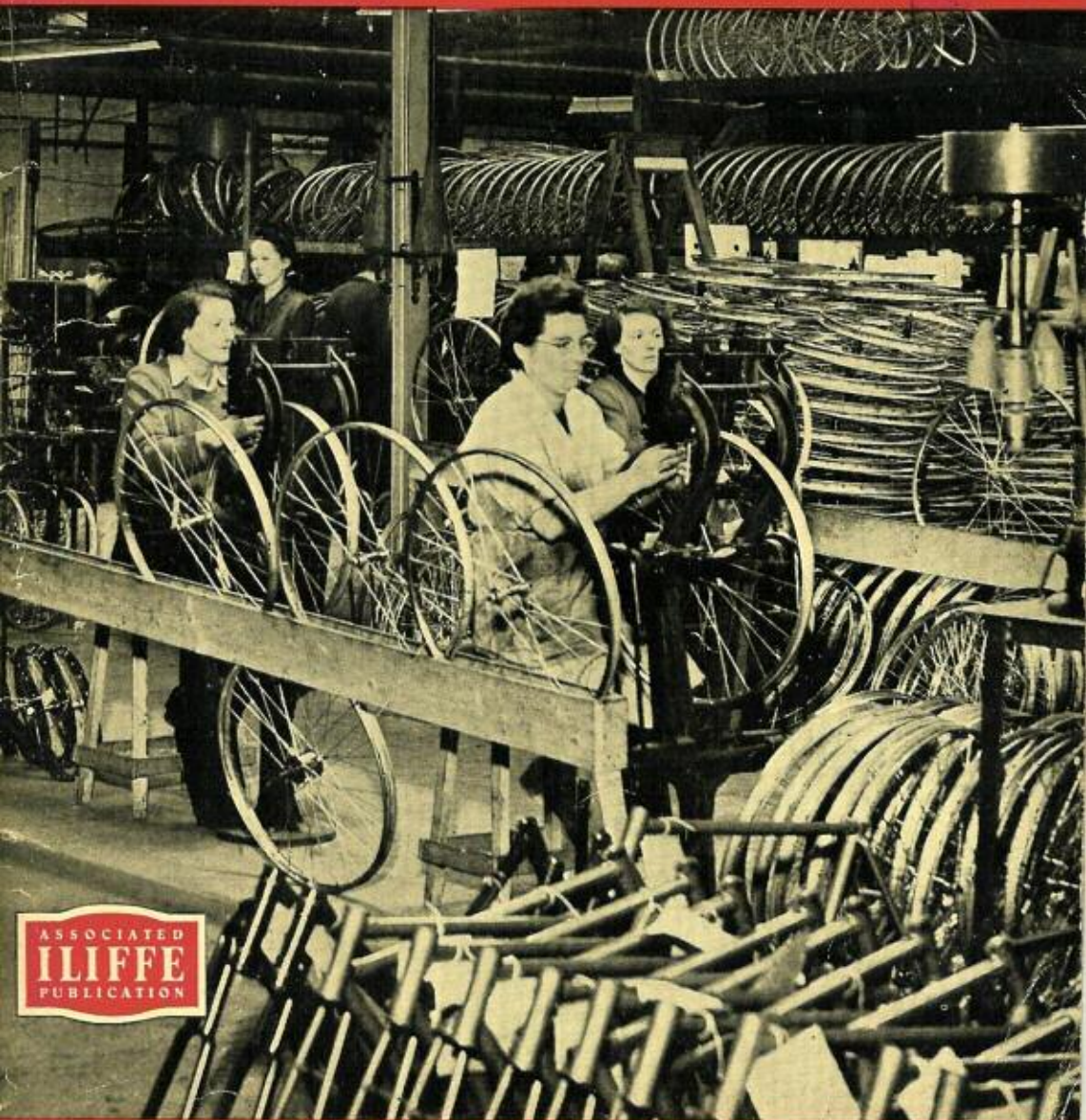


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BRITISH CYCLES & MOTOR CYCLES



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COVER PICTURE

Expert female operatives truing wheels on specially designed machines in the factory of the Norman Cycle Co. Ltd.

