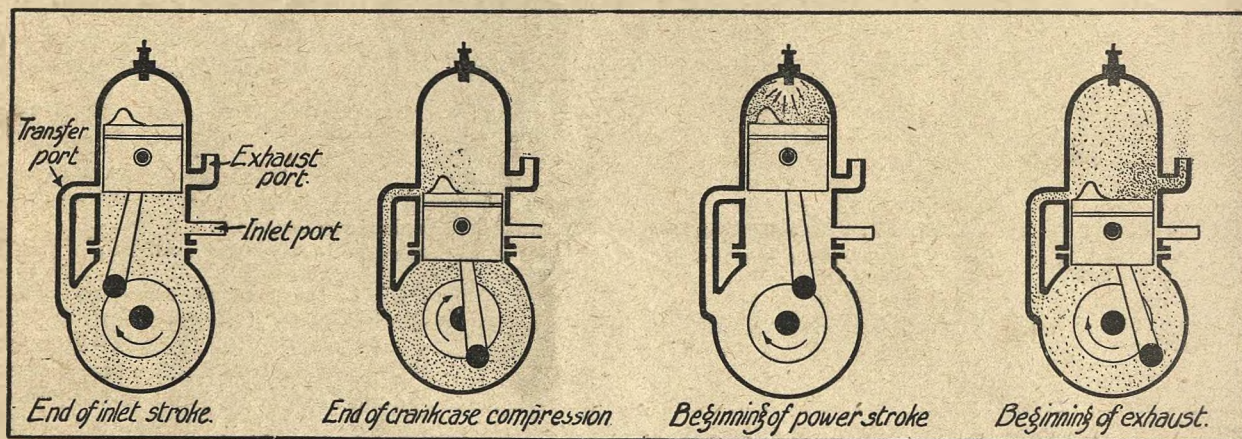
This type of engine has such a large number of points to recommend it that it is really surprising that so little attention has been devoted to it. Probably the reason is that the majority of the original two-stroke engines hailed from the States, and, like a number of other articles exported from America, they left their country for their country's good. They were foisted upon the Britisher, who, in a moment of

fection, it is nevertheless a complicated piece of mechanism, and shows no sign of becoming appreciably simpler. It still has valves and all their attendant paraphernalia, and they still require to be ground in at periodic intervals, whilst there are but few engines in which the valves are not liable to break during long-continued running at high speeds.

Whilst it has been stated that the two-stroke engine is condemned by its simplicity, it would be just as fair to state that the four-stroke engine is ruled out by reason of its complexity.

Let us then inquire into the advantages and disadvantages of the two-stroke engine, and endeavour to discover the causes of its apparent disfavour at the present time.

It is generally admitted that the two-stroke engine is not so economical of fuel as its rival, and that it is also less efficient from the point of view of power in relation to a given capacity. It is principally for these



How a two-stroke engine works.

weakness, received them with open arms, and then found that there is but little use in being sorry after the event.

These engines were of crude design and construction, whilst their finish was of a nature likely to draw forth shafts of satire and sarcasm from a blacksmith in the earliest stages of his novitiate. For these and many other reasons the two-stroke engine has been under a cloud for some years past, and the result of its lacking popularity is that its growth has, for the time being, been arrested.

But there are signs of a change in public opinion. Simplicity is the watchword of the man in the street at the present time as regards cyclecar construction. He is informed by advertisements that every manufacturer makes the "best" machine, that each is constructed in a "splendidly-equipped works," and that all their productions conform to the "the highest traditions of British motor engineering."

But this is not all. He knows that these statements are not always correct, and therefore takes the necessary modicum of salt with these and similar effusions. He also knows that although the average four-stroke engine has been brought to a very high pitch of per-

reasons and also because of the inability in some cases to run slowly that the two-stroke type of engine is more or less under a cloud.

Now, to many people these reasons appear most inadequate as a means of accounting for such a state of affairs. There is no doubt that at the present time many designers are obsessed by the fetish of speed and so-called "efficiency." The man in the street does not care one little bit about efficiency as the speed-merchant interprets it. Many of us may be very keen on racing, but we must all admit that it is but a phase of the evolution of the automobile, no matter of what type it may be.

Why should the design of machines be based to a large extent on the requirements of a single class of user? And yet this is actually the state of affairs to a large extent to-day, otherwise the two-stroke engine would long ago have come into its own. But the four-stroke has the blessing of the speed-merchant. It is difficult to be ostentatious on a two-stroker, as its fuel bill is apt to be somewhat inflated. Therefore the four-stroke engine must be perpetuated.

It is not intended to convey by these remarks the idea that the two-stroke engine has an exorbitant and

TWO-STROKE MOTOR (contd.).

insatiable thirst for fuel. Its requirements in this regard are not really very much greater than those of the four-stroke. Two years ago a two-stroke-engined motorcycle won a petrol consumption trial, so that it is evident that it need not very materially enhance the dividends of the petrol combine as compared with the four-stroke engine.

It is, therefore, up to the manufacturers of two-stroke engines to launch out on a bold campaign of demonstration and education, in order that the public may be brought the more fully to understand the great merits of this form of engine. A great deal more is now known concerning the essentials of design than was the case a few years ago, and there is no reason whatever why this type of engine should not prove to be eminently satisfactory for cyclecar use.

One of its principal advantages lies in the fact that it can be made very cheaply, owing to its great simplicity. There are, of course, a great number of people who believe that some new and revolutionary form of two-stroke will one day be introduced, and that this wondrous prime mover will at one fell swoop wipe

the four-stroke and all other two-stroke engines completely off the "mat."

Stranger things have, of course, happened before now, but we doubt very much indeed whether any such engine will materialize. The whole attractiveness of the two-stroke engine lies in its extreme simplicity. Time and again complicated forms of two-stroke engines have been introduced and patented, the basic idea of these designs being in most cases that they shall equal the four-stroke engine in point of efficiency.

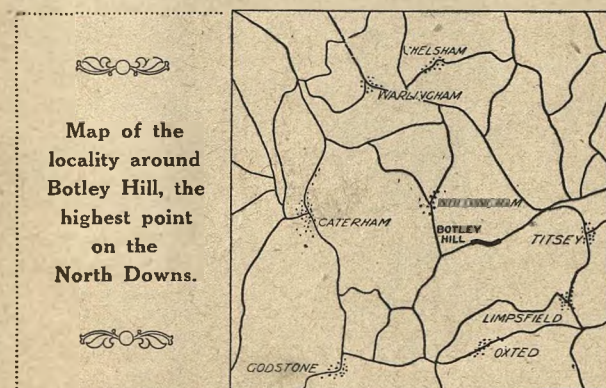
It may, however, be taken for granted that if a two-stroke engine is to be equal to its rival in efficiency, it must be just as complicated, as it will, of necessity, be provided with pumps and valves, in order to obtain good scavenging of the exhaust and a full charge of fresh mixture. However, since the service which can be rendered by the simplest type of engine is so excellent and the difference, even in point of efficiency, is not very great, it would seem to be a retrograde step to add further complication to the engine. There is a great deal to be said in favour of the simplest form of two-stroke engine, and this is the type which needs most encouragement and which will eventually come into its own.

THE HIGHEST POINT OF THE NORTH DOWNS.

A Marvellous View-point which is Probably Unknown to Most Readers.

TO the North Downs and the subsidiary parallel range of greens and hills the counties of Kent and Surrey owe most of their charms. The steep, white embrasures of the Downs, where the chalk has been excavated, stand like a rugged girdle of rocks round the sea-shore, affording scenes the like of which are not to be found anywhere else in the country, and every stranger to the county should make the trip from Dorking to Reigate, Godstone, Westerham, and Eynsford and Farningham.

The steeper side of the Downs affords some remarkable test hills, of which Chalk Pit (from Oxted), Westerham, and Brasted Hills are the worst. The summits of the Downs at many points afford wonderful panoramas, but nowhere along the range is the view finer than from the top of Botley Hill, the highest point of the North Downs.



Botley Hill, 868 ft. above sea-level, a narrow ridge of chalk, one side dropping precipitously for some 300 or 400 ft., is quite off the beaten track, but is easily reached from Croydon, Caterham, Warlingham, Limpsfield, or Godstone, all well-known places.

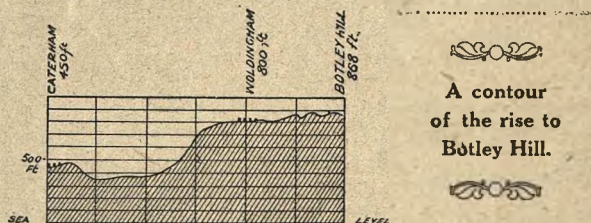
By far and away the most picturesque route is that from the Caterham Valley.

Everyone knows the famous forked roads at Purley near the end of the tramlines, where the Eastbourne road branches to left and leaves the Brighton road. The former we follow, through the once picturesque, but now rather overbuilt, Caterham Valley. Just

beyond the station a road branches off to the left, dives under a lofty railway viaduct, and brings one to a perplexing choice of ways. Here we turn to the right, up a steep, narrow lane (the gradient is 1 in 10), turning left again to the village of Woldingham, a rather lonely hamlet high on the Downs, continuing for a mile or so to a cross-road. To right is a steep descent (Tandridge Hill), very dangerous, to Godstone; we turn left, still ascending, and eventually reach the summit of the Downs and the top of Botley Hill, beyond a little stretch of gorse-grown common.

The road sweeps round a deep basin in the chalk, the edges protected by a railing, for the sides are very steep, and here a panorama is outspread which cannot be equalled for extent and variety.

In front is a comparatively low ridge of pine-clad hills, a greensward range running parallel to the North Downs, and beyond is the Weald of Kent, for we are within three miles of the county border. The first tufted eminence of this range is Crockham Hill, from which vantage point also there is a marvellous view.



Immediately below are the red roofs of Oxted and Limpsfield. Carrying the eye in the same direction the conical, purple hill in the distance is Crowborough Beacon, the highest point of Ashdown Forest, in Sussex. Further still one may see the South Downs.

Westward the eye is caught by many noble prominences. The hatchet-faced brow of Hindhead and the pin-point of Leith Hill are on the extreme right. A gleam of silver between these two hills is the famous water of Frensham Ponds. And so, armed with a good map, one may trace out point after point in a very fine panorama. It is a spot to picnic on, and afterwards to drop down into the valley and make closer acquaintance with the tiny villages, picturesque churches, and leafy lanes of Kent.

WHEN we haven't got a gun!" Yes, this is a strange world, and if we could only see ourselves as others see us, well—some of us would probably give up driving.

It happened one day that I was overtaken by a car that seemed absolutely built for a "knot" of the most "filberty" type—one of those deep-seated cars into which an undersized young man would sink until only the tip of his nose and the inevitable cigarette could be seen tilted up to an oversize steering wheel. And the real "Gilbert" was in it. The next stage was his complete undoing. Another car crossed his path at right angles and the mess, although no one was killed, or even seriously injured, was inspiring. "Gilbert" was still puffing at a cigarette as he clambered out, wearing a look of unutterable misery and helplessness, while the exasperated owner of the other car fairly boiled with rage and expletives. After looking round the debris unhappily, he lisped: "Has anyone seen my cigawettes?"

Someone suggested to him that there was a garage quite close by, to which he drawled: "Wha-a-t does one do after an accident? Dash it all, get me a taxi, can't you! And here, fellah" (to the now apoplectic owner of the other car) "here's my cawrd."

