

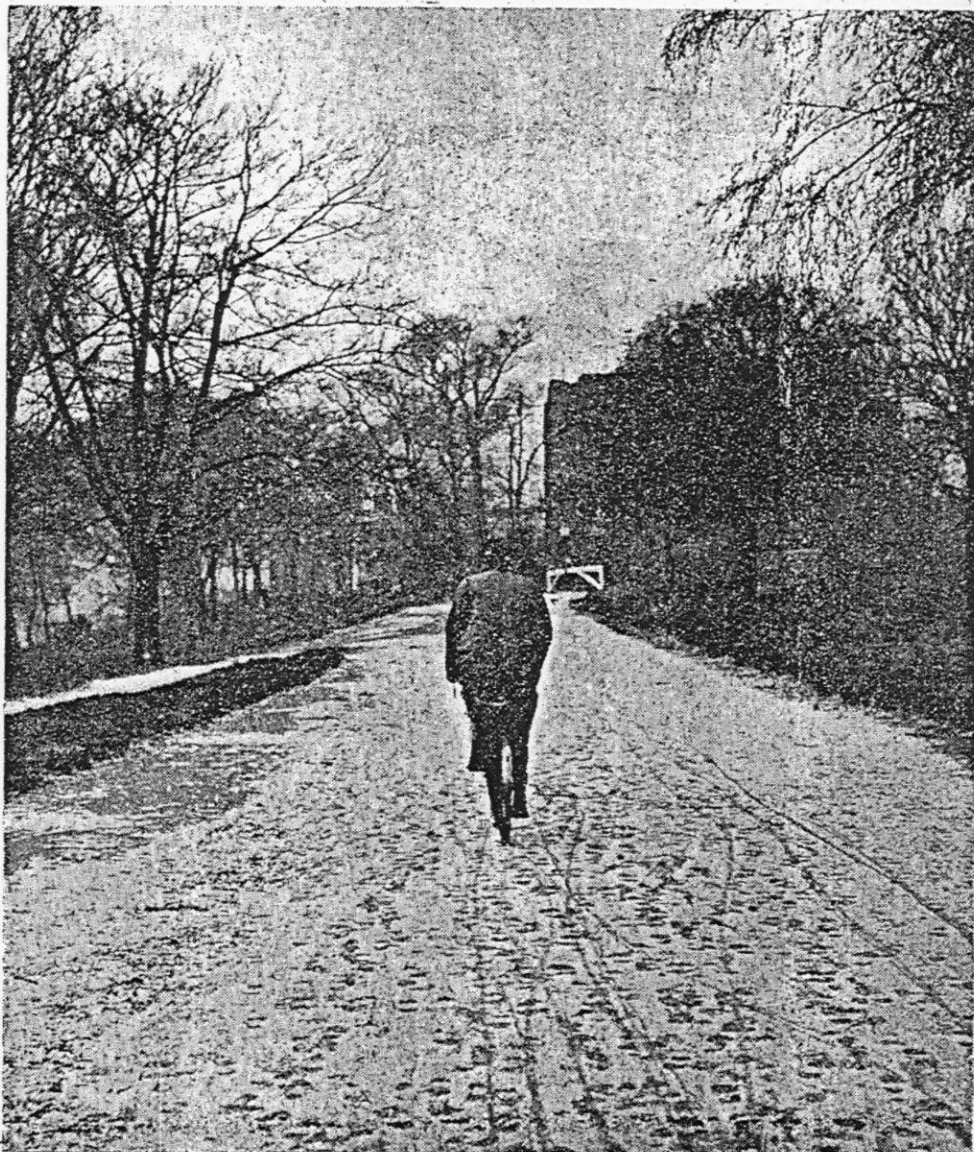
JANUARY, 1953

MONTHLY

4^D

POWER & PEDAL

The Journal of the Cyclemotor



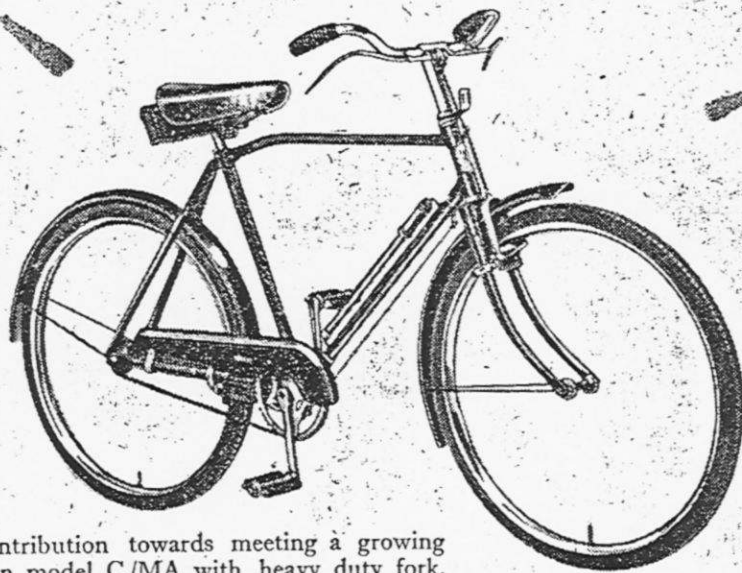
HAMPSTEAD HEATH · LONDON

A FOX PHOTO

HAPPY NEW YEAR NUMBER

Announcing . . .

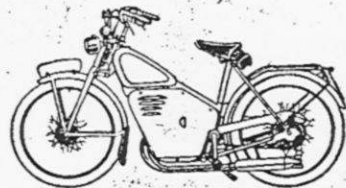
The **NORMAN** Model (C/MA GENTS—D/MA LADIES)
A CYCLE, SPECIALLY
DESIGNED FOR
MOTOR ATTACHMENT!



Here is a serious contribution towards meeting a growing demand. The Norman model C/MA with heavy duty fork, 26in. x 1½in. x 1½in. wheels and optional coaster hub, has a special curved top tube which gives the low riding position of a 19½in. frame. Fit the motor of your choice and you have sturdy, safe, reliable transport. Gent's or Lady's model—Price: £16. 7s. 7d. in black finish, or silver duotone finish 8/6 extra. (Can be supplied without rear wheel if motorised wheel is to be fitted, at £14. 3s. 9d.)

AND THE FAMOUS NORMAN AUTOCYCLE

The most popular of all autocycles. The famous Villiers engine contributes to wonderful performance figures. Up to 30 m.p.h.—up to 150 m.p.g. With its extremely comfortable riding position and complete enclosure of engine, the Norman autocycle provides clean, safe transport under every condition.



NORMAN

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Road Safety and Fiscal Policy

THE Committee on Road Safety in its report to the Ministry of Transport on Motorcycle Accidents (HMSO 6d.) took particular note of the advance of cyclemotors. In para. 15, after saying that cyclemotors and autocycles are a special problem, the report continues:

"There is at present no evidence that these vehicles have been involved in a disproportionately large number of accidents"

The Report then goes on to recommend that the development (of the auxiliary engine) should be carefully watched to ensure that cyclemotors:

" already capable of fairly high speeds while still being fitted with pedal cycle brakes, tyres and lamps, do not become a serious danger on the roads".

In view of the wording of the Report as quoted above it seems remarkable that one of the members of the Committee, Dr. W. H. Glanville, C.B.E., of the Department of Scientific and Industrial Research, should a few weeks later, during the National Safety Congress, be quoted by the Press as saying that motorized bicycles show a very high proportion of injury accidents per machine and going on to say:

"This might be expected because the attachment of the motor generally means higher speeds and lower stability, often with no improvement in brakes or lights".

Just how this distinguished scientific gentleman would explain his

own dual role we do not know, but we do know that the reports quoting him do not offer an atom of evidence to the effect that there is any danger record against cyclemotors, or that the attachment of a motor to a bicycle involves any loss of stability. Frankly we consider it most unlikely that any man buying a cycle-motor would risk his new possession, let alone his own neck, for the sake of a couple of shillings worth of brake blocks, while most motors now have lighting coils providing a more than adequate light for the highest cyclemotor speeds. The existing cycle dynamo sets do that anyway.

Naturally *Power and Pedal* will throw its weight behind any proposal that will add to the safety of any road users, but we must protest against an attempt to make the newest class of powered vehicle users scapegoats for accident figures to which they do not contribute. We would go so far as to suggest that if all the other vehicles on the roads travelled at the same speeds and with the same proportional braking and lighting efficiency standards as the worst of the cycle motors, road accident figures would fall immediately and thousands of lives would be saved.

If, however Dr. Glanville and other members of the Committee who agreed with him, if any, really believe in the case against attached motors it seems very surprising that they did not make any recommendation in their report for the encouragement of the lightweight

autocycle, by which we mean the cyclemotor and cycle-built in one piece and designed with and for each other. At present these vehicles are heavily discriminated against in the market by being loaded with Purchase Tax on the whole machines whereas the ordinary cyclemotor bought with a new bicycle pays tax on the cycle alone.

Without conceding for one moment that a good cycle in a good condition is made less safe by the addition of a motor, we suggest that it must be obvious that the two designed and built together will have certain advantages, merely through being built for the job. The case for cutting out the discrepancy in taxation between two types of machine in the same class is strong enough in sheer logic. But the idea of encouraging safer cyclemotoring by assisting the marketing of specially designed machines should make the case overwhelming. The simple standard of a maximum engine capacity of 50 c.c. would be sufficient for a start, but we think it unlikely that manufacturers would object to a design-fixed speed limit as well, to see that the machines to remain power assisted pedal cycles rather than grow up into motorcycles. Already there are several cyclemotors on the market capable of speeds higher than the smaller autocycles, and the claim of the one-piece machine for equal, if not even preferential, treatment from the Government in the interests of road safety is unanswerable.