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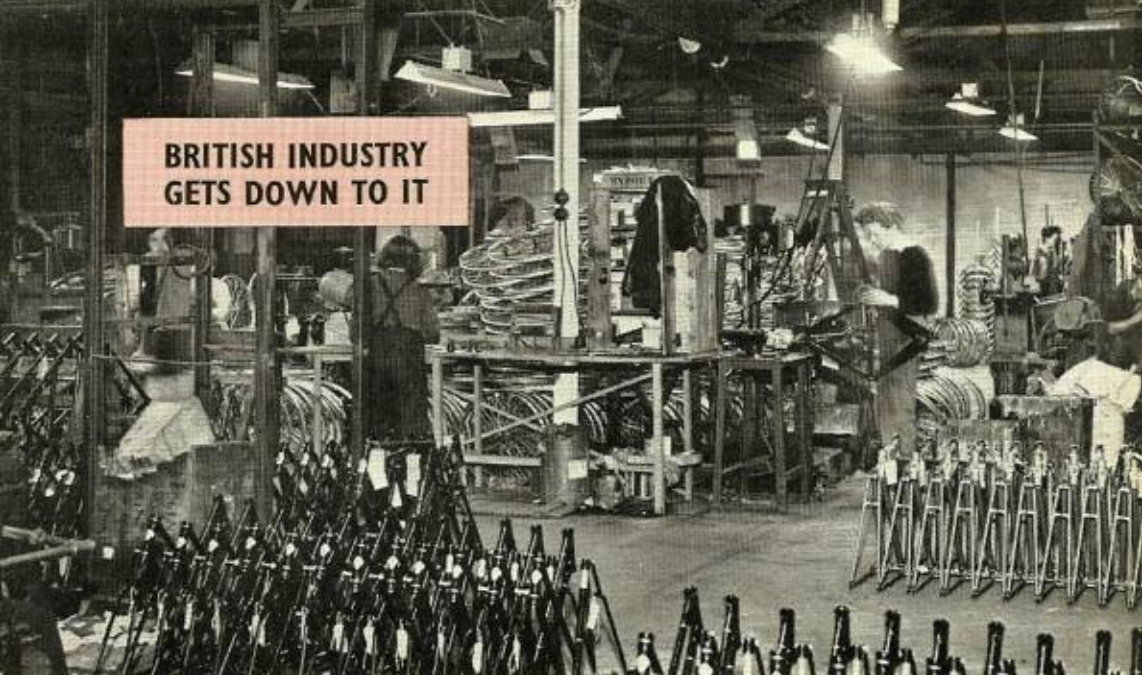
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BRITISH INDUSTRY GETS DOWN TO IT



In the centre the operator is drilling front tubes and nameplates simultaneously. The other is assembling crank sets

CYCLES FROM THE GARDEN OF ENGLAND

CYCLE manufacture is largely associated with the midlands of England, but those highly industrialized regions do not hold a complete monopoly. Farther south, in the mainly agricultural county of Kent, sometimes called the "Garden of England," is also a cycle and motor cycle factory that is contributing its share to the export drive, one that can well compare in equipment, methods and output with its rivals in the midlands.

First impressions on a visit to the Norman Cycle Co. Ltd., at Ashford, are of active expansion. Building of new extensions is going on fast, and the present occupants of offices and works seem ready to overflow from their confines at any moment in order to produce more and more cycles, auto-cycles and motor-cycles for export.

BY THE EDITOR

At the time of my visit, the works covered some 100,000 sq. ft. of floor space, and two large new bays, one 40 ft by 220 ft and the other 60 ft by 220 ft were well on the way. In the factory every available space seems to be taken up, and new equipment is installed alongside old, ready for the new expansion.

Illuminated throughout by fluorescent lighting, and heated by a steam and hot air system, the working conditions in the shops are of a high standard, and obviously assist in the maintenance of good output. The workers themselves seem to appreciate the conditions and also the urgency of the export drive, for this Norman factory immediately impresses one with the feeling that it is a happy factory and all are busy giving of their best.

Despite the outward similarity of the

resulting product, no two cycle factories tackle manufacture in the same way. Although general principles may not vary a great deal, each maker has individual ideas and methods at various stages which distinguish his cycles from other makes.

