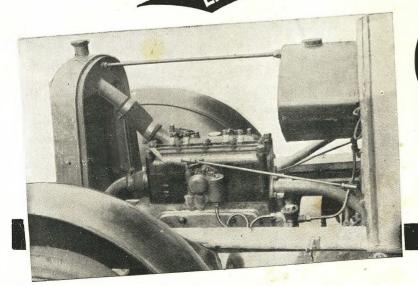


19тн Остовев, 1914.







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Every car in Wauchope's Showrooms is ready to drive away. No waiting weeks or months for delivery. And practically every machine on the market is in stock.

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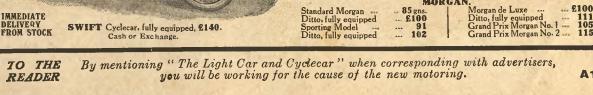
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A1

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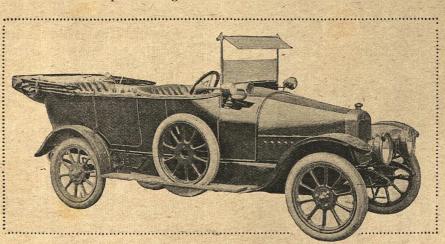
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A2

CALTHORPE ...SECURITY...

To spurt along the straight at the speed of an express—to take the bends without fear of jumping or overturning—to scale the mountain road and to drop steadily down steep descents over loose surfaces—these are the delights of motoring that SECURITY permits. With the slightest sense of insecurity, the spice of adventure instantly turns to nervous dread. Certainly before speed—before power on hills—before appearance—before price, comes SECURITY.

No light car has so emphatically demonstrated its SECURITY as the Calthorpe Minor. Its magnificent performance in the A.C.U. Six Days Trial "to destruction," over grass-grown mountain tracks and river-bed surfaces, in which it was the ONLY Car to gain FULL MARKS and GOLD MEDAL, interprets the full meaning of SECURITY. A private owner's 1,404 miles tour of India, across rivers, up mountains like the Bhor Ghaut, over long stretches of description-defying roads, covering as much as 207 miles in a day, and all without a single mechanical hitch, places Calthorpe Security beyond question. It is this Security that makes the Calthorpe the car-elect of the lady owner-driver, and of the motorist who is not of a mechanical frame of mind. Get a Calthorpe and forget motor-worries.



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> All 1915 Models now ready for delivery. Ask for a copy of our 1915 Catalogue,

THE CALTHORPE MOTOR CO. (1912) LTD., Bordesley Green, . . . , . . Birmingham. London Agent R. D. STOREY, 118, Great Portland Street, W.



The Cyclecar Club's first autumn meeting at Beaconsfield. On the left is shown an A.A. scout helping a member with a refractory type, and a consultation over a 1915 Carden.

LIGHTS OUT! The Danger to the Public and Drivers—Plain Rules for Safe Driving —Coloured Lights Suggested.

T F the authorities do not take steps immediately to render driving at night safer both for the public and drivers, many serious accidents will take place. A London coroner has already drawn attention to the increasing number of accidents in which vehicles are concerned at night.

Most of the newspapers are urging that motorists should be compelled to switch off their headlights, and that the streets should be still further darkened. The police, too, are actively compelling drivers of cars to turn off their lights, even to turning out the only illumination the car possesses in some cases, and on certain bridges. Further, the streets are being so darkened that they resemble country lanes. It is urged in some quarters that speeds should be reduced to an absurdly low limit, which apparently overlooks the colossal dislocation and congestion of traffic that would follow, but not a word of warning to pedestrians, cyclists, and drivers of horsed vehicles. We quite expect to see suggestions for abolishing motor traffic at night, which, if adopted, would deprive thousands of London's workers of the means of getting to and from their daily toil, unless their working hours, at considerable loss to themselves be it noted, were reduced.

It cannot be too strongly urged that we must have motor traffic, or the business of London ceases.

- 13

LIGHTS OUT (contd.).

Horsed traffic is out of date, and has been largely reduced. The horsed bus that travelled at a maximum speed of 8 m.p.h. has given way to motorbuses, the maximum speed of which is more than double. If the speed limit of 12 m.p.h. were enforced the greater time taken in getting about would be a serious inconvenience and, indeed, loss to many. It is the same with the commercial motors that have so greatly aided the commerce of the Metropolis by rapid transport. The private car, too, which in only a few cases is driven for pleasure in London, and has become the necessary vehicle for busy business and professional men, is as much a necessity as other forms of traffic. In fact, the authorities have no alternative between stopping all traffic at night, which would be suicidal, and permitting it to continue under the safest conditions possible. The solution of the problem lies in a lower speed and greater care on the part of all road users. Motorists are certainly driving carefully.

A few of the people who are shricking for motor headlights to be extinguished have been doing so for years past, because they do not understand the danger of driving without proper headlights. How little motorcar lighting is understood is revealed by the tirade in an evening newspaper against the "acetylene searchlights" of cars, whereas the powerful lights of cars used to-day are electric, the light from acetylene lamps being yellower in colour, of

much less intensity, and not so accurately focussed. The secret of the brilliance of the modern 8 or 12 volt. 8 to 16 c.p. metal filament bulbs used in car lighting is accurate focussing. Driving constantly at night, we appreciate the unpleasantness of meeting powerful lights, but at the same time the danger from badly-controlled, erratic, and improperly lighted slow traffic is greater. At the present moment negotiating London streets after nightfall, with side lamps only, is fraught with the very greatest danger, and we are certain that, under present conditions, there will be many accidents and loss of life. To suggest merely reducing the speed limit for motorcars is to trifle with the whole question, for statistics show that a very large proportion indeed of the London street accidents occurs when the vehicles concerned are travelling slowly.

Unless the following precautions are taken the loss of life in London will soon be greater than the highest toll that the Germans might expect to take with treble the number of Zeppelins and aeroplanes they possess. Meanwhile, we should like to know if the lights of vehicles really can be observed from the air, and, if so, whether certain colours, while enabling objects to be picked out by the driver, would cast a glow that was indistinguishable from above. We have in mind more particularly green and blue rays, the reflected glow of which is much less than that of yellow or red rays, and yet is effective in illuminating objects in a straight line.

Classes of Traffic that Require Better Control. Plain Words to Pedestrians, Cyclists, and Drivers of Slowly Moving Vans.

The following classes of traffic want better controlling:-

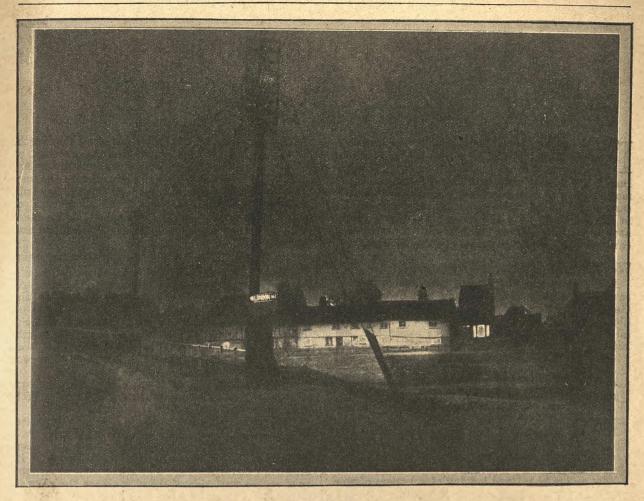
1.—Pedestrians who, from not understanding the rule of the road, step heedlessly into traffic, dodge in front of vehicles and always expect the faster traffic to give way to them. If pedestrians were compelled to exercise more care, and at night the onus of crossing safely put on their own shoulders, bearing in mind that they are unlighted and are in a position to look in all directions before attempting to cross the road, one of the greatest traffic dangers would be avoided. Bear in mind the motor driver has no desire to meet with an accident, and that through being constantly compelled to exercise great presence of mind, he is highly skilled in the use of the road. The most bitter anti-motorist will probably appreciate that the pedestrian is a far more careless user of the highway than the driver, and that the latter very rarely displays carelessness.

2.—The cyclist. Now that headlights are not to be permitted, the cyclist must be compelled to have a *lighted* red lamp clearly indicating from any direction of approach from behind his presence to other traffic. The reflex lights now so common are perfectly useless unless the overtaking vehicle has powerful lights that are reflected in them. The reflex light will not show a warning signal in the rays of the ordinary oil side lights, nor, in fact, in anything less than a very bright electric or acetylene light. Further, cyclists must keep well over to the left-hand side of the road, emerging from which will be at their own peril. Before deviating from a straight line common sense dictates that a rearward glance should be given to see if the road behind is clear. Wobbling riders ought never to be permitted on the highway, for they are a danger to themselves, other cyclists, and all other traffic, pedestrians included. The bicycle in the hands of the nervous and inexperienced cyclist is one of the most dangerous vehicles.

3.-Horsed and slow traffic. All traffic of this description should be compelled to keep to the near side, and not allowed to traverse long distances side by side. Each should carry a white light on the offside, which can be seen clearly from any position by approaching vehicles, and a properly illuminated red light, also carried on the extreme offside of the vehicle, which also can be seen from any rearward direction. In the case of nine-tenths of the horsed traffic, either no light at all is carried or else it is so obscure, from its position or bad illumination, as to be invisible to other traffic. White rear lights-which are doubly dangerous-are quite common. One led to a fatal accident not long ago, the driver, a stupid individual, being merely cautioned instead of severely punished for an actual infraction of one of the lighting laws that most wants observing.

Finally, all traffic should be compelled to light up half an hour earlier than at present; that is, half an hour after sunset.

Since the above was written the Home Office announces that motorists who still employ powerful headlights in the Metropolitan area will be liable to be arrested and charged. $\frac{A4}{A4}$



While London is diminishing its lighting there is more light on the London-Coventry road at London Colney where the A.A. signpost is now illuminated. This illuminated sign is referred to on page 550.

EXPERIMENTS WITH COLOURED HEADLIGHTS. Do Certain Rays Give Penetrative Powers Without their Reflection being Observable from a Height?—A Possible Solution of the Lights of London Question.

A S is well known now, the police are not permitting the use of headlights on cars in the Metropolitan area, while the streets are being darkened, whole rows of lamps not being lighted. In touching upon the danger to traffic this involves, we throw out a suggestion for experimenting with different-coloured rays.

Now, we believe it will be found that certain rays, while having good penetrative powers, do not throw a light the reflection of which is visible above. The least visible rays, we suggest, would be blue; next would come green; then red and yellow. It is well known that in a fog yellow rays penetrate better than white, but in an ordinary atmosphere the glare of headlights would be almost as distinctive from above when thrown through a yellow screen.

when thrown through a yellow screen. The dim, ghostly radiance of reflected blue light would be very puzzling to an observer several hundred feet above, if it could be seen at all, and yet would have a fair field of illumination from the point of view of the driver. What is wanted for London traffic driving at present is invisible rays.

Proper tests could only be carried out by the authorities, for they must of necessity be made from

some dirigible air craft. We strongly urge that they be made as soon as possible. First of all, it should be noted if the passage of a car with ordinary headlights is clearly visible; then slides of different colours should be attached to the headlights to see to what degree their reflected light becomes indistinguishable. A further experiment would be made with a groundglass lens.

Another method of observing would be from the top of a lofty monument, such as the Albert Memorial in Kensington Gardens, which could be closed to ordinary traffic during the test. To render the tests easy, strips of coloured celluloid

To render the tests easy, strips of coloured celluloid should be used, such as are employed for stage "limelight" effects. Non-flammable celluloid is procurable.

The following concerns supply coloured transparent celluloid :--

W. Butcher and Sons, Ltd., Farringdon Avenue, London, E.C.

Bassett-Lowke, Ltd., Northampton.

Economic Electric Co., Twickenham.

A. R. Harrison, Heaton.

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REBUILDING THE HIGHWAY. HOW TO KEEP OUR GERMAN PRISONERS BUSY.

Where New Roads are Wanted.

T is notorious that road-making in this country has ceased for the last 80 years, save for the little that has been done since the creation of the Road Board, and equally notorious that there are an enormous number of road improvements in urgent need of carrying out, if the highways of this country are to be fit for the stress of traffic which they will certainly have to bear in the very near future, or even to accommodate properly the present volume of traffic.

Work for the German Prisoners.

Now there are at the present time in this country several thousands of strong and able-bodied men, German prisoners of war captured by our troops abroad, men with nothing much to do, and who are, all the time, being well fed at the expense of the British taxpayer. The question naturally arises as to whether these men could not be put to some useful work, and whether, amongst other profitable purposes to which their enforced presence among us for many months to come could be turned, that of giving us a helping hand with some of our much-needed road improvements might not be included.

In nearly all cases of road improvement the question of expense is the paramount consideration, and a very large proportion of this is accounted for by the item of labour.

Now as the board and lodging of prisoners of war interned in this country is already a charge upon the State, labour derived from such a source is very nearly free, and, could it be employed, a large amount of work might be carried out at a comparatively small cost.

Both Germany and Russia appear to be setting their prisoners to various kinds of manual labour, and there is nothing in the Hague Convention forbidding such a practice. Neither is there anything to be urged against it on grounds of humanity, so long as the tasks are reasonable and the men decently treated. The Convention lays it down that fair wages are to be paid, but as the cost of maintaining the men may be deducted, the labour remains exceedingly cheap. Now, obviously, men who are fit enough to have served as soldiers, who are unwounded, and who, moreover, have been well looked after in the compound for a week or two, could very easily perform navvies' tasks.

Many Schemes Already Approved.

A6

A large amount of work is already mapped out for execution, improvements, extensive and trivial, but all much needed, authorized by the Road Board, as well as others proposed but not as yet sanctioned owing to the local authority having deemed the Board's offered grant insufficient.

But, apart from such schemes, none of which (the Brentford by-pass excepted) is of a very far-reaching character, there are opportunities up and down the country for undertaking road improvements on a considerable scale, which there is less chance of consummating at an early date under normal circumstances in time of peace. As an example, there is that bete-noir of the North, the bad stretch between Warrington and Preston, so difficult to escape. There is easy, unbuilt-on country all the way, and the technical difficulties in the way of making a new, level and fast road through it would be trivial. On the other hand, the advantages of such a quick route would be incalculable, since there is no good road between the Great North Road and the west coast.

The Birmingham By-pass.

A line of communication very much needed is one from north-east to south-west across England. At present, traffic passing between Nottinghamshire, the busy Yorkshire districts, or the great industrial and mining regions around the Tees, the Wear, and the Tyne, and Gloucester, Bristol, and the whole southwest of England, has either to pass through the heart of the Black Country, or else go round by Coventry or Shifnal, places nearly 45 miles apart.

A by-pass road a little to the east of Birmingham, where the country is purely agricultural and is little built on, would be of inestimable service.

The recent reopening of the Nottinghamshire section of the old Fosse Way provides a splendid loop road round Nottingham.; but there is still Leicester, with its trams, its long-drawn-out suburbs, and its crowded central streets, to be traversed, and a loop road on the west side of the city, where the suburbs stretch least and where the country is easy and agricultural, could be made with very little effort.

At the other end of this important line of communication lies Bristol, whose far-flung streets impose an even more serious check on through traffic. On the west side of this city there is practically a by-pass road already in existence, lacking only a connecting bridge across the Avon and a few minor improvements, such as widenings, corner cutting, etc.

Here is a scheme of real and lasting utility, the benefits of which would be felt in nearly every part of the country except London and the south-east; it would be a great pity if, with free labour in our midst, at least a beginning were not made upon it.

Catering for the Tourist.

In addition to undertakings of a strictly utilitarian character, such as those just outlined, there are many possibilities for effecting improvements in the lines followed by pleasure traffic. Abroad, and particularly in France, roads are very frequently made with the main object of serving for tourist traffic, and our neighbours have constructed hundreds of miles of highway with no other purpose in view. The recentlyopened carriage road through the Gorges of the Tarn (previous to which this wonderful piece of scenery could only be seen from a boat) and the route through the length of the Pyrenees, now being carried out, occur to one as examples.

The opportunities in our country are no whit inferior to those abroad, but we at home do not seem to have realized that the opening up of beautiful scenery by means of carriage roads and thus adding very substantially to the attractions of a district, is of

If all Roads were like Billiard Tables

"J.M." Shock Absorbers would not be required. As it is, they are a vital necessity to every owner of a light car.

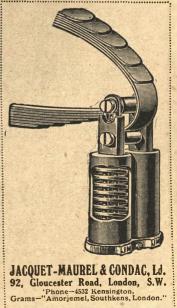
The light car's great trouble is that on anything but a billiard table it bumps the occupants about on the road like peas on a hot plate. . . . Tyre wear and chassis strains then become abnormal . . . But the owner feels it more in his spine than in his pocket.

Save both your spine and your pocket-Fit

SHOCK ABSORBERS

They repay their cost in half a season. Any Agent will fit them in 20 minutes.

A Guarantee for 10 years BACK OF EACH PAIR.





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

C.D.C. A7

9

19TH OCTOBER, 1914.

THE FUTURE.

8

WHATEVER IT BRINGS; MUST BRING PROGRESS

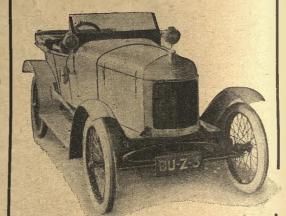
- C. Now is the time for contemplation. Shortly will be the time for action.
- **C**, Well considered design is an indispensable condition.
- C. BRING YOUR CHASSIS PRO-BLEMS TO US.
- (L. WE ARE SPECIALISTS IN AUTOMOBILE MECHANISM.
- C. In "everything but the engine."
- C. AND WE CAN HELP YOU.