COMMENT

by

CLIP-ON

After Earl's Court

THE Show is over once again and the opportunity for a little stocktaking arises. In the cycle-motor field it was a display indicating consolidation rather than novelty, despite the Lohmann engine and the Power Pak Synchronomatic clutch. Most manufacturers offered only detail refinement and prices, on the whole, showed remarkably little change with the range from 18 guineas for the Mini-Motor to £40 for the Cucciolo. If, as is generally believed in the Trade at the moment, the main future market for these engines is with the folks who use them for the purely utilitarian purpose of riding to work and back daily, this matter of price should be of great importance. Actually, however, it was difficult to discern any greater display of interest in the cheaper motors, by the thousands who poured over all the cyclemotor stands. It may well be that the public is going to be more discriminating than was thought and will take a real technical interest in its power units after all.

The gradual introduction of a tyre for our job in each main tyre producer's range is a welcome sign, as is the interest in spring forks and shock absorbers, but the cycle manufacturers themselves, with a few noteworthy exceptions, are lukewarm about machines to suit cyclemotors and many still have wordings invalidating guarantees when their machines are used with power assistance. The worst gap in the equipment line

is still, however, as I mentioned last month, in the field of clothing.

Conventional Dress

One correspondent hastened to reply to my remarks with the information that he had obtained "just the water-proofing that is needed" in the form of a two-piece over-suit for 59/6. This is just the sort of thing that I had in mind when I referred to the alternative between cycling and motor cycling kit being *not* what we want. I feel that I could hardly expect a normally civil welcome if I called at someone's office and had to stand on the mat taking off my hip length waterproof coat and elastic waisted top trousers. Nor would this equipment keep me warm without a considerable padding of woollies underneath giving that Sir Bibendum appearance that so many motorcyclists perforce affect. The need is for a warm, water-proof coat of *conventional design*, and nothing else will do.

Another correspondent, Dealer in Staffordshire by the way, also makes a rather good point about that ideal cyclemotoring coat. "I should like," he writes "a water-proof coat long enough to cover my posterior but not long enough to get into the rear wheel spokes" That suggests a waterproofed version of the dear old "British Warm" to me. It looked quite smart too in a decent colour.

The Law is still a Hass

This same correspondent, stepped in anent my remarks about cyclemotors and the law, and pointed out that the practice is for

the engine to be registered, not the cycle. I knew this, of course, and it was precisely this that made the other points about a cycle with the engine dismantled or partly removed being a cycle, while the removal of the petrol did not. If, however, I fit another engine to my car, as I did last week, I retain the same registration number unless the taxation class is also effected by the change. What Statute lays down this difference? Should the rider who has a defective engine replaced under guarantee then re-register his machine as new? At what point does overhaul by replacement of worn parts make up a new engine? And could I fit a new engine to my old driving roller and keep the same registration number? Counsel's opinion, please!

Prejudice

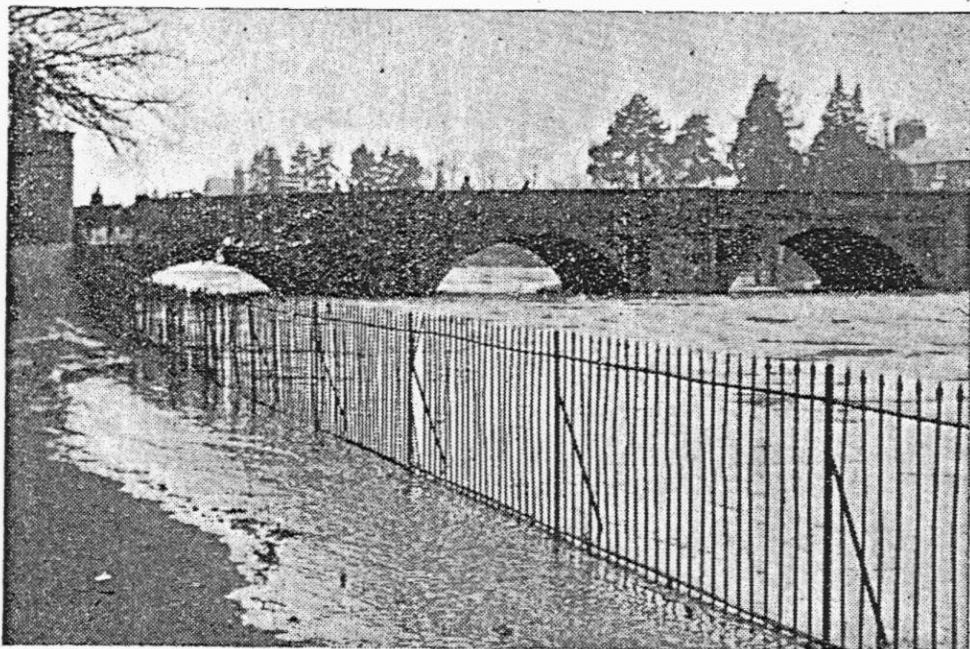
It is somewhat paradoxical that it was to some extent at least, the prejudice against motorcycles in this country that created the market for autocycles and perhaps prepared the ground for the entry of the cyclemotor. Now that we have arrived we find that some of that prejudice is already spilling over on to us. The motorized bicycle, as officialese clumsily calls it, is being noticed in the accident statistics, or rather estimates, and the notice is not all that friendly.

The recent National Safety Congress provided an opportunity for the statement to be made that a high proportion of injury accidents per machine might be expected "because the attachment of the motor to a bicycle *generally means*

"WINTER FLOODS"

This month's guinea for the best photograph sent in by a reader goes to Mr. Anthony R. Stone of Hereford for a good and seasonable picture.

No-one quite caught the spirit of interest in the unusual that was the main idea—perhaps the next issue—?



higher speeds and lower stability, often with no improvement in brakes or lights."(My italics).

Now, according to the Press reports of his speech, this gentleman offered no evidence at all in support of his statement and I maintain that as far as the question of engine weight affecting stability is concerned there is no such evidence. One has only to watch the circus trick riding efforts of a skilled errand boy with three times the weight of a cyclemotor over his front wheel to realise that weight forward is no hindrance; the under-the-bracket type of engine is claimed actually to improve stability by lowering the centre of gravity of the machine, and the by-no-means-trick-riding mothers who carry their bonny (and quite heavy) youngsters in kiddie-seats on the carriers demonstrate that the rear wheel can take plenty of extra weight, even high up, without loss of control.

Furthermore, my own experiences with front drive units suggest that splitting the tractive effort

between both wheels greatly reduces the risk of skidding. With respect, I maintain that the distinguished gentleman quoted above was talking a lot of pompous nonsense.

Whither Engines?

Some fifty years ago there was a lot of lively argument about the right place to put the engine on a motorcycle. As with the cyclemotors of to-day, some appeared in front of the steering head, some in the frame, some at the back of the machine, etc. In the case of motorcycles a final solution was achieved and the engine landed slap in the middle of the machine. But the scooters have already demonstrated that there is room to spare in other places and the motor attachment on a standard cycle has not found any fixed home. For once in this field we cannot get any help from studying continental experience. France and Italy seem to be developing a trend towards hanging the engine under the bottom bracket. The Low Countries cling to the front

drive. Britain has a very popular rear wheel driver in the wheel itself and three more rear drives on top of the wheel. All places have the full variety.

Perhaps the answer is that there is no right place and it depends on the type of engine, the use for which it is required and the taste of the user. It would certainly be a great pity if this variety was lost to us.

Next Month

*the way to long
and carbon-free
mileages will be
presented in our
main feature*

FOCUS

on

OILS

A WOMAN TELLS *by* Judy Cowell

We sent Miss Cowell to Earl's Court to report on clothing and equipment likely to be of interest to the woman cyclist. She came back angry, saying, "There's nothing there and they couldn't care less". So we told her to write about that.

THE brilliance and colour of the hundreds of stands last month at Earls Court was impressive, the beauty of the engineering skill shown in the designs of many of the models was a delight to the eye, but of the hundreds of women who went to the Show, not one single manufacturer seemed to have even remotely thought about the use to which they, the office workers, housewives, land-girls and nurses, to mention only a few women cycle users, would be putting the machines they eventually bought. This does not only apply to the women, the "black coated worker" apart from the artisan, is also becoming a user of the bicycle and auto-cycle. Can he leave in the morning, looking rather like a member of the wartime Heavy Rescue A.R.P. squad and walk into his bank, insurance office or advertising agency an hour later in the same garb? That is, can he without feeling uncomfortable, slightly foolish and definitely "infra dig"? I doubt it. Certainly the trim office girl, and nowhere are they smarter on less money than in the United Kingdom, would not buy any of the clothing equipment that was shown at Earls Court. Only one stand tucked away in the corner made any attempt to consider smartness together with utility. This firm are mainly engaged on protective clothing for Government atomic plants but have ventured into the field of plastic capes, leggings and sou'westers of the lifeboat-man type, for the "ordinary" cyclist.

The fact is, that there is not any longer an "ordinary" cyclist. The ever increasing number of cyclists, brought on the roads by the ever increasing costs of other forms of transport, demand special attention from the manufacturers. This vast number running into millions is broken up into groups of thousands all with their own special requirements. What would suit a steel-worker in the way of cycling clothing, would not suit a bank clerk. What would meet the rigours of a land girl's job would not suit the nurses.

Not one manufacturer of any repute or size seemed to have made any attempt to supply clothing equipment for the largest group of cyclists—the working man and woman. This does not mean simply the working-class man and woman: their requirements are again different, but the men and women who have found that the cheapness and utility of cycling suits them, and who wish to go to and from their place of work. It seems that after having made his or her choice and paid down the money, the manufacturer loses all interest in the customer. This is short sighted as it is quite certain that there are many potential cyclists who at the moment hesitate to spend their money on a machine which will remain idle for some five days out of seven.

Surely it is not impossible to get together with the textile and fashion groups in this country and produce garments that are warm, waterproof and above all smart. Nearly

all clothing equipment produced up-to-date has been from every point of view the product of an afterthought. Sports equipment comes into a class of its own and usually is for seasonable weather only. Heavy motor cycling equipment (which is also considered suitable at present for the auto-cyclist) is ugly, clumsy and made mainly for the armed forces and commercial racing tracks. Neither type is of any use to the group mentioned—apart from the cost factor which is high.

