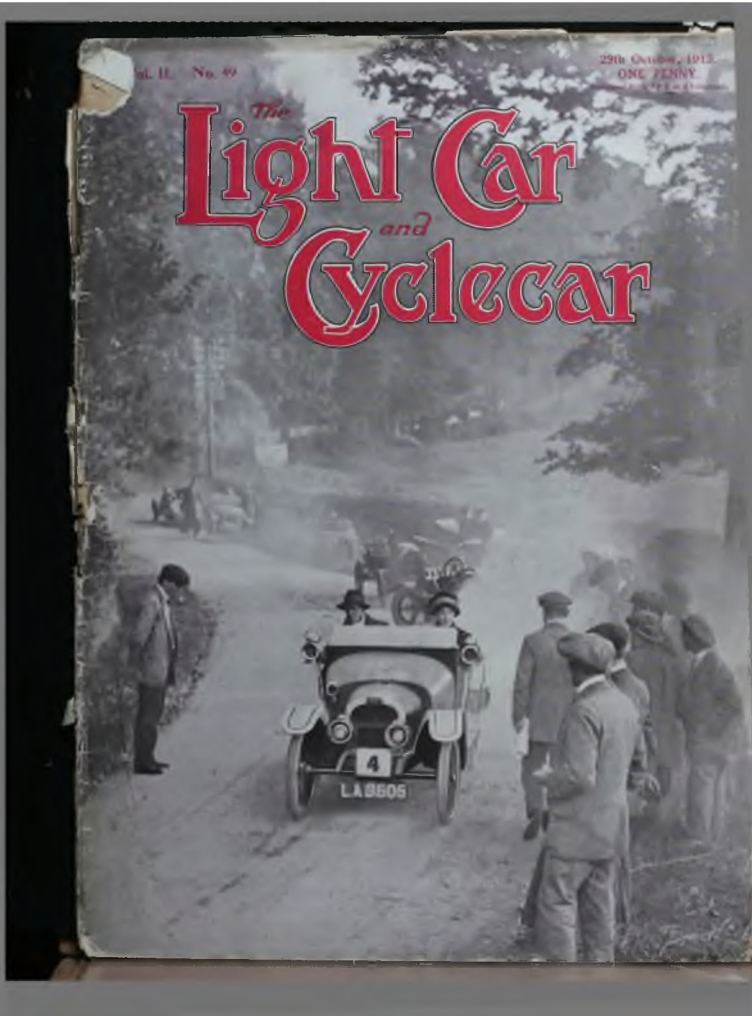


Vol. II. No. 49

29th October, 1913
ONE PENNY

The Light Car and Cyclecar



The JONES SPEEDOMETER

ANOTHER GOLD MEDAL AWARDED—TURIN EXHIBITION.

A Speedometer that is not accurate is an abomination; it is more, it is dangerous. The opportunities of testing such instruments for accuracy are not usually available. Expert use of the stop watch and measured distances are not easily assured. Buy the instrument which above all others has demonstrated its qualities again and again.

"The Jones" is a purely mechanical instrument constructed on a principle of unvarying natural law. Its accuracy of reading was the most important feature to decide the verdict of the R.A.C. Highest Award and Gold Medal in the only competitive official Speed Trials.



PRICES from 3 Guineas.

MARKT & CO. (London), Ltd., 98-100, Clerkenwell Road, E.C.

West End Agents—"SIRENO" CO., Brewer St. Wholesale Agents for Lancs & Cheshire—J. E. FEAY, 23, Jackson's Row, Manchester.

AN UNSOLICITED TESTIMONIAL.

**"Jones" evidence outweighs that of four witnesses!
No questioning of the "Jones" figures.**

Mr. H. V. Prescott, of "Roselands," Park Road, Timperley, Cheshire, writes:—

"Perhaps the following will be of interest to you. I was summoned at Middlewich (Cheshire) for driving to the danger of the public on 3rd September. There were four witnesses against me. My only witness was the Jones Speed Indicator with maximum hand; but I won the case its evidence being accepted. I reckon the Jones saved me £5."

THERE is no method yet discovered of ascertaining the pressure in the inside of a tyre except the use of a pressure gauge—a casing containing 40 lb. of air looks and feels exactly like a casing containing 80 lb.

If your tyres require 80 lb. and you only give them 40 lb., they're on the quick road to the scrap-heap.

Use a **SCHRADER** Universal Tyre Pressure GAUGE, and save your tyres. Price 4/6.



NOT A TOY! But a scientifically constructed and accurate gauge—beautifully finished in nickel. Packed in neat leather wallet. Suits the pocket like a fountain pen, but smaller.

The ORIGINAL Simple Cyclecar.

88-104 Guineas.

The long belt drive, simple but efficient system of changing gear, light tandem-seated body, and perfect streamline form, make the "Bedelia" speedy, safe, and pleasant to drive. Driver's seat is raised so that he gets a clear view of the road over his passenger's head.

To Agents: We would like to appoint agents for the whole of the United Kingdom, with the exception of Ireland, and applications from "live" dealers are invited. Are you the man to represent us?



**BEDELIA, 32, Rue Felicien-David,
PARIS (16e).**

Telephone: 630-22. Telegrams: "Bedelia, Paris."

Irish Agents—

**MERCER'S GARAGE, Limited,
22, Mercer Street, DUBLIN.**

BEDELIA

WHEN WRITING TO ADVERTISERS PLEASE MENTION "THE LIGHT CAR AND CYCLECAR."



Coming Increase in Price OF THE **A.-C. Sociable.**

You can now obtain the 1914 Model for £75, but from 24th November the price will be raised to 75 Guineas.

The A.-C. Sociable is so well-known that it requires no commendation from us. Nearly every week letters appear in "The Light Car and Cyclecar" from highly satisfied owners—letters testifying to the little car's great reliability, economy and hill-climbing powers.

The A.-C. Sociable has always been splendid value, but never more so than now. Take advantage of it by ordering *your* car before the price is raised.

Write to-day—NOW—and fix up a trial run.

**Price at present £75 (or fully equipped)
£84 : 17 : 0**
IMMEDIATE DELIVERY.



The A.-C. 10 h.p. Cyclecar
Price - - £165
with complete equipment.
EARLY DELIVERY.



The A.-C. £100 Cyclecar.
Price £100, as shown,
or fully equipped - £109 - 15 - 0
EARLY DELIVERY.

AGENTS EVERYWHERE. Name of nearest sent on receipt of post card.

AUTO-CARRIERS (1911), LTD., Ferry Works, Thames Ditton, Surrey.

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.

Stewart

CYCLECAR SPEEDOMETER.

THE special Cyclecar Model is a beautiful Instrument. It registers all speeds from zero up with un-failing accuracy, and the figures are so large and clear, and the indicator so steady, that the speed can be read at a glance.



With trip and reading
to 60 or 75 M.P.H.

£3 15 0

Without trip £3 0 0

From all Traders, or direct from

THE COOPER-STEWART ENGINEERING CO., LIMITED,
11, BROAD STREET, BLOOMSBURY, :: LONDON, W.C.

Order your Cyclecar or Motorcycle at Olympia

WHERE you will have the opportunity of going into the matter thoroughly. Our representative will be in attendance all the week, and we ask you to avail yourself of his services. A little expert advice may save you pounds, and, at the same time, ensure satisfaction; it will cost you nothing! Just send a post card making an appointment. Having placed large contracts, we are in a position to guarantee delivery. We can supply

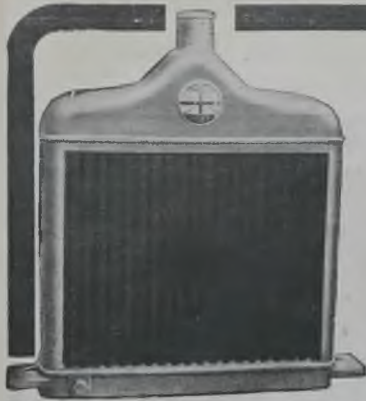
Singer and Humberette Cyclecars,
also Douglas, A.J.S., Singer, James, Premier, Rudge, Rover, Zenith, Bradbury, N.S.U., Humber and A.S.L. Motorcycles

If your particular mount is not included here, it makes no difference, we can supply it. We solicit the favour of your esteemed patronage, and guarantee you a clean, straightforward, and prompt deal, with attention to the smallest detail. If it is a second-hand machine you require, you cannot do better than pay us a visit, or get our list. Exchanges a speciality. Telephone 283.

The North Wales Motor Exchange, Holt Street, Wrexham, North Wales.

A2 "The Light Car and Cyclecar" has the best interests of cyclecarists at heart:

**HELP THE
MOVEMENT**



The Finest CYCLECARS are Water-cooled.

The Finest Water-cooled CYCLECARS are fitted with

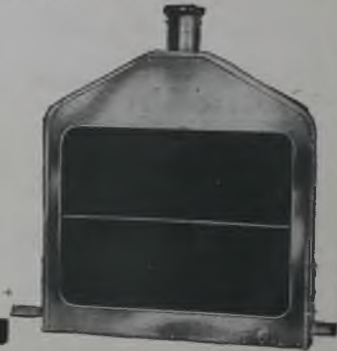
C.M.F. RELIABLE Radiators

May we offer you the benefit of our experience and unexampled facilities. We are entirely at your service.

As fitted to—
Singer,
Morris-Oxford,
Chater Lea,
Standard,
Invicta,
etc.

Radiators,
Bonnets,
Tanks,
Ball Control
Joints,
Fans,
Filters,
Steering
Wheels,
Petrol Level
Indicators,
etc.

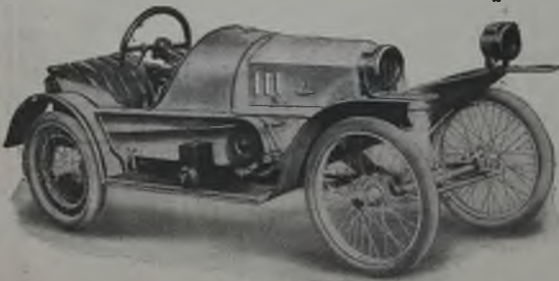
The **COVENTRY MOTOR FITTINGS CO.**
FAR GOSFORD STREET,
COVENTRY.



To Cyclecarists & others interested.

D.E.W.

2-seater Sociable at £95 complete



We are turning out Three Models for the 1914 Season:

- SINGLE SEATER, 4½ h.p., at £75 Air Cooled.
- TWO SEATER - 8 h.p., at £95 Air Cooled.
- TWO SEATER - 8 h.p., at £115 Water Cooled with Hood & Wind screen

Complete ready for the road.

WE beg to inform the numerous inquirers who have wanted a **D.E.W.** with seating capacity for two people side by side, that, after exhaustively testing a model of this type, which embodies all the characteristic simplicity and design of our solo machine, we are offering same for your inspection and trial at the

Olympia Show,
24th to 29th NOVEMBER,
STAND 139

The True Cyclecar
Do EVERYTHING WELL

THE DEW ENGINEERING CO.,
EYNSFORD - - KENT.

Telephone—14 Farningham.
Telegrams—"Dew, Eynsford."

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



Cyclecar Combination

702A-399.

Extract from letter, 26th June, 1913 (unsolicited).
 "I have another of your Speedometers—done 5,000 miles—and for steadiness and accuracy they are the finest speedometers I have tried. Three of my friends have fitted them on my recommendation and all say the same."

are the outcome of the unique experience of a first-grade English watch manufacturing firm, established in London, 1839.



PRICES.

Type 706a, 3 in. dial £3 3 0
 Indicates speeds to 60 miles per hour, with total mileage counter to 10,000 miles.

Type 702a - - - £4 4 0
 Indicates speeds to 60 miles per hour with total mileage counter to 10,000 miles. Quickly re-set trip counter to 100 miles.

Type 700a . . . £5 5 0
 Indicates speeds to 60 miles per hour, with total mileage counter to 10,000 miles. Quickly re-set trip counter to 100 miles. Maximum speed hand. Nickel, 5s. extra.

Type 399 Watch - £1 1 0 extra.

Write for Catalogue:-

NICOLE NIELSEN & CO., LIMITED,

Inventors and Patentees of the Chronograph, 1862, Split Seconds 1871, and Speedometer 1904.

THE WATFORD SPEEDOMETER WORKS,

Factory—Whippendell Road, Watford.
 Telephone—124 Watford.
 Telegrams—"Niconielco, Watford."

London Showrooms—14, Soho Square, W.
 Telephone—2833 Central.
 Telegrams—"Niconielco, London."

Price:
£5 : 5 : 0



Torpedo Side Lamps.

Fitted with latest refinements. Focusing lamp-holder, armoured cord and adaptor.

Price £1 10 0 pair.

The 1913-14 Car Lighting Outfit.

Most Handsome Latest Design Torpedo Side Lamps.

Complete outfit, consisting of pair beautifully designed Torpedo Side Lamps, with self-focusing Bulb Holders, Tail Lamp, Metal Filament Bulbs, Armoured Conducting Cord, Switchboard, and Sampson Car Lighting Accumulator which will light the outfit for about 15 hours at a charge.

£3 : 16 : 0



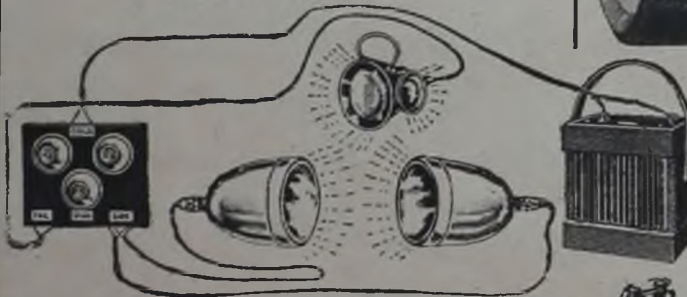
An ornament to the car.

Powerful projecting results. Fitted with self-focusing holder, armoured cord and adaptor. For small cars (opening 7 1/2 in.) £1 12 0 each. For large cars (opening 10 1/2 in.) £2 10 0 each.



Volex

Most powerful and lasting of all primary batteries for horns, ignitions, etc.
 4 volt—
 Price . . . 4/6
 5 1/2 volt—
 Price . . . 6/6
 8 volt—
 Price . . . 10/-



The W. & G. Electric Vulcanizer. The most effective and practical vulcanizer sold. Works from an ordinary car-lighting accumulator or from garage lighting circuit. For repairs up to 1 1/2 inches.

Price 17/6



The "CLARIORN" Electric Horn.

Gives a loud, sonorous warning note. Most substantial construction. Handsome appearance. No. 1, with short horn, price £1 10 0. The "Clariorn" is provided with special connecting cords and steering wheel push. We recommend our Giant Volex battery to work above horn.

WARD & GOLDSTONE,

Contractors to H.M. Government,
SALFORD, MANCHESTER.

Our M. & E. catalogue should be in the hands of every motorist. A certain money-saver. . . . Post free.

For larger sizes see our M. & E. Catalogue.



Another
Delighted
User of
the

"An Engine with
Excellent Features and Splendid
Workmanship." —The Cyclecar.

"Preston to Carlisle
over Shap Fell
on Top Gear."

Dorman Twin-Cylinder Water-cooled Engine

GREAT SPEED
ON THE LEVEL.

GREAT HILL-
CLIMBING POWER

writes:—

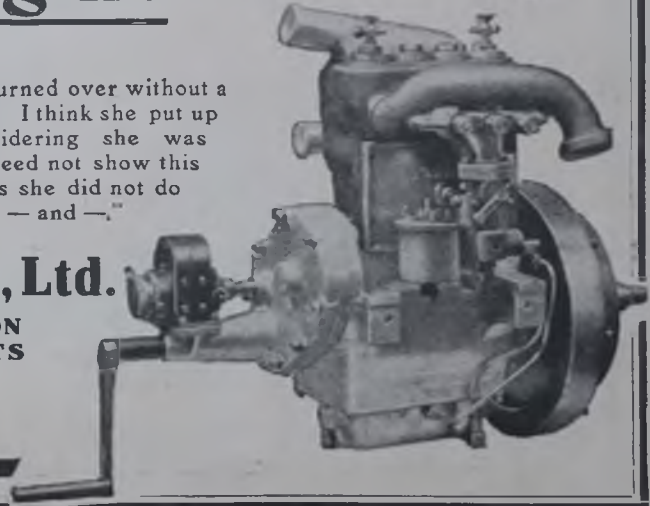
"The Engine ran in a magnificent way. She turned over without a tremor, and accelerated very nicely indeed. I think she put up a very marvellous performance, considering she was practically straight from the shop. You need not show this to the authorities, but between ourselves she did not do anything less than m.p.h. between — and —."

W. H. Dorman & Co., Ltd.

INTERNAL COMBUSTION
ENGINE SPECIALISTS

STAFFORD.

Contractors
to the
WAR OFFICE
and ADMIRALTY.



WHEN YOU COME TO LONDON for the OLYMPIA SHOWS

NOV. 7-15
and
NOV. 24-29,

do not fail to see the remarkable display of

LIGHT CARS and CYCLECARS at **HARRODS**

You will not be pressed to buy. Points carefully explained by experts. Demonstration runs given. All without the noise, rush, and excitement of the Show.

ALL THE LEADING MAKES STOCKED.

Deferred Terms if desired.

Write for Cyclecar Catalogue.

HARRODS Ltd. (By Special Appointment to H.M. THE QUEEN), Brompton Rd., London, S.W.

RICHARD BURBIDGE, Managing Director.

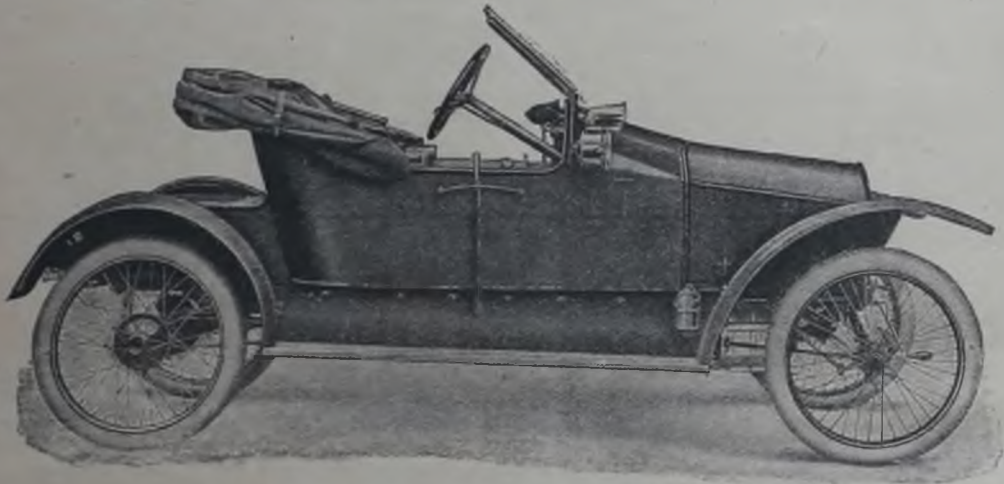
"The Best House for the Best Service."

**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.

B1

The
Humberette



Complete with hood, screen,
horn, headlights and tail lamp **£120**
may be obtained on the
EASY PAYMENT SYSTEM.

IMMEDIATE DELIVERY.

COPY OF LETTER FROM HENRY HYSLOP, Auchencrook, Pitlochry, Perthshire.

2nd October, 1913.

"I have much pleasure in informing you that I took delivery of a
"Humberette from your Brompton Road, S.W. Depot last February,
"and since then I have been a highly satisfied owner of this wonder-
"ful little car.

"You may be interested to hear that I have never been able to over-
"heat the air-cooled engine—she ran up here from Oxfordshire without
"a falter, and puts up a service over these Highland roads that
"would vie with any car."

Full particulars on application to—

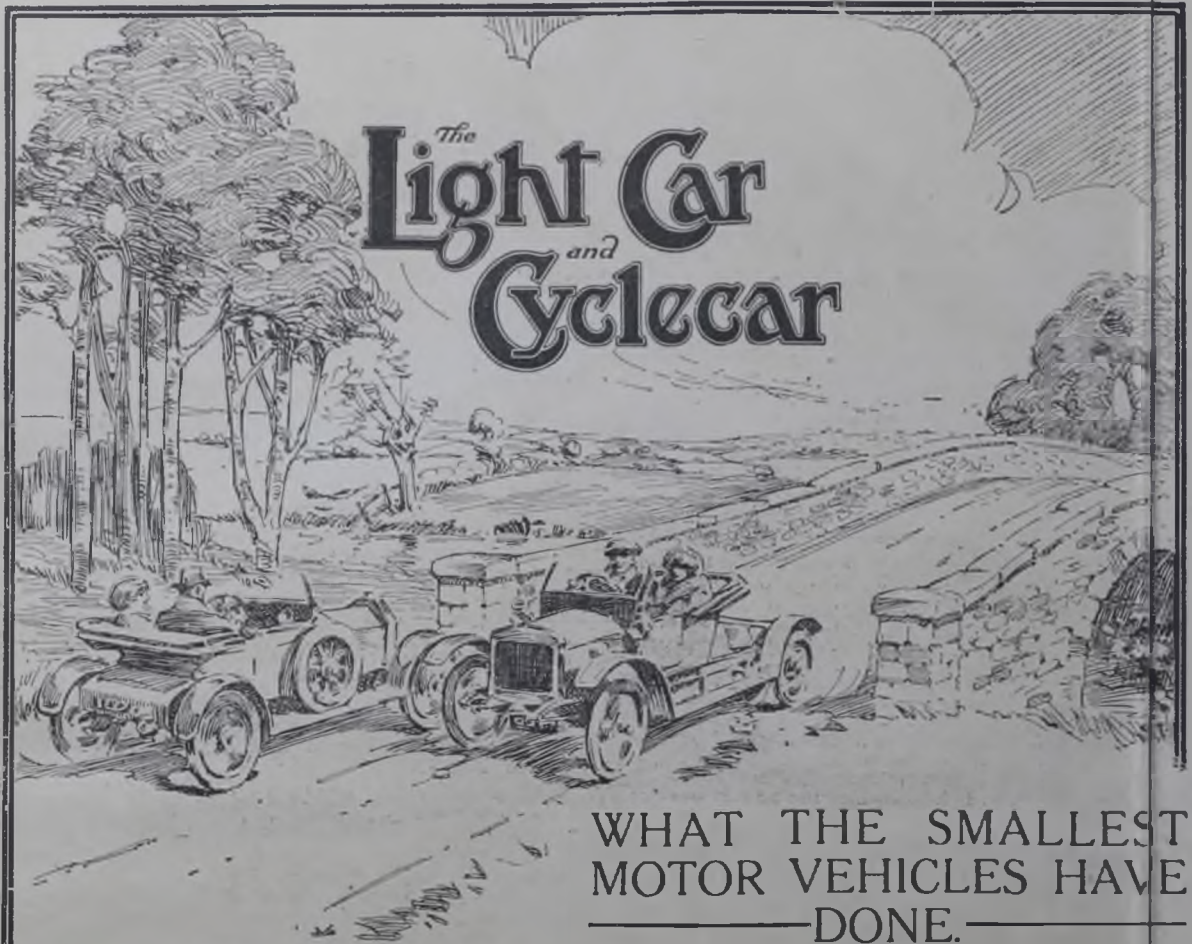
HUMBER Limited, COVENTRY.

LONDON—32, Holborn Viaduct, E.C.

60-64, Brompton Road, S.W.

SOUTHAMPTON—27, London Road.

AGENTS EVERYWHERE.



WHAT THE SMALLEST MOTOR VEHICLES HAVE DONE.

Remarkable Achievements in the New Motoring Movement.



IT is difficult to recall that people, only a year ago, were told not about what the cyclecar could do, but the things it could not do. How repeatedly we were told that it could not hold the road at speed, that it would quickly shake to pieces, that it was a flimsy vehicle of insufficient road adhesion owing to its light weight, and so on. Had we predicted that a little light vehicle with an overall weight not exceeding 7 cwt. and an engine capacity not exceeding 1100 c.c. would achieve an hour record of over 72 miles, we should have been laughed to scorn. Yet it has been done, and there seems every probability that before the end of the year, or even while these pages are being read, 80 miles in the hour will be attempted and attained.

Tremendous tests have been set these new light vehicles. They have been asked to climb hills that have been considered almost unscalable by fast and powerful motor-bicycles, and they have succeeded. They have gone up mountain tracks, up precipitous ascents of a gradient steeper than 1 in 3, and have succeeded in traversing 1000 miles of the worst

roads in the country day after day for five days without losing a single mark or having a single involuntary stop. Even the test hill at Brooklands holds no terrors for these simple, light motor vehicles, for several machines will climb it on quite high gears, steep as it is, and will start on the most acute gradient without giving their drivers a moment's anxiety.

Hitherto the motor-bicycle and sidecar has been looked upon as the fastest passenger vehicle on the roads, yet the sidecars were handsomely beaten, both for reliability and speed, in the Grand Prix race, one of the severest tests possible for a light machine, out of which cyclecars came triumphantly. On the track the light cars are invincible; not only are they beating records in their own class, but the motorcycle, motor-cycle-and-sidecar, and motorcar records are speedily being swept by the board, sure proof of the high degree of efficiency developed in this new type of motor. Their efficiency is one of the most marvelous things in automobile engineering, for more than one tiny little cyclecar engine of only nominally 8 h.p. has developed well over 30 b.h.p. in bench tests—a really remarkable achievement.

The cyclecar and the light car have both won their spurs. They have passed the stages of experimenting to a degree of efficiency of a remarkable character. They will be the motors of the future.

THE A.-C.U. FIRST CYCLECAR TRIAL.

Thirty-four Entries—All Types of Machines Represented—How the Restarting and Fuel-consumption Tests will be Carried Out—The Hills to be Observed—A Standard Trial Course.

THE course selected for the A.-C.U. Cyclecar Trial is one that every owner should test his machine on. Its 100 miles make one of the hilliest courses close to London, with gradients of 1 in 5 to 1 in 8, and some very long, that will impress the stamp of reliability upon a machine that is successful in getting through with a full award. We do not think that every machine will succeed, for weak points are bound to be discovered in a rapidly-succeeding series of long, steep hills. We give the course in detail, so that readers can try it for themselves, as well as observe the competitors in this trial.

The trial is the most important cyclecar competition yet held. The following is the list of entries:

Entrant.	Machine.	Final Drive.
J. T. Wood	8 h.p. G.W.K.	Friction
C. M. Keiller	" "	" "
V. Wilberforce	" "	" "
J. G. Panling	10 h.p. Swift	Shaft
Auto Carriers (1911), Ltd.	10 h.p. A.-C.	" "
J. Portwine	" "	" "
Beacon Motors, Ltd.	8 h.p. Beacon	" "
Humber, Ltd.	8 h.p. Humberette	" "
W. Cooper	" "	" "
Rex Mundy	" "	" "
Lionel Martin	10 h.p. Singer	" "
Polyrhoe Carburettors, Ltd.	8 h.p. Ranger	" "
Chater Lea, Ltd.	8 h.p. Chater Lea	" "
Wilton Motor and Cycle Co.	8 h.p. Wilton	" "
A. B. Phillips	8 h.p. Warne	Belt
A. C. Armstrong	8 h.p. G.N.	" "
H. R. Godfrey	10 h.p. G.N.	" "
G. N. Higgs	10 h.p. G.N.	" "
R. B. Adamson	8 h.p. Adamson	" "
Dew Engineering Co.	8 h.p. D.E.W.	" "
A. P. Bradley	8 h.p. Duo...	" "
R. T. Thomas.	8 h.p. Pyramid	" "
L. T. Payne	" "	" "
H. Welham	3½ h.p. Welham	" "
C. Pressland	8 h.p. Crouch	Chain
H. F. S. Morgan	8 h.p. Morgan	" "
V. Busby	" "	" "
W. G. McMinnies	" "	" "
John Gibson	" "	" "

Entrant.	Machine.	Final Drive.
Auto Carriers (1911), Ltd. ...	6 h.p. A.-C.	Chain
Premier Cycle Co., Ltd. ...	8 h.p. Premier	" "
A. E. Parnacott	4½ h.p. Cycar	" "
Turner, Marr and Co.	8 h.p. H.S.M.	" "

The most important hills to observe are Wray Hill, leading up to the top of Reigate Hill, from Redhill (the gradient is about 1 in 7 at the top); Boar Hill, beyond Dorking, on which a restarting test will be held; Charterhouse Hill, near Godalming, which has a hairpin bend, a gradient of about 1 in 6, and is very long; Bowler's Green Hill, near Hindhead, the worst in the trial, with a surface often sticky; and Haste Hill, near Haslemere.