A8

CARS and ENGINES Cars from 87 Guineas Complete.

BUCKINGHAM



OUR 1915 Programme incorporates many improvements in existing models, also includes NEW 4 - CYLINDER LIVE AXLE MODEL, for which we are open to appoint Agents.

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HELP THE by letting advertisers know that their advertisements in "The Light Car and Cyclecar" interest you.

REBUILDING THE HIGHWAY (contd.).

great benefit not only for those whose actual living depends on the visits of tourists, but for all in any way interested in the prosperity of the locality.

Take, for example, our south coast. It is woefully short of roads which actually give a view of the sea, although it would be the easiest thing possible to construct miles of sea-view highways along certain shores. A magnificent marine drive could be made with a minimum of effort, for instance, westward from Worthing through Bognor and Selsey to Wittering, the ground being perfectly flat, and the only river already bridged. It would certainly add enormously to the attractiveness of the neighbourhood.

Further west there is a splendid piece of coast between Swanage and Weymouth, quite un-get-at-able by road, save for an occasional lane running down towards the shore. The ground is hilly, and a following road would, therefore, have to be carefully planned, but, otherwise, there would be no special difficulty about its construction. If carried out, this would afford one of the most glorious coastwise drives in the kingdom.

Levelling North Devon.

A new North Devon coast road, or at least new hills at Porlock and Countisbury, is another suggestion that comes to mind.

Another enterprise that might be undertaken would be the metalling of the surfaceless but wide track by the coast near Freshwater, in the Isle of Wight, known as the Military Road.

There are many districts which suffer not so much from the actual absence of roads as from some of the roads most important from the tourist's point of view (though of slight moment in local eyes) being practically unusable, either because of bad hills or extremely rough surface.

Galloway, that beautiful though too little known district in the south-west corner of Scotland, is cursed by abominably rough roads; they require rebottoming, some, if not most, having no real foundations at all.

Even more is this the case in the northern Highlands, where the wildest scenery in the British Isles is practically only accessible at the cost of a set of tyres, and undoubtedly a great deal might be done, with very little outlay, to open up this splendid touring ground to the thousands who at present are deterred by the awful condition of the roads.

Bridge Substitutes for Highland Ferries.

Another reform badly needed in the interests of Highland touring is the mitigation of the ferry nuisance. Throwing bridges across the fiords would be too costly to be thought of at a time like this, but for the alternative plan of making roads round the watery obstructions labour would be the main requirement. In many instances this was the plan followed when the Highland roads were made (or there would have been many more ferries than there are), and amidst such scenery no one grudges the extra mileage.

Turning south again, the north of England provides many illustrations of the need for improvement. Honister Pass is notoriously a case in point. Why not a new road up the west side and thereby open one of the most glorious runs in Lakeland to the tourist on wheels?

Take the case of Swaledale. This gem of all the Pennine dales is, for motorists, virtually a cul de sac over 20 miles long, and it is, in consequence, very much neglected; in fact, the writer traversed its entire length one August Bank Holiday and only saw a couple of cars. The dale's natural outlet on the west, the Keld-Nateby road, is rendered, to all intents and purposes, impassable by two atrocious hills, yet both of them could be reconstructed, under skilled direction, by a hundred or two prisoners of war in a few weeks.

The advantage of this small improvement to the touring public, and through it to the neighbourhood, would be out of all proportion to the effort made.

A Main Road Over Kidstones Pass.

Similarly, the improvement of Kidstones Pass, the natural exit from Wharfedale, is one that would entail very little expense and yield a considerable return.

These examples will serve to call to mind the many useful pieces of work to which the unskilled but sturdy labour of our prisoners might, with great and lasting advantage, be put.

A large expenditure on material need be no part of the scheme, the main idea being to utilize a waste product, viz., the labour of prisoners of war. Where bridges, viaducts, etc., were necessary, they could very well be left till more settled times; it would be a long step forward to have the navvies' work of a new line of road done. In the case of land being required, especially uncultivated land, it would probably be found, at a time like this, that, in most instances, owners would be accommodating, and would either make a gift of it or consent to a postponement of the payment.

Signposts and Quarrying.

In addition to actual road-making, there is auxiliary work to which prisoners' labour could be equally well directed. Quarrying would be within the capacity of many of the men, while the preparation of blank signposts would not be a difficult task and could be made a useful indoor winter employment. If this latter idea were carried out, it would afford a simple and economical solution for a trouble that affects hundreds of travellers daily all over the country, and no important road junction need then be unprovided with directions.

Of course, it would be very undesirable to employ prisoners' labour on those road works, already authorized, which it is gratifying to learn, are to be put in hand at early dates, to alleviate distress due to unemployment. There is, however, plenty to be done without prejudicing relief work. R.W.



Topies of the Day

The Lights of London.

OUR leading article this week is devoted to a very pressing matter, the danger that has suddenly fallen upon London street fraffic No doubt the regulations will be extended to other cities, at night. and, in fact, villages and towns all over the country, and they may become more stringent still if, and when, the first German bomb is exploded on our shores. Obviously, the instructions of the authorities must be obeyed, and although we speak our mind plainly, we do not want it to be thought that we are opposed to any regulations which are detrimental to the convenience and safety of the public. In view of the many statements that have appeared in the daily Press, we feel it is necessary to indicate clearly a side of the question which has not been considered at all, in the interests of the vast number of motor drivers who are compelled to use the streets at night. If the streets are to be darkened, and only very limited illumination permitted on motor vehicles, common sense should dictate greater precautions on the part of all traffic, whether afoot or awheel, particularly in the strict observance of the rule of the road and front and rear illumination of all vehicles. The need for powerful headlights in London in normal times would be removed by the proper control and illumination of slow traffic. In the article we have thrown out a suggestion for experimenting with coloured headlights which may prove a solution of the difficulty.

"Made in Germany" Trade Propaganda.

UR sister journal." The Motor Ship and Motor Boat," in its issue of 15th October, draws attention to the possible effect of German trade lies on British trade overseas. As is well known, the German Press started a campaign in all neutral countries attempting to justify her position and to put the blame of the outbreak of war on to the Allies.

After a time the English Press took up the question and refuted the lies, and is still busy doing so, but the more insidious campaign of trade lies is so far unanswered, and it rests with the trade journals to take up the cudgels.

What may be called the German trade lie campaign consists of spreading statements and suggestions in all parts of the world, and even in our own Colonies, to the effect that trade and industry in Great Britain is paralyzed and that therefore it is foolish of overseas buyers to place orders in this country as deliveries cannot be given.

This lie is bound to make some impression on overseas buyers unless the true state of affairs is made known to them, and, as stated above, the daily Press is busy replying to the lies on matters directly connected with the war.

If the many trade journals, particularly those with a large circulation in the Colonies, would take the matter up they would do much good in dispelling any anxiety that the German publications may have caused.

How to Keep Our Prisoners Busy.

A10

ELSEWHERE in this issue a contributor suggests that our prisoners might be usefully employed in the building of roads, a healthy occupation the value of which we shall come to realize more and more as motor traffic increases. At the present time we are compelled to feed and house thousands of aliens, and there seems no reason why these people should not be set down to good work such as road building or road improvements during their sojourn in this country.

Apparently there is nothing in International Law to indicate that the compulsory working of healthy prisoners is wrong, and both Germany and Russia are said to be employing their captives in similar ventures. Certainly, then, it is an opportunity that should not be lost.



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LIGHT UP

Next Saturday, 5.48 p.m.

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Letters.

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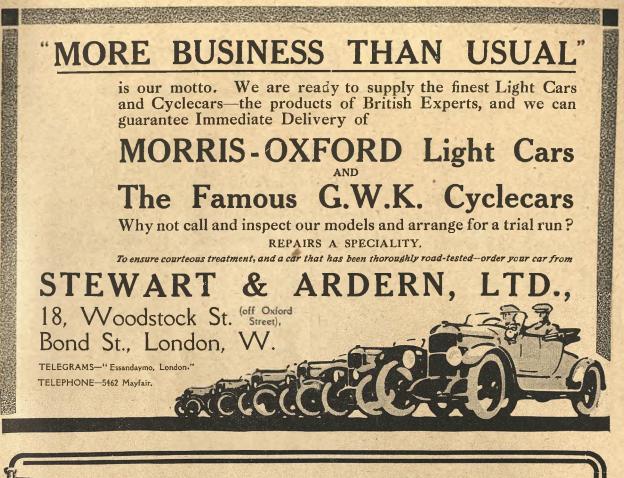
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19тн Остовек, 1914.

G. N. HIGGS

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HOW TO DRIVE A MOTORCAR

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A new authoritative work on driving. Not a collection of platitudes familiar to every motorist—but an original work on driving from the expert's point of view, whose advice to motorists of all classes will be found to be invaluable. How to drive with safety and comfort under the most difficult conditions.

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A12 HELP THE MOVEMENT

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NOTES, NEWS AND GOSSIP. Programme of the 1915 Model Rally. The Cyclecar Club's Autumn Meeting-Signs of a Revival of Interest-Descriptions of New Light Cars-Trials of Two Interesting Four-Cylinder Machines.

A new mascot representing Lord Kitchener which is being sold by Selfridge's. Mlle. Gaby Deslys, the famous Parisienne, and a number of other wellknown people have fitted this device to their cars. The price is 12s. 6d.

It must be borne in mind that the Home Office has issued an order prohibiting the use of powerful headlights in the Metropolitan area.

A rumour is going round the Midlands that an experimental A.J.S. cyclecar has been seen on the road in which the engine is placed at the rear of the chassis.

Out of the seven directors of the firm of Bleriot no fewer than five are serving their country at the Front, M. Louis Bleriot having organized one of the Flying Divisions.

It is expected amongst Manchester and Birming-ham motorists that the edict regarding headlights in the Metropolitan area will be followed by a similar regulation in those cities.

The A.A. has been in communication with the Belgian Legation with a view to motorists helping in the Belgian Relief Fund, and details of a scheme will very shortly be published.

A very smart sporting Stellite was recently seen at speed near Daventry, and it seemed to hold the road splendidly; it had a beetle back and disc wheels and presented a very sporting appearance.

While descending Fish Hill, Broadway, a large W.D. lorry was observed making the climb, and al-though not heavily loaded it showed an astonishing turn of speed and was extremely silent.

All the main roads radiating from Birmingham are under surveillance, and a patrol of two police constables stop all motorists and examine licences. A red light is used at night as a means of challenging.

The quickest route to Birmingham at present is via Oxford, for the presence of camps at several points on the Coventry road and the unceasing stream of motor lorries cause considerable delay to civilian road users.

Several light cars are to be seen carrying officers about in and around the Midland camps, and more often than not there are three or four passengers, while if there is a dickey seat probably five are crowded on somehow or other.

Will the Cyclecar Club's 1915 model rallies bring out any of the new six-cylinder light cars? They should be smooth running in the extreme.

Such is habit that passing through Richmond with big headlights lit a motorist could not understand the request of the police to drive with side lights only till the new regulation was brought to his mind.

An A.-C. light car has been ordered for the use of Mr. K. E. Don., one of the Avon Rubber Co.'s repre-sentatives, and if it proves satisfactory the other representatives will be supplied with similar cars.

Mr. Noble, of A.-C.'s, was recently seen in Oxford looking very pleased with the aluminium-bodied sport-ing model he was driving. The reason proved to be the annihilation of Arms Hill, Henley, on second gear.

The barrier across the Bath Road at Slough, which used to keep several special constables employed in stopping motorists, has at last been removed. We could never see the slightest use for it, seeing that all the by-roads were open.

Returning from Hastings one Sunday evening recently, two motorists were challenged by special constables in a very sensible fashion, for a stationary red light was shown and a white light waved about in the road. On the journey to London this was the only challenge received.

In the Palmer Tyre showroom windows in Shaftesbury Avenue, London, is an exhibit which should interest everyone at the present time. It consists of the various Palmer tyres and wheels supplied to many of the well-known aeroplane manu acturers for Government machines.

The London-Oxford road is undergoing thorough repair and at Gerrard's Cross a new foundation is being put down consisting of large boulders of granite. Those parts of the road which have been finished are in excellent condition, and just past the Lambert Arms, at the foot of Aston Rowant, there is a magnificent stretch of perfect road.

There seems to be a regular service of W.D. motor lorries between the camps at St. Albans and Redbourne and the Midlands, and one train of six lournes was overtaken and the first lorry passed, whereupon its driver blew an exhaust whistle as a signal to the lorries in front that a car was passing and they immediately drew over to the left.

Springing which will admit of a speed of 25 m.p.h. over a rough road with a glassful of water balanced on the bonnet is springing extraordinary, but the designer of the Cowey light car offers to give any poten-tial purchaser a trial over the roughest road he can select without spilling any of the water. The Cowey suspension is, of course, pneumatic.

An Army officer driven by a soldier-chauffeur was recently stopped while on an important mission by one of the officious police constables one occasionally meets.

"Your cut-out's open and the tail light's out," quoth Robert in his best manner.

"Goes better with the cut-out open," laconically

replied the officer. "Well, the tail light is out, sir." "Don't believe in tail lights; which is the London road?" snapped the exasperated officer, and Robert could only gasp and point out the way.

NOTES, NEWS AND GOSSIP (contd.).

Dangerous Town Night Driving.

The police are now compelling motorists to switch off their headlights in town, while they are not allowed to have any lights at all crossing bridges. What with the many miles of unlighted streets, the unlighted cyclists, pedestrians, and carts all over the road, it is only a matter of time before a series of bad smashes will make the authorities realize that there are dangers even greater than those fancied from the Zeppelins. We presume motorists will then be told not to use the road at night at all, which will be cheerful for people living miles away from railway stations who use their cars for getting about.

Staff Cars for Sale.

Owing to the war, several members of our staff now wish to dispose of their light cars or cyclecars at short notice before going to the Front, and in consequence the machines are being offered for sale at very low prices. A half-page advertisement appears in this issue, in which the machines are illustrated, including a Morgan, a Buckingham, a G.W.K., and an A.-C. light car, the latter delivered since war broke out and only run a few miles, which is offered for £155. The machines can be seen at our garage, close to the offices. Apply at the offices of THE LIGHT CAR AND CYCLECAR, Temple Press Ltd., 7-15, Rosebery Avenue, London, E.C.

Brighton Road Next Sunday.

Next Sunday the Cyclecar Club have a run to Brighton (Grill Room, Albion Hotel), while the Motor Cycling Club will also be in force on the famous road, for they are holding the annual closing run at the Chequers, Horley, for lunch at 1.30 p.m.

Garage Wanted.

A letter in "The Motor" last week revives our suggestion for co-operative garage. The writer points out the dearth of garages in Golder's Green, that very rapidly-expanding north-west suburb of London. The co-operative garage idea was that a number of residents owning cars should get together and build one from a joint fund, maintaining it by a small quarterly levy as found necessary.

New A.S.L. Cyclecar.

One of the latest concerns to make a cyclecar of the simplest sort is the A.S.L. Manufacturing Co., of Stafford. This concern achieved success as the manufacturers of a patent air spring for motorcycles. The cyclecar on which it is now concentrating its attention is equipped with a 9 h.p. J.A.P. water-cooled engine, the transmission being by propeller shaft and worm to a three-speed-and-reverse gearbox with inside gate change. The final drive is taken by two $1\frac{1}{6}$ in. belts running over 12-in. pulleys. The price is £135.

Police Show a Certain Liveliness-More Week-end Traps.

The A.A. is continually receiving reports, backed by strong evidence, that measured distances are becoming more numerous in many districts. This is also corroborated by the activity of the free legal defence department, which is now almost as busy as usual. It is reported that on one of the great southern main roads four policemen spent the afternoon of Sunday, 4th October, stopping cars "on opinion," to quote the patrol's terse phrase. Whilst they were so amusing themselves a burglary was committed within a quarter of a mile of their measured distance. The question of the resumption of trapping over measured distances should receive attention, as obviously there is considerable reform needed when burglaries can be committed with impunity within a quarter of a mile of the main road. This at any time would call for attention, but in time of war, when every able-bodied man is needed either in the Forces on active service or at home on the many tasks there are to do, it is even more to be deplored. It may be asked why so many special constables have been enrolled if the regular police are able to spend their time trapping motorists for a merely technical offence. Surely if the men can be spared for such work they would, with their physique and training, be better spared to enlist as non-coms. in the new Armies. Surely it is time that the motoring associations showed up this despicable trapping campaign, whereby valuable men are prevented from doing good work in running alien enemies to earth, by being despatched to trap British motorists for a merely technical offence.

Our Buyers' Review Number Appears on 30th November, 1914.

Notwithstanding the absence of a Show, everyone will be interested to see what the manufacturers are doing in next year's models. Many new cars are now reaching completion, and some remarkable changes are apparent, the general tendency, however, being to increased prices. One well-known concern is producing a new cyclecar, well built, comfortable, simple, and a powerful machine, the price of which will come out at well under £100. All these new models, new accessories, etc., will be very fully described and illustrated in a special number of THE LIGHT CAR AND CYCLECAR to be published on Monday, 30th November. This will be the 106th issue of the journal, which, in the short time of two years has become one of the most popular motoring journals of the day, and is undoubtedly the live and leading organ of a popular movement.

