

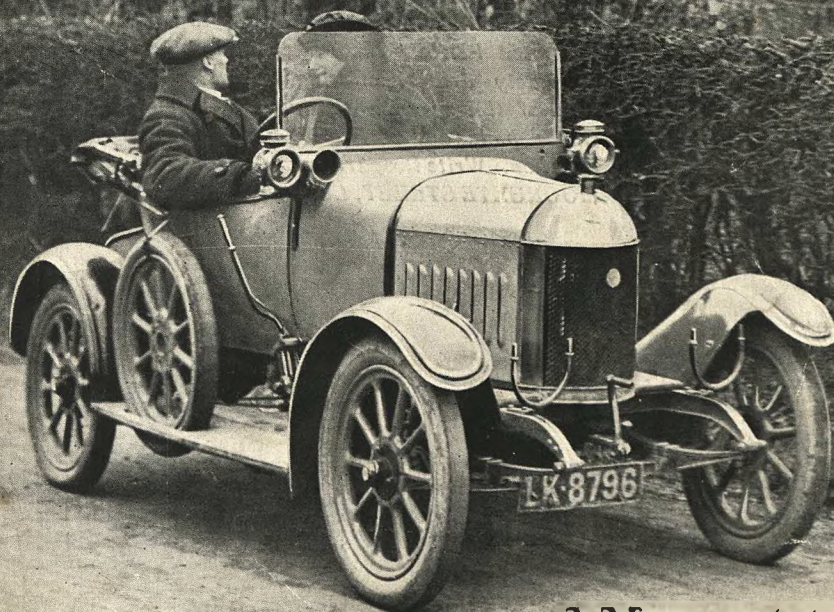
The Light Car and Cyclocar

The Original Journal
Founded 1912

1^p

Vol. IX. No. 229
9th April, 1917
*Registered at the G.P.O.
as a Newspaper*

Largest Circulation



A Monument to a famous Rebel.

A TALE OF A LIGHT.

List all ye motorists to me,
A tale of a light I'll tell to thee.

On country roads with devious ways
You see the light from Rotax Rays.
In Theatreland and in the Park,
The Rotax light shines after dark.
If a bus should be your bent,
Rotax is your illuminant.

When you travel by the train,
The Rotax light is there again.
Perchance a yachtsman you may be,
Then Rotax light you also see.
The Aviators in the sky
Use Rotax light to see to fly.

On Land, and Sea, and in the Air,
The Rotax light is everywhere.

Now you have hearkened to our lay
Write for our Catalogue this day.
Between the pages there is penned
This tale continued to the end.

ROTAX MOTOR ACCESSORIES Co., Ltd.
Rotax Works, Willesden Junction, N.W.

LEITNER SYSTEM
Rotax
DYNAMO CAR LIGHTING EQUIPMENT
AND ROTAX ELECTRIC SELF-STARTER

REBATE ON
INSURANCE
PREMIUMS
OWING TO
RESTRICTED
PETROL.

THE LICENSES INSURANCE CORPORATION & GUARANTEE FUND, LTD., is the only Company offering a discount from Premiums owing to restricted Petrol. The Policy issued is widely drawn, offering a maximum of liberty with the usual "No Claim" bonus and a "Profit" bonus in addition. Write for particulars to 24, MOORGATE STREET, LONDON, E.C.



'Challenge' Waterproof Jet.

For renovating black leather, upholstery, and hoods, etc.
No. B52/20
2/6 per jar.

HARDING'S

LEATHER REVIVER.

For renovating the linings of motor cars, etc., and all leather coverings, will dry in a few minutes, never becomes sticky.

Colours: Bright red, green, blue, dark green, red, black.
No. P29/60
Per bottle ... each 2/6

Brown Brothers LIMITED

CLEANING REQUISITES.



"RADIOLENE."

A specially prepared dead black radiator or cylinder paint. Proof against rust, and unaffected by heat, oil, or water.

Per tin ... 1/9



"DUCO" CLEANER.



An absorbent cleaner without a rival. The softness of its texture prevents scratching or marking the most delicate panel or plate. 26 in. wide, in 25 yd. rolls.

Per roll, 4/6

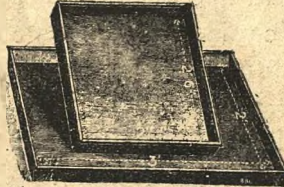


"Duco" Liquid Glass Varnish Polish which will also remove tar.

Undoubtedly one of the finest polishes on the market.

No. P25/36

5 oz. tins ... 1/-



"DUCO" GALVANIZED OIL DRIP TRAYS.

With wired top edge. Strong and serviceable. Various sizes.

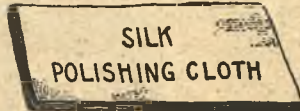
"Duco" Waterproof Car Covers.

Supplied in various sizes. Particulars on request.



"DUCO" MOTOR SPONGES.

For cleaning Bodywork, etc. Various sizes, qualities and prices, from 2/- each.



SILK POLISHING CLOTH

No. 1410a.

THE "PEERO" SILK POLISHING CLOTH.

15 x 15 in. ... 6d. each.

"PEERO" ANTI-RUST.

A splendid preparation for preserving plated parts from rusting or tarnishing.

Sold in 3d., 6d. and 1/- tins.



"PEERO" LIQUID METAL POLISH CREAM.

Very easy and quick to use, and gives a lasting polish. Contains neither grit nor acid, or any other ingredients to scratch or eat away the metal.

1/- tins.

'ANTARNISH' INVISIBLE LAQUER.

Prevents Brass-work and Nickel-plating from tarnishing.

No. 1020F.
9d. per tin.



SPECIAL LINE OF CLEANING GLOVES suitable for cleaning or munition work.

No. C49/102. Per pair, 9d.

The Goods illustrated are obtainable from all Motor Dealers and Garages. In case of difficulty, apply to West End Showrooms.

Great Eastern St., London, E.C.2
267-273, Deansgate, Manchester

WEST END SHOWROOMS: 15, NEWMAN STREET, OXFORD STREET, W. 1

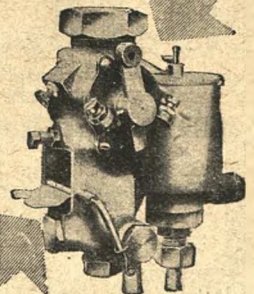
Petrol Economy with the
CLAUDEL-HOBSON
Carburettor Proved!

Read this extract from "Commercial Motor," 8th March, 1917.

Petrol Economy: American Carburettors Scrapped.

The technical section of the French M.T., A.S.C., has given very close attention to the question of petrol consumption, and for months past has been preparing charts of average consumptions on various makes of lorries. It was found that practically all the American lorries were using very much more petrol than European vehicles. This arose very largely from the fact that American carburettors are adjustable and must be tuned up at very frequent intervals if satisfactory results are to be obtained. When this tuning has to be done by the ordinary war-trained driver the results are deplorable. Thus, it was found that very many American convoys were consuming an average of 52 litres per 100 kilom., while the French lorries averaged from 30 to 32 litres. It was therefore decided to scrap the American carburettor in favour of one of French make. **AFTER A PUBLIC COMPETITION, CLAUDEL-HOBSON SECURED THE CONTRACT,** and as a beginning all the Reos had their American carburettors taken off and Claudel-Hobsons put in their place. Other makes have been treated in the same way.

H. M. HOBSON, Ltd., 29, Vauxhall Bridge Road, London, S.W. 1.



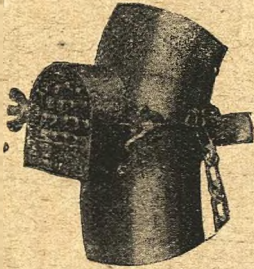
10 THE READER

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

A1

SIMMS VULCANISER

reduces tyre repairing to one automatic operation.



Price, for covers and tubes,
all sizes 24/-
Small size for tubes only, 15/-

Think how long it took to repair that last tyre with patch and solution, and the dirty job it was, and then say if you would not have preferred to use a Simms Vulcaniser, which repairs the worst burst or puncture in 20 minutes. With Simms Vulcaniser there is no trouble or mess, and you simply can not fail to effect permanent repairs. Ask your dealer to show you this automatic device.

SIMMS MOTOR UNITS, LTD.,
PERCY BUILDINGS, GRESSE STREET,
RATHBONE PLACE, LONDON, W.

E.I.H.

The **BULLDOG** ALL BRITISH TYRES

Strength Grip

THE "Bulldog" Tyre is made with the scientific Beldam design of rubber tread—which affords an unparalleled road grip. It is built to a very high standard at a moderate price. Made in all standard sizes. Write for prices to the Patentees and Manufacturers:—



The Beldam Tyre Co., Ltd., Brentford, Middlesex.
New Zealand: J. E. Fitzgerald, 132, Lambton Quay, Wellington. Cape Colony: The Tyre and Motor Co., Rodney Street, Port Elizabeth. India: Wilkinson & Co., 7, Old Court House Street, Calcutta, Ireland: P. Drohan & Sons, Carrick-on-Suir.

Godbolds

J.M. SHOCK ABSORBERS

BLOEMFONTEIN ROAD, SHEPHERD'S BUSH, LONDON, W.

KEEP WATER JACKETS CLEAN.
Send for free Booklet:—"WHAT GOES ON IN YOUR RADIATOR."
Sample 300. 11/6. Post free. 400, 24/6. 1,000 43/6.

BOILERINE LTD.



M&M BRAKE LININGS.
Write for Sample.
MOSES & MITCHELL,
122-124, GOLDEN LANE, E.C.

COAN CASTS CLEAN CRANK CASES

ALUMINIUM REPAIRS
New parts cast in, — not welded. —
ROBERT W. COAN,
219, GOSWELL RD., LONDON, E.C.

A2 **HELP THE MOVEMENT** by letting advertisers know that their advertisements in "The Light Car and Cyclecar" interest you.

R. E. JONES (GARAGES) LTD.

LONDON: 143-5, Great Portland Street, W.

Telephone—Mayfair 2826.
Telegrams—"Erjonegara, Wesdo."

CARDIFF City Road.
Telephone—4686. Telegrams—"Petrol, Cardiff."

SWANSEA (Head Office)
Telep one—1301 Central. Telegrams—"Petrol, Swansea."

ALL NEW CARS ARE IN STOCK. We regret we can only take orders for further New Cars from customers who are engaged on work of National importance, such as Doctors, Farmers, the Military or Navy, Munition Workers, etc.

1916 CALTHORPE.



Four-seater, dynamo lighting set, £275

NEW 10 h.p. MATHIS.



Sporting Model, £300

NEW CALTHORPE, G.D.M.



Two-seater, dicky, £295

Two HUMBERETTES.



£60 and £65

Late Model, Sporting CALTHORPE MINOR



£315

1916 ENFIELD Coupe.



As new, £295.

1915 ALLDAYS.



£185

Two-seater, dynamo lighting.

1915 BABY PEUGEOT.



Sporting Model, £170

1916 Grand Prix MORGAN.



£130

Late 1915 STANDARD



Brolt lighting set, £245.

1915 MORRIS-OXFORD.



Dynamo, £215

12 h.p. 1915 A.C.



£230

New 10 h.p. Standard Model MATHIS.



£275

1916 SINGER



In splendid condition, £275

1916 G.W.K.



£195
Another, 1912 Model, £110

1917 ALLDAYS Coupe



£305

LATE 1915 METEORITE.



Three-seater, clover leaf, £185

New MORRIS-COWLEY Coupe.



£375

1914 LAGONDA Coupe.



£135

1915-16 CALTHORPE Coupe



Brolt lighting and starter, £335

Limousine SINGER Coupe.



Self-starter, lighting set, and many extras, £295

1915-16 CALTHORPE Coupe



Brolt dynamo and self-starter, £335

1915 SINGER Coupe.



£270

And Many Others.

For Heavier Cars, see "The Motor" and "Autocar."

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

MEMO.

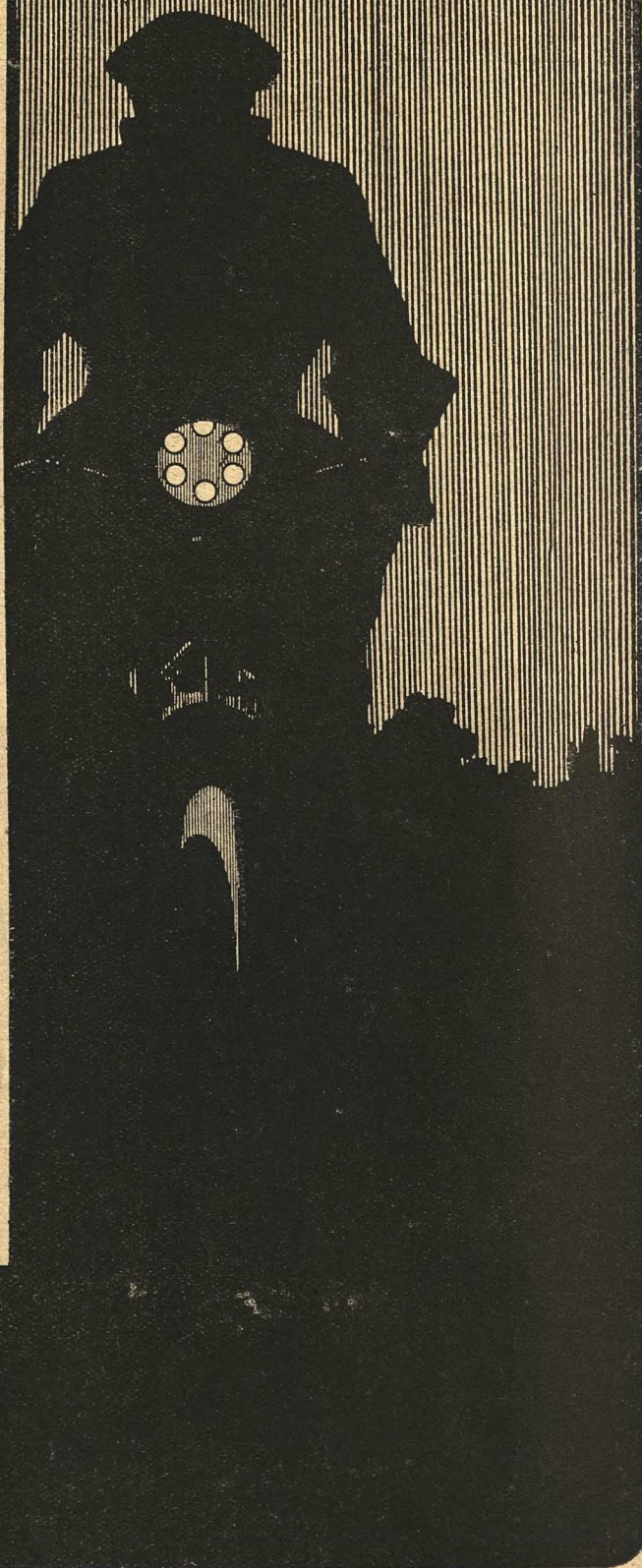
We cannot
avoid running
risks therefore
we must get
insured

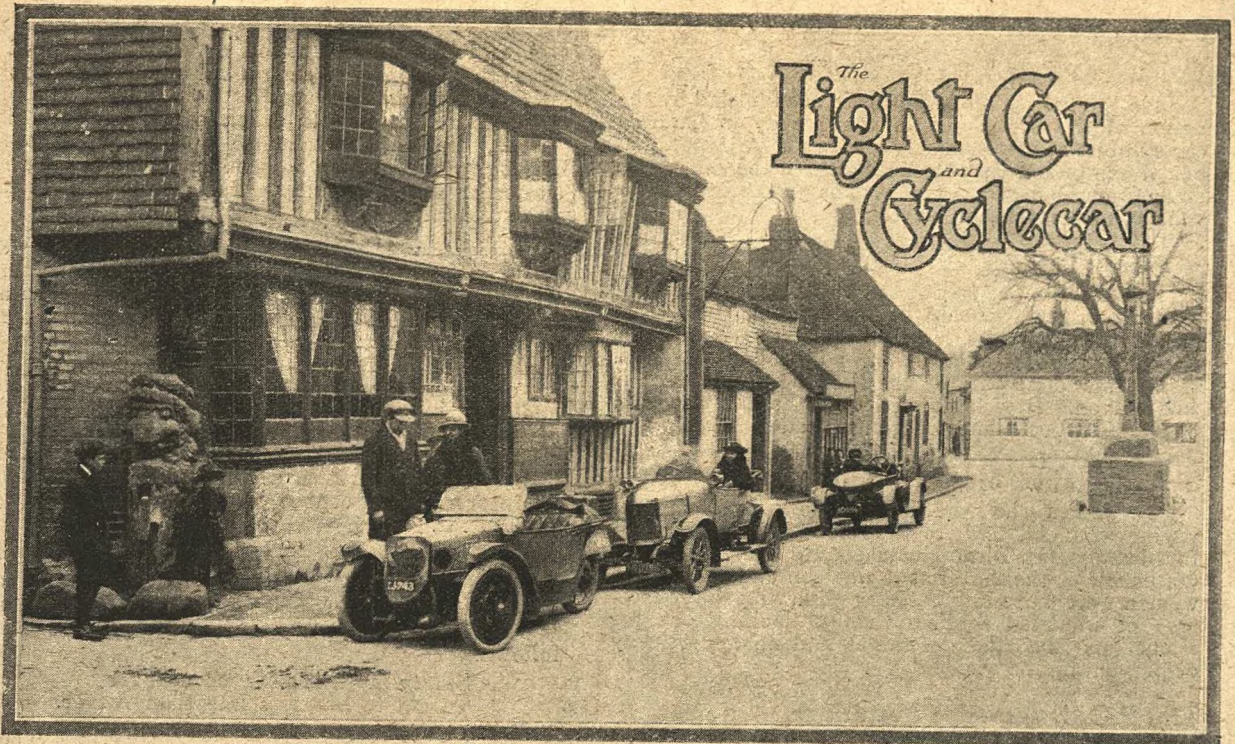
Write to the Managers
for Dreadnought
Motor Policies
at Lloyd's

14 Cornhill
London E.C.

Phone 8024 Avenue

H. Reynolds





The Light Car and Cyclecar

The Star Inn at Alfriston, the quaint carvings on the outside of which are much admired by tourists. In the background is Alfriston Cross. A Morgan, a Morris-Oxford and a Sporting A.-C. figure in the photograph.

NOTES, NEWS AND GOSSIP OF THE NEW MOTORING.

Lord Glentworth was fined £15 recently for exceeding the speed limit on the Thames Embankment.

An inventor who obtained deposits of £50 to £300, amounting in six months to no less a sum than £1875 from 18 victims, by advertising vacancies for partners in a motor business, has been sentenced to 12 months imprisonment.

The splintering of a wooden front wheel on a car, after striking a bank, recently, caused the vehicle to overturn with fatal results. This is one of the accidents which the almost universal use of steel wheels makes very rare.

According to "The Financial Times" Japan has commenced motorcar manufacture, and produced a 10 h.p. four-seater designed to run on paraffin at a price which, it is said, will be difficult for American concerns to compete against.

"What London did to-day they hoped Oxfordshire would do two months hence," observed the Chairman of the Oxfordshire appeal tribunal, in recommending the substitution of a woman driver for a motor driver granted two months exemption.

At the present time, whatever one's business, we are urged to supply every ounce of energy to it. Unfortunately, when you cannot apply every available gallon of petrol to driving the engine, one cannot expect a superlative allowance of power at the road wheels, so to speak.

The Rural District Council of Wortley have pointed out to the County Council the insufficiency of the fencing on the main road at Burncross, and that they would not hold themselves responsible for accidents which might occur in consequence of the serious condition of the fencing of the main roads in the district.

The horrors of war are nothing to the frightfulness of Spring—1917 model.

We have said good-bye to the blizzards—of March. We can now look forward to the snowstorms of April, May and June.

We are wondering which will end first—the War or the Winter. Having weathered an April snowstorm we are inclined to back the former.

We are prepared to award Field Punishment No. 1 to any contributor with the Overseas Forces who dares to offer us a manuscript commencing: "Oh, to be in Blighty now that April's here."

We understand that liberal allowances of petrol are to be granted to officers or convalescent soldiers on leave. Amounts up to 20 gallons per month are being granted on application.

An appeal is made for Motor Volunteers for the Motor Section of the Volunteer Force of Devonshire. Inquiries should be addressed to Mr. B. C. Matthews, A.A.A. and A.M.C., London Inn Square, Exeter.

A recent craze amongst advertisers is to use their space for illustrations of public buildings, beauty spots, etc., instead of the cars or other goods they have to popularize. It seems an expensive hobby.

The Exeter police are getting still busier in their great war work of stopping motorcars with insufficiently illuminated rear identification plates. Other districts are nobly carrying on the great trapping campaign.

A call for recruits is made for the County of London Motor Volunteers, chiefly for the work of transporting wounded. Applications should be made to Commandant G. F. Doland, Polytechnic, Room 5, Regent Street, London, W.

*NOTES, NEWS AND GOSSIP (contd.).***The Lyons Fair.**

Have the British manufacturers been misled by the action of the French motor trade body in banning car exhibits at the Lyons Trade Fair? A large number of exhibits of French cars figure in the show, also many American cars, but not a single British motor vehicle, motorcycle, or bicycle.

A Petrol Test.

The sequel to the test of the petrol consumption of a car, recently reported in our columns, was that, although the car was driven the distance of 21 miles on one pint short of a gallon of petrol, it was held that it was done only by the skilful way in which it was driven. It was claimed that the car was sold with a petrol consumption guaranteed of 28½ m.p.g.