Every now and then the fashion pages of the national newspapers and the hundreds of women's magazines print news and drawings describing some new and wonderful material, or textile process. Nylon fur, Terelyne, fabrics which waterproof and warm, to mention only a few are being used intelligently and skilfully by the fashion designers of this country. Fashion designer's who have for many years now, been earning quite a number of dollars in world markets.

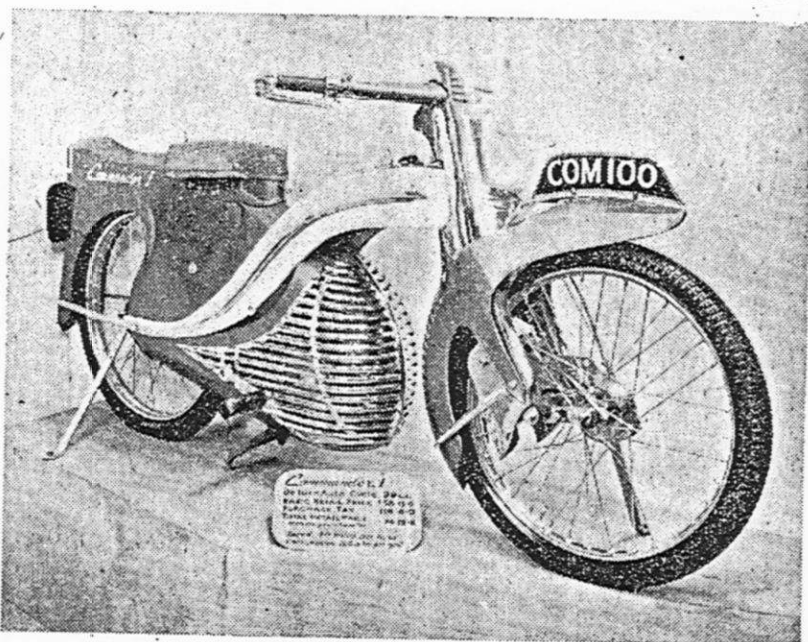
The rut in which the equipment manufacturers seem to have been so happily running is, in view of the ever increasing market for cycles and auto-cycles, short-sighted and unimaginative. The brains and energy which the Earl's Court display quite clearly showed had been applied to the production of the machines, could surely be directed towards this problem of clothing and equipment generally. Has the British Cycle and Motor Cycle Manufacturers and Traders Union, Ltd., whose aim is clearly

stated to be "encouragement, promotion and protection of the interests of the manufacturers, dealers and users of British Cycles, Motor Cycles, Components and Accessories" approached any branch of the trade in an attempt to bring the supply of suitable clothing nearer to the buyers' demand for such clothing?

American manufacturers of mass produced clothing as any fashion conscious woman will agree, and to their chagrin many textile firms in this country, have found, are constantly seeking fresh markets and constantly experimenting in new fabrics and designs. One day the British manufacturer of cycling equipment is going to wake up and find the market here which he has so long neglected in the hands of his cousins from across the Atlantic. Up till now the British women cyclist has had to take what she can get, clumsy ugly and masculine type attire. Nowhere was this more clearly shown than at the Show.

During the war years, when thousands of young women went into the services, the production of smart sensible uniforms was finally put into the hands of such famous fashion designers as Norman Hartnell. But not until recruitment and morale had begun to suffer from the previous uncomfortable and old-fashioned uniforms which were at first thought good enough. The parallel is that a market for cycles and auto-cycles and a potential expansion in textile factories on clothing equipment for some 3,000,000 cyclists and an estimated 250,000 cyclemotorists is being neglected or ignored entirely.

Next month our woman correspondent will offer a fully illustrated article of suggestions for cyclemotor fashions



COMMANDER I

One stand, way over on the edge of the floor space at the Show, had huge crowds round it all day long, crowds of people craning their necks to see the very latest thing in motor cycle styling, the new Commander.

The range of lightweights comprises two motor cycles, a 122cc. and a 98cc. model and an auto-cycle also of 98cc., all using the same frame and steering and suspension units and all are powered by Villiers engines.

As our illustration shows, the new machine has startling new and graceful lines, total enclosure without air-screening of the "works" and real springing fore and aft, but the eye-appeal of the lines tends to distract attention from the fact that the design is scientifically balanced and immensely strong. The frames are of seamless-drawn $\frac{3}{4}$ in. square section steel tubes with all welded joints. Box section, cross-braced and gently curved, the main "beam" runs down from the steering head to a heavy girder type cross member, which takes the thrust of a large single

coil spring for the pivoted ear fork assembly. A square loop of the same tubing hangs under the main members and carries the engine.

The auticycle, which is known as the Commander I, has hand operated 4in. internal expanding brakes to both wheels, Dunlop 21in. x 2.25in. tyres and rubber suspended front forks. The engine is the Villiers Mk 2F, 47mm. x 57mm., 98cc with Villiers carburettor and, of course, flywheel ignition with direct lighting (rectifier and battery extra). The $5\frac{1}{2}$ in. headlamp is moulded into the chromium plated grille that comprises the cowling for the forks and merges into the deeply valanced mudguard. A large, one-piece and beautifully shaped grille encases the whole of the engine and transmission.

The price of this elegant and interesting piece of engineering is £74. 19s. 6d. (including £16. 6s. 0d. P.T.) and production is due to start in February, 1953. The makers are the General Steel Group, Springfield Road, Hayes, Middlesex.

ENDURANCE

WE found so much pleasure in reading this translation that, with the agreement of Messrs. Mosquito Motors of Liverpool, we decided to print it as received. This should not, however, permit the remarkably fine performance of the MOSQUITO to be underestimated. An average of 19m.p.h. for 55 days and nights on open roads, including all maintenance and without pedals is a tremendous feat. We heartily congratulate Meccanico Garelli on their achievement.

MILAN

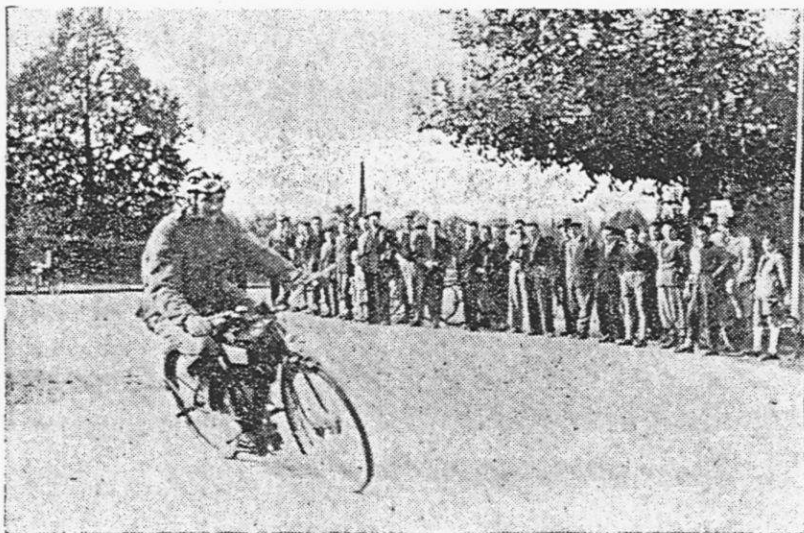
31st October, 1952

Performance of a resistance trial on 40,000 Kilometres (25,000 miles) by one "Mosquito" auxiliary engine for bicycle.

In Pau, town in the South-west France, well renowned for its racing traditions, a bicycle equipped with a "Mosquito 38 cc" achieved successfully on Saturday October 25th, a sensational endurance trial on the distance of 40,000 kilometres (25,000 miles) equal to the length of the Globe's circumference.

The trial has been effected upon a country ring road of 1 Km. and 765 m. of length (1 mile and 174 yards); which has been passed for 22762 times, totalizing 40.175 Kilometres (24.970 miles). It was initiated on August 31st at 17 hours lasting after 1324 hours.

This time contains, of course, all necessary stops for having the supply to be done, tires change, some reparations to the vehicle and the revisions admitted for the engine. The general average speed reached Km/h 30,343 (19 miles) is very high if one keep in mind the modesty of the means employed, the immense distance covered, the atmospheric's adversity, the peculiarity of the circuit that was open to the traffic, and its configuration



Public interest remained lively throughout the test—This picture was taken on the 35th day

compelling a continuous slackenings.

Eight leaders alternated themselves for 55 days and nights without pause in leading the motorized-bicycle, facing long periods of bad time, during which were registered also proper hurricanes and snow-storm.

It was also registered road-incidents to be due to serious injury to the tires and to collision with other vehicles.

The engine was a "Mosquito" 38 cc of normal standard manufactured by Messrs. Chapuis Freres in Paris, on licence Moto Garelli. The crank-case was sealed in order of not to be permitted its opening; the head, the cylinder and the piston were punched in order that the substitution of the pieces was not possible, only being permitted the dismounting for periodical cleanliness.

The pedals and chain were taken away from the bicycle thus hindering absolutely to the engine of being helped by the leader. Two judiciary-officers of the City of Pau alternated themselves in the aim of following the trial and verbalizing everything in order to control the regularity and to au-

thenticate the results.

This manifestation has been followed with much interest in the whole of France. The end of the test was attended by journalists, radiochroniclers and cinematographic-operators from Paris and Toulouse. The Mosquito leaders and the organizers have been keenly feasted by the people of the town and were congratulated from the Pau's highest authorities and those of the near Juracon.

The trial has served to prove in the most brilliant manner the big possibilities offered to the users, by a modest and economical vehicle as the motorized-bicycle, and chiefly evidencing the length of duration and the robustness of an engine well studied and constructed too.

The "Mosquito" has always run day and night for nearly two months to the limit of its possibilities.

A middle (sized) car, in same conditions, should have to cover in the same time about 120,000 Kilometres (74,000 miles) at the speed of 90 Km. (56 miles) per hour.