The Chief Business Next Year.

In light cars and cyclecars will the motor trade centre chiefly next year. What is doing in many circles cannot be revealed now, but apparently every A14 motor concern will have its light car model shortly, ranging in price from £125 to over £300. Not only that, but there are several more cyclecars to be produced, and we believe it will not be long before the sidecar has some serious rivals, apart from the successful three-wheelers like the A.-C. and the Morgan. All these new models will be described in the special Buyers' Review Number of THE LIGHT CAR AND CYCLECAR, which, in spite of claims to the contrary, it may be relied upon will be the only complete and authoritative review of the new motoring movement.

For Those Abroad.

This special number will be particularly interesting to motorists abroad, for with it will be combined an Export Number, appealing specially to home and Continental colonies where are openings for British trade. No doubt many of our readers would like to send a copy of this special number to a friend abroad, and this we shall be pleased to do if a fee of 3d. in stamps be remitted to gover postage.

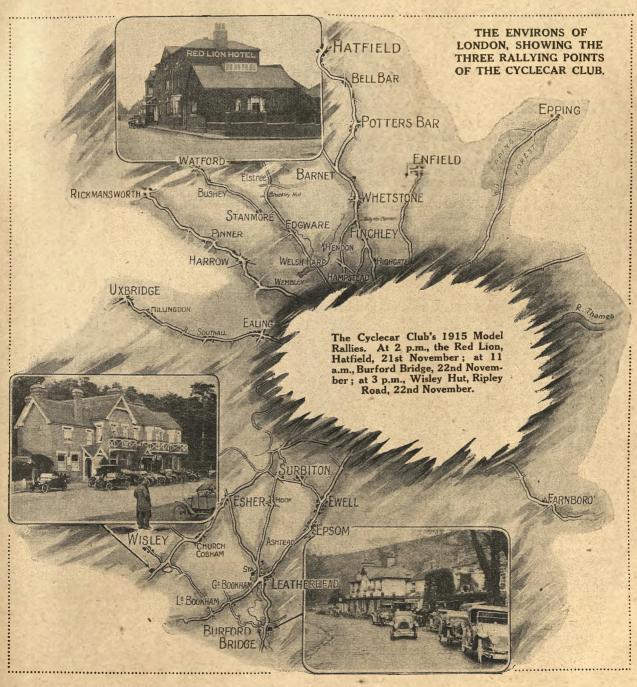
NOTES, NEWS AND GOSSIP (contd.).

Trade is improving according to the Local Government Board.

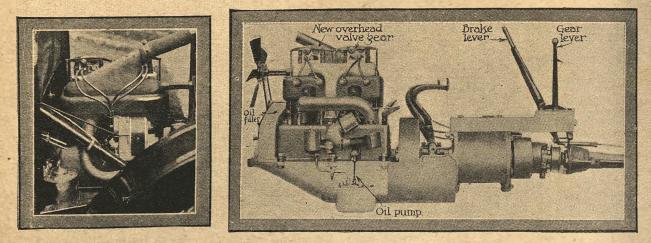
Mr. Allan B. Hill, who has achieved considerable success with the Humberette in the past light car and cyclecar trials, has joined the British Red Cross, and is now driving a 15-30 h.p. Silent-Knight Argyll ambulance.

"Even when we catch an alien . . . we treat him much as if he had been guilty of exceeding the speed limit with a motorcar, or some such triffing offence," says "The Evening News." Triffing, forsooth; this will be very galling to that large section of the community, magistrates included, who think that penal servitude is the only punishment to fit the crime of, say, leaving one's licence at home! "If people would spend their money as freely as possible they would help the country enormously," says an official of the Government, according to "The Evening News." This is perfectly true, and motorists should go on motoring, and so help to keep men employed.

In view of the danger from the great darkness of London streets and traffic in which the pedestrian is at a serious disadvantage from not knowing what kind of vehicle is approaching, we suggest an increase of exhaust noise, which would serve as an efficient warning in place of the driver's lamps. By this method pedestrians, cyclists, and drivers would be given warning of the type of vehicle approaching them. At present all are using oil lamps, and in the darkness it is impossible to see whether they indicate the approach of cars, sidecars, vans or cyclists. What does the Home Office think of the idea?



THE ENGINE OF THE 1915 LAGONDA.



The illustrations show how the generator is carried under the bonnet, and the general arrangement of the engine and power unit. For description see next page.

Victor Plans for 1915.

The Victor cyclecar is such a newcomer that any radical alterations for 1915 are hardly to be expected. Moreover, the Victor is to be produced a la Ford, that is, large quantities of one model car, for by that method only is it possible to keep the price low and at the same time employ good material and workmanship.

The engine is the 8 h.p., V-twin, water-cooled Precision engine, and in this lies the only improvement, for roller bearings are now fitted to the big-ends of the connecting rods. The engine is mounted on sliding plates, so that it can be drawn forward to take up any slack in the driving chain. The transmission to the gearbox is by chain, and

The transmission to the gearbox is by chain, and the final drive is, of course, by belts over large fixed pulleys, and we recently saw a pair of belts on which 6000 miles had been done looking in perfect condition and quite unworn.

The channel-steel frame is V-shaped, and the springing is by a single inverted semi-elliptic spring at the front and by two inverted semi-elliptic springs on the cantilever principle at the rear. Radius rods are fitted to both front and rear axles.

The machine is sent out very completely equipped with hood and screen, two headlamps and tail lamp, large generator, horn, jack, pump and full kit of tools, at £115. The sole concessionnaires are The Tyler Apparatus Co., Ltd., 15, Gerrard Street, London.

Effect of Motor Tax in America.

We should not be surprised to see the proposed United States war tax, if passed, have an important effect upon the design of American engines. The tax is one dollar per h.p. for manufacturers and 75 cents. per h.p. for owners, and as the American engines are all generous in horse-power, it will mean that manufacturers will pay the same attention as they do here to getting high efficiency from low cubic capacity. Smaller American engines are thus a possibility of the future. At present the cyclecars and light cars from across the herring pond have, to our ideas, ridiculously large engines for the power they transmit. A large engine is not so economical as a smaller one of high efficiency.

The sole concessionnaires for the Tiny car, which was described and illustrated in last week's issue, are the Carette Co., of 177, Gt. Portland Street, London, W. A16

Illuminated Road Signs for Motorists.

A new "A.A." departure is the provision of illuminated signs for guiding motorists at night-time. An illuminated road sign has now been fixed over the A.A. roadside telephone box at London Colney. Coming from Coventry, through the village, the box is seen by day at the junction of the forked roads. The left road leads to London, while the right road is simply a by-road into the village. At night the motorist is likely to be misled by the lights from the cottages, and takes this by-road, which in the winter season may be soft or flooded, and dangerous. This illuminated A.A. sign "To London" has been erected and will be maintained at the expense of the Association. It should remove all danger of motorists getting into difficulties at this point when driving towards London after dark.

How to Use a Rifle : Second Edition Enlarged.

The first edition of this practical little handbook on rifle shooting has already been sold out, and a new edition is now on sale.

The work of an expert rifle shot, "How to Use a Rifle" is written in the simplest language, and can easily be understood by the beginner. The writer goes straight to the point, and gives in condensed form a great many useful active service hints on rifle and revolver shooting.

In addition to this there is a chapter on map-reading, and a special new section has been added on flag signalling by semaphore and Morse code.

ing, and a special new section has been added on hag signalling by semaphore and Morse code. "How to Use a Rifle," in conjunction with "Army Drill Made Easy," gives a full outline of the practical side of soldiering. They are each published at 6d. net, or will be sent post free from the offices of this journal, 7-15, Rosebery Avenue, London, E.C., at 7d. each.

At the Front.

The committee of the Motor Cycling Club is desirous of obtaining a list of members who are serving in any of His Majesty's Forces in connection with the European War. The committee is most anxious that the list should be comprehensive and complete, and will be grateful for an early response, giving particulars of service, from relatives and friends. The address of the secretary is Mr. Southcomb May, 34, Gower Place, London, W.C.

THE 1915 LAGONDA LIGHT CAR. New Overhead Valve Gear—Detail Body Improvements—Better Finish.

S^O successful has this year's model of the Lagonda light car been that it has been deemed inadvisable to effect any alterations other than detailed improvements.

As far as the chassis is concerned the greatest alteration lies in the overhead inlet valve gear. A new motion is now fitted by means of which very long rocker arms are utilized, thus preventing any side thrust being thrown on the valve stems, as the thrust is practically vertical.

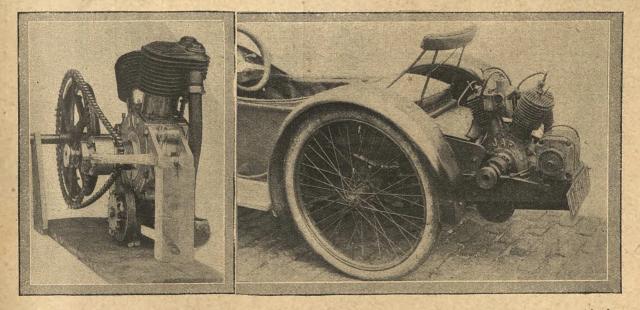
thrust is practically vertical. This also makes the valve gear extremely silent in action, and, moreover, the silence is likely to be lasting, as, owing to the large ball bearings on which the rocker arms are carried, wear and tear should be negligible.

The mudguards and running boards have been improved, and valances are now fitted to the back mudguards also, thus making the car very much cleaner in bad weather. The bonnet is now hinged. Two sets of gear ratios are now available, according to the prevaiing nature of the country the car will have to negotiate, and the gears given are 3.875, 6.587, and 11.239 to 1 on the high set, or 4.6, 7.82, and 13.34 to 1 on the low set. The gearbox of the Lagonda is in a unit with the engine, and is controlled by a gate change placed in the centre of the ear.

The coachwork has been improved by better workmanship and finish, and is quite equal to that on large cars costing ten times as much. A better and thicker hood material is also employed and greatly improves the appearance of the car. The well-known coupe, at £150, has been supplemented by an open two-seater, with hood and screen, at £145, and also by a light delivery van at £150, while in the near future a light four-seated model will be offered. The sole concessionnaires are Tollemache and Griffin, Ltd., of 195, Hammersmith Road, London, W.

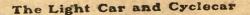
THE CYCLECAR CLUB'S SUCCESSFUL RUN. Every Type of Machine Represented.

About 40 members and friends turned up at the run of the Cyclecar Club to Beaconsfield on Saturday, 10th October, and the long line of machines ranged in the High Street, near The Chequers, at Uxbridge, waiting for the start, attracted a crowd of interested onlookers. It was almost a miniature show, ranging from two tiny Cardens to a luxurious electric self-starter racing Morgan with the new M.A.G. eight-valved engine, which attracted extraordinary attention, as may be imagined. Mr. G. L. Holzapfel brought his sister down perched precariously on the tail of his bright-red Carden, a detail of which was two tail lamps, one carried in front and one behind, though why we do not know. Mr. Burroughes's A.-C. had a



Some new Carden features. Left, the two-speed gear, showing how the lower sprocket is made to engage with the engine shaft. Right, the new two-seater which, it will be noticed, is also equipped with an electric-lighting dynamo.

Bianchi, which Mr. McConnell, who was very successful in competitions this year with a Standard light car, was driving. The other machines included a De P. cyclecar, a De P. light car, a McKenzie light car (which Mr. S. C. Westall is now handling), a Lagonda, a water-cooled Humberette, a Singer, three G.N.'s, Dr. A., M. Low's Adamson, on which had been fitted one of the new Low generators, an A.-C. light car, two Calcotts, a Swift, and Mr. McMinnies's new Fallot light outfit, and we noticed the neat way the horn was fitted on the top of the bonnet. The run was by Iver Heath, Stoke Poges, Farnham Royal, and Burnham Beeches, the chief characteristic being the dust, which was truly terrible. One could never see more than three cars ahead. All the same, Burnham Beeches could be admired, for the autumn tints were nearly at their best. The party broke up soon after tea.



NOTES AND

QUERIES.

Selected Questions

and Replies.

Useful Towing Hints.

T is sometimes necessary to tow a disabled car, or even to be towed oneself if the fates are unpro-▲ pitious, and in such a case some hints as to driving may be useful, as unless care is taken the tow ropes may be repeatedly broken, or a collision between the two cars take place. In the first case care should be taken to fasten the tow rope to parts best suited to take the stress, and the length of the rope should generally be about ten or twelve feet. The driver of the vehicle which is towing must endeavour to start away from rest as smoothly as possible, so that no sudden stress is thrown on the rope, and if he is used to starting on second gear he should remember that the first gear is there waiting to be used. Once under way, the change up to second must be made as smoothly as is possible, and the change up to top also, although it may be found that the car will not take the extra load on top gear at the slow speed that is necessary. The speed should, of course, be kept down to about 15 m.p.h., and when it is necessary to slow up or stop, it should be done as gently as possible. A sudden stop is likely to re-sult in a collision. The driver of the towed car must use every endeavour to keep the tow rope taut, and in descending hills it is well to use the brakes to such an extent that there is still a pull on the tow Before starting off a simple code of signals rope. should be arranged between the two drivers.

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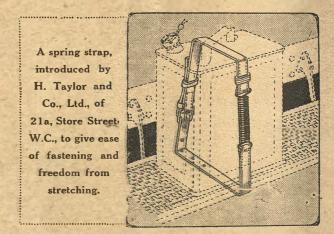
IT is not usual to be troubled with the MAGNETO rocker arm of the magneto contact TROUBLE. breaker sticking in dry weather, but a

reader whose machine was recently transported some distance on board ship experienced this trouble when he came to run the vehicle. Strangely enough the trouble did not show itself at first beyond an occasional misfire, but on stopping the engine and trying to start up again some hours later the rocker arm stuck right up. At first carburetter trouble was suspected, and this was cleaned out and a certain amount of water removed, but even then the engine would not fire, and on removing a sparking plug the trouble was traced to the magneto, as no spark could be obtained. and the fault was then found. As this trouble had not occurred before it was deemed inadvisable to ease the bearing of the rocker arm, and a thorough drying of the contact breaker and a little oil proved to be all that were necessary to effect a complete and lasting cure.

WHEREVER there is a bearing there LUBRICAshould be adequate means for ensuring TION a_supply of lubricant, and this is shown NECESSARY. by the stiffness of most starting handles. Usually there is a small oil hole drilled in the bearing, but as often as not this is choked with paint and invisible. Another part to call for frequent oiling is the clutch mechanism, and the rollers should be perio-dically greased. A reader ("G.D.") from the Mid-lands was recently so troubled, and so loud was the knock produced that at first he suspected a big-end bearing of having run, and hurriedly switched the engine off. Investigation soon showed where the trouble lay, tor on depressing the clutch pedal the noise at once ceased, and two minutes with an oilcan put everything right once more. On cars fitted with B2

exposed gate-change mechanism the gear lever may one day exhibit a dislike to passing through the gate, and in several cases it is merely a lack of lubricant which causes the resistance.

Most modern engines have adjustable ADJUSTtappets, and a great convenience they ABLE ABLE are, too. However, like everything TAPPETS. else, they require attention occasion-ally. Recently, while driving in a machine, one of the cylinders ceased firing, and, on dismounting, it was found that the compression in the erring cylinder had gone. A broken valve was suspected, and it was found that there was no clearance between the tappet and the exhaust valve. On removing the cap, it was seen that the head of the valve had not broken off. The tappet then came in for attention, and sure enough it had re-adjusted itself upwards, so that the valve could not seat. One would imagine that when the locking nut became loose the tappet would de-



scend through vibration, but such was not the case. It is extraordinary how few people spend any time in checking the adjustment of the tappets. With too large a clearance, the noise is greatly increased, and the power lost is more than one would expect. Not only does the valve not lift as high as it ought to, thereby throttling the gases, but the timing is also appreciably affected.

LAMP TROUBLES. A COMPLAINT comes from "G.H.T." (Devon) that he cannot keep his rear lamp alight. He has trimmed the wick, cleared the air holes and cleaned it

thoroughly, but without obtaining any better results. It is quite possible, however, that the lamp blows out on account of eddy currents at the back of the machine, and it might therefore be placed in a new position. The bracket, too, may be somewhat loose, and may vibrate more than usual. To test whether the position is wrong, the lamp may be put on one of the side lamp brackets, and if it burns all right there it is fairly safe to assume that eddy currents are at the root of the trouble. By the way, should a rear lamp refuse to work properly, the near-side lamp may be put in its place, and if the off side light shows a red beam to the rear the law will be complied with.

552

BAD STARTING-A PROBLEM IN PETROL.

Can Any Reader Suggest a Solution?

Y usual experience in starting up a four-cylinder light car has produced a curious phenomenon. The procedure is as follows: -Flood the car-buretter, swing the starting handle for a dozen turns, take breath, swing the starting handle for another dozen turns, again take breath, and then swing it for another dozen turns. Then flood again. The next swing will produce two or three splutterings, and the next lot of swinging after that will set the engine running, but if the carburetter is not opened out immediately it will stop again.

Now, the problem is this. Why should not the machine fire immediately, seeing that with the third or fourth swinging I am not

turning any faster than I was for the first? When the motor is finally set running why should it peter out when once started, unless the throttle is open?