* * *

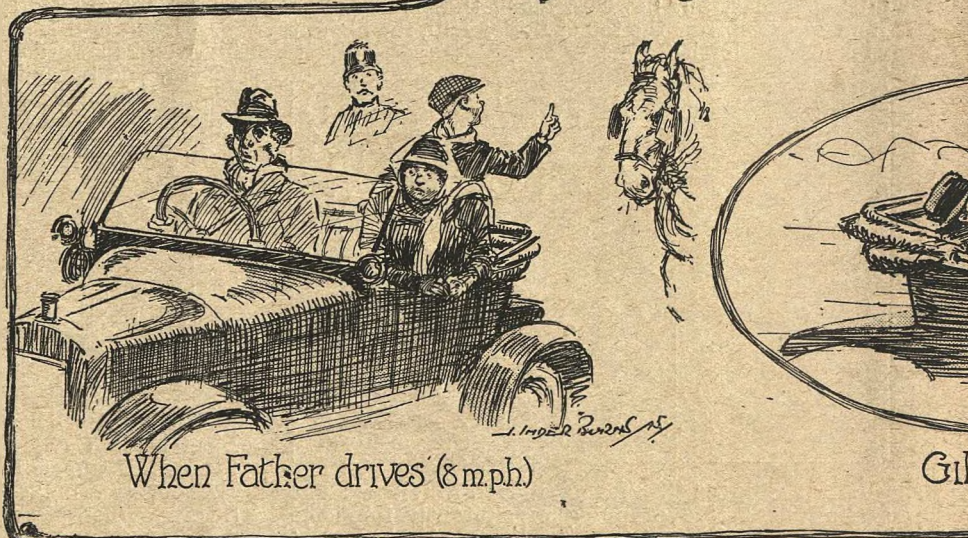
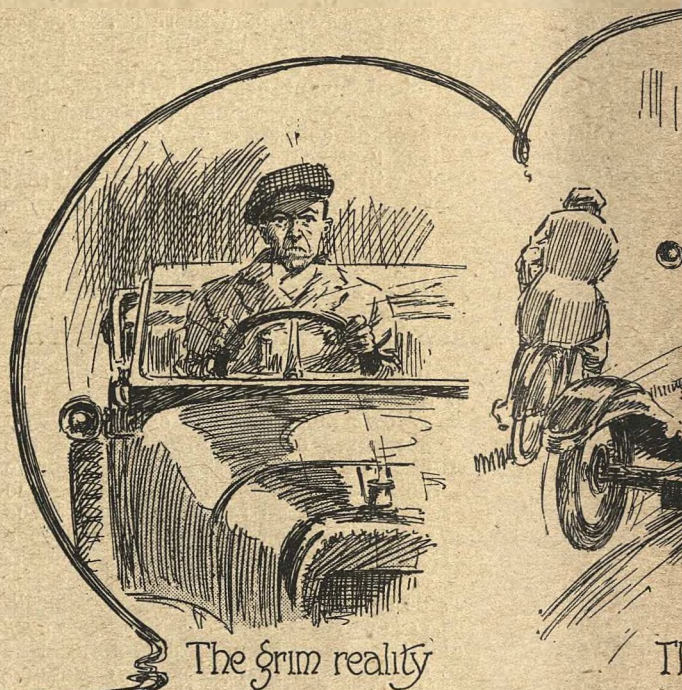
Saturday morning invariably sees a number of owner-drivers taking their cars up to town, a proceeding which, apparently, they regard as almost as dangerous as standing near a bright light at night in these troublous times. Their spouses have evidently given them a parting warning: "Do be careful, George, I don't know what I should do if you had an accident"; and George is only too painfully aware of the dangers of driving in traffic. A look of terrible anxiety clouds his brow as he grips the steering wheel and peers intently forward, and if a motorbus appears in sight half-a-mile ahead he pulls up at once, crashes on the brake and makes a noise like a gearbox having its teeth drawn. If you are lucky enough to manage to get by—for he hates other traffic to imperil his life by daring to get in front of him—he will tread desperately on the accelerator pedal until something reminds him not to take any risks, when he will impetuously wave you on and tread on the brake pedal for the benefit of anyone following behind.

* * *

Some of our very new officers are not earning the respect they deserve. Apparently, the correct thing to do, when your first star adorns the sleeves of your regimentals, is to get a car with as loud an exhaust and as much speed as possible, sans mudguards, hood, screen and anything that bespeaks a touring car, and as soon as the regulations permit on Saturday afternoon blind up to town "all out." One such was creating quite a little excitement in a ten-mile limit, the other day,

as opening out on second speed he flew along at a good 18 m.p.h. with a roar from the engine calculated to impress 100 h.p. on the ignorant. Of course, everyone turned round to look at him, and he quite lost his head. There were some amazing gyrations for a few minutes as he scraped a tram, avoided a motorbus by luck and an old woman by good fortune, turned round completely in the road, and finally came to a stop with the front wheels resting on the pavement. He gave a sickly sort of

"Things



grin and made off, and the last seen of him was as he was trying desperately to recover his nerve and get into top gear with the side brake still on, the engine shrieking with joy.

* * *

Coming down a certain hill not a hundred miles from a big Midland city, it frequently happens that

We See—

there is a traffic stop, owing to the left-hand side of the road, which is very narrow, being blocked by a descending tram-car waiting for the up car on the loop line. Most drivers, under the circumstances, wait; but others, like a certain chauffeur on a very big car, make a dash for the offside and chance any other traffic coming up. This used to be quite a regular performance on the part of this particular chauffeur, and those who

and made little impression on, while the owner was addressing himself in terms more forcible than polite to the very much abashed gentleman in livery!

* * *

It is most instructive to pull the car up beside a busy main road and watch the crowds of cyclists, motorcyclists and motorists flit by. How very rarely one sees a happy face, or that really comfortable driving position which bespeaks the born driver. Really, the average motorist ought to have a mirror hung on the screen, so that he could give his mous-

tache the correct slant and look as if he really enjoyed motor-ing. Most people seem utterly unable to dispose of their hands and arms to advantage, and the Editor might usefully publish some useful hints on deportment.

The funniest sight is usually the driver of a cheap American car. I do not know why it is, but perhaps it is due to the cosmopolitan character of the Yankee invasion, but whereas bowler hats and "toppers" are "barred" in touring cars on country roads by motorists generally, the cheap American car enthusiast seems to think that is quite the correct headgear. As he is already perched high up in the air, and sits bolt upright, endeavouring to crane

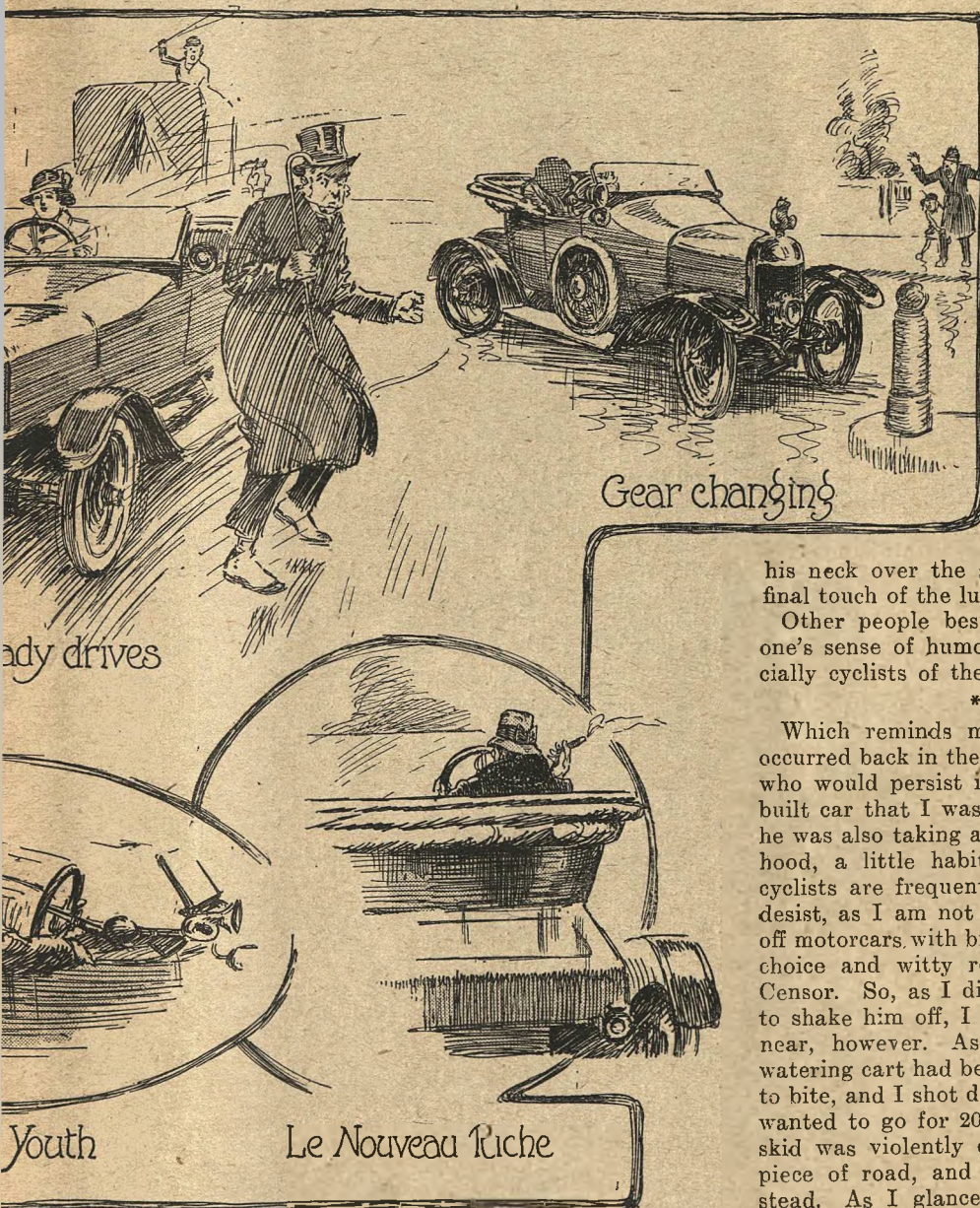
his neck over the screen, a top hat just gives the final touch of the ludicrous. Many of them do it.

Other people besides motorists often appeal to one's sense of humour by their curious antics, especially cyclists of the trousered variety.

* * *

Which reminds me of a little encounter that occurred back in the summer with a newspaper cyclist who would persist in hanging on to the rather low-built car that I was driving. Not content with this, he was also taking a free ride by catching hold of the hood, a little habit that I find these newspaper cyclists are frequently addicted to. I asked him to desist, as I am not in favour of knocking tail lights off motorcars with bicycle wheels, but I only got some choice and witty remark, which will not pass the Censor. So, as I did not feel like driving "all out" to shake him off, I let him stay. His Waterloo was near, however. As I turned a corner, where the watering cart had been busy, the front wheels refused to bite, and I shot diagonally across in the direction I wanted to go for 20 ft. or so, when this front-wheel skid was violently corrected by encountering a dry piece of road, and the back wheels shot round instead. As I glanced over my shoulder, I saw the hanger-on fly through space and collapse on top of his bicycle, where he presented a decidedly droll appearance. Judging by his language, he evidently thought I had purposely executed the manoeuvre. But he did not reproach me like a lady cyclist who broadsided my car with: "It's your fault; you didn't ring your horn!" I asked her if she blew her bell.

"J.G., JNR."



drove that way of a morning kept a good look-out for the gentleman. One day, going in the opposite direction, I noticed that every driver wore a smile; I had never seen such a happy lot of motorists before. When I drew up to the tramway loop the cause was revealed, for the front of the big car was a ruin, an unwitting steam tractor the object that it had hit,



WALKING through the works of Calcott Bros., Ltd., at Gosford Street, Coventry, it was amazing to see such scenes of activity, and evidently the popularity of the Calcott is unaffected by war's alarms. Passing a range of brazing hearths and forges that has just been installed we came to the running shed, where the finishing touches were being given to a splendid little light grey car that was to be ours for a week-end. Close beside it was a 1914 model, and the improved appearance given by the rounded edged radiator and domed wings adopted for 1915 was very apparent.

It did not take long to fill up with petrol and connect up a freshly-charged accumulator to the electric side and tail lamps. Then we took our seats and, declutching, engaged first gear in preparation for the slight incline leading out of the works on to the road.

As we let in the clutch we were at once struck with its smooth action. Changing up to second and third this was made even more noticeable. Coventry's narrow streets were soon left behind as we sped out along the London road, and we reached a fine stretch of tarred macadam. It is interesting to note that at no speed could any engine vibration be detected, there being apparently no critical period—proof of perfect balancing.

Quaint Dunchurch.

Dunchurch was soon reached, and we paused to admire the old village cross and, close by it, the stocks, a chubby urchin proudly giving us an exhibition of their use by placing his feet in the time-worn holes. Leaving the London road here we turned to the left and ran through undulating country to Southam, then making our way to Fenny Compton and across to the main Warwick-Banbury road.

We soon tired of the main road, and ran through Kineton and the little winding village rejoicing in a name as big as itself, Wellesbourne Hastings, and on to Stratford-on-Avon. Here the rain suddenly

descended in torrents, but we were able to put the hood to a test. It was easy to put it up without leaving the seats, the straps fastening to the screen, and it afforded ample protection.

Soon the rain ceased and the sun came out again, so down went the hood. The road between Stratford and Birmingham is very loose and muddy, thanks to the motorbus service, but the small amount of mud we picked up spoke volumes for the efficiency of the domed mudguards and the side valances.

Top Gear Climbing.

The 20 odd miles from Shakespeare land to Birmingham include four good average main road hills, which on most big cars and all but the best light cars call for a change down, but Liveridge Hill at Henley-in-Arden was the only one to need a momentary drop to second. The top gear hill-climbing of the Calcott is, in fact, one of its most noticeable features, and while the maximum speed is not more than about 45 m.p.h. the engine is perfectly willing to do this speed up hill or down dale. From the capacity of the engine (1456 c.c.) one might expect a higher speed, say, 50 or 55 m.p.h., and, in consequence, the 45 m.p.h. obtained is given with an absence of fuss and effort, indicating that the engine is working well within its capacity. Commenting on this to the makers we were informed that 55 m.p.h. could easily be obtained, but as a general rule few people desire it, especially as the life of the car will be appreciably longer when its power unit is not pressed to the utmost.

To return to the run, Birmingham was reached without incident, and as we negotiated the traffic the flexibility of the engine saved much gear changing. We could slow to a mere crawl of 4 or 5 m.p.h. without slipping the clutch, and yet quickly accelerate to slip by a tram or bus without any vestige of knocking or labouring. Small wonder that we were sorry to garage the car for the night.