Claim Against Motorist Fails.

Two women who were knocked down by a car conveying wounded soldiers were non-suited in a claim for damages at Birmingham county court recently. On behalf of the motorist it was contended that the women were more interested in observing the procession of wounded soldiers than in looking out for traffic, and that the defendant had no opportunity of preventing the accident.

The P.C.C. Impedes Munitions.

It is pointed out by "The Motor" that the Petrol Control Committee in discouraging the sale of solvent naphtha, a by-product in the manufacture of explosives, the waste supply of which has been relieved by its use as a petrol substitute, is actually impeding the output of munitions. It is high time that the arbitrary action of the Committee with regard to this and other home-produced fuels should be inquired into by a Government committee.

Making Sure of a Conviction.

A motorist who admitted driving at a speed of 15 m.p.h. "in order to clear a hill because his throttle had broken," whatever that may mean, has been fined £5 at Cardiff. In order to make sure of their victim, the police summoned him on three counts, driving to the common danger, negligent driving, and exceeding the speed limit. The last two summonses were dismissed.

To G.W.K. Owners.

The most practical article received for our series "Getting the Best Out of a Car" deals with a G.W.K., and it will appear in our next issue. The writer has gone to very considerable trouble to explain the adjustment of every part and the methods for obtaining the longest life out of them. His hints and the numerous illustrations will, we feel sure, be of the greatest interest to owners of G.W.K.s. To secure a copy of next Monday's issue of *THE LIGHT CAR AND CYCLECAR* it is very desirable to order one to be reserved, as "chance" sales are now no longer catered for.

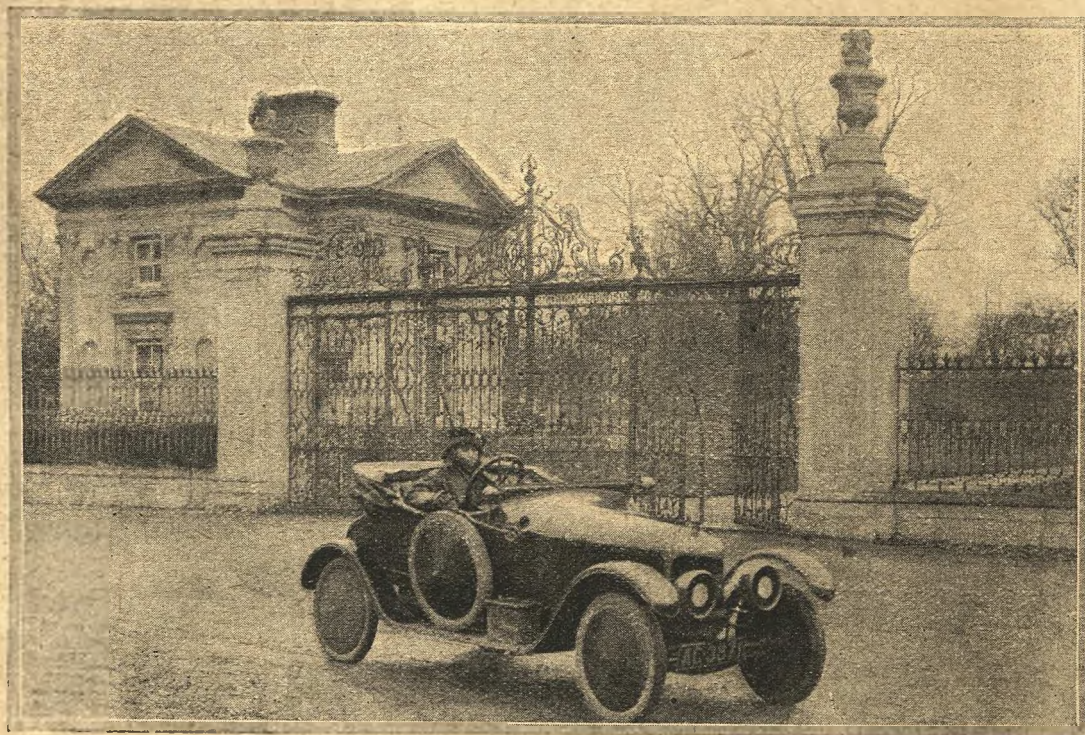
"Safety First" Couplets.

The prize of £5 offered by the "Safety First" committee for the best couplet descriptive of the movement has been divided between the senders of the following:—

Safety first—it's far more clever
To get to business late than—never.
Life is short; don't make it shorter
By crossing when you didn't oughter.

Flight Commander Lord Doune, son of the Earl of Moray, is reported to have submitted the following forceful but rather questionable lines:—

O, mummy dear, what is that stuff that's so like
strawberry jam?
It is, my dear, your careless pa, run over by a tram.



The post-bellum model of the A.C. It has the new type radiator and a 1500 c.c. engine, from which great things are expected.

*NOTES AND NEWS (contd.).***Ceylon Increases Duty on Cars.**

It is stated in the "Ceylon Observer" that, owing to the inability of British manufacturers to export cars, the importers of American cheap cars have reaped a rich harvest. Now the duty is to be increased from 33½ per cent. to 100 per cent. The original figure was intended as a prohibitive duty, but it has failed.

No Trade Members.

At the A.G.M. of the Somerset A.C. a new rule was passed excluding trade members. It reads:—"No one interested or engaged in the manufacture, sale or repair of motor vehicles and for accessories, shall be eligible for membership, but the mere holding of shares in a properly constituted public limited liability company is admissible."

Trailer Without Brakes.

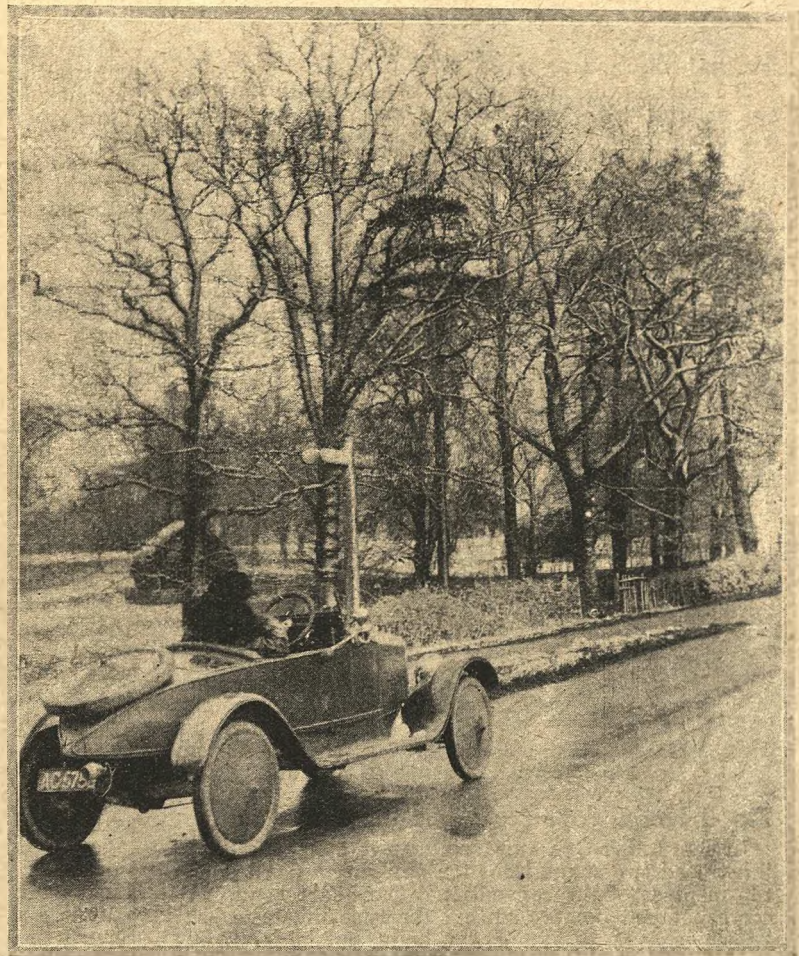
Arising out of the use of a motor-car with a trailer attached, the trailer not being fitted with brakes, raises an interesting point. Quite a number of light cars are now being used with light trailers quite unsuited for applying independent brakes. Such, for instance, are the two-wheeled ambulance trailers, while others for carrying munitions or similar material are in use. It would not only be impracticable but unnecessary to fit independent brakes to such trailers. Is a broken-down car, with the brakes put out of action, rigidly towed by another vehicle a trailer, by the way?

Buffers for the Springs.

Light car owners are sometimes tempted in these days to experiment with the removal of a leaf from the springs in order to obtain greater comfort on the road. When this has been done, and it is uncertain how far the springs have been weakened, a rubber buffer is advisable to obviate the chance of violent contact between spring centres and frame. A cheap form of buffer can be made by utilizing the thick, circular rings used as guards on hockey sticks. One of these can be strapped over the centre of each spring with two narrow straps. When the car happens permanently to be undersprung, such buffers are, of course, equally desirable.

Liability for War-stopped Contract.

An extremely interesting legal point, arising out of a light car concern becoming controlled, was discussed in an action for damages brought by Mr. E. B. Palmer, the well-known motor agent of Great Portland Street, against a firm of motor agents at Newbury. It was contended that the plaintiff agreed to purchase a car for 195 guineas, plus 14 guineas for an electric lighting set, and paid a deposit of £5 on it. Owing to the manufacturers becoming a controlled establishment delivery was considerably delayed, and when the car was received eventually, the price was raised to £250, which the plaintiff refused to pay. The defendants returned the deposit, claiming that they were relieved of liability. The plaintiff recovered £34 and costs.



1st April, 1917, characterised by dense fogs and heavy snowfalls. A snap in a Surrey lane.

From Medicine to Tyres.

We hear that Mr. P. D. Saylor, the managing director of the Goodyear Tyre and Rubber Co. (Great Britain) Ltd., has been granted a commission in the R.A.M.C., Expeditionary Force. Mr. Saylor is a fully qualified Doctor of Medicine, qualifying for the profession while applying his abundant energy to the tyre business. Eventually, however, the tyre industry made the strongest call upon his abilities. He is Canadian born, and was vice-president and general sales manager of the Goodyear Canadian business before coming to this country.

£100 Car With Novel Springing.

Our request for information supplementing the details given of post-bellum models in a recent issue has brought a reply from the makers of the Hurlin car. The four-cylinder, three-seater will be made after the war, but with a British engine instead of the Ballot, and with various alterations, including greater leg room. The concern is also experimenting with a two-cylinder model on original lines. Instead of springs a simple shock-absorbing device is being fitted. This, it is said, allows for a better streamline appearance. The price with a two-cylinder J.A.P. or Blumfield engine, three-speed gearbox, bevel drive, two-seater sports body will be £100. It will be known as the Hurlinette. Any inquiries should be addressed through ourselves, at the request of the manufacturers.

NOTES, NEWS AND GOSSIP (contd.).

An All-black Singer.

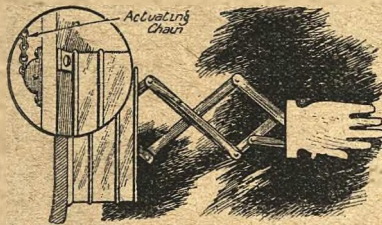
The dulness of the American blue-black finish was appreciated when recently we observed a Singer which had been painted all over in this style, including the radiator. It required an effort to realize that this was the smart little car we know so well.

The Criminal Class.

In discussing the sugar question recently in Parliament it was suggested that motorists had been going from one shop to another buying up supplies. Apparently it would be impossible for anyone else but a motorist to go from shop to shop.

A Warning Signal.

A warning hand signal for closed cars has been produced in America on the principle of the "lazy-tongs." It is carried in a box on the side of the car, and by pulling a lever or a chain the hand is thrust



The Hand-y warning device for closed cars.

out to warn overtaking traffic of the driver's intention to stop or turn. It is known as the Hand-y signal. The hand is painted red, and projects 16½ ins. from the box. It sells for \$3 in New York.

Fixed Hood Tops for Light Cars.

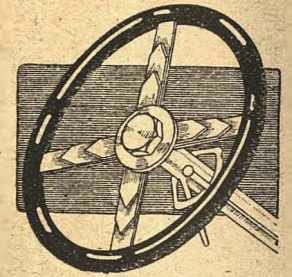
IN THE LIGHT CAR AND CYCLECAR of 26th March we illustrated two suggestions for applying a fixed hood top in place of the conventional Cape-car hood. A correspondent points out that the type illustrated is known in America as a Sedan body, but he is afraid that it is doomed. Having had some experience with this design, he happens to know that the cost is increased by about £40 to £60 for a standard two-seater. Further, this type of body is extremely draughty, and it is suggested that if anyone wants a car of the enclosed type it is much better to have one with a saloon body

A Useful Precedent.

It is lucky for the Mayor of Leamington that his magisterial fines are light, for when he himself was summoned recently for driving without lights, having "forgotten to switch them on," the magistrate remarked: "I am told, Mr. Mayor, that your usual practice is to impose a fine of 10s., and in this case we will follow your precedent." We wish the Kingston magistrates could be caught like this!

Cushioning the Hands.

Driving long distances on bad roads, especially on indifferently sprung cars, the hands become almost numb with the vibration unless the wheel is very lightly held. The worst of it is, the more inferior the springing and steering, the more tightly the steering wheel has to be gripped. An American concern has devised a spring steering wheel, to overcome one of the discomforts of bad roads. The spokes of the wheels are formed of four-leaf springs, which make the wheel flexible longitudinally but rigid otherwise. Springing devices for the steering wheel scarcely seem necessary according to English ideals.



A spring steering wheel.

Our Front Cover Picture.

On the left of the road from Uckfield to Battle, in Sussex, may be noticed a square monument, standing rather high above the hedges, beyond the little village of Cade Street. It figures on our front cover this week, and commemorates the fall of the rebel Jack Cade. It bears this inscription: "Near this spot was slain Jack Cade, by Alexander Iden, Esq., Sheriff of Kent, A.D., 1450. His body was carried to London and his head fixed on London Bridge." The inscription ends with an appropriate reference to what happens to rebels. The car in the picture is the Morris-Oxford referred to in our last issue, when we reported upon a test of a car overhauled by the sole London Agents, Messrs. Stewart and Arden, Ltd., 18, Woodstock Street, Oxford Street, W.

Second-hand Values.

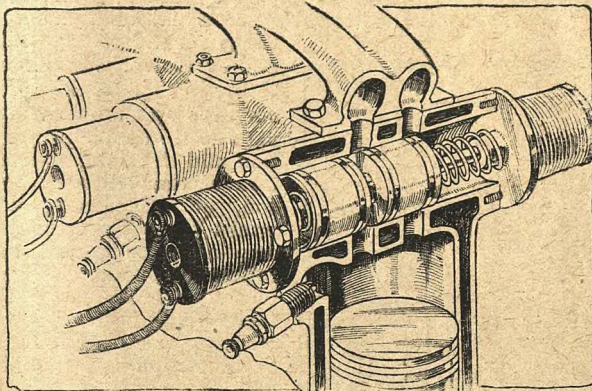
Based on average prices given in the advertisements of used cars in "The Light Car and Cyclecar."

	No year given.						No year given.						No year given.				
	£	1913.	1914.	1915.	1916.		£	1913.	1914.	1915.	1916.		£	1913.	1914.	1915.	1916.
A.-C. Sociable	30	33	45	75	—	Douglas Duo	—	—	—	155	—	Morris-Oxford	—	140	180	{ 210 230* 250	
A.-C. 10 h.p.	—	125	185	210	—	Enfield 10 h.p.	—	—	45	80	—	Newey	—	—	—	{ 210 225* 255	
A.-C. 12 h.p.	—	—	185	230	—	Enfield Autolette	—	—	175	{ 195 200†	—	Perry	—	—	—	{ 125 125 150	
Adamson	—	—	70	—	—	Globe	—	—	—	60	—	Ranger	—	110	{ 125 160*	{ 125 195*	
Adler	125	—	220	—	—	G.N.	—	—	55	84	—	Ritz	—	—	—	90	
Alldays 10 h.p.	—	—	180	160	205	G.W.K.	—	—	100	115	165	Rollo	—	—	—	—	
Alldays Midget	70	80	85	—	—	Hillman	—	—	—	190	215	Saxon	—	—	—	90	
Arden	55	—	115	—	—	Horstmann	—	—	—	100	135	Singer	—	—	—	105	
Baby Peugeot	—	110	110	{ 145 215*	155	Humberette (a.-c.)	—	—	—	57	70	Standard	—	—	—	245	
Bayard	—	190	—	—	—	Humberettes (w.-c.)	—	—	—	65	105	Stellite	—	—	—	175	
Bedelia	15	—	—	—	—	Hurlincar	—	185	—	—	180	Swift, 7 h.p.	65	90	120	{ 250 280* 325	
Buckingham	—	—	45	—	—	Invicta	—	—	—	75	—	Swift, 10 h.p.	—	—	—	{ 250 280* 350*	
Calcott	—	—	230	{ 265 265† 295*	270	Jowett	—	—	—	—	160	Tiny	—	—	—	145	
Calthorpe	—	130	{ 155 170*	{ 235 240* 250†	250	Lagonda	—	115	130	—	140	Tweeney	—	—	—	70	
Carden	—	—	35	60	—	Lucar	—	—	—	—	190	Victor	—	—	—	70	
Charronette	—	—	150	—	—	Marlborough	—	—	—	—	170	Warne	—	85	—	50	
Chater Lea	—	85	100	—	—	Mathis	—	—	—	—	215†	Warren-Lambert	—	—	—	80	
Crescent	—	75	—	105	—	Meteorite	—	—	—	—	185	Whiting-Grant	—	—	—	180	
Crouch	—	51	—	75	140	Morgan	—	45	55	77	205	Winco	—	—	—	135	
Day-Leeds	—	—	—	215	—	Morgan G.P.	—	—	80	85	105						
Deemster	—	—	—	210*	—	Morris-Cowley	—	—	—	—	250						
De P.	—	—	105	90	—												

The SPICE of NOVELTY.

Electrical Valve Operation—The Spectacles Windscreen.

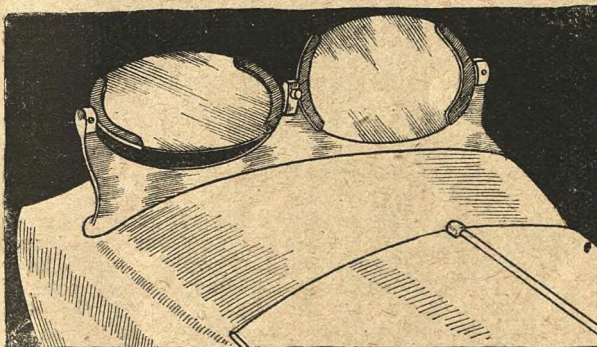
AMERICAN manufacturers continue to supply the motoring public with the most interesting innovations in automobile practice. We are indebted to "Automobile Topics," "The Motor Age," and "The Automobile" for the following. The sketches have been redrawn, and this week we illustrate several inventions of remarkable interest, like the electrical valve operation.



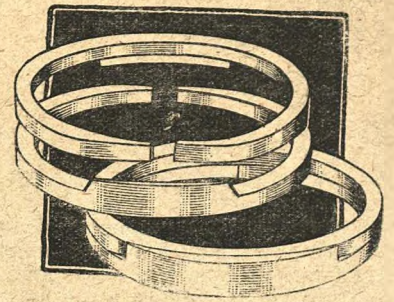
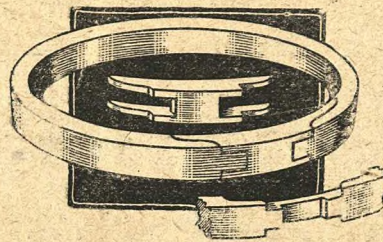
An ingenious electrically-operated valve idea. (We have sketched the device from the working drawings.)

Electric Valve Operation.

One of the most astonishing developments in automobile practice is the invention of electrically-operated valves doing away with the camshaft. It is the patent of Mr. J. C. Youngblood of Atwood, Kan. The valves are controlled by solenoids or hollow magnets, after the system already devised for electrical gear changing. Across the top of the cylinder, according to "Automobile Topics," of New York, is a cylindrical valve chamber, into which the ports open, two from the combustion chamber, one from the intake manifold and one from the exhaust manifold, above and opposite the cylinder ports. By a suitable movement of the piston valve in the cylindrical chamber, direct communication can be established between the cylinder ports and the intake or exhaust manifold. Helical springs between the ends of the valve and the caps tend to keep the ports closed.



A double windscreen which looks like a pair of spectacles.



The "Union" piston ring (left) and the "Jointless" ring (right).

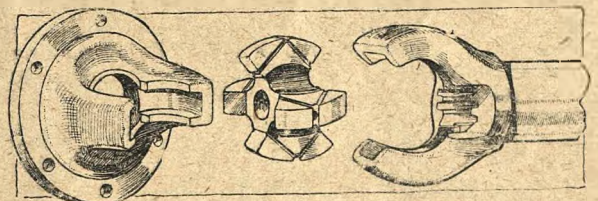
They are opened by the action of the solenoids, energized by current from a battery, the current being distributed by a gear-driven timing device operating on the same principle as a low-tension ignition timer. It is stated that one advantage of the system is that it permits easy alteration of the valve timing, while mechanical complication is reduced, quietness of running ensured, and the cost of production lessened.

Leak-proof Piston Rings.