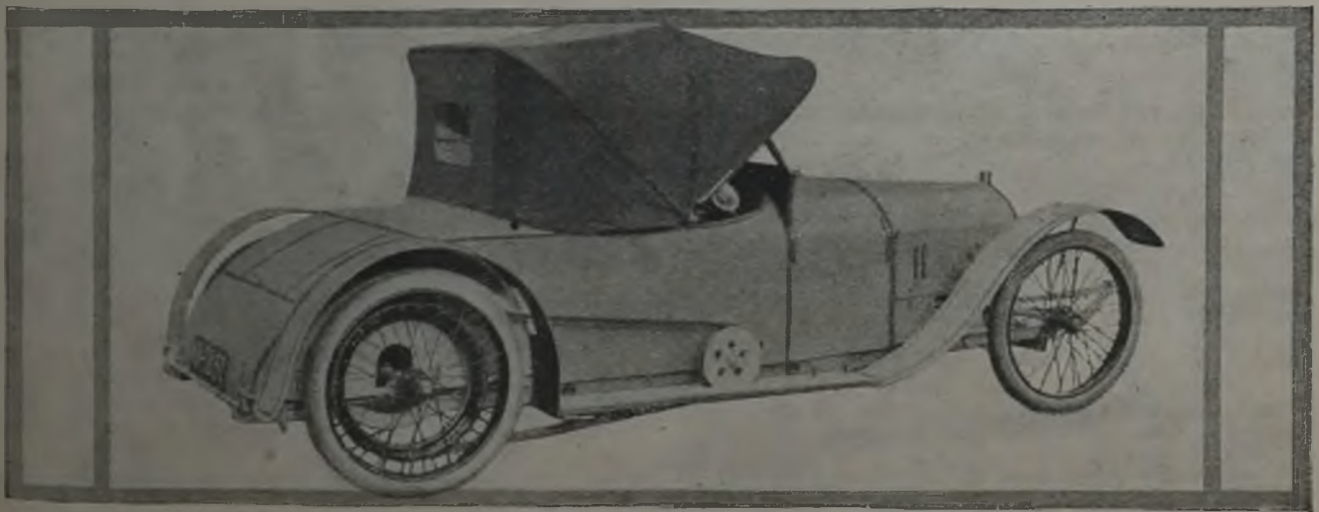
Petrol consumption will be recorded. Competitors' tanks must be full at starting, and if filled up at the lunch stop (Hindhead), must again be filled in the presence of an official, who will record the amount; they will be refilled at the conclusion of the trial and the amount noted.

In the restarting test on Boar Hill, competitors will have to make a clean restart, without running back or making a false start. Failure on the part of a competitor will lose him a first-class certificate. The course is as follows:—

SECTION 1.

8.0 a.m. REDHILL TO DORKING. 13½ miles.
Points to be observed:—Batt's Hill, 8 a.m.; Wray Lane, 8.15 a.m.

Starting from Linter's Garage, Redhill, the main road to London is followed, but almost immediately a turn to the left is taken, and Batt's Hill climbed, leading on to Wray Common. Crossing the Reigate-Merstham road at right angles, the route goes up Wray Lane, joining the main Reigate Hill road, which is followed until the first turning to the left after passing Kingswood Church. At the cross-roads by the old windmill the left-hand road must be taken over Walton Heath to the top of Pebble Hill. Here bear right across Headley Heath, but take the first turn to the left, and, continuing to bear left, descend "Little Switzerland" and join the main Leatherhead-Dorking road at Juniper Hall, and proceed along the main road to Dorking.



A side view of the new Adamson cyclecar which has been entered for the A.-C.U. cyclecar trial.



Possible predicaments of the A.C.U. officials deputed to observe the monocarists in the Cyclecar Trial. The regulations state that observers will follow the monocarists on motor-bicycles or other vehicles.

SECTION 2.

8.40 a.m. DORKING TO GUILDFORD. 20½ miles.
Points to be observed:—Bore Hill, 8.45 a.m.; Tanhurst Hill, 9 a.m.; Leith Hill hairpin, 9.5 a.m.

Taking the left-hand road (d.p. Horsham) at the end of High Street, half a mile further bear left at fork (d.p. Leith Hill) along Coldharbour Lane to Bore Hill, on which the stopping and re-starting tests will be carried out. After passing through Coldharbour, proceed through the private grounds of Leith Hill, and, after the second gate, turn left on to the road leading to Ockley. One mile on turn right, and right again to Forest Green. Still keeping to the right, Tanhurst Hill is climbed, bringing one again under the brow of Leith Hill. A sharp left-hand turn requiring care brings one on to the Abinger road. At the village take the right-hand fork by the well, and so reach the Dorking-Guildford main road. Here turn left and follow the main road to Guildford via Newlands Corner.

SECTION 3.

9.41 a.m. GUILDFORD TO ROYAL HUTS HOTEL, 19½ miles.
HINDHEAD.

Points to be observed:—Charterhouse Hill, 10 a.m.; Eshing Hill, 10.10 a.m.; Bowler's Green Hill, 10.25 a.m.; hairpin on junction with Portsmouth road, 10.30 a.m.

From bottom of High Street, Guildford, follow the main road up the Hog's Back. At top of hill bear left to Compton, thence by direct road to Farncombe, where join Guildford-Godalming road. Just before entering Godalming bear right at fork, and immediately after passing under the railway bridge take sharp turn to the right up hill. Two hundred yards up the hill take sharp turn to left and continue on, leaving Charterhouse School on the left. Avoid all turnings to right, turning left at cross-roads by Shackleford Church. Proceed through Eshing to Milford, where take main Haslemere road. Two-and-a-half miles from Milford turn sharp

right at bottom of hill and climb to Bowler's Green. Here turn left at cross-roads and proceed straight on to fork 1½ miles. Here bear to right climbing hill, at top of which the main Portsmouth road is reached, where turn sharp left, following main road to Royal Huts Hotel, Hindhead.

SECTION 4.

12.38 p.m. FROM AND TO THE ROYAL HUTS HOTEL, 14½ miles.
HINDHEAD.

Points to be observed:—Haste Hill, 12.45 p.m.; Linchmere Hill, 1.5 p.m.

Leaving the Royal Huts Hotel by the main road to Haslemere, bear left at fork at three-quarters of a mile on. On joining the main road at Shottermill turn left to Haslemere. On reaching High Street, proceed straight on along East Street, bearing right at fork up Haste Hill, at the top of which turn right and continue along until the Haslemere-Fernhurst Road is joined, where turn left and follow same as far as Fernhurst. In Fernhurst turn right at cross-roads and again 1½ mile on turn right at Lower Lodge Farm. Proceed up Linchmere Hill, at top of which bear right for Shottermill. At bottom of descent take sharp left-hand turn under the railway to Shottermill Church, and proceed up the main road to the Royal Huts Hotel.

SECTION 5

1.19 p.m. HINDHEAD TO GUILDFORD. 16½ miles.

Points to be observed:—Poylehill, 1.45 p.m.

Crossing the main Portsmouth road, bear right at next fork and continue straight on in a northerly direction to Tilford Church. Here bear right and, avoiding all cross-roads, bear left at fork one mile on. At the Mill on river Wey, by Waverley Abbey, turn right, and, proceeding straight on over three cross-roads, join the main Farnham-Guildford road at the west end of the Hog's Back, where turn right and follow main road to Guildford.

A.-C.U. CYCLECAR TRIAL (contd.).

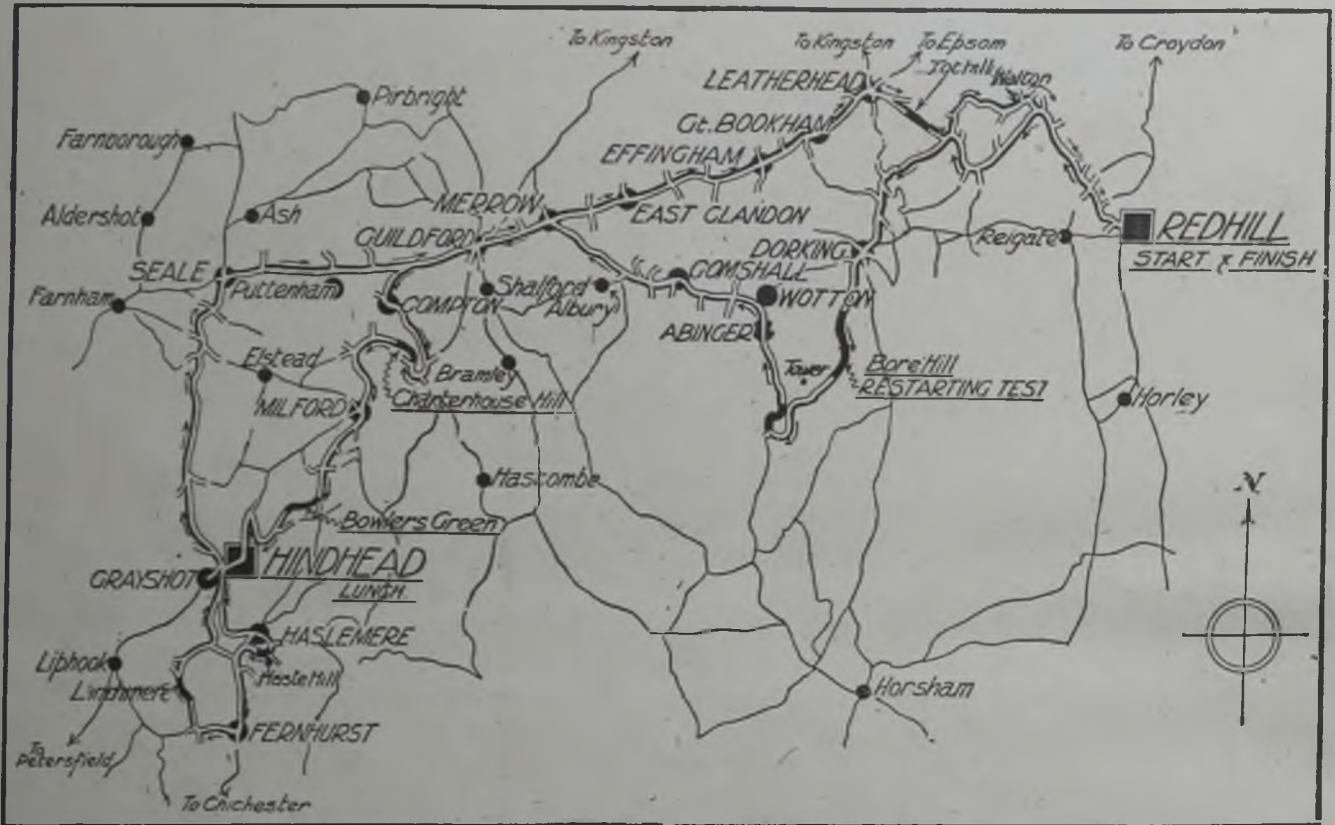
SECTION 6.

2.11 p.m. GUILDFORD TO LEATHERHEAD. 12³/₈ miles.
Follow main road to Guildford and continue along main road to Leatherhead.

SECTION 7.

2.48 p.m. LEATHERHEAD TO REDHILL. 11¹/₂ miles.
At the Swan in Leatherhead turn right along the Dorking

road but a quarter mile on turn left at the church. At fork half mile further on bear right and climb up Micklebam Downs to Tot Hill. Here for a short distance the morning course is followed in the reverse direction, but is left almost immediately by taking the sharp left-hand turn to Headley. Turn left in the village and take right fork at the smithy and continue to bear round to the right until Walton-on-the-Hill is reached. Here turn left and proceed straight on, bearing to the right until the four cross-roads by the old windmill are reached, from which point to the finish the morning's course is followed in the reverse direction.



Map of the A.-C.U. One-day Cyclecar Trial course.

OUTWARD JOURNEY.

RETURN JOURNEY.

Minimum time.		Maximum time.		ROUTE.		Approx. intermediate.		Dis- tance. Total.		Minimum time.		Maximum time.		ROUTE.		Approx. intermediate.		Dis- tance. Total.	
H.	M.	H.	M.	Miles.	Miles.	H.	M.	H.	M.	Miles.	Miles.	H.	M.	H.	M.	Miles.	Miles.	H.	M.
8	20	8	0	—	—	12	38	12	38	—	—	12	38	12	38	—	—	12	38
8	10 ¹ / ₂	8	12 ¹ / ₂	3 ¹ / ₄	3 ¹ / ₄	12	45 ¹ / ₂	12	47	3 ¹ / ₄	3 ¹ / ₄	12	45 ¹ / ₂	12	47	3 ¹ / ₄	3 ¹ / ₄	12	45 ¹ / ₂
8	21 ³ / ₄	8	25 ¹ / ₂	3 ³ / ₄	7 ¹ / ₄	12	45 ¹ / ₂	12	47	3 ³ / ₄	11	12	45 ¹ / ₂	12	47	3 ³ / ₄	11	12	45 ¹ / ₂
8	33	8	39 ³ / ₄	2 ¹ / ₄	13 ¹ / ₄	12	45 ¹ / ₂	12	47	2 ¹ / ₄	17 ¹ / ₄	12	45 ¹ / ₂	12	47	2 ¹ / ₄	17 ¹ / ₄	12	45 ¹ / ₂
8	40	8	46	4	19	12	45 ¹ / ₂	12	47	4	19	12	45 ¹ / ₂	12	47	4	19	12	45 ¹ / ₂
8	53	9	1	1 ³ / ₄	19	12	45 ¹ / ₂	12	47	1 ³ / ₄	19	12	45 ¹ / ₂	12	47	1 ³ / ₄	19	12	45 ¹ / ₂
8	58	9	7	2 ¹ / ₄	21 ¹ / ₄	12	45 ¹ / ₂	12	47	2 ¹ / ₄	21 ¹ / ₄	12	45 ¹ / ₂	12	47	2 ¹ / ₄	21 ¹ / ₄	12	45 ¹ / ₂
9	4 ¹ / ₂	9	15	3 ³ / ₄	24 ³ / ₄	12	45 ¹ / ₂	12	47	3 ³ / ₄	24 ³ / ₄	12	45 ¹ / ₂	12	47	3 ³ / ₄	24 ³ / ₄	12	45 ¹ / ₂
9	15 ¹ / ₂	9	27 ¹ / ₂	2 ¹ / ₈	27 ¹ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	27 ¹ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	27 ¹ / ₈	12	45 ¹ / ₂
9	24	9	37 ¹ / ₂	2 ¹ / ₈	30 ¹ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	30 ¹ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	30 ¹ / ₈	12	45 ¹ / ₂
9	31	9	46	1 ¹ / ₄	31 ³ / ₈	12	45 ¹ / ₂	12	47	1 ¹ / ₄	31 ³ / ₈	12	45 ¹ / ₂	12	47	1 ¹ / ₄	31 ³ / ₈	12	45 ¹ / ₂
9	35	9	50 ¹ / ₂	2 ¹ / ₈	33 ¹ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	33 ¹ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	33 ¹ / ₈	12	45 ¹ / ₂
9	41 ¹ / ₄	9	58	2 ¹ / ₈	35 ³ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	35 ³ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	35 ³ / ₈	12	45 ¹ / ₂
9	49	10	7	2 ¹ / ₈	37 ¹ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	37 ¹ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	37 ¹ / ₈	12	45 ¹ / ₂
9	53	10	12	2 ¹ / ₈	39 ³ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	39 ³ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	39 ³ / ₈	12	45 ¹ / ₂
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10	10 ¹ / ₂	10	32 ¹ / ₂	2	44 ³ / ₄	12	45 ¹ / ₂	12	47	2	44 ³ / ₄	12	45 ¹ / ₂	12	47	2	44 ³ / ₄	12	45 ¹ / ₂
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10	23	10	53 ¹ / ₂	2 ¹ / ₈	50 ⁷ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	50 ⁷ / ₈	12	45 ¹ / ₂	12	47	2 ¹ / ₈	50 ⁷ / ₈	12	45 ¹ / ₂
10	34 ³ / ₄	11	0 ³ / ₄	2 ¹ / ₈	53	12	45 ¹ / ₂	12	47	2 ¹ / ₈	53	12	45 ¹ / ₂	12	47	2 ¹ / ₈	53	12	45 ¹ / ₂
10	41	11	8	2 ¹ / ₈	53	12	45 ¹ / ₂	12	47	2 ¹ / ₈	53	12	45 ¹ / ₂	12	47	2 ¹ / ₈	53	12	45 ¹ / ₂
1 ¹ / ₂ hr. allowed for lunch.				Total ...		53	53	Total ...				55 ¹ / ₄	108 ¹ / ₄						

Conversations with prospective Cyclecar owners.

No. 8.—The Commercial Traveller.

"THE future 'Knight of the Road's' 'Black Bess,' will be called a Cyclecar," we remarked.

"No fear," he said, "how's a man going to travel all over the country—and with luggage into the bargain—in a thing like *that*?" pointing to a small monocar going past.

"Not exactly like that, but like *this*," we said, indicating a G.W.K. standing near; "here's a car that'll take you anywhere, and as for luggage—well, there's enough room at the back there for a bride's trousseau.

"There certainly is that, but luggage capacity alone wouldn't meet the requirements by a long shot. Take mine for instance." My district includes the whole of the North of England and a good bit of Scotland. Well, I don't know whether you're aware of what the roads are frequently like, but to put it mildly they're 'the limit.' Why, if I had to go over them in a cyclecar, I should be a source of continual income as salvage to every owner of a horse in the neighbourhood, and the machine would be only fit for scrap iron at the end of a week. No, my boy, it couldn't be done."

"But it *has* been done."

"When—by whom?"

"Ever heard of the A.C.U. Six Days Trial?" we asked.

"Yes. As it happens business took me over a good part of the route of this year's trial—and I can quite understand the growling that arose over its inclusion," he said with a chuckle. "Some of the worst parts of the Lake District—but that was for motorcycles."

"It included cyclecars also. Well, the G.W.K.—the cyclecar standing there—not only went through the trials, but did so without loss of marks—the *only* cyclecar to do so."

"The dickens it did! Still, as it was the *only* cyclecar to do so it looks rather like a fluke, doesn't it?"

"Ever heard of the Scottish Six Days Trial?"

"Similar event to the A.C.U.?"

"Yes, the promoters of each vie with one another over choosing the worse route—and the A.C.U. won this year by a short head. Well, two G.W.K.s went through the Scottish Six Days Trial without loss of marks—again the *only* cyclecars to do so. In both these trials, by the way, the G.W.K. repeated its successes of last year, when it obtained a Gold Medal in each trial; and the Special Passenger Prize in the Scottish Event. You don't get 'flukes' occurring with such consistency as *that*."

He had nothing to say, so we continued:

"Then, besides its extraordinary durability and reliability the G.W.K. has other advantages. It's remarkably easy to manage, and very economical to maintain. It's clean too; you are well protected from oil, petrol, or mud, and, with hood and screen up, from wind, rain or snow. Why not fix up a trial run with the makers?"

"I certainly *should* like a run in a car that could go through trials like those without loss of marks; but I may as well wait now and see it at Olympia—I suppose they're showing?"

"Oh, yes, but don't you go waiting for Olympia. That's what hundreds of people are doing—and what'll be the consequence? Why most of 'em will have to wait for delivery of the car. Take the tip, and fix up a run *now*."

"There's something in that," he murmured reflectively.
"Yes, I will."

The 8 h.p. G.W.K.

2-cyl. water-cooled,
4-speeds and reverse.

Chassis £126

Or complete car, with Hood, Screen,
Lamps and Horn £150.

Write for full particulars and list of
successes, and arrange a trial run.



G.W.K., Ltd.,
Home Works, Datchet, Bucks.

Telegrams: "Cars, Datchet." Telephone: Windsor 331.

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.

CHATER LEA

Cyclecar Components for Builders.

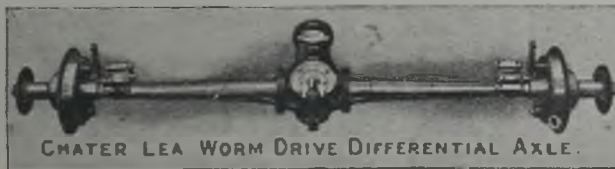
Every design of Cyclecar, shaft, chain, or belt drive, can be built from the famous Chater Lea parts. These components are being supplied in quantity to prominent Cyclecar manufacturers, and every detail is worthy of our acknowledged reputation for quality in design, material and workmanship.

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CHATER LEA
WATER-COOLED ENGINE.



CHATER LEA WORM DRIVE DIFFERENTIAL AXLE.



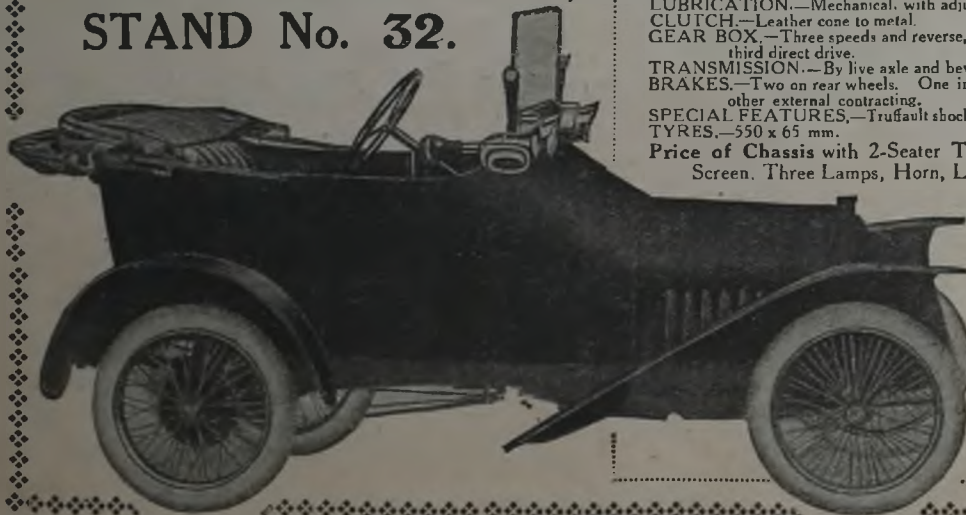
CHATER LEA
3 SPEED AND REVERSE
GEAR BOX.



CHATER LEA
STEERING HEAD AND HUB.

The BABY PEUGEOT

NEW 1914 MODEL on view at
the coming
OLYMPIA MOTOR
SHOW, 7th-15th NOV.,
STAND No. 32.



6. H.P. FOUR CYLINDERS.

R.A.C. Rating 7.5 h.p. Approx. b.h.p. 10.

ENGINE.—Four cylinders "Monobloc," Bore 55 mm. Stroke 90 mm.

IGNITION.—Bosch high tension magneto.

COOLING.—By centrifugal water pump and fin radiator.

CARBURETTOR.—Of the Zenith type.

LUBRICATION.—Mechanical, with adjustable sight-feed.

CLUTCH.—Leather cone to metal.

GEAR BOX.—Three speeds and reverse, gate change; second and third direct drive.

TRANSMISSION.—By live axle and bevel drive.

BRAKES.—Two on rear wheels. One internal expanding and the other external contracting.

SPECIAL FEATURES.—Truffault shock absorbers on all 4 wheels.

TYRES.—550 x 65 mm.

Price of Chassis with 2-Seater Torpedo Body, Hood, Screen, Three Lamps, Horn, Luggage Carrier, Spare Tyre Carrier, as illustrated, and Kit of Tools **£170**

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'Phone:
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Wednesdays—1d.

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LIGHT UP

Next Saturday, 5.33 p.m.

FORTHCOMING EVENTS.

OCTOBER.

29th.—One-day A.-C.U. Cyclecar Trial.

NOVEMBER.

1st.—Cyclecar Club Run to Chequers Inn,
Horley. Supper (6 p.m.) and Concert.

1st.—Streatham and District M.C.C. Trial.

7th-15th.—Motor Show at Olympia.

16th.—Cyclecar Club Run to Tring. Timed
Climbs on Aston.

24th-29th.—Motorcycle and Cyclecar Show
at Olympia.

29th.—Annual General Meeting of Cyclecar
Club at Olympia.

NOTICES.

Letters.

EDITORIAL Communications should be
addressed to The Editor, "The Light Car
and Cyclecar," 7, 9, 11, 13 and 15,
Rosebery Avenue, London, E.C.

Letters relating to ADVERTISEMENT
and PUBLISHING Departments should be
addressed to The Manager. SUBSCRIP-
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*Advertisements of Cyclecars for Sale,
new or second-hand, Sundry Announce-
ments, and Rates for Advertisements
will be found amongst the end pages.*

Topics of the Day

The A.-C.U. Trial.

IN assisting the Auto-Cycle Union to obtain the minimum number of
entries for their important trial which takes place this week, we
have been very severely criticised by numerous members of the trade
and private owners. We had in view, however, the good of the move-
ment as a whole, for it is high time that a big trial from which motor-
cycles were excluded should be held. One reason for this is that most
of the trials held already have not given the public an adequate idea of
the reliability and merit of the machines entered. At the time of the
year when interest in new motor vehicles is most stimulated it is highly
desirable that the cyclecar manufacturers should come out of their re-
tirement and demonstrate that, in a properly-observed competition, their
machines can repeat their usual reliable performances under everyday
conditions. We regret that there was so much feeling displayed against
the A.-C.U. as a body, a feeling which was not altogether removed by
the rather high entry fees charged and the dispute as to whether Pitfold
Hill should be included or not. However, some 35 entries have been
received, mostly as a result of our personal representations to manu-
facturers, who have, in the main, loyally agreed to enter for the object
of demonstrating to the public that cyclecars and light cars are
thoroughly sound, reliable propositions. The machines entered are of
the most widely differing types, and their respective performances will
be followed with greater interest than has attended any previous similar
trial. The trial takes place on Wednesday of this week, starting from
Redhill at 8 a.m., and elsewhere we give full particulars of the entries
and the route.

Encouraging the Private Owner.

THE entries received for this trial show, we think, that the move-
ment is worthy of a separate cyclecar association. We see no reason
to doubt why their number should not have been doubled had the event
been promoted by such an association, which is one that the public and
trade generally would welcome. Undoubtedly the Auto-Cycle Union
have striven very hard to organize this event on right lines. Their
efforts and ours have been hampered by prejudice against a motorcycle
body as distinct from a purely cyclecar association. The guinea and
two-guinea entry fees have been resented as well. Considering that
the Cyclecar Club were able to run a trial in the Cheltenham district,
which was a fairly long distance from its headquarters, for a lesser
number of minimum entries with an entry fee of only half-a-guinea
without making a serious loss, it does seem extraordinary that fees
should be so high. Quite a number of private owners not in any way
connected with the trade would have entered for this trial for a half-
guinea entry fee. The private owner is the type of man that should be
most encouraged in future competitions, for the machine that he enters
follows more nearly standard practice than those driven by the manu-
facturers or their nominees.

TWO - -
DAYS - -
EARLIER.

The Light Car and Cyclecar

is now published on
MONDAY

With all the News of the Week
as heretofore.

First out next week with a complete
Illustrated Report of the Great
A.-C.U. Trial.

Ask for **THE LIGHT CAR AND
CYCLECAR** (formerly "The
Cyclecar"), in pictorial cover
printed in colours, every Monday,
One Penny.

MOTORING FOR ONE.

A Short Trial of a Double Belt-driven D.E.W. Monocar.