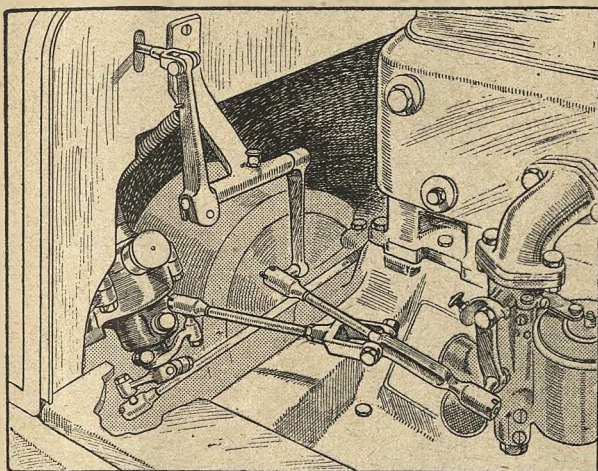
Sunday dawned too fine to last, and the choice of a

THE LIVELY LITTLE CALCOTT (contd.).

stiff trial route was not too easy, as the floods had to be considered. A short run of 30 miles or so in the morning gave us an appetite for an early lunch, and then, clad in thick coats and Burberrys (for it was both cold and wet), we rolled smoothly out of Birmingham towards Kidderminster and Bewdley.

After dropping silently down Mucklow Hill we climbed out of Halesowen on top gear, save for some 10 yds., and this is a climb which is generally too much for the majority of over-engined, cheap American cars, so far as top gear performances are concerned. Running along the foot of the Cleat Hills there is a splendid stretch of road, and we took full advantage of it, with the consequence that we found ourselves in Kidderminster, and very shortly afterwards in Bewdley, only about 40 mins. after we had started.

Now our adventures began, for we intended to run along the riverside road to Bridgnorth, but there were floods, we were told, and we were directed another way. Soon we had to confess ourselves lost, and took a road leading to Cleobury Mortimer. The rain now began to come down more insistently, but



The hand and foot control of the throttle on the Calcott is a strong point, also the magneto control, seen at the extreme end of the steering column.

as the screen kept most of it off we left the hood down, and presently passed through Cleobury Mortimer. The road now took an upward turn, but so well engineered is the gradient that it is hardly perceptible at first. Upward and ever upward, and we began to run into mist, the effect of this on the carburation being very marked and necessitating a drop to second gear as the gradient steepened.

Suddenly we noticed a signpost—"To Ditton"—and pulled up hurriedly, for we had friends there. We decided to look them up and demand a warm fire and tea, for the cold, clammy mist chilled us through. We swung the Calcott round and set off along the lane, which seemed to lead down the hill again.

Before we had gone a quarter of a mile that lane seemed bent on leading to the foot of the hill as rapidly as possible, and we deemed it wise to engage second gear and switch off. Alternately using hand and foot brake, we crept cautiously down, hoping that we should not have to return the same way, for with gear ratios of 4, 7, and 11 to 1 we doubted our ability to climb the hill. We approached a corner cautiously, and well for us that we did so. A yell from the passenger, who could see round, told us that something fearful awaited us. Then we saw it. A roaring mountain torrent was leaping in waves across the lane, swollen out of all recognition from the summer water-splash it must have been.

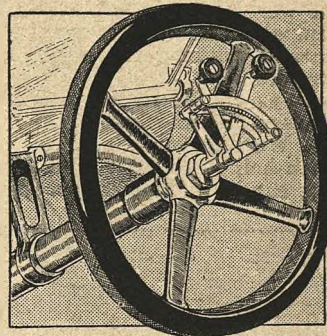
Progress was impossible, and we looked for a place where we could turn round, but in vain. After reversing for 50 yds. or so, we thought it might be managed, and, after numerous runnings to and fro we at last had the Calcott's shapely radiator pointing uphill. Now came another surprise, for, starting away easily on first, we had soon changed up to second, and the manner in which we flattened out that hill on a 7 to 1 gear was marvellous.

Back on the main road, we decided to push on, and once more up and up we ran. Soon the mist gave way to cloud, and we realized we were on the Cleat Hills. Snow lay thickly at the roadside and, for the novelty of it, we filled the radiator with snow, thanks

to the size of the radiator and the efficient circulation only a mere cupful of water having gone.

An uneasy thought of running short of petrol now occurred, and a mile farther on our forebodings were realized. A wayside cottage was the only sign of civilization, and an inquiry elicited the information that if the grocer (a mile up the road) could not supply us, we should have to go to Ludlow, five miles away. This was cheering news, so we tried the grocer, and fortune favoured us. Armed with a two-gallon tin, we returned to the car, and soon the quiet murmur of the exhaust sounded once more.

Turning round, we ran back with the empty can, meeting a thick patch of cloud. A lurch, a shout from



The quadrant throttle and ignition controls of the Calcott greatly add to the ease of driving.



An old-fashioned cottage at Binley and a 1915 model Calcott.

the passenger, and a slight jolt as we pulled the car over from the rough ground at the roadside on to which we had run. The grocer's shop loomed up and the passenger dismounted with the tin.

"What's this oil on the road?" he asked, and examination showed that the rough ground had caught

THE LIVELY LITTLE CALCOTT (contd.).

the crankcase, knocking off the small casting containing the float of the oil gauge and the drain tap.

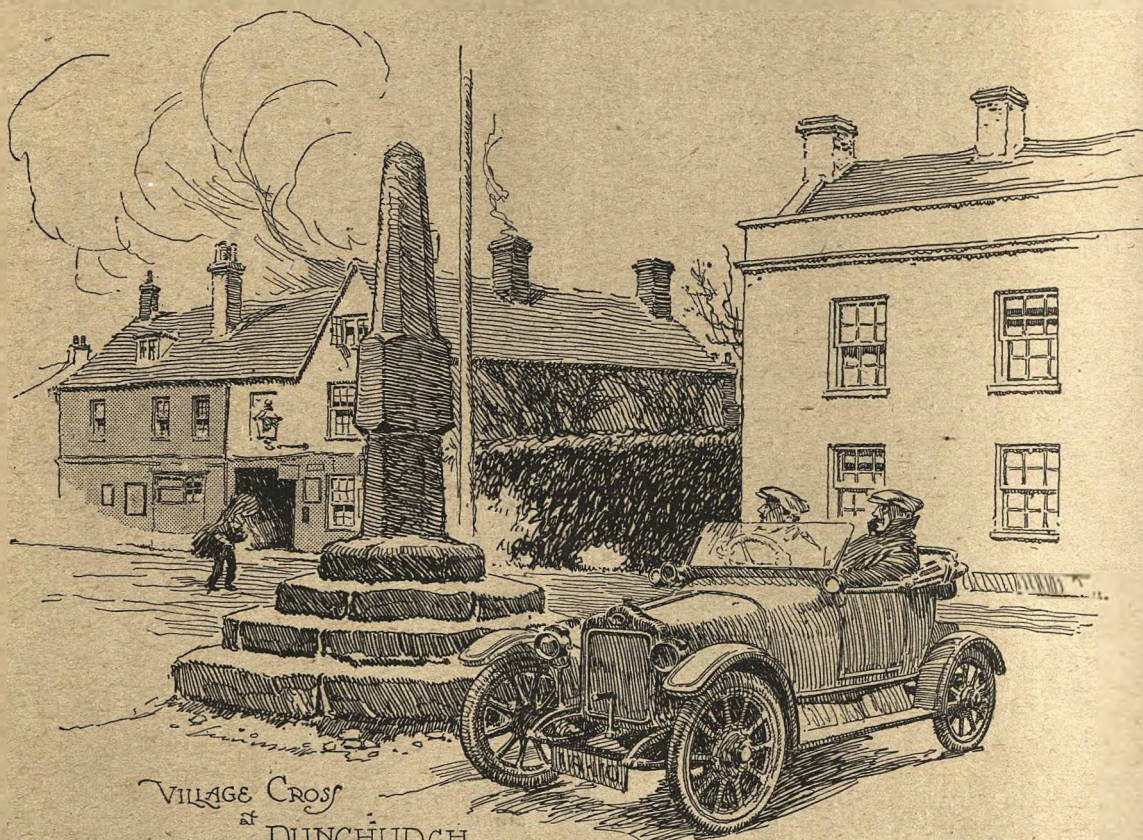
"You can run free down the five miles into Ludlow," the grocer told us, so we tried it, and after we had run out of the clouds with surprising suddenness, we were able to see better and switched on the side lamps. Ludlow was reached and we looked for a garage, running the engine as little and as lightly as possible.

Down by the river we sighted the Temeside Motor Garage and knocked at the door of the house beside it. We told our tale of woe to the lady manageress, then helped to open the big sliding doors and drove the car in. The manageress went to the telephone,

We lit the lamps and struggled into overcoats, then, paying an extremely small bill, we thanked the manageress for the excellent attention we had received and set out on the 42 miles back to Birmingham, but not over the Cleve Hill.

The rain soon came on in earnest, but we raised the hood, and, by peering over the edge of the screen, slightly lowered for the purpose, could see to drive quite easily. The acetylene headlamps were excellent. And so to Bewdley, where we joined our outward route, and then to Kidderminster and Halesowen without incident.

Before entering Birmingham we were pulled up by the police patrol to examine the driver's licence, and shortly afterwards we had garaged the car and were supplementing our excellent tea. Monday morning



VILLAGE CROSS
at
DUNCHURCH

and in less than five minutes someone was on the way to help us, while we were hanging streaming coats and caps to dry in the comfortable and warm waiting room.

Help arrived, and we jacked the front of the car up and made a thorough examination. The damage was small, and, by removing the flange of the small casting and replacing it with a large fibre washer behind, the crankcase could be made oiltight.

While this was being done we crossed the quaint Ludford Bridge to the Charlton Arms, one of those little country hotels it is such a pleasure to find. Tea and fabulous quantities of hot buttered toast soon made our adventures assume a humorous aspect, and thoroughly refreshed we at last crossed the river to the garage to find the Calcott nearly fit for the road again.

B10

saw us early astir, for we purposed to leave the car at Coventry and catch the 8.3. a.m. back to London.

Starting at 7.20, just as dawn was breaking, we had 43 minutes in which to cover 20 miles, and it says much for the springing of the Calcott that we were able to catch the train with five minutes to spare, for the road was in a shocking condition. The steering also must be commended, and the neat quadrants, mounted over the steering wheel, carrying the throttle and ignition controls.

The car would be ideal for the lady driver, for it starts easily and is remarkably simple to control, while the amount of gear changing is the minimum. Steering, springing and the smooth effortless running are all such as would appeal to the lady motorist or the professional man, while reliability is assured by the materials and workmanship used.

COLD WEATHER CONSIDERATIONS.

How Winter Affects the Engine.

THERE are three factors concerned in the running of an engine, which are markedly affected by a drop in temperature, viz., the cooling system, the carburation, and the lubrication of the engine and transmission, etc., besides one or two minor troubles which may crop up.

The Cooling System.

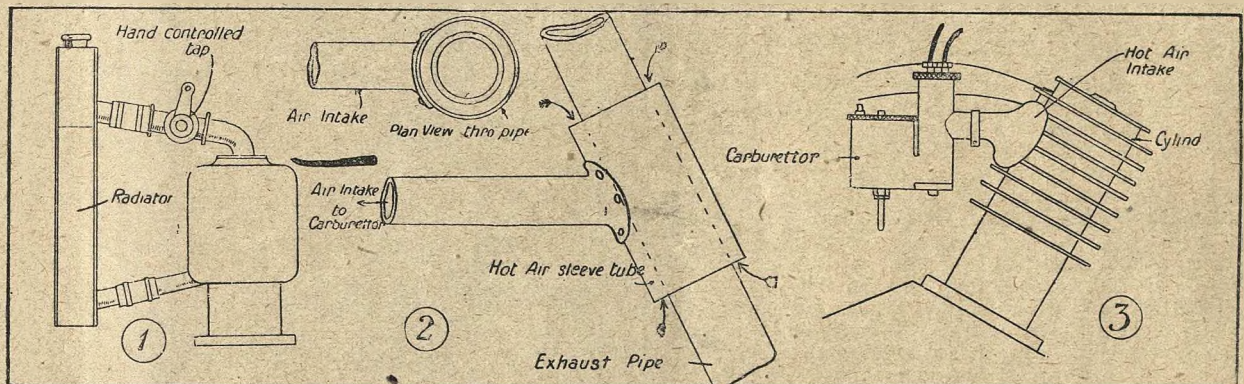
In the case of cyclecars possessing air-cooled engines, it is generally found that, so far as cooling is concerned, these work better in colder weather, but it is, of course, quite possible to overcool an air-cooled engine by running with small throttle opening upon a fairly cold day on top gear, when the cooling air can conceivably, and very often does, carry off more heat than is desirable at the expense of fuel economy, the petrol consumption increasing.

Water-cooled engines—these are not affected to so great an extent, but the difference in the degree of cooling is, however, great enough to require one or two precautions for most efficient running. It is evident that since water-cooled engines are designed to work best under normal atmospheric conditions, they will tend towards overcooling in appreciably cold weather. Sometimes it is desirable to disconnect the

leak badly. It is therefore inadvisable to allow water to remain in the cylinder jackets and radiator when the car has to stand for long in severe weather, and most prudent owners usually empty the water jackets by means of the taps provided, and take the precaution either to carry the radiator cap in their pocket, or to place it upon the seat of the car, or in some other convenient position, to remind them of the undesirability of starting up their engine sans water in the jackets. If one does not wish to be bothered with the trouble of emptying the water jackets, there are alternative methods of using a heated garage or anti-freezing mixtures.