This comparison put in evidence very neatly the value of the experiment accomplished.

LITTLE THINGS THAT COUNT

HORNS

Nearly all cyclemotorists detest those silly little bulb horns we have to carry to comply with the law of this law-bound land. They look silly, they are rarely efficient from the noise point of view and they need too much hand at the wrong moments to sound. Worst of all they are a permanent invitation to every small boy who walks past a parked machine, a factor which is not only irritating but can mean that the cycle is pulled over if leaning on a curb, with consequent damage.

With all this in mind we inspected with interest the Wipac dry battery horn set (Series 1-88). Actually designed for those light-weight motor cycles fitted with direct lighting sets, the Wipac operates from a 6-volt battery in a neat cylindrical case with the usual press button control on the handlebar. Priced at 27/- this horn set would seem to be quite suitable for cyclemotors and it is hoped to try one out shortly.

MIDLAND

A range of pannier touring bags and carriers that has earned a name for itself amongst touring cyclists is marketed by the Midland Gearcase Co., Ltd., Alicroft Works, Hall Green, Birmingham, 11.

Strong, good looking pannier sets that can be quickly detached from the machine and carried into an hotel as respectable luggage are featured, and a line that some cyclemotorists with the weight of their engines on the rear of the machine will appreciate is the front carrier and a neat pair of semi-triangulated bags to go with it.

A neat machine cover that winds into a fixed metal container and a range of plastic dress guards are other items in this interesting range,

VACCOAT

Most riders, but especially those who have to wear spectacles, suffer discomfort and even danger at times from the problem of eye dazzle. The popularity of mere coloured lenses, despite the loss of vision they inevitably cause, demonstrates the need for some protection, and this appears to be provided by a completely new line in protective spectacles and lenses specially designed for the different jobs they have to do.

There are several styles available, but the common factor that is new is the vacuum coating of the upper part of the lenses which looks like solid silver from the outside but enables the wearer to see clearly and even look straight at an approaching light without dazzle. The rest of the lense is slightly tinted by a process that picks out definite objects clearly with advantageous qualities under conditions of poor visibility such as the half light of dusk or a light mist. A day driving version applies the same principle to the sunglass with excellent results.

The Vaccoat spectacles may be obtained from opticians to suit personal prescriptions or in a standard form. The prices are around 25/- per pair retail in a variety of

rim styles and a particularly attractive idea is the "clip-over" set which costs only 15/- and merely clips on to the wearer's own spectacles.

"Power and Pedal" has undertaken a prolonged trial of these spectacles and will report on them in a later issue.

The agents are our friends and neighbours, Temple Trading Co., 198, Temple Chambers, E.C.4.

PALCO

The fact that weight means less when a motor does most of the work makes the cyclist who becomes a cycle-motorist take an immediate interest in any ideas that help his comfort. A fitment that will attract such a rider by its cheapness and efficiency, and the fact that it can be fitted to any standard cycle in a few minutes, is the Palco Shock-absorber. Priced at only 30/- per pair in the heavy duty style designed for use with motors, the Palcos are claimed to eliminate spoke breakages and increase the life of lamp bulbs and tyres as well as greatly increasing the comfort of the rider.

We have received a pair which have been fitted to the editorial test machine and a full report on their behaviour will be given in our next issue.

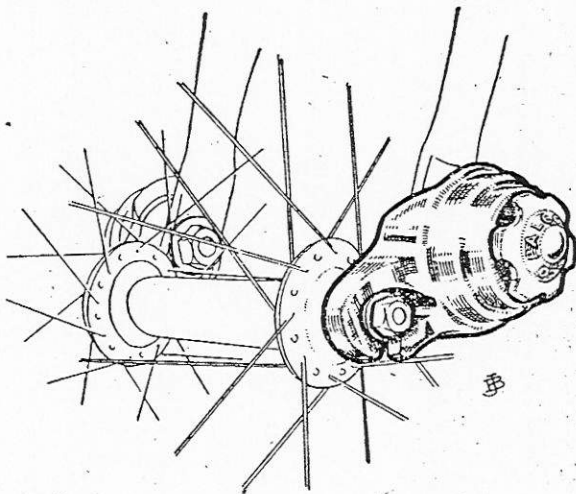
The

PALCO

Shock

Absorber

*drops into the
existing fork end*



THE BRAVE DAYS OF OLD

Published by the Editor, who does not agree, as an interesting piece of sheer provocation

by

H. HOLT

IT was most appropriate that the first few words in Vol. I. No. 1 of "Power and Pedal" referred to the "marriage" between the bicycle and the engine. I was a witness to the ceremony fifty years ago. This new journal comes at a time when manufacturers, traders and the public must realise that it is another development similar to that from 1900 to 1905 in "marrying" cycles and engines, but in very different circumstances.

Around the end of last century the petrol engine came as a great revolution to drive the horse off the road, enter shipping and railroads and create aircraft. A tiny engine—a fourstroke with side valves came first—gave about 1 horse power for about 45lbs. dead weight, and its first appearance on bicycles came in a variety of "attachments" viz:—

On the handlebars by the French *Werner*.

At the bottom of the frame down tube by the Netherlands *Minerva* (This and the *Werner* both belt driven).

Also Dutch, the *F.N.*, first a single cylinder with belt drive then a 4-cylinder in-line with shaft drive, a fore-runner of the Sunbeam of to-day.

The British *Excelsior* by Bayliss and Thomas of Coventry had its engine tucked under a tiny, four-tube, neck extension close to the front forks and steering head.

The *Ormond* engine partly replaced the frame seat tube.

The first *Enfields* with the Swiss *Motosacoche* engine tucked neatly under the petrol tank inside the frame.

Ariel and *Quadrant* of Birmingham, *Rex* and *Coventry Eagle* of Coventry and *Precision* of Northampton had their engines down at the bottom bracket.

The *Hobart Bird*, also of Coven-



try, with a modern lady's type of cycle frame, had its engine covered in like the present day autocycles.

Most of our modern makes were unknown then and those that were chose the "pedal bracket" position. It is interesting to recall too, in the light of current developments that the *Quadrant* cycle with shaft drive and *Crypto* gearing had a one lever control that acted as throttle, spark advance, ignition cut-out and exhaust lifter. Nearly all the machines of that time used the *Bass Michelé* coil and accumulator ignition system. The next innovation, after 10 years of four strokes, was the coming of the two stroke engine as we know it to-day.

To-day we are passing through similar experiences to those witnessed in making the motor cycles of half a century ago. Present day designers are taking these lovely little new petrol engines and placing them all over the bicycles, using either tyre, hub or chain transmission.

Now, after fifty years, we have the "final" position where the engine is correctly placed—in the dead centre of the wheelbase and

at its lowest centre of gravity, giving the utmost safety to rider and machine. This should have ended experiments with engine positions and also with the method of propulsion. I maintain that there is only one place to fix an engine on a bicycle and that is where every British manufacturer puts it on motor cycles. If I am wrong then all these manufacturers are wrong too. I am also convinced that chain only is the right means of transmission. Looked at from every angle the sooner the Trade conversion of a bicycle by power unit attachment by copying motor cycle practice the better will the "Motorized bicycle" become, cleaner, safer, more comfortable and more profitable for public, manufacturer and dealer.

I know it will be a very bitter pill for some manufacturers to swallow, but I recall the time, about 1899, when the old *Singer Cycle Company* of Coventry had to swallow that pill when they scrapped thousands of pounds worth of "Singer motorised wheels" that had engine, magneto, etc: all contained in one motorised unit for attaching to the bicycle. Another example, the *Wall Auto* wheel is also being somewhat copied to-day, so I predict an early death for some motorised attachments—What a lot of manufacturers I have seen pass away during my 56 years in the Trade!

I claim that it is possible for British engine manufacturers, if they will so agree, to design their engine crankcases to accommodate a uniform method of attachment to the bicycle bottom bracket—Take a tip from the *Cucciolo* adaptation.

I would also like to suggest that British bicycle manufacturers introduce a heavier gauge frame to a

Continued on page 15



FROM ONE TRADER TO ANOTHER

it will only take a
minute to read this . . .

You've heard of BEN—The Motor and Cycle Trades Benevolent Fund. Do you know that since 1905 it has helped its members, associates, their families, orphans, and dependent relatives to the tune of well over £400,000? As a matter of fact, in 1951 over £2,250 a month was paid to beneficiaries, apart from looking after the elderly at Lynwood.

There are no fixed scales of benefits, each being treated in the light of the applicant's circumstances and needs, with weekly allowances, money grants, gifts in kind, repayable loans, legal and medical advice, job-finding, care of children, etc. Twenty-eight branches throughout the country are ready to help.

All non-manual workers in the Motor and Cycle Trades are eligible. Why not join today? It only costs £1 1s. a year for full membership. Write to :

BEN

THE MOTOR AND CYCLE TRADES BENEVOLENT FUND

204-6 GREAT PORTLAND STREET, LONDON W.1

Focus on TYRES

by
HEVEA

THERE is a story told that when the original Mister Dunlop, somewhere around 1888, showed his new patent for the pneumatic bicycle tyre to a technically interested friend, this "expert" looked at it carefully, asked how it operated and then pronounced that the thing could never work because the rider would be perpetually going uphill.

Whether this story has established a tradition or whether the hot air that goes into the tyres has something to do with it we do not know, but certain it is that more sheer boloney has been uttered about tyres since that day than about anything else on a bicycle. Unfortunately, the introduction of the cyclemotor to this country has provided the opportunity for fresh misunderstandings and these are not by any means confined to the tyre users on the road.

There is one engine manufacturer, not a thousand miles from London, who becomes almost hysterical when a certain make of tyre is mentioned, simply because his own products ran into trouble with it. (There is nothing wrong with either tyre or engine, by the way).