The Norman factory is no exception, and one of the first points I noted was the method of attaching pump lugs to the seat tube. These lugs, which are steel stampings, are placed in one electrode of a welding jig, the other electrode locating the seat tube. By pulling a handle, the operator brings the lug into contact with the tube, current passes, and in a fraction of time the lug is permanently fused to the tube.

Liquid brazing pioneers

First stage in building a Norman cycle frame is to degrease the tubes and lugs, after which the frame is assembled on accurate jigs where the lugs and tubes are drilled in position with pneumatic tools, and pinned up ready for brazing. Norman can claim to be the first manufacturers to adopt liquid brazing, with its advantages of speed and the small amount of surplus brass that needs removing from the finished job. One man and a boy assistant handle no fewer than 400 frames a day, and the quality of the brazing is readily apparent.

After any necessary debrassing and filing, the frames are trued, a genuine

craftsman's job mastered only by experience. Frames go through the works in batches of 25, accompanied by a works card, and following the truing operation are automatically numbered by machine and given a final examination.

Forks are made in a separate section. The crowns are drilled in a jig and the blades then forced into position, in the same jig, and pinned. They are then fed to a conveyor which takes them through an automatic brazing oven, on emerging from which they are wire brushed and set in special jigs while hot. These jigs clamp the crown around the blades and set the complete fork with great accuracy.

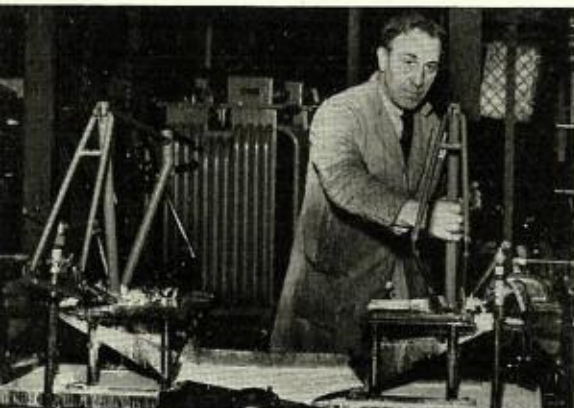
Next, the ball races are skimmed, the forks descaled in a vat, ground, and Bonderized by the dipping method. After wiping and brushing, the forks and frames, which have also been Bonderized, are ready for the first paint coat.

New paint shop equipment

Three ovens, each capable of handling 1,500 cycles per week, are at present in operation, and a new oven, with a capacity of 5,000 per week, is installed alongside to deal with both primary and finishing coats. Dipping process is used for black finishes, while coloured machines are sprayed, as are mudguards, in water-backed spray booths of modern design. A Teleflex overhead conveyor, the first of its type ever installed in a cycle factory, handles the parts for enamelling and

Wrapping cycles for dispatch seems to have its lighter moments for these girls





Jigs ensure accuracy when tapping out bottom brackets

This operator and his boy assistant handle the liquid brazing of the firm's output of frames

painting with ease and speed.

The polishing shop is one of the show places of the whole works, and the management can justly be proud of it. Clean and well-lighted, it contains machines for rough polishing, buffing and mopping, all driven individually and fitted with separate extractors. The atmosphere is kept completely free from dust, and is conditioned by Plenum heaters.

An up-to-date machine taps out bottom brackets and another with two motors and drilling spindles, drills nameplates and front tube accurately and simultaneously. Pneumatic nut runners



are used in the assembly of chain wheels and crank sets, and electric tools are used for spoke clinching. In fact, automatic hand tools are used wherever possible in assembly to speed up production.

Filling ball bearings

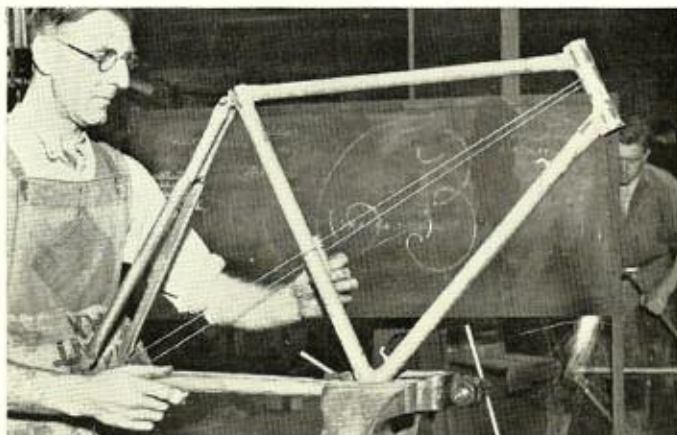
An ingenious machine, devised and built in the factory, is used for filling bearing cups. It delivers the exact number of balls required from a hopper and inserts them into the cups in a bed of grease mechanically.

