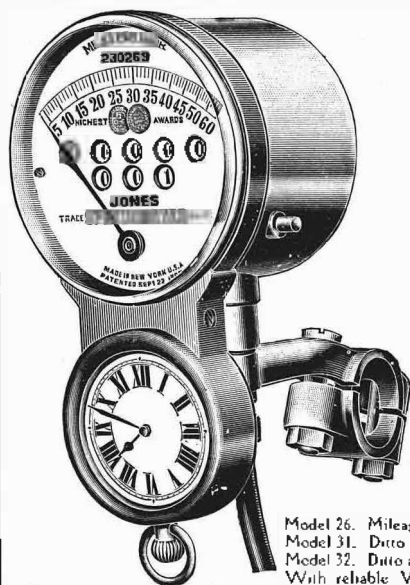


The **Cyclecar**



THE 'JONES' MOTOR CYCLE Speedometer



The only Speedometer to Measure the whole of the Coast Lines of G.B. and I.

HARRY LONG'S Records all measured with the "JONES":

1911—40,000 miles on a Triumph Motorcycle without a single stoppage or trouble with Speedometer.

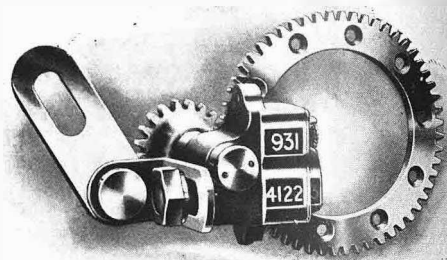
1912—26,000 miles on a Singer Motorcycle with Sidecar; the only trouble, two lost pinions.

HARRY LONG writes since: The "JONES" was registering perfectly after 30,000 miles with a Sidecar attached all the distance.

PRICES.

Model 26. Mileage to 10,000 M. and repeat £3 3 0
Model 31. Ditto and with Trip Recorder £4 4 0
Model 32. Ditto and with Max. Hand £5 5 0
With reliable Watch attached, either model, extra £1 0 0
Speed to 60 or 80 m.p.h. any model.

The New VEEDER Gear-Driven Motorcycle Trip Cyclometer.



Solves the problem of a really reliable and accurate mileage recorder for motorcycle or cyclecar purposes, with spiral gear-box bracket and gears, as illustrated.

PRICE - - - 25/- COMPLETE.
With Special Bracket for Cyclecars, 27/6

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

THE PORTLAND Torpedo Light Car.

SMALL IN PRICE. HIGH IN QUALITY.
£98 Ready for the Road. Complete £98

'Phone: 7539 Gerrard.

Wire: "Skidlessly, London."

PORTLAND MOTOR Co.,
101, Great Portland Street, London, W.
(AGENTS WANTED)

KINDLY MENTION "THE CYCLECAR" WHEN CORRESPONDING WITH ADVERTISERS.

Follow the Arrows.

The Cyclecar

CORRECTING A SKID. : :

By an Expert.

CYCLECARS as a class may be considered freer from the tendency to sideslip than any other type of motor vehicle. The risk—a slight one—is there, however, and varies with different makes. Several details are contributory causes of sideslipping, such as speed, condition of tyres, state of road surface, rate of change in direction of travel, and adjustment of brakes, but the predominant factor is weight distribution. Every driver should be on the alert for this danger, and he should be specially prepared when rounding corners, on applying brakes, or when regaining the crown of the road after having pulled into the side.

Skidding in itself is not really dangerous if there is plenty of room in which to perform one's gyrations, but when the road is narrow or thronged with traffic, to avoid coming into forcible contact with a passing vehicle or an immovable lamp standard is a contingency to be prepared for. To minimize the risk, extreme care should be taken when turning corners. Speed should be slackened appreciably and the turn taken in a clean, even sweep, not in a series of



Early snow—a snap after the recent fall near Chesham.

CORRECTING A SKID (contd.).

spasmodic jerks. If the turn is to the left, hug the side of the road closely, as the camber will correct to a large extent any tendency to skid. A right-hand turn should be negotiated at a slow pace if the camber, which in this case increases the chance of a sideslip, is excessive. Naturally, under these circumstances, it is better to keep to the centre of the road, providing there is a clear view of traffic coming in the opposite direction.

Brakes badly adjusted are another source of trouble, as they may cause the machine to slide sideways if the pressure exerted upon one wheel is much greater than on the other.

The choice of tyres is another matter which the cyclecarist would do well to ponder over. If he has all four wheels shod with smooth covers the attendant risk is greater than if they were of non-skid variety. Many people have different views as to the best arrangement of non-skid covers, but if the owner favours steel studs, then one non-skid cover should be placed on the off-side front wheel, and another on

the near-side rear wheel. For those, however, who favour rubber non-skids, the best arrangement is to have all four wheels shod with them, though this may prove somewhat expensive.

Coming to the actual skid itself, it must be remembered that it starts from nothing and grows into something, and, in order to control the machine, all preventive measures must be taken at its commencement, otherwise it will speedily gain such momentum that nothing short of a lamp-post or similar obstacle will check its deflected course. If the back of the machine swings to either side of the road, the front wheels should, immediately be turned in the opposite direction. Should the brakes be on, release them. The front wheel skid has yet to be considered, but fortunately its occurrence is rare. It generally presents itself on turning a corner sharply at speed, or when travelling over a road cut up with deep cart ruts. The only measure to adopt is to apply the brakes and reduce speed. Skidding may certainly be alarming to the uninitiated, but it soon becomes a matter of habit to prevent and correct the lateral slipping of a cyclecar.

SINGLE DRIVE TO ONE REAR WHEEL ONLY.

An Interesting Suggestion.

It is not at all Unusual for one of the Belts to be Dispensed with by Cyclecarists, but we should think that more was lost than gained thereby. However, the Writer of the following Short Article puts the case pro and con very lucidly.

THE practicability of driving the right rear wheel only appears not to have attracted the attention it deserves, almost every manufacturer having fitted either two belts and a solid rear axle, or a differential and a live axle. Yet the position of the cyclecar, the production of which is at present principally in the hands of the smaller manufacturers, standing as it does midway between the cycle and sidecar combination at about £75 and the miniature car proper at about £135 (both of which are turned out in large batches by established firms), demands that every mechanical detail which is unessential shall be ruthlessly discarded if a vehicle with most of the comfort of a small car is to be profitably produced at a figure between £90 and £100.

The disadvantages of this method of driving appear to be that the extra work done by the driving tyre must shorten its life, that there is some additional risk of skidding on grease or when rounding corners, the fact that the breakage of a belt leads to the immediate stoppage of the car, and the vague general charge that it is unmechanical.

It would appear that if the life of the driving tyre is reduced, that of the other back tyre must be correspondingly lengthened, and an occasional change round would probably even things up, so that there would be no ultimate extra cost of tyres on the whole. At all events, the difficulty could scarcely be so pronounced as on a sidecar, the weights on the two back wheels being much more evenly placed than in the latter. The risk of skidding seems more real, though even here the conditions are better than in the cycle and sidecar combination, the wheelbase being considerably longer, while the track is scarcely wider. The third objection should be really considered a decided advantage, for if the car continues

to run after the loss of a belt, the driver will only discover his loss when miles from the scene of the mishap, too late to return and search for it.

It would seem that the items on the debit side are largely discounted by sidecar experience, which has shown that none of the objections carry sufficient weight to condemn the proposal. On the credit side must be placed simplicity and reduced first cost, both of which are vital and of the very essence of the cyclecar movement. For the man who runs a cyclecar will run it for sport. He will be his own driver, and both in adjusting and keeping it clean will prefer the simpler to the more complicated machine. The £5 or £10 first cost saved is a matter of importance too, for manufacturers must recollect that they are out to tempt the man who would buy a cycle and sidecar to lay out the few extra pounds on a cyclecar. The other class, who are getting a small car anyway, will scarcely be attracted by the small saving of a few pounds for a machine that is never going to supply the solid comforts of a car.

The manufacturer should put to the test the practicability of providing only one belt. Repeated runs on greasy roads, over tramlines, etc., should be made and the results noted; comparative tests of wear of tyres should be carried out. If the machine has differential gear, it might be arranged so that it drives one side only, while the other runs free.

It is perhaps asking too much to request manufacturers to publish the result of their experiments, but there must be private owners who have tried the single drive, and if they could be induced to communicate their experience it would help to forward the movement, the success of which we all have so much at heart.

FRANK H. JEFFREE, A.M.I.C.E., Wh.Ex.

CHEAPER HOUSING FOR THE CYCLECAR.

Economical Storage and the Requirements of County Councils and Other Authorities.—The Limitations of the Building Acts.—Some Suggestions.

By AN ARCHITECT.

THERE is no doubt that the cyclecar has come to stay. Thousands of people have been eagerly awaiting the advent of a car costing about £100; something which comes within the reach of those with limited means. It is not only in the initial expense that the cyclecar is welcomed by so many, but also because the cost of upkeep is so small. The recent show at Olympia has proved its popularity, not amongst men only, for ladies, too, have shown the keenest interest in the cyclecar. Its simplicity of handling and its lightness have proved it ideal for the fairer sex.

Now, the problem is: how can a car of this type be housed? With a motor-bicycle, the ordinary cycle shed would meet all requirements. In the case of the cyclecar the provision of proper accommodation is not quite such a simple matter. In the limited space allotted to houses in and near to big cities the question is, "Where shall I put up a cyclecar shed, and how shall I go about it?" There are many things to take into consideration.

Within the area of London and the surrounding suburbs the requirements of the London County Council Building Acts have to be complied with, and the sanction of the Council obtained. This is not difficult, but knowledge of the mode of procedure is necessary.

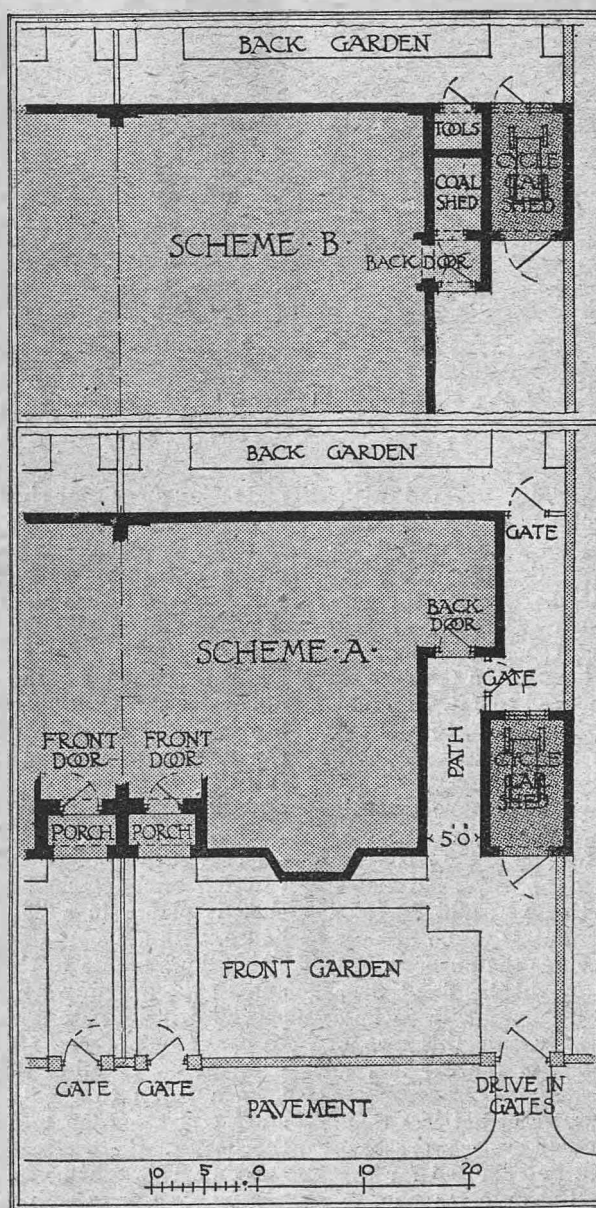
Application must be made to the Council written on foolscap paper, and accompanied by a block plan of the existing house, with the position of the proposed cyclecar shed indicated thereon, and coloured pink. This must be drawn to a scale not smaller than 22 ft. to 1 in. A plan and section of the proposed shed must also be sent drawn to a scale of 8 ft. to 1 in. Both plans must be drawn on linen and sent in dupli-

cate to the Superintending Architect's Department, County Hall, Spring Gardens, S.W. To the lay mind this may appear a formidable task, but an architect would do all this for quite a small fee.

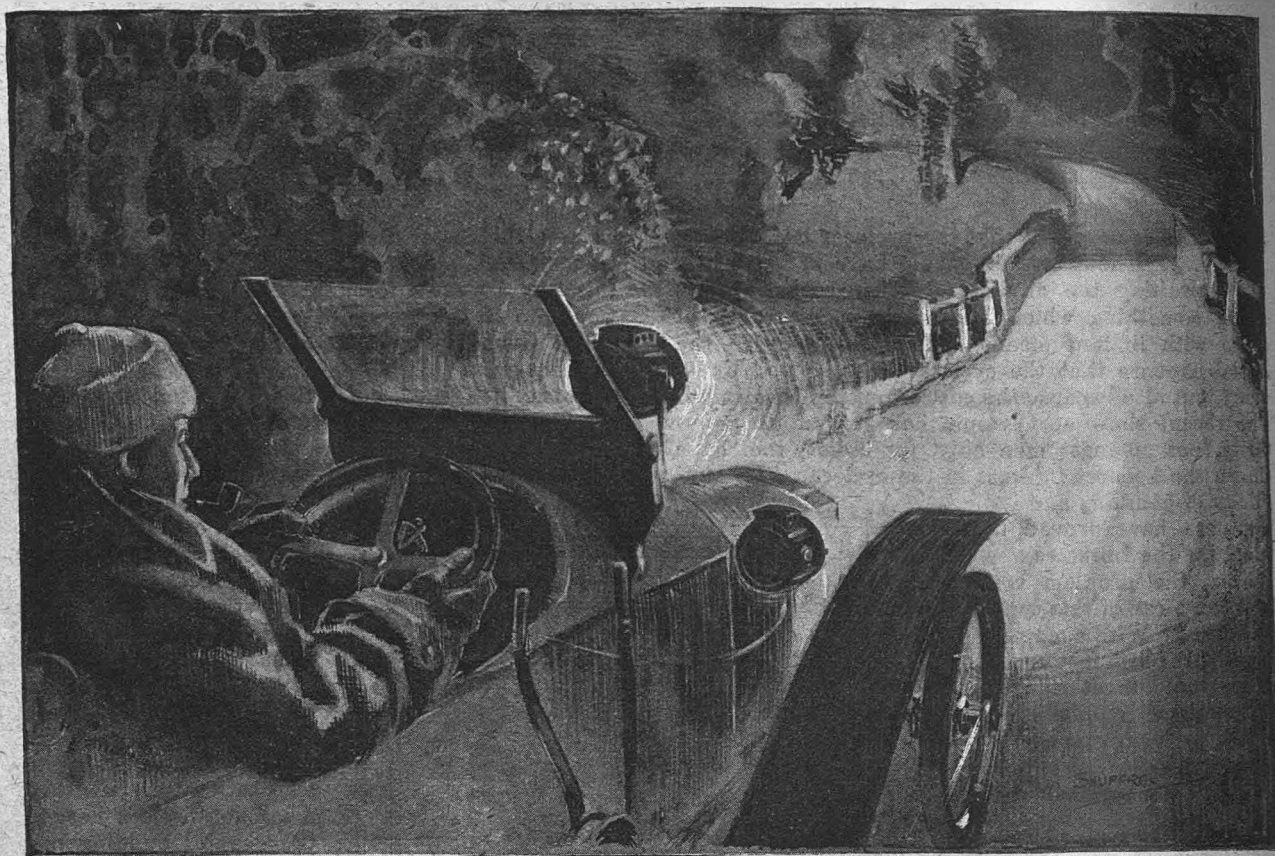
The Council's by-laws do not mention a specific distance away from an existing house that a cyclecar shed may be placed, but if the shed is not closer than 5 ft., there is more chance of obtaining the Council's sanction. It is possible that permission can be obtained to build a shed abutting against the side wall of a house which has windows on the first floor overlooking the shed. But it is practically certain that the ceiling of the shed would have to be constructed of fireproof material, such as concrete. Of course, where there are no windows in the side wall, it is a simpler matter. A shed must not project beyond the general building line of frontage.