The tyre maker concerned above writes to us advocating a pressure of 60lbs. per square inch in his tyres. That is *not* a printer's error—the pressure mentioned is SIXTY PERISHING POUNDS PER SQUINCH; twice that used in the tyres of a normal car weighing a ton and travelling at 60 m.p.h.; more than twice as much as a cycle tyre inflater (or any cyclist's

arms) could put in; and, incidentally, more than twice as much as is necessary.

Another manufacturer claims that his tyre is designed to give maximum grip under *all* conditions, which is impossible, and only asks for a modest 50 lbs per squinch to stress his tyre walls.

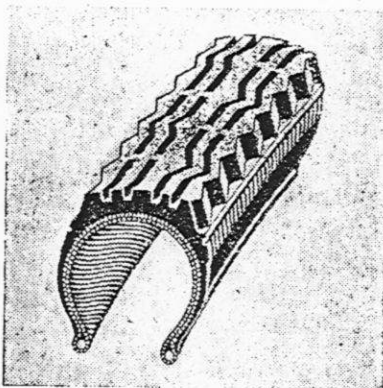
But the "Power and Pedal" biscuit-for-the-month must go to the Dunlop Rubber Company, who replied to our request for information that they had "...no statement to make or views to express on the subject of tyres for cyclemotors." However, a week later and through a different channel we heard of the "Motorcette", so perhaps this was just somebody's idea of publicity!

It must not be assumed from the foregoing that the manufacturers in this trade are a collection of clueless clots. They are all successful business men who drive around in large cars, and maybe that is just the trouble. Executives don't ride bicycles. Certainly no publicity department man would be seen dead on one, so it happens that the men who have to put over the products of the factories to the public have no first-hand knowledge of the goods they sell. Hence fine tyres are made but sold for the wrong purposes—consequently the need for this article.

We can take it for granted in this day and age that the knowledge experience and technical skill that go to make the modern tyre are available to all the manufacturers and that any cycle tyre bought from a reputable firm will be a sound tyre. But it may be sound yet still not be the right tyre for the job in hand. If we allow that the walls, beads and casings are all O.K., there remains the all important matter of the tread and it is

with treads that this article is mainly concerned.

Many wierd and wonderful tread patterns have appeared at various times, some genuine experiments and rather more as advertising points, but the main factors involved in correct tread design are now quite well known and have recently been published in a monograph by the Institution of the Rubber Industry*. Broadly speaking the three desiderata in a tyre tread are road grip, low rolling resistance and long life and it is unfortunate that all three contradict each other. The user tends

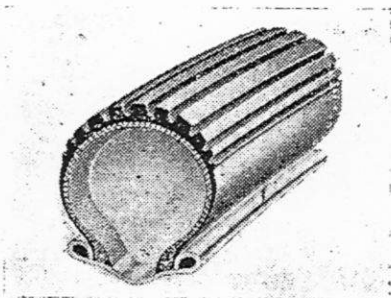


"The most ingenious attempt at compromise" the Firestone Power Drive Oversize tread.

rather to regard long life as the only test of a "Good" tyre in general, but the cyclemotorist in particular should be concerned also with the kind of service a tyre gives with his particular machine. That some kind of tread pattern is required is always taken for granted, although in fact tests made with locked wheels sliding on wet roads have shown that a dead smooth tyre can actually be more

* "Pneumatic Tyre Design" by E. C. WOODS, B.Sc., A.I.R.A., M.Inst. B.E. Published by the Institution of the Rubber Industry. 21s.

efficient in terms of retardation than a patterned tread at *very low speeds* up to about 8 m.p.h. At 30m.p.h. under the same conditions, however, it is 50 per cent. less efficient. On the other hand a tyre tread that is too much broken up so that the tread takes the form of bits of unsupported rubber sticking out in all directions will grip hard while it lasts but will not last long.

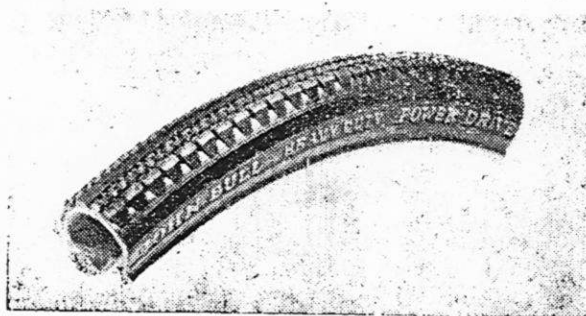


A clean ribbed tread—the Avon Powermaster.

The principle of continuous contact tread design for even wear and long service is now accepted, and this means a rib or ribs running unbroken round the bearing face of the tyre. Cross cuts aid road adhesion in the wet but reduce the life of the tread through the inevitable chafing they create. Too much flexibility in the tread pattern leads to flattening and spreading at the point of road contact, which tends to increase the rate of wear and may create heat stresses internally. For this reason an over-deep tread should be avoided. Experiments have shown that, with a given material a 20 per cent. increase in tread depth only gave a 10 per cent. increase in tyre life. Ribs should be broader than the depth of the grooves between them by a ratio of at least 2 to 1. If, however, sheer mileage is not the primary consideration other tread patterns may be more effective for specific users.

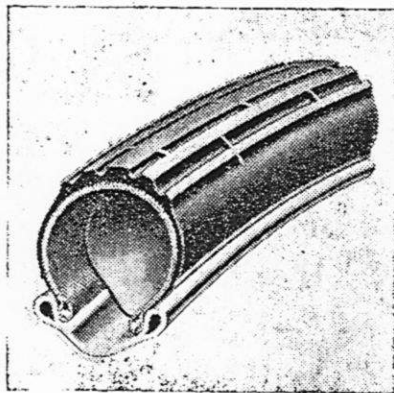
All tread design then is a matter of compromise both in material and pattern, and with cyclemotors

The John Bull Power Drive, a strong road-gripper under power or brakes.



the choice of compromise has to take into account the requirements of the engine and particularly its drive.

There are three main types of cyclemotor drive in use to-day. 1. The true friction drive, using a roller of carborundum or similar material that holds the tyre by friction in the same way as the tyre itself grips the road. 2. The metal roller tyre which itself has a



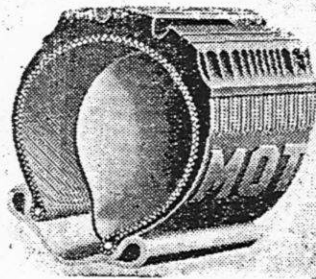
A tyre designed and developed in collaboration with the world's largest maker of friction drivers—the Michelin "Y".

patterned "tread" designed to grip the tyre by bedding into the rubber. 3. The indirect drive by chain, belt, etc.

Taking the third one first, the indirect drive has no roller problems to worry about (See our apology to the Cyclomaster on p.15—ED) and all that is required of the tyre is that it should stand up to the weight and wear of the engine. Almost any standard cyclemotor, tandem or carrier type

tyre will perform satisfactorily with these motors and the only choice to be made depends on the road most commonly used. In the writer's own cycle racing days, now unhappily a quarter of a century past, the then old timers used to advise "soft tyres for hard roads and hard tyres for grit and gravel". This dictum did not refer to the air pressure inside but to the rubber on the treads of the early tubular and open-sided tyres and it was and is good general advice applicable to cyclemotors as well. The John Bull Power Drive with its "gristly" rubber and pronounced tread pattern is a good sample of a hard-road tyre that will grip under power or brakes with this type of motor.

The two types of roller drive come next and are the cause of all the trouble because they require diametrically opposite qualities in their tyres and the best for one type *cannot* be the best for the other.



The famous name of Dunlop stands behind the Motorette, a new tyre designed specially for use with steel rollers.

FOCUS ON TYRES—*continued*

The friction roller requires very little pressure to make it grip—the weight of the engine with a light spring to hold it in place is usually sufficient, although some form of damping as used by the VeloSolex and Mocyc engines is desirable to cope with “bouncing” on bumpy roads. For these engines the tread must be of hard rubber in the pattern of long, virtually unbroken ribs right round the tyre. With this type of tyre tractive resistance is low and road wear small so that tyre life should be long. The Avon “Powermaster” the Michelin “Y” and the imported Dutch “Vredestein” are very good examples of the type.

If, however, this type of tyre is used with a metal roller, slip is likely to occur in wet weather and this is just what caused all the bad feeling in the breast of the maker referred to at the beginning of this article. The steel roller demands a positively locked position to enable the ribs or flutes to get a hold on the tyre without being bounced off by the elasticity of the rubber. The hard tyre caused slip with this roller so the riders pressed it down harder and burst the tyre walls. The tyre company hastily looked up the book and found that wall fractures were caused by under-inflation, so they put up the pressures. The roller slipped some more and the users pressed them down still harder. More bursts and also heavy wear on the engine bearings. Hence the grudge of the engine, man and the 60lb. pressure story from the tyre manufacturers. Actually the tyre is alright and so is the engine and its roller, but they just don't go together.

The advantage of the metal roller drive is that it makes full use of the cushioning effect of the tread rubber to achieve a perfect shock-absorbing drive, and there is no roller wear on the tyre so long

as the tread rubber is soft and flexible enough to give the roller a real grip without excessive pressure. The new Dunlop “Motorette” was designed specially for this job and was exhibited at the Earl's Court Show almost unworn after a huge mileage.

Perhaps the most ingenious attempt at compromise in cycle-motor tyre design yet seen is the Firestone Power Drive, which combines a hard rubber with a deep flexible tread. It is probably significant that this tyre has performed exceptionally well in prolonged tests with the new Minimotor “wavy” patterned roller, which is in itself a compromise between the toothed and friction drive ideas. The rather wiggly tread of the Firestone is an attempt to preserve the proven principle of continuous contact tread pattern whilst increasing the length of tread line per inch of tyre and providing extra gripping faces to the road. It is worth noting that this tread tends to look a little untidy in its first thousand miles of wear and this roughness may be mistaken for the furry-at-the-edges appearance that comes from using a soft rubber tyre with a carborundum roller. It is due, however to road wear not to the roller and the signs disappear and the tread cleans itself up as the mileage increases.

