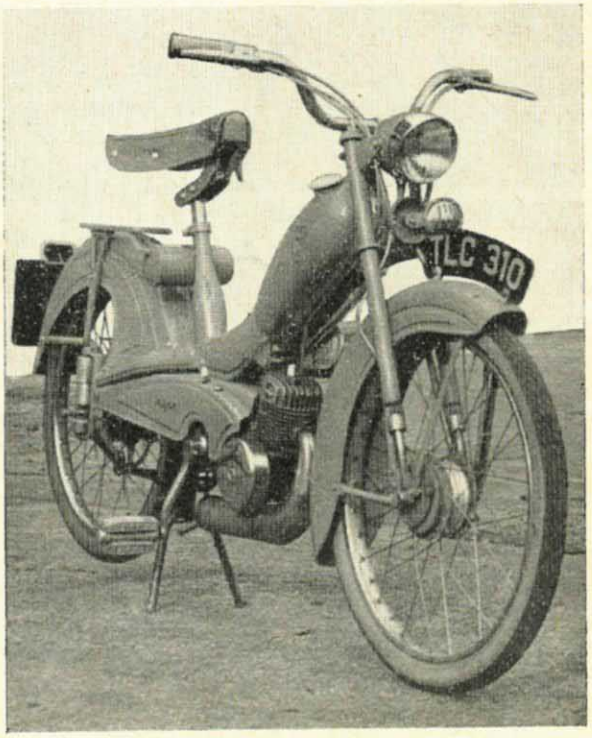
ROAD TEST REPORT

THE *49 c.c. MOBYMATIC*

with fully automatic clutch and variable speed transmission

THE mo-ped that thinks for itself is the concessionaire's slogan for the *Mobymatic*. The thinking is achieved by an automatic clutch and an automatic variable gear and these two devices together distinguish this machine from all other mo-peds on the British market.

The manufacturers are the French firm of Motobecane whose *Mobylettes*, road-tested in our October 1955 issue, have been produced by the hundred thousand and are now seen all over Europe. Certain family likenesses between the *Mobymatic* and the *Mobylette* are apparent at once. The *Mobymatic* has the same agreeable transmission system of belt primary drive with chain secondary with an independent chain from the pedal sprocket. A simple adjustment disconnects the engine entirely and the mo-ped can be pedalled as a cycle. The carrier and other details are the same on both machines, but in general the *Mobymatic* presents an altogether more luxurious front.



The modern styling of the latest Motobecane product is very different from the original simple machines

The welded frame is of pressed steel with built-in 9 pint fuel tank. Forks are telescopic and there is plunger rear suspension. Full width internal expanding brakes fore and aft are both hand operated. Handlebars are adjustable for angle and the saddle for height and angle. Speedometer and electric horn are included in the specification.

The 49 c.c. engine has an aluminium, chrome lined, cylinder with

flat topped piston. Output claimed is 1.35 b.h.p. at 3,400 r.p.m.

The automatic clutch will be familiar to readers of the *de-luxe Mobylette*. It is of the centrifugally expanding shoe type and is constructed on lines similar to the RSI automatic clutch illustrated on page 145 of last month's issue. In the case of *Mobymatic* and *de-luxe Mobylette* however the clutch is operated according to *road speed*. It engages when the machine is being pedalled at about 3 m.p.h.

After the clutch in the transmission sequence comes the automatic variable gear which is the machine's most interesting feature. Here, the heart of the matter is the variable diameter pulley of which the sketches show a much simplified cross-section.

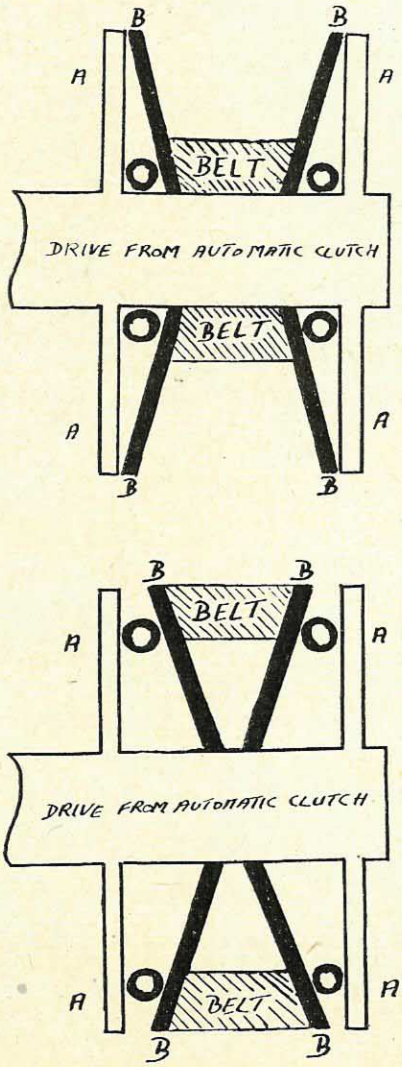
Pulley housing A is coupled to the drive from the automatic clutch. Alongside A are the sliping cheeks of the pulley B. These carry a shaped belt and are free to move towards each other. It will be seen that the angling of the cheeks and the belt allows the drive to be transmitted from the cheeks to the side of the belt. When the cheeks are closest together the belt is thrust outwards to the maximum diameter of the pulley, thus giving the mo-ped its highest gearing (see bottom sketch). Conversely lower gearing is effected as the cheeks move away from each other (top sketch).

