



Photo: J. D. Mills

Bicton Gardens Station, with "Woolwich" running round its train, between the engine shed and platform

BICTON WOODLAND RAILWAY

A NEW 18 in.-gauge railway was opened in East Devonshire on April 6. It is situated in Bicton Gardens, near Budleigh Salterton, which were once a celebrated feature of the Clinton Devon Estates. The gardens have been restored and are now open to the public daily; they include lawns, terraces, greenhouses, a classical-style temple, a lake and a "pinetum", containing a fine collection of conifer trees. However, unlike many other country estates, there is no longer a large mansion which can be shown to the public as an added attraction to the gardens—Bicton House and the adjoining Home Farm were sold to the Devon County Council for use as a horticultural institute in 1957. A railway to carry visitors through the grounds was proposed in October, 1961.

A preliminary survey was begun and

originally enquiries were started with a view to purchasing locomotives and rolling stock for a 15 in.-gauge railway. The route chosen was from a terminus near the main buildings and car park, alongside the lake and then over a large return loop through the pine woods, giving a journey of nearly one mile. With gradients of something over 1 in 30, and difficulties encountered in acquiring a suitable locomotive, it was decided to build a "narrow-gauge" rather than a "miniature" railway.

Enquiries made of M.E. Engineering Limited, of London, led to the inspection, on November 27, 1961, of an 18 in.-gauge oil-fired steam tank locomotive standing in a yard at Brackley, in Northamptonshire. Until its arrival in this yard some eighteen months previously, this locomotive had worked on the narrow-gauge lines of the



Trial run through the pine woods at Bicton Gardens shortly before the new 18 in.-gauge railway was opened in April

Royal Arsenal at Woolwich, and still carried *Woolwich* nameplates—which have been retained by the new owner. With a wheel arrangement of 0-4-0, a wheelbase measuring only 3 ft. 3 in. and every indication of adequate power, this engine appeared to be exactly what was needed, and so, subject to passing the necessary tests, it was decided to purchase it.

A detailed survey of the line had now been completed and it was possible to calculate the quantity of rails which would be required, the extent of the sidings and the location of the various points or turn-outs. The rails, flat-bottomed and weighing 30 lb. per yd., were supplied by M.E. Engineering Limited. The sleepers were cut in the estate sawmills, from timber grown on the estate, and measure 3 ft. 6 in. x 7 in. x 4 in. In addition, about ten *ex*-British Railways sleepers were used in laying the points so as to give added stability. The sleepers are laid 2 ft. 6 in. apart centre to centre. This spacing was decreased slightly at Bicton Gardens Station and on certain curves. The rails were spiked to the sleepers and connected by two fishplates and four bolts at each joint. Before track-laying began, the surveyed line was graded by bulldozer and where necessary hard-core was laid and

worked in. When the bed was ready, ballast of 1½-in. crushed limestone was laid.

Meanwhile, an approach to the Shedmaster at Exmouth Junction resulted in the appointment of Mr. George Clarke as driver. Mr. Clarke had spent nearly fifty years' working life on the railways, with the London & South Western and the Southern, then, after nationalisation, on the Southern Region of British Railways.

On April 9, 1962, another visit was paid to Brackley, where *Woolwich* had been prepared for acceptance trials. The engine had been jacked up clear of the ground (as there were no rails) and was in full steam. A spark-arrester chimney had been replaced by one of more elegant pattern and, despite the rust and shabby paintwork, she presented a splendid picture as she "marked time" amid clouds of steam and the smell of hot oil.

Two days later *Woolwich* arrived at Bicton and was unloaded on to two sections of channel-iron as sidings had not yet been laid. May 3 was an important milestone in the history of the railway as on this day the first length of track was laid, starting at Bicton Gardens Station. On the same day the five sets of points which had been ordered arrived. A fortnight later the track

had been laid for the whole of the length of the platform together with two sets of points and a short length of siding.