Quite obviously there is much to be learned by experiment and experience in this field, but enough has been said in this article to demonstrate that all these cyclemotor tyre “troubles” are really just a matter of selecting the right tyre for the job. What the future will bring forth, however, is only beginning to be foreseen.

There was one roller left out of the above descriptions, deliberately, and that is the synthetic rubber roller used on the Lohmann engine and which appears to grip well on any type of tyre without heavy

pressure or visible wear.

This field of synthetics is going to make a revolution in tyre design and probably very soon. The pressure of events in South East Asia and the near-readiness of the huge oil cracking plants at Fawley, Stanlow, Grangemouth, Manchester and Wilton, enormous producers of the basic materials of synthetics, suggest that the day of the so-called “natural” rubber tyre is nearly over. This is an exciting prospect, since the man in the laboratory, freed from the limitations of the jungle product, can literally make a “rubber” with any properties required of it and, as can already be seen, at very competitive prices and with superior specific qualities. For instance the moderately priced Butyl inner tubes now being sold on the continent never need pumping up to maintain their pressures and outlast ordinary tubes by a whole lot.

A recent special supplement to the technical journal “Rubber Age and Synthetics” made the point that it is precisely the present users of raw rubber who can and do use the new synthetics with their present plant, machinery and staffs. It would appear, therefore, that the day of the scientifically designed tyre material is almost here and it will soon be even easier for the cyclemotorist to get the “tyre for the job”.

Don't miss
next month's

FOCUS
on
OILS

WE ASKED THE MAKERS

FOR INFORMATION AND ADVICE ON TYRES FOR CYCLE-MOTORS AND RECEIVED THESE NOTES FROM MR. N. G. WINTER OF FIRESTONE

A NORMAL tyre was never designed for use with a power assisted cycle, which needs a tyre with stronger sidewalls, reinforced beads and a tougher tread. The Firestone Power Drive and the Firestone Power Drive Oversize are two tyres specially designed and developed for such work and able to stand up to all the increased stresses. There are other makes beside Firestone but the main thing is to use a tyre designed for the job.

Under-inflation means rapid wear and excessive deflection of the sidewalls leading to casing break-up.

Under-inflation also means greater rolling resistance between the

Sackcloth and Ashes

We have to plead guilty to a serious mistake in pricing the VeloSolex as described in our last issue's Show Report. The price was correctly given in our Road Test Report and, of course, in the makers' own announcement as £37. 10s. 0d., for the complete machine, plus £10. 8s. 4d., P.T., and excellent value at that.

The Brave Days of Old—cont.

standard design so that the Dealer can buy this kind of frame for use only with engines, seeing that most manufacturers' guarantees are withdrawn when an engine is fitted. This would make for greater safety and create a new branch of the Trade. I would draw your reader's attention to the *Holt-Phillips Cucciolo* produced by my son and myself and reported on in the *Cycle and Motor Cycle Trader* of July 11th last. It may be of interest that the name *Holt* is believed to be the first one in the retail business of bicycle dealers in Great Britain.

May I close with all good wishes to my many Manufacturer and Dealer friends, and especially I offer the editor of this new journal every success in the future.

H. HOLT

tyre and road surface resulting in more driving power needed from the motor to propel the cycle; this means less miles per gallon.

Always use an inner tube fitted with a Schrader type valve. Inflate by means of an air-line or an adaptor which can be fitted to your existing pump connector.

Make sure your motor unit is correctly fitted in accordance with the instructions laid down in the manufacturers handbook. Always adjust motor unit with tyre correctly inflated.

Assuming that the unit has been fitted and adjusted correctly, the only other likely cause of excessive tyre wear is incorrect driving methods and handling of the controls.

Always make sure the tyre is turning at the same speed as the

drive roller before engaging unit otherwise the unit will gouge the tread rubber.

Always close the throttle before braking; failure to do so will result in excessive abrasive wear of the tyre and rapid wear of the brake blocks.

Never open the throttle too quickly; if you do it means that the roller tends to revolve more quickly than the tyre—result, scuffing of the tread.

Eccentricity in the running of the wheel must mean a high spot between tyre and roller resulting in excessive pressure for part of each revolution of the wheel—result, rapid tyre wear.

Where possible fit a decompressor; this allows the roller to free-wheel and does not necessitate disengaging the motor unit.

To the Cyclemaster

On this page in this panel in our last issue an awful blunder occurred in the advertisement for our coming Focus on Tyres article. The wording, which was due to a printer's error, should quite obviously have read "The cyclemotor user's biggest problem". The accidental reference to Cyclemaster was all the more pointless since these chain-driven machines have no special tyre problems at all.

We apologise most sincerely to Cyclemaster, Ltd., for any inconvenience the slip may have caused.

Flashes

Next year's Cycle and Motor Cycle Exhibition at Earl's Court has been arranged for November 14th to 21st inclusive.

On Saturday, November 29th, 1952, most of Southern England was either under snow or water. In these conditions Mr. Ernest Jones, technical manager to Britax, Ltd., of London, decided to attend a dinner in Cardiff by cyclemotor! Mr. Jones and his Cucciolo were there on time but the dinner was poorly attended—many of the guests did not arrive because they were stuck on the roads in their cars.

The Mobylette range of autcycles—There are three models available, the Standard, as described and priced at £49 16s. 8d., the De-Luxe, which has hub brakes and a semi-automatic clutch and costs £55. 11s. 8d. and a real luxury model with telescopic forks which is £69. 12s. 10d., all including P.T.

Correspondence

The Editor is not responsible for the views expressed by his correspondents. Letters should be typed or written on one side of the paper only and may be signed under a nom de plume for publication, but must be accompanied by the sender's name and address

Nice for Us

Welcome and congratulations for the first "Power and Pedal" a long delayed want for many thousands of "Pip Pip" Cycle Motorists.

Although small it's a good start—soon we hope it will be enlarged for being only a monthly we won't mind a "Bob" a month—would welcome it in fact—anyhow here's the best of luck for the happy future, with the wish for many a thousand circulation.

GERALD SYDNEY

Stepping Down

At last! For a long time now I have been waiting for someone to publish a journal to cover the interests of powered-cycle users.

My first impressions are that it is an excellent little journal for the money. It is, of course, wise to start off in a small way and grow, rather than start off in a blare of trumpets and then fizzle out. I have placed my regular order with a newsagent. For my own part I would like the journal to be a little more elaborate. After all a child's comic is 4½d. per week so I think even up to a shilling a month would hurt no-one.

As regards articles, I would like to see exploded drawings of the internals of all the various engines in turn, to appeal to the technically minded, also a "Hints and Tips" page, a few pictorial photos and descriptions of journeys undertaken, and lists of bed and breakfast places and prices.

I am 50 years old and, after many years of motor-cycling I bought my first bicycle last year. The type of motor that appeals to me is that which, when the drive is released from the wheel, I can use the cycle for short runs with my

children. My wife has never ridden a bicycle but I am trying to encourage her to learn with the idea of having a powered cycle of her own as I find that cycling with the hard work part of it eased is the most delightful way of travelling. The feeling of not relying entirely on a motor is most exhilarating. Hereford R.A.S.

Another Suggestion

May I congratulate you upon the introduction of "Power and Pedal"—at last, a long awaited publication for the cyclemotor owner is in being.

I hope your future plans will include comprehensive articles on all the makes available, and if possible results of road tests.

As a person with a rough idea of how a two-stroke works, I would like to see a series of articles dealing with all the components and their functions, thus enabling one to have a greater understanding of their machines. In doing so I firmly believe you will be doing a great service to the majority of your readers.

In conclusion, may I wish you, the editor, and staff of "Power and Pedal" every success in this your new venture.

Hants. RAYMOND FURLONGER

Bad Maintenance

During the past few years I have serviced almost a thousand power-assisted cycles. Many of these arrive in a neglected condition . . . Some, even, unsafe to ride.

These shortcomings are bad in an ordinary pedal cycle but they are positively dangerous when the machine's speed and weight is increased by the fitting of a powered motor.

From examination of these cycles it is obvious that their owners spend no time in regular maintenance, for they are always dirty. If the machines were cleaned and oiled regularly such faults as inadequate tyre pressures, worn brake blocks, incorrect clearances, loose brackets, cones, mudguards, shields, number plates etc., would be noticed and corrected. Invariably, when a clean cycle is received for motor adjustments, few, if any, of these faults are present.

In wishing your timely and interesting journal every success, I hope that in the interests of road safety especially, you will publish a monthly article or reminder stressing the importance of maintaining a clean cycle.

"CHECKOVER"

Voice of Experience

I welcome the first number of "Power and Pedal" because we cyclemotor users are willy nilly in a class of our own (with respect to the opinion of "Clip On", page 5)

Many of us have already found that storage in public places has its problems, and a powered cycle becomes a thing of menace when one wants to store it at the local station.

Moreover, our "big brothers", with c.c.'s expressed in centuries and petrol consumption to put us to shame, are not yet ready to move over and make room for us, though it is fair to say the established periodicals are friendly and helpful.

I feel therefore that your new endeavour is well worth while, and if the "child" appears at first sight somewhat puny, I find it extremely readable, and the modest start at a reasonable price will appeal to many whose motoring has to be economical as well as effective.

My previous motor attachment was a French Cyclectractor of the 1920's, a hefty front wheel job which touched 30 without difficulty but was a lumpy unbalanced affair hard to steer; it had auxiliary front forks (good) but a long exhaust pipe (very ugly).

If you think a few notes on it from the historic angle would be of interest, I should be happy to oblige, but I may say I pensioned it off with the conclusion that the proper place for the motor was down under. My new Cucciolo approaches the ideal.

B. G. ASHMAN

Herts.

4-Stroke Wanted

Congratulations on introducing a welcome Journal which I am sure will be just the thing for the riders of "Clip-ons" or as you prefer, "Cyclemotors". It would be very nice and helpful if you could give details of each model with any useful hints and tips to improve its performance. I am sure lots of riders would be grateful for the help, because for the majority it is their first attempt at mechanical travel and it's just the small things that want attention that will make these little motors a pleasure or otherwise to handle and ride.