After wheels have been built up and the spokes laced and clinched, final truing is done by girl experts with machines made by the firm, these machines showing the slightest deviation on large indicating dials.

The majority of Norman cycles leave the works unassembled for export, only machines for the home trade being built



Jig welding rear stays to seat lugs



*Norman expert at work.
An experienced craftsman
trues up a frame*

up complete. Thus with the present export drive the two assembly conveyor lines get little use.

Export packing

Four main methods of export packing are adopted by Norman. In the first, six cycles are packed assembled except for front-wheels, mudguards and handlebars. Second method is to pack six

assembled frames, with wheels, handlebars, and so on, separate, while the third and most popular, as it involves the lowest freight cost, is to pack 25 cycles completely un-assembled. Method four is similar, but the wheels for the machines are built up.

Only three types of motorcycle and autocycle are made now in place of the previous range, but production is steady in spite of supply difficulties. In the assembly department I was shown some new developments that will be incorporated in future machines, but it is a little early to talk of these yet.

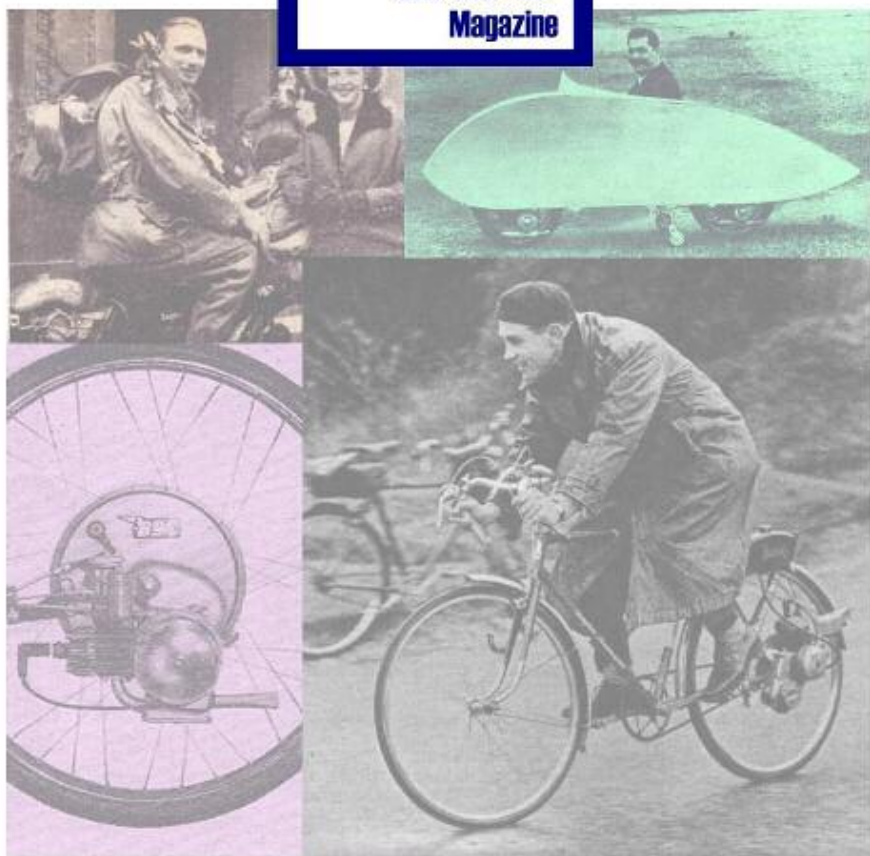
A well-equipped toolroom, the vast finished stores, the new boiler house, the plating shop with its two Rotomatic

chrome vats and its automatic rim plating vats, are all departments that deserve more detailed description than my space permits. Set as it is in a 45-acre farm, this highly-developed industrial concern in its country town environment is an excellent example of modern British cycle engineering.



*Ready for their journey to
the docks, Norman cycles
packed for overseas
delivery*

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