In no case would a shed built of wood be sanctioned if it were placed in close proximity to the house. Generally speaking, it is inadvisable to build a cyclecar shed incorporated with the house, as the London County Council conditions are more stringent in such a case. If possible, it is best for the shed to be detached, as the insurance premium is a thing to be considered, and is not liable to be so heavy when the shed is separate from the house.

In the first number of *THE CYCLECAR* a very good scheme was illustrated for arranging a cyclecar shed in conjunction with semi-detached houses without increasing the width of frontage. This scheme would apply equally to existing houses that had from 6 ft. to 7 ft. clear space at one side. Such a shed or, in fact, any shed built near to the house, would require to



Two suggestions for erecting a cyclecar shed to comply with the requirements of local authorities.



CYCLECARS THAT PASS IN THE NIGHT.

With a good headlight there is a subtle fascination in driving after dark. Who does not love to see the white ribbon of road slipping under the wheels as the car speeds through the night, and a ghostly radiance falls on hill and dale?

have 9 in. brick walls and the roof covered with tiles, slates or similar non-combustible materials. Another method is to construct the side and roof of corrugated iron. This, however, is not so sightly, if appearance is to be considered.

With regard to the size of a cyclecar shed: the average overall size of a cyclecar, with side-by-side seats, is 4 ft. wide and 7 ft. in length. In the case of the tandem type the width is reduced to 3 ft. 6 in. and the length increased to 10 ft. Therefore, to allow a reasonable amount of working space round the car, the shed should not be less than 11 ft. long by 6 ft. 6 in. inside. A good arrangement is to have a bench at one end, hinged to fold down out of the way. A small cupboard in one corner for tools, etc., is very convenient. Along one side a narrow shelf fixed about 6 ft. above the floor level may be added.

The best form of floor is granolithic, but ordinary cement paving is cheaper and serves the purpose well enough. An electric pendant might be fixed over the bench, and a wall plug with flexible wire and lamp is an excellent thing to have. By this means light can be brought to any part of the car in the event of repairs at night time.

The door should have a clearance of not less than 4 ft. or 4 ft. 6 in. for the two types of cyclecars respectively, and the same width will be required for the entrance gate at the drive in. But an extra 6 in. to the previous width would be a great advantage when driving the car into the shed, if space permits.

A12

Heating a cyclecar shed is, of course, a luxury, and is only necessary in the case of water-cooled cars. It is not a very costly thing to fit up a small boiler under a lean-to roof outside the shed, and run 2 in. flow and return pipes along the end wall. These should be fixed about 9 in. above the floor. However, this article deals with the minimum, not the maximum, shed for those whose purse is of small dimensions. Undoubtedly the cheapest method of heating is to install a slow-combustion stove, which can be purchased from any accessory dealer. With this type of stove there is no danger of a petrol fire, and the daily cost of upkeep will not be more than 3d.

The accompanying plans are suggestions for a cyclecar shed to be placed at the side of two types of existing semi-detached houses. In the first (A) the shed is placed in a line with the front wall of the house, with a passage way between it and the house. This allows access to the tradesman's entrance door and to the gateway leading to the back garden. A special drive-in gate is shown leading from the road. In the second scheme (B) the shed is placed in a line with the back wall of the house. Incorporated with it is a porch to the tradesman's entrance, a coal store and a garden tool shed. A door is placed at the back of the cyclecar shed leading into the back garden. This scheme is, of course, more expensive, but makes a very convenient addition to the house. Though not shown, a drive-in gate from the road would be necessary.

S. J. B. STANTON.

The Cyclecar

Wednesdays—1d.

Conducted by EDWARD DANGERFIELD.

TEMPLE PRESS LIMITED

(Proprietors of "THE MOTOR CYCLING,"
"THE MOTOR," &c.)

7, 9, 11, 13, 15, Rosebery Avenue,
LONDON, E.C.

Telephone No. 5292 Holborn (four lines).
Telegrams—"Pressinus, Holb., London."

RIDLAND OFFICES:

9-10, Burlington Chambers,
New Street, Birmingham.
Telephone No. 2496 Midland
Telegrams—"Presswork, Birmingham."

NORTHERN OFFICES:

196, Deansgate, Manchester.
Telephone—Central 2467.
Telegrams—"Presswork, Manchester."

NEXT WEDNESDAY'S

Issue of "The Cyclecar" will contain very full, illustrated descriptions of the Christmas trials by members of the staff, who are going right through with the competitors and will therefore be able to form unbiased opinions of the performances of the various machines.

OTHER FEATURES.

The Cooling of Cyclecar Engines, Transmission (all types described and illustrated).

How to Comply with the Requirements of the Law as to Registration, etc.

NOTICES.

Letters.

EDITORIAL Communications should be addressed to The Editor, "The 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.

Press Times.

IMPORTANT LATE NEWS and Photographs can be accepted up to first post Monday morning for insertion in the following Wednesday's issue.

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

Return of MSS., &c.

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

Copyright.

All Engravings, Photographs, Portraits, Drawings, Articles or other Contributions must be submitted, and will only be accepted, upon the express condition that the copyright therein becomes the property of the publishers upon acceptance by acknowledgment or publication, and may not be republished or reproduced without their permission.

Advertisements of Cyclecars for Sale, new or second-hand, Sundry Announcements, and Rates for Advertisements, will be found amongst the end pages.

Topics of the Week

IT will be remembered that in the Grand Prix race this year several cyclecars and small cars competed in the unlimited class. No doubt there will be quite a number of cyclecars, probably with very powerful engines, competing in next year's Grand Prix race. We suggest to the French authorities that a race in France for cyclecars with restrictions of weight and engine capacity would be well worth considering. The lessons to be learnt from such a race would have far greater value than one in which a few freak machines competed without any definite object in view. If the race for the Coupe de "L'Auto" for cars in the 3-litre class is arranged, it might be possible to include a class for cyclecars. No doubt a number of English manufacturers would be quite willing to enter. We commend this suggestion to our French contemporary.

**A French Grand
Prix for
Cyclecars.**

* * *

SO severe are the conditions of this year's reliability trial from London to Exeter and back, organized by the Motor Cycling Club, that it is feared few machines will get through with full marks, and those that do will have achieved very remarkable performances. In the 163 entries, there are 80 cyclecars, and for these new machines the trial is one that calls for not only absolute reliability, but for great skill in driving, together with a large measure of good luck. Much depends upon the weather, for if this is adverse and the roads are heavy it will be a strenuous trial indeed. It must be remembered that the competitors have got to drive 20 hours on end, 12 hours of which will be in the dark. The distance from Hounslow and back is 324 miles, and the schedule speed during the night hours is 18 m.p.h., and in the daytime 20 m.p.h. It will be the first real test that any cyclecars have been entered for. Should the cyclecars come through with full marks it will be a most remarkable demonstration of their efficiency, but many failures, in a test so severe, does not necessarily imply that the machines are valueless for the much easier conditions of ordinary use.

* * *

AS announced on page 139, the International Federation of motor-cycle clubs has decided upon a classification of cyclecars by weight and horse-power, as suggested in THE CYCLECAR of 4th December. There will be two classes of machines for competition purposes, the larger with the same definition as that in use in this country, and the smaller, a new class, being limited by an engine capacity of 750 c.c. and a maximum weight limit of 660 lb., which, to encourage the light machine, might be further reduced. It is also proposed to limit the sizes of tyres, and to demand that a clutch and change-speed gear shall be incorporated in each machine. These two latter restrictions are, we consider, a mistake, for undoubtedly they will hamper designers. For instance, it is conceivable that a light monocoque might be constructed in which 2 in. tyres would be suitable, but being less than 55 mm. in width would be unable to compete with other machines. The restriction regarding a clutch presupposes that the machine must be petrol-driven and fitted with a more or less standard transmission, whereas we might have steam, electricity, compressed air, or other motive power in future design. We fear that the delegates of the Federation have arrived at too hasty a conclusion. The classification has yet to be finally ratified, when we trust that the objections raised will receive careful consideration. As originators of the cyclecar movement we are in a position to speak authoritatively, and a careful study of the problem during the last two or three years has indicated that in all regulations covering cyclecars any attempt to restrict design upon stereotyped lines must be studiously avoided.

**International
Classification.**

THE CYCLECAR WORLD.

Notes, News and Gossip of The New Motoring.

A merry Christmas

To all readers of THE CYCLECAR.

Pleasant anticipations for those who wait delivery,

And plenty of enjoyable driving during the holidays for those who have machines.

Why not a Grand Prix race for cyclecars? We make the suggestion in "Topics of the Week."

Several motorcar manufacturers in Coventry are already turning their attention to the construction of cyclecars.

There is very little difference between "Shell" and "Crown" spirit, but the latter is 1s. 6d. per gallon instead of 1s. 7d.

Letters for publication received after first post on Tuesday of this week will be unavoidably held over until the issue after next.

If your means are limited, and it is a question of getting married or buying a cyclecar—choose the latter and save expense.

More variations of the "new spelling" in the "wait another year" Press—now we get "cycle-car" (in two words, with a hyphen).

The Premier cyclecar will be seen for the first time in competition in the Birmingham M.C.C. run to York and back next Saturday.

"The Unborn Runabout." So runs a headline in a contemporary. Let us hope that when the happy event comes off it won't be twins!

A classification of cyclecars has been adopted by the International Federation of Motor Cycle Clubs, with separate classes for light and heavy machines.

There will be no newspapers sold on Christmas Day, and this week's issue of THE CYCLECAR was published Monday afternoon owing to the Christmas holidays.

Something very novel in the way of an inexpensively-built monocoque is promised shortly. Full details should appear in THE CYCLECAR about the 15th January.

Several cyclecar manufacturers and agents who were doubtful about the extent of the demand for machines find, since the close of Olympia, that they are quite full up with definite orders.

Is a reverse necessary on a cyclecar? If it is, the hand reversing lever fitted to an experimental Enfield cyclecar now under test in the Midlands is an ingenious attempt to solve the problem.

An important concern with large American interests is ordering 12 cyclecars of distinctive types with a view to sending them to the United States. Does this foreshadow an American cyclecar?

A cyclecarist of our acquaintance has spent several weeks in tuning-up his carburetter, and now has been rewarded by possessing one of the slowest-running twin-cylinder engines we have ever heard.

At the Gometz hill-climb, the big Bedelia driven by M. Bonville was only 11 sec. slower than Mr. Fred Barnes's racing Zenith and sidecar, which is known to be the fastest passenger machine in England.

An Australian motorcyclist, Mr. S. L. Bailey, has put up the remarkable speed of 72½ m.p.h. at Brooklands on a 2½ h.p. lightweight Douglas. How this wonderful record was obtained is told in this week's issue of "Motor Cycling."

London to Exeter:

Twelve hours of night driving:

And 20 hours to complete 324 miles.

To average 18 miles an hour at night and 20 miles in daylight, over bad roads and with many steep hills, will want some doing.

A winter trial, such as the London to Exeter, is one of the most severe tests that could be given the cyclecars. How many will get through successfully?

Several entrants for the various winter trials have taken the precaution of putting down their gears in anticipation of trying times on steep gradients.

Mr. Frank Thomas has entered into a sporting bet for a level fiver that he will get through the Gloucester-and-back trial on his G.N. without touching either belt.

The first complete illustrated report of the performances of the cyclecars in the winter trials will appear in our next issue. The test is so severe that it is not expected that many machines will earn full marks.

Our Birmingham offices have been changed to more commodious premises, 9 and 10, Burlington Chambers, New Street. The offices are in part of the block of buildings occupied by the Midland Hotel, at the corner.

We hear of several garages in London which will shortly be willing to store cyclecars for 6d. or 1s. per 12 hours. Doubtless this reduction in rates has been inspired by our recent remarks on the co-operative garage scheme.

Home-made cyclecars are being constructed by many enthusiastic amateurs all over England. We are always glad to receive particulars of such machines, and either to publish descriptions or assist designers with advice.

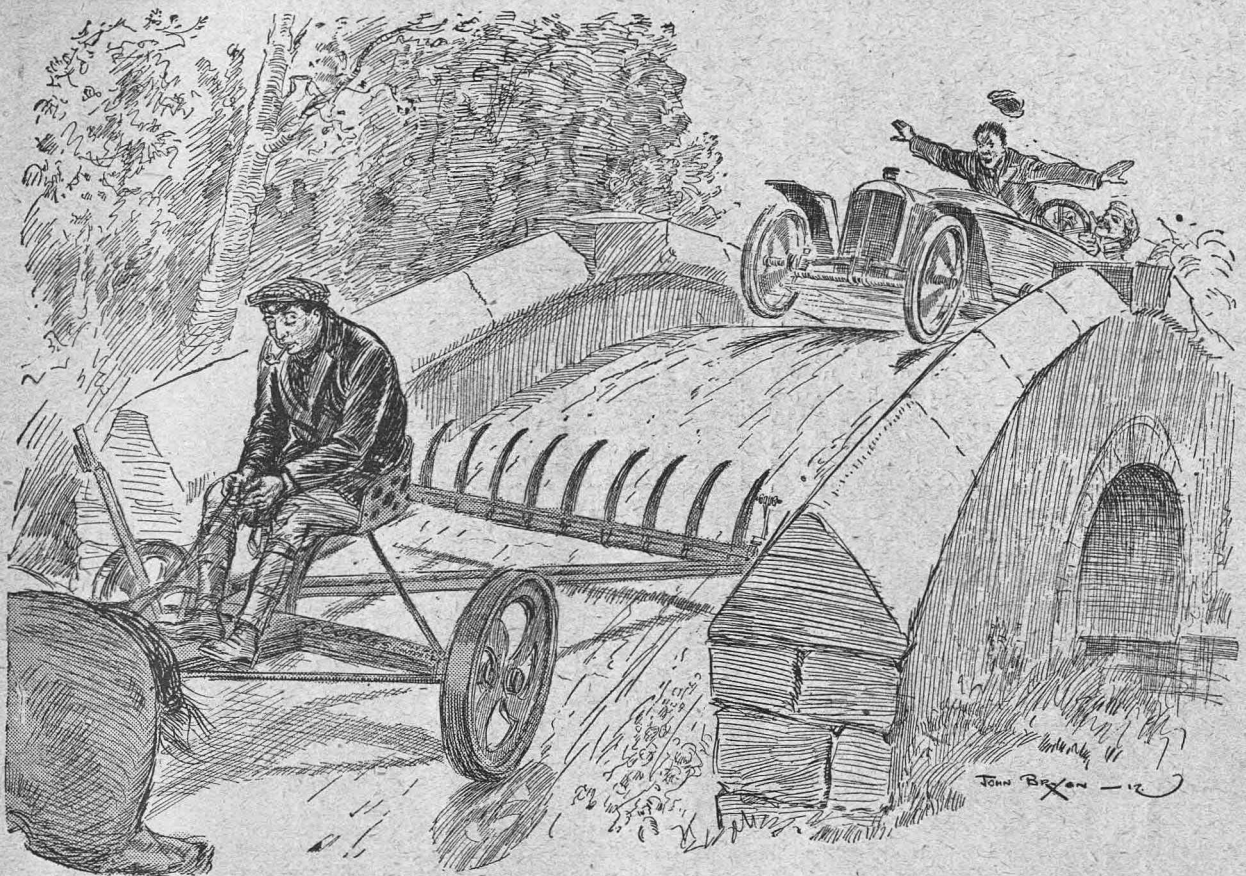
It is easily possible, with the simplest type of cyclecar, to get 6000 miles at a cost of £24, including petrol, oil, two new tyres (which may not be required), two extra belts, new plugs and small parts. This works out at less than a penny a mile.