My own private idea of the solution is that the first three or four dozen swings merely take away the petrol from the top of the jet. This petrol, in my opinion, is stale from standing overnight, and when it is removed the better and fresher spirit comes up and succeeds in starting the engine.

As for the engine petering out after once it has been set running, I cannot account for this unless it is that friction of the oil in the engine and clutch is too much for the meagre power of the initial explosions. McM.

MR. LIONEL MARTIN TO PRODUCE A LIGHT CAR First Trial of the New Aston-Martin Motor.

T has been an open secret for some time past that Mr. Lionel Martin contemplated putting a light car of his own on the market. His idea is to produce something which is a really high-class vehicle of a semi-sporting character. With his great experience of trials, such qualities as speed, stability, re-

liability and hill-climbing should predominate. The component factors of the car, which is to be known as the Aston-Martin, are being made by the best works in the country, and although the machine will not be ready for several months, Mr. Martin is at present testing out the engine, which has been specially made for him by the Coventry-Simplex people, and he hopes to do 15,000 miles on the machine before putting it before the public.



Mr. Lionel Martin, whose successes during the past 18 months have been constantly chronicled in our pages. Next year he will be seen at the wheel of a car of his own make.

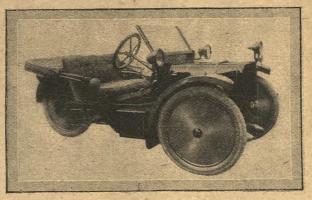
We were recently privileged to accompany him on one of his 100-mile high-speed test runs. The engine, which is about 1400 c.c., is at present fitted in a comparatively heavy and old type of Italian racing car, which it pulls along the road in a really ex-tremely vivacious manner. There are not many engines on which one can drive all out for 100 miles without their turning a nut, but on this one the motor seemed none the worse for its long spin at high pressure. It should be noticed that the pressure fed oiling arrangement is undoubtedly a good point, the erankshaft being drilled and the supply of oil to the big-ends and the main bearings thereby secured. It is to this system, and also to the plentiful water

jacketing provided round the large valves, that the stamina of the engine is mainly due.

The chassis on which the run was taken was only a three-speeder, but with this, heavy as it was, the engine made light of what hills there are on the London-Birmingham road. It would take any of them at over 40 miles an hour on second. On high gear the speedometer, which stopped short at 50, did not provide a range to the full road speed of which the machine was capable.

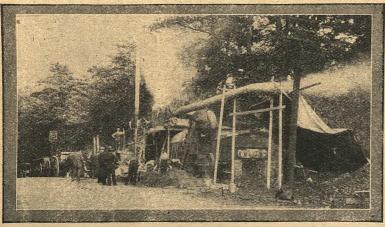
The first engine of any particular model is perhaps not in every respect a good example to judge the remainder by, it being possible for the stardard pro-ductions to be either better or worse. This particu-lar engine, however, struck me as being extraordinarily sweet running, and without a period of vibration at all. It is not a "rough" engine to drive, as so many modern motors are. The lubrication system, the pump water circulation and the automatic pump for the petrol all appeared to work satis-factorily, so that when the light car is built very excellent results should be obtained from it.

There are some drivers who inspire confidence immediately, and there are others who do not. Mr. Martin, though a fast driver, certainly comes under the former category, and although we did many miles rather over the legal limit, there was never a moment when we experienced either danger to ourselves or to the public.



A disc wheel Morgan belonging to a Midland driver. We should imagine that the increased wind area would render the steering difficult.

19TH OCTOBER, 1914.



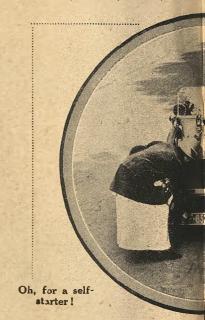
Very extensive road improvements are being made on the Basingstoke road near Sunningdale. Enormous grinding machines and a small tramway have been put down to facilitate the re-making of the surface.

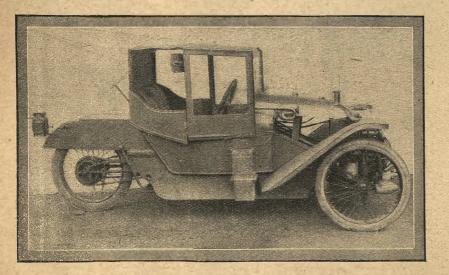


Some prominent members of the Cyclecar Club who are Messrs. Bale, Thomas, Carden, Cook an

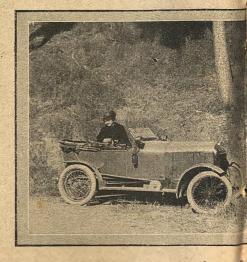


The driver of a Stellite light car held up by sentries on the road near Coventry.





A cloverly-designed Morgan cabriolet seen in the streets of London.



Two Buckingham cyclecars at

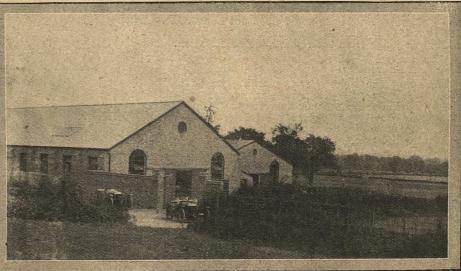




Some of the members of the newly-formed Acton and District M.C. and Cyclecar Club. Dr. A. M. Low, the president of the club, can be seen on an A.-C. on the right.

ing the colours. Their names from left to right are . Low. Below, Mr. Vernon Busby.



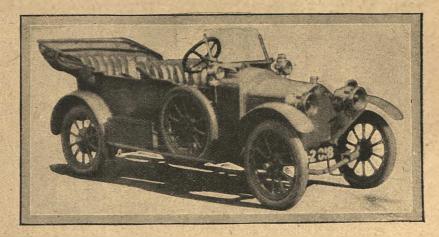


A week-end snap near Folkestone.

Part of the new Morgan works at Malvern. They are used as finishing shops for body building and painting, the chassis being pushed over from the machine shops.



long climb in Sunny Spain.



Every week-end there are large crowds of motorists at the Stonebridge Hotel, half way between Coventry and Birmingham. The four-seater Stellite shown above was noted there the other week-end.

TESTING A MINIATURE "FOUR." A Long Distance Road Test of the New Dorman-Engined Warren-Lambert.

SUMMARIZED RESULTS:

Distance run-200 miles. Petrol consumption-38 m.p.g. Maximum speed on top-50 m.p.h. Minimum speed on-top-6 m.p.h. Involuntary stops-two, ran out of petrol. Acceleration-excellent.

ITH the knowledge of the brilliant hill-climbing feats of the two-cylinder Warren-Lambert we naturally looked forward to the quality of hill annihilation in the new four-cylinder model, and a strenuous day's run to the south-coast supported our forecast.

Leaving London about 11 o'clock one fine Sunday morning in October we passed over Vauxhall Bridge bound for Folkestone, making a stop at the first garage to take in a supply of petrol. Off at last, we gradually covered the first few miles of tramlines and were devoutly glad to reach

the main road, where we could open out our mount, for it evidently possessed possibilities of speed if one might judge from the remarkable acceleration.

The Car is Flexible in Traffic-

Threading the light Sunday-morning traffic had soon made us aware of the accelerative powers of the four-cylinder Dorman engine, for at any speed it was only necessary to depress the accelerator pedal for the engine to pick up at once. This is undoubtedly due to the light weight of the Warren-Lambert chassis, and it is largely this fine acceleration which makes the car so sporting to drive.

The first hill of note was that leading out of Farn-ingham, but it was annihilated on top gear with a healthy burble from the exhaust rousing the echoes. Then on a steep little rise an American car famed for its hill-climbing powers was passed "hands down" and never seen again.

Steady running through Wrotham into Maidstone ensued, where a halt for some minutes was made while a friend took in a supply of petrol and oil for his car. Starting off once more we saw a large six-cylinder limousine disappearing in front of us, and forgetful of speed limits we straightway proceeded to put it behind us.

-And on the Open Road More Than Holds Its Own.

First of all a sidecarist and two cars were passed, and then a long sweep up gave us the chance. Nearer and nearer we drew to the limousine, and then, as the driver drew over to give us room, we called for the last ounce of power from the engine and swooped by.

Alas, our triumph was short-lived, for a mile or two farther on, when we had established a good halfmile lead, the car with us developed a bad miss, one cylinder going out of action altogether. Lifting the bonnet, one high-tension wire was seen hanging idly from the magneto, but by the time the triffing trouble was rectified the big car had disappeared into the distance, so we let it go.

We were now content to tour gently on, and ere long we found ourselves nearing -----, the number of khaki-clad soldiers about being extraordinary-infantry, cavalry, despatch riders, officers and men; one was never out of sight of soldiers all along the road - to Folkestone from ---

On the hill up from Hythe we made our first de-BG

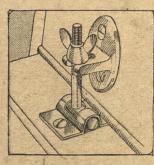
mand on second gear for hill-climbing, for we had taken every hill on the way down on top gear, and with plenty of power in reserve.

On the winding and dangerous descent to the harbour we had cause to try the brakes to the utmost, for a large military lorry laden with stores suddenly appeared in our path, and the foot brake was requisitioned in haste. Lucky for us that it was sure and swift in action.

After lunch we determined to run on to Hastings for tea, and in so doing we struck one of the strangest pieces of road we have ever met. The first few miles were indescribably winding, but for no apparent reason, and high speed was impossible.

On the Military Road at Rye.

At last a particularly sharp turn at Appledore took us across what must have been the Royal Mili-tary Canal, for a road some inches deep in gravel eventually led us to a toll-gate, where we paid 6d. and received a ticket bearing the words "R.M. Canal War Department Road." Some miles farther on past Rye was another toll-gate, where again 6d. was demanded for a similar ticket and, perforce, paid.



The neat bonnet clips on the new four-cylinder Warren-Lambert, which effectually prevent any semblance of bonnet rattle.

The road now improved and we ran into Rye, and then an abrupt little hill approached by a left-hand hairpin bend demanded a drop to second gear.

Nearing Hastings we found ourselves on a long hill with quite a steep knuckle in the middle, and although we should have surmounted it on top gear, the usual power and vim seemed lacking, and a drop to second was necessary. Then the explanation came, spluttered and died. "'Ran out of petrol!" we should as some friends

shot by. They then pulled up hastily, and we transforred petrol from their tank to ours by means of a horn bulb. The hilly roads of Hastings demanded more petrol than we thought, however, and not much farther on we again ran out, and our friends pushed on to the nearest garage to return with one of the welcome tins.

Dropping down into the town, we pulled up for a hearty meal, our appetites sharpened by the frosty feeling of the air; then, having replenished ourselves, we did likewise for the cars, surrounded by a gaping crowd of children who appeared from nowhere in particular with astonishing swiftness.

Top Gear Hill-climbing.

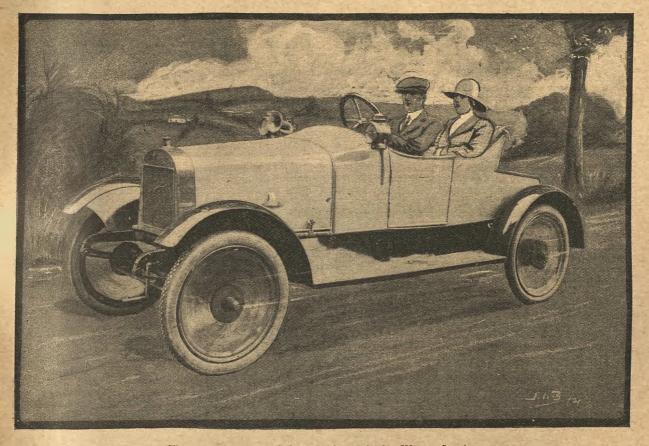
The rise out of the town was made on top gear, and we were soon speeding over the moonlit roads, only to be pulled up at a level-crossing. Then the train thundered by, and we were off once more, meeting few people on the road, despite the lovely night. Just before reaching Tonbridge a red light and a

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TESTING A MINIATURE "FOUR" (contd.).

white light waving about bade us stop, and we found a patrol of special constables, but "our papers were in order " and we soon proceeded, running through the town non-stop and on towards London

So finished a run of close on 200 miles, and it left us with a great liking for the sporting little car, for with speed and acceleration it was yet quite docile and easy to control in the thickest traffic, thanks largely to smooth-acting clutch, good brakes and easy gear change. Only the direct steering could we wish



Three-quarter view of the new four-cylinder Warren-Lambert.

No troubles assailed us, and we swept onwards, finding ourselves on Pol Hill ere long and taking it in our stride on top gear and at a rousing speed. Soon we were past Bromley and nearing London, and at last entered on our last stretch of tramlines, which at present are in fine condition as the paving has been renewed.

The roads were almost deserted, and we kept up our high speed without hindrance, easily beating the tramcars for acceleration, although they were mostly empty and bound for the depot. Our engine was running better than ever.

A very interesting low gear test has been recently undertaken by the Franklin Automobile Co., makers of the famous four-cylinder air-cooled car. The time taken for the 100 miles was 8 hrs. 54 mins.

* We extract the following from "Automobile Topics," showing the tremendously specialized state of motor manufacturing in the States :-

"A man with a foreign accent was hired upon his own representation that he was an expert automobile machinist. His first job, tending a planer, pro-duced such disastrous results that he was hastily shifted to a drill press, whence, after his third trip to the tool crib for more drills, he was haled before the local sociological department, in the presence of the shop foreman.

altered, but the design of this was experimental only.

One thing in particular pleased us, and that was the silence of the machine as a whole, for there were no annoying body squeaks and rattles, there was no drumming of the petrol tank, which is situated to the front of the dashboard under the bonnet, and the bonnet itself is held down by screw clips, which pre-clude any possibility of rattle from this source.

The price of the four-cylinder model is 150 guineas, and the makers are the Warren-Lambert Engineering Co., Ltd., Aldine Works, Uxbridge Road, Shepherd's Bush, London, W.

"'I thought you said you were a machinist,' roared the big fellow, clenching and unclenching his hands.

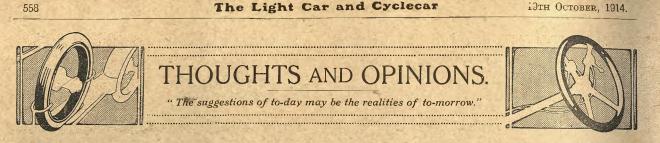
"'Sure-machinist,' replied the foreigner. "'Well, where were you a machinist?"

"'By Ford factory.' "'Yea! Well, what did you do "by Ford Factory"?'

"' Me, I put in bolt No. 37." *

Early in October the Senate Sub-Committee of Finance at Washington, U.S.A., recommended a war tax of \$1 per h.p. on automobiles, to be collected from the manufacturer, and a tax of 75 cents per h.p., to be collected from the owners of the-cars. American manufacturers are to protest strongly.

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THE 1915 MODERN RALLY.

Well-known Manufacturer Approves the Scheme. Some Suggestions.

-The idea of a light car and cyclecar rally is an excellent one, provided, of course, that there is no untoward event in the war. May I venture to make a few suggestions?

(1) In the first place, the rally should be for the trade and confined to 1915 models, which would not then be in the hands of the public. It would be misleading if ancient models of the older and better-established firms were placed for comparison with the latest designs, and would convey a wrong impression of the present standard of excellence.

(2) The number of cars exhibited by each firm should be limited. A large exhibit would naturally give greater prominence, and would be a better advertisement. A large stand at Olympia was a better advertisement than a small one. But if the rally is held near London, it will be very difficult for Midland firms to send many cars. Most of their drivers are (or should be) on service. This would give an unfair preference to firms in London and the Home Counties.

(3) English weather in November is, to say the least, uncertain. There should be some protection for the cars, to say nothing of the spectators. Large tents would suffice, and the expense would not be great. A small entrance fee on each car would cover it.

(4) It might possibly be arranged to hold minor rallies at other centres, say, at Birmingham, Liverpool or Manchester, Bristol and Sheffield, but the measure of success of the London rally would decide this. H. GEORGE MORGAN,

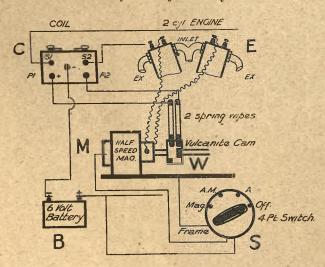
Malvern. MORGAN MOTOR CO.

[The suggestions made by the writer of this letter will doubtless be considered by the committee of the Cyclecar Club. At the same time it must be remembered that the rally is not a show, and as such would not be supported by the trade.—ED.]

THE CALL FOR SELF-STARTERS.

Easy Starting on Coil Ignition—Great Opening for Cheap Device to Fit Any Standard Car.

Evidently I am not the only one who has "cussed some" at a "non-starter" on a cold morning, i.e., judging by the several private inquiries I have had for particulars of my coil starter. Any local garage mechanic with a few tools and some common sense could do the whole job easily in a day's work.



The diagram of connections for starting up on coil ignition. See letter from Mr. H. Burn Murdoch.