The two features receiving most attention in American motor practice just now are differential gears, providing the advantages of a differential with those of a solid drive, and the improvement of piston rings. Of the latter we illustrate two new types, both designed to provide concentric rings without a break in them, past which the gas can leak. The "Union" ring has a kind of dovetailed joint, with a separate jointing piece, and it is obvious from its design that it is leak-proof. We should think the claims for the other one illustrated, known as the "Jointless," equally good. In this type the ring is in two pieces. The ends of each ring are tapered, and fit behind a projecting ledge in the centre of the other ring. The drawing should make the idea fairly clear.

A Three-piece Universal.

A universal joint of novel design is shown in the accompanying sketch. It is known as the Three-piece universal joint. Two arc-shaped jaws grip a central star piece, which is slipped into place by tilting it at a certain angle and then turning it back into its normal position; assembly, therefore, is very easy. As the joint is easily replaced, no means for adjustment are provided. The joint is enclosed in a



The Three-piece universal joint.

sheet-steel casing, which is oil-tight, with dust-proof hemp-packed joints automatically closed by coil springs.

A Screen Like a Pair of Spectacles.

One can imagine the appearance of a car in the distance fitted with the screen illustrated. It must look like a gigantic pair of spectacles. It is an American car idea, and is devised so that the passenger and driver can each set their screen at the angle which is individually found most comfortable.

THE WEEKLY POSTER.

COMMENT ON CURRENT TOPICS AND EVENTS.

Lights and Lighting Regulations—The Circumlocution Offices—Petrol Waste and Supplement Substitute Licences—Handy Light Cars—Post-war Tourists.

A RATHER ingenious device for driving a small munition factory is an idea which has been put into practice in America, where they have actually produced a coupling arrangement which provides the drive from one rear wheel. It is not the only time that a car has been used for this purpose, while the makers of the G.N. supplemented their power supply on one

occasion by coupling up a 90-degree air-cooled engine, which ran a number of tools at full load for several weeks on end without showing any signs of distress. In spite of the fact that the engine was only air cooled, and not assisted by a fan—no fan is used on the G.N. cyclecar—it showed no signs of overheating. Recently a humorous illustration was published in "Motor Cycling," showing a lightweight motorcycle driving the entire plant of an immense factory. This was taken up quite seriously in America. Is the arrangement now illustrated the outcome? One can imagine the "Ra! Ra! Ra!" boys hitching their Fords to the nearest 3 in. lathe to demonstrate the circumstance that President Wilson intends to weigh in at the tail end of the war, after having whispered the fact for so long.

WHAT, gentle reader, do you think is the cyclist's latest demand? Nothing less than a conference between the Home Secretary, the Food Controller and the Shipping Controller to reduce the consumption of lamp oil—by making it no longer necessary for cyclists to carry rear lights! "What bearing did the necessity for carrying two lights on a wheeled bicycle have on the welfare of the country and the prosecution of the war?" asks "Cycling." What indeed? What is the bearing on the war of the regulation restricting the use of home-produced petrol substitutes on the plea that it was necessary to save tonnage? Or restricting ample petrol supplies? By how many days are we shortening the war through being compelled to remain strictly T.T. after 9.30 p.m.? How are we beating the Germans by paying 2d. for our "Times"? Alas! it is a wicked world; and what with all the various regulations, about the only privilege left to an Englishman is to grumble. So here's to the great movement in favour of a conference between the Home Secretary, the Food and the Shipping Controllers, on the momentous question of the day: why should cyclists carry two lamps?

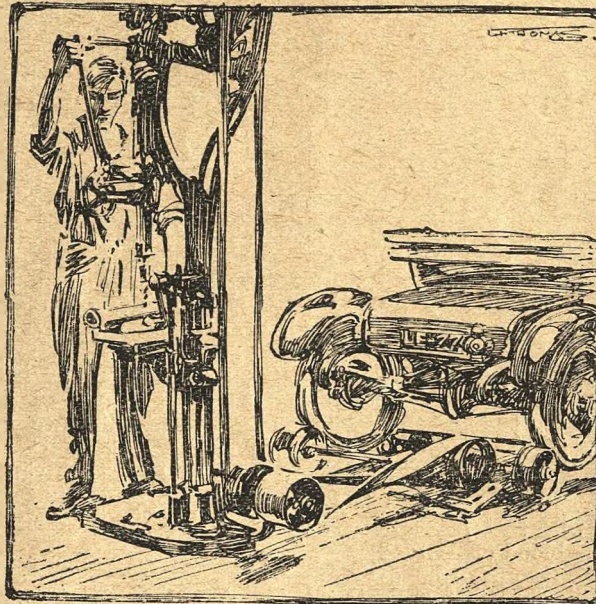
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APROPOS the lighting regulations, it is rather amusing to note that a contemporary publishes this sonorous phraseology at the head of its lighting-up table: "Official lighting table furnished by the courtesy of the Astronomer Royal." Cannot you imagine the "Astronomer Royal"—in the best publications it is never the "Royal Astronomer"—despatching by special messenger all the way to the editorial office a list of lighting-up

times compiled specially and exclusively for this enterprising journal? One conjures up the meticulous care used in their preparation and the smug satisfaction of the editorial person, or office boy, who issues these priceless and dead-accurate figures to an expectant public. At least one might do so if the figures did not contain a rather glaring error every week. Actually these lighting-up times are derived from a list of sunset times for some 30 cities and towns of Great Britain, issued from the Meteorological Office in the booklet form for the convenience of the police and newspapers. The editorial person—or the office boy—adds the 30 minutes grace between sunset and lighting-up time, and there you are! Unfortunately, the fact that lighting-up time in Scotland is one hour after sunset has entirely escaped notice, so

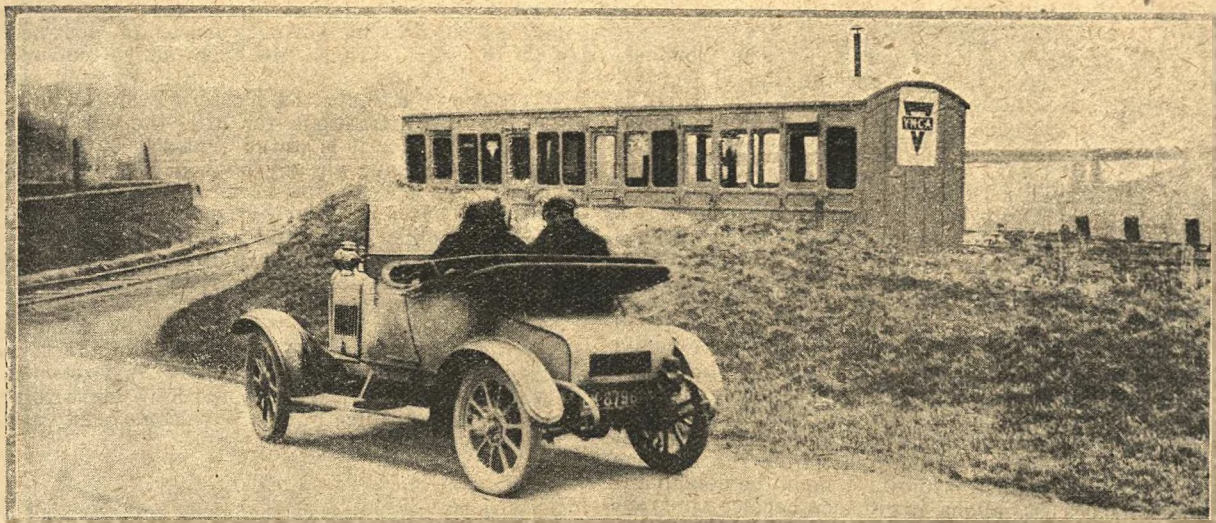
that the "Astronomer Royal" is credited with a notable mistake every week in his "official lighting table," which it isn't, by the way. But there, to give an aspect of "authority" to every petty matter is the very breath of life to some people, and such little things as Scottish lighting-up time, Irish lighting-up time, and the publication of the times for Mondays (because only that day of the week is referred to in the M.O. booklet) instead of the more convenient Saturday, do not count.

COMPLAINTS with regard to the interpretation of the lighting regulations crop up with such frequency in the Metropolitan district that it is evident very many people are quite unaware that London is governed by quite a different set of regulations to the rest of the country. People seem to be very surprised to find, after complying strictly to the letter of the Order (usually termed by irate correspondents to the Press as an Act, which it is not), that some suburban policeman has observed their lights to be too "powerful." Yet the motor Press has pointed out time after time



A device has been brought out in America for coupling up a car as a means of providing the power for driving a small munition plant. What an opportunity for the patriotic!

AN ORDER MISUNDERSTOOD.



A novel Y.M.C.A. hut, near Lewes, constructed out of an old railway coach.

that the Lights (Vehicles) Orders for England and Wales and Scotland expressly exclude the Metropolitan Police and City Police areas, where there are still no definitions of what lamps may be carried. Now that the Zeppelin menace is well in hand, if not entirely removed, and the street lighting of the Metropolis has been increased, it is certainly time that the London regulations were brought into conformity with those for the rest of the country. We have written to the Home Secretary to this effect. Meanwhile the only safe lights are those having an illuminating power not exceeding that of the oil lamps used on taxi-cabs.

JUST lately many questions concerning motoring have been asked in the House of Commons. We wonder if the average reader appreciates the vast amount of circumlocution in the Government departments concerned which is set in motion by these questions and replies.

CIRCUMLOCUTION. We will say that the member for Mudshire—and the more remote is the constituency from the world of motoring the more its member figures in questions concerning motorists—has set down a question asking the Home Secretary to state the amount of petrol consumed by certain officials in a given period, by what authority they were enabled to obtain this quantity, and whether it is proposed to curtail it in the future?—and so on. Some hide-bound subordinate duly passes on the question to other subordinates, and in due course typewritten, and sometimes printed, documents, in appalling numbers, are circulated to chiefs of staff throughout the vast offices of officialdom, requesting all who can give any information on the subject of the question to do so forthwith. Chiefs of staff consult their subordinates in turn, and eventually a vast amount of information, bearing more or less indirectly on the point raised, filters back to the office whence the question was first circulated. Indispensable clerks duly collate and summarize this array of facts and figures, which an assistant secretary peruses and eventually drafts a suitable reply. This reply is duly circulated like the question, and generally reads like this: "In reply to the questions asked by the member for Mudshire, in which he asked, etc.—I propose to supply the following information." Here follows the reply, which will be duly quoted in the Press, something after this fashion: "It is not possible in the public interest to give the information asked for. I would remind

the hon. member that when the motor spirit licences of private motorcar owners expire this month they will not be renewed." And there you are. The member for Mudshire can now go and tell his constituents, if he thinks they care a brass pin, how instrumental he has been in checking the waste of petrol in the national interest. If only the waste of time and paper, and the employment of unnecessary labour, were exposed instead!

* * *

THE inconvenience to users of motorbuses which has resulted from the drastic fuel restriction for public service vehicles has produced a lively controversy in the general Press. Lord Hylton announced in the House of Lords the other week that supplies to the motorbus concerns were to be cut down 20 per cent. Hence the withdrawal of some 400 vehicles from the services, a

pretty serious matter in these strenuous times and the throwing out of work (possibly temporarily) of a number of employees. A correspondent to "The Commercial Motor" draws attention to the great waste of petrol in allowing drivers of public service vehicles to run their engines while waiting at the termini of the various routes before being started on fresh journeys. It was pointed out in our columns some little time ago that the consumption of petrol when the engine is running idle is very much greater than is generally imagined, and there is no doubt that the petrol wasted in this way runs into many thousands of gallons. We should hardly like to go so far as this correspondent, however, who suggests that a "Defence of the Realm Order should now be put in force to forbid anyone to run an engine more than a minute when the car is at rest—under a heavy penalty." (No need to worry about the penalty, by the way; it is always a maximum of £100, with six months imprisonment, under the magna charta of officialdom.) The proposal would be most difficult to apply, and would cause some heartburning, not to say some heart failures, to motorists with engines difficult to start on what is sold as "petrol" nowadays. And what about cars held up in traffic blocks? Fancy waiting for all the drivers to get their engines going again before the line of waiting vehicles could move on! By the way, we wonder if the withdrawal of the motorbuses has anything to do with the question of fuel supplies? The generosity of the Petrol Control Committee lately sets one thinking.

THE WEEKLY POSTER (contd.).

OUR enterprising contemporary, "The Commercial Motor," has elicited from the Petrol Control Committee the interesting information that where it

**SUPPLEMENTARY
SUBSTITUTE
LICENCES.**

has been the practice to dilute petrol supplies with paraffin or other substitutes, applications for supplementary licences for the purchase of such substitutes will be favourably considered. This is a concession which applies primarily to the users of commercial vehicles, and it is stated that the Committee will require to be satisfied that the present allowance is inadequate. It should not require very much persuasion to extend the concession to users of private cars, and we would suggest that applications to this effect should be made to 19, Berkeley Street. Considering the increased import of heavy fuels, the fact that 4,000,000 gallons of petrol substitutes are imported, and that the home production alone, apart from the benzene series, of shale spirit, is known to be in the neighbourhood of 6,000,000 gallons, it will soon become apparent that there is neither rhyme nor reason in the action of the P.C.C. in restricting the use of alternative fuels. Incidentally, we hear that officers on leave are now granted a petrol supply up to 20 gallons per month on application.

* * *

RATHER a good instance of the convenience of the modern light car was afforded the other day on the narrow main road near Horsham. A heavy lorry and

**THE
HANDINESS
OF THE
LIGHT CAR.**

a farm tractor had managed to come to a standstill on either side of the road, but in such a way that the road was completely blocked. We were testing an overhauled Morris-Oxford, taken from Messrs. Stewart and Ardern, Ltd., and after much manœuvring it was found impossible to get through the narrow passage between the two vehicles by a bare inch, owing to the overhang of the lorry, which just fouled the hood, small as are the dimensions of this car. Nothing daunted—we were informed that it was impossible to move either vehicle—we proceeded to drive round the farm tractor, with one wheel perilously near the ditch on very soft ground, and although the wheels spun on the slippery surface, the car was successfully driven round the obstruction, and what might have proved a long delay obviated. A heavier car could not possibly have managed to effect the passage, we imagine. A vehicle with a narrow track is very deceptive. We remember the consternation of a group of mechanics round a garage entrance, only one half of the double door of which was open, when a cyclecarist proceeded to drive through the narrow opening at speed. They shouted to him to stop, and rushed to throw back the other half of the door, to run back again when they found there was not time. The cyclecarist took the opening with inches to spare on either side, surprised at the fuss.

A12

IT is pointed out that while we have many committees considering various phases of post-bellum activity, unlike France, we have not yet considered the possibility of after-the-war travel.

250,000 Perhaps the Western Front holds more **AFTER-WAR** attractions for after-the-war tourists, **TOURISTS.** for it is stated that 250,000 Americans have already booked passages for the first sailings to leave New York for Europe after peace is declared! It is said that the Touring Club de France, the Automobile Club, and several newspapers are organizing to improve transport and hotel facilities and generally to encourage tourists, realizing the importance of the money which they will spend in the country. No doubt our Touring Editor will have a few words to say on the advisability of the touring organizations of this country getting busy to welcome these tourists here. We may not have much to show in war-scarred ruins, but we have some really attractive scenery.

* * *

IT does not appear that the premises of the quondam R.A.C.—now the Royal Overseas Officers Club—are being very much sought after. To advertise the club a concert was held on the

THE 27th March, attended by a large number of officers, their wives and friends. **R.O.O.C.**

A Press note laments that it "would be a thousand pities if the scheme for making a 'home from home' for the overseas officers in the magnificent premises of the Royal Automobile Club were not utilized to the fullest extent." It is hoped that when the "leave season" begins again that the club will "resume its erstwhile animated appearance." In choking off its civilian members it looks as if the club has fallen upon rather deserted times. Still, if the present scheme had not materialized, Pall Mall would have known yet another Government department palatially housed.



The road completely blocked by a lorry and a farm tractor; both broken down and unable to be moved. The Morris-Oxford light car, in spite of its small dimensions, could not be got through without removing the hood; but eventually it was driven round the obstruction on the grass.

The Light Car and Cyclecar

Largest Circulation.

Conducted by EDMUND DANGERFIELD.
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ADVERTISEMENT COPY, Blocks, &c., should come to hand by Tuesday morning to ensure careful attention and allow time to submit proofs, except when an earlier time is specified.

Return of MSS., &c.

Drawings, Photographs and MSS. not suitable for publication will be returned if sufficient stamps are enclosed for this purpose, but the Publishers cannot hold themselves responsible for the safe keeping or return of contributions. Accounts are paid monthly, about the 10th of the month, following month of publication.

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Elsewhere... 10s. 0d. 5s. 0d. 2s. 6d.

Subscriptions should be addressed to the Manager.

LIGHTING-UP TIMES

for Saturday, 14th April.

London ... 8.25 Edinburgh ... 9.20

Newcastle... 8.38 Liverpool ... 8.40

Birmingham 8.34 Bristol ... 8.35

Dublin ... 9.24

Lighting-up time in Ireland and Scotland is one hour after sunset, but the Scottish lighting regulations (vehicles) come into effect half an hour after sunset. Lighting-up time in England and Wales is half an hour after sunset.

MOON.—In last quarter; does not rise until 2.43 a.m.

The LIGHT CAR & CYCLECAR
IS PUBLISHED ON

Mondays.

It is the leading light car journal, established in 1912, with far and away the largest circulation and greatest number of advertisers, but to prevent confusion, readers are asked, when ordering the paper, to give the title in full ("Monday's Light Car and Cyclecar.")

Topics of the Day

The Lesson of the Cycle Industry.

FROM opinions expressed occasionally in our correspondence columns, and in other journals, it would appear that many people consider the sole panacea for the future of the British motor industry is a reduction in prices of at least 50 per cent. If America can produce the Ford to sell at £72, it is argued, why should not the British manufacturers be able to produce a car at similar price? We have frequently given our views, which are based on some knowledge of manufacturing conditions which is woefully lacking in most of the arguments raised on the other side, that a £72 car, or even a £100 car, is at present, or in the years immediately following the war, an impracticable proposition. Some of the difficulties which have to be contended with concern labour, the production of which against the wages earned is out of all proportion to that of other countries. Other factors are the relatively high cost of transport, the problem of reducing overhead charges, including taxation, the smaller market, compared with America, far and away the largest car-purchasing country in the world, in which we could scarcely hope to penetrate the tariff wall, and the prejudice of the British and Colonial public against purchasing cars of British manufacture that were only made just "good enough" and not upon the present basis of reliability and quality. An excellent instance is the failure of the public to respond to the invitation to purchase cyclecars at £100 or cheap American light cars at about the same price. The restricted market is a very great set-off against any hope of a gigantic output, which would lower prices appreciably. Since the days when the price-cutting of the manufacturers brought the bicycle down to the neighbourhood of £5, the motor and allied industries have become more consolidated, and the lesson of the bicycle trade is not likely to be lost. The cut in price achieved no useful purpose. The output exceeded the demand, and the industry certainly has not prospered as the result of providing the public with cheap bicycles.

Serviceable, Cheap Small Cars.

THOSE who think it will be possible after the war to purchase one of the luxurious, elegant and lively light cars which found ready buyers in 1914 at prices round about £200 for only half that sum, are pursuing an idle chimera. We believe that after the war models will show a marked superiority in design, materials and finish, but not a reduction in price. On the other hand we do urge the industry to consider the provision of cheaper models for those who want something between the motor-bicycle and sidecar and the £200 car; cars to replace those of moderate price which have been withdrawn by certain manufacturers. The success of the Humberette and 7-9 h.p. Swift shows that a serviceable vehicle costing £135 is a possibility, and that they can find a ready market. The £100 field can only be exploited by the cyclecar, like the Morgan and the G.N. Here we would remark that it is quite an erroneous idea to imagine that before you can obtain cheaper cars you must destroy your industry by allowing other countries, with greater facilities, to compete on equal terms in those difficult times following the cessation of hostilities. Conserve your industries and you increase your market; expand your market by encouraging the use of motor vehicles, and prices will fall. It is useless, however, to expect to expand the market for British cars to one absorbing an output of a million cars per annum. We can, however, go far towards that end by producing a greater variety of models—not necessarily more than one to be manufactured by any single concern; by a wise reciprocal arrangement with our Colonies and friendly countries offering opportunities for development; and by reduced taxation, a benevolent toleration, and cheaper fuel to encourage those who do not do so now to take up motoring.

ORIGINAL SUGGESTIONS *for* EASY STARTING.

And a Few Facts on Fallacies—Some Ideas Which Would Facilitate the Use of Paraffin.

ENGINES—particularly those fitted to light cars—are frequently sulky starters. War petrol may be a cause, and a cold surrounding atmosphere is another. When warm, engines run merrily and start easily.

Petrol contains light and heavy spirits in varying proportions, the lighter vaporizing more easily than the heavier: and the amount of light and volatile spirits in, say, a pint of petrol, is less now than formerly. The heavier spirits need a little warmth before they can vaporize properly. It not infrequently happens that one swings, and swings and swings an engine: on examination, the combustion chambers are found wet with petrol: and yet when the engine does fire, the first few explosions give evidence of a weak mixture. In this case, although much petrol has passed through the jet, not enough of the lighter spirits have come through. Sometimes, of course, the mixture really is too rich, but at the moment we are not considering that point. Starting with a cold engine and no gas in the inlet passages, it is evident that somewhere between this and the stage where an over-rich mixture is reached there must be a period where the mixture is correct, and therefore where the engine will fire, if only for a few explosions.

Insufficient Heat to Vaporize.