We refer editorially to the prospect of a Grand Prix race in France. In "The Motor" this week appears an article, with exclusive illustrations, of a drive over the course of next year's race, which is said to be one permitting exceptionally fast driving.

Front steering for tandem-seated cyclecars is gaining favour in France. The Super, La Roulette, La Torpille and La Fleche all follow this design. Possibly this tendency is due to the practice of marketing a commercial model in addition to the pleasure vehicle, the sample case being placed to the rear.

The cyclecarist who wakes up on Christmas morning and finds that some thoughtful friend has sent him one of the weird mascots in which Messrs. Brown Bros. are specializing, will receive a bit of a shock. To those who want to try the effect we suggest the "Skull and Crossbones" or the "Grinning Cat."

Robert Bourbeau, the designer of the Bedelia, gained some of his earliest motoring experiences in this country on a Phoenix Trimco. He considers that, whereas a three-wheeler may be suitable enough for use in England, it would be impracticable in or around Paris, owing to the extraordinarily bad condition of the roads.



HORATIUS
(1913 MODEL)

—————"But those behind cried 'Forward!' and those before cried 'Back!'"

More Cold Water.

The following extracts from a technical automobile journal are highly amusing:—

TWO PARAGRAPHS FROM THE SAME ARTICLE.

To lay down any of the air-cooled machines with belt transmission, sliding rear axles, wire steering gears, or what not, for production in quantities at any price, would be absurd.

There are one or two quads of the belt-driven variety which are made sufficiently well and designed sufficiently, in conformity with the principles of machine construction to give reasonable durability and a fair amount of freedom from trouble on the road.

The obvious suggestion is that the manufacturer contemplating making in quantity should follow the lines of the machines admitted to be successful.

Here is another extract:—

"Summed up as tersely as possible, the public demand is for something with all the virtues of low price, low running cost and reliability already possessed by the cycle and sidecar, with greater comfort and greater ease of handling."

This precise epitome of the case for the simple cyclecar terminates an article the whole purport of which is to deprecate the type of vehicle which most closely conforms to these requirements. The article teems with misconceptions; terms the cyclecar a quadricycle, which it in no way resembles; gives the cyclecar definition by engine capacity without mention of weight; refers to "sliding" back axles, when the hinged type is meant; states that the tricar has never recovered from the period of torpidity under which it declined while fostered in the motorcycle Press of from 1904 to 1909, and overlooks the success

of the A.-C.; and makes the statement, which all who have had practical driving experience will deny, that the "short, accessible belt on a motorcycle works under generally better conditions than the belts on most of the existing quadricycles." It seems as if the effort to decry the new movement—because those responsible for these statements regard THE CYCLECAR as a rival journal—is a very forced one.

It Slowed the Machine.

A very sporting single-seater was going through the G.N. works recently, with streamline body, tail, and so on, in the approved Brooklands style. Not content with the rather blunt "point" of the tail, one of the apprentices, full of enthusiasm for the streamline theory, stopped late and machined up a piece of steel to a needle-point, and duly fixed it to the tail, to the delight of the other juniors. However, while this conformed very well with the theory of the thing, the practical objections soon became apparent, and, to prevent further abrasion of the shins of the men, a large cork was placed upon the point. A few days later, a visitor—who had already caused some consternation by gazing intently at a chassis for ten minutes, and then blandly inquiring whether the engine was a single or a twin—happened to catch sight of the racing model, complete with body, tail and cork. The cork seemed to puzzle him for a bit, and eventually he turned to the nearest mechanic and inquired the reason for its presence. By this time, however, the man had had enough, and, wishing to close the interview for evermore, explained briefly that the cork prevented rusting of the fine point, its presence making no difference up to 45 or 50, but above that *they took it off*. Strange to relate, the visitor seemed quite satisfied.

THE CYCLECAR WORLD (contd.).

New Cyclecar Engine.

The Manley and Buckingham single-cylinder air-cooled cyclecar engine, which we described recently, is to be supplemented by a twin-cylinder of exactly twice the power. This should be an excellent machine for cyclecar work, though the dimensions will come outside the 1100 c.c. prescribed by the A.-C.U.

New Starting Device.

An ingenious starting device has been invented by Robertson Brown, of Robertson's Motor Agency, Gt. Portland Street, London, W. It consists of a pulley which is made to engage with the ordinary crosspin on the engine shaft, to which the starting handle would fit in the ordinary way. A leather strap is coiled around the pulley, and, when pulled out, causes the engine to revolve many times. This method of starting the machine is far simpler and less laborious than the more usual style of cranking the engine.

The Cyclecar Boom.

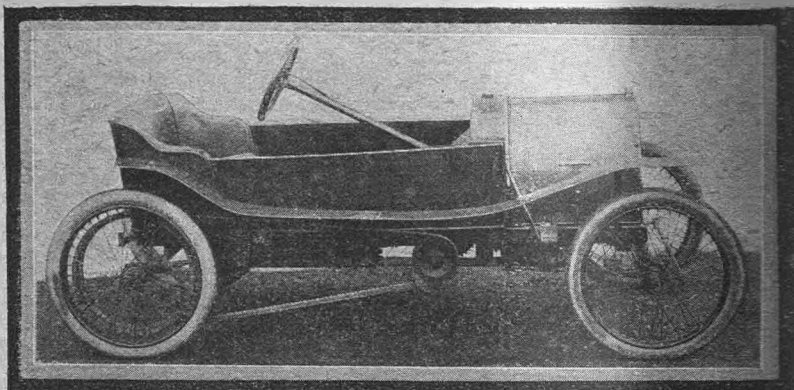
Messrs. Wm. Whiteley, Ltd., inform us that they sold 23 cyclecars in the week following the Show, 10 of them being Humberettes.

Messrs. Hitchens, Ltd., of Morecambe, advertised in the last issue of THE CYCLECAR for deliveries of various makes of cyclecars. We are informed that, although they contracted for 500 machines, they have already sold the output of some makes, and others are now in such demand that it is expected every machine will be sold long before midsummer. Mr. Hitchens informs us that price makes no difference to the sale of the machines, and people are quite

First reports, well illustrated, of the winter trials will appear in THE CYCLECAR and "Motor Cycling" next week.

A Piston-valve Engine.

The "all-British" Ford cyclecar, the first description of which appeared in THE CYCLECAR last week, is to have a 90 by 132 piston-valve engine, designed by Mr. A. O. Ford, the maker of the cyclecar. It is outside the A.-C.U. definition.



An illustration of the body of the Chota cyclecar, the first description of which appeared in "The Cyclecar" of the 4th December.

Whiteley's to Produce a Cyclecar.

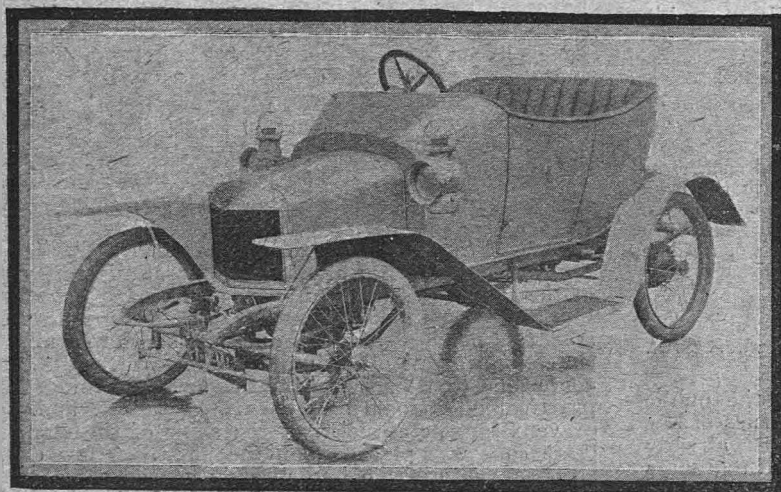
Messrs. Wm. Whiteley, Ltd., are conducting tests with a new cyclecar, which they hope to be in a position to place upon the market in three months. It is to be named the Kildare, and the specification includes a four-cylinder water-cooled engine, transmitting the drive through friction discs to a live back axle, containing a differential gear. The bodywork is to be specially finished, and the cyclecar will sell complete with hood, screen and accessories, for £150.

The Monarch Cyclecar.

The new four-wheeled Monarch cyclecar is of prepossessing appearance. The frame is of pressed steel, and is supported at three points by four quarter-elliptic springs. An 8 h.p. Precision engine drives through an epicyclic two-speed gear and clutch to the live back axle, the shaft being enclosed in the torque tube. Ackerman type steering is adopted, and a roomy two-seated body with side-by-side seats and scuttle dash is standard. The price of the machine is 110 guineas, or with water-cooled engine for an extra cost of £10.

First Experiences with Friction Drive.

Chatting with the Rev. E. P. Greenhill the other day, we asked him how the friction gear on his G.W.K. had worn. "I have now done 2800 miles since the last disc was renewed," he replied. "I spoilt two discs in the first 100 miles owing to bad driving. The first time was due to starting with the side brake on, and the second when attempting to make a standing start on the 1 in 4 portion of Brooklands hill. On both occasions a flat was worn on the disc, but it did not prevent me from getting home easily. It only takes half-an-hour to renew a disc at a total cost of 7s. 6d. The discs are made in sections, and are most easily fitted."



The Monarch cyclecar, just introduced by Messrs. R. Walker and Son of Birmingham.

willing to give £50 more than the price of a cheap American car. This only confirms our statement that price has little to do with the question; running cost matters more, and there is no doubt that cyclecars are cheaper to run than 20 h.p. American motors.

Several other agents inform us that the public demand for cyclecars of all types since the introduction of THE CYCLECAR overshadows all other business.

CLASSIFICATION OF CYCLECARS.

International Federation Adopts Classification by Weight, Engine Power and Tyre Sizes. Cyclecars Divided into Two Distinct Classes.

A MOST important development, which may have far-reaching consequences, is the adoption of an international classification of cyclecars. This classification will be recognized in all countries affiliated to the Federation Internationale des Clubs Moto Cycliste, including England, France, Germany, the United States, Canada, Austria, Italy, Switzerland, Belgium and Holland. Hitherto the only definition of a cyclecar has been the one drawn up by the R.A.C. and the A.C.U., which defines it by a chassis weight not exceeding 6 cwt., or complete with body 7 cwt., and cubic capacity of engine 1100 c.c.

In the classification drawn up by the Federation a new class is now introduced for smaller and lower-powered machines, and the two classifications will be the following:—

Large Class.—Weight, not exceeding 784 lb.

Engine capacity, not exceeding 1100 c.c.

Minimum tyres, 60 mm.

Small Class.—Weight, not exceeding 330 lb. minimum.

Weight, not exceeding 660 lb. maximum.

Engine capacity, not exceeding 750 c.c.

Minimum tyres, 55 mm.

All machines must have clutch and change-speed gear.

Each controlling body affiliated to the Federation will adopt this classification, and all competitions in which cyclecars figure will be based upon it, but it has to be ratified before it comes into operation.

The Federation is a body which was formed some years ago, but has been practically moribund. At a special meeting called at the instigation of the Auto-Cycle Union, on the 28th November, in Paris, this international controlling body was re-formed. A second meeting was held on the 14th December, and the classification as outlined above was drawn up.

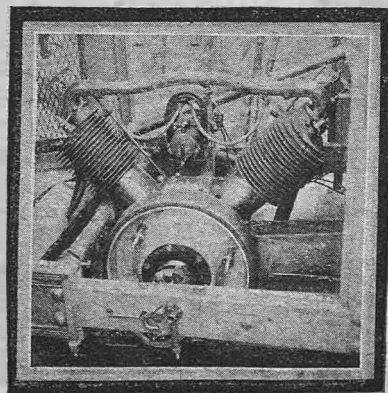
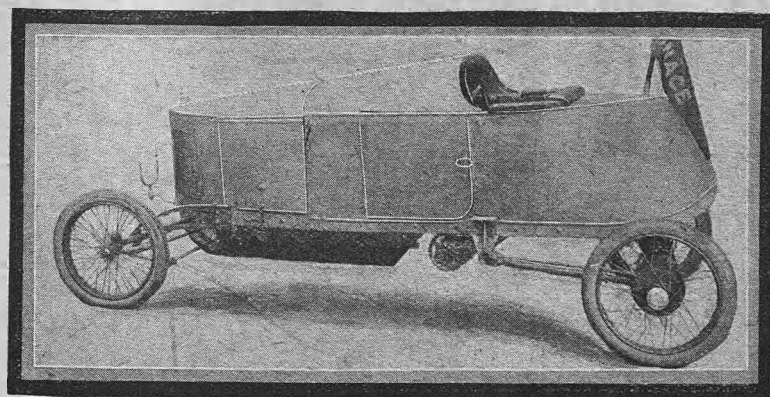
It will no doubt assist the development of the smaller machine if it can compete in a class of its own, but the system of classifying by tyre sizes and insisting upon clutch and change-speed gear being incorporated in all machines is open to many objections. We comment upon the classification in "Topics of the Week."

The revived International Federation has decided to hold an international trial every year. Next year's trial will be held in England, and it has been suggested that each country should be represented by a team of three, consisting of a motorcyclist, sidecarist and a cyclecarist. All details have been left to the A.C.U., who will put them before the international body. It is proposed to hold the reliability trial between 20th and 24th September, a distance of 150 miles a day being contemplated. Further details of the trial will appear in an early issue.

PINNACE CYCLECAR. NOVEL BODY AND OTHER FEATURES.