Anti-freezing Mixtures.

These latter consist of chemicals which are mixed in certain proportions with the cooling water, and cause the water to freeze at a much lower temperature than otherwise. An efficient anti-freezing solution has a freezing point lower than the worst winter temperatures. Calcium chloride is satisfactory if mixed in the proportions of 4 lb. to the gallon of water. It has, however, a slight corrosive action upon the metal work, which does not occur, however, if ordinary washing soda (about a quarter of a pound)



SOME SUGGESTIONS FOR COLD WEATHER RUNNING.

1. Regulating the water supply by means of a cock controlled from the dash.
2. A hot-air intake arrangement.
3. Drawing hot air from the cylinder walls.

fan altogether, and in other cases to allow the fan belt to slip. It would, of course, be quite possible to reduce the cooling surface exposed by the radiator—somewhat upon the lines employed by the Grand Prix Sunbeams—by utilizing a roller blind or screen in front of the radiator, the amount of obscuration of the radiator surface being variable at will.

Another possible method of controlling the cooling system is by means of a fair-sized water cock inserted in the upper water pipe from the cylinder head to the radiator, so that the rate of circulation of the cooling water is variable at will (Fig. 1). The tap could be made controllable from the dashboard, and would not, of course, need to be altered very often.

The Danger of Frost.

The most serious aspect of cold upon the cooling system is that due to the freezing of the cooling water in the radiator and water jackets. Although attributable to the "freezing" of the water by many people, yet it is really the thawing or melting of the ice formed which does the damage; this is caused by the tremendous pressure exerted by the expanding water, which in the case under consideration causes the water jacket walls to crack, and often radiators to

be added, although where aluminium is used in the radiator construction its use is prohibited.

Glycerine is about the most popular anti-freezer, and can be mixed in various proportions with the water; the greater the proportion of the glycerine the lower will be the freezing point of the solution, and the more effective will it be in safeguarding against the cold. One part glycerine to four parts of water will freeze at a temperature corresponding to 16 degrees of frost, whilst one part of glycerine to 1½ parts of water will freeze at 30 degrees of frost. Usually about one part glycerine to four of water is quite sufficient for English winter conditions. The cost of the glycerine renders its use rather expensive if low freezing temperatures are aimed at, more especially as the cheaper commercial variety is somewhat injurious to brass and copper and to the rubber connection on account of its impurities. The disadvantages of a glycerine solution are that it is sticky to handle, and being more viscous than water affects the circulation, which is not very serious on "over-cooled" engines, however.

Another successful solution consists of adding alcohol in the form of wood spirit, or methylated spirit, in the proportion of one part to four of water,

COLD WEATHER CONSIDERATIONS (contd.).

when a freezing temperature equivalent to about 18 degrees of frost results. As this mixture evaporates in time, it is advisable to replenish occasionally, and similarly with glycerine evaporation will leave the mixture richer in glycerine, so that water only should be added to make up for any such loss.

Effect of Cold upon Carburation.

Most of the troubles experienced in cold weather are assignable to the unsatisfactory carburation conditions. Perhaps the worst effect experienced is that commonly termed "freezing up" of the carburetter. When petrol is accidentally spilt on the hands one notices how cold they feel whilst the petrol is evaporating. The same thing is constantly happening inside the carburetter—the petrol at the jet in vaporizing experiences a fall in temperature due to what is scientifically known as its "latent heat of vaporization," and this fall of temperature also lowers that of the air as it is passing through the carburetter. It is quite a common thing to find moisture and even "frost" deposited upon the outside of the induction pipe due to this cause. A point is sometimes reached when the moisture in the air passing through the carburetter is deposited as snow and chokes up the jet. It should be remembered that it is the moisture in the air and not the petrol which freezes, for petrol has a very much lower freezing point than water.

Benzole in Cold Weather.

It is well known that pure benzole freezes or solidifies at a higher temperature than water does; actually it freezes at 4 degrees Fahr. above the freezing point of water. Most of the motor benzoles, such as the 90 per cent., however, are diluted with other products, such as toluol, and the temperature at which freezing occurs is practically always far below ordinary winter temperatures.

In connection with the effect of cold upon vaporization of the petrol, it is far more difficult to "spray" the spirit effectively in cold weather, and the mixture is therefore richer. In order to guard against such troubles as the above, it is necessary to provide heat from external sources, and generally the exhaust or the cooling water is utilized for this purpose.

The usual procedure in the case of carburetters not provided with hot-water jackets around the spraying chamber is to draw the main or extra air supply from the neighbourhood of the exhaust pipe, as indicated in Fig. 2, by means of a circular sleeve embracing the exhaust pipe and connected with the air supply pipe. It is also quite easy in most cyclecar engines to draw the air from around the cylinders in cases where it is inconvenient to utilize the exhaust heat by means of a bell-mouthed air pipe, as shown in Fig. 3. Again, in some car engines the air supply is drawn through the crankcase, and in others a by-pass is led from the main exhaust pipe to a jacket incorporated in the carburetter, somewhat similar to the hot-water jacket. The writer has even employed a home-made tin jacket soldered or riveted around the inlet above the jet, through which some of the exhaust gases were allowed to pass, the heat not, however, being sufficient to melt the solder owing to the cooling of the pipe between exhaust and carburetter.

Another quite effective device is to allow the float chamber to touch the cylinder walls, as with air-cooled engines, so that the petrol itself becomes warmed. It is conceivable that by coiling the petrol pipe properly in the vicinity of the hotter parts of the engine that most carburetter "freezing" troubles might be easily overcome. Lagging the inlet pipe with asbestos string or cloth is another useful expedient.

Charge Density and Mixture Alterations.

Apart from freezing considerations, the relatively greater density of the air to the petrol in cold weather is evidenced by the fact that the extra air lever does not require so much opening in cold weather, and with most of the automatic types of carburetter it will be found necessary to stop up part of the main supply during winter.

Easy starting in cold weather is greatly a question of proper carburation, and the general fault lies in too much air being admitted, so that some means for reducing the normal air supply should be taken. In adjusting one's extra air supply, it should be remembered also that if the engine will just take full air in winter at full throttle and spark advance, it will not get enough air under summer conditions, and petrol economy will suffer.

As regards the actual power of an engine in cold weather, there appears to be no doubt that the greater charge density, that is, for the same piston displacement, a relatively larger quantity of explosive mixture, directly increases the power output. It has been roughly estimated that, with the summer and winter conditions prevailing in this country, a 12 per cent. increase is possible.

Effect upon Lubrication.

It is well known that all kinds of oil get thicker as their temperature is lowered, and most motorists recognize this increased viscosity by using a "thinner" brand of lubricating oil in winter. Since, in air-cooled engines especially, the cylinder temperature is somewhat lower in the colder weather, the decreased viscosity of this thinner oil does not seriously affect its lubricating and cooling properties. It is important, however, to remember that, although the external conditions may alter, yet the conditions existing within the cylinder remain about the same, so that a certain viscosity oil at the cylinder wall temperature is a necessity. On the other hand, too thick an oil will introduce extra resistance in the bearings of the engine and in the "spraying" qualities of the oil.

The proper brand of oil for winter use is largely a question of individual trial and experiment. Where drip-feed lubricators or indicators are employed, the effect of cold is, of course, to decrease the rate of dripping, so that a larger opening is required.

The nature of the lubricant employed in other parts of the cyclecar or light car, such as the transmission, wheel bearings, etc., the resistance offered to rotation, etc., will depend upon the "thickness" of the lubricant, and a constant degree of viscosity in the lubricating oil should be aimed at in all weathers.

Other Cold Weather Effects.

There are several minor effects which may cause trouble in winter, attributable to low temperature conditions. In some cases the water in the generators may freeze and cause inconvenience thereby. This may be guarded against by adding alcohol or methylated spirits to the water, or even calcium chloride in the proportion of 6 ozs. to the pint of water.

The effect of cold upon the elastic properties of rubber (and its substitutes) is well known, and as a case in point might be mentioned an instance when the rubber bulb of a hooter "froze," and refused to resume its normal shape for quite a long time. Tyres, also, are not so resilient in very cold weather, and, further, if pumped up hard in winter, may, with the next spell of fine weather, prove "ultra" hard on account of the expansion of the air inside the tubes. Generally, it is advisable to run one's tyres slightly under-inflated in winter.

A. W. JUDGE, A.R.C.Sc., Wh.Sc., etc.

LITTLE THINGS THAT MATTER.

Readers are Invited to Introduce Useful Hints and Tips. All Matter Accepted will be Paid For.

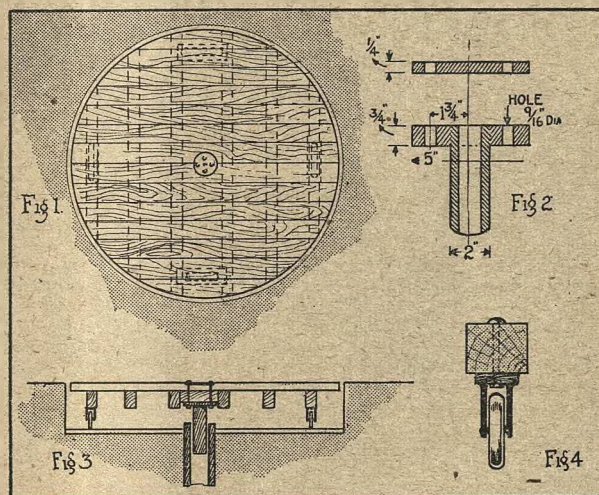
How to Make a Turn-table.

A Garage Turn-table.

An Australian reader recently asked for a method of constructing a turn-table for the purpose of reversing a car in case of it being housed at the end of a long, narrow passage. Perhaps the following method will meet his requirements.

The table should be made circular, of a diameter somewhat larger than the wheelbase of the car, and of boards $1\frac{1}{4}$ in. thick. These should first be cut so that, when built up, they form the circle of the required diameter, as in Fig. 1.

Next obtain some battens, 3 ins. square, and cut them in lengths so as to fit the table (Fig. 1), being placed about 15 ins. apart, centre to centre. Four



How to make a turn-table. Fig. 1. The spacing of the battens. Fig. 2. The central pivot. Fig. 3. A section through the finished article. Fig. 4. The truck wheels.

small truck wheels, with cast-iron supports (Fig. 4) are next required, and should easily be obtained from any truck maker. One of these should be bolted to the middle of each end batten, as shown in Fig. 3, taking care to get the plane of the wheel parallel to the axis of the batten.

Two pieces of batten, 15 ins. long, are now cut and let into position between the two middle battens, at a distance from the centre equal to the distance of the end battens from the centre. On these short cross battens the other two wheels are mounted.

The bolts used should be provided with washers under their heads and the heads countersunk flush into the planking.

The four wheels have to carry the weight of the table and car, and we now have to provide a pivot about which it is to rotate. Fig. 2 shows how this is constructed. A piece of iron pipe, 6 ins. long and 2 ins. diameter, is screwed into an iron plate of 5 ins. diameter and $\frac{3}{4}$ in. thick, the end of the pipe being burred over to prevent it unscrewing.

In this plate should be drilled four holes of 9-16 in. diameter, their centres being on a circle of $1\frac{1}{2}$ in. radius. Another similar plate should be prepared, $\frac{1}{4}$ in. thick, and should have these same holes bored, as in Fig. 2. This last plate should be let into the centre of the table, on the upper side, so that it comes flush with the surface.

The pivot can now be bolted on, inserting between

its head plate and the planking a piece of wood, 7 ins. square by 2 ins. deep, to distribute the strain. Four $\frac{1}{2}$ in. snap-headed bolts should be used for this (Fig. 3).

A piece of cast-iron pipe must now be obtained, which will fit over the pivot to act as its bearing, and both pivot and bearing should be well greased before the table is set up.

The bed can now be prepared. A circular hole must be cut in the ground, with a diameter 2 ins. greater than that of the table and a depth 1 in. greater than the height of the table.

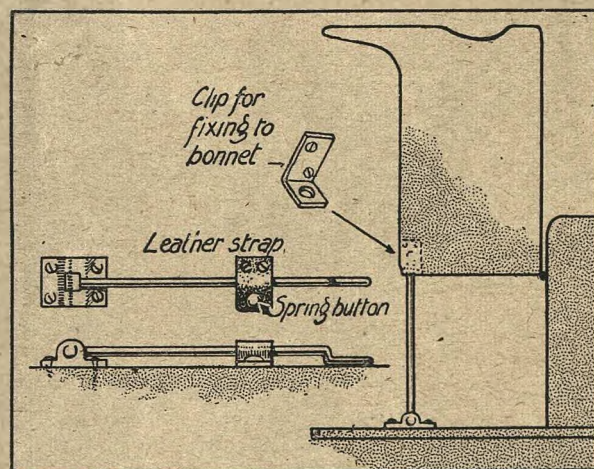
The iron pipe forming the pivot bearing should be sunk in the centre, and the bottom of the hole lined with 1 in. boards, so that the wheels can run smoothly. The sides of the hole should also be lined with thin $\frac{1}{2}$ in. planking. The table can now be set up in its bed.