The next task was to put *Woolwich* on rails for the first time for nearly two years and to do this a length of temporary track was laid from the nearest siding to the channel-irons on which she was standing. A Land Rover, fitted with a winch, was used. A few days later the engine was in steam and driven up and down the short length of track, to see what adjustments were needed before further track-laying began.

In the middle of June track-laying started in earnest, as it was considered vital that the whole line should be completed by the end of September. Before this work began, advice was kindly given by Mr. D. G. Williams, District Engineer, British Railways, and also by M.E. Engineering. The work was carried out by members of the estate staff. Where it had been possible to lay and spread ballast by mechanical means, sleepers and rails were brought up to the railhead on hand-propelled bogies. However, in those sections where the tipping of ballast by lorry had not been possible this was brought forward in an open bogie wagon pushed slowly forward by *Woolwich*. Ballast was then shovelled out by hand at the end of the track, spread and another length laid.

Although a locomotive had been acquired, there was still the question of rolling stock. In the first place it was proposed to buy sets of bogies and to build passenger coaches on these. One set of bogies was purchased and these proved to be of the greatest use in laying the track and as platelayer's trolleys.

Some surplus rolling stock was detected at the Royal Arsenal at Woolwich and in due course a visit was paid to inspect a number of trucks. These consisted of covered wagons, one open truck and one open-framed truck for transporting hay. Under the Arsenal regulations any truck which had carried explosives must be burnt before it is offered for sale by tender. The effect of this was that a purchaser could only acquire the frames and bogies. All these trucks were of the bogie pattern and had the same pattern buffers and couplings as *Woolwich*, which was a great advantage.

In due course the open truck and six burnt out wagon frames were bought and these arrived at Bicton in the latter half of June, 1962. The open bogie truck has been

retained and as such was invaluable during the building of the line. It should also be extremely useful in general maintenance work. One of the wagon frames has been retained as a timber wagon because any trees felled in the pinetum can most conveniently be removed by rail. Bodies for one covered and three open "toast rack" coaches, and a refreshment car, have been built by estate staff on the other frames.