Put very roughly, for those who do not dabble in thermo-dynamics, the kernel of the whole matter, in the large majority of cases, is that with cold inlet passages and a cold combustion chamber there is not enough heat about for the petrol to pick up in order to vaporize into an explosive mixture. The fuel must take up heat, or it cannot vaporize: precisely as the domestic kettle must take up heat from the fire, or it cannot boil. One may, and does, spray the fuel very finely through the air of the inlet tract in order to give it every chance to absorb heat; but

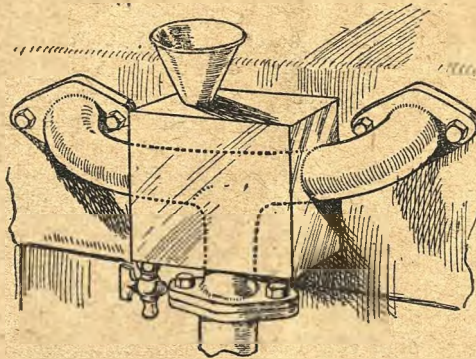


Fig. 1.—A hot-water tank on an external inlet manifold.

the distance it has to go is short, and if the air and passages be cold into the bargain there results merely dead air and wet petrol in the cylinders.

Eventually, if one goes on swinging long enough and furiously enough, the engine starts, because air when compressed gives up heat to surrounding objects; and after a great many compressions the combustion chamber walls have taken up enough heat from the compressed air to warm them slightly. In turn they warm the incoming air and wet petrol. In the end a point is reached where a certain amount of vaporization takes place accompanied by a few feeble stuttering explosions. Part of the fuel has vaporized and that part is fired. These explosions are often so feeble as to be felt at the starting handle rather than heard in the silencer, an effect fairly familiar to light carists.

Methods of Applying Heat.

These are the facts so far as they can be put broadly and in non-technical language. The exact sequence of events between jet and combustion chamber is still rather uncertain, even among technicians. One thing is pretty certain, however, that by some means heat must be given to air, engine, or fuel. Swinging to warm the engine by compressing air is laborious: there are several easier ways of heating the air, inlet tract, or fuel. Examples of heating the float chamber have been given by several readers, such as heating a mass of iron in the fire and applying it to the float chamber for a few minutes. Another method recently suggested by a correspondent is heating the air in the induction pipe by means of an electrically heated coil of wire. This, I believe, is standard on one or two American cars.

Probably the first solution that occurs to a man in the ordinary way is filling the water circulation with hot water. A quicker way of getting the same result is by using a loosely-filled sandbag made very hot in

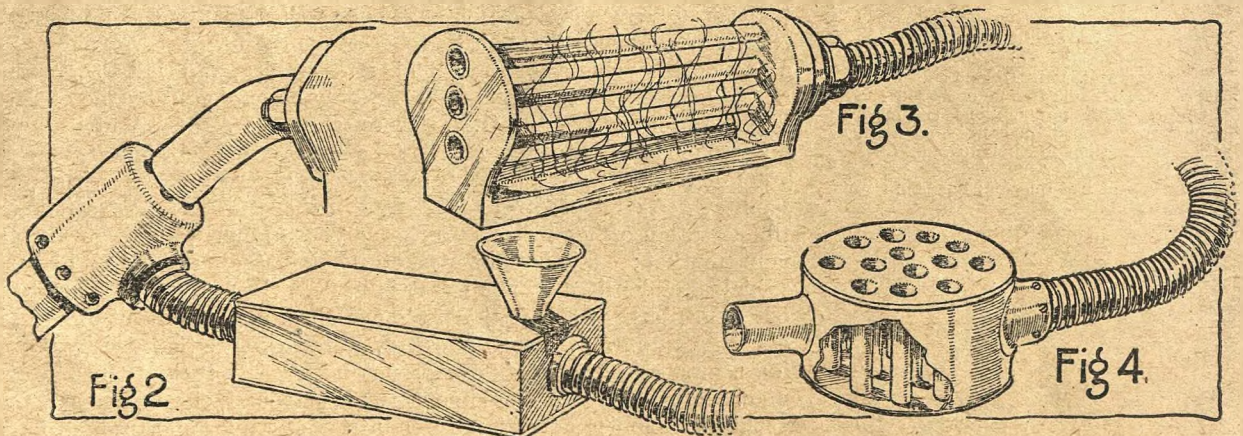


Fig. 2.—A hot-water tank fitted to the hot air pipe from the exhaust. Fig. 3.—An air heater, the air being drawn through tubes heated by a methyated spirit fire. Fig. 4.—Detachable heater, for use with a Primus stove, the end of the nozzle being pushed into the main air intake of the carburettor when starting.

the domestic oven and laid on the cylinder head and inlet pipe. A sandbag is rather more convenient than a rubber hot-water bottle, as it does not require filling and emptying every time, and if loosely filled accommodates itself to the shape of the casting jacket.

It is sometimes possible to jacket the inlet pipe with hot water, as shown in Fig. 1, a tank being fitted round it, furnished with a good big funnel-shaped filler, and a tap beneath to let the water out after the engine has warmed. Fig. 2 shows a similar plan carried out on the hot air pipe leading from a muff on the exhaust. The making and fitting of such hot-water jackets is within the capabilities of any handy amateur. Of the two situations, that on the inlet pipe is the better, as the heat is applied where it is required.

Some people lag the inlet pipes with asbestos string or insulating tape, with the idea of keeping the heat in: and no doubt when the engine is warmed the lagging has that effect. When starting, dew usually de-

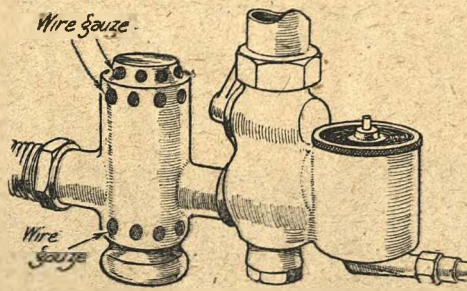


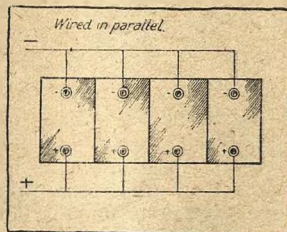
Fig. 5.—A permanent methyated spirit heater for the main air intake.

posits on an inlet pipe, showing that the pipe is picking up heat from the air, or is willing to do so, and lagging prevents this process.

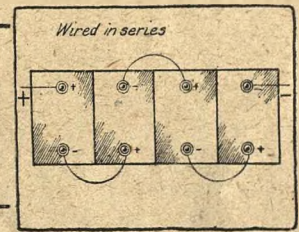
A method more compact than the water jacketing, and one that is worth experimenting with, is shown in Fig. 3. It consists of drawing the air for starting through small tubes that are kept hot by a methyated spirit fire. This air-heater would be fitted with a short length of flexible steel hose with a nozzle to push into the air intake of

the carburetter. It might be adapted for use on a Primus paraffin stove, as shown in Fig. 4. In this case, the heat passes through the tubes running through the drum; the air is drawn round them.

This air-heating principle for starting from cold may eventually take the form of a permanent attachment to the carburetter, as shown in Fig. 5, where a spirit fire guarded by gauzes, in the manner of the Davy miners' safety lamp, heats small tubes in the hot air pipe from the exhaust.



BATTERIES IN PARALLEL. HOW A DEFECTIVE CELL WILL AFFECT the OTHERS.



MADE to the same drawings, from the same patterns, in the same shops, and given an equal amount of care and attention, yet, we all know, one engine may be considerably better than its fellows, and many of them differ from one another in their running. It is the same with the accumulator or storage battery, but, fortunately, like the engine, the improvement and development have lessened the wide differences existing a few years back, and have placed the general run of both engines and batteries on a higher plane. There is a curious parallel between these two pieces of apparatus, in that whilst there are no startling apparent differences in construction, a better understanding and use of the materials have given some noteworthy results.

Even at the present time the storage battery has some peculiar traits which have a great bearing on its ultimate usefulness. One of these is a lack of co-ordination in the working of the various parts; indeed, a battery might be said to abhor parallelism right from the time when the forming charge is given to the end of its days. Whilst forming we notice one portion of a plate will develop, or form, quicker than another, and the same difference is observed as between plate and plate in the same bath. After the plates have been selected and formed into sections, and put to work in a cell, the same thing goes on. The exterior of a plate prefers a different state to the interior, and the corners to the middle. Although the plates are in parallel, it is not an uncommon thing to find some are in a better condition than others. These differences do not remain passive; a local action is set up between the interior and the exterior of the plate, also between one part of a plate and another, and between plate and plate. The parts being in parallel, there is a tendency towards levelling any inequalities in their charge. It is a tendency only, as it ceases only when the charge is exhausted.

It is quite possible and practicable to parallel cells themselves, or one battery of cells with an equal number of the same type, but it is necessary to see that all the cells are as nearly as possible in the same condition. The larger the number of cells in each battery, the more difficult it is to make them parallel correctly, but worse if there are more than two batteries in parallel with one another. It is well to remember that batteries of different capacities do not parallel nicely. It is easy to understand this if the form of the voltage curves of the respective batteries is studied, both for charge and discharge. If these batteries are also to be used in series, which is often the case, we shall find the voltage of the smaller battery dropping quicker than the other, and if they are afterwards put in parallel there will be increased inter-action taking place.

In some lighting and starting systems, the starting voltage is four times that used for the lighting. This is obtained by paralleling four sets of batteries for the lighting and charging, and putting them in series for starting. The system no doubt has some advantages, but a defective cell in one battery will have a bad effect on the other three. The cell need not be defective to uselessness, but the greater the defect the more serious the inter-action will be. Moreover, the charging is not always equally divided between each set, and this again is bad.

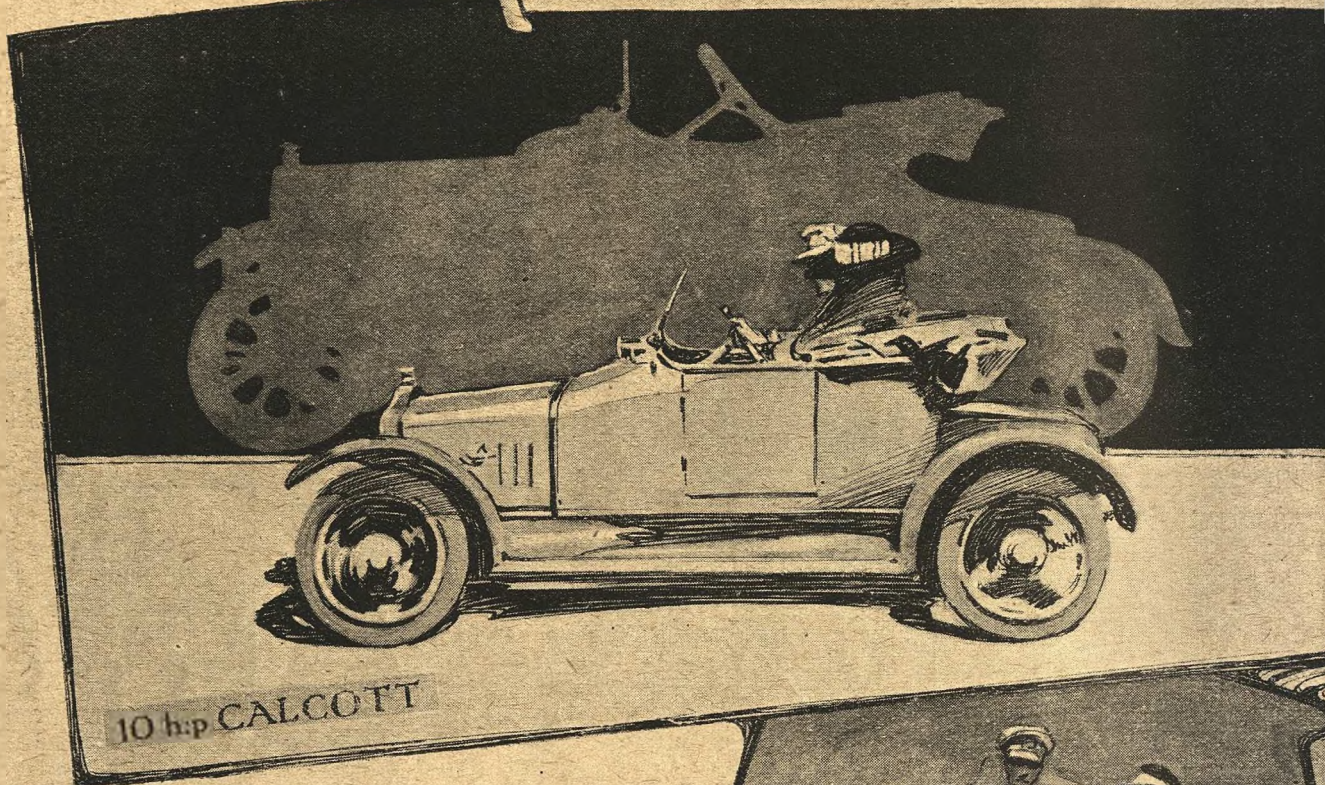
For the above reasons it may pay to reconsider the advisability of the series parallel arrangement mentioned, certainly if the manufacturer is not already committed to its use. Should it be adopted, it will pay carefully to study the size and length of the conductors, and the contact area of the change-over switch. Furthermore, the leads and contacts must all be of the same total resistance. If the resistance in the circuit of one battery is greater than the rest, it will be charged less if all the batteries are in parallel.

W.F.A.



THE DIMENSIONS

Some Comparisons w



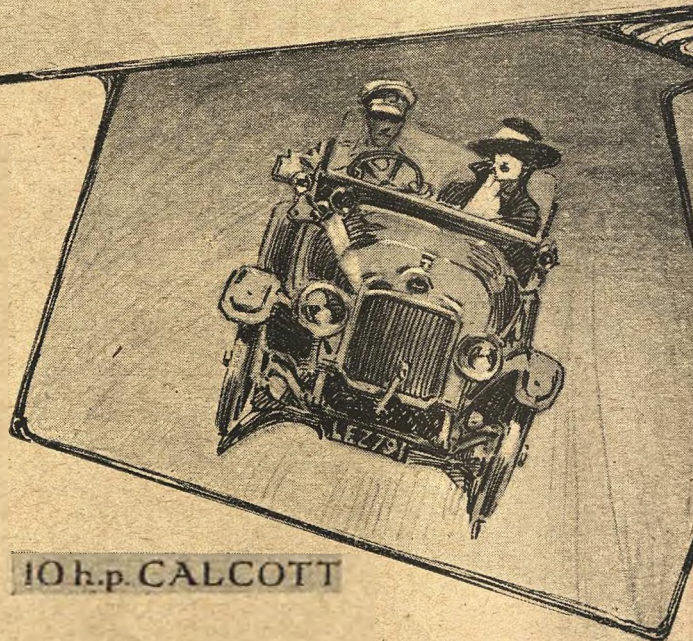
10 h.p. CALCOTT

ROUGHLY speaking, the light car may be defined as a miniature reproduction of the large car. Its weight low, its engine small but efficient, and its body designed to give reasonable comfort without unnecessary space and waste of material, it has provided a new type of vehicle, quite distinctive from the motorcars that were available prior to its introduction.

When a light car stands alongside any representative large car it is obvious to the eye that the light car is considerably smaller all round, but by a comparison of actual measurements it is possible to obtain some interesting figures which show just where light car design economizes.

For this purpose we took measurements recently of three cars: the 10 h.p. Calcott, a typical light car, so far as body dimensions are concerned; the 11 h.p. Morris-Cowley, a somewhat larger light car which stands more or less at the maximum limit of the light car proper; and the 12 h.p. Rover, which is a representative large car of medium power. In each case the car was a 1915 or 1916 two-seater, and the measurements were carefully taken, although they cannot in all cases be guaranteed to the inch, owing to such differences as wear of upholstery, etc. The first thing to notice is that the wheelbase of the Rover is no less than 20 inches longer than that of the Calcott, the Morris-Cowley being also longer by about 12 ins. In track the difference is naturally less marked, the Calcott being 3 ft. 9 ins., the Morris-

A16



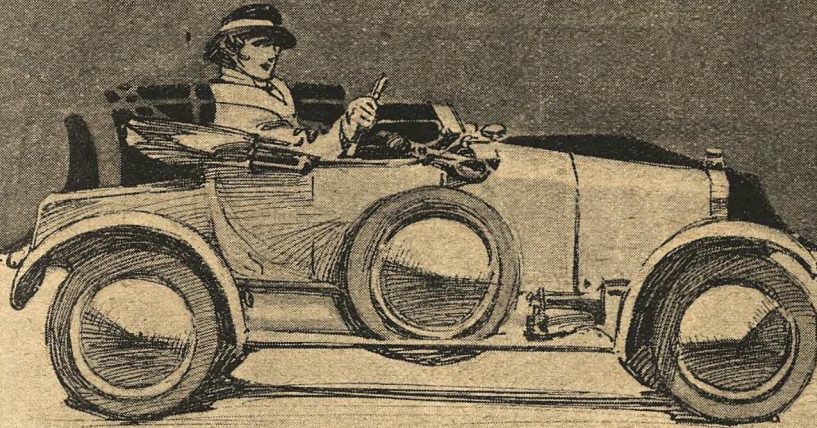
10 h.p. CALCOTT

Cowley 4 ft., and the Rover 4 ft. 2 ins. Overall length is not always a very satisfactory means of comparison, owing to the variations in wing shape, etc., but here the Morris-Cowley, with a length of about 11 ft. 9 ins., is nearer the 12 ft. 3 ins. of the Rover than the 10 ft. 3 ins. of the Calcott.

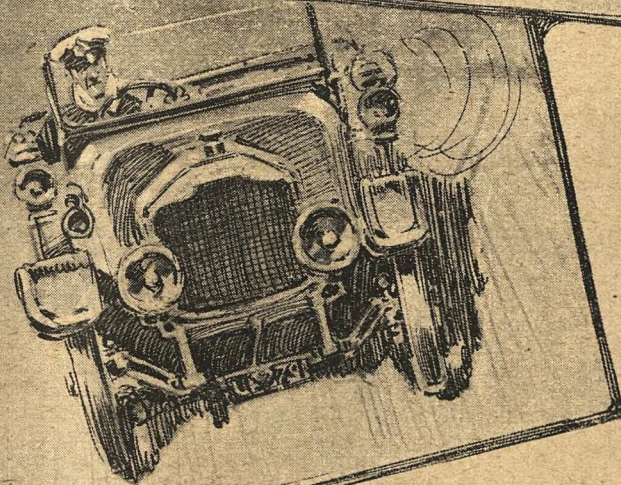
Weight is a highly important point with the light car, and a comparison of weights from the makers' catalogues shows that the Morris-Cowley exceeds the Calcott by about 1 cwt., being 13½ cwt. complete. In the case of the Rover, the weight is approximately 21 cwt., although here it should be explained that the

OF THE LIGHT CAR

Medium Weight Cars.



10 h.p. SINGER



12 h.p. ROVER

Rover two-seater body is exceptionally large, and would seat three abreast.

Turning to the general outline of the body, the dropped front axles of the Calcott and Rover are somewhat similar in design, but measuring to the radiator cap the Calcott is the lower by 6 ins. On the Morris-Cowley this measurement comes to 44 ins., the Rover being about an inch more. Taking the top of the dash where the screen commences as another characteristic point in outline, the figures for the three cars are 42 ins., 43 ins., and 50 ins. respectively.

As mentioned above, the width of the Rover front

seat is exceptional, and is 2 ins. wider than on the four-seater model, the measurement being 49 ins. The Morris-Cowley is 6 ins., the Calcott 12 ins. narrower. In one point alone were the Rover dimensions exceeded, the depth of the front seating space from dash to back upholstery being about 37 ins. on the Morris-Cowley, and this was a trifle more than on the Rover, and 3 ins. more than on the Calcott.

Again, in the height to the top of the seat back, as measured from the ground, the Rover with 50 ins. is only an inch or so higher than the Morris-Cowley, but the Calcott measures 45 ins. The height of the running boards above the ground is 12 ins. on the Calcott, while the Rover and Morris-Cowley are almost identical with 2 ins. more.

To sum up, the chief difference, apart from engine size, between the light car and the large car are weight, wheelbase, body height, and seat width. In regard to weight, apart from the decidedly heavier engine unit and chassis on the Rover, one might reckon such points as the 9-gallon petrol tank, the 810 mm. by 90 mm. wheels, the larger hood, locker, etc., as being each considerably heavier than its light car duplicate.

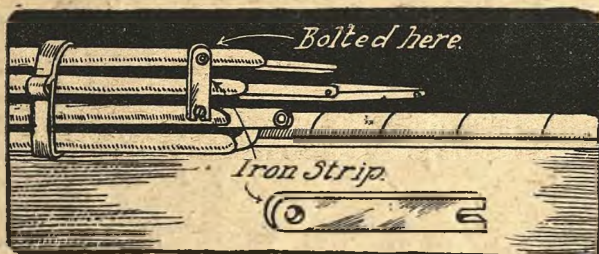
The engine dimensions of the Calcott are 65 mm. by 110 mm. (1456 c.c.), the Morris-Cowley 69 mm. by 100 mm. (1495 c.c.), and the Rover 75 mm. by 130 mm. (13,784 c.c.). The enormous difference between the engine of the Rover car and the light car accounts very largely for the increased weight.

GETTING THE BEST OUT OF A CAR.

42 m.p.g. with a Four-seater Calthorpe.

HAVING driven a 1916 model four-seater Calthorpe about 4000 miles, perhaps my experiences in getting the best out of it may be of some interest.