Now, if the car is pushed on to the table, and the side brake applied, by merely pushing round the car itself the table will yield to the push, and swing round readily. It might be advisable to provide some means of locking the table in position. This could be done quite simply by using an ordinary $\frac{1}{2}$ in. gate bolt, which could be fixed to the yard floor, and arranged to push home into a socket drilled in the side of the table.

Fig. 2 shows a sectional elevation of the finished article in position, the cost of the whole being merely a matter of a few shillings. F.D.M.

A Morgan Bonnet Support.

No doubt many owners of Morgan runabouts have experienced some trouble with the bonnet over the engine, especially when filling up with petrol and oil,



Details for a Morgan bonnet support.

and more so when valve grinding or when carrying out other adjustments to the engine. I am enclosing a sketch of a very simple and cheaply-made device which entirely does away with this trouble; it merely consists of a stay which, when not in use, is strapped down to the chassis, hence it cannot rattle, and when in use holds the bonnet clear of tank and engine, thus leaving both hands free for any adjustments. The whole fitting only costs about 9d., and can be made and fitted by any motorist who has a workshop, and who is willing to take a little trouble to improve his machine. T.A.W.H.



THOUGHTS AND OPINIONS.



"The suggestions of to-day may be the realities of to-morrow."

DRIVING LICENCE OR PROFICIENCY CERTIFICATE?

A Most Interesting Letter Concerning the Experiences of a French Reader who was Examined for Driving Two Cyclecars.

I am very much interested in the correspondence that has arisen over the proposal to issue proficiency certificates in addition to ordinary driving licences. Personally, I am very much of the same opinion as Mr. W. H. Cumming, that nobody should be allowed to drive a car before having some kind of driving examination first. Why not do as is done in France, where every driver has to pass a driving examination that costs nothing?

I live in Nice (South of France), and before being allowed to drive a *Bedelia* in public I had to pass an examination.

First I had to drive from home to the examiner's office, wait my turn, then start the car and take him on board and drive down and up the streets that he indicated, stop the car without stopping the engine, and then re-start. I was fortunate when I passed my examination, as he consented to examine early in the morning when the traffic was not very heavy, but this same man can be very exacting on occasions. Once I saw him draw a line across a road, get into a car, and tell the chauffeur to back the car and stop with the back wheels on the line. He failed to do so, and was made to repeat the performance two or three times until he could do it after a fashion. After seeing what he put this wretched man through I was happy that I got my driving licence so easily.

But I had not done with this man. I had a *Warne* cyclecar that wanted a number, and to get a number the car has to pass an examination that takes much the same form as a driving examination.

Never having applied for a number before, I thought I should merely have to present certain papers concerning the

car and my driving licence. Not having had the car many days, it was not specially tuned up to the climate, also I had not yet got into her little ways.

Anyhow, I drove down to the examiner's office and took my place behind other cars to wait my turn, which came after about half-an-hour's wait.

To my astonishment, after asking about the weight, speeds, transmission, and looking at the motor, he asked to be driven. Wondering what he was going to ask me to do, and also having certain misgivings about the motor, as I heard after I had started that there was something not quite as it should be, I got out the starting handle and began cranking the motor. After several futile attempts to make her start up, the examiner, not wishing to keep other cars waiting, told me where I should find him should I be able to make it start in time. Hardly had he got into the other car when my motor started quite reasonably, and I followed close behind him. After a bit he came over to me and asked to be driven in order to see how the car behaved under load.

Again the beastly thing refused to start. I tried two or three times, changed the plugs, flooded the carburetter, etc., but all to no purpose. By this time it was his luncheon hour, so he told me to come another day. But before going he chaffed me, saying: "It seems to me that your car has a habit of not starting when I want to get into it."

Believe me, hardly had he left than the motor started up quite well; but as we were both hungry and in want of a rest we did not notice one another when I overtook him.

A few days after I went down to the examiner and, the



A smart Grand Prix Morgan, with disc wheels, recently turned out by the Morgan Motor Co.

THOUGHTS AND OPINIONS (contd.).

motor starting up quite reasonably, took him on board and we drove away. He directed me to a certain hill, and half way up he told me to stop without stopping the motor. After a minute or two he got down, went to the head of the car, and started pushing against it. Not knowing his motive for doing this, and as he began to move the car, I put my foot lightly on the foot brake. This evidently did not seem to please him as he came round to me and told me to keep my feet off the pedals, started his pushing again, and managed to push the car down hill.

After this he came and sat beside me and gave me permission to drive up-hill. The motor was by this time almost red hot, being only air-cooled and boxed in under a bonnet, but she started away quite easily and behaved very well. After certain twists and turns and sudden pulling up, etc., he asked to be driven back to his office, where he gave me a number.

He apologized on the way back for being so thorough, but the authorities of the town obliged him to be, as quite lately a lady had run down and killed a pedestrian and pleaded ignorance of the strength of her brakes, of her motor, etc.

It was very annoying for me at the time, but I quite see that it is really necessary. In England anybody can take out a driving licence; even those who have never been in a car. I ask you if that is right? Most certainly not.

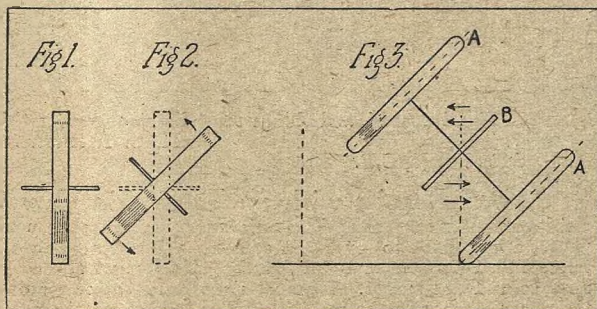
CLEMENT A. SPERLING.

Villa Sperling, Cap de Croix, Nice, France.

The Gyroscopic Action of the Flywheel.

Your comment upon my letter, and the communication from "A.B.," in your issue of the 18th inst., shed further light upon this subject. I cannot follow all "A.B.'s" reasoning in his interesting letter, and I think he is mistaken in supposing that a flywheel transversely across the frame can tend to prevent the car from overturning.

Anyone can for himself easily test the effect of gyroscopic action. If one holds a detached bicycle wheel by the end of the spindle and revolves it rapidly it will be found that it resents being moved from the vertical plane, i.e., vertical to the earth (Fig. 1), and tends strongly to resume it (Fig. 2,



Diagrams illustrating the letter on gyroscopic action from "A.S."

the tendency being indicated by arrows). This principle was used in Mr. Brennan's mono-rail car, the gyroscopes of which kept the vehicle from overturning.

Again, all motorists experience the tendency to overturn in rounding a corner. The disturbance of the direction of the weight of the car tends to lift the inside wheels and to overturn the car in the direction of the outside of the curve. In extreme (and happily rare) cases this tendency succeeds in its object! Now, in the case of a car with a flywheel set in line with the frame, the flywheel, acting as a gyroscope, resents being moved from the vertical plane and tends to right itself and, of course, the car with it. This tendency is illustrated in the rough drawing (Fig. 3), where for the sake of clearness the rapidly-revolving gyroscope is mounted on the back axle at B. Its tendency to assume the vertical position will tend to bring back the wheels (A, A) to the position of the dotted lines, i.e., on to the vertical plane again.

In the case of a transversely-placed flywheel this tendency to maintain the vertical position will, of course, not be a tendency to prevent the car overturning to the side, but a tendency to prevent it turning "head over heels"!

The tendency in question is proportionate, no doubt, to the diameter, weight, and speed of the flywheel, and I have no

means of estimating the degree of the forces in action in the case of the G.W.K. and similar cars. But I feel convinced that this gyroscopic action exists and is appreciable, and a matter of which designers should not lose sight. A.S.

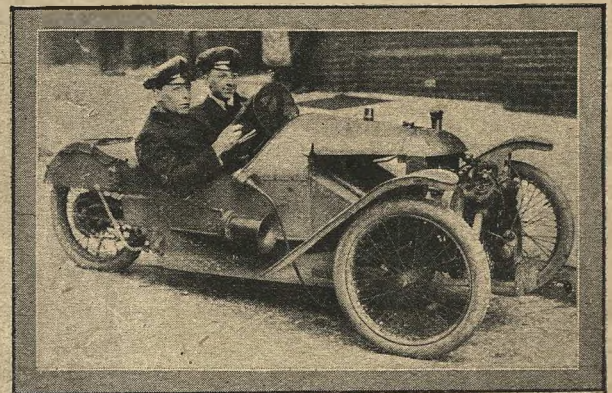
Buckingham Gate, S.W.

* * As the flywheel is rigidly held we fail to see how any gyroscopic action can be set up. The bicycle wheel is not a parallel case, for when the spindle is held in the hand it is not rigidly held.—Ed.

Water Decarbonizing.

Perhaps Mr. Burn-Murdoch's method of decarbonizing is explained by the fact that if a current of steam is passed over red-hot carbon a mixture of carbon monoxide and hydrogen is obtained ($H_2O + C = CO + 2H$), the carbon being removed in gaseous form. Will Mr. Burn-Murdoch kindly give us exact details of his method? Perhaps he or someone else can give us the chemistry of the paraffin method? I fancy the above "water gas" (CO) is used in manufacturing districts as a cheap fuel. It can be used as a diluent of ordinary coal gas; but as it is more poisonous than coal gas it is as dangerous to use in a confined space as a charcoal stove, which gives off the same gas. Of course, only the unburnt gas is harmful. F. HYDE MABERLY.

Beechmount, Crosshaven, County Cork.



Mr. G. Griffith, a well-known competition driver of a Morgan, who is now in the Royal Naval Air Service.

Cigarettes Given Away with Oil.

I note that, in his "Jottings," "John Gilpin, Jr.," mentions a firm giving 100 cigarettes to any dealer who purchases a barrel of oil from them, and I may state that I have had such an offer made to me apparently by the same firm.

Another way of selling oil has been brought before my notice this last week. A certain oil firm consigned a quantity of oil to one of the best-known local auctioneers, and asked him to dispose of it. This oil was at the railway goods warehouse, and the auctioneer asked me if I would make him an offer for it, as it was some that a firm—unnamed—had refused to take delivery of, and he had the selling of it.

I am quite aware that there are a great many firms connected with the oil trade, but I never thought any of them would rely upon cigarettes and auctioneers to sell their goods, this, I think, being the limit. GORDON ARMSTRONG.

The East Riding Garage and Eng. Works, Beverley.

Oil at 1s. 6½d. Per Gallon.

With reference to the offer of motor oil at 1s. 6½d. per gallon net, with a gift of 100 cigarettes, it may interest you to know that the writer has before him a similar letter. You might note that their reason for reducing the price of the oil is "to save two long carriages," but we would point out that the difference between 1s. 6½d. and 2s. 3d. per gallon is obviously greater than the cost of the carriage is likely to be.

EXETER MOTOR CYCLE AND LIGHT CAR CO., LTD.,
Bath Road, Exeter. GEO. H. GOODALL, Manager.

* * The letter is precisely the same as others that have been sent us, so that this particular offer of oil, supposed to have been delivered near the various persons addressed, at a low price, to save the return carriage, is merely a scheme for selling oil cheaply.—Ed.

THE RUNNING COSTS OF A MORGAN.

Under 2d. per Mile.

I beg to submit a statement of running and maintenance costs of my 8 h.p. Morgan, J.A.P. air-cooled engine, B. and B. carburetter (32 jet), during the year 1914. The Morgan is a 1913 model.

EXPENDITURE.	£	s.	d.
Taxes and licence	2	5	0
Garage	3	18	6
Petrol, 62 gallons at 1s. 7d.	4	18	2
Oil	0	18	0
Grease	0	4	6
Tyres	4	16	6
Charging accumulators for lamps and bulbs	0	14	0
Carbide	0	8	0
Spares, tools, etc.	2	0	4
Repairs and sundry items	2	14	0

£22 17 0

Mileage, 3230; m.p.g., 52.1. Running cost = 1.7d. per mile.
11, Horse Fair, Banbury. F. J. COOKE.

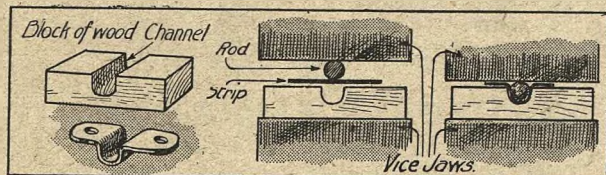
Running Costs 3d. per Mile.

I should like to give my experiences of 12 months running on a sporting model J.A.P.-engined Morgan. I have used benzole most of the time, and my running costs work out to 3d. per mile without depreciation, which I should assume at about £20 or so, or a little over 3d. per mile.

For nearly two-thirds of my driving I have carried two passengers besides the driver, and on one occasion I had four up. I find nothing to beat the Morgan for speed on the road. At first I had bad luck with tyres, only doing about 1300 miles, on three front covers until I discovered that my wheels were not in alignment; since then I have done 3000 miles on the same make of cover, and should say it is good for at least 1500 more. The rear steel-studded cover lasted 2400 miles, when, owing to fierce driving, the studs came out. I tried a Stelastic, and it has done 2500 miles. It is worn so little that you can scarcely detect how much. Of course, in this wet, muddy weather the back wheel skids a little, but in all my driving I have never had an alarming skid, although my front covers are plain round-treaded. I usually drive about 200 miles in the week in the winter.