THE outstanding features of the Pinnacle cyclecar are undoubtedly the 90 degrees twin-cylinder J.A.P. engine, which is set lengthways in the frame, and the pleasing manner in which the lines of the bonnet and the body converge, the whole design giving the machine the appearance of a ship's pinnacle. The drive is taken from the engine to the gearbox by chain through a large leather-to-metal cone clutch, incorporated in the outside flywheel. Three speeds forward and a reverse are provided in the gearbox, which is placed almost in the centre of the chassis, while the power is finally transmitted to the back axle by another chain of substantial proportions. The frame is constructed of ash suitably armoured, and is effectively isolated from road shocks by quarter elliptical springs both fore and aft,

but those in front are mounted in duplicate. Wire wheels are fitted, those at the rear being built up on special hubs, to accommodate internal-expanding brakes. The two brakes provided work independently, one on each wheel, and are operated respectively by hand lever and pedal. Controls are arranged in orthodox car fashion, while the body design is novel. The seats are particularly low built. A wide side door is provided, and to enable the passenger and driver to seat themselves, the extension of the scuttle dash is hinged and can be easily lifted and lowered. The price of the machine is £130, and it is manufactured by the Norma Motor and Engineering Co., Ravenscourt Square, Hammersmith, London, W., to the designs of Mr. A. Percy Hann, who has entered one machine for the London-Exeter trial.



The Pinnacle chain-driven cyclecar and 90° engine, showing clutch incorporated with the fly-wheel.

THE FIRST CYCLECAR TRIAL.

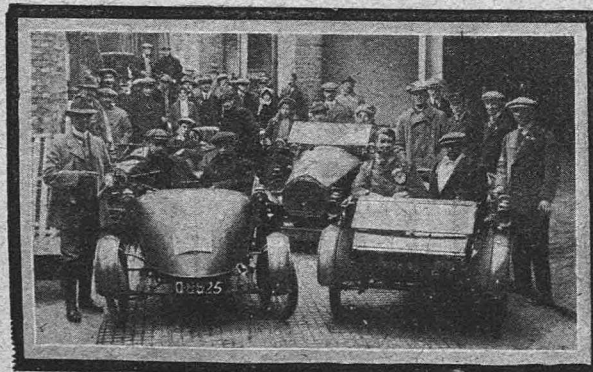
12 STARTERS. 8 GOLD MEDALS.

THE success of the cyclecars in the first reliability trial open exclusively to these machines created great astonishment in the Midlands. The trial was organized by the Sutton Coldfield A.C. Before the trial, opinions were freely expressed that very few machines would get through, while owing to the condition of the road, very greasy in places and heavy in others, some of the big cars that followed the competitors had the greatest difficulty in climbing such steep hills as Edge, Sunrising, and Warmington, all three of which were included in the route. Yet, out of twelve starters, all managed to complete the course, and no fewer than eight competitors earned gold medals. The remarkable character of this performance is realized when it is mentioned that each driver had to adhere to a schedule speed of 20 m.p.h., with one minute's grace only allowed! The four machines that failed to obtain a gold medal did so from the most trivial causes. The Duo ran off the course, but finished on time without trouble whatever. One Humberette lost the chance of a gold medal through a sooted plug, which trouble also befel one of the A.-C.s, another A.-C. losing full marks through a high-tension wire coming loose.

The start was made from the Horseshoe Hotel, Halls Green, about five miles from Birmingham, and the course was by Stratford-on-Avon, Sunrising Hill, which was in a very sticky condition, Edge Hill, Warmington Hill and Banbury (for lunch), the return journey being over the same route. The competitors were favoured with genial weather for the time of the year.



The Rollo on Sunrising Hill.



Some of the competitors at the luncheon stop at Banbury.

A24



Mr. G. Eryant (Motorette) on top of Edge Hill.



Mr. L. F. de Peyrecave (Duo) followed by Mr. R. G. Mundy (G.W.K.) on Warmington Hill. Note spare tyre carried on Duo's lamp bracket.



Mr. H. F. S. Morgan (Morgan) passing the Motorette down Warmington Hill, going "all out."

100 MILES ON MIDLAND ROADS.

WONDERFUL SCHEDULE DRIVING.

The result was as follows:—

GOLD MEDALS.

- Mr. R. G. Mundy (G.W.K.—Friction-drive).
- „ G. Bryant (Motorette—Three-wheeler).
- „ P. J. Evans (Humberette—Shaft-drive).
- „ E. R. Wintle (Rollo Tandem—Belt drive).
- „ A. G. Eames (A.-C.—Three-wheeler).
- „ H. F. S. Morgan (Morgan—Three-wheeler).
- „ B. W. Bailey (Crescent—Friction-drive).
- „ F. H. Stevenson (Morgan—Three-wheeler).

Messrs. V. Busby and H. C. Munday (A.-C.), and Mr. W. J. Parker (Humberette), silver medals.

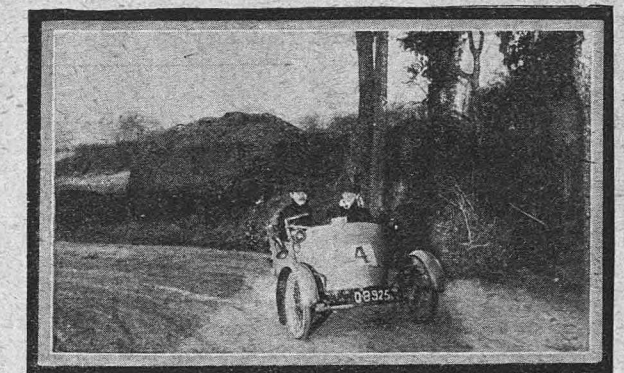
Mr. L. F. de Peyrecave (Duo—belt-drive) ran off the course.

Messrs. S. W. Phillpott and J. H. Slaughter (P.D.A. three-wheeler) were entered but did not start.

A special gold medal was awarded to Mr. Stevenson as a private owner who gained full marks.

Some of the competitors finished dead on time, and others were only 30 secs. outside the time allowed—truly remarkable performances, which prove the wonderful reliability of the machines. How will they perform in the even more severe conditions and longer test of the London-Exeter run this week?

The reader who gave the indefinite address of the Great Square, Braintree, Essex, in corresponding with the agents of the G.N., is requested to forward his name to Mr. G. N. Higgs, 31, Vauxhall Bridge Road, London, S.W.

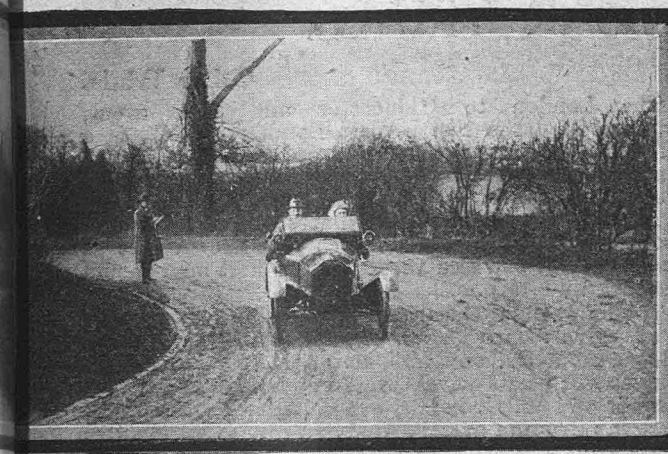


The Motorette on Sunrising Hill.



The Crescent and Humberette on Sunrising Hill.

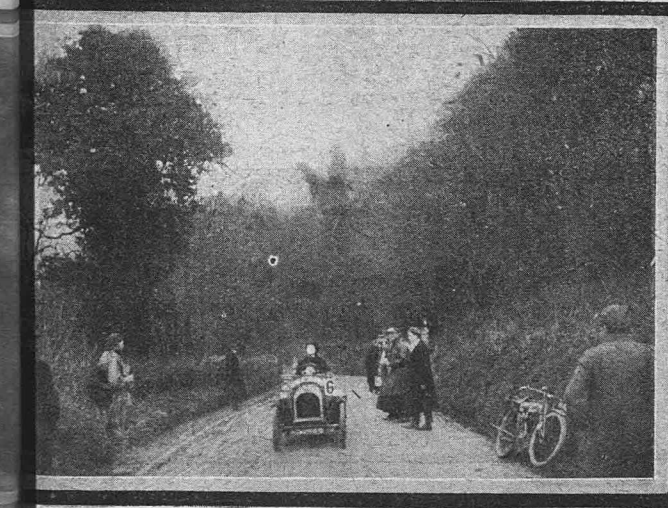
A25



P. J. Evans (Humberette) changes gear on top of Sunrising Hill.



Mr. B. W. Bailey (Crescent) followed by Mr. H. C. Munday on one of the A.-C.'s on Edge Hill. There were three A.-C.'s in the trial.



Mr. E. R. Wintle (Rollo) going fast up Warmington Hill. This is the first appearance of the Rollo in competition.

CHRISTMAS CYCLECAR TRIALS.

The M.C.C. Winter Run.

THE two-day trial organized by the M.C.C., which takes place on Friday and Saturday, 27th and 28th December, will prove a severe test for all the machines competing, especially for the 30 cyclecars, and the result will be watched with great interest.

The committee of the Motor Cycling Club are allowing 20 hrs. 47 min. for the run of 324 miles, so that every competitor will have to average 17 to 18 miles per hour on the stretches ridden in the dark, while the daylight portion of the route will have to be covered at 20 miles per hour.

The two most severe hills in the trial are those at Chard and Yarcombe, which are within a few miles of one another, and close to Exeter. The mere fact of having to negotiate these ascents in the dark will greatly increase the chances of failure. On the return journey the road will be found to have a much better surface, though the gradients are very difficult.

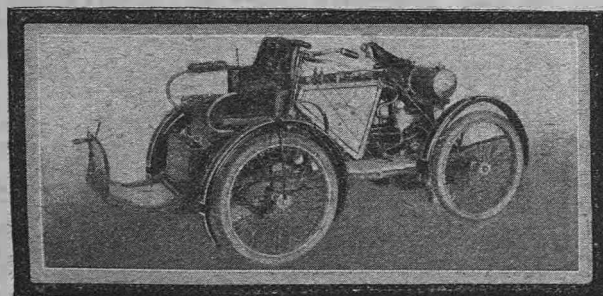
On the next page will be found tables giving the scheduled times of arrival of the first competitor, a motorcyclist, who starts at 7 p.m., and from these times the arrival of the various cyclecars can be estimated by adding the difference in their starting times. The starting point is the Bulstrode Hotel, Hounslow.

It will be seen from the list of entries that there are 9 three-wheelers and 23 four-wheeled machines entered, and of the latter two are light cars, viz., the Hurlu and the Belsize. Only four belt-driven machines are entered; chain drive is employed on 10 machines, shaft on 11, and friction drive and shaft on the 7 G.W.K.s.

In "Motor Cycling" this week will be found a complete list of entries, which, with the motorcycles and sidcar combinations, total 163. We hear of several other late cyclecar entries that may be included.

In the Early Morning.

In the early hours of the morning the cyclecarist is generally alone on the road. He may encounter occasionally herds of cattle and the slumbering gipsies encamped in their van at the roadside, or even, as depicted on our front cover this week, a pack of harriers at exercise. It was an autumn morning when this photograph was secured on a little-known by-road halfway between London and Coventry. The machine is a tandem-seated Sabella. Its low, rakish build can easily be ascertained by comparison with the foremost hound, who was friendly enough when the big twin J.A.P. engine was switched off, but who, with his mates, would not approach the cyclecar when the motor was running. The particular machine illustrated is a tandem-seated model.



QUADRICYCLE
AND CYCLECAR.

Other Trials.

The London to Gloucester and back event, organized by the North-West London M.C.C., is a one-day trial, and will be held on Boxing Day, 26th December, starting from Jack Straw's Castle, Hampstead, at 7 a.m. Several cyclecars have been entered, and the trial is particularly strenuous, as the 235-mile route will include such well-known hills as Aston, Dashwood and Birdlip. The first man should be back by 8.15 p.m.

The following cyclecar entries have been received: (Belt drive): Two G.N.s, entered by Messrs. Frank Thomas and Osmond Hill, and a Duo, Mr. L. F. de Peyrecave; (shaft drive) two Humberettes, Messrs. W. Cooper and W. Edmonds, and a Sherwyn, Mr. A. H. Selwyn; (friction drive) a G.W.K., Mr. R. G. Mundy; (three-wheelers) two Morgans, Messrs. H. F. S. Morgan and F. G. Boddington; two A.-C.s, Messrs. A. G. Eames and H. C. Munday; also a Whitgift and a home-constructed cyclecar, entered respectively by Messrs. J. H. Jeffery and E. Leatheren; and a 10 h.p. Morris car.

There are two important trials starting from Birmingham, the first being the Birmingham to Gloucester and back, on Friday, 27th December. It is organized by the South Birmingham Motor Cycle Club, and the first man will leave the Gun Barrels Hotel, Bristol Road, at 9 a.m., on a course measuring approximately 100 miles, the route passing through Worcester, Gloucester and Cheltenham, and the performances of the machines will be observed on Rose Hill and Birdlip.

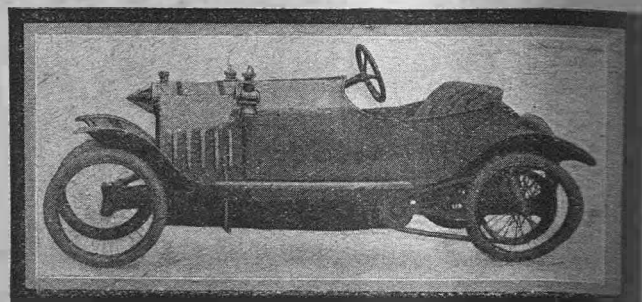
The annual run at Christmas of the Birmingham M.C.C. will take place on Saturday, 28th December, from Birmingham to York and back. The first man will leave the starting-point at about 6 a.m. and finish at about 9 p.m. on the same day.

Motorcycle Makers Condemn a Cyclecar Trial.

Motorcycle manufacturers are, we understand, not in favour of the proposed standard cyclecar race. We suggest to the cyclecar makers that they should immediately form a section in the Manufacturers' Union and assert their own views, as the only parties interested, upon the proposal to organize a road race for standard cyclecars in the Isle of Man next year.

Demand for Tyres.

The tyre manufacturers will be correct in anticipating a very big demand for special cyclecar tyres. It is interesting to note that one important concern, the Avon Tyre and Rubber Co., Ltd., have already had to move to larger show-rooms at 19, Newman Street, Oxford Street, London, W.



This illustration, which shows on the left an old Ariel "Quad," and on the right a modern typical cyclecar (the G.N.), will give those who think that the old Quads were cyclecars a graphic demonstration of the difference between the two types. One is most obviously not a development of the other.

THE MOST STRENUOUS WINTER RELIABILITY TRIAL.

London to Exeter and Back in 20 Hours, 27th and 28th December.

32 Cyclecar and Light Car Entries for a Trial with 12 Hours of Night Driving, over Bad Roads and Steep Hills.

OUTWARD.