DRIVING a monocar is a great deal more fascinating than piloting a two-seater. The sense of independence, the narrow width of the single-seated machine, and, consequently, its greater handiness, remind one of the joys of solo motor cycling, with the added security, protection and comfort that only a cyclecar can give. There should be very great scope indeed for what is practically a four-wheeled motor-bicycle.

This was brought home to us very pleasantly in a trial of the D.E.W. monocar the other day. The control of this machine is very simple. The first noticeable part is undoubtedly the steering wheel, or, rather, half-wheel, for that is what it is. It is rather easier to steer with this half-wheel than the conventional type, for it affords a better grip for the hands at an easy angle. The control of the machine is by pedals. That on the right operates the brakes, while the one on the left controls the gears. Pushing the latter right home brings the low gear into action, whilst in its forward position the high gear is engaged. Midway between these limits there is a neutral position, in which the pedal can be held by means of a notch. The two levers for the Amac carburetter are fitted to the steering half-wheel, and the control for the magneto is fixed to the side of the dash. A hand brake is also provided.

The first thing that impressed itself on us was the design of the seating accommodation. The cushion was comfortably sprung, whilst the reclining back was at the correct slope. It was certainly one of the most comfortable machines we have ever sat in, and after driving over some extremely rough roads our first impressions were more than confirmed.

We soon became accustomed to direct steering, and kept a true and straight course, while the knack of controlling the gear pedal was soon acquired and the speeds were changed with perfect ease.

The road from Eynsford joins the main Folkestone road just outside Farningham, and in order to head towards Wrotham a slight hairpin bend on a stiffish gradient has to be negotiated. We anticipated trouble here, but by slipping the lower gear clutch slightly—it is specially constructed for this purpose—we took the bend easily. The main road, with a slight up gradient, then lay before us, and the throttle

B10

and air levers were opened. Soon we began to realize why monocarists enthuse over their machines. It is a selfish thought, but, nevertheless, a pleasant one to know that there is no passenger whose feelings and susceptibilities must be considered, no one to suggest that the speed of the machine is on the fast side or to reprimand one when a corner is taken a *vitesse*.

The 5-6 h.p. air-cooled Precision engine was exceedingly responsive to the movements of the carburetter controls, and enabled the machine to accelerate in a remarkable manner. As night was closing in, our run was only a short one, but it was of sufficient length to convince us that monocarring has charms peculiar to itself and is a distinctive and separate branch of cyclecarring which should appeal especially to the motorcyclist who dislikes the prospect of slithering all over a muddy road on a single-tracker.

The D.E.W. appealed to us especially on account of its simplicity and comfort. The controls, at first, are somewhat confusing to anyone who has been accustomed to drive cyclecars fitted with more orthodox controls; but it is only a matter of a few minutes before the driver is master of his machine. The price, namely, £85 complete with two headlights, large generator, tail lamp, horn, pump and kit of tools, brings it within the reach of almost every individual who can afford a motorcycle.

There was a batch of about 10 monocars in various stages of construction going through the works on the day of our visit, and we were pleased to note

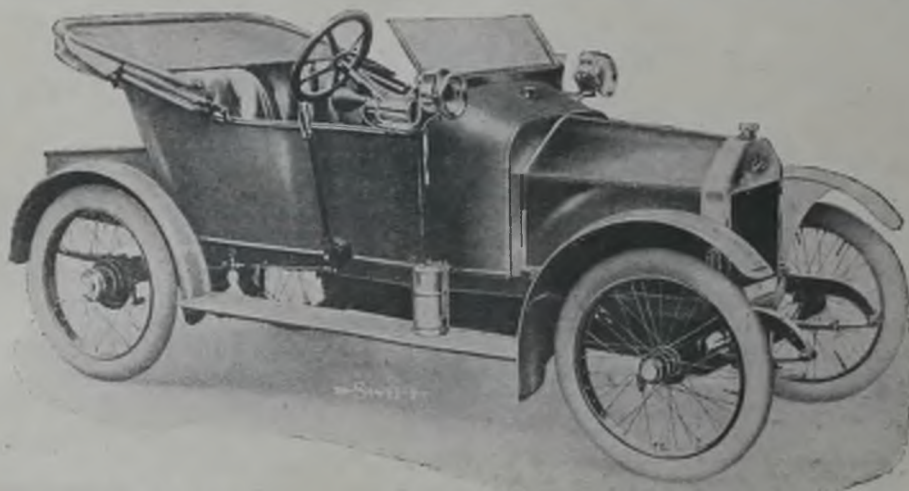
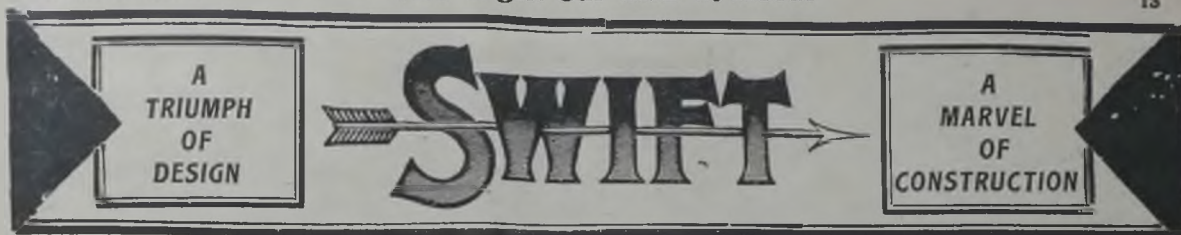
that everything was done on a system. There is a small but completely-equipped drawing office, and a well-arranged stores, besides the erecting and assembling shops.

A Speed Limit for Lewes.

We have received information from the A.A. and M.U. that the residents of Lewes are agitating for a 10 mile limit to be put in operation in the streets of that town. If motorists would slacken speed materially when passing through the narrow streets of Lewes, the imposition of a 10-mile limit may be avoided. The police are receiving numerous complaints at the speed of motors through Kibworth, which is between Market Harboro' and Leicester.



Ploughing the waters. The D.E.W. takes a watersplash at speed without a vestige of belt slip. The transmission system on this machine is by chains and belts.



**THE
PERFECT CYCLECAR.**

“THE OPEN DOOR TO UNIVERSAL MOTORING.”

The points of the big successful car are the points of this, the baby car—what is desirable in the big car we have embodied in this—the “perfect” cyclecar.

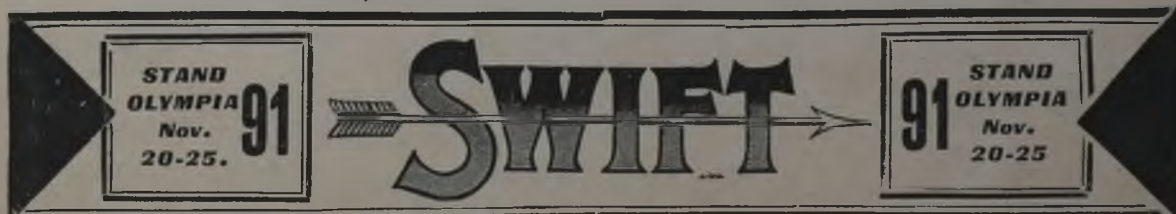
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IT'S A CAR

THE PRICE—A POPULAR ONE—AND WHICH INCLUDES HOOD, LAMPS, HORN, SCREEN AND TOOLS, IS BUT

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THE SWIFT CYCLE CO., LTD., **COVENTRY.**
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**TO THE
READER**

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B11

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SOLUTION FLASK.

A novel and useful flask for holding solution.

The opening and sealing are entirely automatic: there is no screw cap to lose.

The necessity of soiling the hands when making a repair is entirely eliminated.

The exact quantity of solution required can be gauged to a nicety, which makes the Dunlop the most economical flask in existence.

When the contents have been used up, it is quite an easy matter to refill the flask.

Size 1.	Price 1s. 6d.
Size 2.	Price 1s. 3d.
Size 3.	Price 1s. 0d.



THE DUNLOP RUBBER CO., LTD., Aston Cross, Birmingham; 146, Clerkenwell Rd., London, E.C.
BRANCHES: Coventry, Nottingham, Manchester, Newcastle, Bristol, Leeds, Liverpool, Glasgow, Dublin, Belfast.

The Morgan Runabout

HAS SECURED A
Greater number of Awards for reliability and speed than any other Cyclecar.

The following are a few of them:

Reliability.—A.C.U. Spring Trial, Two First-Class Certificates, Anglo-Dutch Trial, Gold Medal, English Six Days, Gold Medal.

Speed.—The GRAND PRIX. First at Porthcawl, Brighton, and Weston.

Hill-climbing.—First at Shelsley Walsh, 1st, 2nd, 4th, 5th Cyclecar Club Hill Climb.

Petrol Consumption.—First Cyclecar Club Trial.



Prices from 85 Guineas.

MORGAN MOTOR CO., Malvern Link.

Stand 66 Olympia.

B12 KINDLY MENTION "THE LIGHT CAR AND CYCLECAR" WHEN CORRESPONDING WITH ADVERTISERS.



The start of the long-distance cyclecar records by the Calthorpe.

ON Monday, 20th October, Mr. J. F. Buckingham, on a Buckingham cyclecar, set out to establish records in the 750 c.c. class at Brooklands. Only the short-distance records were attempted, namely, the flying kilom., the flying mile, and the flying five-mile. The average speed attained is particularly good when it is remembered that the capacity of the engine is only 746 c.c. The engine is a single-cylinder, and is of the water-cooled type. The car has a single-seated body of a pleasing streamline design.

The actual figures were:—Flying kilom., 39½ secs., average speed 56.78 m.p.h.; flying mile, 1 min. 3½ secs., 56.60 m.p.h.; and the flying five-mile, 5 mins. 34½ secs., 53.83 m.p.h. Such speeds as these were deemed impossible 12 months ago in connection with the small class of cyclecar. Mr. Buckingham deserves every credit for his performances with so small an engine.

On Thursday last, all cyclecar records up to 400 miles, which were standing to the credit of the Singer, were attempted by the single-seated racing Calthorpe. The weather conditions were distinctly unfavourable, there being a raw damp mist which was scarcely conducive to perfect carburation. The Calthorpe first started at 11 a.m., and only a few laps had been covered before the machine was compelled to come to a standstill, owing to a broken water pipe. This was rectified, and it was decided to make a fresh start, and at 11.40 a.m. Mr. Burgess started on the record attempt proper. He was soon lapping between 67

m.p.h. and 69 m.p.h., which did not represent the machine's maximum speed. The Calthorpe had been running for about half an hour, when it was discovered that the fuel tank was leaking badly, necessitating the driver stopping no fewer than three times in the first hour. In the first hour, 66 miles 1117 yds. were covered, in two hours the distance was 129 miles 1737 yds., and in three hours 196 miles 1581 yds. was the total distance. After this period the machine was replenished and the near-side rear wheel was changed.

Getting away again, the machine showed a marked increase in speed, and was soon lapping between 72 m.p.h. and 73 m.p.h., with the result that the first record to go was the 250 miles, which was covered in 3 hrs. 51 mins. 8½ secs., at an average speed of 64.89 m.p.h. Continuing at high speed without incident, the following records were then broken:—

4 hours, 263 miles 878 yds. (average speed, 65.87 m.p.h.).

5 hours, 330 miles 919 yds. (average speed, 65.10 m.p.h.).

6 hours, 393 miles, 450 yds. (average speed, 65.54 m.p.h.).

300 miles, 4 hrs. 30 mins. 39½ secs. (average speed, 66.50 m.p.h.).

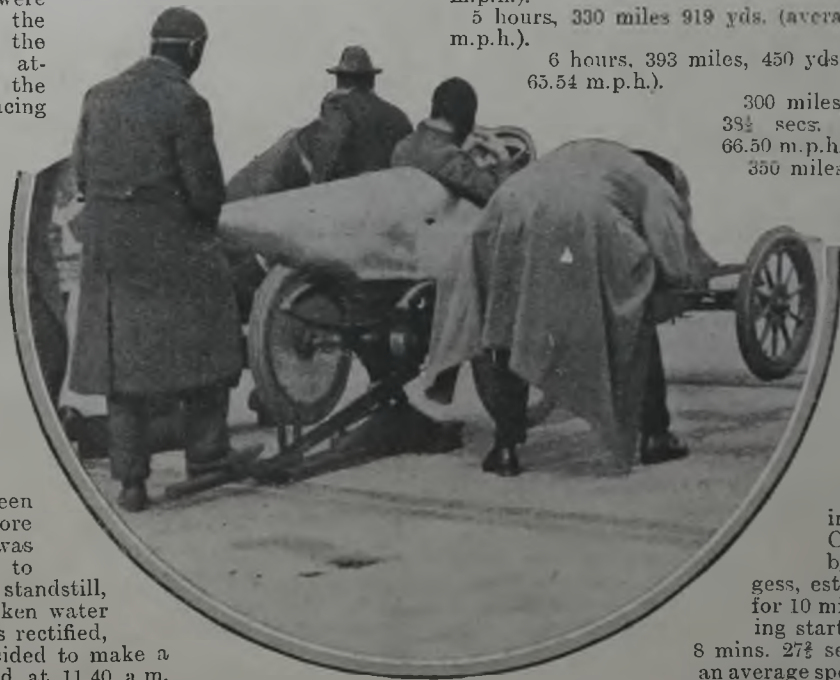
350 miles, 5 hrs. 18 mins. 27½ secs. (average speed, 65.94 m.p.h.).

400 miles, 6 hrs. 6 mins. 37 secs. (average speed, 65.46 m.p.h.).

The final portion of the record run was concluded after darkness fell.

On the following day the Calthorpe, driven by Mr. F. Burgess, established a record for 10 miles from a standing start. His time was 8 mins. 27½ secs., representing an average speed of 70.95 m.p.h. The fastest lap was covered at a speed of 76.77 m.p.h. The hour record was not broken.

B13

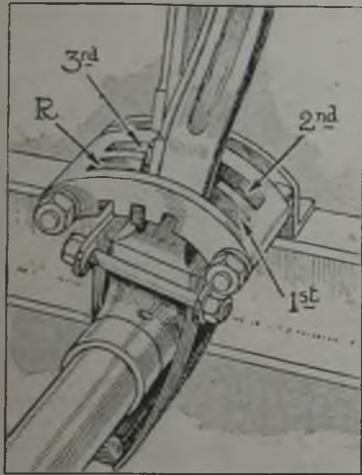


Restarting after inspecting tyres. Note the novel type of jack employed.

FURTHER INTERESTING MACHINES AT THE PARIS SALON.

Single and Four-cylinder Parent Models.

The Parent miniature cars made at 6, Rue Victor-Duruy, Paris, are now sold in two models, a tiny four-cylinder motor of 60 mm. by 80 mm. (950 c.c.) supplying the power for the latest production. The power developed is about 6 h.p., and in conjunction with the speed gear is ample to allow the machine to maintain a good average, as the total weight is very low. A reverse is fitted, the final drive to the back axle being by cardan shaft. The rear springing is exactly similar to that used on the Rolls-Royce motorcar. The price in France is £128.



The gate change gear lever on the new model Baby Peugeot.

G.E.P. Friction-driven Models.

A range of friction-driven miniature cars was shown by Messrs. Automobiles G.E.P., 15, Rue Georges-Marsaud, 1 and 3, Rue Danton, Gresillons-Genevilliers (Seine). The single-cylinder is the cheapest model, selling at just over £100, whilst the price of the four-cylinder monobloc machine is as high as £148. The range of engine sizes is as follows: single-cylinder 92 mm. by 100 mm., two-cylinder 72 mm. by 130 mm., four-cylinder 59 mm. by 100 mm.

(inside the cyclecar limit), or 60 mm. by 100 mm. In all cases the valves are enclosed and mechanically-operated, and the transmission is by shaft to the friction-drive and thence by chain to the back axle.

The Ronteix.

The four-cylinder monobloc Ronteix with three-speed-and-reverse gear shaft drive and live axle was staged by M. J. Ronteix, 6, Rue Camille-Desmoulins, Levallois-Perret (Seine). The chassis price of the two-seater is £150, and the size of the engine 62 mm. by 80 mm. Cooling is by thermo-syphon circulation. Behind the engine is a cone clutch and then a shaft transmitting power to the gearbox. A differential is fitted on the rear axle, which carries the three-quarter elliptic springs supporting the frame. The suspension in front is by a transverse spring shackled at each end. The smaller four-cylinder motor, 62 mm. by 80 mm., is built specially for the two-seater models, a slightly larger engine, with dimensions of 65 mm. by

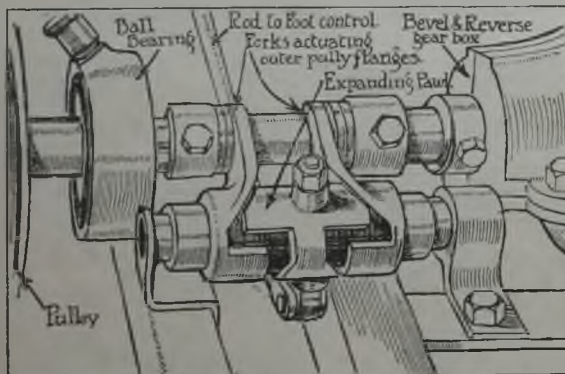
110 mm., being made for the three and four-seater machines. As an alternative a chain-driven model is listed at a slightly reduced figure.

A Four-cylinder Zebra.

The single-cylinder Zebra is already known in England. Now a new four-cylinder model, with a 50 mm. by 100 mm. monobloc water-cooled engine, has been built to supplant the already very successful single-cylinder. The motor is rated at 6 h.p., and is water-cooled on the thermo-syphon principle. A disc clutch transmits the power to a three-speed-and-reverse gearbox, in which the top speed is direct. From the box to the rear axle the power is taken by a cardan shaft carried between two universal joints to the back axle, which is also mounted on ball bearings. Here the rear wheels accommodate the foot brake, whilst the hand brake operates on the transmission. Worm and segment or irreversible steering is fitted; in fact, the whole machine is built on the most approved and up-to-date car lines. Fuller particulars can be obtained by applying to the makers, Automobiles Zebra, 3, Rue Villaret de Joyeuse, Paris.

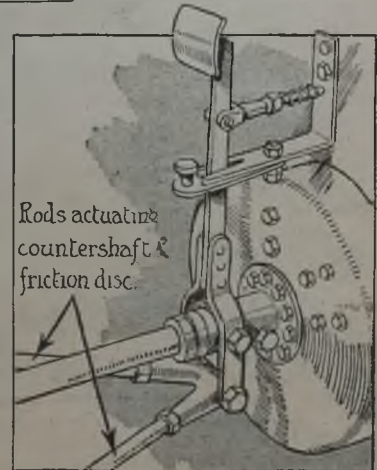
A Four-cylinder La Ponette.

The new four-cylinder La Ponette miniature car was one of the smartest little machines in the Salon. The monobloc engine measures 65 mm. by 110 mm., and is therefore rather beyond the cyclecar limit. The horse-power is given as seven, though the motor would no doubt develop twice as much when required. Thermo-syphon cooling is employed. The transmission follows standard car practice. A very clever universal joint of spring steel is interposed between the clutch and gearbox, the latter providing three speeds and reverse, the top gear being direct. The final drive is by cardan shaft to a differential and live axle. The rear springs of this machine are exceptionally long, and should give most comfortable running. The



The control for the variable pulleys on the new model Automobilette.

brakes on the rear wheels are enclosed and controlled by pedal, whilst the countershaft brake is operated by hand. Detachable wheels can be had as an extra, the bare chassis without body costing £164. The machine is made by Mr. G. Granvaud, of Saint Remy les Chevreuse (Seine-et-Oise), France.



The clutch pedal of the Violet-Bogey.



Wanted—a four-wheel cyclecar to replace the sidecar at the same figure. The problem of the day.

Mr. Lamplough, of the Bowden Brake Co., has been testing a four-cylinder engine in his private Tyseley car.

The new water-cooled Blumfield V engine, with mechanical lubrication and specially long main bearings, will be much in evidence for cyclecar work in 1914.

A single-cylinder P.D.A. water-cooled model, fitted with a Fafnir engine, has just been turned out by Messrs. Pickering and Derby, of Bristol Road, Birmingham.

Is it true that the holder of the cyclecar End-to-End record is contemplating beating his previous figures, using a 60 h.p. biplane in place of his 10 h.p. Singer?

The engine of the racing Calthorpe which was so successful at Brooklands the other day develops 31 h.p. at 3600 r.p.m. The latest development in the search for power has been the fitting of a larger carburetter.

The new B. and B. carburetter, in which the throttle and jet are controlled by one lever, is very well spoken of in the Midlands. It is said by those who have tried it to give very slow running and yet a fine burst of speed.

A new V type water-cooled Premier twin, with shaft drive and gearbox, is entered for the A.-C.U. Cyclecar Trial. It was recently driven round the course with the Rev. E. P. Greenhill on board, and climbed all the hills successfully.

On 16th November the Cyclecar Club meet will be held at Tring, and lunch will be taken at the Rose and Crown at 1.30 p.m. In the afternoon there will be some unofficial tests up Aston Hill. A stop for tea will be made at Beaconsfield on the way home.

The slow ascents at the Cyclecar Club's recent flexibility tests were keenly enjoyed by the spectators, many of whom followed the competitors on their way up the hill. The solemnity and lack of speed gave one an impression that this was a series of funerals wending their way to the nearest graveyard. We actually heard someone whistling Chopin's "Funeral March."

On Saturday next the Cyclecar Club are holding their first winter run to the Chequers Inn, Horley, which is situated on the main Brighton road, not far from Redhill. High tea will be taken at 6 p.m., and afterwards there will be an impromptu concert. Members and their friends are invited to provide items for the programme, and should send their names in to either of the hon. secs., Mr. Frank Thomas, 172, Belsize Road, N.W., or Mr. A. P. Bradley, 7-15, Rosebery Avenue, E.C.

Is a channel-steel frame cheaper and stronger than a wooden one? Some manufacturers say so, while others deny the assertion.

Although the 1913 Crouch car can accommodate three adults abreast, the seat on next year's model will be widened by about 3 ins.

An advertisement in our columns last week was somewhat ambiguously worded. "Insure with us before the accident. Afterwards we can do nothing for you." Surely a little too candid!

At a recent hill-climb an officer of the law became quite subdued when he was informed that the machines would not all race up together. As there were nearly 20 of them, we can quite appreciate his feelings.

In order to measure the petrol consumption of the machines in the A.-C.U. Cyclecar Trial, the tanks will be filled up at the start, at the luncheon stop, and at the finish. Some competitors view this with alarm, as petrol splashes out in their faces when the fuel is filled up to the brim.

The ingenious method by which some Bedelhas are converted into motorcycles—in the legal sense—sug-

gests that a pair of pedals coupled up by sprockets and a chain on the countershaft of a cyclecar, might be useful for reversing or hill-climbing. The passenger would, of course, do the necessary work.

A very interesting article, written by a barrister, appears in this week's "Motor Cycling," dealing with the question of rear lights for motorcycles. Owing to a recent case in the law courts this question has assumed a very important aspect, and is thoroughly dealt with this week by our contemporary.

The fuel-consumption figures in the A.-C.U. Cyclecar Trial will be eagerly awaited. It is to be hoped that the makes of carburetters fitted will be published in the judges' report. Some very interesting data should be obtained based on the weight of the machines, the type of cooling employed, and the gear-ratios used.

Recently, while driving at night, we almost came into forcible contact with some cows which were meandering over the roadway. Surely some light should be carried by the man in charge of cattle or sheep which are being driven on the road at night. If we had not had a good headlight, considerable damage would have resulted.

Everyone will admit that our front cover this week is one of the finest we have produced. It depicts a scene in the recent flexibility test organized on Woodcock Hill by the Cyclecar Club. The machine is a Warne, driven by Mr. A. B. Phillips, and the figure on the extreme left is Dr. A. M. Low, A.C.G.I., D.Sc., etc., in a characteristic meditative attitude.

Two Days Earlier.

THE LIGHT CAR AND CYCLECAR

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With all the News of the Week as Heretofore.

First out next week with a complete illustrated report of the great A.-C.U. Trial. Ask for "The Light Car and Cyclecar" (formerly "The Cyclecar"), in pictorial cover printed in colours. Every Monday. One Penny.

NEW 1914 MODELS.

Special Advance Descriptions of Interesting Innovations and Designs for Next Year to be Shown at Olympia Car Show, 7th to 15th November, and the Cycle, Motorcycle, Cyclecar and Accessories Exhibition at Olympia, 24th to 29th November.

IN the following pages will be found exclusive descriptions of a large number of 1914 models. Some will be exhibited at the Motorcar Show, whilst others will make their appearance at the Motorcycle Show. The great dissimilarity of the designs of the various machines is one of the most healthy signs of the movement, for manufacturers are branching out in all kinds of directions, and opinions are equally divided as to the future of the various types.

It will be particularly interesting to see what the special developments for 1914 will be at both Shows. At the Paris Salon it will be remembered that four-cylinder monobloc engines and friction-drive transmission were the two chief features. Shall we see the same developments at our English motor shows?

Last year enormous attention was centred on the cyclecar exhibits at the Motorcycle Show, and this year there is every indication of an even greater interest being taken in the new movement. After all, many of those who saw the first cyclecars and light cars as they were shown at Olympia 12 months ago considered it better policy on their part to await developments and watch the performances of those tiny

three and four-wheelers on the road. It was for that reason that we urged on manufacturers the necessity for proving to the public the merits of their machines in open trials. Many manufacturers have taken the advice, and it will be them especially who will reap the benefit of their enterprise next month. The newcomers will also benefit by the pioneer work done by their rivals, for it is by practical experience on the road that prejudice will be broken down.

The following descriptions will be continued next week, and our next issue will contain detailed specifications of the chassis of the light cars on view at the Olympia Car Show and also a forecast of light car design for 1914.

No reader who is interested in the popular motor-cycling movement should miss any of the following issues of this journal dealing with the motor shows and the trend of development in 1914.

Special attention is being paid to illustrations, and our descriptions will be written with a view to interesting the new motorist as well as the expert. Critical articles on the tendencies of design will be a feature of the ensuing issues of this journal.

THE RYLEY CYCLECAR.—6 h.p. Air-cooled Engine—Chain Drive Throughout—Rack and Pinion Steering.

A COMPLETE machine has been constructed by Mr. J. A. Ryley, of Martineau Street, Birmingham, to demonstrate the various component parts which he will market. The design is simple and clean, and follows cyclecar lines. The engine is a 6 h.p. J.A.P., and a supplementary outside fly-wheel accommodates a three-plate Ferodo-lined clutch, whilst a chain transmits the drive to a very neat two-speed gearbox of the dog clutch type, having ratios of $5\frac{1}{2}$ to 1 and $10\frac{1}{2}$ to 1. The gear lever works in a quadrant on the right-hand side, the neutral position only being notched, as the high and low gear positions are locked by a plunger acting in the gearbox. All gears and shafts are of Ubas steel carefully case-hardened, and Fischer ball bearings are employed, whilst the gearbox is supported in a cradle formed by two plates suspended from the cross members. The chain can be adjusted by moving the gearbox to the rear, and similar provision is made for adjusting the chain to the rear axle.

The chassis is of ash strengthened by fitch plates, and five cross members are introduced, which carry the engine, pedals and gearbox. Three pedals are employed, one operating the clutch and brake, an accelerator and an independent brake. The right brake pedal operates a pair

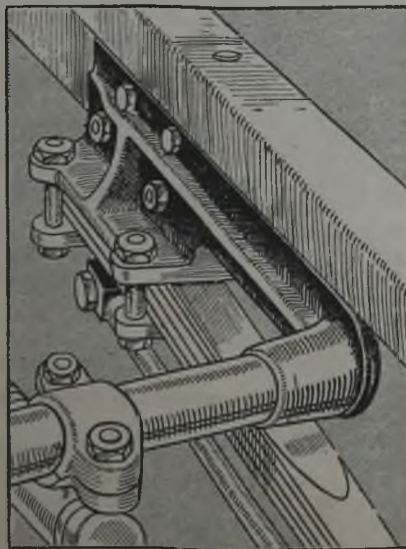
of internal-expanding shoes, and acts in a similar way to the usual hand lever, being fitted with a toothed quadrant, which holds it in any position.