Making a Metal Clip.

I noticed in your issue of 11th inst. a method of making clips. I think the method shown in the sketch herewith is an easier way and gives more uniform results. Procure a piece of hard wood and cut a channel across it as broad as the outside of the clip will be, lay the brass strip on it, and press



An alternative suggestion for making a clip with the aid of a vice. It would only be applicable in the case of very soft metal. See letter from Mr. A. T. Hill.

the rod (former) against the strip (in the vice); the strip will be pressed into the shape of the clip at one operation.
Jeypoor Portmore Park Road, A. T. HILL.
Weybridge.

A Complaint Against Manufacturers.

What is wrong in England? Do manufacturers here want trade or not? I have written to several firms, asking for quotations for engines, etc., but cannot get answers. Now is a golden time for our tradesmen if they get a move on. I make and repair cyclecars, but my great difficulty is to get parts. I also explain what is suitable for this country with respect to axles, etc., but suppose it is the old cry that they will not depart from standard practice, for they will not supply what is wanted. They forge that roads in England

The repairs have been practically nothing. The chains broke about five or six times in the year, and cost about 3s. in all, owing to my clutch being rather fierce, and sometimes I have let it in with a bang. I have had five new compression taps, and these have always been a source of trouble. I have failed to get a good tap that will remain gas-tight for long.

I took a run up to London from South Wales on Easter Sunday, and made 11 calls for benzole, but failed, so got a little petrol to take me out as far as Henley, where I was able to obtain benzole once more. I simply hate driving on petrol, and my average consumption is 68 to 70 m.p.g. with a B. and B. carburetter 31 jet in winter and 32 jet in summer (for speed). I once made a test, and drove 5000 miles on benzole without touching the engine; not even a plug was removed. Then I had the engine down, and found so little carbon that I regretted having gone to the trouble.

I have now done nearly 12,000 miles, and the car runs so well and causes so little trouble that I feel I cannot part with it, although I am very anxious to try something else.

E. H. LONGLEY.

21, Bridge Street, Newport, Mon.

Some Running Costs Criticised.

I read with much interest the letter from "S.W." in your issue of 11th January, giving the running costs of his sporting Morgan, in which he appears to enjoy very cheap motoring. He omits to mention, however, whether he bought his mount new or second-hand, and it would be interesting to know this for two reasons. Firstly, if the machine were new, possibly no repairs would be needed in the distance run, but if second-hand it would appear that "S.W." has either got a very good sample or possibly he is himself a skilled mechanic and does his own repairs. Secondly, if he started with a set of new tyres and has spent over £5 on this item since, my ideas of tyre wear on his type of cyclecar are quite upset. Perhaps "S.W." will be good enough to reply to these points.

I wonder if any of your readers could oblige me with particulars of running costs on a Morgan or A.C. Sociable over a period of three or four years or a distance of 12,000 to 15,000 miles with the same machine?

H. BROWN.

30, Clayton Street, Nelson, Lancs.

are like billiard boards, and things must be stronger for this country.

H. C. NICHOLLS.

Somerset, Strand, C.P.

Bad Results with an Extra Air Valve.

After reading various articles on economy of petrol in your paper, I had fitted to my Swift cyclecar a Bowden extra air inlet, and I have been surprised that I only get the same mileage as I did before. I cannot understand, after reading the experiences of other motorists, why it is I get the same mileage with benzole as petrol. I am getting 40 miles per gallon with either petrol or benzole, and with or without extra air. Can you or any of your readers explain the reason? I may say that the cyclecar is a far better hill-climber now than before, and keeps cool better.

T. H. DYMCK.

48, Newcomen Terrace, Redcar.

* * When using benzole, it is necessary to substitute a smaller jet, which is better than merely increasing the air supply. We feel sure, therefore, that the carburetter is supplying far too rich a mixture. The jet should be of a size that will cause the engine to misfire and pop back in the carburetter when the Bowden air valve is fully opened and the engine is pulling at slow speed.—Ed.

NOTICE TO CORRESPONDENTS.

Preference is given to letters intended for publication which are to appear above the writer's name and address, but where this is not desired, initials or a nom de plume will be substituted if requested specifically, but the reason should be given. In view of the peculiarly wide publicity afforded to letters on light car and cyclecar subjects appearing in these columns, readers are asked to make their letters as brief as possible so that a greater number may be published. Letters received up to Wednesday morning first post usually appear in the following Monday's issue.

Calcott Cars 1915 Models

10.5 H.P., 4-CYLINDER.

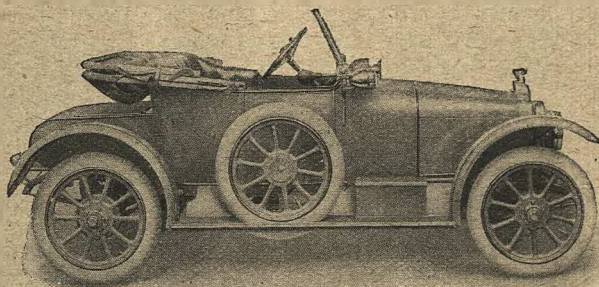
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ALL ON **£185**

IMMEDIATE DELIVERY.

Fitted with Dynamo Lighting Set, £15 extra.

Fitted with Dicky Seat, - - £4 10s. extra.

CABRIOLET MODEL, £245



ALL MODELS IN STOCK. NO WAITING.

Trial Runs Free.

Also—

Singer £195, and with lighting set £204 15s.

Swift, 10 h.p., £200. G.W.K., £157 10s.

*Prompt delivery of any 1915
LIGHT CAR or CYCLECAR.*

Write us, we shall be pleased to answer any inquiries.

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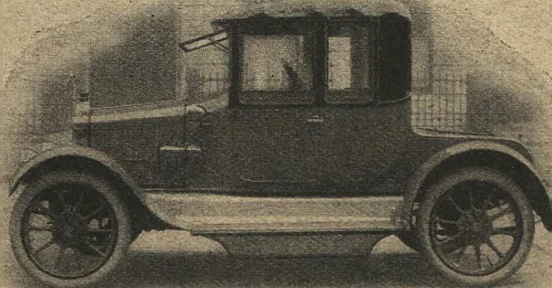
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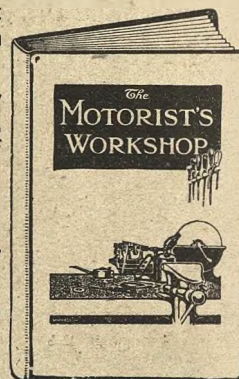
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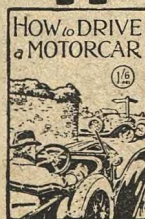
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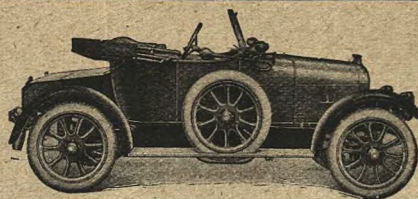
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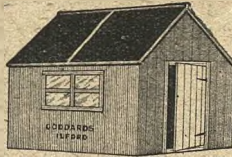
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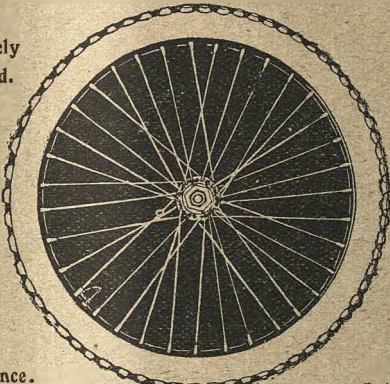
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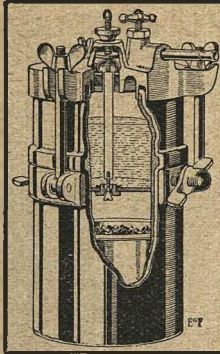
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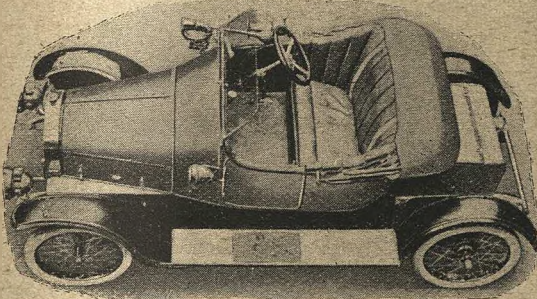
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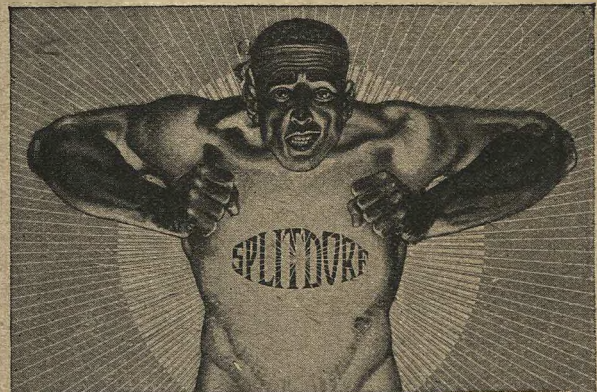
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ENFIELD. Sole agents for Middlesex, Surrey and London for Enfield light cars. The cheapest high-class proposition on the market, includes dynamo lighting, five lamps, spare wheel and tyre, hood and screen, all on, £185, a car of distinction, exchanges arranged. Maudes' Motor Mart, 135 Great Portland Street, London, W.

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ERIC cyclecar, 1914, 9 h.p., horizontally-opposed twin engine, three speeds forward and reverse, special tyres, hood, screen, any trial, cost £140, accept £85 quick sale. 45 Hartford Road, Huntingdon.

115-m353

GLOBE coupe, 8 h.p., absolutely faultless throughout, complete with numerous accessories, free tuition, £90. Western Motor Works, Chislehurst. Telephone, Sidcup 160.

Trade 115-m315

G.N., 1913, hood, screen, lamps, spare wheel and tyre, horn, etc., £60 or close offer. G. N. Higgs, 31 Vauxhall Bridge Road, Victoria, S.W.

Trade 114-230

G.N., Grand Prix, new September, 1914, run under 1000 miles, three speeds, mono-seater body, with streamline tail, spare wheel and new tyre, hand Klaxon, trip speedometer, Solex carburetter, a sporting car, capable of over 50 m.p.h., and which is as brand new, cost £120, we will accept £80 or very close offer to clear. G. N. Higgs, 31 Vauxhall Bridge Road, Victoria, S.W.

Trade 114-231

GORDON, 1914, water-cooled, complete with hood, screen, lamps, detachable spare wheel, actual Six Days Trial car, £100; two air-cooled models, £80 and £75, all in perfect order; the cars that do 53.98 m.p.g. Gordon Armstrong, Beverly.

Trade zzz-232

G.W.K.s from stock on deferred terms; write for Buyers' Guide. Harrods, Ltd., Brompton Road, S.W. Trade zzz-614

G.W.K. de Luxe, fully equipped, immediate delivery, deposit 30 guineas secures, balance 12 monthly instalments £10 15s. 3d., less rebate, exchange entertained. Service Co., 292 High Holborn, London.

Trade zzz-643

G.W.K., last year's, newly painted, perfect condition, Lucas lamps, speedometer, spares, heavy tyres, £105, bargain. Motor Supply Co., Oxford Street, Manchester. Trade zzz-953

G.W.K., late 1913, Lucas headlights and horn, electric side and tail lamps, Cowey speedometer, clock, all new tyres, perfect condition, £100. McNeill, Showrooms, 47 Staines Road, Hounslow.

Trade 114-1980

G.W.K., 1914, excellent condition, speedometer, overhauled.

114-m146

G.W.K., 1913, Stewart speedometer, five lamps (three electric and two acetylene), a bargain, £87 10s. Wilkins, Simpson and Co., 11 Hammersmith Road, London. Trade 114-1341

G.W.K., 1913, repainted, five lamps, all tyres like new, aluminium on footboards, many spares, a bargain, £95. Wilkins, Simpson and Co., 11 Hammersmith Road, London.

Trade 114-1342

G.W.K., latest 1915 model, £157 10s., in stock, immediate delivery, tuition and delivery free, free trials, best prices allowed for exchanges, trade supplied. Wilkins, Simpson and Co., 11 Hammersmith Road, London.

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G.W.K., 1915 models. We quote keen exchanges. Easy payments arranged. Deliveries from stock. Motorics, 68 Horton Street, Halifax.

Trade 114-164

G.W.K., 1912, with 1913 engine, hood, screen, Stepney, electric and bulb horns, speedometer, five lamps, £80. Smith and Francis, 22 Panton Street, Leicester Square.

Trade 114-266

G.W.K., 1914, thoroughly overhauled and mechanically as good as new, fully equipped, any severe trial given, cost £150, take 100 guineas, sound bargain, expert tuition free, Watchope's, 9 Shoe Lane, London.