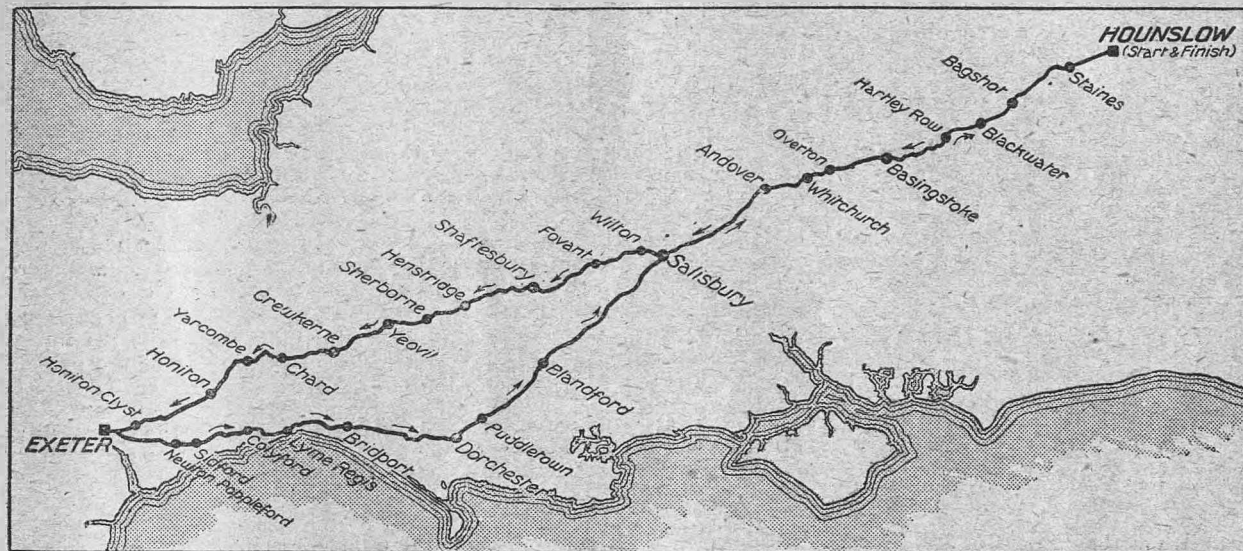
	Distance from London.	Time Due.
Hounslow ...	7.0	p.m.
Bagshot ...	16	7.53 "
Basingstoke ...	35½	8.52 "
Andover ...	54	10.3 "
Salisbury ...	71½	11.0 "
Wilton ...	75	12.12 a.m.

	Distance from London.	Time Due.
Shaftesbury ...	93	1.15 a.m.
Yeovil ...	115	2.31 "
Crewkerne ...	123½	2.59 "
Chard ...	131½	3.27 "
Honiton ...	145½	4.12 "
Exeter ...	161	5.4 "

HOMeward.

	Distance from London.	Time Due.
Exeter ...	161	6.34 a.m.
Lyme Regis ...	189½	8.1 "
Bridport ...	198½	8.28 "
Dorchester ...	213½	9.12 "
Blandford ...	229½	9.56 "
Salisbury ...	252	11.4 "

	Distance from London.	Time Due.
Andover ...	269½	12.57 p.m.
Basingstoke ...	288	1.52 "
Bagshot ...	307½	2.51 "
Staines ...	317	3.20 "
Hounslow ...	323½	3.40 "



The route of the M.C.C. winter run to Exeter and back, on 27th and 28th December.

LIST OF CYCLECAR AND LIGHT CAR ENTRIES, WITH IDENTIFICATION NUMBERS.

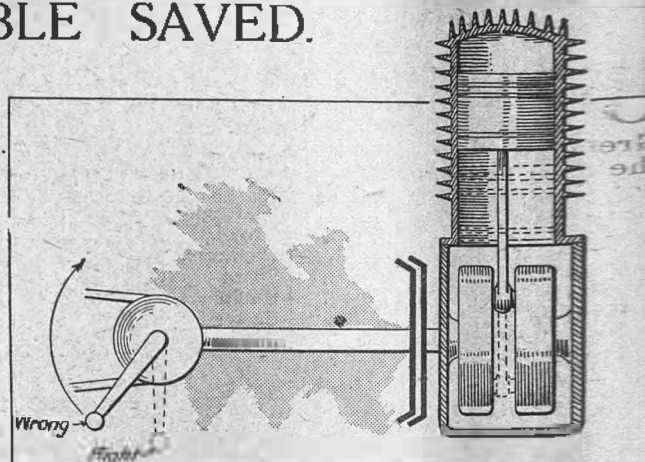
No. on Armist.	Entrant.	Machine and h.p.	Registration No.	Start from Hounslow, p.m.	Start from Exeter, a.m.	Transmission.	No. of Wheels.
13	R. R. Rothwell	8 h.p. G.W.K.	—	7.6	6.40	Friction	4
26	A. T. Tamplin	9 h.p. Matchless	LE6998	7.12	6.46	Shaft	3
43	Alan Hill	8 h.p. Humberette	—	7.21	6.55	Shaft	4
44	R. Brown	8 h.p. Crouch	—	7.21	6.55	Chain	4
45	D. S. Parsons	8 h.p. G.W.K.	F5786	7.22	6.56	Friction	4
47	A. C. Evans	6 h.p. A.C.	AC3115	7.26	6.57	Chain	3
56	Osmond Hill	8 h.p. G.N.	FI1	7.27	7.1	Belt	4
68	G. Pitcher	8 h.p. Duo	LE3916	7.33	7.7	Belt	4
70	W. Cooper	10 h.p. Humberette	—	7.34	7.8	Shaft	4
87	R. F. Messervy	8 h.p. Duo	LE5877	7.43	7.17	Belt	4
88	C. M. Keiller	8 h.p. G.W.K.	D7421	7.43	7.17	Friction	4
89	C. Patterson	8 h.p. G.W.K.	CP255	7.44	7.18	Friction	4
91	A. J. Dixon	10 h.p. Singer	H760	7.45	7.19	Shaft	4
96	H. G. Chester	8 h.p. L.M.	—	7.47	7.21	Chain	4
110	P. Hann	10 h.p. Pinnacle	LB2594	7.54	7.28	Shaft	4
119	J. L. Love	6 h.p. A.C.	AN23	7.59	7.33	Chain	3
129	H. G. Digby	6 h.p. A.C.	AC3281	8.4	7.38	Chain	3
134	E. R. Cass	10 h.p. Gordon	—	8.6	7.40	Chain	4
135	H. F. S. Morgan	8 h.p. Morgan	—	8.7	7.41	Chain	3
136	A. W. Lambert	8 h.p. Morgan	BL75	8.7	7.41	Chain	3
138	V. Wilberforce	8 h.p. G.W.K.	IT37	8.8	7.42	Friction	4
139	G. N. Higgs	8-10 h.p. G.N.	LF6044	8.9	7.43	Belt	4
140	Rev. E. P. Greenhill	8 h.p. G.W.K.	LE5	8.9	7.43	Friction	4
141	N. B. Stewart	8 h.p. Morgan	CE2139	8.10	7.44	Chain	3
146	B. A. Hyem	8 h.p. G.W.K.	LF4146	8.12	7.46	Friction	4
147	S. C. Humphries	8 h.p. Arden	—	8.13	7.47	Shaft	4
148	H. E. Williams	8 h.p. Humberette	FJ322	8.13	7.47	Shaft	4
155	H. A. Collier	9 h.p. Matchless	—	8.17	7.51	Shaft	3
159	S. Wright	8 h.p. Humberette	—	8.19	7.53	Shaft	4
160	P. H. Jones	8 h.p. Morgan	DA867	8.19	7.53	Chain	3
162	F. E. Pither	10 h.p. Hartu	—	8.25	7.59	Shaft	4
163	C. Lester	10 h.p. Belsize	LF4040	8.26	8.0	Shaft	4

TIME AND TROUBLE SAVED.

Practical Hints from Readers.

Starting Up.

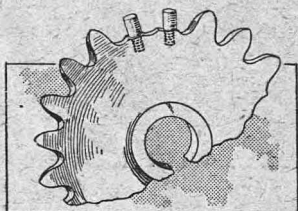
I NOTICED some weeks ago that a reader dwelt upon the importance of always pulling the starting handle upwards when cranking the engine. This advice is sound enough, but there are times when one cannot pull the handle up without first altering the relation of the engine shaft to the countershaft. I am referring, of course, to those machines in which the starting handle is not fitted direct to the engine shaft. The necessary alteration can be made by taking out the clutch for a moment and moving the countershaft round a trifle by means of the starting handle. It will then be found that when the clutch is let in again the compression stroke of the engine and the upward pull of the starting handle will coincide. The sketch on the next column illustrates the idea, the dotted lines indicating the correct relationship of starting crank to engine shaft. M.W.G.



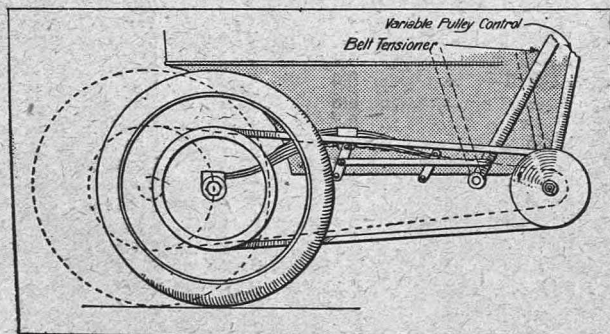
A drawing showing how the correct relation of the countershaft handle starter and the engine crank can be set. (See paragraph opposite.)

Care with Chain Drive.

I HAVE recently had some trouble with the chain taking the drive from the engine to the countershaft, for it has come off on several occasions, on one of which it broke off several teeth from the sprocket on the engine shaft. It might be imagined that this catastrophe would have necessitated a journey home by train, but, curiously enough, the machine seemed to run just as well when the chain was replaced, in spite of the missing teeth. I have since heard that the chain on the particular machine I was driving at the time was of too small a size, and it has now been replaced, together with the sprocket, by a larger pattern. A further improvement would be to incorporate a slipping device on the engine shaft to damp out the harsh knocks of a big twin engine, which are so destructive to teeth and rollers. The device on the Williamson twin is worth study. Perhaps, when the advantages of the silent chain become better known, it will be used more widely for cyclecar work. M.M.



Illustrating a temporary method of repair to a broken sprocket.



The correct method of setting the belt tensioner and variable pulley levers in relation to each other.

Finding Out the "H.P."

THE method of calculation used for finding out the engine horse-power is known as the R.A.C. formula, and, in order to apply this, it is necessary to know the bore of the cylinder, which is the internal diameter, or the width of the inside of the cylinder. This dimension will be learned more easily from the makers, but if this is impracticable the bore will have to be measured. To do this, one of the cylinders will have to be removed in the following way: Take down the exhaust and inlet pipes, and disconnect the wire from the sparking plug. Unscrew the four nuts at the base of the cylinder, which hold it in position, and put them in a place of safety; open the compression tap, and the cylinder can then be lifted off the piston, care being taken that the piston is not allowed to knock against the crankcase. Having removed the cylinder, carefully wipe it inside, and the diameter will then be measured by means of a pair of inside callipers adjusted until they will just pass into the cylinder. The callipers are then withdrawn and placed beside a ruler marked in inches, and the distance from one point of the callipers to the other will be the bore of the cylinder. As an example, we will assume this value to be 4 in. The first step is to multiply this number by itself, thus $4 \times 4 = 16$. Multiply this by the number of cylinders, say 1 in

16×1

this case, and divide by 2.5. Then $\frac{16}{2.5} = 6.4$.

which is the h.p. by the R.A.C. rating. The yearly tax will be two guineas. The divisor, 2.5 (or $2\frac{1}{2}$) is a constant, and should be remembered. G.C.S.

Adjustment of Belt Tensioners.

IT is surprising how few cyclecarists understand the correct method of setting the belt-tensioning lever on machines like the Duo, Sabella, and Warner. When the gear lever is in the top position and the belts are running on the greatest diameter of the pulleys, the tensioning device should be set so that it brings the hinged back axle as near to the countershaft as possible. If this is done, one has the whole range of the belt-tensioning device in reserve for the lower gears when the pulleys are opened out. Naturally, if the belt-tensioner is at the other extreme when the gear is in the high, one has nothing in hand for taking up belt slack when the pulleys are opened out.

PERSONAL GOSSIP

Interesting Notes on Three Popular Men in the Cyclecar World. ::

The Rev. E. P. Greenhill.

ONE of the most enthusiastic cyclecarists, a leading figure in the cyclecar world, is the Rev. E. P. Greenhill. He has a charming personality, and takes the keenest interest in the new movement, but has not yet lost his enthusiasm for motorcycling. He is chairman of the Competitions Committee of the A.-C.U., and presided at the inaugural meeting of the newly-formed Cyclecar Club, the successful launching of which was in many ways due to his personal interest. Certainly he is one of its most energetic members, and will be seen at most of the meets driving his G.W.K., which, we note, he has entered for such a strenuous trial as the M.C.C. run from London to Exeter and back next week.

Not without difficulty, for he is a skilful driver, and his G.W.K. has a great turn of speed, we followed him through tortuous by-ways from Witley to his house at Walton-on-the-Hill on the occasion of the first run of the Cyclecar Club. Having cornered him in his own garage, which shelters a Scott and a Douglas motor-bicycle as well as his G.W.K., we asked him which pastime he preferred. "I can hardly tell you," was the reply. "Both motorcycle and cyclecar have their distinctive uses. When I am a judge in a motorcycle event, I may reach the venue on my G.W.K., and then go through the competition on a motor-bicycle, which I did on the last A.-C.U. one-day trial in the Lake district. I believe in following the course under exactly the same conditions as the competitors, and thus, if any protests are brought to me as judge, I am in a better position to know the facts."

Mr. Greenhill's motoring experiences began in 1901 with a chain-driven Humber, and since then he has had 24 different machines. His latest mounts have been a two-stroke Scott and a lightweight Douglas, and he is very fond of the latter.



The Rev. E. P. Greenhill, chairman of the Auto-Cycle Union committee, and a prominent figure in the cyclecar world.



Mr. Glyn Rowden, the chairman of the committee of the Cyclecar Club.

acted as chairman of the Competitions Committee of the A.-C.U.

Mr. Glyn Rowden.

THE subject of this little note is the chairman of the Cyclecar Club committee, and was launched into the motor world, so we are assured by one of his fellow-clubmen, rather more than a decade ago, through winning a 1½ h.p. Minerva motorcycle in a Stock Exchange raffle. Since when,

according to the same authority, he has amassed a considerable fortune by raffling his own discarded mounts. He has always been a strong supporter



Major Lindsay Lloyd, the originator of the word "cyclecar."

of club life, and his name is on the membership roll of most of the important motorcycling clubs of the South. He was one of the founders of the North-West London M.C.C., worked hard on the committee for many years, and for two seasons was captain. He retired with the rank of "major." He took a single-gear sidecar outfit through to Edinburgh the first year that a machine of this type gained the coveted award. He has made a special study of "conking" and its causes, and is a great believer in the efficaciousness of a mixing fan in the inlet pipe. Deservedly popular wherever he is known, he has proved a most excellent chairman at general meetings, and will be a great pillar of strength to the new Cyclecar Club. He is the best of good company on a club run. It does not do to try to catch our friend napping—it looks easy, but it can't be done. Also never let him show you one of his famous short cuts across country—it sounds easy, but it also can't be done (in schedule time).

"The Major."

EVERYONE will recognize the characteristic attitude of Major Lindsay Lloyd—to the cognoscenti, "the Major"—depicted in the accompanying illustration. As clerk of the course at Brooklands, Major Lloyd has earned the respect of motorists, motorcyclists, and now cyclecarists. In the new motoring he has shown himself much interested, for was he not one of the original joint committee of the A.-C.U. and the R.A.O. which sat on the question of the definition of a cyclecar, and was it not he who suggested the adoption of the very term by which the new class of motor is now universally known? Since he succeeded Mr. E. de Rodakowski as clerk of the course at Brooklands some few years ago, he has introduced numerous innovations at Weybridge. On the A.-O.U. committee he has earned the respect of all on account of his business-like methods.