The movement of the cheeks is controlled by balls lying between A and B. These balls run in radial grooves in both A and B and the drive from A to B is transmitted through them. As revs increase centrifugal force drives the balls outwards from the centre, the cheeks are pushed towards each other and the gear ratio is thus increased. The reverse occurs when revs are reduced.

Thus, if there is a light load on the engine, it will tend to run fast but immediately it does so the gear ratio and hence the load will be increased. Faced with a heavy load, the engine will tend to reduce revs but when this happens the gearing will be reduced and with it the load. This arrangement ensures that engine power is always being used efficiently, and hence good petrol consumption figures can be expected.

To keep the belt in tension the whole engine assembly, including the exhaust, is mounted so that it can swing beneath a pivot fitted at the top of the cylinder.

The sketches shew the expanding pulley in the extreme positions. Top sketch illustrates lowest gearing



The pull of the belt is matched against a compression spring. Under load the engine moves forward as the diameter of the variable pulley decreases.

The continual movement of the engine, the heaviest part of the mo-ped, as driving conditions vary, gives the *Mobymatic* a rather different feel from mo-peds with rigidly mounted engines. But once one is familiar with this there is nothing to disturb the pleasure of riding.

Pedal away, the clutch will engage almost immediately, the engine fires and thereafter there is nothing to do but work the brakes and the throttle. Apply the brakes and the clutch will disengage automatically. Top speed is over 30 m.p.h. and climbing power is adequate for almost all hills without pedal assistance. The *Mobymatic* decided it would not take 15 stone of Assistant Editor all the way up Muswell Hill (probably London's teepest) alone but stopped at the toughest gradient with the greatest good manners. There is no stall. The clutch simply disengages. With the lightest of pedal assistance the hill was climbed easily.

One effect of the variable gear is to tend to keep engine revs down and hence there is none of the "fuss" of which we have sometimes complained when mo-ped engines are revving hard. Exhaust silencing is also good and on more than one occasion during the test drivers drawing up beside us at traffic lights commented on the quietness of our steed.

Differentiation between mo-peds is usually a question of emphasis. With the *Mobymatic* the emphasis is on absolute simplicity of control combined with wide range of performance.

"MOBYMATIC" 49 c.c., Automatic clutch and automatic variable gear. Fore and aft springing, both brakes full width hub type. Concessionaires: Motor Imports Ltd., 158 Stockwell Road, S.W.9. £79. 8s. inc. P.T.

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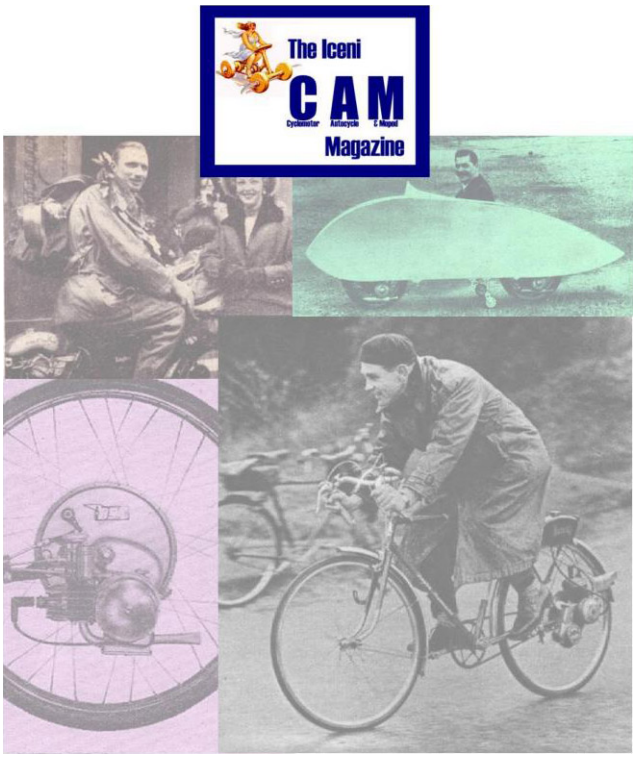

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