Transmission is by chain throughout. On the near side of the axle is placed a friction plate, which gives a differential action. Springing is by quarter-elliptics carried from brackets on the frame. In the front the bracket also supports the front cross member.

The starting handle is placed underneath the near running board, and when not in use is entirely hidden and out of the way.

A novel type of bonnet forming an air scoop is fitted, which is open at the front. Inside, however, it is cone-shaped, the narrow portion conducting the air current on to the cylinders. The magneto, which is a K.E.W., is mounted on the front frame cross member on a cast bracket. A Sthenos carburetter controlled by an accelerator pedal is responsible for the carburation. Our trial run was sufficient to convince us that the car has undoubted merits as regards comfortable running. The weight without body is $4\frac{1}{2}$ cwt., and complete $5\frac{1}{2}$ cwt. The component parts will be on view at the forthcoming Cyclecar Show at Olympia.

The machine is constructed throughout on the simplest lines, but at the same time the construction appears to possess a large margin of strength.



The bracket carrying the front springs and the cross member.



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B17

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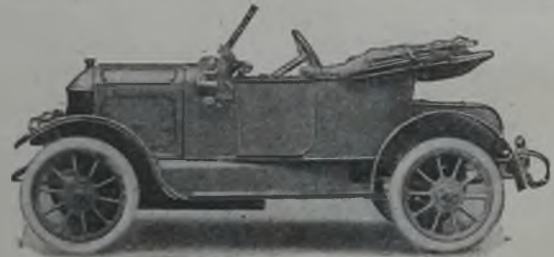
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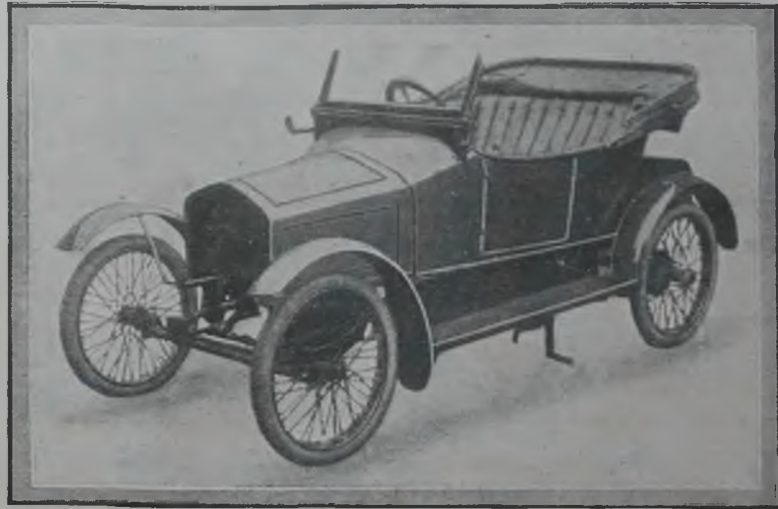
THE 1914 JENNINGS.—Water-cooled Two-cylinder Engine—Detachable Wheels—Enclosed Propeller Shaft.

MANY months ago we referred to a very ingeniously-made cyclecar which had been built by an amateur motorist, Mr. Jennings, of Bromsgrove. Since that time Mr. Jennings has made several new machines, and has now decided to manufacture an improved model on a commercial basis.

A two-cylinder water-cooled Dorman engine is carried well forward on a pressed-steel chassis, dropped in the centre so as to provide very low seating accommodation. The cranks of the engine are set at 180 degrees, the engine and gearbox being bolted up together so as to form one unit. Three speeds and reverse are provided, the ratios being 5 to 1, 8.6 to 1 and 14 to 1, and these are controlled by a lever working in a quadrant. The propeller shaft is fitted to the gearbox by a housed universal joint, oil-tight and fully protected from dust. The shaft is enclosed in a torque tube, and drives to a bevel on the back axle. The rear of the car is hung on a transverse spring shackled at each end.

In addition to the torque tube referred to above, long radius rods are bolted to the back of the gearbox, and extend to each side of the back axle, being, therefore, much wider behind than in front. The engine and gearbox are three-point suspended in the chassis, it being only necessary to undo two nuts to remove it from the

chassis. The brakes on the back wheels (which, like the front, are of the detachable variety) are set side by side, and are of the internal-expanding type. The body is very pleasing in ap-

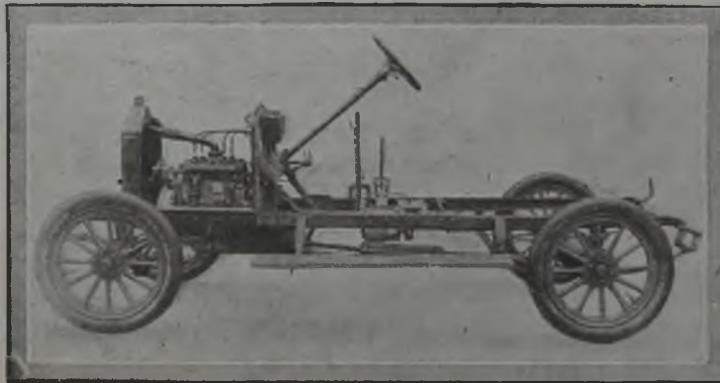


The Ryley cyclecar, described on another page.

pearance, being of the torpedo streamline design so much in vogue at present. The machine is to be sold complete at £150, and the address is the Jennings Light Car Co., Schofield Street, Birmingham.

THE STANDARD LIGHT CAR.—Four-cylinder Engine—Single Plate Clutch—Overhead Worm Drive.

A LIGHT car of which a considerable number have been put on the road during this year is that manufactured by the Standard Motor Co., Ltd., of Coventry. In appearance the machine is extremely pleasing, and from our own personal observations it

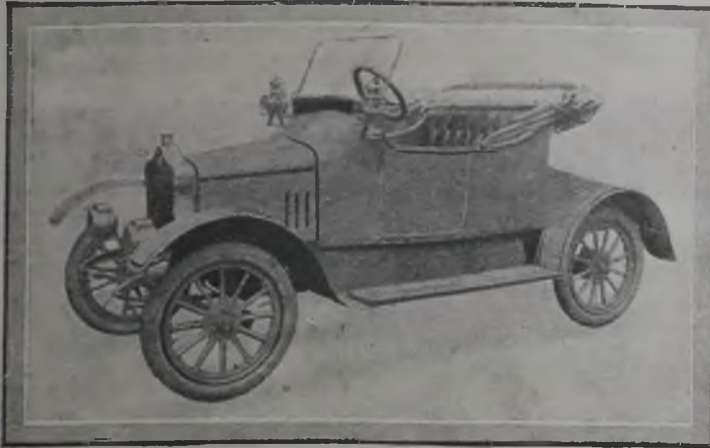


The chassis of the Standard light car. Note the substantial brackets for the footboards and details of the rear springing.

performs particularly well on the open road. It is a motorcar in miniature, special efforts being made to reduce the weight where possible. The frame is of pressed steel supported on the axles by half-elliptic springs fore and aft, those at the rear being supplemented by coiled spring auxiliary shock absorbers, which add materially to the comfort of the suspension. The engine is a four-cylinder monobloc, 62 mm. by 90 mm., set behind a radiator of the well-known Standard pattern through which the water circulates on the thermosyphon principle. A fan is provided to induce a draught of air.

The clutch is distinctive, being of the single-plate type. The metal driving plate is pressed into engagement with the asbestos-covered surface of the fly-wheel. Practically no lubrication is required, and the clutch itself is extremely smooth in action.

The overall dimensions of the gearbox are small, but the gear wheels themselves are of generous width. Three speeds and a reverse are provided, operated by a gate-change lever. To the rear of the gearbox is a band brake, and the final



The Standard light car, which sells for £195, with full equipment as shown.

transmission to the rear axle is by means of a universally-jointed shaft to an overhead worm of the rear axle.

Lubrication is by means of a pump, oil circulating from the sump to the various bearings. The timing of the ignition may be varied by a small lever on the steering column, concomitant with which is another small lever for setting the minimum opening of the throttle, after which the control is by accelerator pedal. The engine will turn exceedingly slowly in neutral, but under load the car will attain a speed of over 40 m.p.h.

The price is £195 complete with two-seater body, hood, screen, horn, five lamps, spare wheel and tyre, and full set of tools and spares.

The finish to all the mechanical parts is above criticism, the same care and attention being given to each detail of the manufacture as obtain in the case of the large Standard cars.

THE NORMA LIGHT CAR.—Novel Springing and Frame Design—Leather Universal Joints—Smart Appearance.

THE question of appearance would seem to be receiving greater attention at the hands of manufacturers, and probably one of the smartest machines that we have seen is that which has recently been marketed by the Norma Motor and Engineering Co., Ltd., of Ravenscourt Square, Hammersmith, London, W. The designers, however, are not satisfied with its present appearance, and subsequent models will be still smarter, a higher radiator being fitted to conserve a more level body line.

The construction of the frame is somewhat unusual. It consists of a truncated V, the side members being formed of pressed steel with cross members at the front and rear composed of large tubes. On these tubes is supported a pressed-steel sub-frame carrying the engine, gearbox, and silencer. The springing at the front is by double quarter-elliptic springs arranged in a similar manner to those on several cyclecars, and at the rear long quarter elliptics, which are practically flat and serve the purpose of radius rods, support the frame on the axle.

The engine is a four-cylinder monobloc having a bore and stroke of 65 mm. by 100 mm. The carburettor is a Zenith controlled by an accelerator pedal, and the ignition is by a Bosch magneto having a fixed firing point. The cooling is by thermo-siphon through a gilled-tube type of radiator. Engine lubrication is carried out by a small mechanical pump driven off one end of the camshaft, which forces the oil to the bearings and to troughs under the big ends. A belt-driven fan is provided to assist the cooling.

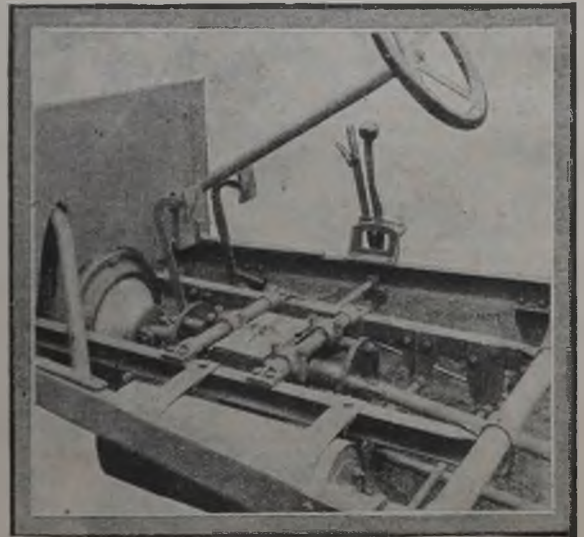
The clutch is of the inverted cone type, having a leather facing, and it is disengaged by two fibre pads, which also act as a clutch brake. Between the clutch and the gearbox, which provides three speeds and a reverse, is a flexible joint of the leather ring type, which allows a certain amount of end movement of the clutch shaft to permit of disengagement. The gears are operated by a lever working in a gate.

From the gearbox the final transmission is by a propeller shaft, provided with two joints of the leather ring type, to the back axle, which is bevel driven. In each of the rear wheels there are two internal-expanding brakes set side by side, one set operated by a pedal and the other set by the side lever.

B20

Steering is by worm and segment, the column being set at a comfortable angle. The front axle is tubular, while the wheels are of the fixed wire variety, 700 mm. by 75 mm.

The two-seater body measures 4 ft. 6 ins. wide in-



Transmission details of the Norma, showing the leather universal joints.

side, and thus there is ample room for three passengers. Behind the body is a large roomy locker, in the rear of which is a small door, through which the spare tyre may be withdrawn without opening the main locker. The price of the machine has not been definitely decided, but it is expected that it will be in the neighbourhood of £170.

In traffic, the Norma will only require top gear for most of its running, and will run at 4 m.p.h. on top. It is an excellent hill-climber.

THE STELLITE LIGHT CAR.—Four-cylinder Engine—Two Speeds and Reverse—Gear-box Combined With Axle.

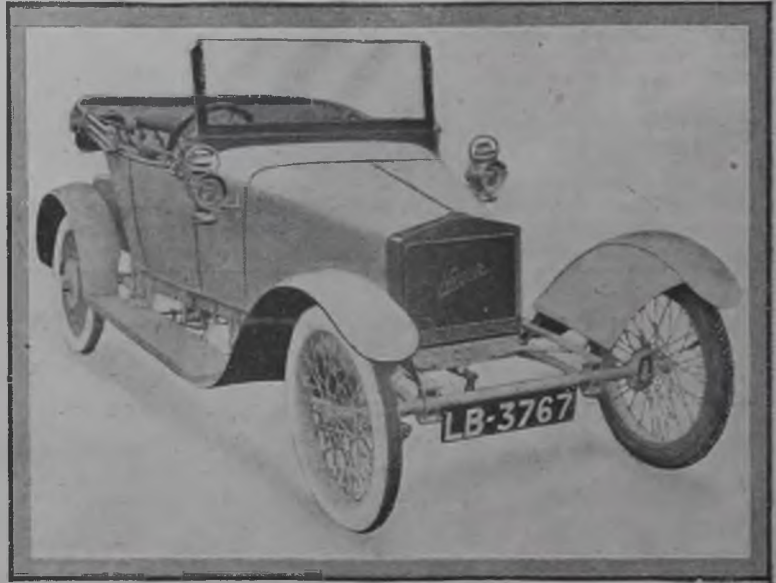
TO car owners the name of the Wolseley Tool and Motor Car Co., Ltd., is well known as the manufacturers of one of the foremost cars at present on the market. This company is a branch of the celebrated firm of Vickers, Ltd., and another subsidiary company is the Electric and Ordnance Accessories Co., Ltd., which is now engaged upon the manufacture of the new Stellite light car.

This interesting vehicle was designed by Mr. A. McCormack, the managing director of the Wolseley Co. In its chief features it closely follows motorcar practice, but in a number of important components, notably the frame and the springing, cyclecar practice is strongly in evidence. The complete chassis is composed of three chief units—the front axle, the steering gear and the springs complete form the first; the engine, clutch, pedal gear and front universal joint compose the second; and the transmission complete with the rear springs and gear-box form the third unit.

The engine is a four-cylinder, 62 mm. bore by 89 mm. stroke, with the cylinder heads cast separately, a non-leaking joint being formed of sheet metal and asbestos. The water circulates on the thermosyphon principle through a radiator of the familiar Wolseley shape mounted on the front part of the frame. The inlet valves are set overhead, operated by long rocker rods.

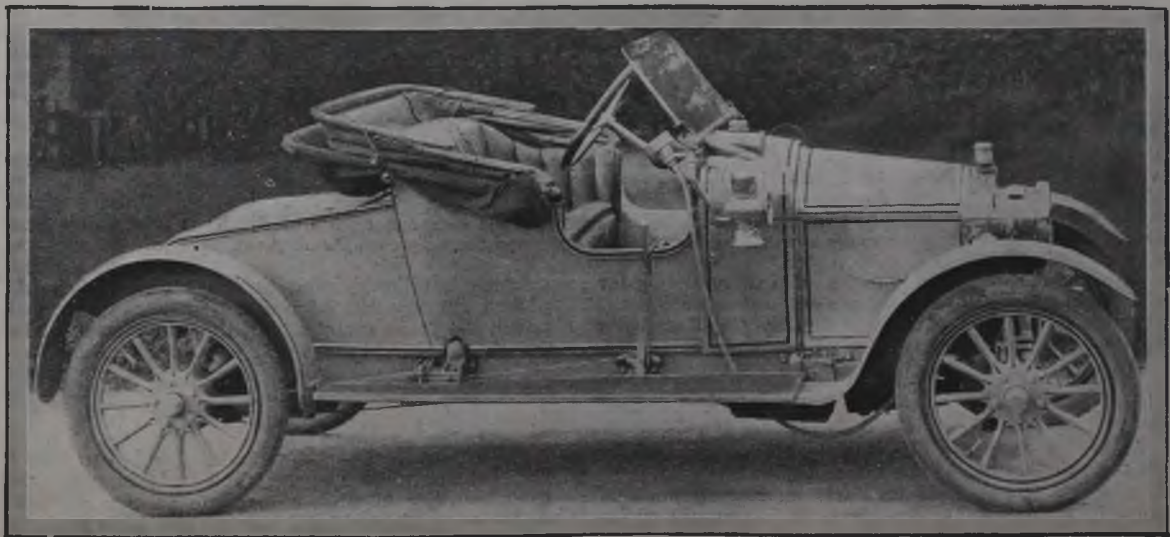
The carburetter employed is a modified form of the S. U. automatic, while the crankshaft runs on two bearings and is machined all over. Lubrication of the big-ends is by troughs, which are kept supplied by means of a pump. The clutch is of the leather cone type, from

which the transmission, is through a double-jointed connecting shaft to the propeller shaft proper, which is enclosed in a torque tube suspended at its forward end from a cross tube holding the frame members together, and carrying the spring brackets.



The Norma light car, described on the previous page. Note the details of the front springing, and the smart appearance of the bodywork.

The gearbox, providing two speeds and a reverse, is incorporated with the back-axle casing. The latter is of ash, armoured with steel fitch plates, and is suspended on the axles by long quarter-elliptic springs, those at the rear also serving the purpose of



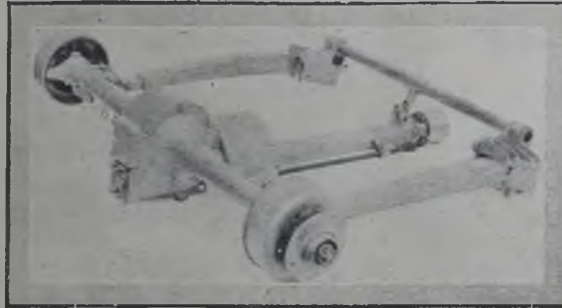
The Stellite light car, showing the pleasing outlines of the body.

NEW MODELS (contd.).

radius rods. Each rear wheel contains two internal expanding brakes set side by side. The wheels are of the pressed steel Sankey type, shod with 700 mm. by 80 mm. tyres. Steering is by rack and pinion, while the brakes are operated by strong steel cables which also perform the function of a compensating device. The front axle is tubular, the jaws being carried on the axle itself.

A roomy two-seater body is fitted, provided with a hood and screen. The price is 150 guineas complete, and the address of the makers is Cheston Road, Aston, Birmingham.

The method adopted of dividing the chief constituents into three main units considerably cheapens the cost of production, and



The rear unit of the Stellite, comprising rear axle, gearbox, springs and propeller shaft.

also eliminates to a large extent any errors which might arise in the process of assembling.

Throughout the design and construction every care has been taken to reduce friction as far as possible. As a result the Stellite performs extraordinarily well, both on the level and uphill. Most hills met with will

be climbed on top gear, and the reserve gear will allow the car to be re-started on even the worst hill. The running costs should also be reasonable, as the reduction of friction in all moving parts will make the machine run easily, thus economizing in tyre wear and petrol consumption. Altogether the little Stellite car is a beautiful example of the big car in miniature. It has only been produced after extensive tests on the road.

MONARCH COMPONENTS.—Engine and Gearbox Unit—Unique Tubular Underframe—Three-point Suspension of Power Unit.

WE illustrate a four-wheel Monarch light car on this page which has been produced by Messrs. R. Walker and Sons, of Tyseley, Birmingham, in order to show that their component parts may be built up into a complete chassis. It is not intended, however, to manufacture complete machines. In describing this latest production, it must be remembered that the various units referred to can be supplied in duplicate. The engine and epicyclic two-speed and reverse gearbox are built as one unit. They are fitted to a tubular sub-frame, which is, in turn, built on to the main pressed-steel chassis.

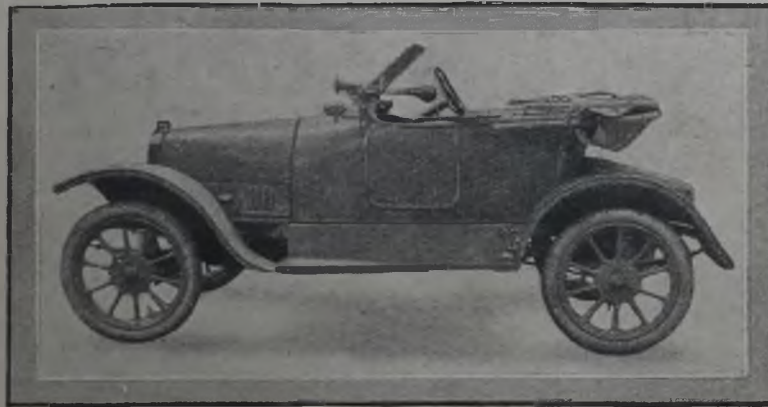
The connection between the engine and tubular chassis in front allows a certain amount of rock, as it consists of leather pads held tightly together by a coiled spring. The body, which is carried on the

second frame, is sprung fore and aft, though the back axle is not, as it is mounted on the tubular frame supporting the engine and transmission. The latter is particularly interesting.

A pinion on the engine shaft drives another pinion

to which a shaft carrying an epicyclic two-speed and reverse gear is connected. From this a shaft drive enclosed in a torque tube transmits the power to the live back axle. Two side-by-side expanding brakes are fitted to each rear wheel. Long half-elliptic springs fore and aft complete the suspension, whilst the steering is by means of a rack and pinion. A geared

starting handle, driving to the engine by chain, is placed slightly out of the centre of the chassis between the front springs. All the component parts of the chassis should meet with a good demand.



The 1914 model of the Monarch light car, the component parts of which are made and sold by Messrs. R. Walker and Sons, Tyseley, Birmingham.

Important Alteration in International Cyclecar Definition.

As we go to press our Paris correspondent wires that at the meeting of the International Federation of Motorcycle Clubs, held in Paris on Saturday afternoon, it was decided to amend the definition of a cyclecar, so as to include three and four-wheel vehicles with a limit in engine size of 1100 c.c. and a weight limit

of 660 lb. or 770 lb. It was also decided to hold the 1915 International Touring Trial in Germany. Thus the absurdity of such a machine as the Morgan or A.-C. being classed as a sidecar has been abolished, whilst another interesting decision is the equalizing of the engine size limits for the three and four-wheelers.

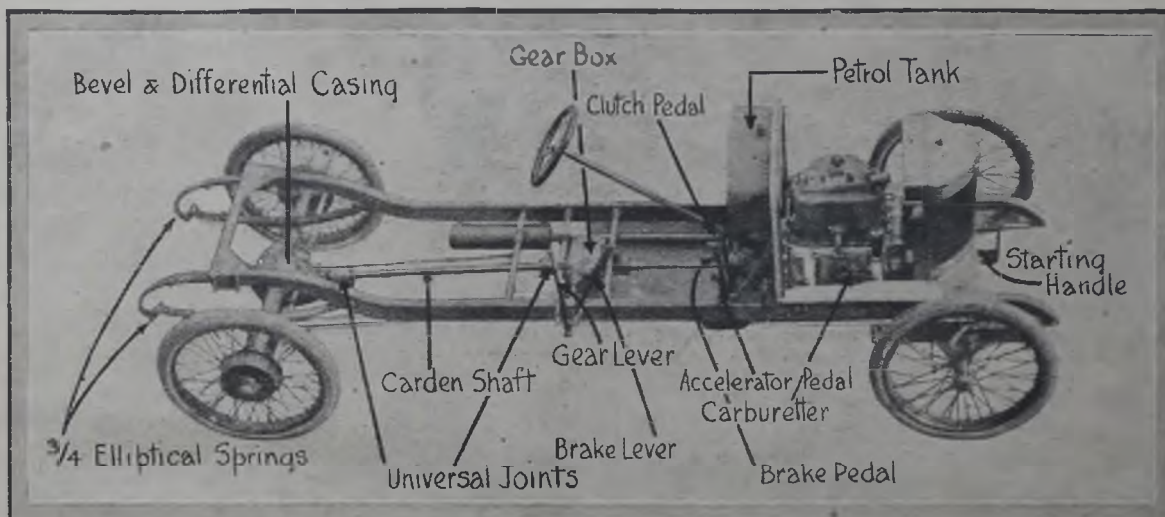
THE 1914 WILTON.

No Radical Alterations—Some Detail Improvements.

A NUMBER of detail improvements have been carried out on the Wilton light car for 1914. It will be remembered that this is one of the smartest machines at present on the market, and it has performed consistently at Brooklands and in reliability trials. The chief improvement is that mechanical lubrication is fitted to the engine. A pump is driven off the cam-

The four-cylinder monobloc water-cooled engine is set behind a smart tapered radiator of the plain tube type through which water circulates.

A multiple-disc clutch transmits the drive to a three-speed and reverse gearbox operated by a gate change. The final transmission is by a double-jointed propeller shaft to bevel gear in the rear axle, which



Semi-plan view of the new 1914 Wilton light car chassis.

shaft drawing its supply from a sump and delivering it to all important bearings and to the big ends. An indicator is fitted to the dashboard. Larger wheels are provided, these being now 750 mm. by 75 mm., while the track has been increased to 4 ft. The design is of great strength throughout, and the construction follows car practice in each particular.

also incorporates a differential. Steering is by worm and segment, the springing being by half-elliptics forward and three-quarter elliptics at the rear. Two sets of internal-expanding brakes are fitted to the rear wheels. A smart two-seater body with a deep scuttle dash is provided, and the price is £185, complete with hood and screen.

NEW FEATURES ON THE AUTOMOBILETTE.

THE new Automobilette models for 1914 are full of interesting features. A four-cylinder machine is to be manufactured, and is constructed so that it can be used equally well as a monocar or passenger machine. The seats are arranged tandemwise, but when only the driver is to be carried, a metal hood is clipped over the front seat, and the machine is thereupon converted into a monocar, with a most up-to-date streamline body. Small side-doors are fitted both to the front and rear seats of this machine.

The second new model is also interesting. It is fitted with a water-cooled, two cylinder, two-stroke engine in which both the pistons and cylinders are of double bore, the lower and wider part acting as a pump. The charge is sucked from the carburetter into the lower and wider half of the piston and cylinder on the downward stroke, and it is then compressed and transferred into the combustion chamber, or upper and narrower part, on the upward stroke. As the crankcase of the two-cylinder engine is set at 180 degrees, very equal and even firing should result from this type of engine.

On this model the action of the variable pulleys on the countershaft is controlled by a pedal working on a ratchet, whilst the movement of the rear axle, which tensions the belts, is controlled by a lever

working on a quadrant. As on previous models, the water-cooled engine is set parallel with the frame, and drives a countershaft through a bevel gear by a substantial shaft. A reverse gear is fitted in the bevel box, whilst the inclined planes which operate the variable pulleys are fitted on one end of the countershaft, being controlled, as stated above, by the action of a pedal.

A new type of front springing has been adopted. Half-elliptic springs are employed, rigidly fixed at the centre, the rear ends being free to slide on the frame. Worm and nut steering is now adopted, the front wheels being mounted on a pivoted shot axle, the front axle being rigidly fixed to the springs.

This year some 200 Automobilettes have been sold, whilst next season M. Cognet hopes to make at least one machine per diem. In the course of a recent interview, he expressed his willingness to enter a machine for the Isle of Man cyclecar race, in which his water-cooled two-cylinder engine should stand a good chance. The size of the engine is 69 mm. by 85 mm., and the steering is from the front tandem seat. Later on, a four-cylinder machine, with three-speed-and-reverse gear and cardan shaft drive, may make its appearance, but for the present the variably-gear belt-driven models are meeting the demand.



Wood is the managing-director of G.W.K., Ltd., of Datchet.



Mr. A. E. Parnacott, the inventor of the 499 cc. Parnacott Cyclecar and a prominent member of the Cyclecar Club.