As very often the coil could be obtained secondhand, the cost would be much reduced. Exclusive of batteries or accumulators, which I already had for my lamps, the total cost " all on "—and in working order, which is a very different thing to "all on"—came to B8 £3 15s., using a second-hand coil. The money has saved me 75 years in Purgatory plus seven times seven hours of violent exertion in this world of tears, and it has also saved the makers of the Crouch from reading fclios ad lib. of copious abuse. Replying to "M.D.'s" questions as to starting from

Replying to "M.D.'s" questions as to starting from cold, I may say that one recent morning, with frost on the ground, the car in a thin wooden shed, and not used for 48 hours previously, I flooded the carburetter, gave three *slow* turns of the handle, just to fill the cylinders with gas, then turned on the switch to accumulator, and one more *slow* turn sent her off at once. I was using second quality petrol.

With three large headlights—the cost of which is a mere triffe as compared with the extra saving in comfort, cleanliness, and freedom from renewal bills—and a lamp controlling switch similar in appearance to the one in the accompanying sketch, which enables me to "dim the lamps" in a moment, "M.D." could leave his car with all lights dimmed, so using a mere triffe of electric current.

The sketch shows (C) a two-cylinder coil, (E) a twocylinder V-twin engine with two extra sparking plugs tapped into the exhaust valve caps, M the magneto revolving, of course, at half the engine speed, W a hard vulcanite cam jammed on tight to magneto shaft, and this cam has two brass wipes or contact spots let into its surface, and these are "earthed" to the shaft. Two insulated flat brass springs are fixed on to a small bracket bolted to the chassis, and they lie on the cam as it revolves. The tips of the springs are shod with iron where they rub over the cam contacts. The contacts are fixed in a well-retarded position, so that a backfire is absolutely impossible, no matter how slowly the engine is turned. S is a T and B. switch, which replaces the ordinary starting switch, B is a six-volt accumulator or dry battery, as the case may be.

THOUGHTS AND OPINIONS (contd.).

With my Crouch car I have 12 volt by 60 amp. accumulators on the offside running board in place of the tool box, as the only tools I need carry now are (1) two spanners, (2) my driving licence, and (3) half a crown, in case of eventualities. I connect up to six volts either end of battery. The coil (C) is screwed on to the back of the petrol tank, so nothing extra shows up when driving, and as far as structural alterations are concerned there are none, only the mere trifle of tapping in the two extra sparking plugs. I forgot to mention the cost of electric lights. I

I forgot to mention the cost of electric lights. I have two such accumulators, 12 volt by 60 amp., which cost me 1s. 6d. to 2s. to get charged, and my only worry is that I do not use them quite quickly enough. Provided one is within a few miles of an electric supply I would never think of anything else but electric lamps. J. BURN MURDOCH.

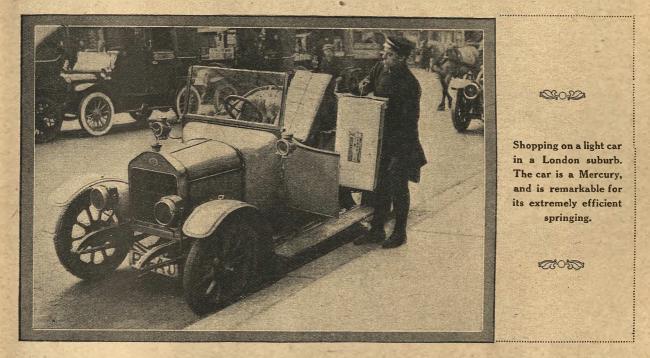
Cambridge.

Its Appeal to Ladies.

In a recent issue you ask "Is there a demand for a self-starter?" The answer is, undoubtedly. It should be so made as to be adaptable to the ordinary small shaft and bevel-driven car as well as the friction and chain-driven machines. I am quite convinced that if a good, reliable self-starter were put on the market, which could be fitted to existing cars and was not prohibitive in price, there would be at once an immense sale. Lady drivers and men the wrong side of 50 would be probable customers. Now that the motor trade is slack there is a splendid opportunity for manufacturers to give attention to it. Presently we shall have all American cars so fitted. Why not forestall them? J. E. NORMAN. Weston-super-Mare.

What the Farmer Wants.

I see a G.W.K. advertisement in THE LIGHT CAR AND CYCLECAR showing a four-seater. I think a light



Road Conditions in Australia.

At the present time I am running a Perry light car, and it gives splendid service; in fact, I am delighted with it. I consider that for its size the engine is most efficient, as I have not had a moment's trouble with it, and can go anywhere, also it is a very good car that can pass me on the hills. But there is one thing that I wish English manu-

But there is one thing that I wish English manufacturers would study—that is our road conditions. I have up to the present broken both front springs and am now getting stronger ones made.

and am now getting stronger ones made. The springs with which the car is fitted are ideal for our town roads, but off them — ! Your average rider or driver in England has no idea what the road conditions are in Australia : five miles from Melbourne they are only cart tracks. Any firm who would send a representative out here to study our conditions and then build a light car accordingly would have an enormous market. E. J. WILLIAMS.

Brunswick.

[The point that our correspondent raises is interesting, and some English manufacturers are giving it their attention, providing greater ground clearance, also in many cases larger radiators, and stronger springs on their Colonial models.—ED.] car built on these lines is what the average farmer is looking for, but the price of 175 guineas is too much. If a car could be made at from £100 to £130, with the simplicity of the G.W.K. and strong, with a body suitable for carrying provisions to and from the market, although not too highly finished, and to seat three at least, I am sure there would be a demand for it. A.B.L.

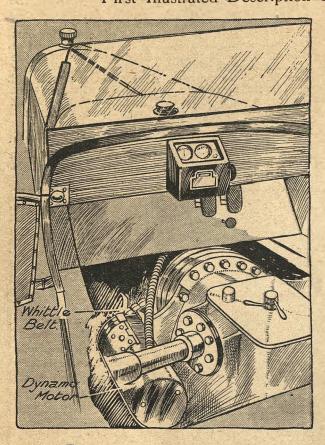
Alves Forres.

Improving the Running.

I was much interested in the letter of your correspondent Mr. P. W. Hill in your issue of 3rd August on improved running. I also have a 1913 A.-C. sociable which I purchased when at home last year. I am very pleased with it, but would like to make the improvements Mr. Hill mentions, and would be grateful if he would state:

- (1) Where Harcourt radiators can be procured?
- (2) Approximately the cost of same.
- (3) How and where they are fixed.
- Johannesburg. G. O. BEVERIDGE.
- [The address of the manufacturers of Harcourt radiators is Messrs. Wyley and Lockhead, Buchanan Street, Glasgow, from whom all particulars may be obtained.—ED.]

LIGHTING AND STARTING BY ELECTRICITY. First Illustrated Description of the New Scott Dynamotor.



The new Scott dynamotor self-starter.

IN the large car world a self-starter, instead of being a luxury, has almost become a necessity, and it will not be surprising, therefore, if some light cars next year are fitted with either electrical or mechanical starters.

One of the first people to produce a suitable electrical starter for light cars is the Efandem Co., Ltd., Fallings Park Works, Wolverhampton, and Tennyson's House, Great Portland Street, London, W. Their starter, which is known as the Scott, has already been fitted as standard on many of the wellknown large cars, and has given every satisfaction to its many users. It is one of the simplest, and, at the same time, one of the most powerful for its size at present on the market.

The makers do not wish it to be fitted on private owners' machines, as temporary work such as this is never satisfactory. It will, however, be seen, in all probability, on several of the best-known light cars next year.

It is a compact unit, being cylindrical in form, and is bolted direct to the side of the gearbox or fitted under the bonnet in a somewhat similar position to that usually assigned to the magneto. It is not only a self-starter, but, once the engine is running, it also acts as a lighting dynamo. It generates electricity at 12 volts, and the outfit is sold complete with a 44 ampere-hour ebonite battery. With the latter, the self-starter can be run to a standstill, as it were, without damaging the accumulators in the slightest, and then, once the engine is started, the dynamo automatically recharges them.

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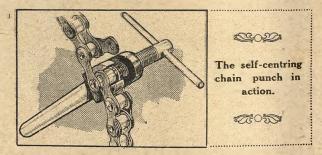
The starter that we inspected was fitted to a Lucar, and in this case it was fitted to the side of the gearbox and driven by a silent chain at a reduction of about 1¹/₂ to 1. This machine was only an experimental one, but the engine never failed to start when desired. The starter would turn the engine when the latter was warm at about 320 to 380 r.p.m.

The power of the machine when working as a motor may be gleaned from the fact that, with the engine switched eff, the starter would propel the car at quite a good pace on low gear. Of course, it is not intended to be worked like this, but it is a clear demonstration of the power which the motor is capable of giving off. The makers have realized that a starter, to be successful, must have more than a reserve of power. On wintry mornings, when the engine is cold and the oil thick, it requires a motor of considerable power to turn the engine round for a long enough time for the latter to fire.

The starter has been specially designed for light cars and is not a cumbersome, oversized one taken from a large car. The price of a machine fitted with it will not be greatly increased, as the starter costs only about 30 per cent. more than an ordinary lighting dynamo set.

A Self-centring Chain Punch.

Happily chains do not often give trouble, but the cyclecar driver who starts on a tour without a chain punch and some spare links is rash. A new chain punch has been put on the market by Mr. C. Talbert, 52, Melville Road, Walthamstow, which is self-centring, as when the chain link is looped on to the fork the punch is directly opposite the countersink of the



chain stud, and the repair can even be made in the dark with certainty. The punch is made of solid steel bar, case-hardened all over, and is suitable for both heavy and light chains of $\frac{5}{5}$ in. by $\frac{1}{4}$ in. or $\frac{5}{5}$ in. by $\frac{3}{5}$ in. dimensions. The price is 2s. 6d.

A motorist who was just about to approach one of the barriers on the outskirts of Birmingham suddenly discovered that his licence was three days out of date, so he turned round before the constable had time to challenge him and drove back at full speed.

Mr. Halsall, well known in connection with Wilton light cars, has three brothers actively engaged at the Front. One is in the Mechanical Transport and the other two are engaged in Red Cross work with 40 motor ambulances attached to the French staff.

The Low acetylene generator is being put on the market by Messrs. Ward and Cuningham, Craven House, Kingsway, London, to whom all inquiries should be addressed.

THE MILITARY VALUE OF A LIGHT CAR.

S O far as we are aware, a few Swift cyclecars are the only light machines of this particular class at the Front. They are, we understand, giving a very good account of themselves and it is to be hoped that more of this class of car will be ordered by the War Office. At the present time, however, the authorities seem to lack confidence in the light car. There is no doubt that the cars employed in France and Belgium have to withstand the most terribly hard usage, and it is no wonder that many of them under these strenuous circumstances break down.

Now that the War Office has time to look round and consider alternative methods of transport for men and material, it might be worth while for some of the motoring organizations to discover if a light car, having proved its reliability, would be of any real value for conveying officers from place to place in the fighting line. Then, if it were admitted that the only preventive to a light car being adopted was the fear of a breakdown, the A.-C.U. or Cycle car Club might organize some test of a tremendously severe nature specially for military models, say, for instance, on Dartmoor, or some equally severe stretch of country, taking the machines backwards and forwards for several days, on the strict understanding that the makers of any cars which proved successful would receive a very large War Office order. Generally speaking, the light car makers are working short hours, and would be well qualified to fulfil any large Government contracts if these came along.

A fast light car might be a useful adjunct to a flying corps, and might be constructed with a special body to take an aeroplane engine or spare propellers.

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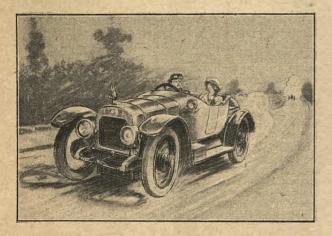
CROSS-COUNTRY COMMENTS.

Gossip from Brooklands--America and English Light Car Ideals.

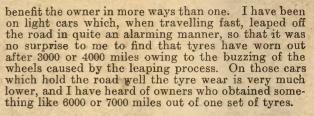
NTHUSIASTIC motorists, when in doubt as to a suitable week-end haunt, should pay a visit to the Heath Club, Weybridge, the rendezvous of many patrons of petrol. Here meet together those engaged in the various sports and pastimes indulged in at Brooklands track—flying men, pupils, motorists, motorcyclists, and others interested in mechanical propulsion.

Mrs. Dempster, who presides, is the lady who manages the catering so successfully at Brooklands paddock, and her place resembles a country house more than anything else. The cooking is good, and a row of bathrooms and plenty of hot water are all that are required to make one comfortable.

If there is one point in which the average light car ought to be improved it is in stability, and it is this feature which an event such as the International Race would have brought out very strongly. Happily designers are studying this much more carefully, and on next year's models the track will be wider and the frame much lower. Better weight distribution and a low centre of gravity will work wonders with a light car to secure its adhesion to the road. This will



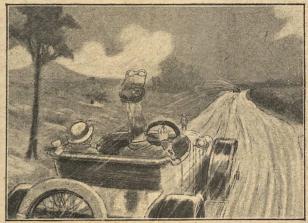
1. Gilded Youth : "Never been passed in my life, dear. Wonderful machine this."



Side-by-Side versus Overhead Valves.

There is a "zip" in an overhead-valve engine which is unnoticed in the side-by-side type. It may be that it is a rougher engine to drive than the side by side, but the power is there right enough. I think that this will be one of the directions in which we shall see progress in the future light car design. The overhead-valve motor means more power, greater efficiency for the same weight, and hence lower petrol, oil and tyre wear. They are not, perhaps, quite as silent as the side-by-side type, but doubtless this will be attained presently.

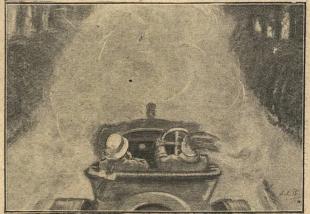
I know of one famous maker who next year will be putting on a light car which is a miniature repetition



2. The cyclecar passes. Gilded Youth : "Good gracious, what was that?"



3. "Why, it's one of those beastly little cyclecars. I'll open up on this hill and teach him a lesson."



4. "The fellow's accelerating, too, I do believe. I'll slow down; this dust is so bad for you, my dear."

CROSS-COUNTRY COMMENTS (contd.).

of his this year's Grand Prix engine. It is built very low and fitted with an overhead-valve engine and overhead camshaft, the bore and stroke being about 65 mm. by 110 mm. This machine seems likely to be a light car class on its own, for although the engine is larger, the weight will not be much more than the present light car, the machine being designed to scale 10 or 11 cwt. all on.

There has been an increasing movement recently in favour of the larger and less-efficient engine, in which American practice is typified, as against the small, high-speed and very efficient motor that has been so far identified with British productions.

It is a well-known fact that the Americans build large, spongy engines, and limit their efficiency by small valves and carburetters, and I know of one English light car maker who, at the present time, contemplates doing the same thing.

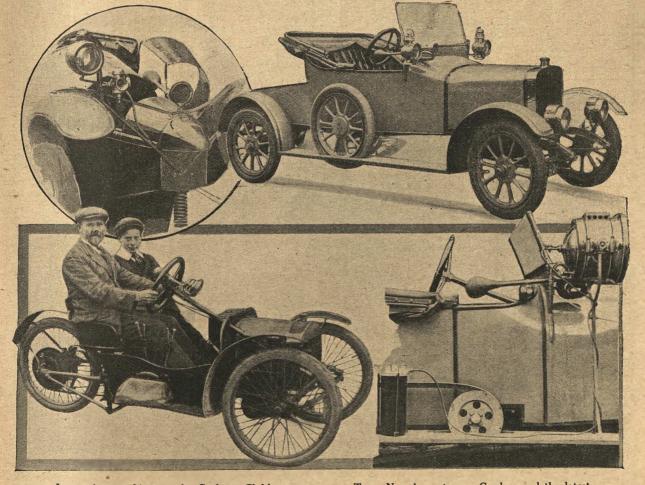
It will be very interesting to see if the American invasion continues next year. There are signs, I believe, of an all-British boom, in which case the American light cars will not stand much of a chance.

It is admitted that they are much cheaper in first cost than the British machine, but I do not know whether they will last as long. In this connection, I know of two similar models, one American and one English, which will be on the market side by side next year, and it will be extremely instructive to see how each of them stands up during service, and what each model fetches at the end of a year's running. It will also be instructive to compare their petrol consumption. I expect that the English model, owing to its superior workmanship, will be at least 10 miles an hour faster than the American, but the latter may be a better climber.

I was recommended castor oil for dressing Ferodo clutches the other day.

Tool rolls are, I am afraid, necessary evils. How many times have I seen an impatient motorist undo his tool roll, take a hammer or spanner from it, make a rapid adjustment, and replace the tools pell-mell in their compartment? Nothing is more annoying than the trouble caused by inserting tools into the small space left for them by the strap. There is certainly room for ingenuity in producing a better method of carrying spanners, screwdrivers and other implements. On racing cars I have seen spring clips used, and it seems that something on this line would be better than the usual leather roll with straps.

Are you coming to the 1915 Model Rallies of the Cyclecar Club? The venue on the 21st November is the Red Lion, Hatfield, and on the 22nd Burford Bridge, near Dorking, and Wisley Hut, on the Portsmouth Road. McM.



Interesting machines at the Cyclecar Club's autumn run. Top: New bonnet on a Carden, and the latest McKenzie light car which was driven by Mr. Westall. Below: A home-made Sociable, and the lighting outfit by Low generator and searchlight on an Adamson. 563

THE HORSE-POWER AT THE ROAD WHEELS. An Accurate Method for Testing-A Simple and Inexpensive Apparatus.