Now another point: I have been a motor cyclist for 30 years, and I would like to fit one of these engines to my faithful Raleigh, 24in frame, 3-speed, rod brakes, to use going to and from work in place of my motor cycle. But because of the various times I book on duty I must have 100 per cent. starting and reliability and no slipping in bad weather. Therefore the Cyclemotor that would suit me is the "Cucciolo" because I prefer a four-stroke every time. Now the point I would like to make is this, the price for the "Cucciolo" is £40, and it is Italian. By the time one buys a cycle and all, the cost is as dear as an auto-cycle. So why cannot some British motor cycle manufacturer make an engine like this for about £30 because the "Cucciolo" must carry an import duty tax on it to make it so dear, so what about some go-ahead firm trying it.

FELIX

Lancashire

Question and Answer

Address your queries to Q & A, and enclose SAE if postal reply is required. Full information must be given if our replies are to be helpful.

Q

Thanks a lot for your publication in its present form: it is just right.

In your first number I see that one manufacturer has a rubber covered roller. Why can't I get one for my machine? When I wrote to the manufacturers about a rubber or rubber and canvas roller they ignored my question and suggested a carborundum roller. This gets one along in wet weather but—the poor old tyre—the whole of the rear of the machine is covered with black rubber dust; it cannot last 1,000 miles.

Mine is one of the earlier models without decompressor, fitted to a normal carrier cycle, a truly utility job carrying my tools (about 56 lb.) and myself everywhere. I have had much trouble caused by vibration, everything in turn falls off, but the engine keeps going, doing 225 miles to the gallon at 3 years old.

Dorset.

C.F.

A

Your main article in this issue deals with your roller question from which it is clear that you are using the wrong roller and/or tyre for the job. Correctly mounted a friction roller with the right tyre will do thousands of miles without trouble even with the heavy loading you are giving it.

The vibration problem would appear to be due to a faulty mounting, side float (which will also cause tyre wear) or loose bushes in the hinged part of the mounting bracket. If there is any side-shake at all with the roller resting on the tyre, it is too much.

Q

No matter what brand of oil I use, I frequently have to "decoke" the exhaust port after only 3 months running (1,500 miles). The deposit of carbon round the sides of the port brings about a rapid deterioration of engine efficiency. Surely a port which rids the exhaust of gases and suspended carbon is of prime importance on all two stroke engines, and presents no difficulty as far as design is concerned but it seems to have been completely overlooked. If this problem were surmounted there would be little to service for the first 10,000 miles. Owing to the peculiar shape of the port a really satisfactory decoke of the port cannot be accomplished without whipping the cylinder off the crank case, which makes such a minor job a strip down.

Wishing "Power and Pedal" a long future, with perhaps more advertisements, therefore more pages at the same cost.

Dorking

H.P.

A

You are asking rather a lot of a hard-working 50 c.c. cyclemotor and your 1,500 miles and 3 months between port decokes is not too bad. It could be raised to 2,000 miles if the port and the rest of the exhaust system were thoroughly cleaned for a start and the port lightly polished. With the pipe and silencer removed it should be possible to get round the corners in the port with the slightly bent tang of a small file.

Lubrication is the biggest factor in carbon formation and will be dealt with fully in our next issue. Meanwhile we suggest you use SAE 20 grade oil at 20 to 1 ratio to petrol.

ROAD TEST REPORT

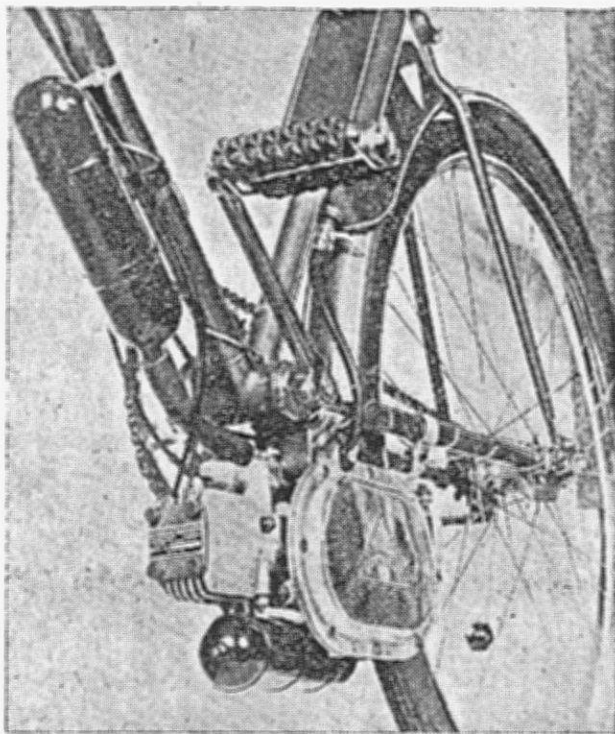
THE CYCLEMOTOR OF TOMORROW

The 18 c.c.
Lohmann

THE Diesel, or Compression-ignition, engine is nowadays familiar to the general public in this country by reason of its common use on passenger and goods vehicles and to a lesser degree in marine work, but most people think of it as a heavy, cumbersome piece of mechanism notable mainly for its pronounced "thump" when ticking over. Only that small band of enthusiasts who build model aircraft and motor boats were probably even aware that engines using this principle were practicable in very small sizes. Now the news comes as startling that such an engine has been produced, tested and released on the British market for a cyclemotor, and small even for that small type.

The Lohmann engine, marketed in Britain by Britax, Ltd., London, is a German product that has already undergone extensive practical testing in that country. As indicated above, the principle is by no means new, but its application to ultra-light vehicle power is positively revolutionary. Of only 18 c.c. and weighing a mere 11 lbs., the unit is notable externally for its extreme compactness. It snuggles under the bottom bracket of the cycle, fitting neatly between the standard cranks, the shapely fuel tank being mounted round the seat tube and feeding by gravity.

There is, of course, no electric ignition system and no carburettor, fuel being fed into the crankcase through a needle valve metering device operated by a twist-grip throttle control on the right handlebar of the machine. Another grip



The little Lohmann fits snugly between the standard cycle cranks. Note the clean lines of the fuel tank on the seat tube.

The cylinder shown on the front down tube is the air cleaner—intake silencer.

on the left bar is connected by two cables to the cylinder head to impart a twisting motion to the head of the threaded inner cylinder sleeve, raising or lowering the compression to the desired degree for any given load or speed. The rubber-covered, geared roller drives direct on to the tyre and is held in contact by a short toggle lever clamped to the chain stay on the near side of the machine, where it can, with practice, be operated by the rider's toe from the saddle.

The throttle control is provided with a spring-loaded over-ride position beyond the normal full open setting. This offers a rich mixture for starting the engine from cold. The starting procedure

is to pedal away from a standstill with both grips shut, the tiny engine creating hardly any appreciable drag. Once moving, the two grips are turned right in to the rich mixture and full compression positions respectively and the engine starts firing at once. When really cold the first few revs are rather noisy and uncertain, but almost immediately the drive is taken up, the rider freewheels and the left-hand grip can be cut back to lower the compression.

Once warmed, the smoothness and quietness of the machine is almost uncanny. No vibration can be felt at all and the exhaust noise, though always audible, is a steady high-toned purr which is of value

continued on page 20

THE SERVICE DEPARTMENT SAYS:**THIS MONTH**

A monthly feature provided by manufacturers' service departments on machine maintenance.

THE VELO-SOLEX

ONE of the most common causes of erratic running in a small two-stroke engine is carelessness in connection with the petrol mixture. Always use the grade of lubricating oil recommended by the makers of the engine and mix it with the petrol in the correct proportions as laid down in the manufacturers instructions. Another point is that it is preferable to make up the petrol mixture in a separate container and not just pour the petrol into the tank, then add so many capfuls of oil, finally shaking the machine in the pious hope that a petrol mixture will result.

The use, when filling the fuel tank, of a fine mesh gauze strainer, incorporated perhaps in a funnel, is an essential to good running. The strainer will trap particles of fluff, dirt and so forth which, if allowed to enter the tank would, sooner or later, lead to early clogging of the filters in the engine's fuel system.

The employment of the grade of oil recommended by the engine maker is essential, for this grade has been decided on only after long and careful trial, and the use of an incorrect grade can cause trouble very quickly. The VeloSolex engine, designed to operate on an oil of S.A.E.10 specification ($\frac{1}{2}$ pint to a gallon of petrol) will cover 2,000—2,500 miles before decarbonising becomes necessary, whereas the same engine running on a heavier grade of oil, such as an S.A.E.20 or S.A.E.30 viscosity, will require attention and the removal of carbon deposit after probably half or even less, respectively, of the above-mentioned distance. Rapid formation of carbon is one of the principal causes, in a small engine, of falling-off in power and consequent poor performance.

Attention should be given, also, to the spark plug. Regular cleaning of the plug and adjustment of the gap at the points ensures easy starting and reliable performance.

Some owners prefer to undertake simple maintenance work themselves. The average two-stroke engine fitted is extremely simple to maintain provided certain points are borne in mind. Many users like to decarbonise the motor themselves and there is no reason why this cannot be carried out successfully. With a two-stroke engine, however, cleanliness and freedom from carbon in the exhaust system is perhaps more important than removing the carbon deposit from the cylinder head and piston crown. Therefore, when the cylinder head has been removed and the piston cleaned, turn the engine by hand until the piston is at its lowest point in the barrel. This will expose the exhaust port in the cylinder wall. Examine this port and if there is any formation of carbon, no matter how slight, around the port opening it should be removed. A small blunt screwdriver is a suitable tool for the purpose.

Should the carbon deposit around the port appear to be considerable, this may be taken as a sign that the pipe leading from this port to the silencer is also partially choked with carbon. This pipe should be removed and the carbon deposit chipped away from inside. The carbon should also be removed from the inside of the silencer and from the baffle plate, or plates, inside the silencer. The VeloSolex has a silencer specifically designed so that it is easily dismantled, thus greatly simplifying this operation.