MANY newcomers to the movement will be perplexed as to how to equip their machines with lamps. The legal requirements are, of course, a white light showing forwards on the extreme right-hand side, and a red lamp at the rear, showing a white light sideways to illuminate the number-plate. Local by-laws are now being introduced stipulating two lights showing forwards, one on each side of the machine.

The rear lamp need not trouble us, as, in the various combinations I am about to describe, an ordinary paraffin tail-light is inevitable, and a very good and reliable tail-lamp can be bought for 10s. These are designed for use on a much larger car, and are too big; but at present we can only accept them, as nothing more suitable is available. To fulfil the absolute minimum with regard to lights in front, and at the same time satisfactorily illuminate the road, only one course is possible, and that is to fit an acetylene headlamp on the extreme off side of the dashboard. I think, however, that most drivers, or at any rate those drivers with previous road experience, would fit a lamp on each side of the dashboard, for their own as well as for other people's safety. If both these lights are acetylene, it will be necessary to fit either a large car-type generator, which is very much in the way, and also expensive, or two of the ordinary motorcycle type generators, which means that the bother of filling up will be doubled. My own choice, however, is to fit one of the largest size motorcycle headlamps in the middle of the car, on a level with the top of the dummy radiator. This only requires one large six-hour (so-called) motorcycle generator, which is cheap and never in the way, and, being perfectly simple, only requires keeping clean to work properly, which is more than I can say for many elaborate automatic generators that I have used.

To supplement the single headlamp, I have fitted a couple of the smallest size Lucas car sidelamps. These are really on the large side. Messrs. Brown Bros., Ltd., have since brought out the Veena paraffin lamp. This is really intended for side-car use, but being small, inexpensive and very smart in appearance, is just the thing for which we are looking for use on a cyclecar.

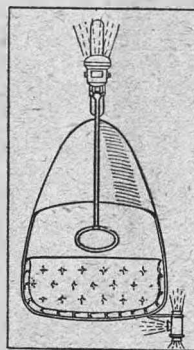
The advantage of having paraffin lamps is very soon appreciated. Returning home, one perhaps gets as far as the outer suburbs, and then has to light up. There is no need to mess about with carbide and water; just a match to the tail and side lamps and on one goes again in half-a-minute. A wayside adjustment in the dark is greatly facilitated by taking off the paraffin lamp and placing it on the ground so

that it shines on one's work. Again, should it be necessary to leave the car outside a house for any time, the acetylene lamp, if left to itself, with no vibration to keep the water dripping, will burn low and soot-up the burner, thereby causing trouble later.

The first sketch shows how I carry my own generator. A is a brass bucket, quite easily made at home, about $\frac{3}{4}$ in. greater in diameter than the bottom of the generator. B is one of three strips of brass riveted to the side, at the top only, to prevent rattle. The bucket is let into the footboard, and has a very neat

appearance, and the generator is removed by simply pulling it out.

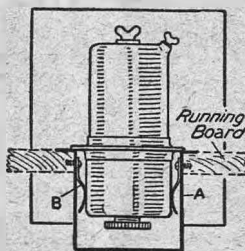
It is a mistake to fit an acetylene headlamp on the centre of the dashboard when the driver's head comes very little above it, as in some of the more racy-looking cyclecars, such as the G.N. When the lamp is alight it is quite easy to see straight ahead and to the off side of the car, but it is quite impossible to see through the beams of light to the near side. To overcome this difficulty on my own car, I rigged up a bracket to the back of the seats, so that the lamp was slightly behind and above the occupants' heads. Although this was a splendid position for light-giving, it was somewhat unsightly, so I have now fitted the lamp, as described, in



A rear light that acts as a forward sidelight - a suggestion for users of the Walltricar.

front of the radiator, where, although it is less efficient, it keeps the line of the car better.

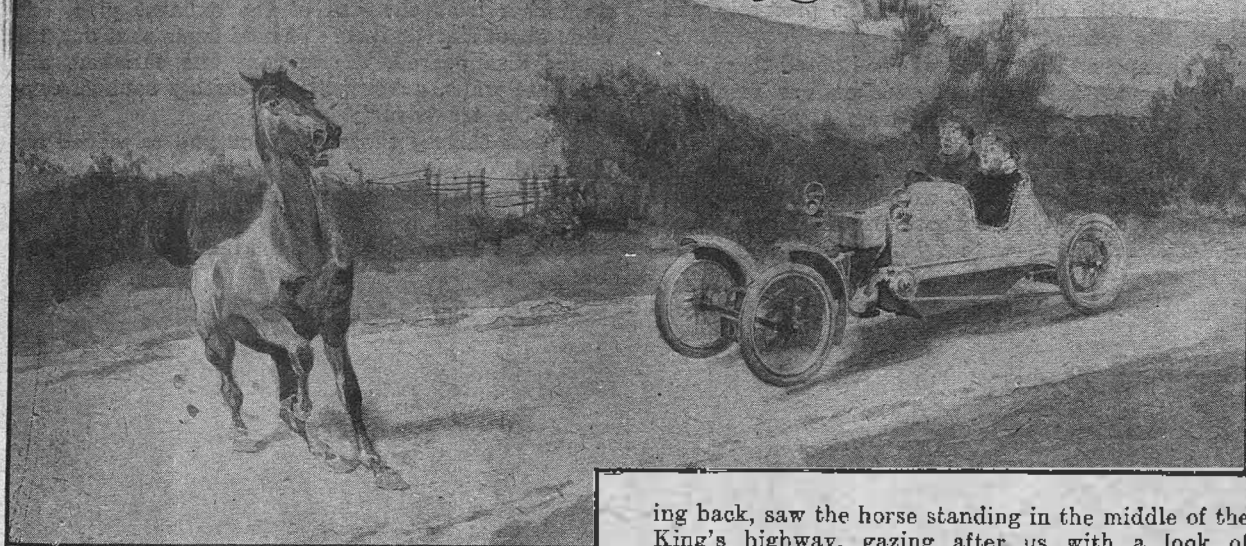
It has been suggested to me that, with a cyclecar of the Wall type (one wheel in front), only a headlamp on the front forks is required legally. I cannot find out the weight of the Wall tricycle, but if it is less than 3 cwt. that is all that would be necessary. But I should imagine that the third-party claims and repairs to one's own coachwork would cost more than the most expensive lighting outfit. To begin with, as most of us are keenly alive to the danger of vehicles using the roads after dark without a rear light, we should not like to transgress in this respect ourselves. So the decent driver would fit a tail-light in any case. Now, if this were specially constructed, as in the second sketch, and fitted sufficiently to the off side, one paraffin lamp would serve the treble purpose of showing a light on the extreme off side, both in a forward and backward direction, and also illuminating the number-plate. Ordinary pedal-bicycle lamps are made fulfilling the first two requirements, and, if necessary, the front number could be carried as on a motorcycle, and be illuminated by the headlamp. With the headlamp in the middle of the machine, the risk of knocking people over with the unlighted near side of the car would be no greater than with a side-car machine without a sidelight. FRANK THOMAS.



How Mr. Thomas carries his generator on the footboard of his cyclecar.

A CHRISTMAS EXPERIENCE.

by T. A. HUBERT.



IN the course of cyclecar trips and excursions there fall to one's lot many strange and sometimes startling experiences. Of the many hairbreadth escapes, of the many unexpected meetings with long-forgotten friends, of the thousand-and-one episodes that fill each and every journey, all motorists know well. But now and again something does happen which is either so extraordinary or in some way or other becomes so impressed upon one, that for a considerable time that specific occurrence assumes a very prominent place in one's mind.

It is now just two years since we, two very keen cyclecarists, set off to visit the mountains of North Wales, amid whose snow-clad slopes we hoped to spend a short but enjoyable Christmas holiday, which journey, had it not been for the early morning mist and a young horse, would have been quite devoid of incident.

The little 8 h.p. J.A.P. was doing a very fair number of revolutions, and was taking the light machine along at quite a good pace. All seemed quite safe till suddenly, and before we had time to discern it, a frightened young horse rushed down a slope, cleared the low hedge and landed in the middle of the road, broadside on to our path of progress. As we reached him—of course there was neither time nor opportunity to pull up—he tried to jump our pseudo-bonnet, and, add, failing, was struck by the top of the front cylinder.

The shock was awful, but, strange to relate, nothing happened except that the poor animal was hurled into the ditch, leaving on the cylinder head and the remnants of a compression tap a mass of hair as a memento of his mad leap and our wonderful escape.

In case this seeming terrible villainy should meet the eye of some ultra-humanitarian reader, it may be remarked that the passenger, on nervously look-

ing back, saw the horse standing in the middle of the King's highway, gazing after us with a look of melancholy sadness not unmingled with sympathy.

Well, our favoured little haunt, a remote village in North Wales, was at length reached, and, after the usual meal, we set out in the snow to find the necessary accommodation to house our machine, and then the incident occurred which, although of quite small account, has made such a lasting impression on our memories.

After a lengthy search we decided upon a very old coach-house, with the snow-capped mountains for its background, and its sides, roof and floor constructed of very large slate slabs, as the temporary home for our car, but the doors were securely locked and barred, and it was some considerable time before we found the owner and had stabled our small, low four-wheeler in the very large and lofty premises.

The next day we thoroughly attended to the machine and arranged to call for it about midnight, so that we might have a moonlight jaunt round Snowdon and through the passes.

Somewhere near the witching hour we arrived at the coach-house, and found the owner awaiting us, illuminating the somewhat vast interior with a very dirty candle held high above her grey head. She was in appearance the oldest woman we have ever seen, of ashen complexion, with little or no hair, a shrunken, stooping figure almost grotesque to behold, and the very picture of abject poverty; but, by her conversation, she was a woman of some education, and as she chatted gaily we lit our lamps and prepared to start on our cold but glorious trip.

In this great slate-bound coach-house every sound was magnified a thousandfold. One only spoke in whispers, yet the echoes reverberated through and through its inky depths. It was on this account that the driver inquired, with kindly consideration, if the good lady minded a noise.

"Oh, dear no; it won't frighten me!" was the ready reply.

A CHRISTMAS EXPERIENCE (contd.).

So the passenger was tucked snugly in the cyclecar and the machine pushed into the centre of the shed. The lamps lit up the huge doorway and the beams penetrated many yards ahead down the lane. Whilst the driver was preparing to start a small coin was tendered to the old lady—which was promptly and indignantly refused.

It so happened that space was so limited there was no accommodation for a silencer on our machine, and a very long exhaust pipe from a very healthy engine did duty instead. So once again we warned our elderly friend that it would make a "terrible noise," but we were assured we might start up within the shelter of the shed without troubling her in the slightest. It was then that the driver knelt down

as soon as the cheerful one had sufficiently recovered, explanations were demanded by the driver.

"What happened? Did you hear that horrible shriek? Did the roof collapse?"

"No, you silly," replied the passenger, with further roars of boisterous mirth. "Nothing has happened except that the dear old lady held the candle about six inches from the end of the exhaust pipe, and when about sixteen inches of blue flame shot out, the candle disappeared, the ancient one shrieked, and the slate walls, echoing the unearthly sounds, completed the tragedy!"

Oh that shriek! those ten thousand re-echoed explosions!

Imagine, say, 100 open exhausts in one small iron-roofed garage, a collection of ill-tuned exhaust whistles, and a van-load of china falling down a preci-



"The old lady held the candle about six inches from the end of the exhaust pipe, and when about sixteen inches of blue flame shot out, the candle disappeared, the ancient one shrieked, and the slate walls, echoing the unearthly sounds, completed the tragedy."

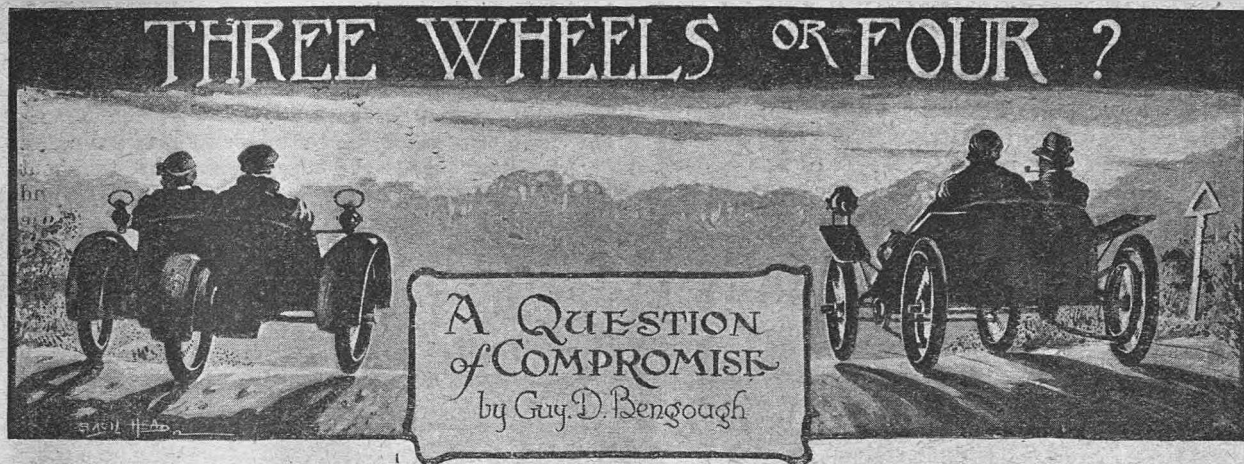
to attend to a part of the mechanism, and the old lady came nearer with the light, so near, in fact, that he had to remind her that petrol was rather inflammable and that the tank leaked! His warning had immediate effect for she retreated precipitately to the rear of the machine and apparently to the vicinity of the long open exhaust pipe.

Bang! crash! What was it?

The driver, as was his custom, leapt into his seat, and in a moment we were through the great doors and down the lane with a noise like thunder behind us, and had it not been for the shrieks of mirth from the undisturbed passenger the driver would no doubt have had a nervous collapse. As it was, however,

pice, all in one vast combination, then, perhaps, you will have a small idea of the sounds that live in our minds and ears even now of that midnight exit from the heart of the mountains.

Deafened we fled down the road, the exhaust crackling merrily behind us, as if proud of the noise and terror it had created. The machine sped over the snow-bound roads, and on turning a bend in the road we had our first view of Snowdon by moonlight. We stopped the engine and tarried awhile in silence, gazing at the wonderful scene before us. The moonlight on the snow and the absolute stillness formed a marked contrast to the man-created thunder in the small slate shed on the mountain side.



ONE cannot help being struck by the fact that the four-wheeled designs of cyclecars greatly outnumber those with three wheels. From one point of view this is remarkable, for up till quite recently there were many more three-wheelers on the road than the other kind. In fact, one concern alone, Auto-Carriers, Ltd., recently claimed that they had more cars on the road than all the other makers of cyclecars combined. Be this as it may, there can be no doubt that this company, together with Messrs. Morgan, have been very largely responsible for the widespread revival of interest in light and efficient cyclecars, and both these concerns produce three-wheelers exclusively. From this point of view it may be said that the three-wheeler started with an advantage over its four-wheeled opponent, an advantage which, apparently, it has failed to hold. The trend of design seems to be definitely turning in the direction of four wheels, and the case for the three-wheeler seems to have been dismissed without an adequate hearing.

Charges Against the Three-wheeler.