N a previous issue we described an arrangement for testing the engines of light cars by means of the generation of electric current which could be measured by suitable recording instruments, thus giving an approximate indication of the real b.h.p. given off to the road wheels. The measure of the power beyond this point can only at best be approximate, as the losses further on in the transmission system

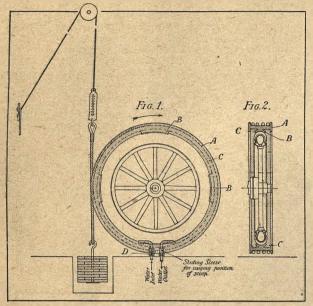


Diagram showing the simple apparatus described in the accompanying article. The letters are referred to in the text.

can only be determined by a series of accurate measurements of the sum of the losses due to belt and shaft friction, electric motor losses, and errors in readings of volt and ampere instruments, the whole of this measuring apparatus being naturally costly and taking up a good deal of valuable shop space. We will now describe the apparatus used, amongst

others, by the Royal Agricultural Society. for engine testing, where, of course, accurate and not merely ap-

proximate or comparative figures are necessary. In the system now to be described the load is applied directly to the two driving wheels of the car, and the results are read off exactly without the necessity for making any approximate allowances for frictional or other losses. As the whole of the power given off at these points is wholly converted by friction into heat, it is obviously necessary to provide simple and ample means for carrying off this heat continuously and for regulating the temperature and preventing its and for regulating the temperature and preventing its varying to an extent capable of largely changing the coefficient of friction between the wheels and the brake surface. As the specific heat of water is the maximum, and because water can be used without any cost on account of the small quantity required, it is used as the medium to control the tempera-ture due to the absorption of work done. Fig. 1 shows an elevation and Fig. 2 a cross section of the friction brakes, one being applied to each of the driv-ing wheels of the car. A is a cast-iron rim of H section, having four or more internal clip pieces cast solid with it; the tyre being deflated, the brake is slipped over it, and when the tyre is pumped up again the car wheel and the brake are firmly locked together, it being, of course, understood that the back axle is jacked up sufficiently.

If it is desired to use the same brakes for car wheels of widely varying diameters, this can, of course, easily be done by having tyre clip pieces capable of inward or outward radial movement, instead of being cast solid with the brake rims. The ropes, loading weights and counterbalance spring are ar-ranged, as shown in the accompanying sketch, in the ordinary way, and the heat produced by the friction due to the conversion of mechanical work is carried off by the water admitted into the trough forming the inside of the brake rim.

The water is held in position by centrifugal force, and its admission is regulated through the inlet valve (D) as shown. It is carried away through the out-let pipe, the mouth of this pipe being capable of radial adjustment, so that a thicker or thinner layer of water can be planed off as desired, thus giving the power of absolutely regulating the rise in temperature due to the absorption of power by friction. By this simple and inexpensive means absolutely

correct brake-power measurements can be made.



564

The Light Car and Cyclecar

Morgan and other cyclecar owners, keen on tyre economy, should read this unsolicited testimonial to



THE PALMER TYRE, LIMITED, 119, 121, 123, SHAFTESBURY AVENUE, LONDON, W.C. , 'Phone - . . 1214 Gerrard (four lines). 'Grams - "Tyricord, Westcent, London." I HAVE owned a Morgan Runabout Car for just twelve months, and ran it equally in Winter and Summer.

Your make of tyre was specially ordered to be fitted on all wheels instead of the usual Tyres supplied.

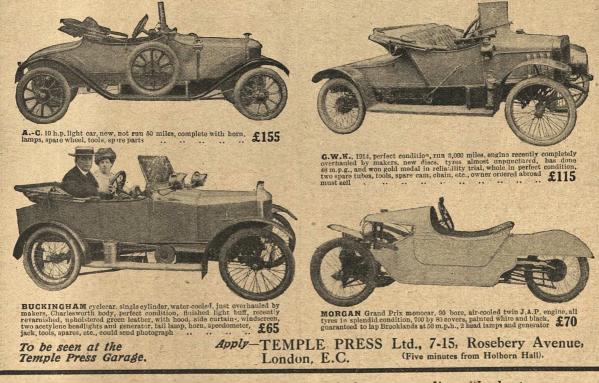
My indicator shows the Car to have been run 7,100 miles in the year.

Throughout the twelve months I have had one puncture only in the back (driving) tyre, and as to the two front tyres neither have ever once been deflated since I had them. All my friends are simply astounded to know that they have travelled fully 7,000 miles, and even the rubber treads are not worn down, and scarcely show signs of wear at all in the front tyres.

My tyres in use are the finest proof of the durability of the Palmer Cord, and a photograph of the almost unworn ribs on the tread of the front tyres might astonish even your good selves."

> Original letter on the file at Head Office. Morgan and other cyclecar owners should get the book of the Palmer Cord Tyre.

Light Cars and Cyclecars for Sale, mostly belonging to members of the Staff of "THE LIGHT CAR AND CYCLECAR" who have joined the Colours.



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

19TH OCTOBER, 1914.



HELP THE by letting advertisers know that their advertisements A24 **MOVEMENT** in "The Light Car and Cyclecar" interest you. 19тн Остовек, 1914.

The Light Car and Cyclecar

Supplement iii



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LIGHT CARS AND CYCLECARS FOR SALE.

A.-C. Sociable, 1912, 1913 engine in absolutely new condition, double ignition, hood, screen,* four lamps, front brakes, luggage carrier, fans, spares, £40, trial run at Gerrard's Cross, Bucks. Simon, 11 Maddox Street, W. Telephone, No. 287 102-f68 Mayfair.

A.-C. Sociable, 1912, hood, screens, lamps, all accessories, tyres nearly new, excellent condition, B. and B. carburetter, £42; trial by appointment. H. S., 30 Clifton Road, South Norwood, S.E. 100-f316

A.-C. Sociable, 1912, with hood, screen, side aprons, luggage carrier, speedometer, lamps, non-skid rear, fans, spares, in good condition, recently overhauled and new tyres fitted, fully insured to March, 1915, £35 cash. Grant, 39 King Edward Road, Romford, E. 100-f339

A.-C. Sociable, 1913, splendid condition, front brakes, hood, screen, lamps, side curtains, any trial, all accessories, £55. Hibbs, 163 Wellmeadow Road, Catford, S.E. 100-f364

A.-C. Sociable, 1913, in good condition, hood, screen, and oil lamps, £46. 29 Broadway Bexley Heath. Trade 100-g10

A.-C. Sociable de luxe, 1912¹/₂, new tyres, speedometer, front brakes, hood, screen, etc., and all spares, perfect condition, used under 5000 miles, £30, no offers. Heath Lodge, Har-penden Road, St. Albans. 100-f361

A.-C. light car, latest model, 10 and 12 h.p., for immediate delivery from stock, demonstration cars always available. Ap-ply, Mitchell's Garage (authorized London agents), 114 War-dour Street, W. Trade zzz-177

A.-C.s from stock, on deferred terms; write for Buyers' Guide. Harrods, Ltd., Brompton Road, S.W. Trade zzz-616

A.-C. 10 h.p. light car, new, not run 50 miles, being disposed of owing to war, complete with horn, lamps, spare wheel, tools, spare parts, £159. Can be seen at Acton or in Central London, and trial given any time, appointment. Box No. 4206, care of "The Light Car and Cyclecar." zzz-36 zzz-367

LIGHT CARS AND CYCLECARS FOR SALE (continued).

A.-C. light cars and Sociables, best for Devon, from £95 16s. 6d., complete; on view. Moon Bros., Sole Devon Agents, Trade 100-b352 Duke Street, Plymouth.

A.-C., latest model, 10 h.p., deposit £35 secures, balance 12 monthly payments £11 19s. 2d. Other terms considered. Exchanges entertained. Service Co., 292 High Holborn. Trade zzz-338

ALLDAYS Midget, 1914, brand new, four-cylinder model, list £175, accept £145. P. J. Evans, John Bright Street, Birmingham. Trade 100-359

AUTOCRAT, the prettiest little car on the road ; don't fail to see it ; early delivery. T. G. Hall, Barton Street, Gloucester. Trade zzz-845

AUTOCRAT. Have you seen it? If not, give us a call. We are agents for the Northumberland and Durham ; latest models on view; 160 guineas. E.G.S. Co., Pudding Chase, Newcastleon-Tyne. Trade zzz-844

AVIETTES, 1915 models, now in stock, all types fitted with two and three-speed gearboxes and cone clutches, 4 h.p. monocar, £60.

AVIETTES, 6 h.p., single-seater, £75; two-seater, £80.

AVIETTES, 8 h.p., air-cooled, £87 10s.; 8 h.p. water-cooled, complete, two-seater, hood, screen, lamps, tools, 95 guineas. Hurlin and Co., Ltd., 295 Mare Street, Hackney. Trade 100-362

BUCKINGHAM cyclecar, single-cylinder, water-cooled, just book it of the overhauled by makers, charlesworth body, perfect condition, finished light buff, recently revarnished, upholstered green leather, with hood, side curtains, windscreen, two acetylene headlights and generator, tail lamp, horn, speedometer, jack, tools, spares, etc., could send photograph, £65. Box No. 4205, care of "The Light Car and Cyclecar," Coventry. zzz-167

BUCKINGHAM, 1914, 10-12 h.p., two-speed and reverse, hood, screen, Stepney wheel complete, tools, two acetylene side lamps, generator, tail lamp, 650 by 65 tyres, new last July, run about 500 miles, £90. Below.

BUCKINGHAM, 1914, 10-12 h.p., two-cylinder, water-cooled sporting model, with special racing engine, guaranteed 65 m.p.h., two-seater, speedometer, three lamps, Reliance mechanical horn, tools, etc., 700 by 80 tyres, cost £150, £115. Cass's Motor Mart, The Car and Cyclecar Specialists, 5 Warren Street, Euston Road, W. 'Phone, Museum 623. Trade 100-377

Trade 100-377

CALCOTTS, from stock, on deferred terms; write for Buyers' Guide. Harrods, Ltd., Brompton Road, S.W. Trade zzz-617 CALCOTT 1915 models, now ready, in stock, immediate de-livery, £185; if with dynamo lighting set, £15 extra; trade supplied; we are Calcott experts and specially authorized agents. Wilkins, Simpson and Co., 11 Hammersmith Road, Trade 100 F320 Trade 100-f329 London.

CALCOTT 1915 model, fitted with dickey seat, £189 10s., in stock, immediate delivery; we are now booking orders for these famous cars; tuition and delivery free. Wilkins, Simpson and Co., 11 Hammersmith Road, London. Trade 100-f330 CALCOTT 1914 light car, 10.5 h.p., quite new, but slightly showroom soiled, to be cleared at special price. Wilkins, Simpson and Co., 11 Hammersmith Road, London. Trade 100-f331

CALCOTT, 1915 pattern, embodying latest radiator and mudguards, etc., finished pearl-grey, electric lighting set, dickey seat, from stock. Robinson's, Green Street, Cambridge. Trade 100-357

CALCOTT cars. Watkins and Doncaster, Ltd., The Hall, 95 Great Portland Street, authorized retail and sole whole-sole agents for London and the Home Counties. Telephone, Trade zzz-345 6565-6 Mayfair.

CALTHORPE Minor light cars, a few shop-soiled models to be cleared at end-of-season prices, send for particulars. Sole London agent, R. D. Storey, 118 Gt. Portland Street, W. Trade 111-116

CALTHORPE Minor coupe, 1914, electric lamps, mirror, clock, etc., not done 100 miles, cost £212, must clear, 140 guineas. Julian, Broad Street, Reading. Biggest dealer in the south; 43 years reputation. Trade zzz-250 the south; 43 years reputation.

A26 **HELP** THE by letting advertisers know that their advertisements in "The Light Car and Cyclecar" interest you. MOVEMENT

LIGHT CARS AND CYCLECARS FOR SALE (continued).

CALTHORPE Minor, 10 h.p., 1914 model, hood, screen, five lamps, speedometer, £120. Beer, Blenheim Mansions, Broad-way, Westminster.

CALTHORPE Minor, two-seater slightly shop-soiled, for cash or exchange, send particulars. Halifax, Motor Excash or exchange, send particulars. change, Westgate, Halifax. Trade 102-f342

CALTHORPE Minors. Send for catalogue of the 1915 models; light delivery vans, 160 guineas; two-seater, 170 guineas; two-seater and dickey, 180 guineas; four-seater, guineas; doctor's coupe, 200 guineas; having contracted 190 for 200 of these popular light cars guarantee earliest possible delivery; sole selling agent for London, Kent, Surrey, and Sussex; a few sub agents required. R. D. Storey, 118 Great Dethad Streat W. Trade 111-115 Portland Street, W.

CALTHORPE Minor, 1914, brand new, list £168, shop-soiled, bargain, accept £145. P. J. Evans, John Bright Street, Bir-Trade 100-361 mingham.

1913, November, 3³/₄ h.p. Precision engine, CARDEN. Albion clutch, chain drive, lamps, tools, horn, splendid order £38. Lofting, 300 Earlsfield Road, S.W. 100-f334 100-f334

CARDEN, 1913, 4 h.p. J.A.P., 851 by 85, two acetylene head-lamps, generator, tail lamp, tools, etc., just repainted stone grey, with black wings and wheels, etc., £36. Cass's, The Car and Cyclecar Specialists, 5 Warren Street, Euston Road, W. 'Phone, Museum 623. Trade 100-378

CHOTA, 6-8 h.p. Buckingham engine, two speeds, leather cone clutch, screen, hood, etc., almost new, any trial, £50. Care of Offord's, 67 George Street, Portman Square, W. Trade zzz-341

CROUCH carette, 1914, three-seater, two-cylinder, complete, only done 600 miles, bargain, £90. R. D. Storey, 118 Great Portland Street, W. Trade 100-351 Portland Street, W.

DAY-LEEDS 10 h.p. light car, with Rotax lighting set, quite new, £155, rare bargain. Alfred Wastnage, Portland Court Garage, Gt. Portland Street, London. Trade 101-e758

DEEMSTER, early 1914, four-cylinder, three-speed, reverse, hood, screen, lamps, spare wheel and accessories, purchased in June last; owner having gone to the war will sell cheap. J. A. Parsons, solicitor, King's Lynn. 101-f321

DE P., 10 h.p., complete equipment, just arrived 130 guineas. Cash, exchanges or extended payments. Service Co., 292 High Holborn. Trade zzz-339 Holborn.

DUO, 1913, hood, screen, five tyres, in splendid order, fast,. 45 miles per gallon, 49 guineas or offer. 51 Petherton Road, Highbury, N. 'Felephone, Holborn 550. 100-f14

G.N., Ltd., have in stock the following cyclecars :--

G.N., 1914, standard G.P. type, fitted three-speed, red, black wing, new, £110.

G.N., 1914, as above, grey with dark grey lines, new, £140.

G.N., 1914, sporting type, red, bulb back, staggered seat, long scuttle, three-speed, new, £114.

G.N., 1914, standard G.P. type, three-speed, red, shop-soiled, £95.

G.N., 1914, monocar, 750 c.c., second-hand, £60.

G.N., 1913, G.P. racer, special aluminium body, speedo-meter, tyres good, second-hand, £75.

G.N. spares. To avoid delay, agents and others should apply direct to makers. G.N., Ltd., Etna Works, Bell Lane, Hendon, who have all parts in stock. Trade 100-307

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.h. Gordon Armstroag, Trada arg 232 Trade zzz-232 Beverley.

G.W.K., 1914, perfect condition, run 3000 miles, engine recently completely overhauled by makers, new discs, tyres almost unpunctured, has done 48 m.p.g., and won gold medal in reliability trial, whole in perfect condition, two spare tubes, tools, spare cam, chain, etc., owner ordered abroad, must sell, £115. Box No. 4114, care of "The Light Car and Cyclecar." zzz-21

LIGHT CARS AND CYCLECARS FOR SALE (continued).

G.W.K.s from stock, on deferred terms; write for Buyers' Guide. Harrods, Ltd., Brompton Road, S.W. Trade zzz-614 Trade zzz-614 G.W.K., 1914, standard model, slightly shop-soiled, list price ±150, will accept £140. Ward and McIntyre, G.W.K. Agents, 19 High Street, Kingston-on-Thames. Trade zzz-774 G.W.K., 1913, September, painted grey, P. and H. head-light, oil side and tail lamps, all tyres as new, spare tubes, latest type back axle, etc., not done 3000 miles, complete as new, 97 guineas, best bargain in England. Julian, Broad Street, Reading, biggest dealer in the South. 43 years Trade are 110 reputation. Trade zzz-119

G.W.K. light cars, always in stock for immediate delivery. Stewart and Ardern, 18 Woodstock Street (off Oxford Street) Bond Street, London, W. Trade 111-f37

G.W.K., 1913 model, 8 h.p., all accessories, new oversize tyres on back wheels, engine recently overhauled, £80, owner going abroad. C. B. Bell, 16 Brakespears Road, Brockley, London, S.E. 100-e995

G.W.K., two-seater, new, £150; also demonstration car, £125, exchange liberally considered. Collier's Motories, Halifax. Trade 102-f343

G.W.K. Cass's can supply for cash, or deferred payments, or arrange exchanges on G.W.K. four-seaters, £175; de luxe, with dickey seat, 155 guineas; de luxe, 150 guineas; vans, £155 Cass's, The Car and Light Car Specialists, 5 Warren Street, Euston Road, W. 'Phone, Museum 623. Trade 100-371

G.W.K., 8 h.p., 1913, two-cylinder, four-speed and reverse, fitted four electric lamps, three accumulator and switchboard, Rushmore headlamp and separate generator, Stepney wheel, hood, screen and side curtains, speedometer and clock, painted white, upholstered red, £97 10s. Cass's, The Light Car and Cyclecar Specialists, 5 Warren Street, Euston Road, W. 'Phone, Museum 623. Trade 100-372

G.W.K., 1913, October, just been rebushed and thoroughly overhauled, all tyres as new, Stepney wheel, head and tail lamps, spares, whole in perfect condition, £100 or near offer. Youngs, 28 Kidmore Road, Caversham, Reading. 100-f372

G.W.K., 1912, two-cylinder, water-cooled, excellent con-dition, five lamps, horn, etc., £85. Redfield Garage, Earl's Court. Trade 100-f375

HILLMAN 9 h.p. light cars, actually in stock. Apply, Ward and McIntyre, Sole West Surrey Agents, 19 High Street, Trade zzz-773 Kingston-on-Thames.