The cleaning-out of the exhaust system cannot be stressed too highly for, frequently, an owner

who omits to do so, will find that, despite the fact that he has cleaned his piston crown and combustion space, the performance of his machine is far from satisfactory due to "back-pressure" in the exhaust.

When reassembling an engine after decarbonising all gaskets and washers should be renewed as otherwise leakage may occur with consequent unsatisfactory running. Check also that the engine is properly aligned on the front wheel, and not askew.

A final point, but by no means an unimportant one, is cleanliness. A large number of so-called "troubles" can be traced, directly, to the presence of dirt on the outside of the machine. If an engine is covered with road dust, oil and mud, it is impossible to see whether a nut or a bolt has started to work loose or if a joint or gasket is leaking. Furthermore, dirt on the outside has an almost supernatural habit of finding its way inside via carburettor air intakes, petrol tank filler openings and the like. Although the Velo-Solex is unusually well equipped with filters, these cannot do the impossible. Working on a dirty engine takes very much longer due to the necessity of cleaning down the motor before any adjustments can be carried out. A clean engine is usually an efficient one, so keep the engine clean.

For the remainder of the machine, the same drill as is applied to a pedal bicycle is all that is required. The front and rear hubs are, however, grease-packed and sealed, which saves a lot of trouble—dismantling and re-packing being only required say once a year at most, and easy to do at that.

B. W. HUSSEY

Service Manager Solex (Cycles) Ltd.

continued from page 18

to the sensitive ear as it is the best guide to the fact that the control settings are correct. Keeping the two controls in the right balance of position is not difficult and the range of movement is adequate for fine setting with gloved hands. Adjusting the setting becomes very quickly a matter of habit, so that there is no conscious groping for position.

From the manufacturer's information the machine is designed to run up to 5,000 revolutions per minute, representing a road speed with normal sized cycle wheels of 15 miles per hour, but this speed was exceeded regularly during the period of test and the limit of revs was never found. For the benefit of those mechanically minded or ex-R.A.F. types who worry about such things, it should be pointed out that, with a stroke of only 30 mm., even 5,000 rpm. only

represents a piston speed of 1250 feet per minute, just half the normally assumed "safe" maximum. Certainly there was no symptom of effort in the unit after the hardest driving.

Performance on hills is excellent and beats that of many units of more than double its size. As the gradient first makes itself felt the revs fall off fairly quickly down to a point at which the rider accustomed to the ordinary two stroke expects to start pedalling, then, at about 6 to 8 miles per hour, it settles down to pull and slogs away merrily up the longest hill. The advantage of the geared down roller and consequent high revs to road-speed ratio was felt when an exceptionally tough test hill was climbed with pedal assistance at walking pace, checked by riding alongside a normal striding pedestrian. The engine was then still turning over fast enough to

run without snatch and provide some useful power as well.

Designed to run on paraffin in its country of origin, the Lohmann behaves equally well on the more familiar petrol with some adjustment to the settings. The fuel consumption was so good that repeated tests were made, running the tank dry and then filling from a half pint bottle carried in the pocket. The mean figure worked out at 316 miles per gallon and we don't believe it either—but it is true!

Altogether this little compression-ignition unit appears to be the cyclemotor of tomorrow, free from the weight, complication and expense of the "gas and sparks" equipment of the ordinary machine; light, compact and built to last. Some people will remain conservative and prefer the little devils they know, and others will fight shy of the two controls that have to be synchronised in the driving, but to the rider with an interest in his machine and a pleasure in the unusual the Lohmann must be the biggest attraction in the cyclemotor field to-day and for some time to come.

LOHMANN c.i. engine, 18 c.c. 28 mm. x 30 mm. with variable compression. Separate tank. Dry weight 11 lbs. Direct drive to tyre by geared rubber roller. Bottom bracket fixing. Price 24 guineas. Britax (London), Ltd., 115/129 Carlton Vale, N.W.6.



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VITALITY

The need for improved lighting after fitting a motor is often noticed. Cyclemotorists seeking to get the maximum light out of their existing lamps should therefore consult the very complete chart and price list available from Vitality Bulb Ltd., Neville Place, Wood Green, London, N.22.

The Bown Auto Roadster

We have received particulars of the Bown range of lightweight motorcycles which includes an autocycle of 98 c.c. known as the Auto-Roadster. It is a clean and attractive looking design incorporating the Villiers Mark 2F engine-clutch unit with independent chain drive for motor and pedals.

A neat, pressed steel, link action front fork, built-in lighting, solid carrier and rear stand all look part of the design, and the machine is sold with very full equipment. The tyres are 2.25 x 21 and internal expanding brakes are provided on both wheels. The price for 1953 will be £68. 14s. 6d., including P.T. and the makers are: The Bown Cycle Company, Ltd., Tony-pandy. Glamorgan.

VIEW

The Cyclemaster Workshop Manual

IT is not every man who needs a workshop manual, but there are many who are interested enough to have one by—even if unlikely to require such a thing in practice. The receipt, therefore, of a new Manual for the "Cyclemaster" is an event of interest wider than the range of the dealer and service depot.

In 24 pages, 11in. x 8½in., the book covers every possible job of servicing in minute detail, with sketches and full drawings of every part for easy and certain identification. The "Cyclemaster" unit is not, of course, complicated, but with current engine numbers up in the 100,000 region it must

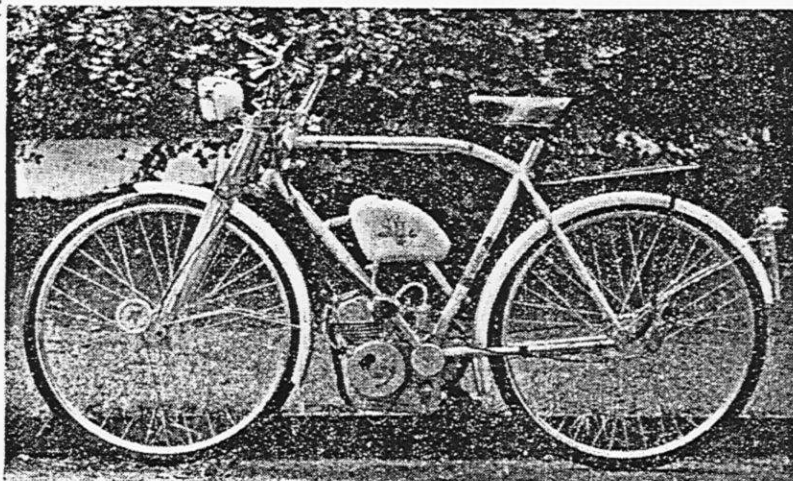
follow that a large number of people will be asked to service them all over the country, and the ability to size up and plan a job in advance depends on a detailed knowledge of what is involved.

Although this manual is not primarily intended for the ordinary owner we feel that many will be pleased to possess it. For the dealer and service man it is an essential item of equipment for efficient servicing. Everything from the fitting of a new wheel to a complete strip down and rebuild is dealt with, and there is a list of special tools at very modest prices which will enable anyone with reasonable mechanical knowledge and experience to equip and operate a "Cyclemaster" workshop.

Priced at 5/- the Manual is obtainable from "Cyclemaster", Ltd., 38a, St. George's Drive, London, S.W.1.

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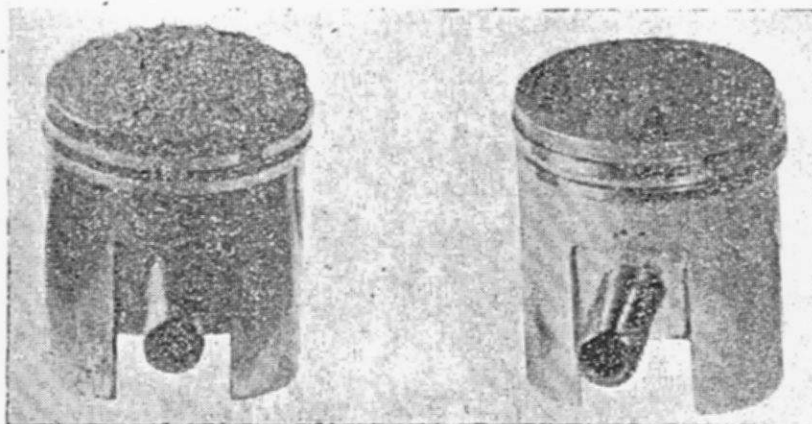
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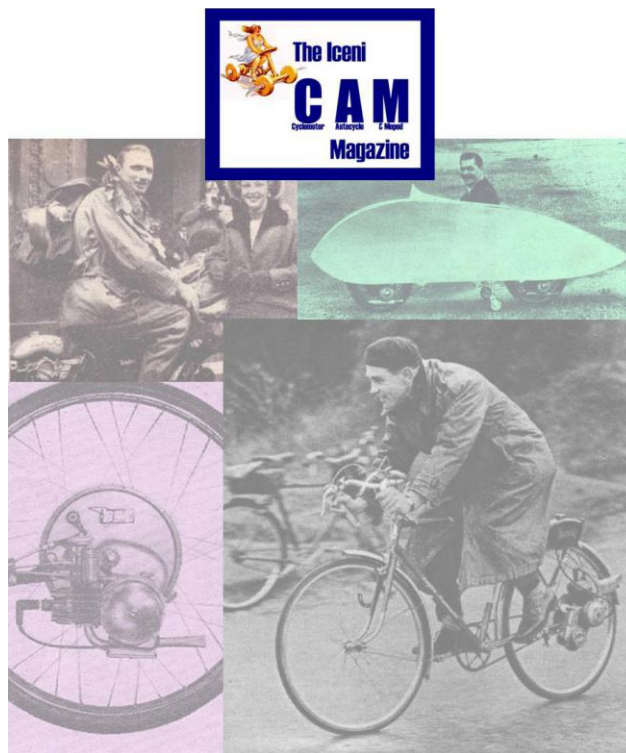
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