Trade 114-254

G.W.K., 1913, hood, screen, Stepney, speedometer, clock, lamps, horn, splendid condition, £90. Auto Mart, 133, Hammersmith Road, W.

Trade 114-1593

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LIGHT CARS AND CYCLECARS FOR SALE*(continued).*

G.W.K. model de luxe, 1915, fitted with electric lighting and electric starter, fully equipped with five lamps, hood, screen, tools, jack, pump and spare wheel, fast, delivered fresh from the works, 190 guineas. Send for full particulars if you want a magnificent car. Give full particulars of your motorcycle or light car for exchange; approximate price by post; delivery to purchaser's house free. Tuition free. Extended payments. Wauchope's, 9 Shoe Lane, Fleet Street, London. Certain satisfaction assured by dealing at Wauchope's. Trade 114-255

G.W.K., G.W.K., G.W.K., model de luxe, 1914, brand new, 8 h.p., five detachable wheels, five lamps, bargain, £150. Cass's The Light Car and Cyclecar Specialists, 5 Warren Street, Euston Road. Museum 623. Trade 114-240

G.W.K., 1913½, perfect condition, just repainted "Rover Buff" coach finish, Watford speedometer, Stepney, hood, screen, all lamps (including powerful headlamp), spare tyre, mats, tools, 700 by 80 Dunlop tyres, £95. 7 Park Grove, Frizinghall, Bradford, Yorkshire. 144-m343

G.W.K., 1913½, recently overhauled, perfect condition, new back Kempshalls, speedometer, hood, screen, lamps, tools, spares, carefully driven, formerly property of engineer, now enlisted, many economical improvements, £90. Whitelegge, Solicitor, Paddington Station. 114-224

G.W.K., 1915, immediate delivery. The Exeter Motor Cycle and Light Car Co., Ltd., 7 Bath Road, Exeter, and 28 Tavistock Road, Plymouth. Trade 114-227

HILLMAN, 1915, with Lucas dynamo lighting set, the luxurious light car and most reliable, exchanged for Standard, Singer, Calthorpe, Morris-Oxford, Calcott, Perry, G.W.K., good allowances. Motor Supply Co., Oxford Street, Manchester. Trade 138-187

HILLMAN light car, 1914, fitted with dynamo equipment, guaranteed new, £200, or one without dynamo £180. Smith and Francis, 22 Pantom Street, Leicester Square. Trade 114-265

HILLMAN light car, complete, £200, delivery from stock. Bristol and district agents, F. G. Cox and Co., Perry Road, Bristol. Trade 114-m378

HILLMAN, 9 h.p., 1914, just overhauled, hood, screen, five lamps, spare wheel complete, in A1 condition, £100 or close offer. G. N. Higgs, 31 Vauxhall Bridge Road, Victoria, S.W. Trade 114-232

HORSTMANN. The best light car irrespective of price, luxurious economy combined with efficiency. Edwards and Parry, the special London agents, can give delivery from stock; every car specially tuned and tested by our Brooklands racing expert: increased power and more miles per gallon guaranteed, no extra cost, trial runs by appointment. Write for illustrated catalogues, or call at 69 Great Queen Street, Kingsway. Regent 5086. Trade zzz-871

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HUMBEPETTE, 1914, fully equipped, slightly shop-soiled, £20 down, 12 monthly payments of £7, discount for cash. Service Co., 292 High Holborn. Trade 114-97

HUMBERETTE, 1913, newly repainted, overhauled, splendid condition, speedometer, complete, hood, screen, large lamps, £75. Motor Supply Co., Oxford Street, Manchester. Trade zzz-954

HUMBERETTE, 1913, air-cooled, complete, Stepney, speedometer, luggage carrier, done about 4000, £70, consider light weight motor-bike in part, any reasonable trial. Apply by letter, Capt. White, Thurstone, S. Farnborough, Hants. 114-m360

HUMBERETTE, 1914½, w.c., like new, extra air, 3 in. tyres, little used, mechanically perfect, floor mat, all complete, splendid condition throughout, fully insured, must sell. £95. Desoutter, 12 New Burlington Street. 114-m363

HUMBERETTE, 1913, late model, in splendid order, complete with lamps, horn, hood, screen, and tools, guaranteed sound, trial, £62. Elce and Co. Phone, Avenue 5548. Trade 114-260

HUMBERETTE, 1913 model, just like new, everything sound and reliable, any severe trial given, finish exquisite, hood, screen, lamps, complete and ready for the road, £70, good reliable bargain, tuition free. Wauchope's, 9 Shoe Lane, Fleet Street, London. Trade 114-256

HUMBERETTE, 1913 model, air-cooled, in exceptional fine condition throughout, £55. 337 Euston Road, London, N.W. Trade 114-m342

LIGHT CARS AND CYCLECARS FOR SALE*(continued).*

HUMBERETTE, 1913, just overhauled, only run 3500 miles, complete with Stepney, spare tyre, speedometer, etc., splendid condition, £62 10s. Hall, Otter House, Whalley, Lancashire. 114-m368

HUMBERETTE, 1914, w.c., Stepney wheel, speedometer, clocks and full equipment, £90. Alfred Wastnag, Portland Court Garage, Great Portland Street, W. Trade 116-219

LAGONDA, 1915 model, 11 h.p., four-cylinder, five detachable wheels, coupe body, fully equipped, £150, immediate delivery; also demonstration model, £125. Taylors, Ltd., 21a Store Street, London, W.C. Trade zzz-802

LAGONDA, new, 11 h.p., four-cylinder, gate change, fully equipped, £145, exchange, quote, trial willingly. Motories, 68 Horton Street, Halifax. Trade 114-166

LAGONDA, 1914 (late), five detachable wheels, smart coupe body, fully equipped, speedometer, clock, five lamps, etc., £115, bargain. Smith, 45 Wherstead Road, Ipswich. 116-m361

LAGONDA, 1915 models for immediate delivery from stock, price £150 all on, exchange or easy terms arranged. Wauchope's, 9 Shoe Lane, London. Trade 114-258

LAGONDA, 11, 1914, chassis 1092, fitted two seats, coupe body, painted green, upholstered in green leather, C.A.V. lighting set, five lamps, bulb horn, electric horn, Stewart speedometer, spare wheel, non-skid tyre, spare case of electric bulbs, kit of tools, jack and pump, £135. Heath's Garage, Birmingham. Trade 114-269

LAGONDA cars: coupe model, complete, £150; four-seater model, complete, £157 10s. Bristol and district agents, F. G. Cox and Co., Perry Road, Bristol. Trade 114-m376

MATHIS, 10 h.p., 1914½, de luxe model, dickey seat, five detachable wheels, good tyres, five lamps, Atlas engine pump, extra air inlet, very fast, splendid hill-climber, had little use, cost £205, sell £125, having joined Army. Davis, 5 Earl's Court Square, South Kensington, London. 114-m386

MORGAN, immediate delivery of 1915 sporting model, complete with lamps, hood, screen, headlights, etc.; send for list. Julian, Morgan Specialist, Broad Street, Reading; 43 years reputation. Trade zzz-657

MORGAN, sporting, 1915, run 250, perfect, with guarantee, hood, screen, offers. 320 Manor View, Cudworth, Barnsley. 115-m152

MORGAN runabout, late 1913, screen, all lamps, speedometer, Bowden magneto advance, mats, excellent condition, £65. Hatton, 10 Harp Alley, Ludgate Circus. 114-1333

MORGANS. All models for early delivery. Grand Prix in stock. Trade supplied. Rey, 378 Euston Road, N.W. Trade 125-161

MORGAN, 1914, sporting model, hood, screen, lamps, complete, beautiful condition in every respect, little used, £65, no offers. Ben Hur, Greenside Road, Croydon. 115-m346

MORGAN, de luxe, 1914, all accessories, hood, screen, lamps, spare tyre, and horn, new condition, £85. P. J. Evans, John Bright Street, Birmingham. Trade 114-244

MORGANS, 1915, No. 1 and No. 2 Grand Prix, also de luxe and sporting models, for immediate delivery from stock; prices, with extra strong tyres to back wheel, £106, £116, £101 and £92 respectively; exchanges arranged, also extended payments. Wauchope's, 9 Shoe Lane, Fleet Street, London. Trade 114-250

MORGAN, Morgan, Morgan, 1915, No. 1 Grand Prix, in stock, complete with full equipment. Cass's, The Light Car and Cyclecar Specialists, 5 Warren Street, Euston Road. Museum 623. Trade 114-259

MORGAN, 1915 models for immediate delivery, Grand Prix and sporting models, exchanges, easy terms. Elce and Co., 15 Bishopsgate Avenue, Camomile Street, E.C. Phone, Avenue 5548. Trade 114-261

MORGANS, all models in stock, immediate delivery, cash or deferred terms. Colmore Depot, 49 John Bright Street, Birmingham. Trade 114-270

MORGAN, sporting (August, 1913), special screen, hood, Jones speedometer, 3 in. tyres, numerous spares, mechanically perfect, £75, no offers. 30 Redditch Road, King's Norton. 114-m367

MORGAN runabout, 1914 model, Grand Prix, fitted with air-cooled overhead valve J.A.P. engine, 8-10 h.p., beaten metal streamline racing two-seater body, screen, speedometer registering to 80 m.p.h., headlamps, generator, tail lamp, as new, £100. F. G. Cox and Co., Perry Road, Bristol. Trade 114-m377

LIGHT CARS AND CYCLECARS FOR SALE
(continued).

MORGAN runabouts, delivery from stock, either model. Bristol and district agents, F. G. Cox and Co., Perry Road, Bristol. Trade 114-m381

MORGAN, late 1913, standard, Amac carburetter, magneto, Bowden controlled drip feed, Watford maximum hand, spares, nearly new tyre on back, any reasonable trial, £50. E. Allen, 165 Brixton Road, London, S.W. 114-m314

MORGAN, late 1914, Grand Prix No. 2, painted yellow, overhead valves, water-cooled, 8-10 h.p., J.A.P. engine, Kempshall tyres, 700 by 80 cover on back wheel, adjustable glass windscreen, condition as new, complete with accessories, £105, cost £130, genuine bargain. Write, White, 121 Adelaide Road, South Hampstead. 115-m332

MORGAN, 1913, standard, hood, screen and lamps, splendid condition, any trial, £58. 25 Railway Road, Leigh, Lancs. Trade 114-m335

MORGANS. War brings better business; apparently purchasers are buying Morgans who would have bought larger cars owing to their low upkeep costs, speed and reliability. I can supply just now Grand Prix and sporting models from stock. Potter, Leicester Grove, Blackman Lane, Leeds. Tele., 4046. Trade 114-m339

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MORRIS-OXFORD, sole agents for Surrey and parts of Sussex and Hampshire, the quality light car, best delivery dates, free tuition, etc. The Haslemere Motor Co., Ltd., Haslemere. Phone, 43. Trade zzz-261

MORRIS-OXFORD, the car par excellence, popular model at 165 guineas, cannot be beaten; send for list; exchanges; easy terms. Embro Cycle and Motor Co., Hull. Trade 115-126

MORRIS-OXFORD. For quick deliveries write to H. W. Cranham, Wholesale and Retail Agent, 221 Deansgate, Manchester. Trade 138-144

MORRIS-OXFORD, late 1913, splendid condition, mileage about 4000, £125. 4 Florence Villas, Gaywood, King's Lynn. 114-320

MORRIS-OXFORD, 1915, 10 h.p. de luxe models, ready for immediate delivery from stock, 190 guineas; motorcycles, light cars or cyclecars taken in part payment; seen at Wauchope's Garage. Apply 9 Shoe Lane, Fleet Street, London. Trade 114-251

MORRIS OXFORD, 1914, de luxe, dynamo lighting, lamps, electric horn, cigarette lighter, speedometer, etc., only 1500 miles, cost £245, accept £170. P. E. Nightingale, Crawley. 115-m326

MORRIS-OXFORD. Popular model from stock. The Exeter Motor Cycle and Light Car Co., Ltd., 7 Bath Road, Exeter. Trade 114-225

MORRIS-OXFORD light car for sale, in excellent condition, price £130 or near offer, owner must sell. Apply, Box No. 4901, care of "The Light Car and Cyclecar." Trade 114-210

PERRY light cars, trial runs arranged; also Humberette Morgan, and Marlborough. Turpins, 22 and 29 Preston Road, Brighton. Trade 125-1356

PERRY light car, trial run arranged. Julian, Perry Specialist, Broad Street, Reading. Biggest dealer in the South; 43 years' reputation. Trade zzz 100

PERRY, 1914, 8 h.p., three speeds, hood, screen, five lamps, and horn, excellent condition, £105. P. J. Evans, John Bright Street, Birmingham. Trade 114-241

PERRY, the light car de luxe, in stock, two-seater, 190 guineas; de luxe model, 200 guineas; four-seater, £225; free delivery and tuition. P. J. Evans, John Bright Street, Birmingham. Trade 114-248

PERRY, shop-soiled, latest model, complete lamps, horn, hood and screen, list 140 guineas, accept 130 guineas. P. J. Evans, John Bright Street, Birmingham. Trade 114-249

PERRY light car, 8 h.p., 1914 model, second-hand, complete with hood, screen, headlamps and generator, tail lamp, horn, five Sankey detachable wheels and 700 by 80 Dunlop grooved covers, £120. F. G. Cox and Co., Perry Road, Bristol. Trade 114-m380

PERRY, two-seater, finished green, new March, 1914, done 1200 miles, all spares, etc., spare wheel, tyre, and five lamps, £100. Lt. Hyde-Smith, care of Guy-Reynolds, Weymouth. Trade 114-213

LIGHT CARS AND CYCLECARS FOR SALE
(continued).