Mr. R. G. Mundy, a Humberette pilot, who should qualify for a non-stop run. He has a wide experience of several different machines.



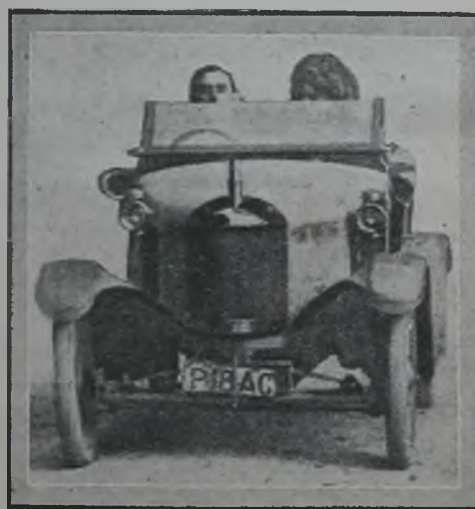
Mr. C. M. Keiller, the man who is largely responsible for the technical work of the G.W.K., on which he has won many awards this year.



Mr. W. Cooper, another pilot, is to be hoped that he will win the watercooled...



Mr. Martin, who has been very successful in a Singer light car this season.



Three well-known machines and drivers in the A.-C.U. trial. Left, Mr. Portwine (A.-C.). Centre, Mr. Morgan (Morgan). Right, Mr. Chater Lea (Chater Lea).



Mr. P. Phillips, who has won the Warne car in the...

GREAT CYCLECAR TRIAL ON WEDNESDAY NEXT.

A MOST representative entry of machines conforming to the A.-C.U. definition of a cyclecar has been received for the A.-C.U. trial on Wednesday. One of the most interesting features of the event is the number of new machines which are making their debut in an officially-observed trial. The performances of both well-known machines and newcomers will be watched with interest, and those machines which perform satisfactorily will have an excellent opportunity of following up their success at the Olympia Show next month. Any machine that can make a non-stop

Among the more interesting new machines are the Pyramid, in which friction drive and double belts from the countershaft to the back axle are employed, the Adamson, which was fully described last week, and the new Premier, which is spoken of so highly in Coventry. Seeing that so much attention is being paid to friction drive both on the Continent and in England at the present time, the performances of the friction-driven machines in restarting on the 1 in 10 gradient of Boar Hill should be particularly interesting.

Our next issue will contain a very complete and



SOME NEW ACCESSORIES.

Interesting Devices that increase the Comfort and Convenience of the Driver,

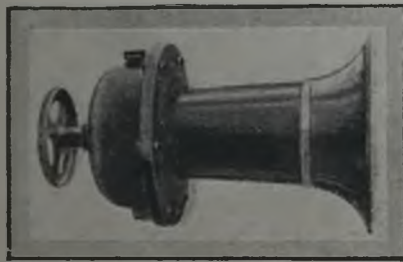
Featherweight Steel Pistons.

One of the chief requirements for the attainment of high revolutions is that all reciprocating parts shall be as light as possible in an internal combustion engine. The usual method adopted is to fit specially lightened pistons and connecting rods, and steel is the material usually employed. It is possible to make pistons of very light weight, and at the same time possessing unusual strength, if the material is carefully chosen. Crack racing cars are usually fitted with pistons of the very best steel obtainable, which may sometimes cost as much as £6 each even for a size suitable for use in a cyclecar.

There has been difficulty, however, in the past for the ordinary owner to obtain reliable steel pistons to fit in place of the standard cast-iron ones should he desire to increase the efficiency of his engine, but it may be interesting to know that the well-known Simplex featherweight steel pistons may be obtained from Messrs. Brown Bros., Ltd., of 22, Great Eastern Street, London, E.C. These are produced from welded steel tubing, and are thus of uniform thickness throughout. The skirt is drilled in order still further to reduce the weight.



The Graham elastic belt.



The new Pilot mechanical horn.

The gudgeon pin is fixed in a very neat and reliable way. There is a small ball sunk in one end of the gudgeon pin, which is forced outwards by a spring, and this drops into a small depression in the piston wall. The gudgeon pin can thus be forced out when necessary, but there is very little possibility of it moving under working conditions. These pistons are priced according to size, an 89 mm. size costing 27s. 6d.

The Pilot Mechanical Horn.

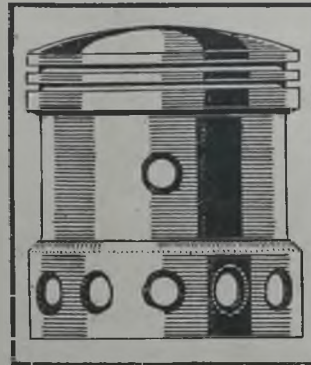
A horn having a particularly strident note is being marketed by the Pilot Horn Co., of 89, Great Portland Street. It is of that type in which a metal diaphragm is vibrated by the rotation of a toothed wheel against a small anvil situated in its centre. The noise thus produced is purely mechanical and is extremely efficacious in warning sleepy carters or attracting the attention of the drivers of traction engines. It is known as the Pilot and is operated by the driver's hand. It is mounted in a convenient position and has a small hand wheel at the rear, which

B26

is rotated when it is desired to use the horn. It is not necessary to make a complete revolution of the small hand wheel, but this may be rocked backwards and forwards, producing a practically continuous note

of great penetrative power. It is extremely moderate in price, 35s. being the sum charged, and it may be obtained in brass, nickel or all-black finish.

In connection with warning devices many drivers have found that while an ordinary bulb horn or exhaust whistle gives excellent service for all ordinary work, nevertheless there are times when some form of mechanical horn giving a raucous, unmistakable note, becomes an absolute necessity and not a luxury, as is sometimes alleged. A hand-operated one is considerably cheaper than one operated by batteries, while its actual working is almost as simple.



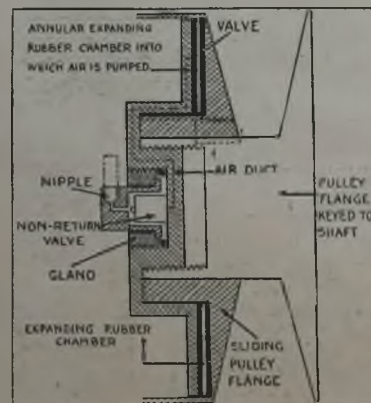
The Simplex Featherweight steel piston.

Pneumatic Pulley and Elastic Belt.

Variable pulleys are generally actuated by quick-threads or circular-inclined planes. However, a novel type has recently come to our notice in which the operating mechanism consists of a pneumatic annular ring, the inventor being Mr. J. Graham, of Perham Street, Kensington, London, W. Up to the present it has not been used on a cyclecar, but it is giving very satisfactory service on a Triumph motor-bicycle.

The chief feature is that the pulley and its actuating mechanism are contained in one unit, and can, therefore, be easily attached to any shaft. Roughly speaking, the pulley consists of three main parts,

the inner flange, with a threaded boss which is keyed direct to the shaft, and to which an external ring is fixed; the outer flange, which can move laterally on the former; while between the latter and the outside ring there is a rubber annular ring. By pumping air into this the outer flange is forced inwards, and by releasing



The Graham pneumatic variable pulley.

ing a valve the pulley expands. The valve mechanism controlling the air is of a very ingenious design. Into the centre of the outer or thrust ring a gland is screwed, which supports a nipple. A non-return

**TWO - -
DAYS - -
EARLIER.**

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A.C.-U. Trial.*

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valve is also provided in the centre of the thrust ring, and communicates with the annular rubber chamber by a small air passage. The rubber ring is provided with a simple type of valve, which also communicates with the air duct. An ordinary hand pump can be connected to the nipple by some rubber tubing, and a very few strokes of a fair-sized pump are sufficient to inflate the annular ring so as to bring the flanges together up to the limit.

In order to lower the gear, a slight pressure on the nipple, which is only held against its seating by the internal pressure, allows the air to escape, so that the belt forces the flanges apart. We might mention that Mr. Graham has tested this pulley for the last five years, during which time it has proved very successful.

Mr. Graham has also invented for use with this

pulley an exceedingly interesting V-belt, which consists of two strips of chrome leather, rigidly held together at one inch intervals by side plates of a cycle chain, through the top and bottom holes of which two steel bars are passed. Between the leather strips small layers of red rubber are inserted. When stretched, the two bands of leather tend to approach each other, and in so doing they compress the layers of rubber. As the tension on the belt is released the natural spring of the rubber forces the leather strips apart and the belt assumes its normal length.

Owing to this construction the belt may be expanded for several inches, but will return to its original length when under normal conditions. We understand that the wearing qualities are extremely good, and its gripping powers are excellent.

A French Reliability Trial for Light Cars and Cyclecars.

An interesting reliability trial for light cars and cyclecars is announced to be held in France from 15th to 25th February. The event, which is to be known as the Coupe de Tourisme, and is organized by our contemporary "L'Aero," is open to cars of 1100 c.c., not more than 1500 c.c., and not exceeding 2000 c.c. The smallest machines will really be cyclecars, but as there is a rule in France forbidding any newspaper to hold a cyclecar competition, this difficulty has been got over by using the more general term *voiturette*. Evidently a cyclecar by any other name is just as good. The tour will start from Paris, and will comprise nine stages of about 180 miles each, the stopping points at the end of each day being Orleans, Limoges, Toulouse, Avignon, Nice, Grenoble, Dijon, Nancy, and Paris.

In order to qualify, all machines in the competition must show an average speed of between 18 and 19 miles an hour for the full distance. Merit, however, will be determined on a fuel and tyre consumption basis. At the start of each day's run the fuel will be measured out and tanks sealed, and only stamped tyres can be used. A cor-

rect record will thus be kept of the amount of petrol and oil consumed, and the car doing the best under this heading will be the winner. Practically the whole of the mechanical parts of the machines will be sealed, the breakage of any seal entailing the loss of points. Every effort is being made to secure the entry of absolutely standard models, and in all cases a full touring equipment must be carried. The light car receiving very close attention at the hands of French manufacturers at the present time, it may be expected that the trials will be of interest. The distance is sufficiently long and the roads are of a varied nature to prove a real test to the cyclecars and light cars entered in this run.



Another view of the new tandem-seater Adler light car which was fully described in our last issue.

A private testing track a quarter of a mile round and faced with asphalt has just been taken over by Mr. T. V. West, of 88, High Street, Cheltenham, the well-known cyclecar, motorcar and motorcycle agent. The idea is to use the track for testing and tuition and to organize small gymkhanas and meetings there. The Rev. E. P. Greenhill, chairman of the Competitions Committee of the A.C.U., recently visited the track and expressed his favourable opinion on it. It is probably the first private track owned by any garage in England.

THE 1914 BELT-DRIVEN WARNE.

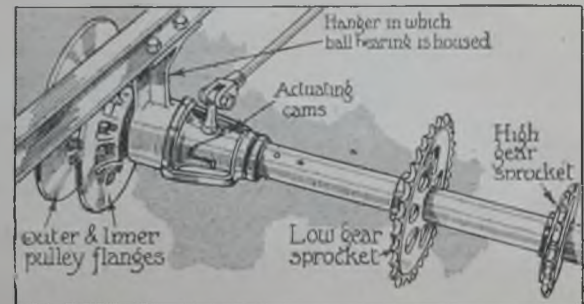
Steel Frame—Novel Reverse Gear—New Design of Variable Pulleys.

SOME exceedingly interesting and novel features are to be found in the new 1914 belt-driven Warne cyclecar, the most noticeable being the pressed channel-steel frame. Messrs. Pearsall-Warne, Ltd., of Letchworth, have adopted this in place of the armoured ash frame which was used in this year's models. Another addition is that of a reverse gear of simple but efficient design. The countershaft, which is fitted with a novel type of variable pulleys, is constructed so as to be self-contained, the thrust of the pulleys now being taken on the shaft itself instead of by the body, as in the original model.

The back suspension has also been redesigned, and now consists of two semi-elliptic springs rigidly fixed to the rear axle. Their extremities slide in specially-constructed guides, and a to-and-fro movement of about 4 ins. to 6 ins. is obtainable.

The engine is an air-cooled 8 h.p. twin-cylinder Precision, the bore and stroke being 85 mm. by 85 mm., and is fixed parallel to the main frame members. The holding-down bolts pass through slots so that the engine can be moved bodily backwards or forwards in order to obtain the correct tension on the driving chain. The mixture is supplied from a Binks automatic carburetter, which is controlled through a Bowden wire by a small accelerator pedal, while an extra air valve of the piston type is fitted between the carburetter and the cylinders. An extra external fly-wheel is provided, and a very efficient fan driven by

it the Ferodo-lined wheel comes into contact with the other two, and the drive is conveyed from the wheel attached to the high-speed sprocket to the Ferodo-lined wheel and back to that fixed on the low-speed sprocket, which then rotates in a reverse direction. A light spring, of course, holds the wheels out of en-



One end of the self-contained countershaft. The leather cover has been removed.

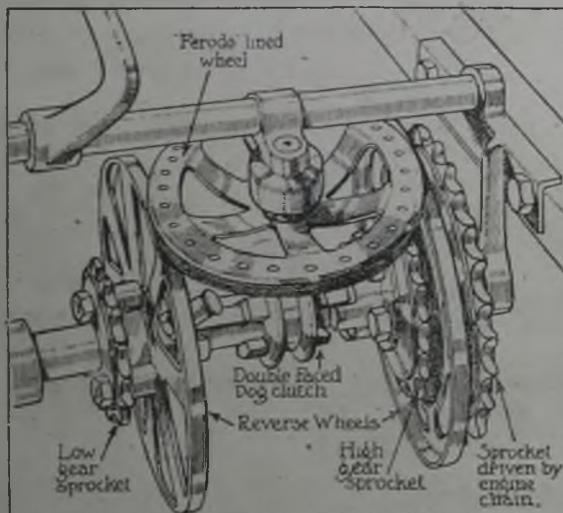
gagement when the pedal is released. It will be seen that this design is exceedingly simple, light, and possesses the advantage of being almost fool-proof.

The countershaft, which is tubular, has two sprockets rigidly attached to it, and is constructed so that it is self-contained. The extremities on which the variable pulleys and their actuating mechanism are fixed are of solid steel, brazed and pinned to the tubular shaft, which is carried beneath the frame.

The pulleys are of a very novel design, which allows them to give two extremely large ranges of gear ratios—from 4:1 to 7½:1, and from 7½:1 to 13:1—and at the same time the belts are enabled to obtain a splendid grip when the flanges are fairly wide apart. This is obtained by making the central portion of the flanges somewhat like the spokes of a wheel. The spokes—which are of rectangular section—of one flange are placed opposite the slots of the other, and when the pulley is contracted the former pass through the latter. There is another interesting feature which will be adopted in connection with the spokes—an arrangement by which the belts will sink automatically into the pulleys as low as possible, thus making them grip better than they even do now.

The actuating mechanism consists of two sets of cams, which resemble dog clutches with wedge-

shaped teeth. In their normal position the latter fit into each other, but by moving a hand lever the sloping faces slide on one another and the two circular cams are forced apart, thus closing up the pulley flanges. The thrust is taken up by ball-bearing thrust washers, while the whole mechanism on each end of the countershaft is enclosed in a leather cover,

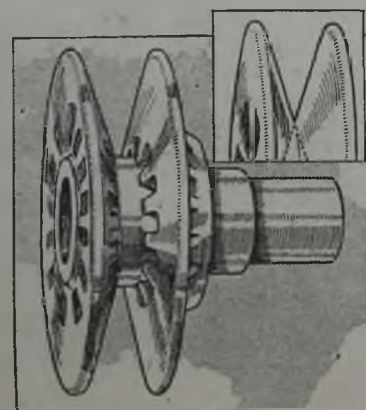


The layshaft of the new Warne, showing the reverse gear.

a round leather belt is so placed that the draught blows direct on to the exhaust valve chambers.

A Hans Renold chain conveys the power to a short layshaft mounted on ball bearings. The chain sprocket is rigidly fixed to this shaft, on which there are two other loose sprockets. Either of these may be locked to the shaft by a double-faced dog clutch, which slides on two feathers. A reverse gear is also fitted on this shaft, and consists of three wheels, two of them being rigidly fixed to, and revolving with, the high and low speed sprockets, while another, which is lined with Ferodo, is placed at right angles to and above the others, where it rotates on a pin fixed to a lug, which in turn is brazed to a shaft. A small pedal is also pinned to this shaft, and by gently depressing

B23



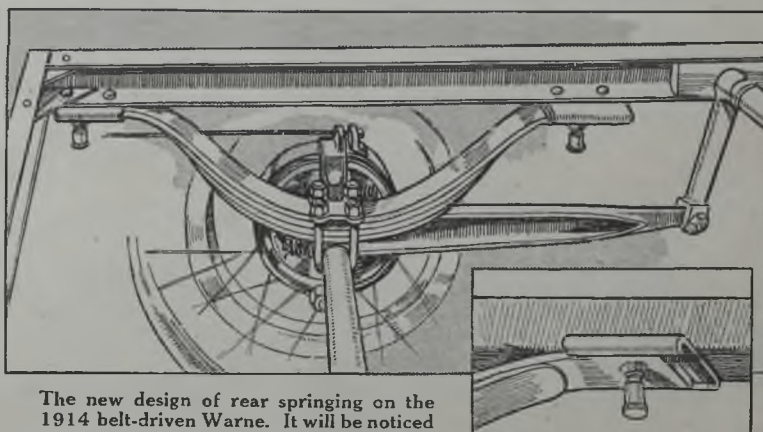
The novel type of variable pulley.

THE 1914 WARNE (contd.).

which is packed with grease. The countershaft is supported by two specially-constructed hangers, which are bolted direct to the main frame members, and it revolves in two large ball bearings, which are suitably housed so that no dirt or mud can reach them.

The final drive is by $1\frac{1}{2}$ in. leather belts to the back wheels, which are mounted on a tubular axle. The semi-elliptic springs which support the chassis at this point are mounted in a very novel manner. Fixed to the extremities of each is a rectangular piece of steel, which slides in a specially-constructed guide, the result being that, when the tensioning lever is pulled over the back axle, wheels and springs move bodily backwards with a perfectly parallel motion. There are no links or shackle pins to wear, and the whole pull of the belts is taken by two channel section stays pivoted to the rod on which the tensioning lever is fixed.

The steering heads are brazed inside the tubular front axle. The pins on which the short axles pivot are fitted with screw-down greasers, and bobbin steering is used, while the steering column is set at a good rake. The front semi-elliptic springs, like those at the back, are fitted to the axle in a very neat manner, which does not necessitate any brazing. On the top of the axle is fitted a small saddle-piece, in the centre of which is a hole, while the pin through the spring is made specially long, so that it passes through the saddle piece and into another small hole in the axle itself. Two clips, placed upside down—that is, with the nuts on top—hold the spring and axle together, and prevent the axle from turning.



The new design of rear springing on the 1914 belt-driven Warne. It will be noticed that the axle and springs can move backwards and forwards with a perfectly horizontal motion. Note the channel section radius rods. Inset, one of the guides for the sliding springs.

Wire wheels are fitted as standard, and two independent sets of brakes are provided, both acting on two drums placed on the rear wheels. Those operated by pedal are of the internal-expanding type, while an independent hand lever operates the two external-contracting bands.

The greatest improvement in the body design is the more or less streamline form which it now assumes. A tapered bonnet, the lines of which are continued by the scuttle dash, is provided, while the body itself is much lower than in previous models. This latter improvement is effected by lowering the seats. A luggage platform, neatly covered with rubber matting and edged with brass beading, forms the cover of a very commodious locker at the rear. Placed in the arch of the scuttle dash is the combined petrol and oil tank, which are arranged so that their largest

side is parallel to the main frame members. The petrol tank has a capacity of over four gallons, while the oil tank holds three-quarters of a gallon. The oil pump is situated inside the tank, and is semi-automatic in its action.

The price of the machine, complete with hood, screen, three lamps, horn, jack and tools, is £120, and a water-cooled engine can be fitted at an extra cost of £10. The running costs should be extremely low, as lightness is the keynote of the chassis, although an ample margin of strength has been maintained throughout. Messrs. Pearsall, Warne, Ltd., also intend to produce another new model shortly, which will have a water-cooled engine with a shaft and bevel drive. We hope to give full particulars of this new model in a future issue.



An incident in the record-breaking by the Calthorpe last week.

Top Gear Running on an Alldays Midget.

A MOTORCAR in miniature would be an apt description of the latest model of the popular Alldays Midget.

Its most distinctive feature is the track, which measures 4 ft., and is therefore larger than that of the average cyclecar, making the machine extremely steady on corners and also assisting in the excellence of the suspension.

We recently conducted an extensive trial of one of these solidly-constructed little machines, and were particularly surprised at the tenacious way in which the two-cylinder engine would continue pulling on a high gear up-hill to absolutely the last revolution, and, to give some idea of this little machine's capabilities on top gear, which has a ratio of 4.3 to 1, we may mention that the journey from London to Dorking was accomplished without a single change of gear, whilst the journey from Hindhead to London only needed one change, this being up Guildford High Street. We firmly believe that the little machine would have sped up this without a change but for the fact that there is a ten-mile limit, and thus there was no possibility of rushing the acclivity. We have yet to find a hill on a main road



The two-cylinder engine of the Alldays Midget, showing the carburettor control and the large flywheel.

that is beyond the capabilities of the second gear, which has a ratio of 7.8 to 1. In traffic there is no need to use a lower gear than this, and starting from a stand still can be ac-

complished easily and smoothly without delicate clutch manipulation, whilst the change to top may be made when the machine is at a speed of eight miles per hour. During our run we covered a portion of the course originally chosen for the A.-C.U. Cyclecar Trial. To show the machine's hill-climbing abilities, on bottom gear we may mention that it ascended the dreaded Pitfold Hill, without a passenger, with perfect ease. The conditions of the test may be judged from the fact that on descending the hill, although as much caution as

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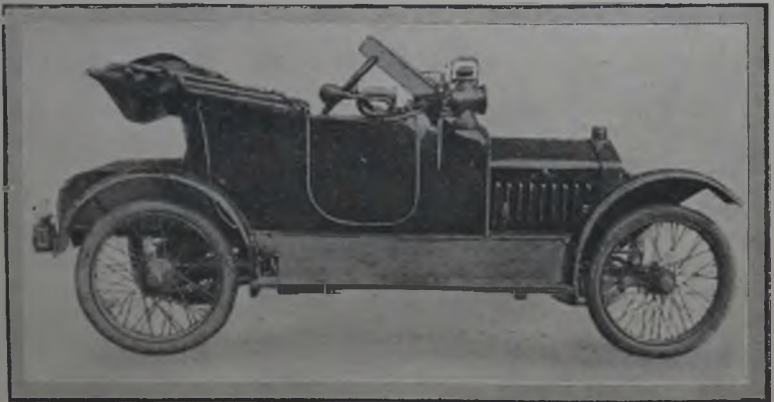


An Alldays Midget outside an old timbered house in Wondersh, Surrey.

possible was exercised, the entire machine slid forward about 10 yards with locked wheels, the gradient being so severe and the surface so greasy.

Next to hill-climbing, economy of running is one of its chief attributes. In order to test the petrol consumption, we drained the four-gallon tank, then put in a carefully-measured gallon of fuel, and drove the machine over ordinary "give-and-take" roads until the engine stopped. We found that 41½ miles had been covered, and we believe that this consumption could be still further improved.

Lubrication is carried out by a Best and Lloyd semi-automatic drip, and this lubricator is set to supply oil at about 15 drops per minute, so it will be seen that lubricating oil will not be a large item in the cost of running the machine.

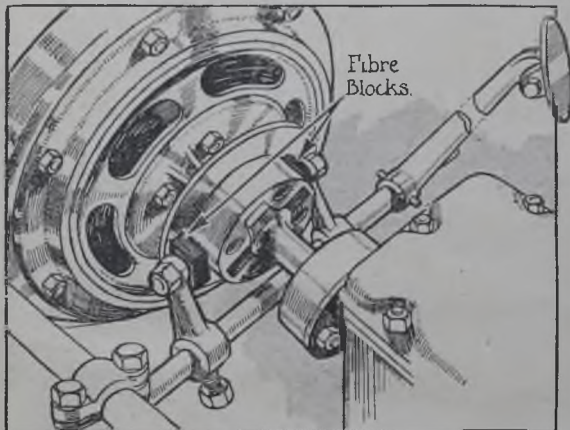


The Alldays Midget light car. The weight is supported between the axles, while the domed wings add considerably to the appearance.

TEST OF AN ALLDAYS (contd.).

The most pleasant speed at which to drive this machine is between 23 and 25 miles per hour. There is then no sound whatever from the transmission, the suck of air through the carburetter is also silent, no vibration occurs from the engine, and the machine seems to drift along at this speed. At about 28 miles per hour the engine makes itself felt, there being a fair amount of vibration, but on exceeding this speed up to about 35 miles per hour, the engine seems to have passed its critical period, and running once more becomes smooth. The maximum speed we estimated to be in the neighbourhood of 39 m.p.h.

Gear changing is simple. To change up, the leather cone clutch is disengaged, and the gear lever pushed smartly forward into the next notch. To change down, a dead silent change will be produced by "double clutching," but should this be considered

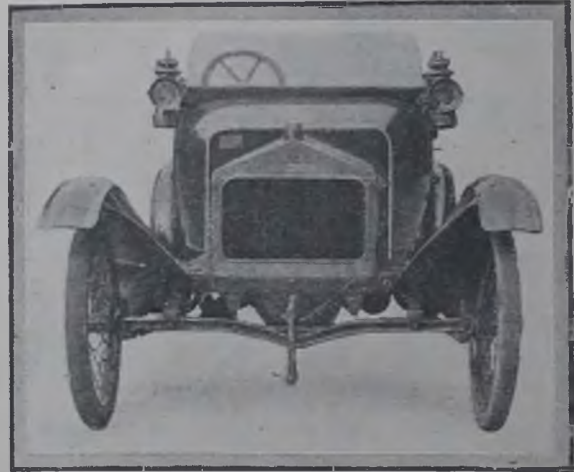


The clutch-operating gear and flexible joints on the Alldays.

too much trouble, the change is practically noiseless if the gear lever is pulled sharply into the lower gear after only slightly easing the clutch.

We found the steering, which is of the worm and segment type, to be easy and certain; in fact, one hand was all that was necessary for the proper direction of the machine. The control is by two levers on the steering pillar. A Zenith carburetter supplies the mixture.

The water circulation is by thermo-syphon through a gilled-tube radiator, and the only time on which we noticed boiling was on the top of Boar Hill, a long ascent in the A.-C.U. course, which was ascended on second gear.

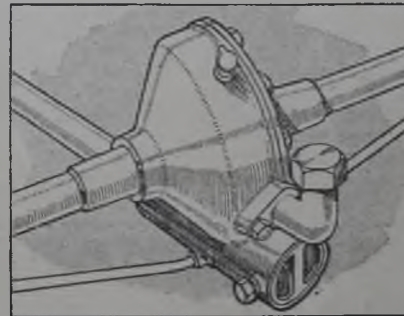


Front view on the Alldays Midget, showing the wide track and efficient mudguards.

The springing is extremely good, being by inverted, cantilever springs. By this arrangement the frame can be kept extremely low, and this, in combination with the wide track, makes it absolutely impossible for the machine to turn over.

The weight of the complete vehicle is about 9 cwt., and a ground clearance of 6½ ins. is allowed, the lowest point being the worm casing beneath the rear axle. The brakes, which are internal and external on the rear hubs, are smooth and powerful.

The price is £130, and a hood and screen can be supplied for £8 extra. A refinement, which is well worth the extra £7, is the provision of detachable



The rear axle casing showing torque tube and oil filler.

wheels. The makers are Messrs. Alldays and Onions Pneumatic Engineering Co., Ltd., of Birmingham, and the London showrooms are at 58, Holborn Viaduct, London, E.C.

"OBTAINING INCREASED POWER."