One reason for this state of affairs appears to be that a considerable number of the writers in the Press attribute all sorts of faults to the unfortunate three-wheeler which really have no foundation in fact, and appear to be unable to free their minds from the prejudice due to familiarity with the four-wheeled motorcar. The case against the three-wheeler is generally based on the following charges:—

- It is a dangerous vehicle if the back tyre bursts.
- It causes excessive wear on the back tyre.
- It skids badly on greasy roads.
- It is uncomfortable, because it has three tracks.
- It does not permit ready mending of punctures.
- It has insufficient weight on the back wheel, especially when the two seats are abreast, consequently the back wheel will fail to grip.
- It is ugly.

This is a formidable indictment, but the author's experience with a Morgan runabout has effectually convinced him that the majority of these charges must certainly be dismissed, and the others can be admitted only in a modified form. Taking the headings of the indictment in order, the first and most serious of all is the alleged danger when the back tyre bursts.

The defence can plead, first, that it is very rare for a specially strong 3-in. tyre to burst, and can quote Mr. Morgan's experience that in driving 30,000 miles it has never happened to him. However, it must be admitted that a burst may occur—it has actually happened to Mr. Lambert at Brooklands, when moving at 55 miles an hour. Danger, however, was conspicuous by its absence, and Mr. Lambert had no difficulty in bringing the car to a standstill. The truth is that there are no real grounds for this charge at all. A three-wheeler is actually more stable than a four-wheeler when a tyre has burst at speed. In the former case there is no reason why the car should not proceed in its original direction in spite of the burst. The wheel being in the centre, the only rearrangement of level due to the burst is fore and aft, and not, as in the case of the four-wheeler, from side to side. In the latter case there is bound to be a tendency to swerve, and this may well have dangerous results, but the driver of the three-wheeler has no cause for fear in this matter.

Front Tyre Bursts.

It is more reasonable to suppose that there would be danger in the event of a front tyre bursting. There will then be a tendency to swerve towards the side on which the burst took place, and the single back tyre may be quite unable to check the tendency. A front tyre burst has actually happened to the author when going at a very fair rate of speed within 2 ft. of a kerb, on the side on which the burst took place, yet the car was brought to a standstill without any part of it touching the kerb. In reply to the charge of excessive danger due to the bursting of a back or other tyre, surely a plea of not guilty is justifiable!

The next item on the indictment is that the wear on the back tyre is excessive. It must, of course, be admitted that the wear on this tyre is much greater than that on any one of the wheels of a four-wheeler. It is, therefore, absolutely necessary that a specially strong tyre be fitted, and there must be no demurring as to price if trouble is to be avoided. The author's outer cover cost over £5 for the 26 in. wheel. The price may seem excessive, but it must be remembered that it is hardly more than that of the two good back-wheel covers of a four-wheeler. The cover at present on the back wheel has run for 1000 miles, but shows very little signs of

THREE WHEELS OR FOUR? (contd.)

wear, and has not lost a stud. It is of the combination type, that is, it has steel studs and rubber bars alternately, and was made by the Continental Co. There have nearly always been two up in the car, and luggage has frequently been carried as well.

The next charge brought against the three-wheeler is that it skids badly. In the author's opinion this charge is quite unfounded if it is intended to differentiate between the three and four-wheelers. In certain conditions of the road almost any car is liable to skid if badly handled, and it must be supposed that the three-wheeler is no exception to the rule. As far as actual personal experience goes, however, not one single instance of trouble due to this cause has as yet been encountered, in spite of the fact that many miles of wood and stone setts and tramlines, as well as so-called greasy roads, have been covered. Perhaps the combination tyre has done much to solve this difficulty for the three-wheeler.

Comfort.

The popular idea that three tracks mean discomfort certainly seems to be a reasonable one. Ardent advocates of the three-wheeler sometimes argue that since the crown of the road is usually the best part of it, the third track need not disturb us. Theoretically, this does not appear a very good answer, but practically it is a sound one. The author is prepared to aver that he has never been in any small car of the single or twin-cylinder type that is more comfortable than his little Morgan runabout, and this is especially true when the cars are compared at relatively high speeds. In this connection it should, perhaps, be mentioned that an extra leaf has been inserted in the quarter-elliptic rear springs of the author's car, owing to the weight of the body being rather greater than that designed by the makers of the chassis. The Jones speedometer on the dashboard has said that a speed of nearly 40 m.p.h. can be obtained on favourable stretches of road with two up; but the most delightful range of speed, however, lies between 28 and 34 m.p.h.

Tyre Repair.

And now for the puncture bugbear. The author never mends a puncture on the road, but carries spare tubes, and vulcanizes punctures and bursts at home. It must be admitted that there is some little difficulty in dealing with the tyre on the back wheel. If it is necessary to remove the cover for any reason, the removal of both chains and both brakes must be carried out before the wheel can be taken out of the forks. With the large luggage carrier and ample mudguarding of the author's machine it is not such an easy matter even to fit a fresh butt-ended inner tube, so that the puncture nuisance may be a serious one. For this reason the author intends to try shortly one of the newer tyre-filling preparations.

The charge that the three-wheeler usually has insufficient weight on the back wheel has been thrown at this type of machine many times, and in certain cases it appears to be justified. But the 1912 Reliability Trials have shown that a most successful four-wheeler, which has its engine placed behind the seats, is by no means immune from this trouble, while at least one of the three-wheelers, with its en-

gine placed in front, that is, in the least favourable position from this point of view, went through without a stop. It is only fair, then, to assume that a three-wheeler can be, and has been, built which has practical immunity from this trouble, which is characteristic not of the type, but of particular examples.

Admitting that the appearance of the three-wheeler is not so good, as a rule, as that of the four-wheeler, and that both are inferior to the larger car we have come to the end of the list of charges brought against the three-wheeler. What, on the other hand, can be said in its favour as a distinctive type? Its important advantages are lower cost and greater speed.

Advantages of the Three-wheeler

Taking the three-wheelers as a whole, it may be said that they are distinctly cheaper than the four-wheelers of equally good workmanship and reputation. The absence of a differential and of a fourth wheel and strong back axle must always make them considerably cheaper to build. But it is not only in first cost that the three-wheeler scores; it is also distinctly cheaper to run. First of all, the tax is only one pound, as against two, or more usually three, guineas in the case of the four-wheeler. Then there is the fact that it is usually a much lighter vehicle, and is consequently, more economical in tyres and petrol.

For the driver who loves a really quick pick-up and a tremendous turn of speed it would be hard indeed to beat a Morgan three-wheeler. Even with the comparatively heavy body on the author's car these characteristics are much in evidence, and, of course, would be still more so with both chassis and body of the Morgan make. It is the extraordinary lightness and excellent balance of the machine that give it these desirable features, and if sometimes one wishes that a little more weight had been allowed in certain parts, one must remember that weight has been deliberately cut down so that the little car shall answer to the controls like a thoroughbred horse to the rein. For sheer sport the Morgan is surely supreme among cyclecars. For weight and solidity look elsewhere.

For Touring

Everyone is familiar with the wonderful records put up by the Morgan at Brooklands, and, if an engine different from the standard were used, still the frame and general construction were the same. Many people will no doubt be more interested in its performance in the Reliability Trials, in which its successes have been really remarkable, and prove it to be a thoroughly satisfactory vehicle under the hardest touring conditions. Accommodation for luggage can be found on a carrier over the back wheel, and two large suit cases can be carried in this position. The four-wheeler can, of course, carry still more, but for many purposes this will be found ample.

The three-wheeler will appeal principally to two classes, namely, those to whom expense is a primary consideration and those who are in search of a really sporting vehicle, constructed on light and speedy lines. For an elaborate and, consequently, heavy and expensive three-wheeler there does not seem to be any great future. Those who desire the greatest amount of space and comfort, and are prepared to pay for them, will probably always choose a four-wheeler, but to the other classes mentioned the three-wheeler will always make a strong appeal.

THOUGHTS & OPINIONS

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

Steering by the Back Wheels.

With reference to the letter in THE CYCLECAR from "Vice Versa," how does he propose to drive out from the side of the road, should he get quite close to the kerb? This is not the only fault. FRANK V. LEGGE.
Willenhall.

The Standard Road Race—Limited Fuel and Running Costs.

I am strongly in favour of an early reliability competition, which, in view of the cost, must be a one-day trial, and test the machines to the utmost, with a view to ascertaining the defects which might arise in road service in the ordinary user's hands. I am opposed to the idea that the chief development of the cyclecar will be by the speed merchants; in fact, I am neglecting the attainment of speeds over 30 m.p.h. There are many of us who cannot afford the cost of running a small car which, judging by the published figures cannot safely be taken at anything less than 4d. per mile. So far as my experience goes, at present it appears to be practicable to cyclecar at 1d.

The cyclecar is likely to be purchased by far larger numbers than speed-merchants. It therefore becomes difficult to see how one race for many different classes can act fairly for them all. Let us consider a race intended to foster reliability and economy. Passenger and driver of a joint weight of not less than 22 stone should be carried; to give the smaller engine a chance, I would suggest that the fuel allowance be limited to, say, 35 ton-miles per gallon for single-cylinders, and less for four-cylinder engines. This will not usually tend to cut down weights and dimensions to the extent that other races have done, in many of which the successful cars have finished worn out. If the pleasurable utility cyclecar is given a chance in the race, I propose to enter two machines, and I suggest that the organizers should consider carefully the possibility of making the race conditional upon the costs not exceeding say something like 2d. per mile, taking the life of the cyclecar as five years, and allowing for repairs and adjustments, including tyres proportionate to the effects of the race and a mileage of, say, from 3000 to 5000 miles per annum.

A. E. PARNACOTT.

IS A DIFFERENTIAL NECESSARY OR DESIRABLE?

Effect of a Differential upon Deflated Tyres.

IN THE CYCLECAR, "P.B." refers to the effect of a flat tyre upon the running of a cyclecar. This statement should have been qualified, inasmuch that it applies only to the rear tyres of four-wheelers that do not employ some differential device. To take the case of a shaft or chain-driven car fitted with differential, 26 in. by 2½ in. tyres, and which, with a deflated tyre in contact with the road, gives a diameter of 23 in. The differential immediately comes into action, the sound tyre continues to revolve at the old rate, or very near, and the deflated one revolves in the proportion of 26 to 23 revolutions for the same distance, this being the difference in their relative diameters. Now, as the differential is there solely to take up such strains as these, nothing takes place but a slight increase in friction due to the differential action, and, of course, the wrecking of the tyre due to riding in a deflated condition. In a properly-constructed differential the friction is very slight, therefore the reduction in speed would be very little less than before the puncture. With a car employing a V belt drive to each of the back wheels, a totally different result occurs. Usually, in this type the engine drives to countershaft, and from there to back wheels, and as the countershaft is in one piece and the pulleys the same size, the belts are travelling round each end of the countershaft at the same speed. Either the belt must slip sufficiently to allow of the 10 in. difference in circumference of the tyres at each revolution, or the tyres must drag.

I possess a cyclecar, water-cooled engine, car-size radiator, three-speed gearbox, bevel drive, differential back axle, wheel steering, irreversible worm steering gear, stream-line body, total weight under 6 cwt., that cost very little over £40.

Rotherham.

J. C. LISTER.

[It would be interesting to have a photograph and further details of how the cost is arrived at of this machine.—ED. THE CYCLECAR.]

The Differential Effect of Double Belt Drive.

Those who use long belts on big pulleys do not rely upon slip at all for differential action. The fact of the pulleys being large and the belts long allows the latter to be used fairly slack. In driving the upper run of the belt is pulled taut, while a great deal of slack is thrown in the under run. Now, in turning a corner, one belt only is driving, its top run being taut; the other may be observed gradually to change its taut run from top to bottom. In effect, it is relatively driving backwards. This change of position of the slack, which is, after all, only the slack being taken up, easily accounts for the difference in lengths of the arcs of the circles followed by the two wheels, hence the differential effect. Of course, the longer the belts and narrower the track (meaning less difference in distance covered by the two wheels in any given circle) the better, and unless you want to spend your life chasing round a 20 ft. circle, doing fancy skating on Thames mud, or executing figure 8's, the slack aforementioned gives all that is required without any slip at all. Of course, in extreme cases, i.e., very bad hairpins or turning in the road, slip must occur. It is then usually the tyre, but these occasional cases can only do quite a negligible amount of damage. The question your correspondent raises as to both pulleys being the same size is an important one, but if they are carefully fitted in the first place the difference in wear is very slight. They cannot naturally remain mathematically exact, but for all practical considerations are accurate enough. "T.E.B.W." may rest assured that in actual practice there is little to trouble about here. Further, belts properly arranged on a cyclecar, as an actual matter of fact, do not slip or stretch, and never break. As to cost of upkeep, after what has already been written I can only say "wait and see." Those of us who have driven genuine cyclecars many thousands of miles know.

T. A. HUBERT.

London, N.W.

THOUGHTS AND OPINIONS (contd.).

Does the Belt Slip?

Suggests that the Wheel Overruns the Belt.

I have had a long experience with belt-driven vehicles, and could prove to anyone interested that there is no perceptible lag of the car when taking corners, which would surely be noticed if the wheel skidded or the belt slipped in any way, as is suggested by many people. What I believe does actually happen is that the off-side wheel, or the wheel which has to revolve the fastest, overruns the belt. For a practical proof of this it will be found that, with two belt-driven pulleys, one being the driver and the other the driven, it takes considerable power to hold the driven pulley, but if a little force is applied to the pulley to turn it quicker than the belt that is driving it, this will be found easy to do. A belt-driven pulley can overrun its belt because it relieves the belt tension. This is what happens when taking a corner on a belt-driven cyclecar. If "T.E.B.W." were correct in suggesting that the wheel skids round corners, this would soon show on the tyres, and I can assure your correspondent that the belt-driven cyclecar that I am interested in is certainly lighter on tyres than any cyclecar fitted with a differential.

JOHN FEARRON, Works Manager,
Birmingham. The Rollo Car Co., Ltd.

[The question of what takes the place of the differential on the belt-driven type of cyclecar, and what effect upon the belts, the pulleys and the tyres, is produced by the absence of a differential, is a most interesting topic, and we welcome practical explanations of the problem. Other letters touching upon this question appear on the preceding page.—
ED. THE CYCLECAR.]

The Standard Cyclecar Road Race.