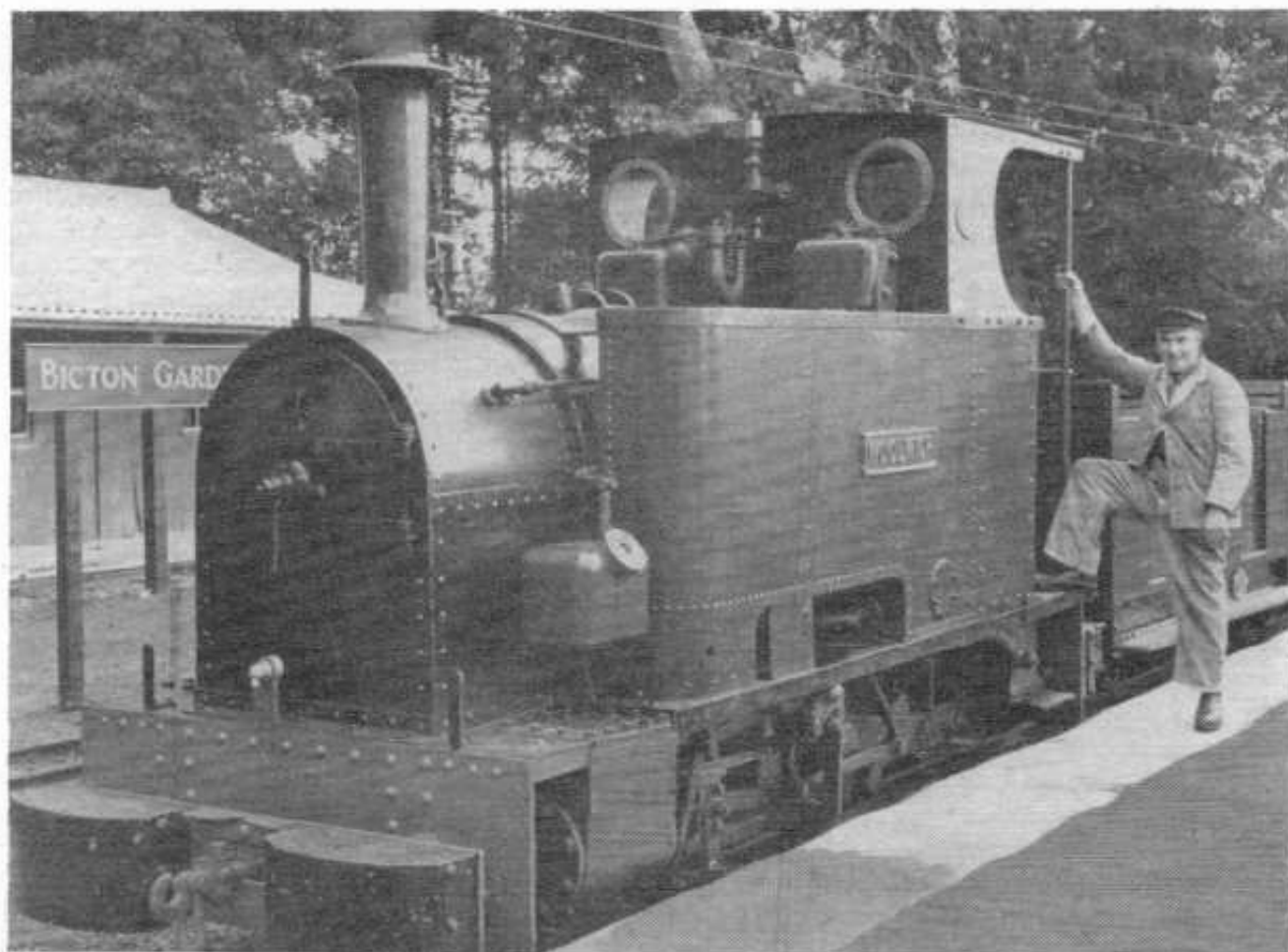
In July a covered passenger coach was purchased which had previously been in use on the Air Ministry's 24 in.-gauge line at Faulds, Staffordshire. The conversion to 18 in. gauge was successfully carried out by M.E. Engineering and new buffers and couplings of B.W.R. pattern were made by the Point Ironworks of Exmouth.

In the meantime, aided by good weather, work on track-laying had been proceeding apace. On August 10, 1962, the two lines from Pine Junction met and the circuit was completed. The owner, Mr. G. N. M. Fane Trefusis, drove in the last spike in the presence of all those members of the estate staff who had played a part in building the line and the health of "The Bicton Woodland Railway" was drunk on the spot by all concerned.

The total length of track, including the sidings, is 1,357 yd. However, as a train traverses the section from Bicton Gardens Station to Pine Junction twice in the course of a journey, the total distance covered on one run is 1,680 yd. Early in 1963 it was decided to build a short siding at Pine Junction to provide accommodation for a buffet car, from which teas could be sold during the busiest months.

It was felt that it would add interest to the line if a simple system of signalling was introduced, and a number of signal posts, levers, wire and point rods were purchased from the Southern Region of British Railways. This equipment became available when the signalbox at Lympstone, on the Exeter to Exmouth line, was closed down in September, 1962. Telephone communication between Bicton Gardens and Pine Junction has also been provided.

An engine shed was built during 1962 which is big enough to accommodate two locomotives. It is complete with inspection pit, workbench and storage racks for equipment and spares required not only for the maintenance of the locomotives and rolling stock but also of the track and signalling equipment. On the side nearest the plat-



Former British Railways driver, George Clarke, and the oil-fired 0-4-0 "Woolwich", built in 1916 by the Avonside Engine Company for the Royal Arsenal at Woolwich. The cab and side tanks are in blue livery now lined out in yellow

form an open lean-to extension was added, so as to provide a covered working space for carriage repair and servicing.