An Interesting Handbook for All Cyclecarists and Light Car Owners.

IT is the aim of every driver of a self-propelled vehicle to obtain the best results from his machine, but unfortunately in a large number of cases the owner knows very little about the various methods to adopt in order to obtain the maximum of efficiency from each component of his machine. In several instances he may know what to do in order to obtain certain results, but he has very little idea as to the reason why the result is produced, and to all such we commend the new handbook entitled "Obtaining Increased Power," which is published by Temple Press Ltd., 7-15, Rosebery Avenue, London, E.C., and which may be obtained for 6d. net at all booksellers and newsagents.

In this handbook is incorporated the series of

articles which appeared in these pages a short time ago, but the matter is now supplied in a more compact form. In the ten chapters constituting this handbook each of the various points where loss of power may be experienced is fully dealt with. How the power is lost is explained, and how to avoid this loss is then clearly shown. Profuse illustrations are incorporated, the majority being rendered still clearer by lettering thereon, and a number of interesting devices are described by which it is possible to increase still further the maximum power which may be obtained from a standard engine.

This handbook should be in the possession of every owner who desires to obtain the best results, especially in these days of high petrol prices.

THOUGHTS AND OPINIONS.

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

AN ECONOMICAL MOTORING HOLIDAY.

Never Had a More Enjoyable Leave.

On completion of my leave in England, I wish to forward you my appreciation of your publication and the interest it gives to the cyclecar movement. On my arrival in England at the end of July, I was determined to learn to drive something on the road. Whilst abroad, my idea was a motor-bicycle and sidecar. Seeing your paper on my way home, I began to consider the advantages of a four-wheeler. I am now satisfied that its extra first cost well repaid me for the comfort I was able to offer my passenger, the baggage we could carry and the ready sale I found for my car when I had to leave it. With the assistance of a friend in Birmingham, experienced in motors, I selected a Perry miniature car and became its owner on 6th August. My friend taught me to drive, and after a few days piloted me down to my home at Colchester. After a day or two I was off on a tour to Bournemouth, and with the aid of your maps worked round north of London on to the Basingstoke road, where the strip map was very handy. The return journey was made in two days pouring rain via the Southampton, Liphook and Guildford road, then on to Windsor, and keeping within a 10-mile radius of London. Needless to say, I had by this time learned how to handle my car better. The accounts in your paper of benzole induced me to try it, and without any alteration to my Zenith carburetter, I found a great improvement in the engine in climbing hills on top gear.

I sold my car on 4th October, and never had a more enjoyable leave at such little expense and so much pleasure to myself and my passengers. We were never delayed on the road. My mechanical knowledge induced me to take things adrift occasionally, but beyond grinding in a valve, I never found anything to do but to re-assemble again. I looked forward to your weekly publication, and decided that, if I could have stayed in England, I should not have

parted with the little Perry. With an easy 40 miles to the gallon, and more than that on benzole, these small cars come within the means of many men home for a short leave, whereas a heavy car is too expensive, both in the initial and running costs.

I am much interested in belt drive, and think it is evident that cheaper cars will come out on these lines which will eventually do away with the popular but ungainly sidecar machine. It appears that there is a market for both the belt-driven cyclecar and the light car of the Perry type.

S.W.C.

Khartoum, Sudan.

Satisfied With Air-cooling.

Some of your readers may be interested to hear of my experience during the last five years with a belt-driven machine without any differential. It is an American car, the Holsman, fitted with a horizontally-opposed two-cylinder air-cooled engine of 13 h.p. I have never had the slightest sign of overheating, although the machine has been driven all this time in Rangoon, where the temperature at times reaches 105 in the shade. The mechanism is extremely simple, steering is direct to the wheels, and the throttle is controlled by revolving the hand-grip on the steering lever. The engine drives to the countershaft by two silent chains, which are operated through dog clutches, giving two speeds. The countershaft is suspended directly under the engine shaft, and the former is moved forward by a hand lever to tighten the belts and backwards to slacken them. As the belts are slackened off, the brakes which operate on the back-wheel pulleys come into action, so that it is impossible to put on the brakes while the belts are tight.

I have bought, during my visit here this summer, a Humberette, and am delighted with it. I would not think of buying a water-cooled machine, with all its necessary complications.

H. P. ADLARD.

Llandrindod Wells.



The Duo, which secured second place in the Cyclecar Club's recent flexibility tests, nears the finishing line.

THOUGHTS AND OPINIONS (contd.).

THE DIFFERENTIAL QUESTION.
An Interesting Comparative Test.

We have read with great interest the views of your correspondents expressed in a recent issue on the subject of differentials for cyclecars. In preparing our Singer light car for competition work, we decided to try the experiment of taking the entire differential out and replacing it by flanged sleeves shrunk and keyed to the driving shafts, which proved a saving in weight of 3 lb. The car was then driven for some 500 miles, during which we observed the following results:—On straight roads there was no perceptible difference to record, except that the springing appeared slightly improved; the car appeared to drag somewhat on corners, which, however, were not taken at racing speed; the wear on tyres was undoubtedly greater, and the car was noticeably more difficult to push about when locked over; the test was brought to an untimely end by the keys of the driving shaft shearing on the first really bad corner, and a differential was then refitted. As a result the tyres which appeared half worn out after 500 miles are still in use, having done 4000 miles more, and the speed of the car on the level has increased two miles per hour.

The conclusion to which we have come is that, however useless a differential may be on a racing car, when corners may be skidded round at speed, we have no desire for our own touring and racing work (Brooklands apart) to dispense with this perfectly harmless piece of mechanism. No doubt we might have noticed greater steadiness on greasy roads but for the fact that the Singer light car brakes all act direct on the back wheels, and so do not produce in any event the differential-induced phenomena noted by your correspondent "Experienced."

Fulham Road, S.W. BAMFORD AND MARTIN, LTD.

The Use of Free-wheel Clutches.

I see many references to the advantage of doing away with the differential, and also the obvious disadvantages of having the two driving wheels solid. The object, therefore, is to gain the former advantage without the disadvantage of the latter. Why not drive on to each wheel through a free-wheel clutch, which would let either wheel overrun the engine? Then there would be no tendency to slip at the expense of the tyres. Of course, with a single-cylinder engine a heavier flywheel might be required, because the grip on the road could not be used to turn the engine over the compression stroke.

G. A. SEXTON.

Derby.

Which is the Best Design of Inlet Pipe?

How to obtain an equal suction of mixture from the carburetter into the two cylinders of a "V" twin engine has been, and doubtless for some time will be, a problem for the designer. "McM.," in an enlightening article which appeared in your issue of 8th October, dealt at some length with this question, and by a series of three illustrations indicated two methods by which the ordinary inlet pipe might be improved. I send herewith a diagram of a dome-shaped chamber connecting the two branches of the inlet pipe. This arrangement is fitted to a twin-cylinder engine of 10 h.p. used in a cyclecar, and acts very satis-

factorily. It facilitates the even flow of gas to the cylinders, as indicated by the even firing of both cylinders at slow speeds and by the greatly increased powers of acceleration. In some respects the device acts as a reservoir for the gas in the same way as the gas-bag sometimes used in acetylene lighting systems. No doubt many experts and amateurs are devoting time and effort to solving this problem, and it would be instructive to know on what lines they are proceeding and the measure of success attained.

K. N. MOYSER.

Streatham.

Good Results From Benzole on an A.-C. Sociable.

I purchased a 1913 A.-C. Sociable in July this year, and immediately took it to the Isle of Wight, where, although the roads were bad, I made great use of it, hardly missing a day without taking it out. I ran it on Shell No. II, and did about 45 m.p.g. I found that there was a good deal of carbon in the cylinder on taking off the valve caps after running about 300 miles. I heard a good deal of praise given to benzole, but

there was no benzole to be obtained in the island, so I had to wait until the end of my month's holiday and get some on the mainland. It was on the run up from the Isle of Wight to Glasgow that I first gave benzole a trial, and I filled up with a mixture of two-thirds benzole to one-third petrol. The result was wonderful. The little car went up hills on top which it would not have touched on petrol, and I heard no signs of a knock at any time. When I stopped for the night I prepared the machine for the next day, and, on examination, I found that there were no signs of any carbon in the combustion

chamber. I am still using benzole, and the only fault that I can find with it is that it is inclined to be rather dirty and clog up the jet, but this is easily put right by thoroughly filtering.

E.B.U.K.

Ilford.

100 Miles to the Gallon.

In answer to Mr. H. Atkins's query as to the petrol consumption of my A.-C. in the recent Sutton Coldfield M.C.C. trial, I may say that the machine was sent from the A.-C. works, in the ordinary course, during the Whitsun rush—the firm not even knowing who it was for. I carried an adult passenger in the trial, the total weight being 8½ cwt., whilst the machine was complete with every accessory used when touring. The variable jet of the B. and B. carburetter was not touched during the trial, and was set so that the levers were usually in line with each other. The speed averaged 20 m.p.h., and no hills could be coasted, owing to brake trouble. I need hardly state that I have no interest in Messrs. Auto-Carriers.

Wednesbury.

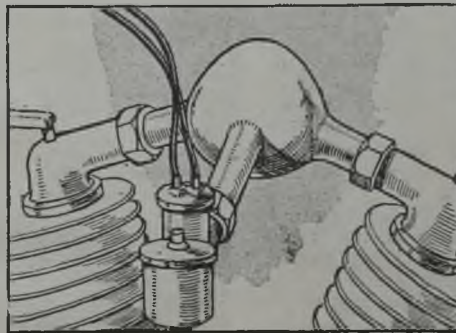
PERCY W. HILL.

Increasing Carburetter Efficiency.

As an owner of a G.W.K., I was much interested in "L.W.'s" letter entitled "Increasing Carburetter Efficiency," which appeared in your issue of 10th September, 1913. In my opinion, I do not get a satisfactory mileage out of my G.W.K., more especially when traffic-driving, of which I do a great deal. I should be very grateful if "L.W." would tell me what nature of fitment he made to his carburetter in order to increase his mileage.

S.W.H.R.

Portsmouth.



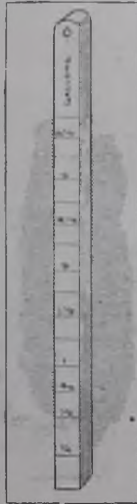
A design of inlet pipe which gives good results.
(See letter from Mr. K. N. Moyser.)

THOUGHTS AND OPINIONS (contd.).

A Useful Petrol Gauge.

Seeing hints and tips constantly in your paper, it occurred to me that a description of a petrol gauge suitable for Morgan cyclecars would interest your readers. There being no glass gauge fitted to the tank, it is necessary to devise a "dipper" gauge, but owing to the peculiar shape of the tank, it makes calculations of quantities at certain heights rather more complicated than would have been the case had the tank been rectangular. I have tested the accuracy of my calculations by actual trial and error, i.e., filling the tank pint by pint, on two Morgans, and in both cases it has proved as accurate as it is possible to measure a liquid quantity. The "dipper" consists of a piece of red fibre 6 in. square section by 7 ins. long. The accompanying illustration will show the general appearance of the gauge marked in fractions of a gallon, and a fine file will make the marks very clearly, while ordinary engineers' type will give neat and clearly-cut figures. The cost of manufacture is, of course, infinitesimal.

Leeds. E. WATSON SMYTH.



Mr. Smyth's petrol gauge.

The Future of the Small Maker.

I have read with great interest your article entitled "The Future of the Small Maker," giving some idea of the immense amount of work involved in producing cyclecars. From this article the one conclusion I deduce as to the future of the small maker is extinction. I am a small maker, and have produced a cyclecar consistent with experience of motor road vehicles generally. If the big manufacturers are awake why did they not, on reading the favourable Press comments on the design, at least investigate to see if there was any merit in it or money to be made out of it? One would have thought that the pressure of American competition in cheap cars would have goaded them on to seek simplified designs. But it did not. We have been taught year after year that the unconventional design will not sell, but American machines do. If American cars sell, as they undoubtedly do, is not the cyclecar movement the golden opportunity for British manufacturers to experiment and evolve improved and simplified designs, and thus outdo the Americans? The opportunity, however, is gone or almost gone. Investigation, generally, will show conclusively that large firms do not, as such, originate designs, and that the small makers grow larger through success in competitions such as the Cyclecar Club provides. Clearly the future of most of the small makers is extinction.

Penge. A. E. PARNACOTT.

Light or Heavy Tyres?

I have now run over 4000 miles on a G.W.K. since February last, and should advise anyone purchasing one of these cars to have it fitted with tyres heavier than the standard variety. The latter wore out after 2000 miles, while the heavier pattern gave me about 4100 miles, and although the combination 700-mm. by 80 mm. Roms, which fit the 650 mm. by 65 mm. rims, have not been fully tested, they show practically no flint cuts or signs of wear.

I have a Bowden extra air inlet fitted which is a great boon, and can get 45 miles to the gallon. With benzole I obtained even a greater mileage.

Burgess Hill. R. E. HARRISS.

B34

Experiences with a Warne Cyclecar.

I have now driven my Warne some 2000 miles, and have found it comfortable and easy to drive. At first, having had no previous experience of air-cooled motors, I only obtained some 37 miles per gallon, but after fitting a Bowden extra air inlet I soon obtained 50 m.p.g., and have since improved this to 55 m.p.g. on long runs, among which may be mentioned London to Lyndhurst (Hants.) with only one gear change. The oil consumption is about 300 m.p.g. As to speed, at first about 35 m.p.h. was the maximum, accompanied by much vibration, but I have since had the auxiliary two-speed gear fitted (now standard, I believe), giving ratios of from 4 to 1 to 12 to 1 instead of $5\frac{1}{2}$ to 1 to $9\frac{1}{2}$ to 1 as formerly. I can now do 40 m.p.h., and the vibration has completely disappeared, while I do not now fear the steepest hill. As to the (to most people) much-despised belts, these have been very satisfactory, and have received a minimum of attention. I have never had a breakage on the road. The tyres have also worn well, and I should estimate the life of both tyres and belts to be at least 5000 miles. The engine has run excellently, and, beyond carburetter adjustments, has required no attention. My only complaint is excessive noise from the driving chains. This is not due to wear, as I noticed it soon after taking delivery of the car, and it would be interesting to hear whether other Warne owners have experienced the same trouble and if they have been able to overcome it. I have obtained many valuable hints on various subjects from reading your journal. Long may it continue.

Surbiton.

E. E. WATSON.

An Interesting Conversion.

The accompanying photograph is of a cyclecar which has a 7-9 h.p. Buchet twin-cylinder engine, and is partly built up from a Phoenix quad. There is a light differential and three band brakes (one on the differential casing and two on the wheels). The back portion of this chassis is part of an N.S.U. forecar,



The converted machine referred to in the letter from "False Economy."

and slides backwards and forwards to enable the chain to be adjusted. Transmission is by 1 in. belt to an old pattern Roc clutch, while a jockey pulley keeps the belt tight. It can do 35 m.p.h. with two up, while it only cost about £20 to build.

Juniper Green.

FALSE ECONOMY.

Rust in the Petrol Tank.

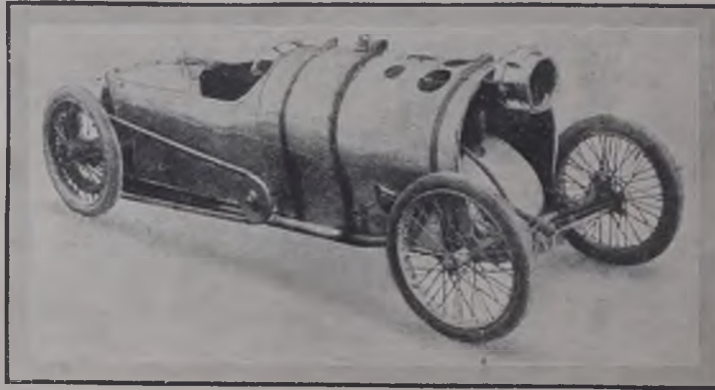
With regard to the trouble mentioned by your correspondent Mr. Hines, may I say that I experienced the same difficulty with my A.-C. last year? I also traced the trouble to rust in the tank. The gauze filter at the bottom of the tank was practically covered with rust.

Eton.

F. R. G. DUCKWORTH.

STEAM AS A MOTIVE POWER FOR CYCLECARS. Some Practical and Novel Suggestions.

May I be permitted heartily to congratulate "Steamer" on his success? A steam cyclecar will doubtless appeal to many, yet, as an old experimenter in this direction, a word or two of advice may be useful. For cyclecar work single-acting engines are much to be preferred. With a flash or semi-flash boiler and superheated steam, glands and stuffing boxes are often troublesome. If a single-acting engine is used three cylinders must be employed, the cranks being set at equal distances, otherwise the engine will not start. Slide valves are not so satisfactory as the ordinary poppet valves used on petrol engines. These were used on the old French Serpollet steam cars with good results. Some means of controlling the oil supply to the burner is also necessary, the thermostat regulator as fitted on the White steam cars being the best. The Simpson burner is one of the most efficient, as it does not choke or "light back." Remember in steamers nine-tenths of the trouble is in the burner. In this class of machine fuel economy is not a strong point, 12 to 15 miles per gallon being very fair. Where a steamer scores, however, is in the increased life of the tyres and less strain and consequent wear on the



Mr. T. A. Hubert's cyclecar with Buckingham engine.

transmission system. It is even possible to run a steamer on solid tyres, but this is not advisable for a cyclecar, which is more lightly built.

With a condenser of sufficient capacity 100 miles to a tank full of water—speaking in a general manner—is quite possible and easy. Even without a condenser and exhausting through a feed-water heater a steam cyclecar ought to run 50 miles without filling up, but, of course, a condenser is preferable. A steamer allows a free choice as to drive—belts, chains, or shaft and bevels. One well-known American car is geared direct on the back axle, the gear ratios being about 3 or 4 to 1. I would suggest that a single well-designed chain from the engine to the back axle would give good results on a cyclecar. In conclusion, I have another suggestion to offer, but it is not possible to carry it out with single-acting engines and superheated steam. Would it not be possible to build a cyclecar with the engine connected direct to the back axle in locomotive fashion? If this were done it is difficult to imagine anything more simple, both as to construction and driving.

Cranbrook

SIDNEY RUSSELL.

Is Air-cooling Efficient?

There has doubtless been a marked increase in the development and manufacture of cyclecars, although I think the methods now being introduced by many manufacturers rather tend to destroy the ideal cyclecar as it was originally intended. Manufacturers of true cyclecars are doubtless still faced with a few difficulties, whereas manufacturers of light cars have only to carry out the practice adopted by their larger brothers on a smaller scale. I think these facts induce a good many would-be cyclecar constructors to introduce light-car practice into their cyclecars. There is still a great deal of room for improvement in cyclecars, including the price, which at present is advancing. The increasing weight, larger size of wheels and consequent heavier cost of new tyres, all help to deter the man of very moderate means on the outlook for something with low running costs. I think air-cooled engines should figure prominently in the ideal cyclecar, as they are cheaper and lighter. More attention, however, could be given to efficient cooling. Small toy fans merely churn up the hot air under the bonnet and do more harm than good. At a small extra cost it would be quite possible to make the space under the bonnet practically air-tight, and then have a well-designed fan in the flywheel. The air could then be directed round the cylinders in whatever way proved most effective. Another point greatly in favour of this method is the fact that when the engine is running and the car stationary we still have a strong induced current of air.

London, W.C.

J. F. COCKERILL.

Another Owner of a Baby Car Relates his Experiences.

With reference to your request for experiences with cyclecars, I have a 6 h.p. French Baby, which has given me every satisfaction. One or two small difficulties have confronted me. I find it necessary to fold a rag round the automatic carburetter in order to obtain easy starting. I also tried painting the brasswork with a transparent enamel, but found after a week it went a horrible colour, possibly due to its not being put on correctly. I experienced great difficulty in getting it off, and eventually had to pay a man 2s. to complete the task. He informed me that it took him five hours, using methylated spirits, petrol, brick dust, acid, sandpaper, and various other things, to remove the preparation. The front tyres wore down to the canvas after 800 miles, but I found this to be due to the front axle being out of line and causing the wheels to incline inwards. After adjustment, however, the trouble has disappeared. The drive to one wheel, of course, makes the driving tyre wear out considerably faster than the other one. I am using benzole with absolutely no alteration to the Claudel carburetter, and I obtain better results than with petrol. Would an extra air inlet be worth its cost? At present I am getting about 40 m.p.g., and with a hand-controlled extra-air inlet fitted, I see no reason why my consumption should not be considerably increased.

London, W.

ARCHIE SCOTT.

B35

NOTES AND QUERIES. *Selected Replies* — to — *Interesting Questions.*

Readers are asked to write on one side of the paper only, and to use a separate slip for each question. All queries are answered by post, and a stamped addressed envelope for the reply should be enclosed.

IN the days when automatic inlet valves were popular, it was necessary, in order to obtain the best results from a twin-cylinder engine, to have the inlet-valve springs of the same strength. Even now the owner has often to replace a spring perhaps on the exhaust valve, and it is necessary for him to know whether the new one is stronger than the old spring. By compressing the two singly, a very fair idea of their respective strengths may be gained, but a surer and more accurate method is to place them end to end and to compress the two together. The stronger will then, of course, be that which has compressed the lesser. Obviously care must be taken that the springs do not jump away.

UNDER-SHIELDS.

An undershield should be fitted to every machine, and if one is not supplied with the cyclecar the owner should lose little time in having one made. Not only does an undershield keep the engine clean, but it prevents mud and dirt from reaching the various vital portions of the power unit. A chain will wear out quickly if dirt has access to it, while the difficulty of keeping it lubricated is also greatly increased. In short, the life of no working part of a machine is increased by allowing dirt to come into contact with it. Realizing this, "P.A.C." (Cardiff) intends fitting an undershield, but is undecided as to the proper material to use. He suggests sail-cloth, which has, of course, many advantages. It is cheap, easy to manipulate, light, and does not set up a rattle. On the other hand, it becomes saturated with oil and grease in time, so is soon as heavy as a metal shield, and is also liable to tear, whilst to clean it is an extremely difficult operation. Metal shields are, of course, more popular, and once they are made and fixed are also more permanent, but the great difficulty with them is devising a suitable means of attachment which will allow the shield to be readily detached and replaced. Unless some preventive measures are taken, a metal shield may rattle if there is an excessive vibration. On the whole, however, a metal shield is preferable.

FAN BELT BREAKS.

"B.L.D." (Plymouth) writes to say that the fan belt on his machine breaks every few miles. This trouble has only developed since he had the engine down for cleaning purposes, and he is at a loss to explain the cause. We recently had a similar experience, and the trouble was found to be a projecting chain bolt. The engine had been out of the chassis, and when it and the driving chain had been replaced, the new bolts in the latter were accidentally reversed, so that the nuts and split pins were on the outside and at each revolution hit the fan belt. As a matter of fact, when inserted in the correct way, they fouled the crankcase, but the cause of this was that they had not been specially shortened like the original ones.

B36

TWO-STROKE ENGINES.

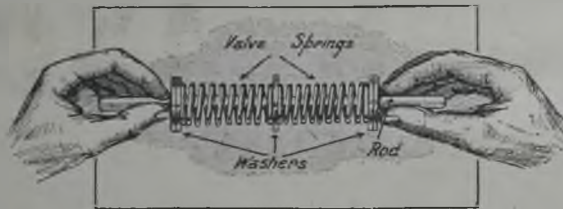
A QUERY as to the attitude which the licensing and Brooklands authorities take up with regard to two-stroke engines is asked by "L.F.S." (Hull). Peculiar to relate, two-stroke and four-stroke engines are taxed exactly the same for Inland Revenue purposes, and for competitions at Brooklands, and those of the A.C.U., both types of engine compete on an equal footing. For double-acting pistons, however, the licensing authorities have special regulations, and particulars may be obtained at any post office.

MEASURING GEAR RATIOS.

WHEN entering most competitions, owners have to give gear ratios, and the majority usually furnish those published in the makers' catalogues, which are often inaccurate. Of course, if the number of teeth on the various sprockets or pinions are known, as well as the diameter of the belt pulleys (if any are fitted), the ratio can be calculated, but it is more satisfactory to get the ratios by a more direct method. Put the machine into whatever gear is required, open the compression taps, and chalk a mark on the flywheel and also on one of the back wheels. Start with the mark on the former vertical or opposite some convenient point, and that on the latter on the part of the rim nearest the ground. The engine should then be rotated by hand. If the machine is a light car fitted with a differential, the back wheels should be left on the ground, but if it is belt-driven, one belt may be removed and the wheel jacked up. A careful note of the number of revolutions the flywheel has to make in order to bring the mark on the back wheel into the same position should then, of course, be taken, as this number gives the exact ratio. Thus, if the engine rotates 11 times to 1 revolution of the rear wheels the gear ratio is 11 to 1.

Now that there has been some wet weather, several queries about hoods and screens have been received.

"D.E.B." (Stratford-on-Avon) says that his screen is absolutely useless while it is raining, as the drops cling to the glass and he is unable to get a clear view of the road. As a result he has to lower it, and the rain then comes in, which makes it both unpleasant and difficult to drive. His experience is, of course, not unique, but if he rubs the weather side of the screen with a clean rag dipped in glycerine he will find that the rain-drops slide down, and so do not obscure the view ahead. "C.W.H." (Derby) writes to say that the material of his hood has rotted. When garaging a cyclecar after having used it in the rain the hood should be left up to dry. This will prevent it rotting and also contracting. If the hood on "C.W.H.'s" machine has merely become non-waterproof its rain-resisting powers can be restored by painting it with a special preparation which is sold by most accessory dealers.



Method of testing the tension of two valve springs.

CALTHORPE MINOR

scoops a big
batch of—

RECORDS AT BROOKLANDS

as follows:—

4 hours.	263 mls.,	878 yds.	Average speed	65·87 m.p.h.	
5 hours.	330 "	919 "	" "	65·10 "	
6 hours.	393 "	450 "	" "	65·54 "	
300 mls.	4 hr. 30 min.	38 $\frac{1}{2}$ sec.	" "	66·50 "	
350 mls.	5 "	18 "	27 $\frac{4}{5}$ "	" "	65·94 "
400 mls.	6 "	6 "	37 "	" "	65·46 "

10 miles from standing start in 8 min. 27 $\frac{2}{5}$ sec.
(average speed 70·95 m.p.h.). Fastest lap, 76·77 m.p.h.

10 h.p. CALTHORPE MINOR two-seater, 4-cylinder, complete with 5 detachable Sankey wheels, spare wheel and tyre, 700 x 80, hood, screen, 3 electric lamps	160 Guineas.
10 h.p. CALTHORPE MINOR Doctors' Coupe, complete with spare wheel, spare tyre, 3 electric lamps	190 Guineas.
10 h.p. CALTHORPE MINOR Limousine, complete as above,	240 Guineas.

Calthorpe Motor Co., Ltd., Bordesley Green, Birmingham.

TO THE
READER

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

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The Motor
TUESDAYS - 1d.

This week's issue of **Motor** contains 240 PAGES of Editorial and Advertisement matter, **First Olympia Show Number.**

PRINCIPAL CONTENTS :

Super-efficiency.

Trend of modern engine design. No limit of engine efficiency yet in sight.

More New Models at Paris.

(Illustrated).

New Cars for Olympia.

Advance details and illustrations.

Should the Speed Limit be abolished?

Interesting opinions from motorists.

Little Things that Matter.

How a car owner made alterations and improvements to his car.

Dopes and Cheap Fuels.

Recent innovations discussed and criticised.

Where Benzole may be obtained.

A List of nearly 800 places in the Kingdom where motorists may rely upon procuring Benzole.

Offices - - 7-15, Rosebery Avenue, London, E.C.

RILEY

DETACHABLE WIRE WHEELS.

Simplest, strongest, most reliable and most quickly detachable wheels—including the wood and steel variety—in the world.

In less than a minute a lady can remove a Riley and replace it with a spare. And they add to the appearance of the smartest cyclecar.



Write for Riley wheel booklet. Free on request.