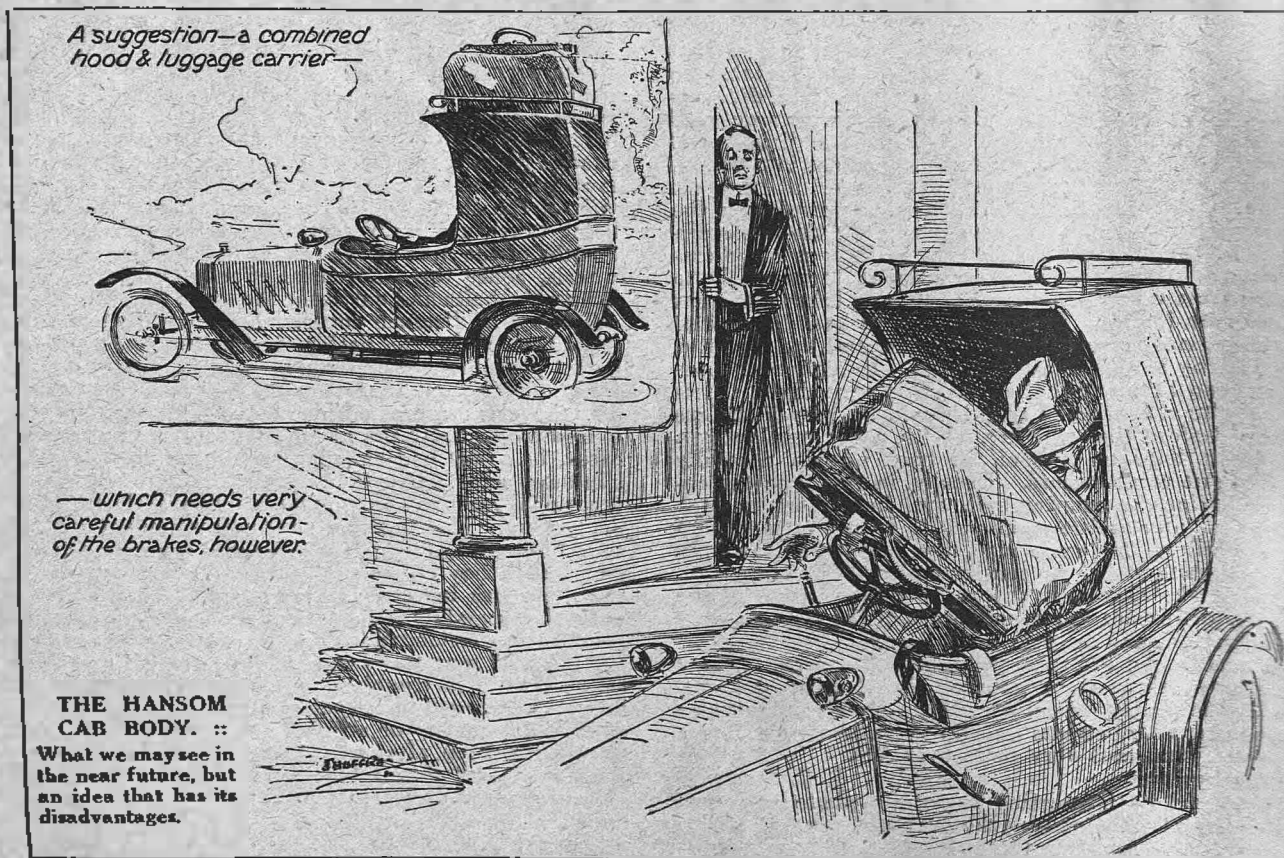
Mr. H. Dew Anxious to Enter a 4 h.p. Monocar.

I think it would give a better race if the following conditions were enforced in the proposed event for standard cyclecars:—Absolutely standard engine, the same as supplied to customers. Only one car to be entered by each competing maker, as it seems hardly cricket for one large concern to enter a fleet of cars in the hope of one arriving first, whilst the small man can only afford to enter one. If the races were organized so as to give the amateur or little man a look in, what sport we should see! If expenses are reasonable, I shall be only too pleased to enter a 4 h.p. monocar
HAROLD E. DEW.
Eynsford.

Motorcycle Tyres on Cyclecar Rims.

We note in a recent issue, under the heading "Notes and Queries," the following statement: "Another useful point to remember is that a 26 in. by 3 in. tyre will generally go on a 650 mm. by 75 mm. rim, the former being slightly larger." As this is likely to lead to error, you will perhaps permit us to say that, in common with the large majority of manufacturers, we have made our 26 in. by 3 in. covers to fit 26 in. by 2½ in. motorcycle rims, and they must not, on any account, be fitted to 650 mm. by 65 mm. or 75 mm. voiturette or cyclecar rims. The vital difference is in the size of the bead clinch. The former has a small clinch (and is generally recessed in the centre), whilst the latter has a very much larger bead space and is comparatively flat. It will therefore be apparent that, to fit a motorcycle or small-bead cover to a voiturette or cyclecar rim is to court disaster, and its speedy collapse through chafing of the walls immediately above the beads is inevitable.

THE ROM TYRE AND RUBBER CO. (1909), LTD.



THOUGHTS AND OPINIONS (contd.).

Purely Motorcycle Lines.

I was much interested in the article on "Belt Drive" in the second number of THE CYCLECAR. I, too, am of opinion that the cyclecar is over-developed, even in its present state, and it is dreadful to think what it will be next year. There is no need for water-cooled engines, gearboxes, or differential gears, let alone cardan shafts; but when it comes to four forward speeds I think it is about "the limit."

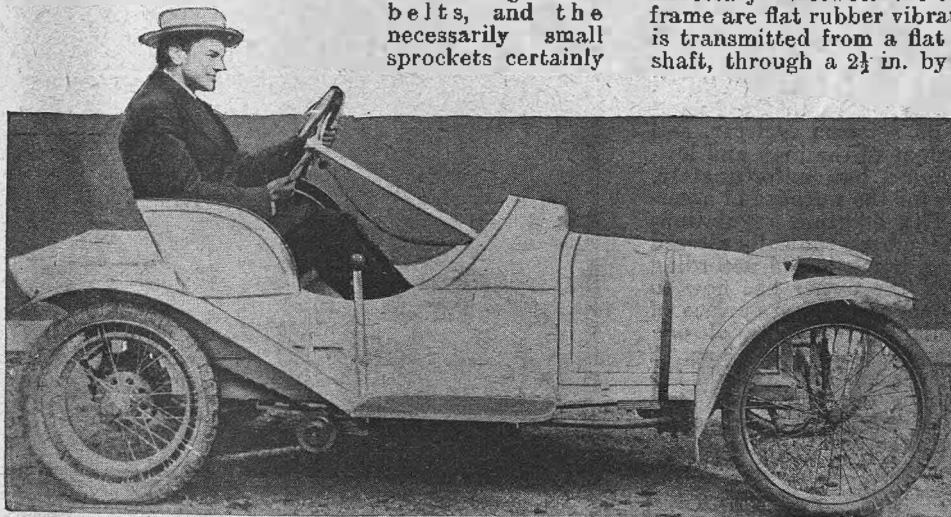
Tiverton.

EDWARD MEESON.

Belt or Chain Drive?

"A.H.T." Replies to Mr. Turner Lord.

Mr. Turner Lord, in his comment on my article on belt drive, is perfectly correct. Under ideal conditions, chains have undoubtedly been proved to give a standard of efficiency that belts could never hope to equal, let alone surpass. However, having admitted so much, it may be pointed out that under equally adverse conditions, and conditions which do, in fact, normally obtain in cyclecar practice, belts give quite as great an efficiency, and will wear and stand the work infinitely better. Chains must be lubricated, and unless the sprockets are to be mere grinding machines, road grit must be excluded. This can only be accomplished by elaborate systems of guards too expensive for the cheap machines under consideration, and worse than useless if cheap and badly made. Belts, on the other hand, given large pulleys and plenty of length, will, as was seen on the memorable occasion of the Cyclecar Club's first run, work faultlessly, even in a sea of mud. Further, even if the ideal conditions essential to the chain could be incorporated in the design of the genuine cyclecar, it is quite a question if the chains would wear anything like as long as the belts, and the necessarily small sprockets certainly



BUILT BY A BOY OF 16. — A cyclecar, with most ingenious transmission, built by Master R. Tyjack. It is described in the letter appearing on this page.

would wear out of pitch long before the belt pulleys would so much as require trueing. Another important point is that this excellent double belt drive, as has so often been demonstrated, does away with all need for a differential, and makes a much lighter construction possible for the whole back part of the chassis. If designers will incorporate differentials—and they must needs be fairly heavy—there will soon be little heard of the seven to ten thousand miles wear of back tyres, a feature of belt-

A.H.T.

Ingenious Transmission by a Youth of 16.

Having seen the description in THE CYCLECAR of a cyclecar built by a boy of 16, I enclose a photo. and description of one built and designed by myself, who

am the same age. Up to the introduction of the well-known Bedelia, I had been interested in motorcycling in general, and since the cyclecar seemed within my reach, I decided to design one. At the time I was only 14 years old, but found plenty of friends willing to give me their advice, among them being Mr. H. F. S. Morgan. The design finally settled on I will endeavour to explain. The frame is made of ash, armoured where it was thought

necessary. Between the engine cradle plates and the frame are flat rubber vibration absorbers. The power is transmitted from a flat 5 in. pulley on the engine shaft, through a 2½ in. by ¼ in. flat solid leather belt to the countershaft, which is in two parts and run on four ball bearings.

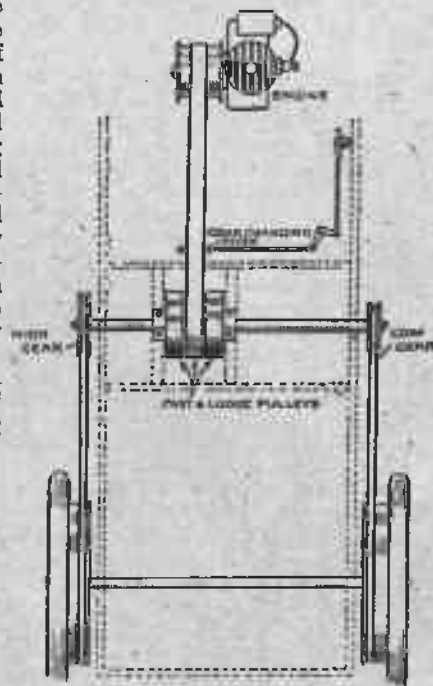
There are three pulleys on the countershaft to take the drive from the engine and two V pulleys, with a Whittle belt to take the drive to the back wheels. The centre pulley gives free-engine position: the one on either side drives respectively either wheel. As the two V pulleys are of different size, it follows that, by shifting the engine belt from one to the other of the flat pulleys, a high or low gear is obtained.

The striker for moving the flat belt over the three pulleys is connected to a T pedal on the footboards, which makes rather a neat and handy control, as the high and low gears and clutch are all operated by the feet, leaving the hands for steering and the side brake.

I believe the transmission is now used on the Glover cyclecars, but as I am not in the trade, and have no thoughts of being so at present, I feel sure this concern will not accuse me of infringing their patents.

R. TYJACK.

Sheffield.



The transmission on Master Tyjack's cyclecar.

NOTES & QUERIES

Readers' Problems Investigated by The EDITOR

Readers are asked to write on one side of the paper only, and to use a separate slip for each question.

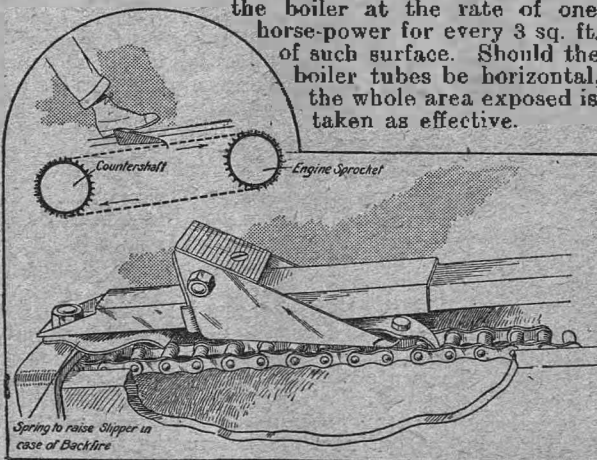
EVERY cyclecarist should keep a careful record of his mileage, petrol and oil consumption, tyre, spare parts and repair expenditure. A convenient method of doing this is by making use of the handy little diary published each year by our sister journal "Motor Cycling." It only costs 6d. (or post free from these offices 7d.), is strongly bound in leather, and fits the waistcoat pocket. It has many good features and much tabloid information, apart from the space for recording runs, expenses, mileage, etc. I have kept diaries for many years, and always find them useful, and were it not impossible for the editor of a technical journal to confine his experience to one machine, should have a much better knowledge of actual running costs. Practical information on running expenses is always welcome, and it is to be hoped many readers will favour us with the results of their own experiences.

AIR PROPELLED.

Two correspondents this week send queries dealing with rather unusual types of machines. "H.C." wants the name of any manufacturer who turns out a cyclecar driven by a propeller. The makers of the Beacon cyclecar, at Hindhead, Surrey, have experimented in this direction, but propeller drive is not exactly a commercial proposition just at present. There are many advantages and disadvantages to this system. The great point in its favour is simplicity.

A STEAM CYCLECAR.

THE other correspondent ("F.S.," Springburn) inquires as to the Inland Revenue tax on a steam cyclecar, and proceeds to give the dimensions of the high and low-pressure cylinders of the engine, but, unfortunately, this information is of no use for the purpose of ascertaining the amount due. The Treasury regulations with regard to steam cars have been radically altered for 1913. Instead of the tax being levied according to the bore of the cylinders, the owner has now to pay in proportion to the effective heating surface of the boiler at the rate of one horse-power for every 3 sq. ft. of such surface. Should the boiler tubes be horizontal, the whole area exposed is taken as effective.



FOOT STARTERS. :: An illustration of the foot starter on the Parnacott cyclecar. The mechanism is explained in the accompanying paragraph.

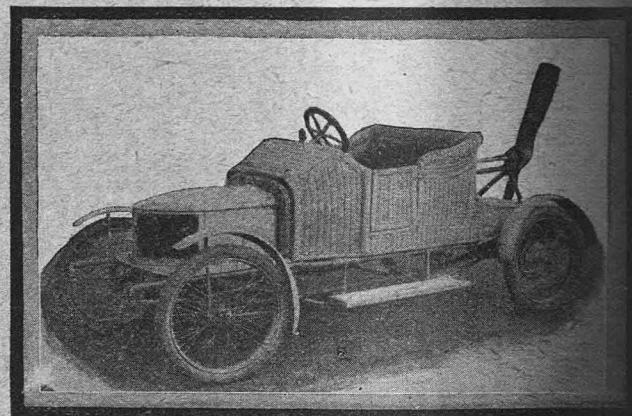
A38

FOOT-STARTERS.

THE question of foot-starters is raised by "H.B." He asks: "Would there be any difficulty in applying foot-starters, as used on motor-bicycles, to cyclecars?" There is at present one machine—the Parnacott—which is so equipped, and the details of its design may be of interest. The device acts on the upper length of the chain driving the countershaft, and consists of a slipper carrying underneath it a small tooth. This slipper, sliding over the chain, is engaged with the heel and driven forward, when the tooth engages with the chain, and the crankshaft of the engine is rotated. Naturally, the number of revolutions is governed by the length of travel allowed to the slipper, which in this case is about 1 ft. When the engine fires the tooth is automatically disengaged, while in the event of a back-fire the slipper is carried backwards till it reaches a metal tongue, which disconnects it from the chain. The whole mechanism is extremely simple and works well. As a matter of fact the engine on this particular cyclecar is a four-cylinder F.N., but any engine could be thus started.

FOOT-STARTING ADVANTAGES.

A FOOT-STARTING device can be incorporated so easily in a cyclecar that I expect we shall see all machines so fitted before many years have passed. An involuntary engine stoppage occurs with sufficient frequency to make the trouble of descending



PROPELLER DRIVEN.

The Beacon air-propelled cyclecar referred to on this page.

from the machine to crank over the engine somewhat of a nuisance. This is particularly the case when the roads are wet or, worse, when it is pouring "heavens bard." As on most machines, the passenger has to be disturbed, as well as the driver, when the engine requires starting up, any device that obviates dismounting becomes even more valuable on a cyclecar than on a motorcar. Many single and twin-cylinder engines used on cyclecars cannot be run very slowly for any length of time when the machine is at rest, and it is always advisable to stop the engine if standing still for more than a minute or two, which no one minds doing, if it can be started again easily.