The first locomotive acquired for the Bicton Woodland Railway, *Woolwich*, was built in 1916 by the Avonside Engine Company for the Royal Arsenal and bears the maker's number 1748. It is oil-fired. To raise steam, a wood fire is lit in the firebox and, when pressure has reached 20 lb. per sq. in., the oil-feed cock is turned on and oil is forced through under pressure of the steam. The oil ignites and steam to a working pressure of 160 lb. per sq. in. is then raised. In the meantime the wood in the firebox has been completely burnt and the ashes fall through the bars.

When purchased in 1962 the boiler was carefully examined and found to be in first-class order: it is thought that the engine must have been re-boilered during the previous five years or so. In its original condition, *Woolwich* was fitted with a spark-arresting chimney, presumably as a special precaution against fire when operating in the Arsenal; this has now been replaced with one of normal pattern. Hand-operated sanding gear is fitted to the offside front wheel and nearside rear wheel.

Principal particulars are:

Extreme height	8 ft. 6 in.
Extreme width	5 ft. 4 in.
Weight with boiler and tanks empty	9½ tons
Weight with boiler and tanks full	11½ tons
Water tank capacity	260 gal.
Oil tank capacity	50 gal.
Heating surfaces:		
Firebox	23½ sq. ft.
Tubes	161½ sq. ft.
Total	185 sq. ft.
Working pressure	160 lb. per sq. in.
Diameter of cylinders	8½ in.
Stroke of cylinders	12 in.
Gauge	18 in.

Water is carried in the two outside tanks and oil in two tanks inside the cab and fitted as a continuation of the water tanks. The buffers consist of oak blocks protected by steel plates on the front and sides. These were undoubtedly designed for use on very sharp curves and have proved very satisfactory on the Bicton line. Similar buffers are fitted to all rolling stock. Originally the couplings consisted only of a "D" shackle and bolt, but hook couplings were fitted in 1963. Enquiries for other locomotives are in hand.

From what could be seen of the paintwork when the engine was first inspected, it would appear to have been green picked

out in yellow. Repainting was carried out in 1962 in the livery of the Bicton Woodland Railway, which is royal blue, with black smokebox and running plates and red underframes and buffer bars. Passenger coaches are painted royal blue with black frames and buffer bars. The colours for goods wagons are grey bodies picked out in black with the frames and buffer bars painted black.

Bicton Gardens Station is the terminus and depot of the railway. It includes a platform, loop line, sidings and engine shed, adjoining which is a fuel-oil tank and water point. On leaving the station the track descends on a slight right-hand curve over the first and largest of the four embankments on the line. This embankment was necessary in order to carry the railway over the old sunken road which in earlier days provided access from the front drive of Bicton House to the pinetum. The height of the track above the surface of the old road is 12 ft. 6 in.

After passing an "ice house" mound, the line swings to the left and continues for some distance along the edge of the lake, across which a delightful view of Bicton House can be obtained. At the end of the lake, the track bears to the left and enters the pinetum. In a short distance the train arrives at Pine Junction. This is the second station on the line and consists of a platform and siding which was built in 1963. During the main holiday season, a coach fitted out as a cafeteria is run into this siding. At Pine Junction the line divides and the train takes the left-hand branch. After swinging right in a complete semi-circle, the train faces a stiff climb to Pine Junction and in doing so enters the longest length of straight track on the railway towards the junction. At Bicton Gardens Station, the engine is uncoupled and runs round the train ready for the next journey.

The Bicton Woodland Railway was built under the inspiration and direction of Mr. N. D. G. James, Agent to the Clinton Devon Estates. The gardens (admission 2s., children half-price) and railway (fare 2s.) will be open daily until mid-September from 2 to 6 p.m., and on Bank Holiday weekends from 11 a.m. Bicton Gardens adjoin the main road (A376) from Exmouth and Budleigh Salterton to Newton Poppleford. The nearest station is East Budleigh (about one mile) and there is a half-hourly bus service past the entrance gates during the summer months.