RILEY (Coventry), LTD.,
CITY WORKS, COVENTRY.



About Your Cyclecar Engine.

Write for particulars of the famous Coventry-Simplex engine. Let us tell you how well it is designed, how well it is made, how well it performs. Let us prove its economy, power, speed, silence and wonderful flexibility. Then, decide. Catalogue and prices on request.

Coventry-Simplex
Engines, Ltd.,
Coventry.

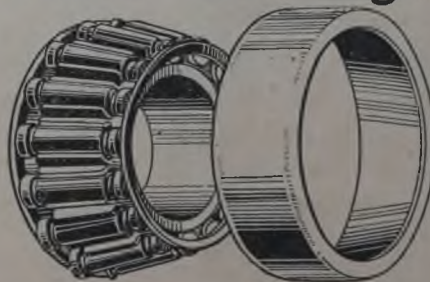


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Tapered

Roller Bearings.

In the front wheels of a Motor Car—the point of hardest service—Timken Bearings have proved the correctness of their principle and won their way to other uses.



The ideal bearings for front-wheel service in Cyclecars. The 'Timken' evenly distributes the load along the whole length of its rollers, is adjustable for wear, and takes both load and end thrust.

Timken superiority depends on correct principles.

Timken Bearings have the greater strength—the greater capacity for hard service—because their tapered rollers carry the load along lines instead of on points as balls do.

They meet end-thrust as easily as weight—because they are set at an angle to the shaft.

No matter whether the force comes from above or from the side, it can never meet the roller end-on, it is always resisted by the long supporting area of contact. Another great Timken Bearing advantage is resistance to wear.

Of course wear will come sometime—no bearing could be made that wouldn't wear.

But the Timken Bearing can be adjusted to take up that wear—by advancing the cone into the cup.

Our Engineers are at your service to advise on applications of Timken Bearings.

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TO THE
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You can't drive a knife through the tread.

Tyres go wrong only in two places

—the tread and the "walls."

Use Stelastics, which alone have absolutely cut-proof and practically puncture-proof treads.

Stelastics are the only tyres holding the R.A.C. Certificate for 5,000 miles without cut or puncture.

You can't drive a knife through the tread of a Stelastic. Use Stelastics, keep them pumped up to the pressure stated by the makers, and the walls will not break.

Whatever tyres you use, give them a chance—keep them pumped to pressure. We will send you an accurate handy tyre gauge for 4s. 6d.

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Section of Stelastic Motor Cycle Tyre



To enjoy Cyclecarring at its best

— you must have the RIGHT Car — one that meets your special requirements — and is thoroughly efficient and reliable.

— That's where I help you — I can give you expert advice and fullest information about any make — and every assistance in choosing the RIGHT Car.

— I have all the leading makes in stock, including :—

HUMBERETTES.....	complete	£ 120
FORD "Runabout".....	"	£ 125
FORD "Touring Car".....	"	£ 135
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CALTHORPE "Minor".....	"	£ 168
ALLDAYS "Midget".....	"	£ 138
G.W.K.'s.....	"	£ 150

The CALTHORPE Coupe complete 190 gns.



Speedy, Comfortable, Reliable.



The "PERRY" complete 130 gns.

— Also Humberette, shop-soiled £105; Humberette, all accessories £95; Morgan Runabout de Luxe, Harrods body, £75; Ford, smart Fawn, with all accessories £135; Ford, with Dicky seat £115; A.-C. Sociable de Luxe, all accessories £58; Rollo, with hood, screen, lamps, horn & speedometer £48.

— Complete tuition free — exchanges arranged — trial runs free of obligation — satisfaction guaranteed.

— Please CALL, WRITE or 'PHONE me. Note address!

87, 89, & 91, JOHN BRIGHT STREET,
Telephone — Midland 662.
and at SPARKHILL, BIRMINGHAM.

J. J. Evans

The Birmingham house for small Cars



Smooth running at low speeds

calls for a magneto which will give a fat spark even when fully retarded and running at low speeds. The

MEA

MAGNETO

not only gives a fat spark when fully retarded, but at all timings and at all speeds—from the lowest to the highest.

Specify the MEA.

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THE BEST WHEELS ARE BUILT WITH—



TORMO Hubs and Eagle Brand Spokes & Nipples

TORMO HUBS are of the highest possible quality. Supplied in cup and cone and disc-adjusting types, also with self-contained ball bearings; and wheels built with them and Eagle spokes and nipples are as near perfect as possible.

It will pay you to obtain particulars from —

THE TORMO MFG. Co.,
67/68, Bunhill Row, London, E.C.





LIGHT CAR

has all the points **YOU** require—**COMFORT, SPEED, RELIABILITY** and **ECONOMY**—fully developed. It is made from **HIGHEST GRADE** material throughout.



£150

8 h.p. "WINCO" Light Car, Speed 45 m.p.h., Petrol Consumption 45 miles per gallon, has long wheelbase, wide track, high-class coach-built body, automatic lubrication, automatic carburetter, water-cooled twin engine, large tyres.

Holder of the Cyclecar Challenge Cup, and Winner of Gold Medal, Saltburn, 5th July.

For full particulars write the Makers:—

STRINGER & Co. (Sheffield), Ltd.,
Light Car Dept., Wincobank, SHEFFIELD.
Grams—"Stringer, Wincobank." Phone—22 Attercliffe, Sheffield.

The CROUCH CARETTE.

Sound, Silent, and Simple.



Read what the "Cyclecar" says 16th July, 1913:
"It is difficult to imagine a transmission in which there is less friction loss, and the designers of the Crouch deserve particular credit for having boldly adopted an unconventional design, in order to deliver the maximum amount of engine power at the rear wheels."

Price £132 15 0 Ready for the road, complete with hood, screen, lamps, and tools.
A selection of cars always in stock, and trial runs arranged by
E. S. THOMAS & CO., 154b Gt. Titchfield St., London, W.
Telephone—Mayfair 6317.

96 YEARS EXPERIENCE
of Clock and Watch-making is embodied in
The CYCLECAR CLOCK.
Need more be said ?

Brass,
Nickel,
or
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Heavy
Hands.

Bold
Dial.

Can be wound or set without removing the gloves. Dust, air, and damp-proof. Will outlast any car. Replaced or repaired free of charge if at any time it fails to give satisfaction. No amount of vibration will affect its time-keeping.

Price - **12/6** each. Post Paid.

From all leading dealers, or from the makers—

J. C. PLIMPTON & CO., LTD.,
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Sankey



**Light Unbreakable
Steel Wheels**

Stand

168

Olympia

Records at Brooklands

18th October.

Distance.	Time.	Rate of Speed per hour.
1 Kilometre	28.9	77.4
1 Mile	46.85	76.84

These are the marvellous results attained by Mr. G. W. Hands on the 10 h.p. Calthorpe Minor with Sankey Light Unbreakable Steel Wheels.

They give solidity, strength and pace to the Light Car, and are by far the handsomest and easiest to clean.

Write for the Sankey Steel Wheel Book.

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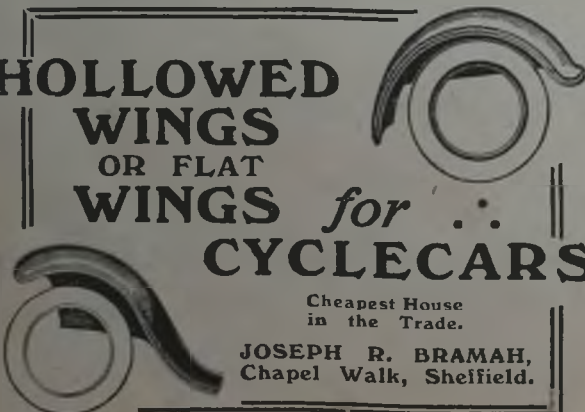
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of all Makes supplied. *Lowest Terms.*

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289, 292, 293, High Holborn. : : : London, W.C.

EXTENDED PAYMENTS.

**HOLLOWED
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WINGS for . . .
CYCLECARS**



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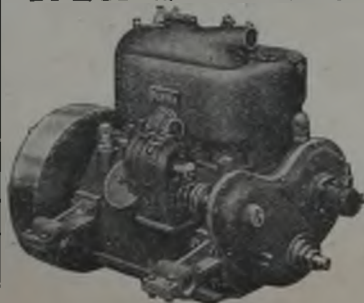
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Bronze Medal—

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Six Days Trial.



Air Cooled, 100 Guineas. Water Cooled, 110 Guineas.
EAST RIDING ENGINEERING Wks., Beverley, E. Yorks

SPECIAL PRICES to the TRADE.



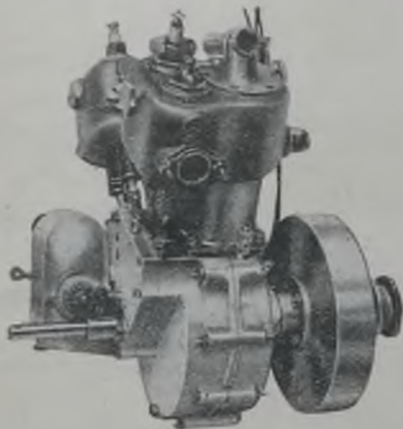
4-CYLINDER.

59 x 100.
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**REGULAR
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GUARANTEED.**

TURNERS MOTOR MANUFACTURING CO., LTD.,
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Write for particulars of the new 2 and 4 cylinder water-cooled engines.

BLUMFIELD, LTD., Lower Essex Street, BIRMINGHAM.

THE RECORDS BY THE Buckingham

PROVE ITS EFFICIENCY.

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G.N. CYCLECARS The acknowledged satisfactory machine. IMMEDIATE DELIVERY.

Now is the time to have your machine put in thorough order. We are the firm who specialise in repairs and overhauls to all Cyclecars.

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CYCLECAR ENGINEER

Telephone—Victoria 1215.

CYCLECAR SHOW Stand 35.

31, Vauxhall Bridge Road, Victoria, London, S. W.



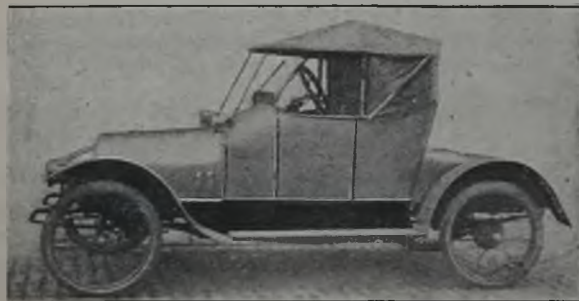
The SATISFACTORY CYCLECAR from all points.

DELIVERY GUARANTEED

within one month from date of order, as having completed our EXTENSION OF WORKS

(we have been able to work off arrears.

The J.B.S. is doing good all-round service.



J.B.S. excels in (HILL CLIMBING. LIGHTNESS ON TYRES. LOW PETROL CONSUMPTION.

J.B.S. has - (4 SPEEDS AND REVERSE. SHAFT DRIVE (Bevel).

PRICE (with Hood and Screen) - £127.

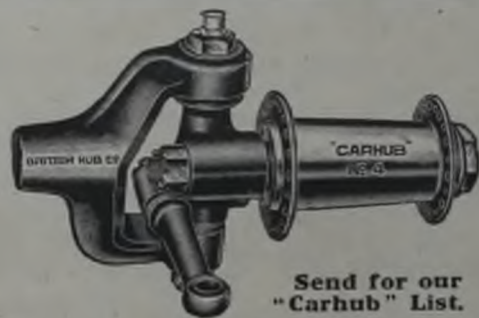
Full particulars from

J. BAGSHAW & SONS, Ltd., Batley, Yorks.

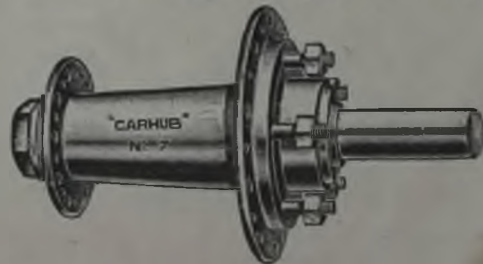
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Send for our "Carhub" List.



BRITISH HUB Co.,
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TO THE READER

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CYCLECARS for SALE

NEW or SECOND-HAND — AND SUNDRY — ADVERTISEMENTS.

RATE FOR ADVERTISEMENTS IN THIS SECTION.

TWENTY WORDS, 1/- (MINIMUM).
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DISPLAY ADVERTISEMENTS, £13-0-0 per page. Scale of charges with reduction for series, sent on application.

Copy for, and all matter relating to, advertisements must reach the offices first post Thursday, and should be addressed to THE MANAGER, "THE LIGHT CAR AND CYCLECAR," 7-15, ROSEBERY AVENUE, LONDON, E.C. Telephone No. 5292 Holborn (four lines). Telegrams: "Pressimus, Holb., London."

Midland Offices:—9 & 10, Burlington Chambers, New St., Birmingham. Telephone No. 2498 Midland. Telegrams: "Presswork, Birmingham."
6, Warwick Row, Coventry. Telephone No. 983, Coventry. Telegrams: "Presswork, Coventry."

Northern Offices:—186, Deansgate, Manchester. Telephone: Central 2467. Telegrams: "Presswork, Manchester."

SUBSCRIPTIONS

"THE LIGHT CAR AND CYCLECAR" will be mailed regularly at the following rates:

	12 ms.	6 ms.	3 ms.
United Kingdom	3s. 6d.	3s. 3d.	1s. 8d.
Canada	8s. 8d.	4s. 4d.	2s. 2d.
Elsewhere	10s. 0d.	5s. 0d.	2s. 6d.

REMITTANCES.—Postal Orders, Cheques, etc., should be crossed and made payable to "Temple Press Ltd." All letters regarding subscriptions must be addressed to "The Manager."

DEPOSIT SYSTEM.

Cyclecars or accessories may be purchased through our approval deposit system. We charge a commission of 1½% on amounts from £50 to £100, and 2½% on amounts exceeding £100. Further particulars on application.

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 "THE CYCLECAR." 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.

CYCLECARS AND LIGHT CARS FOR SALE.

A.-C. 1913 SOCIABLES, best for Devon, £75, demonstration runs arranged, on view Moon Bros. (sole agents for Devonshire), Duke Street, Plymouth. Trade 57-678

A.-C. SOCIABLE, 1912, hood, screen, speedometer, horn, F.R.S. lamps, Binks carburetter, luggage carrier, spare tyre, tube and chain, cost £115, any trial, guaranteed perfect, £65. Rose and Crown, Haverhill. 49-63

A.C. SOCIABLE, 1911-12, 6 h.p., hood, screen, speedometer, horn, headlamp, side and tail lamps, etc., little used, perfect, £55. Manes, 7 Exhibition Road, S.W. Trade 49-268

A.-C. SOCIABLE, 1911, double door front, screen, Senspray, speedometer, mirror, spares, tyres good, perfect condition, £55. Stoddart, Balerno, Midlothian. Trade 49-259

A.C. SOCIABLE, late 1911, hood, screen, lamps, spares, side doors, perfect condition, £50 or near offer. Morfin, Market Place, Gainsborough. 49-250

A.C. SOCIABLE, de luxe, late 1912, hood, screen, front brakes, luggage grid, mahogany side wings, Liversidge back tyre, lamps, jack, etc., any trial. Price, particulars, Gibb, White House, near Scarborough. 49-256

A.C. SOCIABLE de luxe, absolutely as new, unscratched, not run 200 miles, lamps, hood, screen, side curtains, spare tube, valve, jack, etc., extra-heavy back tyre, owner no use for same, sacrifice £65 cash. Wyatt, Keynstone, Cambridge Road, Bournemouth. 49-226

CYCLECARS AND LIGHT CARS FOR SALE (continued).

A.C. SOCIABLE, 1911, complete with hood, screen, four lamps, horn, and tools, etc., £46. Cass's, Car and Cyclecar Specialists, 5 Warren Street, Euston Road, W. 3624 Mayfair. Trade 49-282

A.C. SOCIABLE, converted into four-wheeler, good condition, hood, screen, lamps, spares, £40. Swift, 31 Warwick Avenue, Maida Vale, London. 49-298

A.C. SOCIABLE, in excellent condition, dark blue, brass mountings, horn, lamps, and headlight, two new tyres, hood and screen, luggage grid, £52 10s. or nearest offer. Apply, 18 Alexandra Road, East Twickenham. 49-307

A.-C. SOCIABLE, good going order, recently overhauled, lamps, horn, etc., tyres first-class condition, £35. Box No. 1408, care of "The Light Car and Cyclecar." Trade 49-355
A.-C.s, from stock, on deferred terms, only 2½ per cent. extra, at Harrods Ltd., Brompton Road, S.W. Trade zzz-585

A.C.'s. Immediate delivery all models. Sociable £75; four-wheeler, 6 h.p., £100; 10 h.p., four-cylinder, light car, £165. Cass's, Car and Cyclecar Specialists, 5 Warren Street, Euston Road, W. 3624 Mayfair. Trade 49-283

A.-C., single-cylinder, four-wheeler, now in stock, trial runs and liberal exchanges, the first true cyclecar at £100. Colmore Depot, 31 Colmore Row, Birmingham. Trade 49-328

A.-C., three-wheeler in stock, Colmore Depot, house for earliest deliveries, earliest deliveries given of A.-C. four-cylinder light cars. Colmore Depot, 31 Colmore Row, Birmingham. Trade 49-329

A.-C., single-cylinder, now in stock, trial runs and liberal exchanges. The first true cyclecar at £100. Colmore Depot, 31 Renshaw Street, Liverpool. Trade 49-341

A.-C., three-wheeler in stock, Colmore Depot, house for earliest deliveries, earliest deliveries given of A.-C. four-cylinder light cars. Colmore Depot, 31 Renshaw Street, Liverpool. Trade 49-342

ALLDAYS Midget, complete with hood, screen, lamps, spare wheel, and two tyres and tubes, £4 4s. electric horn, etc., used slightly for demonstration purposes, £120, exchange with motorcycle considered. The Walsall Garage, Walsall. Tel. 444. Trade 50-258

ALLDAYS Midget, hood, screen, five detachable wheels, lamps, etc., new, only used few times for demonstration, £125. Fingland, Rusholme, Manchester. Trade 49-297

BABY PEUGEOT, 6 h.p., single-cylinder, three speeds, reverse, hood, screen, lamps, good order, reliable, £20. Ackroyd, The Halt, Wallington, Surrey. 49-257

BABY PEUGEOT, 6 h.p., 1913 model, all complete and recently thoroughly overhauled, price £105. Cass's, Car and Cyclecar Specialists, 5 Warren Street, Euston Road. 3624 Mayfair. Trade 49-284

BEACON cyclecar, 8 h.p. J.A.P. engine, Chater Lea gearcase, wicker body, hood, windscreen, lamps and accessories, would consider exchange Ford, £75. Treasure, 32 Glover's Court, Preston. Trade 49-262

BEDELIA, late 1912, 8 10 h.p., twin cylinders, tandem seats, streamline body, very fast, all accessories, any trial, not run 1000 miles, first-rate order, £55 or near offer. Armitage Motor Car Co., Stanningley. Trade zzz-677

BEDELIA, shop-soiled, cost £95, complete with accessories, real bargain, must clear, short of room, trial run given, will accept £58. Motor Supply Co., 29-31 Oxford Street, Manchester. Trade 59-51

BEDELIA, 8-10, 1912, flush-sided, streamline, new tyres, all accessories, any trial, highest offer secures, must sell. 39 Cumberland Park, Acton. 49-228

CALCOTT, from stock, on deferred terms, only 2½ per cent. extra, at Harrods Ltd., Brompton Road, S.W. Trade zzz-588

CALTHORPE. "The three essentials of the successful cyclecar are appearance, value for money and proved reliability, and hill-climbing," vide "The Cyclecar," 24th September. The Calthorpe has all three, and costs 160 guineas complete; early delivery. County Motor and Cycle Co., Ltd., 141 Friar Street, Reading. Trade 97-47

CYCLECARS AND LIGHT CARS FOR SALE
(continued).

- CALTHORPE Minor, 160 guineas, complete with spare wheel, book your order now with us for earliest delivery, trial runs willingly. Alexander and Co., 115 Lothian Road, Edinburgh. Trade 73 207
- CALTHORPE, Minor demonstration car, as new, bargain, £148. P. J. Evans, John Bright Street, Birmingham. Trade 49-376
- CALTHORPE, Minor, 160 guineas, complete with spare wheel; book your order now and secure early delivery. Sole Birmingham Agent, P. J. Evans, John Bright Street, Birmingham. Trade 49 377
- CALTHORPE MINOR, 160 guineas; doctor's coupe, 190 guineas. Send for 1914 catalogue or call and see them in my showrooms or on Stand 40, Olympia, 7th to 15th November. R. D. Storey, Sole London Agent, will be pleased to meet any intending purchasers on the above stand, by appointment preferred. Trial runs either from showrooms or Olympia arranged. Earliest possible delivery guaranteed. R. D. Storey, 118 Gt. Portland Street, W. Telephone, 5923 Mayfair. Trade 51-266
- CHATER LEA, 8 h.p., three speeds, cardan, overhead worm, hood, screen, side curtains, speedometer, head, side and tail lamps, specially built aluminium two-seater body with dickey seat, jack and tools, done about 1500 miles, 45 m.p.g., £80. C., 199 Croydon Road, Caterham Valley. 49 234
- CHOTA cyclecar de luxe, 1913, not done 2000 miles, condition as new, complete with five lamps, hood and screen, etc., cost £130 four months ago, no reasonable offer refused, would take good motorcycle as part payment. Merrall Brown, 123 St. George's Road, Bolton, Lancs. Trade 49-246
- CROUCH carrette, the best thing on wheels at the price, water-cooled engine, three speeds and reverse, sliding gears, artillery wheels, complete with hood, screen, lamps, and tools, £132 15s., delivery from stock, trial by appointment, delivery and tuition free, 45 m.p.h., 45 m.p.g., seating for three adults. Morman and Bliss, London Road, Hounslow, Middlesex. Phone, 227 Hounslow. Trade 52-961
- CROUCH carrette, late 1912, three-wheeler, with 1913 engine and gearbox, complete with hood, screen, speedometer, lamps, etc., little used, tyres unpunctured, £78. Rogers, The Laurels, Ashbourne. 49-245
- DUO, new (shop-soiled), tandem model, double-belt drive, 8-10 twin J.A.P. engine, £65; a speedy, powerful, reliable and economical cyclecar. C. W. E. Clark and Co., Cyclecar Factors, Doncaster. Trade 61-463
- ENFIELD Autolette, 1913, 8-10, two-seater, torpedo, painted dark green, hood and screen, headlight, separate generator, side and tail lamps, only run 600 miles, any examination, cost over £140, £105. Springfield, Welbeck Road, Birkdale. 49-339
- GLOBE, from stock, on deferred terms, only 2½ per cent. extra, at Harrods Ltd., Brompton Road, S.W. Trade zzz-582
- GORDON, 1913, 10 h.p., 90 deg. J.A.P., three speeds and reverse, hood, screen, lamps, and speedometer, perfect condition, £95. Fawthrop, Haley Hill, Halifax. 50-984
- GORDON cyclecar, 8-10 h.p., perfect condition, very speedy and economical and wonderful hill-climber, dirt cheap, £75. Particulars, Buchanan, 61 Sinclair Drive, Langside, Glasgow. 49-229
- G.W.K., G.W.K., G.W.K. Stewart and Ardern, Ltd., are specially appointed agents for this really excellent cyclecar. The only proved cyclecar giving you all the comfort, convenience, appearance and reliability which conduce to satisfactory and economic service. The quietest and simplest cyclecar to drive; price complete with hood, windscreen, lamps and free tuition £150. Immediate delivery from stock; trial runs at any time at your convenience. Stewart and Ardern, Ltd., 18 Woodstock Street, Bond Street (off Oxford Street), London. Trade 52-897
- G.W.K., new and second-hand, bought and sold, good price allowed, £100 to £135. Manchester Motor Supply Co., 29 Oxford Street. Trade 59-150
- G.W.K., from stock, on deferred terms, only 2½ per cent. extra, at Harrods Ltd., Brompton Road, S.W. Trade zzz-586

CYCLECARS AND LIGHT CARS FOR SALE
(continued).

- G.W.K., 1913, in new condition, back wheels fitted large Palmer cord tyres, bargain £130, no offers. Ward and McIntyre, High Street, Kingston-on-Thames. Trade zzz-67
- G.W.K. cyclecars. Book now for early delivery with the Scottish Agents, Alexander and Co., 115 Lothian Road, Edinburgh. Trade 73-203
- G.W.K., 1913, £135, five weeks old, in perfect condition, bigger tyres fitted, unpunctured; also luggage staples, etc.; owner going abroad. Gordon Bell, 166 Piccadilly. 49-261
- G.W.K. Victory after victory in the open trials of 1913 have proved conclusively the reliability of the G.W.K. There is no cyclecar in the world which offers such sterling value. We have deliveries in December, January, and February still unbooked. Order now, the demand for the 1914 G.W.K. will be astounding. Bamford and Martin, Ltd., Callow Street, Fulham Road, S.W. Trade 49-254
- G.W.K., latest model, all complete, £150, in stock, immediate delivery, free trials. We teach you to drive and deliver to your door free. Our easy payments are the very lowest. Try us. Wilkins, Simpson and Co., 11 Hammersmith Road, opposite Olympia, London. Trade 49-224
- G.W.K., 1913, in excellent order, complete with hood, screen, lamps and acetylene headlight, detachable third seat, tyres in perfect condition, trial any time. Apply, The Croft, Hadlow Road, Tonbridge, Kent. 49-257
- G.W.K., perfect condition, speedometer, many extra improvements. Must sell, £110 or near offer. Murphy, 6 Shore Road, Ainsdale, Southport. 49-252
- G.W.K., 1913 model, hood and screen, C.A.V. dynamo, electric lighting instalment, including head, side and tail lamps, horn, speedometer, exhaust whistle, Bowden, extra air inlet, tools, two spare tubes, tyres in excellent condition, just been thoroughly overhauled by makers, in perfect condition, price £140. Coleman, 33 Waterloo Street, Hove. 49-265
- G.W.K., 1912, complete with five lamps, generator, horn, and screen, painted green and upholstered to match, very fast, £110. Cass's, Car and Cyclecar Specialists, 5 Warren Street, Euston Road, W. 3624 Mayfair. Trade 49-285
- G.W.K., hood, screen, lamps, tools, speedometer, excellent condition, recently overhauled and re-tyred, new running boards, exceptional opportunity, £100. 25 Chatsworth Road, Clapton, N.E. 49-295
- G.W.K., 1913, new in June, done 4000 miles, cost with accessories £170, price £130, with set of new Rom tyres, any trial. Apply, Owner, Meyers, 5 St. Alban's Road, Kingston-on-Thames. 49-308
- HUMBERETTE, from stock, on deferred terms, only 2½ per cent. extra, at Harrods Ltd., Brompton Road, S.W. Trade zzz-584
- HUMBERETTE, slightly shop-soiled, fitted with speedometer, latest improved type, complete, cost £130, real bargain, accept £108. Motor Supply Co., 29-31 Oxford Street, Manchester. Trade 59-49
- HUMBERETTE, 8 h.p., 1913, mileage 1221, electric side and tail lamps, speedometer, horn, etc., 700 by 80 tyres, perfect condition, £106. Manes, 7 Exhibition Road, S.W. Trade 49 269
- HUMBERETTE, latest model, all complete, £120 in stock, immediate delivery, free trials, we teach you to drive, and deliver to your door free; our easy payments are the very lowest; try us. Wilkins, Simpson and Co., 11 Hammersmith Road (opposite Olympia), London. Trade 49-223
- HUMBERETTE, 8 h.p., 1913, just overhauled, excellent condition, £80. Dr. Gaskell, Cobham, Surrey. 49 240
- HUMBERETTE, 1913, hood, screen, horn, lamps and generator, in excellent condition, price £87 10s. Cass's, Car and Cyclecar Specialists, 5 Warren Street, Euston Road, W. 3624 Mayfair. Trade 49-286
- HUMBERETTE, 1913, hood, screen, lamps, horn, heavy tyres, two steel-studded, nearest £80, motorcycle part. 7 Warwick Place, Leamington. 49-299
- HUMBERETTE, April, Stepney. speedometer, Miller lamps, cost £140, new condition, £100 near offer. Norris, Wixenford, Wokingham. 49-301

CYCLECARS AND LIGHT CARS FOR SALE

(continued).