HILLMAN, new June, run 2309 miles, cost with extras £215, price £160, leaving on service, two weeks inspection, London or near. Box No. 4342, care of "The Light Car and Cyclecar." 100-f350

HILLMAN, 9 h.p., 1914, guaranteed new but shop-soiled, £180, complete. Smith and Francis, 22 Panton Street, Hay-Trade 100-355 market.

HUMBERETTES, from stock, on deferred terms; write for Buyers' Guide. Harrods Ltd., Brompton Road, S.W. Trade zzz 611

HUMBERETTE, 1913, air-cooled, with improvements, dickey seat for two children, thorough order, Stepney, clock, speedometer, and all accessories, trial given, £63. Rector Whittington, Oswestry. 100-f8 100-f8

HUMBERETTE, 1913, air-cooled, excellent condition throughout, owner gone to the front, price £80, open to offer. Phillips, 1 Fitzgeorge Avenue, West Kensington, London. 101-368

HUMBERETTE, 1914, water-cooled, hood, screen, lamps, Stepney, tools, etc., new condition, unpunctured, £110 or near offer. 138 Brudenell Road, Upper Tooting, S.W. 100-f337 HUMBERETTE, 1913, 8 h.p., air-cooled, complete all acces-sories, just repainted and overhauled, £75. P. J. Evans, John Bright Street, Birmingham. Trade 100-358

HUMBERETTE, 1914, water-cooled, electric lamps, large HUMBERALTE, 194, water costs, check and acetylene headlight dickey seat, Stepney wheel, extra air inlet, speedometer, clock, not done 2000 miles, cost over £160, must sell, 100 guineas. Julian, Broad Street, Reading. Big-gest dealer in the South. 43 years reputation. Trade zzz-347

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19тн Остовек, 1914.

LIGHT CARS AND CYCLECARS FOR SALE (continued).

HUMBERETTE, latest 1914 water-cooled, complete, as per catalogue and guarantee, used for few trial runs only, offers wanted. Lankester, 39 Eden Street, Kingston-on-Thames. Trade 101-336

HUMBERETTE, 1913, complete with hood, screen, lamp, Stepney and tyre, just thoroughly overhauled and in perfect condition throughout, £65. W. J. Coe, Crown Street, Ipswich. Trade 102-342

HURLINCARS. 10 h.p., 60 by 100, Ballot engine, multipledisc clutch, splendid chassis, finished equal to best cars, £190, complete.

HURLINCARS. Two-seater, leather upholstery, hood, screen, five lamps, spare Sankey wheel and tyre, £190.

HURLINCARS also fitted with dynamo lighting equipment and including tools, jack, pump, hood, screen, spare wheel and cover, ready for anywhere, 200 guineas, with dickey seat. HURLINCARS. Immediate deliveries. Hurlin and Co.,

Ltd., 295 Mare Street Hackney. Tel., Dalston 2989. Trade 100-365

LAGONDA, 11 h.p., coupe, detachable wheels, fully equipped, £150; also one demonstration model, many extras, £127 10s. Taylor, Ltd., 21a Store Street, W.C. Trade zzz-919

LAGONDA, two-seaters, £15C, £145; demonstration car, £122 10s., cash or exchange, any trial here. Motor Exchange, Westgate, Halifax. Trade 102-f344

LAGONDA, 1914, 10 h.p., four-cylinder, three-speed and reverse, gate change, fitted with coupe body, painted green and upholstered to match, five quick-detachable wheels and tyres, five lamps and generator, clock and mirror, in excellent condition, the very thing for the winter, £115. Cass's, The Car and Light Car Specialists, 5 Warren Street, Euston Road, W. 'Phone, Museum 623. Trade 100-373

LA PONETTE, 7 h.p., single-cylinder, two-seater, water cooled, shaft driven, magneto, two speeds, P. and H. headlamps, clock, speedometer, plenty spares, two spare covers, two spare tubes, 45 m.p.g., 35 m.p.h., in perfect order and very reliable, lowest £45 cash. G. Smith, Gilletts, Balcombe, Sussex. 100-f313

MORGAN Grand Prix monocar, 90 bore, air-cooled twin J.A.P. engine, all tyres in splendid condition, 700 by 80 covers, painted white and black, guaranteed to lap Brooklands at 50 m.p.h., two headlamps and generator, offers. Box No. 4204, care of "The Light Car and Cyclecar." zzz-166

MORGAN, 1913, Model de Luxe, painted green, thoroughly overhauled this year by makers, acetylene lamps, speedometer, watch, Binks carburetter, spare tyre and tubes, excellent condition, £75. Davies, Western Road, West Hagley, Stourbridge. 100-f325

MORGANS, sporting type and Grand Prix, slightly shopsoiled, cash offers or exchanges wanted. Collier's Motories, Westgate, Halifax. Trade 102-f345

MORGAN, 1914, sporting model, grey, cost £107, large tyres, speedometer, hood, screen, good climber, speedy, £65 lowest, bargain. Letters, 75 Aisthorpe Road, Woodseats, Sheffield. 100-f346

MORGAN, standard, in new condition, June, 1913, 8 h.p. J.A.P., hood, screen, upholstered back, three lamps, horn, all new car tyres fitted, cost £102, exceptional bargain, £75. Ginger Motors, Banbury. Trade 100-f348

MORGAN, 1914, Grand Prix, 8 h.p. J.A.P., water-cooled, speedometer, hood, screen, lamps, etc., 3 in. tyres all round, painted yellow, done 2000, beautiful condition, £90 lowest. 35 Rostrevor Road, Fulham, London, S.W. 100-f363

MORGAN, Grand Prix, cost with extras £112 two months ago, 85 guineas. A. L. Pitts, Evesham Street, Redditch. Trade 100-f366a

MORGANS. Potter, Leeds, has Grand Prix, 1915 model, in stock, inquiry and inspection invited. Trade 100-f369 MORGANS. Potter, Leeds, has 1915 sporting model in stock, ready for the road, inquiry and inspection invited. Trade 100-f370

MORGANS. Potter, Leicester Grove, Blackman Lane, Leeds (Tel. 4046), can supply any model at once, inspection invited. Trade 100-f371

LIGHT CARS AND CYCLECARS FOR SALE (continued).

MORGAN, 1914, sporting, perfect condition, every accessory, cost £113, £82. Karck, 40 Adelaide Road, London, N.W. 100-f359

MORGAN, 1913 (September), de luxe body, hood, screen, speedometer, Lucas headlamps, tail light and generator, horn, jack, tools and numerous spares, splendid order, £68. Elce and Co., 15 Bishopsgate Avenue, Camomile Street, London, E.C. Trade, 100-343

MORRIS-OXFORD. For quick deliveries write to H. W. Cranham, Wholesale and Retail Agent, 221 Deansgate, Manchester. Trade 112-583

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 light cars, always in stock for immediate delivery. Stewart and Ardern, 18 Woodstock Street (off Oxford Street), London, W. Trade 111-f36

MORRIS-OXFORD light cars. End of season special bargains.

MORRIS-OXFORD, 10 h.p. standard model cars, brand new, fully equipped and guaranteed, as per catalogue, usually sold at £180, without spare tyre, now reduced to £165 with spare tyre; we have only ten of these left and must clear, first cheque secures.

MORRIS-OXFORD, one only, second-hand de luxe model, car painted grey, fully equipped, used a few times for demonstration, special price to clear, £170, tyres almost as new. MORRIS-OXFORD, one only, slightly used, four-seater car, painted dark green, fully equipped, including one-man hood, Auster screen, all lamps, fifth wheel and tyre, wheelbase 8 ft. 6 ins., track 3 ft. 9 ins., to be sold after being used for experimental purposes for £225.

MORRIS-OXFORD, one only, delivery van, with canvas detachable top, listed complete at 190 guineas only, used by us for a few demonstrations, in shop grey paint, complete with all lamps; tools, fifth wheel and tyre, etc., £185.

MORRIS-OXFORD, one only, cabriolet-coupe model, with three-quarter windows, painted white, nickel finish, actual London-Edinburgh-London car which gained special cup award, body specially finished, list price £285, what offers?

MORRIS-OXFORD, one only, small delivery van on standard model chassis, painted green, fully equipped, only been used on our works, list price £210, what offers? These offers can never be repeated. Apply at once to the manufacturers, W. R. M. Motors Ltd., The Cowley Motor Works, Cowley, near Oxford. Telephone, 590 Oxford. Telegrams, "Voiturette, Cowley-Oxon.' Trade 100-319

MORRIS-OXFORD, 1914 model, coupe de luxe, built specially to connoisseur's requirements, C.A.V. electric lighting outfit, three-seater, in perfect order, only used for town work, ideal for doctor, can be seen in London, and trial run given at any time. Box 4343, care of "The Light Car and Cyclecar."

zzz-353 MORRIS-OXFORD de luxe, new June, 1914, special fittings, luggage platform, dickey seat, valances, side curtains, speedometer, clock, electric horn, dashboard light, inside outside mats, petrol carrier, spares, just overhauled, revarnished, under 4000 miles, better than new, cost £230, accept £175, ordered abroad. Harrison, 54 Howitt Road, Belsize Park.

100-f373 PERRY, 1915, four-cylinder, 11.9 h.p., Lucas electric lighting set, 200 guineas, immediate delivery, cash or easy terms. Campion Depot, Moor, Sheffield. Trade 139-682 DEPRY 1014 havend new latest model shop soiled list

PERRY, 1914, brand new, latest model, shop-soiled, list £147, accept £130. P. J. Evans, John Bright Street, Birmingham. Trade 100-360

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

PERRY, 9 h.p., two-seater, hood and screen, side and tail lamps, spare wheel and tyre, new June, 1914, used for demonstration purposes only and in perfect order, any trial, price £126. Box No. 4344, care of "The Light Car and Cyclecar." Trade 102-344

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LIGHT CARS AND CYCLECARS FOR SALE (continued).

PERRY, 1915, delivery next week of 11.9 four-cylinder model, with electric lighting set and dickey seat, price 205 guineas. Julian, Broad Street, Reading. Biggest dealer in the South. 43 years reputation. Trade zzz-346

PERRY, complete with lamps, horn, spare wheel and tyre, brand new, shop-soiled only, list price £147, accept 125 guineas for a quick sale. Julian, 84 Broad Street, Reading. Biggest dealer in the South. 43 years reputation.

Trade zzz-348

PEUGEOT, 6 h.p., four-cylinder, two-seater, complete, 1913, in splendid order, bargain, £70. R. D. Storey, 118 Great Portland Street, W. Trade 100-352

RANGER, 1914, fully equipped just delivered, £23 down, 12 monthly payments of £7 17s. 2d. Service Co., 292 High Holborn. Trade zzz-340

SABELLA, latest cyclecar, 8-10 J.A.P., water-cooled, Bosch, hood, screen, lamps nearly new, greatest bargain, £45. 1 Ebner Street, Wandsworth. Trade 100-f296

SABELLA cyclecar, 8-10 J.A.P., Binks carburetter, Bosch, variable gears, hood, screen, etc., fine condition, seen by appointment, £34, near offer, sell engine as separate unit, or good motorcycle as part exchange. Clapham, King George Street, Greenwich. 100-f367

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. 103-354

SINGERS, from stock, on deferred terms; write for Buyers' Guide. Harrods, Ltd., Brompton Road, S.W. Trade zzz-612

SINGERS, Singers, immediate delivery, tuition, etc., free, through the Sole Kentish Agents, Wm. Rootes, 110 Week Street, Maidstone, and Hawkhurst. Trade 100-1422

SINGER, 1914, 10 h.p., dynamo lighting, electric horn, speedometer, dickey seat, complete equipment, all absolutely perfect condition, £155. 214 St. Margaret's Road, Twickenham. 100-f70

SINGER light car, 1914, dynamo lighting set, run 1500 miles, in perfect condition, price £145. Harold Petty, 32 King Street, Leicester. Trade 100-236

SINGER, with dynamo lighting set, £204 15s. Julian, Broad Street, Reading. Biggest dealer in the South; 43 years reputation. Trade zzz-335

SINGER, light car, 10 h.p., late 1913, speedometer, C.A.V. dynamo, lighting set, fully equipped, fine order, accept, £130. 77 Tower Ramparts, Ipswich. Trade 100-f357

SINGER, 10 h.p., new March, 1914, in perfect tune, fully equipped, Rotax lighting, £135 or offer; owner to the States. Address H. Taylor, 7 St. James's Place, S.W. 'Phone, 4486 Mayfair. 100-337

SIRRON, 1914, 10 h.p., four-cylinder, 60 by 120, threespeed and reverse, gate change, two-seater body, painted grey, upholstered black leather, hood, screen, five quick-detachable rims and tyres, five lamps and generator, horn, tools, etc., six, weeks old, £140. Cass's, The Car and Light Car Specialists, 5 Warren Street, Euston Road, W. 'Phone, Mrseum 623. Trade 100-375

STANDARD 9.5 h.p. two-seater, 1914, quite new, £170, complete. Alfred Wastnage, Portland Court Garage, Great Portland Street, London. Trade 101-e757

SWIFT, 1914, 7 h.p., new June, done 1500 miles, perfect condition, fibre mat, hood, screen, lamps and tools, £118. 430 Seven Sisters Road, N. 100-f327

SWIFT, 1915, 10 h.p., four-cylinder, three-speed and reverse, gate change, two-seater body, hood, screen, Rotax 12-volt dynamo lighting outfit, with five lamps, five Sankey quick detachable wheels and tyres, delivery three weeks, £200. Cass's, The Car and Light-Car Specialists, 5 Warren Street, Euston Road, W. 'Phone, Museum 623. Trade 100-376

VICTOR cyclecar, 1914, brand-new model, two speeds and reverse, list price £115, sacrifice £100. Exeter Motor Cycle and Light Car Co.; Ltd., 7 Bath Road, Exeter, and 28 Tavistock Road, Plymouth. Trade 100-366

LIGHT CARS AND CYCLECARS FOR SALE (continued).

VICTOR, 8 h.p., 1914, water-cooled cyclecar, £115; ditto, second-hand, £57 10s., cash offers or exchange considered. Collier's Motories, Westgate, Halifax. Trade 102-f340

VIKING, 1914, 10 h.p., four-cylinder, three-speed and reverse, gate change, two-seater, with dickey, painted buff, upholstered blue leather, hood with side curtains, screen with side screens, five Sankey detachable wheels, £145. Cass's. The Car and Light Car Specialists, 5 Warren Street, Euston Road, W. 'Phone, Museum 623. Trade 190-374

WALL, twin-cylinder, three-wheel, light delivery car, hardly used, accept £62. Jenkins, Watering, St. Austell. 100-f73

MISCELLANEOUS LIGHT CARS AND CYCLECARS.

BRIGHTON. Perry, Humberette, Morgan, Marlborough. Irial runs given. Easy terms arranged. Turpin, 22 and 29 Preston Road. Trade 114-842

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

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HURLINCAR, 1914 model, unused, showroom stock, brand new, complete five lamps, extra wheel and tyre, tools, hood, screen, etc., ± 180 .

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AVIETTE, 8-10 h.p., wates-cooled, two-seater, sporting type, complete, fast and reliable, two-speed gearbox, cone clutch, nice appearance, £85.