I took delivery of the car February, 1916, and after running it for some time, found the petrol consumption rather high, only 24 m.p.g. being obtained. I wrote to the makers of the Claudel-Hobson carburettor, with which the car is fitted, and they advised me to try a smaller jet—75 instead of 80. I took their advice, and at the same time fitted in place of the standard exhaust pipe and silencer a 2 in. copper pipe without any expansion chamber. The mileage then increased to 38 p.g., with ample power on hills, and during last summer, with the aid of an extra air inlet, the car did 42 m.p.g., which I think is very satisfactory. I like the straight-through exhaust pipe immensely. The engine seems livelier and more responsive to the throttle, whilst the noise from it is not objectionable.



How a rattle from the hood sticks was cured.

A slight rattling of the hood sticks was rather annoying, so to overcome this I obtained two strips of iron, $3\frac{3}{4}$ ins. by $\frac{5}{8}$ in. by $\frac{3}{16}$ in., and fitted them one on each side of the car, between two of the metal hood sticks. One end of the bar was fastened loosely to the upper stick, whilst the other end was slotted and fitted over a projecting screw in the lower stick. This device does not look at all unsightly, and has quite stopped the rattling, as the sticks are kept slightly apart.

A Drastic Alteration.

I found the rear number plate very much in the way whenever I wanted to do anything to the back axle, so, as it was attached to the boards forming the floor of the well under the seat, I had them sawn through and the floor made removable. Taking this out with the number plate attached makes the brake levers and back axle very accessible.

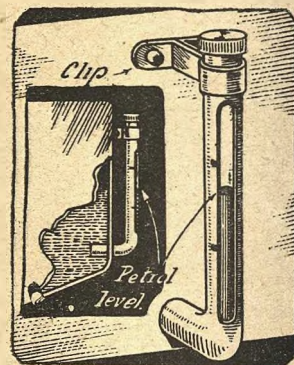
There being no means of telling how much petrol was in the tank, I had a gauge fitted. Being unable to buy one, I had it made out of a glass tube enclosed in a piece of $\frac{3}{8}$ in. copper pipe with the front cut away. I graduated the gauge by filling the tank with petrol, half a gallon at a time, and marking the copper pipe accordingly. I can now see at a glance the amount of petrol in the tank, and motoring is made more interesting by studying m.p.g. obtained on the various journeys.

The upper hinges of the rear spring shackles are provided with oil holes for lubricating purposes, but as these holes allow dust, water, etc., to enter and cause wear, I had them covered by small spring clips similar to those often used on bicycle pedals.

After the car had run about 2000 miles I noticed the tyre on the off front wheel did not appear to be

wearing as well as the others, so I came to the conclusion the steering was at fault, and decided to overhaul it. After carefully adjusting all the joints and aligning the wheels, I turned my attention to the bushes and swivel pins. The bushes were in good condition, but the swivel pins appeared to have been too loosely fitted, and, in consequence, had caused the holes in the axle through which they pass to wear oval. I had the holes slightly enlarged and new pins and bushes fitted. On examining the nuts in the hubs I found that the holes in the axles through which the split pin passed were not in alignment. I therefore had the nuts ground down, and, after tightening them, put the pins through the castellated parts in the usual way.

No further play appears to have developed in the steering since it was overhauled in this way.



A home-made petrol gauge.

Wells Under the Floorboards.

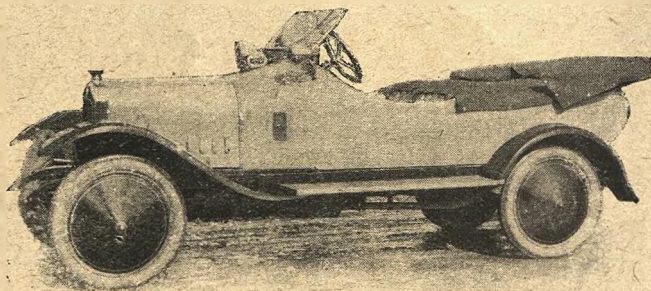
My two accumulators are at present carried in boxes, one on each running board, but as these tend to spoil the lines of the car and are in the way when it is being cleaned, I am having two boxes attached to the underneath part of the rear floorboards, one on each side of the propeller shaft. In one box I shall place the accumulators and in the other a jack, spare tin of oil, etc. Pieces of the floorboards will be cut out and will act as lids.

The 710 mm. by 85 mm. Palmer tyres with which the car is fitted are giving every satisfaction. Up to the present I have only had two punctures. I keep the front tyres at a pressure of 40 lb. and the back ones at 45 lb., and always use a pressure gauge.

In conclusion, I should like to pay a tribute to the pulling powers of the Calthorpe engine. I have had experience of three of them, and they have all given every satisfaction.

F.W.T.

[Contributions to this series are invited, particularly relating to the Morris-Oxford, Baby Peugeot, Enfield, Hillman, and 10 h.p. Swift light cars, or others not yet dealt with. We have in hand articles on the G.W.K. and Lagonda. Illustrations, however rough, will add to the value of the article. —Ed.]



An illustration of the latest type of Calthorpe four-seater, a special sporting model of very attractive lines.

MAGNETO CARBON BRUSHES.

The Proper Functioning of the Carbon Brushes has a Great Deal More to do With a Good Spark Than Many People Think.

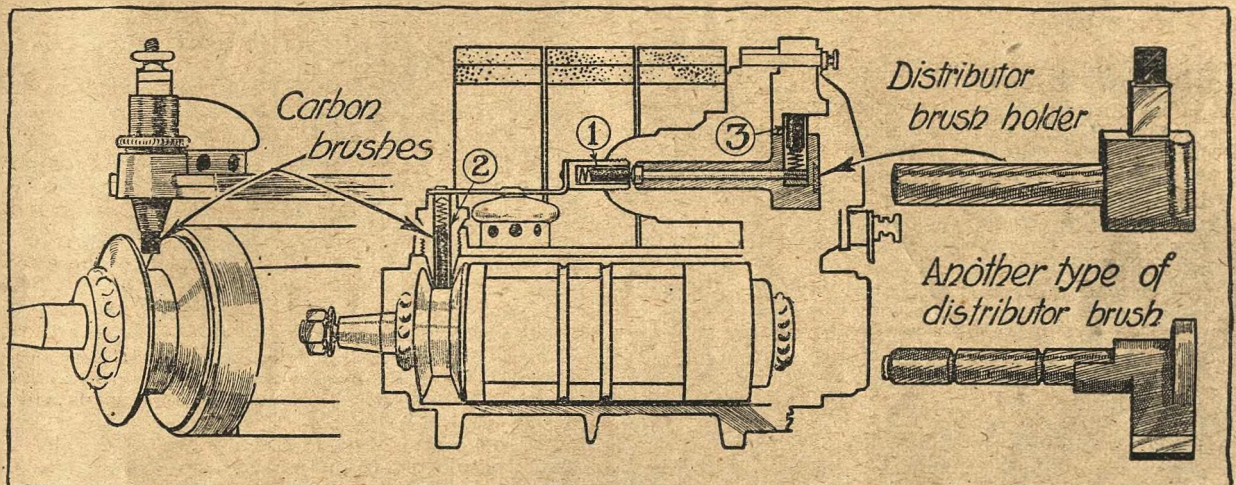
THE present state of affairs has taught us to do many more things for ourselves than we would have otherwise thought possible in connection with the running of our cars. After all, many of the jobs that one puts out to have done are of such a trivial character that they can be performed by the merest tyro if he will have a little self confidence and take particular care to notice how the parts are detached in dismantling. The carbon brushes of the magneto are one of those parts which most motorists leave severely alone, and yet with a little knowledge of their functions it is very easy to give them the attention which they require occasionally.

There is one thing that he cannot learn, however, except from experience, and that is the amount of force required for a certain operation. By force is meant in this instance the physical effort necessary to perform a certain operation. The simplest example

(3) the brush that leads the current from the slip ring to the distributor.

These have been placed in their order of importance. There are several ways and means of cleaning the brushes. For example, a very fine file, such as is used to true up contact points, may be employed, or a very fine glass paper, but on no account emery paper, which, if it can, should be avoided. For the purpose of this article a simple suggestion is offered, however: the striking edge of a safety matchbox makes an ideal abrasive for removing the metal from the ends of the carbons.

In taking out the carbon brushes care should be exercised in handling the ebonite parts into which they fit, as if these are inadvertently dropped or tightened up too roughly with, say, a pair of pliers, they will in all probability crack and render their insulating properties useless.



The principal carbon brushes in the magneto. (1) The distributor. (2) The slip ring. (3) The collector brushes.

of this is the difference in force required to tighten a nut. Nicety of touch would be another way of putting it. This may not seem to have much to do with the subject of magneto carbon brushes, but as these are such delicate parts, and for that matter every part of the magneto should be handled with care, a few words of warning are necessary.

In nearly every magneto there are three carbon brushes, and these need a little attention from time to time. This mainly consists of cleaning the surface of the brush where it comes into contact with the metal part to which it conveys, or from which it takes, the current.

The continuous rubbing of the parts together, and these carbon brushes are forced, lightly it is true, against the metal segments by fine hair springs, enables small particles of the metal to deposit on to the carbon with the result that the contact surface of the latter becomes very shiny. This is a point that has to be periodically remedied. When the fibre parts of the distributor are worn it is usually caused by the carbon brush at some time or other having been coated with metal of an abrasive character, thereby scoring the fibre.

The three carbon brushes that need most attention are those for (1) the distributor, (2) the slip ring, and

The Distributor.

Dealing with No. 1: most magnetos have a carbon brush that is caused to rotate in a vulcanite holder at half engine speed. The effect of this is that when the brush comes into contact with the metal segment the current generated by the magneto passes through the wire attached to the terminal in contact with the particular segment, and thus to the sparking plug.

In some magnetos, notably the Splitdorf, the action of the brush and segment is reversed. The metal part is rotated, and there are four collecting brushes instead. It is not proposed to deal with the merits and demerits of the various types, but simply to state the fact, so that the point of cleaning the brushes can be made clearer.

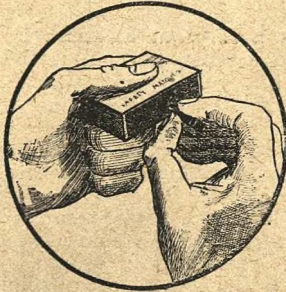
This brings us to a point, however, in connection with the cleaning operation that is sometimes overlooked. If metal particles detach themselves from the segments, or rings, as the case may be, the same takes place with the carbon brushes. A thin film of carbon deposits itself on the metal parts, and for the proper working of the magneto it is just as important to clean the metal as it is the carbon. A small quantity of very fine valve grinding compound placed on a rag previously having been moistened in oil or

MAGNETO CARBON BRUSHES (contd.).

paraffin is as good as anything for the distributor. It should be wiped quite clean afterwards.

The Slip Ring.

The slip ring is usually situated at the opposite end to the distributor, and is mounted on the end of the armature spindle. It is essential that the metal ring, which is let into vulcanite, should be bright for the proper functioning of the magneto.



The best method of cleaning carbon brushes is to rub the ends on a safety match box.

The unsharpened end of a pencil is a good tool to use to clean the ring after having covered the former with a rag moistened with some liquid metal polish. The carbon brush that takes the current from the slip ring should be moved to and fro in its holder to be sure that it works freely, and that the action of the spring will keep the brush down on the ring.

The Collector Brush.

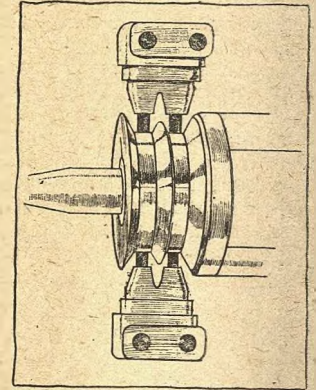
The third brush can in most magnetos be removed without disturbing No. 2 by slipping the locking catch aside and drawing it over the No. 2 holder. It looks very much like a pencil, and, in fact, fits into the inside of the distributor brush holder, making contact inside it with a metal cap cast into the latter. This cap is about the hardest thing to clean in connection with the various parts.

The reason for this is that it is inside the long holder, and the tool required must be small and sharp at the end. A small screw-driver is as good as anything. It will be found better to clean the holder on the screw-driver tip than to move the screw-driver in the holder, as the barrel end of the distributor brush holder is very thin and brittle, and a little too much pressure on the side will crack it.

There is another type in which the distributor brush holder is solid instead of being formed like a barrel, and having a brass cap at the end. In this case only one holder is necessary for the brushes that take current from the slip ring and deliver it to the distributor.

In the earlier stages of the war several cars were fitted with an American Bosch magneto known as the NU4. This differs in many respects from average

standard practice. The distinct gear driven distributor, common to other types, is not found in the NU4 magneto, and in its stead is a double slip ring combining the functions of current collector and distributor. The slip ring has two grooves, each containing one of the two metal segments. These segments are set diametrically opposite on the armature shaft. There are four slip ring brushes, as can be seen in the accompanying illustration, which are carried in two double brush holders, one on each end of the driving shaft end plate, each holder carrying two brushes so arranged that each brush bears against the slip ring in a separate groove. Upon rotation of the armature the metal segment in one slip ring groove makes contact with a brush on one side of the magneto at the same instant that the metal segment in the other slip ring groove comes into contact with a brush on the opposite side of the magneto. It is important to note, therefore, that as two of the four slip ring brushes make contact simultaneously the spark occurs in two cylinders simultaneously; that is to say, on the firing stroke of one cylinder and on the commencement of the suction stroke of the other, where the effect, from the ignition point of view, is nil. A general view of the end of this type of magneto is shown above.



The combined distributor and current collector of the NU4 magneto.

The Cause of Misfiring.

There is one other point in connection with the distributor that has not so far been touched upon which has a vital importance in the proper functioning of the magneto. After continued use it is very often found that the ebonite of the distributor cover is worn below the level of the metal segments. This causes the brush to jump each time it comes into contact with these segments, and misfiring will result. The only thing to do is to have the distributor plate trued up in the lathe or a new one fitted. Care must be taken to retain the interior of the distributor concentric, otherwise the brush will be working inside the brush holder. It is also advisable after having the distributor turned to fit a new brush a little longer than the old one.

H. P. McC.

THE IMPORTANCE OF METALLURGY.

NEXT, perhaps, to the aeroplane is the modern light car in its need for the employment of scientific alloys. While the essential aim is lightness and small bulk, each part must also be specially adapted to withstand the stresses which its particular work involves. In this connection, some interesting micro-photographs were shown recently in the form of lantern slides by Mr. J. de Kozlowski, in a lecture before the Aeronautical Institute of Great Britain. The alterations in shape and size in the crystallization of steel as a result of varying degrees of temperature and periods of cooling were very clearly illustrated, and the consequent improvement or deterioration of the mechanical qualities of the steel was explained in relation to cracks and fractures, the lecturer making a plea for still more scientific systems of research and treatment of metals in

this country, instead of the rule-of-thumb and empirical methods which have often prevailed. There is, of course, no doubt that work of high precision and the employment of carefully selected alloys in the present munitions works will ultimately have a considerable influence on all motor manufacturing processes after the war.

Lubricating Oil and Paraffin.

The difficulties caused by the thinning of lubricating oil by unvaporized low-grade fuel have already produced various suggestions in America by which the oil might be first heated to a temperature sufficiently high to evaporate the paraffin element and then cooled previous to further circulation.

AUTOMATIC SPRING LUBRICATORS.

A System of Lubrication for Laminated Leaf Springs.

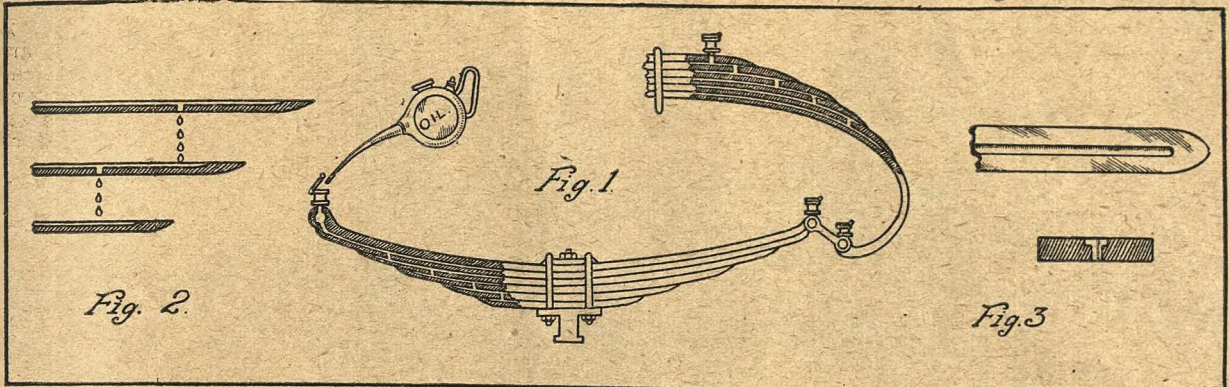


Fig. 1 shows the system of lubrication suggested, and Figs. 2 and 3 details of the way it is carried out.

I OFTEN wonder why so many motorcars and other vehicles are running upon our roads with no apparent means of lubricating the axle springs. I have also been in charge of different cars myself at various times, both light and heavy, passenger and commercial, and the only means which I saw fit to use on all these was to jack up the separate corners of the car, and by using a spring-leaf opener (similar to a woodworker's clamp), endeavour to insert graphite grease between the leaves with an old table-knife, an operation both messy and troublesome.

Of course, there are various auxiliary attachments and other means of ensuring lubrication of the spring, such as the Duco gaiters, enveloping in oiled bandages, oil-box attachments, etc.; but why not a spring fitted by the car manufacturers which would oil itself?

"No Attention" Springing.

Perhaps there is a reason, which is not apparent to the non-technical, for sticking to the plain leaf springs as fitted at present. I fancy there is a demand for a better style of springing requiring no attention, as most chauffeurs, and all owner-drivers, want as little work as possible in connection with greasing, and the springs do need looking after if you expect long life from them, no squeaking, and all possible comfort. There is a very great difference indeed between riding in a car with rusty, stubborn springs and one with well lubricated and flexible springs.

It was while opening up the leaves of my car last summer that I began to think out a way to save myself all this trouble, and I give here, in a series of sketches, the result.

The means employed is, to have oil gutters formed on the upper side of each intermediate leaf, running parallel to its length. There is also an oil hole drilled through these leaves along the gutter at a distance where it will be above the gutter of the leaf underneath. All the intermediate leaves are alike, but the bottom leaf, of course, only has the oil gutter and no oil hole, while the top leaf only has oil holes, which communicate with the oil cup or greaser and the gutter of the leaf underneath. Fig. 1 shows the passage of the oil from the oil cup, around the shackle bolt, and into the first gutter, from where it finds its way through the oil holes to the other gutters, right down to the bottom leaf. The oil in these gutters percolates all over the surface of the leaves, by the play of the spring, while the car is in motion. The diagram also shows where the oil cups

would be placed on the upper part of a full or three-quarter elliptic spring.

Fig. 2 gives a clearer view of the passage of the oil, the leaves being separated to illustrate this. Fig. 3 shows the gutter and oil hole in plan and end elevation. These gutters would be about $\frac{1}{4}$ in. wide, and from $\frac{1}{16}$ in. to $\frac{1}{8}$ in. deep, with a hole of about $\frac{1}{4}$ in. bore.

Many car springs already fitted could be altered to incorporate this system, and I do not think they would be weakened too much, in view of the greatly increased flexibility which they would have. They would, therefore, give rather than break. Makers adopting this system, of course, could make the leaves slightly thicker in section. The cost, too, of this improvement would be a small item on a good car, as the extra work entailed would be very little.

The Use of Grease Instead of Oil.

I have mentioned oil throughout these notes, but grease may be used as readily. The gutters, where grease is used, might be formed upon the underside of each leaf instead of on top, therefore allowing the grease to work downwards upon the top of the leaf below; but the method illustrated would be best for oil, as the oil channels would always retain some oil for use, whereas, if formed as described for grease, the oil would all run out at the sides of the spring.

Cleanliness and economy in lubricating are ensured by not overdosing. Little and often, a drop or two each morning, would be the rule. Paraffin could also be injected from time to time, with the car jacked up, to wash out any grit which may have found its way in between the leaves.

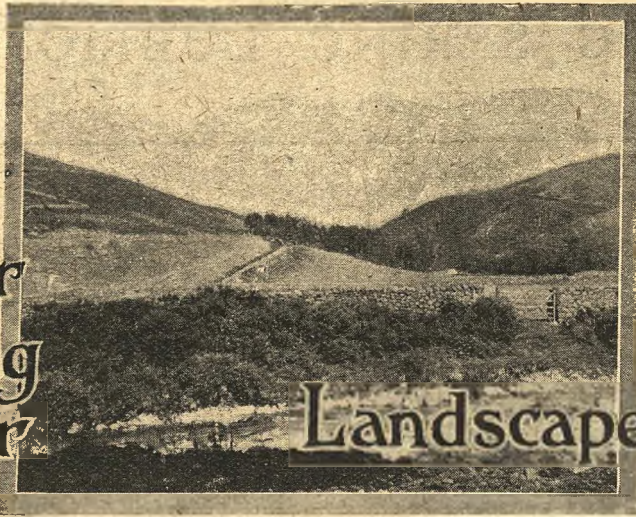
In view of the constant call for better springing, the system described here may appeal, as efficiency in springing on many present-day cars is merely a matter of constant attention to lubrication, and for that purpose the system of automatic lubrication suggested would be hard to beat. E.C.

Simple Upholstery.