HUMBERETTE, 1913, new, shop soiled only, complete with hood, screen, lamps, etc., to clear £105. Jarvis, Ltd., 205 Edgware Road, London. Telephone, 2512 Padd. Trade 49-305

HUMBERETTE, 1913, F.R.S. headlight, D.A. cylinder, speedometer, clock, jack, and spares, in addition to usual equipment, £85, easy payments arranged. Eastern Garage Co., 418 Romford Road, Forest Gate, E. Trade 49-325

HUMBERETTE, June, 1913, run few hundred miles only, almost new, exceptional bargain, to be sold to-day at very low reserve; trial, etc. Nye's Sale Room, 16 Hampstead Road, Tottenham Court Road, London. Tel., 3625 North Trade 49-346

HUMBERETTES. Actually in stock, latest model water-cooled Humberette; any old motorcycle or cyclecar taken in part payment. Julian, Humberette Specialist, 84 Broad Street, Reading. Forty years reputation; biggest dealers in the south. Trade 49-348

HUMBERETTE, 1913, standard finish, complete all accessories, spare wheel, etc., £95. P. J. Evans, John Bright Street, Birmingham. Trade 49-378

HUMBERETTE, 1913, brand new, latest chocolate finish, list £120, £105. P. J. Evans, John Bright Street, Birmingham. Trade 49-379

INVICTA cyclecar, 8 h.p., water-cooled J.A.P. engine, Bosch magneto, three speeds, forward and reverse, particularly smart turnout, French grey, cost £150 a week ago, complete with hood, screen, lamps, tools, etc., £110, owner going abroad. N., 49 Portland Street, Leamington. 49-272

L.A.D. cyclecars, single-seater £60 complete, two-seater £75; the cheapest and best value yet offered, ready for road, fitted with acetylene lamps and tools. Write for particulars and trial run to the Agents, Motor and Aviation Exchange, 39 St. John's Hill, Clapham Junction. Trade 49-317

LAGONDA cyclecar, 10-12, water-cooled, twin, three speeds, differential, chain, Bosch, Senspray, torpedo, two-seater, excellent condition, bargain, £50. Seen, Oakamoor, West Byfleet. Apply, Mackenzie, 40 Chancery Lane. Phone, Holborn 4603. 49-121

LAGONDA four-cylinder light car, 1914 model, for catalogue and trial runs apply Taylor's, Ltd., 21a Store Street, Tottenham Court Road, W.C. Trade zzz-284

MORGAN, immediate delivery, Manchester Agents, place your order, no waiting, 85 guineas. Write for Illustrated Catalogue, Motor Supply Co., 29 Oxford Street, Manchester. Trade 59-149

MORGAN, 1913, new March, standard body, new 3 in. Rom on back, front tyres nearly new, screen, toolbox, three electric lamps, horn, spare tube, etc., £75. Write in first place to White, "Cushag," Meadway, Gidea Park, Essex. 49-264

MORGAN, 8 h.p., 1913, complete with two lamps and generator, horn, hood, screen and tools, painted grey, upholstered green, in excellent condition, bargain £87 10s. Cass's, Car and Cyclecar Specialists, 5 Warren Street, Euston Road, W. 3624 Mayfair. Trade 49-287

MORGAN, little used, fitted with number of advantageous additions to chassis, body improved out of all recognition, very elaborately equipped, new 3 in. tyres. The most luxurious Morgan on the road. All in condition like new, cost over £140, first reasonable offer accepted, must sell. Offord, 3 Cleveland Gardens, West Ealing. 49-300

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MORGANS. If you are wanting a latest Standard or Sporting model, I have them in stock, inspection and inquiry invited. Potter, Leicester Grove, Leeds. Trade 49-312

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CYCLECARS AND LIGHT CARS FOR SALE

(continued).

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PERRY cyclecar, immediate delivery guaranteed, absolutely the finest value in the world, price 130 guineas. R. L. Jepson, Ltd., Northgate, Blackburn; Penny Street, Lancaster; and Highgate, Kendal. Trade 56-484

PERRY light car, complete spare wheel, three lamps, etc., £136 10s.; immediate delivery; sole Birmingham and district agent. P. J. Evans, John Bright Street, Birmingham. Trade 49-380

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ROLLO, slightly soiled, complete, ready to be driven away. Post your order now. Manchester Motor Supply Co., 29-31 Oxford Street, Manchester. Trade 59-763

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ROLLO, 1913, two-seater, hood, screen, headlight, side and tail lamps, speedometer, horn, £65, easy payments arranged. Eastern Garage Co., 418 Romford Road, Forest Gate, E. Trade 49-326

ROLLO, 1912, 8 h.p., J.A.P., tandem seats, complete speedometer, four lamps, horn, etc., excellent condition, £48. P. J. Evans, John Bright Street, Birmingham. Trade 49-381

SABELLA, tandem, 8-10, J.A.P., condition perfect, Bosch magneto, Amac carburettor, foot accelerator, quiet and slow running engine, scuttledash, glass screen, lamps, Flex horn, and all parts plated, expert examination invited, and will drive reasonable distance with a view to purchase, a bargain, £70. Can be seen at 26a Clarges Street, Piccadilly, W. Trade 49-273

SABELLA tandem, 8 h.p. J.A.P., under 500 miles, double hood, screen, generator, four lamps, canvas dash cover, spare cover and tube, many spares, £75. Denew, Clarence Road, Southtown, Great Yarmouth. 49-275

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CYCLECARS AND LIGHT CARS FOR SALE

(continued).

SINGER, 10 h.p., light car, latest model, just arrived, all complete, £185, in stock, immediate delivery, ready to drive away; we teach you to drive, and deliver to your door free; our easy payments are the very lowest; try us. Wilkins, Simpson and Co., 11 Hammersmith Road (opposite Olympia), London. Trade 49-225

SINGER. We are now booking orders for the 1914 models, and can guarantee early deliveries of either the oil or dynamo lighting set, £195 or 195 guineas respectively; second-hand 1913 Singers, in tip-top condition, at £135, £140, and £150, real bargains; also late 1913 Singer, slightly shop-soiled only, £180, this is a "factory best," a wonderful puller and capable of 50 m.p.h. Mr. Lionel Martin will be in daily attendance at Olympia with a 10 h.p. Singer. Phone Kensington 3920, and book a trial run, or an appointment on Singer's stand with him. Ring up at once. Bamford and Martin, Ltd., Callow Street, Fulham Road, S.W. The recognized 10 h.p. Singer experts. Trade 49-253

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SINGER, 10 h.p., 1913, complete with hood, screen, spare wheel and tyre, five lamps, accumulators and generator, horn, and tools, painted grey and upholstered green, £150. Cass's, Car and Cyclecar Specialists, 5 Warren Street, Euston Road, W. 3624 Mayfair. Trade 49-288

SINGER, 10 h.p., light car, delivered February (1913), entirely new cylinders and latest patent springs fitted by Singers in June, speedometer, whistle, spark control, luggage carrier, and standard accessories, good running condition, inspection and trial allowed, £145. 20 Marlborough Hill, N.W. 49-290

SINGER, 10 h.p., light car, four-cylinder, two-seater, new May (1913), painted grey, hood, screen, speedometer, and heavy tyres, spare wheel and tyre, property of engineer and now running better than with new, very fast, real bargain, £155. Booth, Manor House, Dogsthorpe, Peterborough. 49-310

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SINGERS. We are booking orders for the 1914 Singer. Any old motorcycle or cyclecar taken in part payment. Julian, Singer Specialist, 84 Broad Street, Reading. Forty years reputation; biggest dealers in the south. Trade 49-350

STANDARDS. We are booking orders for the 1914 Standard cyclecar. Any old motorcycle or cyclecar taken in part payment. Julian, Standard Specialist, 84 Broad Street, Reading. Forty years reputation; biggest dealers in the south. Trade 49-351

SWIFT cyclecar, just received from makers, best value on the market. Robinson Bros., 5 Sheep Street, Northampton. Trade 49-108

SWIFT cyclecar in stock for immediate delivery, price 130 guineas complete. Harris, Garage, Slough. Phone. 88. Trade 49-356

SWIFT cyclecar, 7 h.p., water-cooled, latest model, in stock, immediate delivery, 130 guineas. We teach you to drive, and deliver to your door free. Wilkins, Simpson and Co., 11 Hammersmith Road (opposite Olympia), London. Trade 49-222

SWIFT cyclecar, 7-9 h.p., two-seater, used for demonstration only, Zenith carburetter, guaranteed as new, £125. Canterbury Motor Co., Canterbury. Trade 49-270

SWIFT cyclecar, new July, run 2500 miles, complete with hood, screen, tools, horn, lamps, extra lubrication system, Sthenos carburetter, grooved Dunlops on rear wheels, spare grooved cover, tube, etc., Watford trip speedometer, splendid condition, £110, open to expert examination, buying four-seater. Munro, 53 Bothwell Street, Glasgow. 49-324

WALL three-wheel parcelcar, used only for a few demonstrations, accept £75. F. and H. Melen, 314 Gray's Inn Road, London. Trade 51-236

CYCLECARS AND LIGHT CARS FOR SALE

(continued).

SWIFT cyclecar, bought June for 3000-mile lecturing tour, now completed, perfect order, good as new, extra lubrication system, Sthenos carburetter, Stepney (unused), seven grooved Dunlops, searchlight, £4 4s. speedometer, exhaust whistle and every possible accessory, costing altogether £170, expert inspection and trial invited, price £120; also tea-luncheon basket (unused), cost £5, price 70s.; motor trunk, made to fit back, cost £4, price £3. O'Leary, St. Monica, King Edward Avenue, Shirley, Southampton. 49-559

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WARNE cyclecar, 1913 model, hood, screen, lamps, speedometer, etc., delivered few weeks ago and not run 300 miles, equal to new, what offers? 55 Park Walk, Chelsea. 50-128

WARNE cyclecar, 1912, perfect order, with hood, screen, lamps, horn, tools, and accessories, £68. Cutten, 4 Cranes Park, Surbiton, Surrey. 49-232

ZEBRA. From stock on deferred terms only 2½ per cent. extra, at Harrods Ltd., Brompton Road, S.W. Trade zzz-587

ZENDIK, 8-10 h.p., 1913, air cooled, hood, screen, lamps, horn, complete, splendid condition. £70, bargain. Ward and McIntyre, High Street, Kingston-on-Thames. Trade zzz-68

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PRESTON. West light car, absolutely as new, cost £160, run 400 miles, accept £110, exchange entertained.

PRESTON. Metz-Lion two-seater, almost new, bargain, £85, exchange entertained.

PRESTON. 1912 Ford four-seater, good order, must be cleared, £80, exchange entertained. The Motor House, 82 Fishergate, Preston, the home of light cars. Trade 51-274

6 h.p., WATER-COOLED, four-wheeler cyclecar, two-seater, three speeds, reverse, wire wheels, magneto, screen, E.I.C., £75, good motorcycle part payment, appointment. Falkner, 6 Allen Villas, Lady Lane, Chelmsford. Trade 49-293

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TO THE
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A.C. SOCIABLE de luxe, 1913 nicely fitted, side doors, all spares, etc., £80, as new.

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SWIFT, 7 h.p., late 1912, very smart two-seater, in new condition, hood, screen, five lamps, and all accessories, car used very little, price for quick sale £110. Kavanagh's, Ltd., 8-9 Sherwood Street, Piccadilly Circus, W. 'Phone, Regent 2840. Trade zzz-811

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8 h.p. PHENIX car, perfect, little used, coil ignition, lamps, spares, £35. Salmon, Court Hotel, Westcliff. 49-953

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SWIFT, 8 h.p., two-cylinder, 1912, two-seater, hood, screen, lamps, horn, detachable wheels and two spare wheels and tyres, splendid order throughout, £140. Below.

SWIFT, 7 h.p., three-seater body de luxe, hood, screen, lamps, horn, Stepney, speedometer, nice condition, £100. Bloomfield Bros., Braintree. 'Phone, No. 5 Nat. Trade 49-227

CARS, QUADCARS, MOTORCYCLES, TRICARS, Etc.
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SIZAIRE, 12 h.p., single, two-seater, hood, screen, electric side and tail, Rushmore head, electric horn, Stepney, all tyres excellent, in first-class mechanical condition, will average 28 m.p.h., any reasonable trial, £75, owner buying new car. A. G. Bates, R.A. Mess, Woolwich. 49-321

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ENGINES for cyclecars. Write for full particulars of four-cylinder 1098 c.c. S.A.B. engine; special quotations to the trade. S.A.B. Engine Co., Aston Road, Birmingham. Trade zzz-980

CYCLECAR parts quickly and accurately machined to customers' requirements; reasonable charges. Send particulars to Weldings, Ltd., Holt Street, Birmingham. Trade 53-144

WELDED silencers for cyclecars, large, cheap and effective; no more boiling water. Write to Weldings, Ltd., Holt Street, Birmingham. Trade 53-143

WOOD motor wheels, surplus stock, 820 by 120, 875 by 105, 880 by 120, 920 by 120, 815 by 105, 810 by 90, low quotations for cycle wheels, 760 by 90, 650 by 65, 700 by 80. Alesbury Bros., Wheel Makers, Edenderry, King's Co. Trade 64-819

RUGS for cyclecars a speciality, call or write; sent on approval. Lennard, 64 Gt. Portland Street, W. Trade 58-819

GRAMOPHONE, 20-guinea, handsome, hornless, inlaid Sheraton cabinet, height 4 ft., record cupboard, completely enclosed on wheels, purchased April, with records £5 10s., approval willingly. 3 Aubert Park, Highbury, London. Trade 50-144

SMALL car cover, two step-mats, all brand new, cost £1, sell 12s., approval. Smith, 5 Parkwood Place, Tavistock, Devon. 49-230

SMITH'S four-jet automatic carburetter (new), with four spare jets, suitable up to 10 h.p., £3 15s.; plain and trembler coil, 6s each. S. and G., 94b Kirkdale, Sydenham, S.E. 50-231

TWIN engine, 1912, 5 h.p., m.c.v., perfect condition, magneto platform, exhaust and inlet pipes, £7 10s.; forecar chassis and wheels, 3 ft. track, suit monocoar, 30s. Lee Bros., 9a Ada Road, Camberwell. Trade 49-237

CYCLECAR chassis and body, friction drive, with petrol and oil tank, steering gear, brakes, springs, etc., ready for engine, £6 10s G., 19 Collingtree Road, Sydenham, S.E. 49-248
6-8 h.p. ENGINE, De Dion pattern, water-cooled, rebushed, in excellent condition, £4. S., 19 Collingtree Road, Sydenham, S.E. 49-249

MISCELLANEOUS (continued).

DE DION. 6 h.p., water-cooled, two-speed, free engine, gearbox, radiator, carburetter and silencer, complete, ready to fit cyclecar, £8 15s. 7 Trewint Street, Earlsfield. Trade 49-243

BEVEL-DRIVEN differential live axle complete, wire wheels, good tyres, 750 by 75, brakes, in perfect order, £5; two-speed gearbox with metal clutch running in oil, in perfect order, £3 10s.; front axle, wire wheels, one tyre, rack-and-pinion steering, column and wheel, perfect order, £4; metal-fitted wood frame, four semi-elliptic springs, £1; twin Dolphin engine, new condition, 6-8 h.p., £15. Paine, Shoreham by Sea 49-239

GOOD second-hand Goodrich and Clincher tubes, 810 by 90 10s., 760 by 90 7s. 6d., 750 by 89 5s., approval, deposit. 61 Wanstead Park Avenue, Manor Park. 49-260

J.A.P. twin engines, second-hand, in new condition. For particulars, call or write 170 Upper Clapton Road, N. 49-220

BUYING for export, all goods in cycle, motor, and motorcycle trade, exceptional advantages offered, genuine methods, commission charged on manufacturers' invoices which are sent, correspondence invited; also hardware, holloware, earthenware, etc. Jas. M. Connaughton, Clarence Chambers, 4 Piccadilly, Manchester. Trade 49-314

CYCLECAR parts. Front axle, wheels, tyres, £2; back axle with differential, £1 10s.; countershaft two-speed gear, £2. Farrar's Motories, Halifax. Trade 50-309

CHASSIS, three-wheeler, complete with wheels, brake drums and sprockets, several small radiators, bucket seats, double trembler coils, gearwheels, pairs of bevel wheels; etc., at giving-away prices. 105 Lark Lane, Liverpool. Trade 49-295

BARGAIN, 5-6 h.p. water-cooled Rex engine, wants little doing up, accept £4; seen by appointment. 6 Lady Lane, Chelmsford. Trade 49-294

PARTLY FINISHED three-wheel cyclecar, wheels, engine, magneto, tyres, two-speed back wheel, bucket seat, carburetter, several other parts, accept £10 for the whole lot, cash. 6 Lady Lane, Chelmsford. Trade 49-292

PLANO convex lenses will improve old lamps; they send a bright beam right ahead; 3½ in., 1s. 9d.; 4 in., 2s. 6d.; 4½ in., 3s. Payne, Metchley Lane, Harborne. Trade 49-291

MAGNETOS, carburetters, tyres, lamps, cyclecar parts supplied at lowest charges. Charles, 5 Falcon Square, London, E.C. Trade 49-281

FOUR-CYLINDER Lacoste magneto, ball-bearing, new condition, £2 10s. 46 Vardens Road, Clapham Junction. 49-279

MOTOR parts for sale. Two-cylinder coil, 10s.; quarter-pint pump lubricator, 3s.; iron petrol tank, 3s.; bonnet for old pattern car, 3s.; Ford carburetter, Kingston, 20s.; Clement ditto, 7s. 6d.; Longuemare ditto, 5s.; four springs, each 1s. 6d.; two side lamps, each 3s. Childs, Hartfield, Grove Avenue, Yeovil. 49-276

IF you want help in building your cyclecar, Winter's the man. Tricars converted, others modernized, chassis and parts, efficient friction drive, any cyclecar work undertaken. Racy w.-c. cyclecar, £60; others constructing on view. Winter, Cyclecar Specialists, West Hill, Wandsworth. Trade 50-316

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CYCLECAR parts, 6-8 h.p. vertical Fafnir twin water-cooled engine, overhead mechanical inlet valves, complete with contact, carburetter, water pump, clutch and silencer, guaranteed as new, £7, approval; petrol tank (cylinder), 5s.; twin coil, 5s.; tubular chassis with axles, wheels, brakes, steering gear, complete two-seater body, good condition, just the thing for cyclecar, £2; two-seater hood, £1; windscreen, 10s.; three-speed and reverse gearbox, good condition, £2; tricar front seat, 5s.; genuine Duo tandem body and chassis, complete with petrol tank, two wheels, front axle, springs, £6; brand new, offers for lot, or separate, must sell. 16 Lawrence Road, Chorley.

MISCELLANEOUS (continued).

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PALMER'S GARAGE, Tooting. 8-10 h.p. Sabella, 1912, tandem, two-cylinder J.A.P., magneto, variable pulleys, very fine order, £40.

PALMER'S GARAGE, Tooting. 8-10 h.p. Rollo, 1912, tandem, two-cylinder J.A.P., variable pulley, hood and screen, £45.

PALMER'S GARAGE, Tooting. 8 h.p. Darracq, two-seater, single-cylinder, green, side doors, £30.

PALMER'S GARAGE, Tooting. 8-10 G.W.K., two-cylinder, complete with hood and screen, four speeds and reverse, £125.

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PALMER'S GARAGE, Tooting. 8-10 h.p. Humberette, fully equipped, fast, nice condition, practically equal to new, £95, no offers.

PALMER'S GARAGE, Tooting. 5-6 h.p. A.-C. Sociable standard model, with extra dickey bucket seat, hood, magneto, cheap lot, £37 10s.

PALMER'S GARAGE, Tooting. 8-10 h.p. G.W.K., brand new, immediate delivery, fully equipped, hood, screen, £150; also Baby Peugeot, brand new, £160.

PALMER'S GARAGE, Tooting. 4½ h.p. Bedelia, 1911, single-cylinder, touring body, torpedo shape, light, handy runabout, £25.

PALMER'S GARAGE, Tooting. 6-10 h.p. Automobilette, three-seater, brand new, beautifully painted and finished car, latest engine, chain driven, camshaft, modern improvements, £120.

PALMER'S GARAGE, Tooting. 8-10 h.p. Bedelia, 1912, twin-cylinder, streamline body, hood and screen, two-speed, £45.

PALMER'S GARAGE, Tooting. 6-8 h.p. 1913 Globe, single-cylinder model, practically vibrationless, torpedo Sociable body, hood, screen, accessories, £117 10s.

PALMER'S GARAGE, Tooting. Duo cyclecar, brand new, with specially-finished body, at £5 under list. Duo purchasers should see Mr. L. N. Palmer. It will be to their advantage.

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PALMER'S GARAGE, Tooting. Sole address: L. N. Palmer's Garage, Merton Tram Terminus, Tooting. 'Phone, 208 Streatham (10 minutes Wimbledon, 20 minutes Victoria; motorbuses, 48, 49, 66 and 107). Trade 49-383

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J.A.P., 1913, 9 h.p., delivered four weeks, unused, brand new, twin, 90 degrees, £20.

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WANTED to buy for cash cyclecars of any make, exchange or sell on commission. Elce and Co., 16 Bishopsgate Avenue, Camomile Street, E.C. 'Phone, Avenue 5548. Trade 58-862

NEW or second-hand Morgan sporting two-seater, in exchange for 1912 Rex Sidette, little used, and cash. Stoneman, Naval Hospital, Plymouth. 49-242

WILL give four-cylinder, five-seated Humber car and little cash for Morgan runabout. Stimpson, Broad Walk, Stratford-on-Avon. Trade 49-244

WANTED, cyclecar (Morgan preferred), in exchange for two-seater 10 h.p. Aster car, two-cylinder, Bosch magneto, hood, screen, five lamps, Stepney, all in perfect condition, any trial or examination, cash adjustment. Walton, 1 Railway Building, Coseley, Staffs. 49-267

WANTED to buy for cash, either Morgan runabout, Morris-Oxford, Singer or other good cyclecar. Booth, Portland Place, Halifax. Trade 51-313

CASS'S, Car and Cyclecar Specialists, 5 Warren Street, Euston Road, W., require new and second-hand A.-C.s, G.W.K.s, Humberettes, Morgans, Singers, Swifts, and other well-known makes; clients waiting. 3624 Mayfair. Trade 49-289

WANTED, magnetos, carburetters, lamps, tyres, accessories. Charles, 5 Falcon Square, London, E.C. Trade 49-280

WANTED to buy your car for immediate cash. Temporary loans arranged. 39 St. John's Hill, Clapham Junction. Telephone, Battersea 1497. Trade 49-319

NYE'S Sale and Exchange show-rooms, 16 Hampstead Road, Tottenham Court Road, London. Your best medium for disposing or purchasing a new or second-hand cyclecar, easy payments arranged, bills negotiated, write or call. Tel., 3625 North. Trade 49-344

WANTED, new and second-hand Singers, Humberettes, Swifts, Perrys, Standards, Morris-Oxford and other well-known cyclecars. Hitchen's, Ltd., Morecambe. Trade 49-369

WANTED, back axle off 9 h.p. Riley car, with wheels, or old car complete, minus engine, etc., if cheap. Box 1410, care of "The Light Car and Cyclecar." 49-357

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MANCHESTER. Magneto repairs of every description, any make; rewinding remagnetizing, coil and accumulator repairs; several good second-hand magnetos in stock. J. H. Rusbaken, Magneto Specialist, 7 Peter Street, Manchester. Telephone: 6111 City. Sole Northern Agent for the Eisemann Magneto Co. Trade 66-99

BRAND-NEW Bosch twin magnetos, any angle, fully guaranteed, limited number only, 49s. and 59s. 6d. Booth's Motories, Portland Place, Halifax. Trade 57-643

HOODS AND SCREENS.

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BRAND-NEW half-folding windscreen, 3 ft. by 13 ins., heavy brass fittings, fit two-seater Rover, sacrifice 42s. 6d. 1 Ebner Street, Wandsworth. Trade 49-315

CAPE hoods and windscreens for cyclecars; manufacturers to the trade; keen prices for quantities. Motor Hood and Screen Co., Lewins Mead, Bristol. Trade 61-368

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EXCHANGE 8-10, two-cylinder Phenix, two-seater, new June, 1912, exceedingly well equipped with screen, hood, Stepney, gas and oil lamps, speedometer, grand order, wide seat for three abreast, cost £225, level exchange for Singer cyclecar or cash and Humberette. Particulars and photo, 45 Wherstead Road, Ipswich. Trade 49-255

£110 PLAYER piano, direct from factory, photo, exchange for 1913 cyclecar or light car. Bruton, 70 High Street, Weston super Mare. 49-233

1913 KENDALL cyclecar, two-speed, hood, screen, lamps, etc., practically new, exchange for good combination, or sell £85. G. Betts, 3 Fordwych Road, Cricklewood. 49-235

EXCHANGE 3½ h.p. three-speed Rover and cane sidecar, new August, for cyclecar, G.N. preferred. W.S., Burmah, The Downs, Bexhill-on-Sea. 49-303

EXCHANGE for Humberette or other modern cyclecar, two-speed free engine, 4½ Singer, 1913, with 12-guinea sidecar, perfect, any trial, or cash, £65. Whiteside, Jeweller, E. Dereham. 49-322

CYCLECARS for motorcycles and cars and vice versa, go to the Specialists, Hurlin and Co., 295 Mare Street, Hackney. Trade 49-371

YOUR motorcycle converted into cyclecar from £20. Send for details. Hurlin and Co., 295 Mare Street, Hackney. Trade 49-372

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CYCLECAR bodies. Designers and builders. Special low prices to the trade. H. J. Dalton, Ltd., Croft Road, Coventry. Trade 50-513

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BUYING and shipping to the trade only in the Colonies of all goods appertaining to the motor, motorcycle and cycle trade, on commission basis, sending manufacturers' original invoices, correspondence and inquiries invited. Lindner and Co., Ltd., Birmingham. 57-58

INCLUSIVE rates quoted for any cyclecar, motorcycle or accessories to all parts of the Colonies. Lists mailed free. Our manager, Mr. Thorpe, for many years resident in Natal, Canada and New Zealand, gives this business his personal attention. Mormon and Bliss, General Engineers and Motor Works, London Road, Hounslow. Phone 227. Trade 52-962

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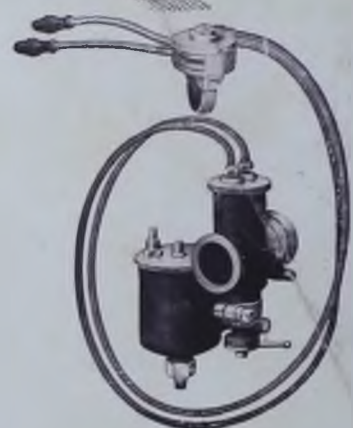
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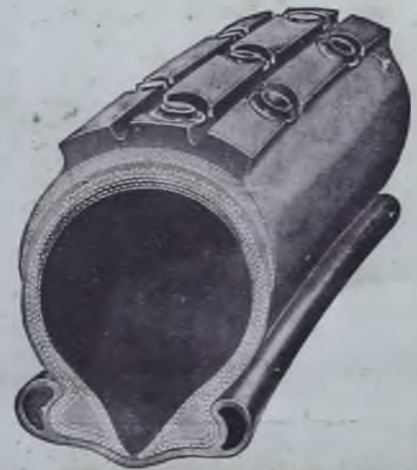
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