EXCHANGES are invited for any of our stock. Hurlin and Co., Ltd., 295 Mare Street, Hackney. Tel., Dalston 2989. Trade 100-363

CASS'S Motor Mart, the acknowledged light car and cyclecar specialists, can give earliest deliveries of 1915 models of all makes, and can supply several new and second-hand light cars and cyclecars at bargain prices. Write for list. Cass's, The Car and Light Car Specialists, 5 Warren Street, Euston Road, W. 'Phone, Museum 623. Trade 100-369

4[±]/₂ h.p. CLEMENT, w.-c., three-wheel Sociable, three-speed, worm drive, B. and B., raked steering, tyres sound, perfect order throughout, bargain, nearest £20. 111 Wood Street, Walthamstow. 100-f374

NEW Carden pattern two-speed monocar, perfect flier, sacrifice £30, exchange Douglas. 16 Greenough Street, Wigan. 100-f377

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FOR hire, with or without driver, very smart 1914 twoseater, 10 h.p., four-cylinder. Redfield Garage, Earl's Court. Trade 100-f376

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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

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

SPECIAL chassis, special parts, or complete cars built to specifications, repairs, oxy-acetylene welding, wheel building, gear cutting, accurate machining. M'Connochie and Russell, Engineers, 210 Wellington Street, Leeds. Trade 103-d140 STEPNEY wheel, perfect. 650 by 65, 20s. Salt, 95 Willes Road, Leamington Spa. 100-f326

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SPECIAL line. Brand new two side and tail electric lamps, heavy brass or nickel-plated, latest torpedo design, best English make, complete with Osram metallic filament bulbs, armoured wire to each lamp, tumbler switch and 25-ampere hour actual lighting capacity Essex accumulator in metal case, the whole set ready for immediate use, 54s. Send for illustrated catalogue to the Essex Accumulator Co., 497-499 Grove Green Road, Leytonstone, London, N.E. Trade zzz-506 CYCLECAR set, comprising ash chassis, springs, three wheels, tyres, front axle, steering gear, friction disc, and brand new 6 h.p. twin Rex engine, with magneto, sacrifice £15. Maynard, 75 Warwick Road, New Southgate. 100-f328 6½ h.p. ASTER engine, w.c., carburetter, coil, silencer, £4 10s.; cyclecar petrol tank, enamelled green, taps, 15s.; Flanders radiator and bonnet, 50s.; Flanders clutch, 15s.; pair Phœnix radiators, 10s. Siddall, Avenue Halcyon, Hessle. Trade 100-f279

ZENDIK parts and replacements always in stock, Zendik repairs a speciality. Hampton Wick Motor Works, Hampton Wick. 'Phone, 869 Kingston. Trade 100-f317 LIGHT car chassis, 6-8 engine, differential axle, three-speed gearbox, chain drive, wire wheels, direct steering, complete, ready for body, or will sell any parts cheap. Robinson, Allendale Road, Stockton-on-Tees. 100-f314 CYCLECAR back axle with differential wheels, tyres, springs, etc., 40s.; front axle, with wheels, tyres, steerage, springs, etc., 30s. Sheane, Leitrim Place, Wicklow, Ireland. 100-f347

FRONT axle and wheels, brake drums fitted, no tyres, 12s. Akers, 28 High Street, Newport, Mon. 100-f365 IMPORTANT contracts enable us to offer cyclecar components at competitive prices. Send for list of parts, including wheels, hubs, rims, pulleys, frames, countershafts, etc. Hurlin. Below.

MANUFACTURERS would do well to obtain our quotations for repetition work, including manufacture of complete machines, chassis, and bodies. We will tender for complete output or part contract numbers. Below. COMPONENTS for those constructing at home. Our

COMPONENTS for those constructing at home. Our methods cheapen your whole machine; see following prices — GEARBOXES from £3; clutches from 35s.; pulleys, hundreds of various patterns, from 2s. each; adjustable pulleys and halves of pulleys, 1s. each; countershafts from 5s. each; made to order; estimates free; axles and wheels complete, £2; scuttle dash petrol tanks, 10s. each; oil pumps, 1s. 6d.; send for list. Hurlin and Co., Ltd., the biggest light car components specialists in the trade, 295 Mare Street, Hackney. Tel., 2989 Dalston Trade 100-364

Tel., 2989 Dalston. Trade 100-364 COMPONENTS. Complete friction-driven car assembled on view in our showrooms, Winter components throughout; those contemplating building should inspect same and our four-cylinder 1915 racy model, nice outline, marvellously cheap at 100 guineas. Winter, Light Car Specialists, 62 West Hill, Wandsworth. Trade 100-380 MORGAN repairs. We are official repairers for South of England and have always made Morgan repairs a speciality. We carry a large stock of parts and our charges are quite reasonable. Satisfaction guaranteed. Warren Lambert Engineering Co., 142 Uxbridge Road, Shepherd's Bush.

Trade 100-350 THE Morgan runabout. The Morgan combines the safety and comfort of an expensive motorcar with the simplicity and cheapness of a motorcycle, has none of the complications, weight, heavy running costs, gearbox and back axle troubles of miniature motorcars, standard model, 85 guineas. Price lists, trial runs and driving lessons free. Repair Department, Farrier Street, open 9 to 8 daily (closed 1 o'clock Thursdays). Repairs and overhauls prompt, cheap, and guaranteed. Tyres, spare parts, J.A.P. engine parts, lubricants, etc., stocked. Repainting from 30s. Special attention to post orders. Estimates free. F. G. Boddington, Mealcheapen Street and Farrier Street, Worcester. Trade 100-f360 STEPNEY wheel, complete with tube and new cover, 700 by 85, accept 50s.; pair 650 by 65 cover, 12s.; brand new, 50s.; Garner exhaust whistle and cut-out, all controls, 17s. 6d. Millards, Drapers, Chesterfield. Trade 100-f355 COMPLETE parts for friction-drive cyclecar, 8 h.p., w.c., engine, magneto, wheels, frame, radiator, springs, body, £15; everything except tyres. Harmer, care of M.E.S. Co., Salem Road, Bayswater. 100-f354

19TH OCTOBER, 1914.

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PHONOPORE 12-volt lighting set, including lamps, dynamo, switchboard and accumulator. Sole agents, Samson and Veal, 12 Woodstock Street, Oxford Street. Mayfair 6826.

Trade zzz-302

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1914 THREE-SPEED Rover and family sidecar, not done 2000, exchange cyclecar, Morgan considered. Avery, Draper, Bexhill. 100-f324

WANT small car, Humberette, G.W.K., or other good. Exchange beautiful drawing suite (antique), all inlaid brass, silk tapestry, seven pieces, cost ± 35 ; superbly-carved black Indian table, more magnificent Davenport, match (value $\pm 20 \pm 25$), pair black cabinets on tables (made for Indian rajah, probably unique), fitted, one liqueur, other smokers (six unique pipes), ± 20 or more; white wicker bungalow suite (settee, four easy, two ordinary, large table, butler's table), ± 8 ; Rudge bike, double crossbar, cost ± 15 , good state; greenhouse (special fittings), cost ± 40 (25-12); thousands pots, all sizes, spare glass, boiler, pipes, big barrow, roller, tennis things, etc., plants that cost owner very considerable sum; seen any time, appointment. Indian, Rozelle, Dunheved Road South, Thornton Heath. 100-f320

FOUR-SEATED, 9-11 h.p., screen, hood, guaranteed, exchange for cyclecar, cash either way. Arnold, Tredegar, Mon. 100-f319

1914 REX Sidette, cost £84, new July, little used, excellent condition, with cash, for cyclecar, reputable make, modern, perfect. Judge, Shirley, Cadogan Road, Surbiton. 100-f368

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PACKING, forwarding, and shipping abroad of cars or accescories. Apply to Robert Park and Co., Ltd., 91 to 97 Clerkenwell Road, London, E.C. Packing works, Backchurch Lane, London, E. Branch agents and correspondents throughout the world. 119-332

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GARAGE. We can garage your light car or cyclecar. Wilkins, Simpson and Co., 11 Hammersmith Road, London (opposite Olympia). 100-f333

HOODS AND SCREENS.

TWO-SEATER hoods, brand new, but slightly soiled, for A.-C.s and Morgans, on approval; also screens. Esmond, Holborn Hall, Gray's Inn Road. 'Phone, 6492 Holborn. Trade 102-f62

WAR prices. Sliding extension hoods, £2 8s.; folding windscreens, 30s.; re-covering, 25s.; distance no object. Lang, 1 Jackson Road, Holloway, London. Trade 100-f323

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A.A. policies, Motor Union Insurance Co., Ltd., Sheffield, East Parade; Leeds, City Square; Hull, Fleet Chambers, Jameson Street. Yorkshire Manager, Fred. Cawood, junr. 101-754

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MANCHESTER. Magneto repairs of every description, any make; rewinding, remagnetizing, coil and accumulator repairs; several good second-hand magnetos in stock. J. H. Runbaken, Magneto Specialist, 7 Peter Street, Manchester. Telephone: 6111 City. Sole Northern Agent for the Eisemann Magneto Co. Trade 122-382

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ADLER Cars. E. Brandt, former chief engineer at Morgan and Co., Long Acre, will undertake all repairs and complete overhauls for all Adler cars at your own residence or garage. Address all communications to 43 Fairbridge Road, Upper 100-e813

Holloway, London, N. 100-e813 REPAIRS. Now is the time to have your light car or cycle-car overhauled; all kinds of repairs at lowest prices. Wil-kins, Simpson and Co., 11 Hammersmith Road, London 100 4539

(opposite Ólympia). 100-f.32 WINTER, Light Car Specialists, 62 West Hill, Wandsworth, have special staff for reconstructions, alterations and repairs, lowest prices, components. 100-f379 LIGHT car repairs. Being manufacturers of light cars and

having the best-equipped light car factory in London at our having the best-equipped right car factory in London and disposal we are open to undertake repairs to any make of light car or cyclecar. Accurate workmanship and low charges. Warren Lambert Engineering Co., 142 Uxbridge Road, Shepherd's Bush. Trade 100-349

TUITION.

ONE week's continuous instruction from 9 a.m. to 7 p.m. daily, under fully qualified instructors, fee £2 10s., including daily, under fully qualified instructors, fee £2 10s., including driving lesson each day on four-cylinder 20 h.p. modern car, garage work, H.F. vulcanizing, tyre changing, and technical instruction on the car two hours daily; a different part of the car being taken each day. Motor Schools Training Institute, Heddon Street, Regent Street, W., and 21a Loudoun Koad, St. John's Wood, N.W. Appointed by the Royal Auto-mobile Club since 1907. Call or write for prospectus. 'Phone, 7527 Gerrard and 1597 Hampstead. zzz 17 BRITISH School of Motoring, being the practical training institution for the motor industry, gives special courses for car owners. Unlimited tuition until the pupil signs that he or she is satisfied. We teach you how to motor economically. or she is satisfied. We teach you how to motor economically. Apply for "C.C. Booklet," The British School of Motoring, Ltd., 5 and 6 Coventry Street, Piccadilly Circus, London, W. 100-354

RADIATORS.

RADIATORS, radiators, radiators, dome or flat fronted, gilled or plain tubes our speciality. Attwoods, 99 Rosebery Avenue, É.C. Trade 101-n215

TYRES.

ELITE. We have the following special clearance lines, and are willing to send goods on seven days approval against cash. Elite Rubber Co., 264 Vauxhall Bridge Road, Victoria (cne minute from Victoria Station), and 260 Coldharbour Lane, Brixton, S.W. All post orders to Victoria Depot. 'Phone, Victoria 6553 and Brixton 2042.

ELITE. Dunlop 650 by 65 covers, 25s., list price, 50s., 1913 stock; Clincher 700 by 80, ribbed pattern, 22s. 6d.; Hutchin-son, 650 by 75, to fit 650 by 65 rims, 25s., list price, 39s. 5d.; Henley oversize covers, 700 by 80, to fit 650 by 65 rims, 28s. 6d.; Kempshall heavy non-skid, 650 by 65, 47s. 6d., list

205. 6d.; 16. 6d. ELITE. Best quality inner tubes, fully guaranteed, 26-2¹/₂, 6s. 6d.; 26-3, 7s. 6d.; butted, 1s. 3d. extra. ELITE. Wood-Milne belts, 1¹/₈ 1s. 6d. per ft., $\frac{7}{5}$ 1s. per ft.; Continental belts, 1 in. 1s. 6d. per ft., $\frac{7}{5}$ 1s. 2d. per ft.; Lyso, 1s. per ft.

ELITE. Cyclecar covers retreaded, 650 mm., heavy tread, plain, 10s., grooved 12s. 7d., steel-studded 20s.; 700 mm., 11s. 2d. plain, 14s. 2d. grooved, 28s. steel-studded; relining 4s. 6d.

45. oa. ELITE Rubber Co., 264 Vauxhall Bridge Road, Victoria, and 260 Coldharbour Lane, Brixton, S.W. 'Phone, Victoria 6553 and Brixton 2042. Trade zzz-966

260 Coldharbour Lane, Driven, S. T. Trade zzz-966 and Brixton 2042. TyRES, tyres, our telegraphic address is "Tyres," our speciality is tyres. Reduced prices of all makes now ready. Graham, Vine Street, Birmingham. Trade 141-843 A. L. PITTS, Redditch, has the following 1914 new Dunlop clearance covers, all fit 65 mm. rims, and will send on approval against cash: 700 by 80, plain. 25s.; 700 by 80. steel-studded, 42s. 6d.; 650 by 65. steel-studded, 35s.; 650 by 65 soiled tubes, 5s. 11d.; also 1 doz. Millennium jacks at half prices. Trade 100-f366

SPECIAL line of new Moseley inner tubes, 700 by 80, 10s., 700 by 85, 11s. Murray, 37a Charles Street, Hatton Garden Trade 100-f381 Holborn

Supplement ix.

WANTED.

IF you want to sell your car quickly, send it to us. We constantly have large numbers of inquiries for good second-hand cars, and we will sell your car on commission, or buy it outright for cash, or, if you prefer it, we will make you the best possible allowance in part payment for a new car. We are also prepared to advance cash on second-hand cars pending sale. Vivian Hardie, Ltd., 10 Upper St. Martin's Lane, W.C. 'Phone, Regent 5444. Trade 222-571 Trade zzz-571 WANTED, light car, about 8 h.p. Peugeot, or others, modern, in exchange for 12 h.p. chassis and accessories, with little cash; offers. Johnstone, Waterloo, Pudsey. 100-f48 offers. Jonnstone, waterhoo, Fudsey. 100-140 MORGAN runabout, for 8 h.p. water-cooled Williamson and coach-built sidecar, splendid condition, many accessories. Lloyd, 22 Champion Park, Denmark Hill, S.E. 100-6322 WANTED, latest cyclecars, light cars, any make, spot cash paid. Wandsworth Motor Exchange, Ebner Street, Wands-worth Town Station. Trade 100-1297

STEPNEY, 650-65, without tyre, must be cheap. Jessop,

Coleridge Road, Crouch End. 100-f315 WANTED, two-seater cyclecar, 1913 or 1914, must be cheap,

send photo and lowest price. 109 King Street, City, Glasgow 100-1313

WANTED, cyclecar, preferably Humberette or Swift, in exchange for 6 h.p. Zenith and coachbuilt Millford sidecar, as new. Write particulars, Wright, Somerleyton, East Sheen, Surrey 100-f336

WANTED, cyclecar, Morgan, standard or Grand Prix, or G.W.K. preferred, for spot cash, no dealers. 69 Greenside Road, Croydon. 100-f338

WANTED, Swift or G.W.K. cyclecar, in exchange for 20 h.p., four-seater Flanders, in fine condition, or sell £100. T., 28

Wendover Road, Bromley, Kent. 100-1739 WANTED, 1913 or 1914 model Morgan, must have expert examination. Lowest price and terms to Box No. 4341, care of "The Light Car and Cyclecar." 101-1751 WANTED, Morgan car, good condition, with hood and screen, give full particulars, age, etc. Box No. 4340, care of "The Light Car and Cyclecar." 100-1752 WANTED in Northumberland modern light car must be in

WANTED, in Northumberland, modern light car, must be in first-class condition, details and lowest price. Box No. 4339, care of "The Light Car and Cyclecar." 100-f353 SMITH and FRANCIS, 22 Panton Street, Haymarket, will purchase your Singer, Hillman, Morris-Oxford, G.W.K., Calcott, Swift, or Perry for cash, or give exceptional allow-Trade 100-356 Trade 100-356

ances part payment. CASS'S Motor Mart require good light cars and cyclecars for cash and to sell on commission. Quick deals arranged by consulting the Specialists, 5 Warren Street, Euston Road, W. 'Phone, Museum 623. Trade 100-370 'Phone, Museum 623.

WANTED, reliable 1913 light car, in exchange for James $(4\frac{1}{4})$ sidecar combination, enclosed chain drive, two speed, kick starter; cash adjustment or sell, offers. 10 Beck Rad, 100-f378 Harehills, Leeds.

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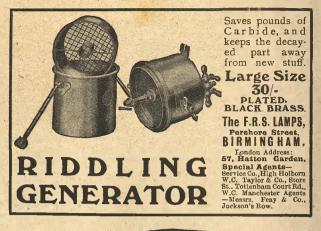
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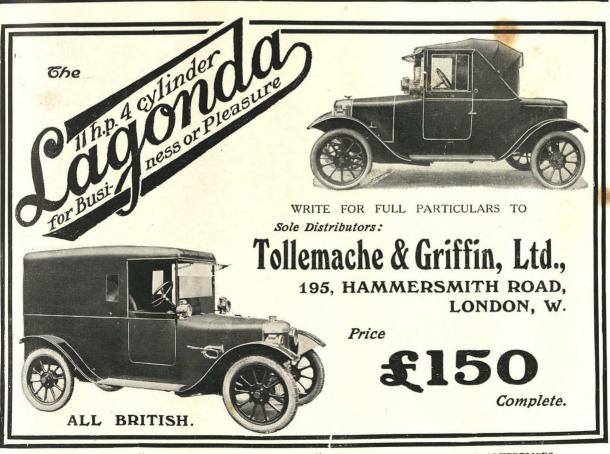
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