Looking over one of the larger light cars recently in a showroom we were interested to see that a return had been made to plain upholstery. In practical use the more luxurious effect of folded and buttoned upholstery is outweighed by the annoyance of dust lodging in the folds, buttons coming off, cracking, etc. It is also considerably more expensive to upholster a car in this way.

Wasdale
Head in
the Lake
District.

By Our
Touring
Editor



Landscape Protection

A Plea that Some
of the Wild and
Waste Places of
Land Should be
Preserved for Future
Enjoyment.

TWO recent announcements in the Press will have been noted by country lovers with mingled feelings. London motorists must have learnt sadly of Mr. Alfred de Rothschild's generous offer to the Government of his hillside woods which are such an adornment to the neighbourhood of Wendover, although, of course, the patriotic sacrifice in this, the nation's, hour of timber hunger will not fail to receive their approval. On the other hand, there will have been a general feeling of pleasure at the news of the public-spirited action of Sir C. Dyke Acland in placing some 8000 acres of Exmoor under the care of the National Trust with a view to their perpetual preservation from disfiguration.

They were far-sighted people who saved Epping Forest and Burnham Beeches for ever, although doubtless there are soulless, ultra-materialistic building estate developers who would look upon the operation as an absurd waste of money and opportunity. They were wise folk, too, who conceived the National Trust for the Preservation of Places of Natural and Historic Interest, notwithstanding that there may be those who would rank that body's work as a piece of profitless sentimentality, among them, probably, the gentleman who, not long ago, calmly proposed that the Forest of Dean, in the neighbourhood of which he resided, should be cut down and all the roots laboriously grubbed up just so that the land might be put under the plough.

To Save from Spoliation:

On the whole, the feeling is growing that something should be done, before it is too late, to preserve from spoliation some, at any rate, of our most famous tracts of scenery, and the idea is one deserving of the whole-hearted support of all motorists who are lovers of the picturesque, especially now that the builder is not the only influence at work tending to sear and scar the countryside. The war has, in one way and another, already done much in this direction—as we shall be pained enough to observe when touring is resumed—but the peace to follow will do far more to circumscribe the number of the wild, beautiful, and lonely places of the land. With agriculture to be placed on a thoroughly sound and scientific footing, with a variety of rural industries to be established, and so on, changes of this sort are inevitable.

It would be alike useless and foolish to try to stop them, but would it not be almost equally foolish to neglect to earmark something for enjoyment? Motor ploughing, we are told, aided by modern methods of waste reclamation, would make short work of furzy hillsides, heathery wolds, and rolling moorland. If the farmer and the owner of the soil are allowed an

entirely free hand nearly all the wild and waste places of the land—wherever the heather and the gorse and the bracken and the rough moorland grass now refresh the eyes of jaded town dwellers and administer Nature's inimitable restorative—will in a few years have been turned into commonplace crop-bearing fields, relieved only by newly-planted woods.

If it is necessary for towns to have not only theatres, cinemas, and all the other usual means of relaxation in their midst, but also parks and gardens on their outskirts where evenings and half-days may be pleasantly whiled away, it is no less desirable that when longer holidays occur the town worker should have somewhere else to repair than the hackneyed seaside and similar resorts. Piers, promenades, marine drives, spa gardens, and other made attractions are all good enough things in their way, but by no manner of means do they satisfy that perfectly legitimate and entirely wholesome longing for Nature unadorned which, if gratified, supplies the corrective to town life.

National Parks.

Why not, then, set aside portions of the recognized playgrounds as National Parks, as, in a small and tentative way, Gowbarrow and Brandelhow Parks, in the Lake District, Colley Hill, near Reigate, the New Forest, the woodlands of Epping and Burnham, and now Exmoor, have already been secured to the public for ever? Better still, why not have a central department to regulate and direct the development of the country? Besides its advantages in co-ordinating individual and separate efforts, we ought then to be spared the eyesores of hideous cottages being thrown up where pretty ones could be built at the same cost, of any man defiling a lovely district with an industry that could as well grow up somewhere else where its ugliness would matter less, and so on. This kind of spoliation is seldom economically necessary, and may usually be traced to ignorance, in the first instance, and in the other to quite adventitious circumstances like local connections or difficulties that have occurred with landowners.

Under some such a scheme as that proposed we might expect to see portions of the North Downs and the Downs of Sussex and Wilts, the Heaths of Dorset and Suffolk, the Yorkshire Moors, the Pennines, the Mendips and the Quantocks, for example, set aside as inviolable preserves, with Dartmoor, the Malvern Hills, the Forest of Bowland, Snowdonia and other tracts in Wales, the whole of the English Lake District, and parts of the Highlands of Scotland and Ireland put under a special régime as regards any future development.

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*"The Tyre with
NINE Lives"*

The way to cut down
tyre expense is to buy
HUTCHINSON
"BIG THREE RIB"
TYRES

Acknowledged by all users to
be the finest tyres for Quality
and Service manufactured.

650 x 65	700 x 75 <small>To fit 630 x 65 rims</small>	700 x 80 <small>To fit 630 x 65 rims</small>
£3-0-0	£3-5-0	£3-7-6

650 x 65 Joined Tubes at 12/- each.

Write for our Catalogue TO-DAY.

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70, Basinghall Street,
LONDON, E.C.1.

• P.P.C.

**TO THE
READER**

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

A23



PALMER CORD TYRE

PALMER

I had
excellent
results

from Oversize Three-Rib Palmers
710 x 85 m/m on 650 x 65 m/m
rims, on which the car was
appreciably faster, in spite of
the weight, and skidding was
reduced to the minimum."

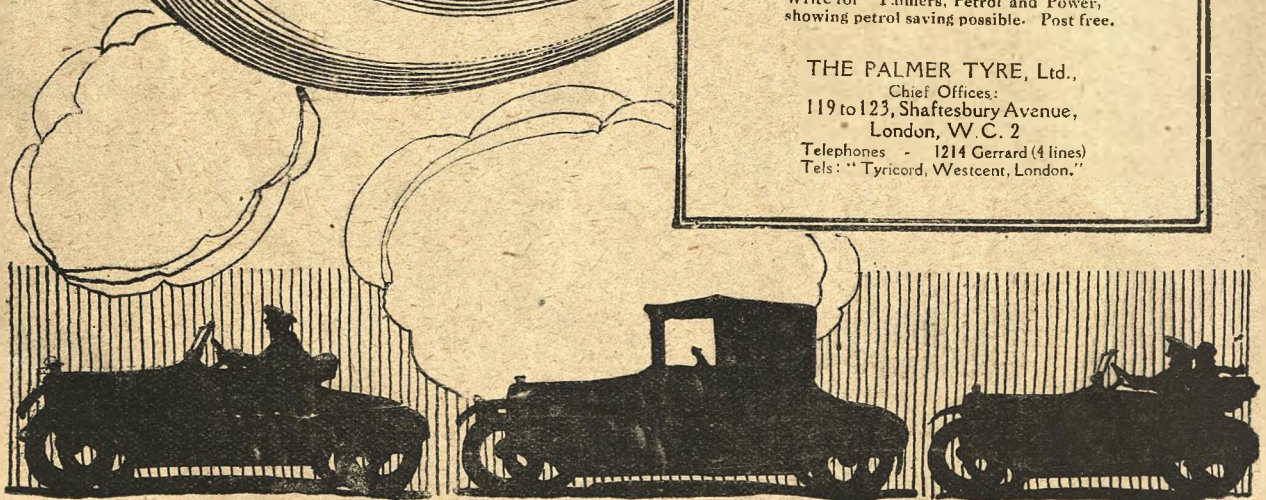
JOHN GILPIN, Junr.,
in "The Light Car
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A24 **HELP THE MOVEMENT** by letting advertisers know that their advertisements in "The Light Car and Cyclecar" interest you.

THOUGHTS & OPINIONS

NOTICE TO CORRESPONDENTS.

Preference is given to letters intended for publication which are to appear above the writer's name and address, but where this is not desired, initials or a nom de plume will be substituted if requested. In view of the

The Suggestions of To-day may be the Realities of To-morrow

peculiarly wide publicity afforded to letters on light car and cyclecar subjects appearing in these columns, readers are asked to make their letters as brief as possible so that a greater number may be published. Letters received up to Wednesday morning first post usually appear in the following Monday's issue.

Which Is the Best Light Car?

I see in THE LIGHT CAR AND CYCLECAR that "John Gilpin, Jnr.," states, in his review of his G.N., that he has driven nearly every known make of light car. It would be very interesting if he would state which, in his opinion, is the best light car, and also cyclecar, and in addition amplify his comparison of the two types.

S. H. FAWELL.

Ramblers, Park Langley, Beckenham.

The Tappet Adjustment of the A.-C.

With reference to one of the suggested improvements fitted to an A.-C. light car appearing on page 389 of THE LIGHT CAR AND CYCLECAR, when a car leaves our testers the tappets are adjusted 6-1000th and 8-1000th respectively, so I should imagine Mr. "F.G.'s" engine must have been in an awful state for him to get the marked improvement he did with his adjustment.

A. NOBLE, Manager,

AUTO-CARRIERS (1911), LTD.

"A Mysterious Remedy for Easy Starting."

Permit me to use a little of your valuable space to explain the "mysterious remedy for easy starting." Evidently "A.F." (London, W.) and others (scores) did not read my first article correctly. "A.F." "thinks" I live at the top of a hill. If I did I should not be fool enough to start my engine by hand. I clearly stated I guaranteed a start from cold from first, or most, second pull up of the starting handle. My remedy was "grit," which the Editor alone seems to understand, as he stated last week. I was pulling no one's leg, neither do I consider myself a humorist. By "grit" I mean "common sense." If every owner saw that he had a spark at slow turning of the starting handle and the engine got a charge of gas, it naturally goes without saying easy starting must ensue. Got me?

COD FISH.

Church Street, Cromer.

Cars Between the Sidecar and the £200 Car.

In the article on motoring in Java in THE LIGHT CAR AND CYCLECAR the writer points out how well the little air-cooled Humberette stood the rough Colonial usage and high temperature of that island without trouble or overheating. I can bear out the statements of the writer, as three years ago—in March, 1914—I purchased an air-cooled Humberette, which I have now driven 13,000 miles, mostly on the bad and hilly roads of North Devon, and never been let down once by mechanical trouble while on the road, the only replacement being, strange to say, exactly the same as the Java owner's, a new bevel pinion in the back axle.

My car is as good to-day as when new; it has carried self, wife and two children (I have a child's dickey) from Barnstaple to Manchester and back without an involuntary stop, and it always runs well up to 50 miles per gallon. We hear a lot about the necessity for lighter and cheaper cars after the war, and yet in face of this I hear that the Humber people are not going to re-manufacture the Humberette after the war, but instead to offer their 10 h.p. Humber—a car costing more than double, weighing nearly double, and I expect costing nearly three times as much to run.

To every man who could afford to buy and run the 10 h.p. there must be at least half-a-dozen looking out for a car at from £100 to £150, and if the Humber people are so short-sighted as to miss this market, I hope some other manufacturer will step in and fill the large gap between the light car at £200 and over and the lop-sided sidecar. At present there is only the Morgan three-wheeler and one or two inexpensive four-wheeled cars, such as the Humberette and 7 h.p. Swift, both of which will be unobtainable as new cars after the war.

I trust you will use your influence on behalf of the patriotic Englishmen of moderate means who would much prefer to buy a durable home-made car to the large, cheap, and shoddy American, but as things are tending at present he will have no choice but to buy a car of American origin or go without.

7, Eberley Lawn, Barnstaple.

H. J. HUTCHINGS.

The Selfish View.

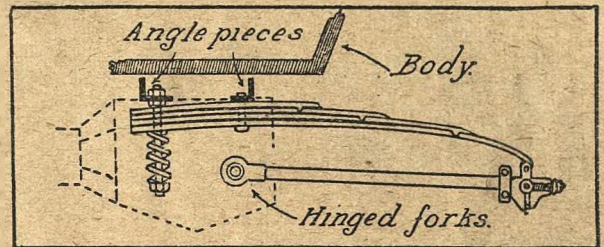
It is deplorable that anyone should regard the future of the light car industry from such a selfish point of view as to place the ability to purchase cheap cars first in importance. Patriots like your correspondent "X." (Weymouth) must have their cheap American cars though the heavens fall! His views show how very necessary it will be to protect the industry by prohibition if necessary. Might I point out also that, while it may be your chief object to encourage cheaper motoring, it is not your aim to destroy British trade.

Wolverhampton.

GEO. WATSON.

A Morgan Springing Detail.

Can any of your mechanical readers explain the shock-absorbing action of the coil springs fixed beneath the quarter-elliptics on the Morgan runabout? As these coil springs are rigidly attached to the leaf spring and the leaf spring is rigidly secured to the two cross angles, any movement of the coil spring seems to be impossible.



The rear springing of the Morgan.

The long bolt is a close driving fit in the hole through the quarter elliptic; thus the elliptic spring cannot move on the top of the coil spring. As there is no base or resistance under the coil spring, how can it come into action? The quarter elliptic has the function of straightening up the chassis at the hinged joint connecting the bevel box and back forks, and any looseness at the bolts tying the leaf spring to the cross-angles would be fatal to the alignment of the chassis.

As I cannot see that these coil springs serve any practical purpose, I intend discarding them, simply bolting the leaf spring to the cross-angles. A shock absorber would be of greater value, in my opinion, at the other end of the leaf spring, incorporated with the shackle bolts.

A. TOMS.

35, Hayter Road, Brixton Hill, S.W.

-The Cheap Light Car of the Future.

With reference to Mr. H. George Morgan's letter in THE LIGHT CAR AND CYCLECAR of 26th March regarding the cheap car of the future, the following points present themselves to me (a private motorist):—

(1) Why are British motorcars built with so many varieties of engines, radiator shapes, springs, axles, carburettors, tyre sizes, wheels, etc.?

(2) If the Ford has caught on with people in every country in the world, it is obvious that the appearance of the car is not distasteful on account of its standardization.

(3) Being able to get spare parts in every village.

(4) After the war, it is up to the British manufacturers to put their backs into producing a commonsense, neat and non-freakish car, serviceable in Great Britain and her Colonies.

(5) The whole question of protection of the British market should be taken up very vigorously by the manufacturers and the Government.

(6) That manufacturers, motorists, and everybody concerned should co-operate and aim at making up their minds that Great Britain is going to be on top in such an important industry.

W. J. A. TINKHAM, Sergt.

H.Q., The London Rifle Brigade.

FROM OUR FOREIGN POST-BAG.

Where They Have No Modern Light Cars.

I am sorry to have changed my address so often recently, causing extra work for your depleted staff, but I do not like to miss any industry. Your magazine attracts considerable attention among my friends over here, and often causes considerable argument, as they are unable to believe that any car can be as economical as the light cars:

There is in this country no class corresponding, and all attempts so far made to introduce a small car have been failures, the trouble being, so far as I can tell, due to a species of megalomania—size covering a multitude of sins.

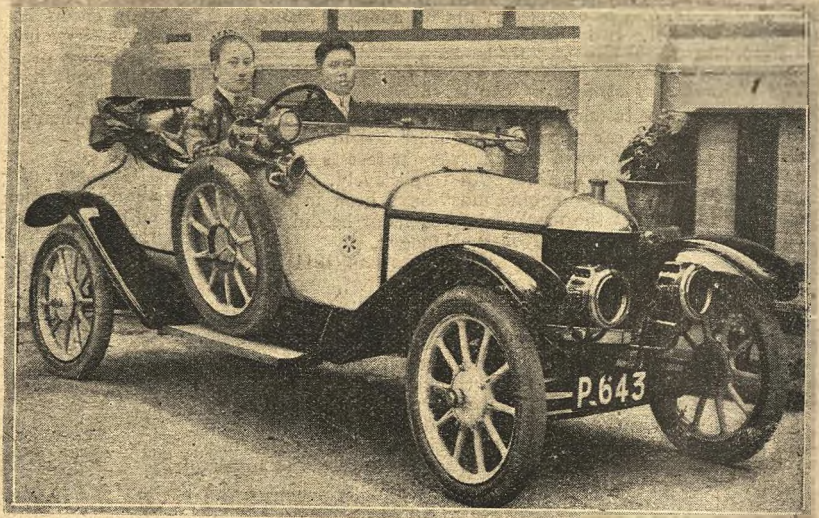
H. PEYTON HOPKINS.

Dept. of Chemistry, Bartlesville, Oklahoma.

Two Bull-power, but Air-cooled.

I enclose herewith a small print showing a somewhat novel method of motor-ing in Southern India. The scene of action is the road from Madras to Bangalore at a spot some 31 miles from the nearest railway station. The car is a 1913 air-cooled Humberette, which had done very well for the first 150 miles of the journey, but which, owing to a cracked ball-race in the differential, had to suffer the indignity shown until the nearest railway station was reached. The distance run under our own power took about 10 hours, including stops, and the 31 miles with two bull-power were accomplished in something like 15 hours (almost without a stop and mostly by night). Despite this trouble I have much to say for the little Humberette, and am sorry to read in your paper that the manufacture of these cars is permanently discontinued. META.

Madras.



Emancipation of the Chinese complete. A Chinese woman who has learned to drive a 10 h.p. A.-C. light car. (See letter from "China.")



Two bull-power. How a Humberette in trouble was brought home. The journey took 15 hours! (See letter from, "Meta.")

A Chinese Woman Driver.

I have pleasure in enclosing a photograph showing an A.-C. car with Nonia Lim Khim Inn at the wheel, who holds the first driver's licence granted to a Chinese lady in Penang. I am informed she is the first Chinese lady to drive a car in the Straits Settlements and Federated Malay States, but of this statement I am not quite certain. "CHINA."

Penang, Straits Settlements.

A26

Trials and Tribulations in India.

Since I last wrote I have moved to another district. So far its outstanding features are dust and cold and camels; the last-named does not matter, as one can hold one's nose when passing. The cold takes a lot more getting used to, especially when one comes up from lower down in the middle of the cold season.

There are only two roads out of here fit for motors, one the Grand Trunk which goes right across India, and the other going up into the hills. The scenery is fine along any of them, as snow-topped mountains are always in sight at this time of the year, and the rivers have quite a decent amount of water in them.

By the way, you have been talking a lot about a substitute

for platinum. You've got all the way from Rosebery Avenue to breakfast time to go before discovering what the makers of my magneto know in the way of substitutes. Just by way of introduction they have stamped most of the patents filed at the Patent Record Office during 1913-14-15-16-17 on the outside of the magneto. When quite small I was always taught to count five slowly before saying a bad, bad word. Guess those patents printed on the magneto are to give the lady passenger time to get out of earshot after I've lifted the bonnet and inspected the charred or fused mass that is supposed to make and brake contact twice per revolution. It is this way: when the Shortz and Sparxsumtymz Electrical Corporation, Okla., Wyo., U.S.A. (why does a firm with a name and address like this trouble to put U.S.A. at the end of it?), went out into the wilderness of research to find a substitute, they lit upon exactly the same substance that English plumbers have been using for years and years to wrap round streaks of water in civilized domiciles. It is usually known as lead piping. As a showroom article it looks rather business-like, because, no doubt on account of its cheapness, the makers can afford to be generous, but when it comes to doing a day's work it does not come up to a ten years ago ideal. You will appreciate my feelings on the accessibility question when I tell you that I have to take the magneto off the car even to look properly at the contact breaker. Fortunately, this is a fairly easy operation on my present bus, but on my last machine where the contact breaker was jammed within $\frac{1}{2}$ in. of an engine bearer, and low down at that, before taking off the magneto the underscreen had to be removed. Oh dear, India is about the purplest place I've ever hit so far, but I rather fancy that American must be even more lurid. Can they make a decent magneto in Blighty yet?

TOMMY.

India.

NOTICE TO CORRESPONDENTS.

Correspondents are particularly requested to write their letters in ink, on one side of the paper only, and to enclose sketches drawn (even roughly) on a separate sheet.

Although our works are exclusively engaged upon National and Imperial Service, our extensive stock still enables us to give prompt delivery of most of our Electrical Specialities

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EVERYTHING
ELECTRICAL
in connection with
MOTORING

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ACTON, LONDON, W.

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—NOT QUANTITY

An ideal which is followed by the G.W.K. Friction drive, smartness in appearance, durability and general efficiency have made the

G. W. K.

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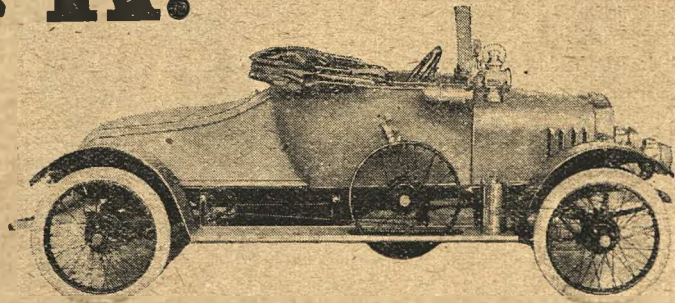
Owing to the fact that we are serving the Government, we cannot at the present time serve you; but as soon as hostilities cease we shall again supply the G.W.K. Why not wait?

STANDARD MODEL. — 2-cyl. engine, water-cooled, friction drive, with automatic lubrication.
PRICE 200 GNS.

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SECOND-HAND

LIGHT CARS, CYCLECARS,
AND ACCESSORIES FOR SALE

Rate for Advertisements in this section : sixteen words, 1/- (minimum), 6d. per eight words after. The Rates for Trade Advertisements are 18 words 1/6, and 1d. per word after. These are designated "TRADE," for the guidance of the reader. Subject to a discount of 5 per cent. for 13 consecutive insertions, 10 per cent. for 26, 15 per cent. for 52. Terms: Cash with order, and otherwise net. Cheques, Postal Orders, etc. should be crossed and made payable to Temple Press Ltd. N.B.—In the interests of our readers we shall not hesitate to take proceedings against any persons in the trade who succeed in obtaining the insertion of their advertisements as "Private" and shall insist to the utmost upon the payment of all law costs incurred.