PERRY, 1914, in excellent order, 100 guineas. Maxim Motor Co., Barrow-in-Furness. Trade 114-m331

PREMIER, in perfect order, 7-9 h.p., complete with five lamps, Stepney and spare tyre, hood and screen, any trial, price £60. Apply Hon. A. Pelham, care of Lloyd and Son, Lewes. 114-m150

RANGER car, usual price £115, very slightly shop-soiled, £95 or deposit of £20 and 12 monthly payments of £6 7s. 9d. subject bonus. Service Co., 292 High Holborn, London. Trade zzz-214

SABELLA, latest cyclecar, 8-10; J.A.P., water-cooled, magneto, hood, screen, almost new, 45 guineas; exchange motorcycle combination. 1 Ebner Street, Wandsworth. Trade 114-1608

SAXON! SAXON!! SAXON!!! The super-excellent light car, 10 h.p., four-cylinder, two-seater, complete, 100 guineas. Communicate with the pioneer agents, Western Motor Works, Chislehurst, Kent. Trade 129-g766

SINGERS, from stock, on deferred terms; write for Buyers' Guide. Harrods, Ltd., Brompton Road, S.W. Trade zzz-612
SINGER light car, 1915 model actually in stock. This wonderful car is fitted with dynamo electric lighting set, hood, screen, horn, painted suede grey, upholstered brown leather, with new type body, and is a most luxurious car. Price complete with dickey seat 200 guineas. Motorcycle or light car taken in part payment. Easy terms arranged. Free delivery included. We give expert tuition in driving and overhauling, and do everything possible to assist purchasers. Julian, Singer Specialist, Broad Street, Reading. Biggest dealer in the South; 43 years reputation. Trade zzz-746

SINGER, 1914, dynamo lighting, speedometer, clock, etc., like new, £160. McNeille, Showrooms, 47 Staines Road, Hounslow. Trade 114-j981

SINGER 1915 light car, fresh from works, plated fittings, dynamo lighting, £204 15s., in stock, immediate delivery, free trials. We teach you to drive and deliver to your door free. Exchanges. Trade supplied. Wilkins, Simpson and Co., 11 Hammer-smith Road, London. Trade 114-1344

SINGER light cars, 10 h.p., 1915, immediate delivery, trade supplied. Rey, 378 Euston Road, N.W. Trade 125-162

SINGER, 1915, special radiator, actually in stock, will exchange for 1913, also 1914, good allowances. Singer specialists, Motor Supply Co., Oxford Street, Manchester. Trade 138-186

SINGER, 10, 1914, only done 3400, dickey seat, trip speedometer, clock, two headlights, electric side and tail lamps, full equipment, as new, £150. Paterson, 31 Leigh Road, Eastleigh, Hants. Trade 114-m357

SINGER, 10 h.p., 1913, complete hood, screen, five lamps, two horns, speedometer, and mirror, thoroughly sound, £115. P. J. Evans, John Bright Street, Birmingham. Trade 114-243

SINGER, 10 h.p., 1913, five Sankey detachable wheels, five lamps, just repainted, perfect condition, £120. Smith and Francis, 22 Pantom Street, Leicester Square. Trade 114-264

SINGER, 1915, finished in buff and black, a handsome car, immediate delivery. Colmore Depot, 49 John Bright Street, Birmingham. Trade 114-275

SINGER, 10 h.p., 1914 model, dynamo lighting, in exceptional fine condition, fully equipped, £145. 337 Euston Road, London, N.W. Trade 114-m340

SINGER, 10 h.p., late 1914, dynamo lighting set, hood, screen, speedometer, clock, five detachable disc wheels, shock absorbers, all tyres nearly new, exceptionally good condition. £158. Auto Mart, 133 Hammersmith Road, W. Trade 114-1592

SINGER, 10 h.p., 1913, hood, screen, five lamps, spare wheel, £110. Boswell, 35 Lower Hastings Street, Leicester. 114-m330

SINGER, 1915 coupe and ordinary two-seater in stock, £255 and £200, exchanges arranged, free delivery and tuition, ladies given special attention. Maudes' Motor Mart, 136 Great Portland Street, London, W. Trade 117-209

STANDARD, 9.5, 1914, thoroughly good condition, 2500 miles, owner at Front, £150. Box No. 4847, care of "The Light Car and Cyclecar." 115-m140

STANDARDS, 1915 models, fitted with dickey seats, fully equipped, delivery from stock, exchanges arranged, easy payments, free delivery included, expert tuition in driving free. Wauchope's, 9 Shoe Lane, London. Deal from a firm of repute. Trade 114-253

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A29

LIGHT CARS AND CYCLECARS FOR SALE

(continued).

STANDARD, 1915 model, complete with dickey seat, electric lighting set, self-starter, grooved tyres on back wheels, price £231 10s. Send for full particulars of this magnificent car. Motorcycle or light car taken in part payment. Easy terms arranged. We include free delivery and expert tuition in driving and overhauling, and generally do everything possible to assist customers. Julian, Standard Specialist, Broad Street, Reading. Biggest dealer in the South; 43 years reputation. Trade zzz-748

STANDARD, the aristocrat of light cars, in stock; Rhyl, two-seater, £195; coupe, £210; 11.6, four-seater, £235. P. J. Evans, John Bright Street, Birmingham. Trade 114-246

STANDARD, 9.5, new July last, run nearly 3000 miles, unscratched; exceptionally good engine, speedometer, spare wheel, etc., price £170, or near offer, cost over £200. Apply, C. R. Wilkins, Uttoreter. 114-m318

SWIFT, 1915, 10 h.p., four-cylinder, dynamo and full equipment, £200, or £40 down and 12 monthly payments of £13 13s. 4d., subject bonus; exchanges arranged. Service Co., 292 High Holborn, London. Trade zzz-629

SWIFT, 10 h.p., 1915, four-cylinder, complete electric equipment, £200, early delivery. Taylor's, Ltd., 21a Store Street, London, W.C. Trade zzz-803

SWIFT, 1915, 10 h.p., with dynamo lighting set, for early delivery. Seemann and Stones, Ltd., 39 St. James's Street, Piccadilly, W. 'Phone, Regent 212. Trade zzz-839

SWIFT, 1915, 10 h.p., free delivery from stock, four-cylinder engine, dynamo lighting set, fully equipped to list specifications, £200; extended payments or exchange arranged; tuition free, delivery free to purchaser's address. Wauchope's, 9 Shoe Lane, Fleet Street, London. Trade 114-252

SWIFT, four-cylinder, 1915, in stock. Colmore Depot, 49 John Bright Street, Birmingham. Trade 114-272

SWIFT, 15, 1915, all-British, complete torpedo, with hood, screen, detachable wheels, spare and tyre, horn, electric self-starter and electric lighting equipment, in show-room for immediate delivery, £385. The Motorists' Market of the Midlands, Heath's Garage, Birmingham. Trade 114-268

SWIFT, 1915, 10 h.p. light car, dynamo lighting set, detachable wheels, hood, screen, complete equipment, £200, exchanges, easy terms. Elce and Co., 15 Bishopsgate Avenue, Camomile Street, E.C. 'Phone, Avenue 5548. Trade 114-262

SWIFT, 1914, complete with extra spare cover, headlight, two side lamps and rear, hood, screen, ready for the road, and in extra good condition and running order, £110, any severe trial given. Wauchope's, 9 Shoe Lane, Fleet Street, London. Trade 114-257

SWIFT cyclecar, 1914, brand new, complete with hood, screen, lamps, etc., clearance price £115. Jarvis, Ltd., 205 Edgware Road, London, W. Trade 114-m334

SWIFT, 1915, 10 h.p., four-cylinder, dynamo lighting, complete with hood, screen, etc., £200. Jarvis, Ltd., 205 Edgware Road, London, W. Trade 114-m335

SWIFT, 1914, two-cylinder, perfect order, any trial, expert examination. Motorist, 33 Hills Road, Cambridge. 114-m324

SWIFT cyclecar, late 1913, in perfect condition, fitted clock, speedometer, do 52 miles per gallon, £79. Hickling, 1a Cambridge Grove, Eccles. Trade 114-m345

SWIFT, 1914 model, cyclecar, practically new condition, any trial, £90. 337 Euston Road, London, N.W. Trade 114-m341

TRUMBULL, £105, the ideal light car, 14-18 h.p., four cylinders, three-speed and reverse, magneto, electric lighting and horn, detachable wheels, hood, side curtains, hood envelope, screen, finest value on market. Agent, Meggitt, Engineer, Mansfield. Trade 125-m158

VICTOR, 8 h.p., w.-c., hood, screen, etc., best value for £100 obtainable, come and see it. Motories, 68 Horton Street, Halifax. Trade 114-165

VICTOR, late 1914, 1915 engine, dual ignition, spare wheel and tyre, perfect condition, insurance policy transferred, £80. Sherwell, 8 Queen Street, E.C. 114-212

WARREN-LAMBERT, 10 h.p., four-cylinder, latest 1915 models, immediate delivery, £160 complete. Dove, 154b Cheltenham Road, Bristol. Trade 115-k836

WINTER cars, components; lists. West Hill, Wandsworth. I'm only a simple cyclecar, but I'll pass them by the score. How many cylinders have I got? Not many, only four. Trade 114-m324

MISCELLANEOUS LIGHT CARS AND CYCLECARS.

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BARGAINS in Morgans, G.W.K.s and other cyclecars and light cars at Spencer's Garage, Uxbridge. Trade 132-36

VANS. Delivery in stock. Perry, Standard, and Calthorpe, from £115; second-hand Ford, £85. P. J. Evans, John Bright Street, Birmingham. Trade 114-245

PERRYS. Birmingham house for light cars; Standards, £195; two-cylinder, 140 guineas; Calthorpe Minor, 170 guineas. P. J. Evans, John Bright Street. Trade 114-242

LIGHT two-seater car, complete with 12 h.p. engine and good tyres, nearest offer to £16, must sell through death, also 12 h.p. V-Etna engine, water-cooled, with clutch and Bosch magneto, £12. 4 Gresham Road, Brixton. 114-m317

MISCELLANEOUS.

LIGHT-CAR manufacturers and dealers requiring cheap but well-made and reliable sets of torpedo electric lamps of British manufacture should communicate with the Essex Accumulator Co., 497, 499 Grove Green Road, Leytonstone, London. Trade zzz-183

ACCUMULATORS. Over 100 sizes always in stock. The cheapest and best house in the trade for reliable accumulators for car lighting, ignition, etc.; stock of slightly shop-soiled accumulators at greatly-reduced prices. The Essex Accumulator Co., 497-499 Grove Green Road, Leytonstone, London. N.E. Trade zzz-505

NEW, guaranteed worm-driven back axles, suitable for cars up to 12 cwt., 4 ft. track, complete with hubs, price £24 cash; also radiators at clearance prices. Turners, Lever Street, Wolverhampton. Trade zzz-43

VALVE-GRINDING compound, fast cutting, clean finish, 10 years reputation, no emery; large tin, 7½d. post free. Williams Bros., Lytham. Trade 118-923

LANGLEY, Sheet Metal Specialists; radiators, any pattern, made and repaired; bonnets, tanks, wings, panels, etc., maker of the famous all-metal bodies. Unity Works, Malvern Link. Trade 114-g379

ALUMINIUM number plates, best quality, any number, raised letters, very handsome, 8s. 6d. per pair. Freeman, Oakes, Devonshire Street, Sheffield. Trade zzz-805

CYCLECAR components: Channelled steel reinforced wood frames, with quarter-elliptic springs, £3 17s. 6d.; counter-shafts, friction sets, axles, wheels. Denby and Co., Ltd., Ilkley. Trade zzz-936

GEAR-CUTTING. Spur, sprocket and bevel wheels cut, case-hardening; steels stocked. R. H. Morse, 27 Elder Place, Brighton. Trade 160-k427

NEW pattern dome wings, extra strong, 8 ins. wide, for light cars and wheels up to 30 ins. diameter; front and back valances, £3 5s. set; without, £2 5s. set. W. H. Crossley and Son, Castle Street, Stockport. Trade 120-1446

SPECIAL line for light cars. An exceptionally well-made set of torpedo pattern electric lamps, guaranteed British make throughout, consisting of two side and tail lamps, with metallic filament bulbs, 27s., or with 4-volt 25 ampere-hour accumulator in metal case, 44s. The Essex Accumulator Co., 497 and 499 Grove Green Road, Leytonstone, London. Trade zzz182

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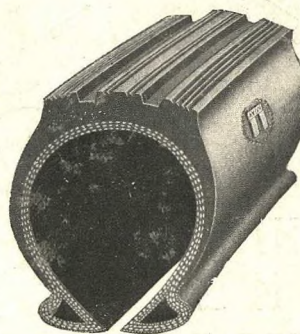
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