BOX NUMBERS.—Advertisers desiring to have replies sent care of "The Light Car and Cyclecar" may do so on payment of a nominal fee of 6d. to cover booking and cost of forwarding such replies. The words Box, c/o "The Light Car and Cyclecar," count part of the advertisement.

DEPOSIT SYSTEM.

For the convenience and security of our readers we have an approval-deposit system. The intending buyer forwards to our office the amount of the purchase money, which will be acknowledged to both parties. Notes or money order save time. Cheques must be made payable Temple Press Ltd., and are acknowledged to seller when "cleared." If a sale is concluded, we forward to the seller the amount agreed upon. If no sale is made, we return the amount deposited. In either case we deduct a commission of 1 1/2 per cent. (3d. in the £, 1/- minimum), on amounts deposited up to £25, 1 per cent. on amounts from £26 to £100, and 3 per cent. on amounts exceeding £100, to cover our expenses of booking, postages, etc. Carriage is to be paid by the buyer. If the article is returned, each party pays one way. The risk of damage in transit is the seller's. Articles on approval are not to be retained more than three days, unless by arrangement between the parties. All disputes to be settled by the arbitration of the Editor of "THE LIGHT CAR AND CYCLECAR."

WARNING.—Acknowledgments of deposits or instructions to forward goods advertised are only written on our special headed paper, which bears a facsimile of the title of this journal. To prevent fraud, the advertiser should ACKNOWLEDGE IMMEDIATELY any such letter apparently coming from us, and delay forwarding the goods for a day or so. Should we, on receiving such an acknowledgment, find that no letter has been sent by us, we will wire the advertiser not to part with the goods advertised.

DISPLAY ADVERTISEMENTS, ordinary issues, £14-0-0 per page. Scale of charges with reduction for series, sent on application.

REGULATIONS WITH REGARD TO ADVERTISEMENTS.

All advertisement orders are subject to confirmation in writing from the Head Offices.

All advertisements and contracts are accepted and made upon the express condition that "Copy" is subject to the approval of the Publishers generally, who also reserve the right to reject any advertisement, in whole or in part, referring to cars or accessories which in the opinion of the Publishers are outside the scope of the journal, and such refusal of copy shall not be a good ground for advertisers to stop a current contract or to refuse to pay for the same or for taking action for breach of contract.

Whilst every precaution is taken to ensure accurate printing, the Publishers will not be responsible for printer's errors, nor will they be responsible for adv. blocks that are left in their possession for more than one year.

Copy for, and all matter relating to, advertisements must reach the offices first post Wednesday, and should be addressed to THE MANAGER, "THE LIGHT CAR AND CYCLECAR," 7-15, ROSEBERY AVENUE, LONDON, E.C.1, to whom all communications concerning advertisements should be sent. If proof of displayed advertisements is required, copy should be forwarded in sufficient time to allow of it being submitted and returned.

Head Offices: 7-15, Rosebery Avenue, London, E.C.1. Telephone No. 5292 Holborn (four lines). Telegrams: "Pressimus, Phone, London."

[Addresses of Branch Offices on "Topics of the Day" page.]

LIGHT CARS AND CYCLECARS FOR SALE.

A.-C. Sociable, hood, screen, speedometer, lamps, etc., good condition, painted Rover grey, spares, £35; after 7, Mackay, 32 Princess Rd., S. Norwood, S.E. 231-4942

A.-C. Sociable, 1913, delivered 1914, hood, screen, 4 lamps, luggage grid, new tyres, perfect, £42 10s.; motorcycle part. Young's, Parade, Kilburn, N.W. 6. Trade 229-842

A.-C. Sociable, 1913, hood, screen, lamps, good order, £39 10s. Motor Exchange, Horton St., Halifax. Trade 230-833

A.-C. Sociable, 1913, 4 lamps, hood, screen, 2 horns, speedometer, Bosch, tyres nearly new, good running order and condition, £35. Chatterton, Dental Surgery, Newbury. 230-3459

A.-C., 10hp, sporting model, 2-seater body, staggered seats, centre gear change, hood and screen, speedometer, C.A.V. dynamo lighting, detachable wheels and spare with tyre, in exceptionally fine order and condition, £275; easy-purchase terms if desired. Harrods, Ltd., Motor Dept., Brompton Rd., S.W. Trade 229-856

A.-C., 12hp, new November, 1915, electric side and tail lamps, acetylene head, done 5000 miles, tyres unpunctured, full kit tools, speedometer, clock, etc., price £250 cash. J. E. Dobbin, 23 Enmett St., Poplar, E. 14. 229-869

ALLDAYS, 1914, smart torpedo 2-seater, 8hp, water cooled, magneto, Zenith carburettor, 3 speeds, reverse, hood, screen, lamps, expert examination, trial, sacrifice 75 guineas. Exchange motorcycle combination. Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). Trade 229-1362

LIGHT CARS AND CYCLECARS FOR SALE

(continued).

AUTOCRAT, late 1916, 11.9hp, light 4-seater, dynamo lighting, 5 detachable wheels, one-man hood, screen, tyres, engine and gears perfect condition, appearance as new, not run 2000 miles, 38 m.p.g., any trial or examination, £275; allow up to £130 for 2-seater part exchange. Rogers, Bungalow, Stechford. 229-876

BABY PEUGEOT, sporting model, pointed back, outside exhausts, very smart in appearance, painted maroon colour, bucket seats, very fast, £135 net. Motor Supply Co., 29-31 Oxford St., Manchester. Trade 229-855

BABY PEUGEOT, sporting 1915 model, painted dark green with black wings, bucket seats, complete with oil side and tail lamps, luggage giki at rear, perfect order, £150. Nichols, 179 Gt. Portland St., London, W. 222-665

BABY PEUGEOT, 1915, just repainted and varnished, lamps and horn, fine hill-climber, £135. Taylor's, Ltd., Store St., W.C. Trade 230-844

BABY PEUGEOT, 1915, the smartest on the road, supplied by Paddon Bros., almost new, special body by Moss, with high sides, leather upholstery, spring seat, white enamel body, with black wings, new tyres, Stepney, Smith's speedometer, toolbox, Lucas lamps, horn, mat, windscreen and hood, £160, no offers. Loraine Young, 38 Broadway Court, Westminster. Phone, Victoria 4659. 229-840

BABY PEUGEOT, 1915, 3 speeds, hood, screen, Stepney wheel, 2 spare tyres, lamps, etc. Bayard Cars, Ltd., 155-7 Gt. Portland St., W. 1. Phone, Mayfair 3513. Trade 229-848

BABY PEUGEOT, 6-9hp, de luxe model, fitted with new English hood, screen, aluminium running boards, in splendid order and repainted green, £135; easy-purchase terms if desired. Harrods, Ltd., Motor Dept., Brompton Rd., S.W. Trade 229-857

BABY PEUGEOT, 1913 model, in nice running order and condition, fitted with hood and screen, spare wheel and tyre, lamps and horn, painted green, £110; easy-purchase terms if desired. Harrods, Ltd., Motor Dept., Brompton Rd., S.W. Trade 229-858

BABY PEUGEOT, 1915 (November), de luxe, hood, screen, Stepney, speedometer, tools, spares, perfect mechanical condition and tune, 5 good tyres, spare tube, just repainted buff, very smart, exceptionally fast and economical, £145. P. Walker, 58 London Rd., Chelmsford. Telephone, 74. 230-358

BABY PEUGEOT coupe, very late 1915, smartest little coupe in town, Royal blue, red lined, wire wheels, tyres as new, perfect throughout, will do 60 miles to gallon, the most economical car to run, bargain at £210. Mebes and Mebes, Original Light Car Specialists, 154-6 Gt. Portland St., W. Tel., 3426 Mayfair. Trade 229-866

BABY PEUGEOT, 1916, 2-seater, run 600 miles only, indistinguishable from new, £155. Percy and Co., 337 Euston Rd., London. Trade 229-907

CALCOTT, 1914, 10hp, 2-seater, painted buff, excellent condition. Bayard Cars, Ltd., 155-7 Gt. Portland St., W. 1. Phone, Mayfair 3513. Trade 229-849

CALCOTTS. Finest stock in London. Below.

CALCOTT, 1916, 3-seater clover-leaf body, dynamo lighting. Below.

CALCOTT, 1915, dynamo and self-starter. Below.

CALCOTT, 1915, dynamo lighting set, dickey seat. Below.

CALCOTT, 1914, dynamo and self-starter, dickey. Below.

CALCOTTS. Full particulars and prices of above sent on application. Alfred Wastnag, 65 Gt. Portland St., W. Tel., Mayfair 3065. Trade 229-852

CALCOTT, 1915, complete dynamo lighting set, speedometer, clock, bulb and electric horn, dickey seat, detachable wheels and tyres, nickel finish, grey, £270. Colmore Depot, 49 John Bright St., Birmingham. Trade 229-899

CALCOTT, 10hp, brand new, 2-seater, dynamo lighting, actually in stock. Percy and Co., 337 Euston Rd., London. Trade 229-906

CALCOTT, 1916, 10hp, dynamo lighting, in perfect condition mechanically, as new, any trial or examination, £275. Robison's Garage, Green St., Cambridge. Telephone 388. T.A., "Cars." Trade 229-900

CALTHORPE light car, early delivery from the authorised agents, Exeter Light Car Co., Ltd., 7 Bath Rd., Exeter. Trade 229-934

CALTHORPE, 10hp, 4-seater, electric lighting, complete with all accessories, very smart, in perfect condition, £185. Motor Supply Co., 29 Oxford St., Manchester. Trade 229-249

CALTHORPE, 1914, 10hp, 2-seater, Cambridge blue, black fittings, hood, windscreen, 5 detachable wheels, tools and accessories, guaranteed condition, £155, exchanges arranged. Service Co., 292 High Holborn, London. Trade 229-476

CALTHORPE cars. Storey and Co. have always the largest stock of Calthorpe cars. Agents for London, Surrey and Kent. The following cars are actually in the showrooms for immediate sale, no Government permits necessary, and a guaranteed supply of first-class petrol substitute for every purchaser; 40 miles to the gallon in every case.

CALTHORPE, 1 new three-quarter coupe, self-starter.

CALTHORPE, 1 new single coupe, self-starter.

CALTHORPE, 1 new coupe, dynamo lighting.

CALTHORPE, 1 new cabriolet coupe, self-starter.

CALTHORPE, 1 new G.D.M. 2-seater, dynamo lighting

CALTHORPE, 2 new sporting 4-seaters, 60 miles per hour.

CALTHORPES. Also several second-hand, up-to-date models, in first-class order and ready for the road. Telephone, 5923 Mayfair. Storey, 118 Gt. Portland St., W. Trade 229-574

CALTHORPE, late 1915, 12-volt dynamo lighting, speedometer, shock absorbers, £235. Motor Exchange, Horton St., Halifax. Trade 230-835

CALTHORPE coupe, 1914, 3 electric lamps, 5 detachable wheels, very nice order, £170. 75 Christchurch St., Ipswich. Trade 229-836

CALTHORPE, 1916, sports model, 4-seater, only done 2000 miles, fitted with all accessories, complete, a very special car, in perfect order, £350. Colmore Depot, 49 John Bright St., Birmingham. Trade 229-897

CALTHORPE, 10hp, standard model, complete hood, electric side and tail, acetylene headlights, detachable wheels, grey, £160. Colmore Depot, 49 John Bright St., Birmingham. Trade 229-898

CALTHORPE light cars, immediate delivery of coupes, 2-seaters and 4-seaters, at list prices to doctors, controlled works, and anyone engaged on work of national importance. P. J. Evans, Sole Midland Agent, 87-91 John Bright St., Birmingham. Trade 229-875

"THE LIGHT CAR AND CYCLECAR" is the best medium and has the largest circulation.

LIGHT CARS AND CYCLECARS FOR SALE (continued).

CALTHORPE. I have a very special saloon, just from the coachbuilder's, one of choicest light cars ever produced, complete with dynamo lighting and starting, 400 gns. P. J. Evans, 87 John Bright St., Birmingham. Trade 229-876

CALTHORPE coupe, 1917, 10hp.

CALTHORPE 10hp 1917 sporting 2-seater.

CALTHORPE, 10hp, 1917, G.D.M., 2-seater, all 3 brand new, all 3 actually in stock. Percy and Co., 337 Euston Rd., London. Trade 229-904

GARDEN, 1914, 6hp twin J.A.P., electric horn and headlamp, just overhauled and repainted, £30. A. C. Jones, Flight Officer, R.N. Air Station, Sleaford, Lincs. 230-a380

GARDEN monocar, 6hp twin J.A.P., in real good order, £40. Percy and Co., 337 Euston Rd., London. Trade 229-910

CRESCENT cyclecar 2-seater, twin J.A.P. engine, air-cooled, friction-driven, in splendid order, hood, windscreen, speedometer, lamps, etc., personally driven, done about 4500. Rugg, Lewes, Sussex. Trade 229-a363

DAY-LEEDS, 1915, 10hp, dynamo lighting, dickey seat and all extras, unsratched, indistinguishable from new, mechanically perfect, £215. Motor Supply Co., Oxford St., Manchester. Trade 229-733

DEEMSTER, 1914, 4-cylinder, newly repainted, fitted with various extras, excellent condition all through, £135. Motor Supply Co., 29 Oxford St., Manchester. Trade zzz-723

DEEMSTER coupe, 1915 model, recently overhauled and repainted, fitted with dynamo lighting set, self-starter, 5 Sankey wheels, dickey seat, etc., 200 guineas. Roper and Wreaks, 112 Arundel St., Sheffield. Trade zzz-377

DUO, 1914, 8-10hp J.A.P., Bosch magneto, very good condition, £45; exchanges. Service Co., 292 High Holborn, London. Trade zzz-974

ENFIELD 1916 coupe, 10hp, 4-cylinder, speedometer, horn, tools, dynamo lighting, nickel fittings, Bedford cord upholstered, mileage 2000, guaranteed car, £255; exchanges and easy payments. Service Co., 292 High Holborn, London. Trade zzz-233

ENFIELD, 1914, 2-seater, little used, owner-driven, mileage 3000, hood, screen, lamps, Stepney spare, recently overhauled, perfect condition, open any inspection. Aitken, Northwood, Barry. 229-g388

ENFIELD, late 1916, 10hp, new condition, dynamo lighting, £198. Poxon and Co., Canterbury. Trade 229-a187

ENFIELD, 10hp, 1917, 2-seater, dynamo lighting, brand new, actually in stock, £215. Percy and Co., 337 Euston Rd., London. Trade 229-905

GLOBE 2-seater, exactly as new, will take good 4-seater in exchange and pay cash difference. Also 2 1914 Globe 2-seaters, sound order, including repainting, £65 and £60. Tuke and Bell, Ltd., Makers of Globe cars, Carlton Engineering Works, Tottenham. Trade 229-901

G.W.K., de luxe model, in new condition, fitted with dickey seat and spares, £145. Motor Supply Co., 29-31 Oxford St., Manchester. Trade zzz-853

G.W.K., 1914, Stepney wheels, hood, screen, 3 lamps, horn, reflecting mirror, just repainted, in good condition, £115. Freeman, Oakes and Co., Sheffield. Trade zzz-881

G.W.K., 1915, repainted, 5 lamps, speedometer, oversize tyres, £150. G. L. Francis and Co., 22 Pantons St., Leicester Sq. Trade 229-871

G.W.K., 1915, model de luxe, dynamo lighting, painted white and black, £185. Cass's Motor Mart, only address 5 Warren St., Euston Rd., W. 1. Museum 623. Trade 230-888

HILLMAN, 1915 model Lucas dynamo, double dickey seat, all extras, almost new condition, £220. Motor Supply Co., 29 Oxford St., Manchester. Trade zzz-949

HILLMAN, 1914, 2-seater, in perfect condition, lamps, spare wheel, etc., £195; exchanges or extended payments. Service Co., 292 High Holborn, London. Trade zzz-730

HILLMAN, 1915, 9hp, 2-seater, dickey seat, hood, windscreen, Lucas dynamo lighting set, speedometer, clock, disc wheels, one spare, and usual equipment, excellent condition throughout, price £220. R. Bamber and Co., Ltd., 33 Liverpool Rd., Birkdale, Southport. Trade 230-762

HILLMAN, 1914, overhauled and repainted buff, fitted hood, screen, electric side and tail lamp, as new, £195. Colmore Depot, 49 John Bright St., Birmingham. Trade 229-894

HORSTMANN, 1916, 9hp, 3-speed, clutch and mechanical starter, hood and screen, good condition, £95. P. J. Evans, John Bright St., Birmingham. Trade 229-877

HORSTMANN, Edwards and Parry, the special London agents for Horstmann cars, have a 1915 model for immediate delivery. This car has been overhauled and is guaranteed to be in good mechanical condition. Is fitted with dickey seat and speedometer, £135 cash. 69 St. Queen St., Kingsway. Regent 5086. Trade 229-854

HORSTMANN, 8.9hp 4-cylinder engine, mechanical starter, hood and screen, detachable wheels and spare with tyre, horn, 2 lamps, in very nice order and condition, £125, cash. Harrods, Ltd., Motor Dept., Brompton Rd., S.W. Trade 229-859

HUMBERETTE, air-cooled, thoroughly overhauled and new parts fitted, and repainted grey, splendid condition, £65. Roper and Wreaks, 112 Arundel St., Sheffield. Trade zzz-697

HUMBERETTE, 1915, w.-c., excellent condition, small mileage, clock, Stepney, speedometer, £100. Griffiths, 472 High Rd., Leyton. 230-a201

HUMBERETTE, 1914-15, water cooled, all accessories, repainted, £115. Below.

HUMBERETTE, 1914, water cooled, all accessories, painted green, £105. Cass's Motor Mart, only address, 5 Warren St., Euston Rd., W. 1. Museum 623. Trade 230-887

HUMBERETTE, 1914, torpedo 2-seater, 8-10, magneto, 3 speeds, reverse, hood, screen, lamps, gift 59 guineas; exchange motorcycle combination Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). Trade 229-h363

HUMBERETTE, 1915, water cooled, all accessories, Stepney, as new, only run 3000 miles, perfect mechanical order, tyres practically new, £100. Fisher, Quarry Farm, Groombridge. 229-a374

JOWETT, 8hp, 1915, hood, screen, side curtains, 5 lamps, trip speedometer, spare wheel, 5 new 700 by 80 tyres, perfect condition, £160. Henson, 21 Clarendon Place, Leeds. 229-a357

LAGONDA, 11hp, 1915, 4-seater, spare wheel, fully equipped, fine condition, £145. Taylor's, Ltd., Store St., W.C. Trade 230-845

LIGHT CARS AND CYCLECARS FOR SALE (continued).

LAGONDA coupe, 11.9hp, open or closed at will, C.A.V. dynamo lighting system, electric inspection lamp, 2 horns, speedometer, detachable wheels and spare with tyre, repainted French grey, in fine order and condition throughout, £185; easy-purchase terms if desired. Harrods, Ltd., Motor Dept., Brompton Rd., S.W. Trade 229-860

MARLBOROUGH, late 1914, 12hp, 3-seat clover-leaf body, dynamo lighting, etc., £215. Cass's Motor Mart, only address 5 Warren St., Euston Rd., W. 1. Museum 623. Trade 230-886

MATHIS, 10hp, new, latest model, V radiator, 3-seated body, 5 detachable wheels, complete equipment, price £300. The Morris Garages, Oxford. Phone, 238. Tel., "Auto." Trade zzz-123

MATHIS, 10hp, new, latest model, standard radiator, 2-seater, with dickey seat, 5 detachable wheels, complete equipment, price £275. The Morris Garages, Oxford. Phone, 238. Tel., "Auto." Trade zzz-124

MORGAN, G.P., 1915, fitted electric lighting, disc wheels, finished cream and black, perfect condition, extremely smart, £130. Motor Supply Co., 29 Oxford St., Manchester. Trade zzz-717

MORGAN, 1917, G.P. model, M.A.G. engine, complete all fittings, £135. Turpins, 22-29 Preston Rd., Brighton. Trade zzz-747

MORGAN runabout, 1917, special racing model, with streamline body, painted dark red, disc wheels, 700 by 80 tyres, C.A.V. side and tail lamps, from accumulators, switchboard and lamp on dash, 10hp water-cooled M.A.G. engine, long exhaust pipes, extra tool lockers, and many small special fittings, a very fast sporting car, what offers? Exeter Light Car Co., Ltd., 7 Bath Rd., Exeter. Trade zzz-231

MORGAN runabouts. We can give good deliveries of new Morgans to doctors, farmers and users of national importance. Exeter Light Car Co., Ltd., 7 Bath Rd., Exeter. Trade zzz-232

MORGAN, 1915, Grand Prix, hood, screen, 5 lamps, speedometer, disc wheels, watch, mechanical horn, etc., in first-class order, £100. F. J. Young's, The Parade, Kilmarnock. Trade zzz-695

MORGANS. We have a good selection of these cyclecars, including a 1917 Grand Prix model, with air-cooled M.A.G. engine, complete with all accessories; call for inspection and trial, or write for full particulars. Elce and Co., 15-16 Bishopsgate Ave., Camomile St., E.C. 3. Phone, Avenue 5548. Trade 229-841

MORGAN, 1916, de luxe, hood, screen, speedometer, etc., £115. Motor Exchange, Horton St., Halifax. Trade 230-836

MORGAN, December, 1915, J.A.P., 8hp, air-cooled engine, at Morgan works being fitted with new 1916 body, model de luxe, screen, hood, chains, etc., completely overhauled, good as new, accessories and lamps with generator, property of officer returned to Canada, price £100. Capt. Northover, Canadians, 74 Tunnel Ave., Greenwich, E. 229-a364

MORGAN, sporting M.A.G. engine, hood, screen, Stewart mechanical horn, Jaffa transmission shield, drip, foot accelerator, 700 by 80 disc wheels, part exchange for G.W.K., Baby Peugeot, or sell £100. Rowse, The Close, Chalk Hill, Watford. 229-a362

MORGAN, Grand Prix, water-cooled, new November, 1916, done under 300 miles, special spring cushion and all accessories, accept £125. Bradley, 104 Grafton St., Dublin. 229-a355

MORGAN, new October, 1915, de luxe model, 10hp M.A.G. engine, hood, screen, lamps, speedometer, oversize tyres, practically new, 2 spare tyres, £180. Rev. Lash, The Chaplaincy, Hale St., Poplar, E. 229-a350

MORGAN, 1916, sporting, mechanical condition perfect, hood, screen, lamps, 50 miles per gallon, trial, owner-driven, £110. Apply, Bennetts, Shakespeare St., Nottingham. 230-a347

MORGAN, 1916-17, G.P. model, 10hp, air-cooled magneto engine, complete with hood, screen, generator, lamps, oversize tyres, discs on wheels, Klaxon, can fly wonderfully, engine as good as new, Binks 1917 carburetter, extra spares, new Beldam and Stepney Road Grip, spare chains, 2 inner tubes, plugs, valve springs, and any amount of up-to-date spare tools, nearest offer to £130 gets it; near Leeds. Box No. 658, c/o "The Light Car and Cyclecar." Trade 229-a346

MORGAN, 1917, special racing model, 10hp, water-cooled M.A.G. engine, streamline body, painted yellow, disc wheels and large tyres, dynamo lighting set with 5 lamps, very fast, £150. Spaiford, Cliffe Tower, Rampton, Sheffield. 229-a394

MORGANS. National business economy comparisons. Two persons can travel 150 miles by railway for 37s. 6d. (an increase probable). For this distance a Morgan runabout consumes (at maximum) 3 gallons of petrol, 9s. 9d., and 1s. 6d. for lubrication. Note, a saving of 26s. 6d. Write, Potter, Morgan Contracting Agent, Leicester Grove, Blackman Lane, Leeds. He has some Grand Prix models in stock. Trade 229-a379

MORGAN runabout, late 1916 G.P., J.A.P., grey, all accessories, mileage under 100, suit young officer, trial by appointment, no dealers, £135. Alex. Allan and Co., 226 Piccadilly Circus, W. Tel., 2243 Regent. 229-a369

MORGAN, G.P., 1914, hood, screen, electric side and tail lamps, oversize tyres, £105. Cass's Motor Mart, only address 5 Warren St., Euston Rd., W. 1. Museum 623. Trade 230-885

MORGAN, Grand Prix, water cooled, mileage 500, new last October, special wide body, spring cushion, unpunctured tyres, chain guards, condition perfect, bodywork unsratched, lamps, mats, tools, horn, etc., red, £125. Colmore Depot, 49 John Bright St., Birmingham. Trade 229-890

MORGAN, 1916, model de luxe, fitted M.A.G. engine, complete hood, screen, waterproof hood cover, oversize tyres all round, acetylene lamps, Low generator, extra toolbox at side, perfect car, £115. Colmore Depot, 49 John Bright St., Birmingham. Trade 229-891

MORGAN, 1914, sporting model, in excellent order, £80. Colmore Depot, 49 John Bright St., Birmingham. Trade 229-892

MORRIS-COWLEY, 4-seater, C.A.V. dynamo lighting, 1916, good as new, £300. Colmore Depot, 49 John Bright St., Birmingham. Trade 229-896

MORRIS-COWLEY 4-seater, 1916, full equipment, speedometer, clock, etc., small mileage. Below.

MORRIS-COWLEY coupe, 1916, oversize tyres, fully equipped, equal to new. Below.

MORRIS-COWLEY 2-seater, dickey, oversize tyres, speedometer and other fittings, revarnished, £280. Percy Worger, Ltd., 29 Chester Mews, Grosvenor Pl., S.W. Victoria 4961. Trade zzz-891

MORRIS-COWLEY, 1916, 11.9hp, 4-seater, fitted with Lucas dynamo lighting set, speedometer, clock, mirror, the whole machine is perfect in detail, and new in condition, £320; exchanges or extended payments. Service Co., 292 High Holborn, London. Trade zzz-729

LIGHT CARS AND CYCLECARS FOR SALE (continued).

MORRIS-COWLEY, 4-seater, in perfect condition, fitted Lucas dynamo, seen and tried London, small mileage. Box No. 661, c/o "The Light Car and Cyclecar." zzz-850

MORRIS-COWLEY body only, 2-seater, complete with hood, screen and side curtains, equal to new in every way, accept £30 or nearest cash offer. Emboss Motor Co., Charlotte St., Hull. Trade 229-839

MORRIS-COWLEY three-quarter coupe, brand new, actually in stock, seats 3, inside dickey seat, exceptionally attractive, finished Royal blue. Percy and Co., 337 Euston Rd., London. Trade 229-903

MORRIS-COWLEY, 1916, slightly used, fitted with brand new limousine-coupe de luxe body by Hollick and Pratt, most exclusive design, upholstered in antique leather, dynamo lighting with interior light silk blinds, concealed dickey seat, nickel fittings, painted white with black mouldings, black domed wings. G. L. Francis and Co., 22 Pantou St., Leicester Sq. Trade 229-870

MORRIS-OXFORD, quick deliveries, free tuition, etc., wholesale and retail agents for Surrey and parts of Sussex and Hants., The Haslemere Motor Co., Ltd., Haslemere. Phone, 43. Trade zzz-261

MORRIS-OXFORD, Stewart and Ardern, Ltd., the sole authorized London agents for Morris-Oxford cars, have for disposal a number of second-hand 1914 de luxe model Morris-Oxford cars which have been taken in part payment for Morris-Cowleys. These cars have been thoroughly overhauled, repainted, and are practically as new. 18 Woodstock St., Bond St., London, W. Trade zzz-111

MORRIS-OXFORD, 1914½, repainted, overhauled, extra fine condition, any trial, quantity petrol, bargain, £170. Long, 40 Ferrers Rd., Oswestry. zzz-a179

MORRIS-OXFORD, 10hp, 2-seater body, hood and screen, 5 lamps and horn, detachable wheels and spare with tyre, pump and jack, £150; easy-purchase terms if desired. Harrods Ltd., Motor Dept., Brompton Rd., S.W. Trade 229-861

MORRIS-OXFORD, 1914, 2-seater standard model, complete with hood, screen, 5 detachable rims and tyres, dickey seat, luggage carrier, guaranteed perfect mechanical condition, £150 cash. Edwards and Parry, 69 Great Queen St., Kingsway. Regent 5036. Trade 229-874

PERRY cars. Sole London and District Agents. Cars and Motor Sundries, Ltd., 175-177 Shaftesbury Ave., London, W.C. Phone, 1432 Regent. Trade zzz-745

PERRY, 1914, in really excellent condition, great climber, 45 m.p.g., had very careful use, all extras, £130. Motor Supply Co., 29-31 Oxford St., Manchester. Trade zzz-423

PERRY, 1914, 2-cylinder, hood, screen, speedometer, etc., £125, tax £2 2s. Motor Exchange, Horton St., Halifax. Trade 230-834

PERRY, 8hp, 1915 model, hood, screen, horn, electric lights, detachable wheels and spare, in perfect condition, £120. Mould, Wynnstay, Lichfield Rd., Rustall, Walsall. Trade 229-876

PREMIER car, 9hp J.A.P., 2-cylinder engine, good condition, complete with hood, screen, tools, lamps, trial, £69. White, South View, Frankynn Rd., Haywards Heath. Trade 229-873

RANGER, 2-seater, late 1914, 8-10, water-cooled, 50 m.p.g. on half-and-half, Binks, fine condition, £70 or nearest. 1 Harewood St., Leicester. Trade 229-856

RANGER, 8hp twin water-cooled, 1914, Stepany wheel, hood, screen, lamps, horn, toolbox, £65 10s. Booth's Motories, Halifax. Trade 229-852

RANGER, twin, water cooled, 2-speed, reverse, wire wheels, acetylene side lamps, equal to new, £105. Blackham, Strouel, Kenilworth. Trade 229-872

SINGER light cars, phaeton or coupe models. Particulars of delivery on application from Singer and Co., Ltd., 17 Holborn Viaduct, E.C. Telephone, Central 13173. Trade zzz-39

SINGER, 1914, dynamo lighting, exceptional condition, £195; motorcycle or Morgan part. Young's, The Parade, Kilburn. Trade zzz-322

SINGER, 1914, 2-seater, all spares, in perfect condition, £180; exchanges or extended payments. Service Co., 292 High Holborn, London. Trade zzz-731

SINGER light car, only done 10,980 miles, in excellent order, £155. Sharp, Haygate Rd., Wellington, Salop. Trade 231-a354

SINGER, 1915, 10hp, dynamo lighting, horn, in excellent condition, any trial. Bayard Cars, Ltd., 155-7 Gt. Portland St., W.1. Phone, Mayfair 3513. Trade 229-846

SINGER, 10hp, dynamo lighting system and 5 lamps, hood and screen, detachable wheels, dickey seat, horn, pump and jack, repainted and appearance equal to new, £225; easy-purchase terms if desired. Harrods, Ltd., Motor Dept., Brompton Rd., S.W. Trade 229-862

SINGER coupe, 1916, dynamo lighting and self-starter, specially painted suede grey with black wings and mouldings, Bedford cord upholstery, with loose covers, car only run 1500 miles, and is as new. Alfred Westnagel, 65 Gt. Portland St., W. Tel., Mayfair 3005. Trade 229-853

SINGER, 10hp, 1915, dynamo, speedometer, dickey, double screen, side curtains, closes completely, mileage 5000, just revarnished, perfect condition, £230. Clifton, Anchorage Rd., Sutton Coldfield. Trade 229-861

SINGER, 10hp, late 1915, dynamo lighting, dickey seat, spare wheel, speedometer, extra mechanical horn, bold clock, extra air inlet, petrol filter, step mat, small mileage, splendid preservation, absolutely like new, carefully driven by private owner, perfect car, genuine bargain, £240. Car. 65 Springfield Rd., Brighton. Trade 229-870

SINGER, 1916, dynamo lighting, speedometer, extra air, Klaxon, unscratched, usual equipment, £265. G. L. Francis and Co., 22 Pantou St., Leicester Sq. Trade 229-873

SINGER, 10hp, just thoroughly overhauled, repainted, dynamo lighting outfit, complete, 5 wheels, most tyres new, £165. Cass's Motor Mart, only address, 5 Warren St., Euston Rd., W.1. Museum 623. Trade 230-884

SINGER, 1915, fitted dynamo lighting, overhauled complete, hood recovered, very handsome car, good as new, £235. Colmore Depot, 49 John Bright St., Birmingham. Trade 229-895

SINGER light car, 10hp, brand new, dynamo lighting, in stock, immediate delivery, ready to drive away, at maker's net cash price, £275, no premium, first deposit services. Wilkins, Simpson and Co., 11 Hammer-smith Rd., London. Trade 229-837

SINGER, 10hp, 1917, 2-seater, dynamo lighting, £275; both brand new; both actually in stock. Percy and Co., 337 Euston Rd., London. Trade zzz-809

SINGER coupe, 10hp, thoroughly overhauled and repainted royal blue, dynamo lighting, £255. Percy and Co., 337 Euston Rd., London. Trade 229-812

LIGHT CARS AND CYCLECARS FOR SALE (continued).

STANDARD, 9.5hp, 1914-15, Rotax dynamo lighting, speedometer, horn, mirror, 8-day clock, dickey seat, 5 Sankey wheels, tyres perfect, condition as new throughout, £235. Below.

STANDARD, 9.5hp, 1915, all-weather coupé body, Brolt dynamo lighting, many extras, fully equipped, as new throughout, £265; special price to Service men. Mebes and Mebes, Original Light Car Specialists, 154-6 Gt. Portland St., W. Tel., 3426 Mayfair. Trade 229-865

STELLITE, latest model, 2 speeds, repainted, 5 lamps, speedometer, dickey seat, spare wheel, fine condition, £170. G. L. Francis and Co., 22 Pantou St., Leicester Sq. Trade 229-872

STELLITE, 1914, 5 detachable wheels, concealed dickey, special hood, screen, speedometer, fine order, £160. Canham, Roslyn Stables, Ipswich. Trade 229-867

SWIFT cyclecar, lamps, screen, hood, in perfect condition, very fast, £120 10s; exchanges or extended payments. Service Co., 292 High Holborn, London. Trade zzz-732

SWIFT, 7-9hp, 1914, perfect condition, folding dickey, takes 2 children, tyres perfect, clock, speedometer, Stepany, £107 10s. Eason, 163 Wimbledon Park Rd., Southfields, S.W.18. London Wall 2394. Trade 229-813

SWIFT, 10hp, 1915, 4-cylinder, dynamo lighting, detachable wheels, dickey seat, hood, screen, spare wheel, £225. Booth's Motories, Halifax. Trade 229-a353

SWIFT, 10hp, 1916 Colonial model, dickey seat, dynamo lighting set, 5 wheels, hood, screen, speedometer, set of Parsons non-skid chains, all accessories, marvel in all her work and perfect mechanical order and A1 condition, trial given at Aldershot, price for cash £265. Crawford Wood, Aikerton, near Banbury. Trade 229-a349

SWIFT, 7-9hp, 2-cylinder light car, hood, screen, lamps, £95, or exchange. Motor Exchange, Horton St., Halifax. Trade 230-837

SWIFT, 1915, 10hp, dynamo lighting, only run 2000 miles, splendid condition. Bayard Cars, Ltd., 155-7 Gt. Portland St., W.1. Phone, Mayfair 3513. Trade 229-847

SWIFT coupe, 10hp, open or closed at will, 4-cylinder engine, dynamo lighting system and 5 lamps, horn, pump and jack, in very fine order and good mechanical condition, £350; easy-purchase terms if desired. Harrods, Ltd., Motor Dept., Brompton Rd., S.W. Trade 229-863

SWIFT, 1914 model, 7-9hp, with hood and screen, horn, 3 lamps, jack and tools, Stepany wheel and tyre, repainted and in splendid order and condition, £130; easy-purchase terms if desired. Harrods, Ltd., Motor Dept., Brompton Rd., S.W. Trade 229-864

SWIFT cyclecar, late 1914, Stepany wheel, tube and cover, 4 lamps, clock, speedometer, etc., in excellent condition and running order, £95 for quick sale. 9 Belsize Court, Belsize Pl., Hampstead. Trade 229-880

SWIFT, 10hp, 4-cylinder, 2-seater, 1915, dynamo lighting set, repainted and varnished. Full particulars on application. The Swift Motor Co., Ltd., 132-134 Long Acre, W.C. 2. Trade 229-878

SWIFT 7-9hp cyclecar, 1913, engine overhauled in our own workshops, in good condition, £105. The Swift Motor Co., Ltd., 132-134 Long Acre, W.C. 2. Trade 229-879

SWIFT, 4-cylinder, Shamrock 3-seater, 10hp, late 1915, exceptionally good condition, Brolt dynamo lighting, speedometer, detachable wheels and spare, mileage 4400, £290. Rector, Lambley, Notts. Trade 229-a383

SWIFT, 1914, 7-9hp, 2-seater, all accessories, £110. Cass's Motor Mart, only address, 5 Warren St., Euston Rd., W.1. Museum 623. Trade 230-885

VICEROY, 4-cylinder, 10hp, 4-seater, up-to-date light car, full equipment, electric lights, detachable wheels, £150. Motor Supply Co., 29-31 Oxford St., Manchester. Trade zzz-657

WHITING-GRANT, 1915, 11hp, 2-seat English body, dynamo lighting, hood, screen, £135. Cass's Motor Mart, only address 5 Warren St., Euston Rd., W.1. Museum 623. Trade 230-882

WHITING-GRANT, 1915, 11hp, 2-seater, dynamo and self-starter, thoroughly overhauled and repainted, Zenith carburettor, £120. Percy and Co., 337 Euston Rd., London. Trade 229-911

PARCEL CARS.

1915 LIGHT delivery van, carry 8 cwt., new condition, bargain, 55 guineas. 18 South Bruton Mews, Bond St. Trade 229-a371

MISCELLANEOUS LIGHT CARS AND CYCLECARS.

MEIGH light car, hardly used, in new condition, very smart and up-to-date, double dickey seat, painted buff colour, £140. Motor Supply Co., 29-31 Oxford St., Manchester. Trade zzz-994

A CYCLECAR, single belt drive, 2-seater body and 6hp 2-cylinder Persia engine, comfortable little car, property of an officer. Write, Box No. 660, c/o "The Light Car and Cyclecar." Trade 229-a344

CASS'S MOTOR MART have the following light cars for disposal:—Marlborough, 3-seater, £215; G.W.K. de luxe, D.L.O., £195; Singer, £165; Whiting-Grant, £135; Hamberette, 1914-15, w.c., £115; Swift, £110; Hamberette, 1914, w.c., £105; Morgan, G.P., £105. Above cars are indistinguishable from new in every respect. See small advertisements for full particulars of the above cars; deferred terms; exchanges; tuition free. We are open to purchase or sell first-class cars; see advertisements. Above cars can be seen and tried at our only address, 5 Warren St., Euston Rd., W.1. Museum 623. Trade 230-881

SEVERAL new light cars for sale, in stock, too large to advertise in these columns. Send for list. Mebes and Mebes, Original Light Car Specialists, 154-6 Gt. Portland St., W. Tel., 3426 Mayfair. Trade 229-867

MISCELLANEOUS.

THE Vulcan superheater is the paraffin vaporizer you are looking for. Sizes from 10hp to 100hp; immediate delivery; descriptive booklet gratis. Alveston Motors, Derby. Phone, 1 Alveston. Grams, "Motors, Alveston." Trade zzz-882

BOLTS, nuts, washers for motor repairs, less than half pre-war prices, packed in lots 1s. to 24s.; write for list. Madows, Bankfield Lane, Southport. Trade 243-880

RENEW and preserve the body and paintwork of your car by varnishing it with Hartley's true body varnish, 2s. and 3s. 6d. per tin, with full particulars, postage free. Sold only by J. H. Hartley, 97 Railway Rd., Leigh, Lanc. Trade 236-1545

MISCELLANEOUS (continued).

SPECIAL line for light cars, an exceptionally well-made set of torpedopattern electric lamps, guaranteed British make throughout, consisting of 2 side and tail lamps with metallic filament bulbs, 34s., or with 4-volt 25-ampere-hour accumulator in metal case 54s. The Essex Accumulator Co., Ltd., 487 Grove Green Rd., Leytonstone, E. 11. Trade zzz-584

GENERAL INSURANCE CO. issue Lloyd's motor policies by monthly payments. Lowest premiums for light cars. Before insuring elsewhere write for prospectus. Head Office, 199 Piccadilly, London. zzz-359

SPARE valve, Humberette, and clutch studs, what offers? Also new tube. Williams, Firs, Gt. Wern, Mon. 229-a360

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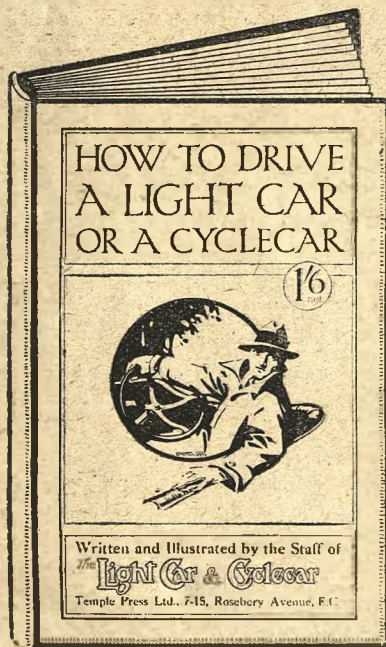
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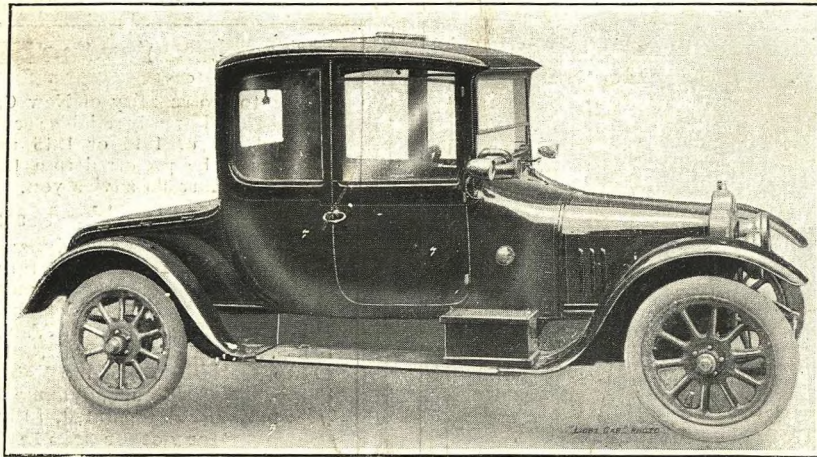
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