A 2 1/2" Gauge Electric Garden Railway

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Although the resurgence of Gauge '3' in the garden has happened only in the past 15-20 years, I think it always worth remembering how long G3 has actually been around. Last issue, we described one of the very earliest G3 railways, 'The Chicago & Jericho' of 1896. At the Fosse exhibition this year, I came across this description of an electrically powered G3 LMS garden railway, described in the MRNs of March 1934 and March 1935.

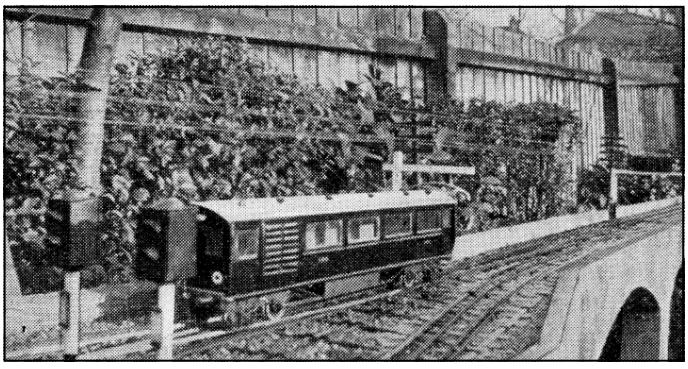
THE following account of a new model electric railway may be of interest to MODEL RAILWAY NEWS readers, though the construction is not yet completed, sufficient is indi-cated to illus-trate the desire to adhere as nearly as possi-ble to correct railway practice and proportions.

The L.M.S. London suburban elec-tric service was chosen as the proto-type, and work was commenced in January, 1932. Ten months of that year was occupied in building the driving coach, and work was then begun on the out-door track. Owing to the slope of the ground, a reinforced concrete viaduct 28' long had to be constructed and a cutting 10' long ex-cava-ted. These undertak-ings, preliminary to actual track laying, occupied the writer for three months in spare time at week-ends.

The Driving Coach

The main dimensions are as follows : Length over buffers, 29⅛" ; height, 7" ; width, 5⅜". The bogie frames were cut from 1/16" sheet brass, and the members bolted together. Three sprung collector shoes were fitted to each bogie, to ensure continuity of contact as in prototype; i.e. one centre rail and one sire rail on each side of each bogie.

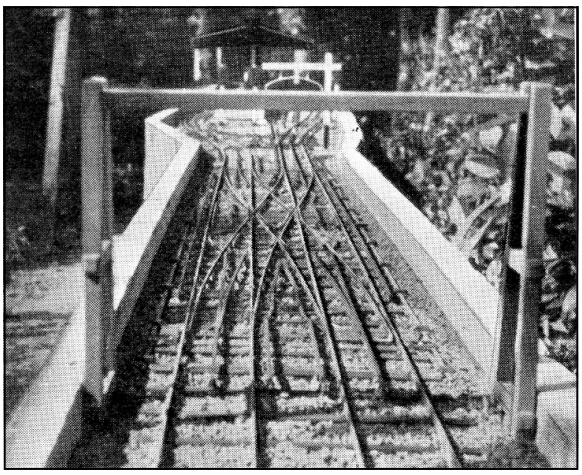
Each collector con-sists of a piece of ebonite supported and sprung in slotted brass-guides and fitted with a brass shoe ¼" wide and 1¼" long, con-nected by a suitable wire to the motor. The floor of the coach consists of a copper sheet, braced by angle brass, and floored with plywood in the passenger portion.



The ends and intermediate ribs are cut to shape from ¼" wood, and the sides and roof from, plywood about 1/16" thick. There are six dozen screws in the roof alone. Windows are of glass, and the vestibule doors are removable, being secured by small handles of L.M.S. type, filed into shape from brass wire. The buffers are sprung, and the draw hooks, couplings and brake pipes were made of scrap material. The interior is seated longitudinally, upholstered, and lighted by electricity.

The drive is provided by a Bassett-Lowke Permag motor coupled through a worm gear of 10 to 1 ratio, and working on 10 volts d.c. The total weight of the coach is 8½ lbs., which may have to be increased for greater adhesion.

Such is a broad outline of the first coach, and while the writer found it impossible to follow with complete fidelity every detail of the prototype, the divergences have not affected the general appearance to very much extent. The mistakes made will have an opportunity of being rectified when succeeding vehicles are constructed.

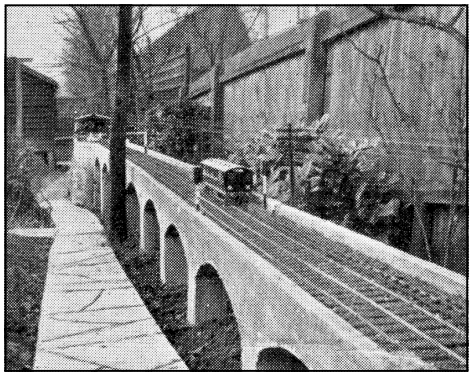


The Track

There is at present about 150' in all. Bassett-Lowke sheradised rail has been used, and their brass live rail for the conductors. As a matter of interest, the scissors crossover illustrated took 50 hours in the making - 50 hours of real interest. Slide-on chairs are employed at 16 per yard of rail.

Signals

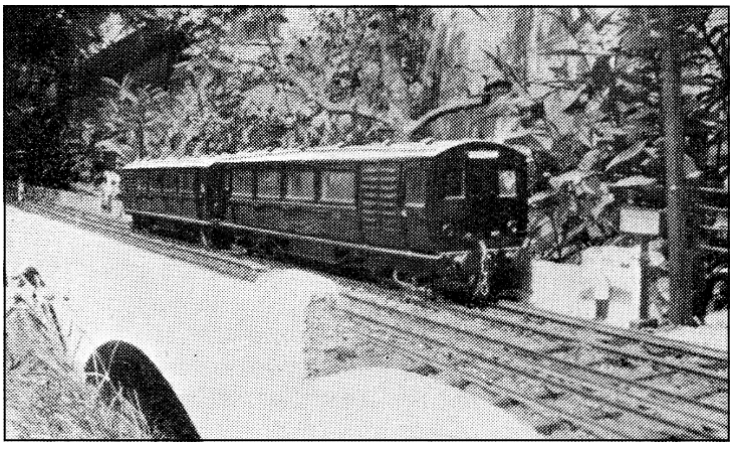
Signalling is by two-colour light, hand switch operated at present, and the 3.5-volt bulbs are lit from the house mains on a trans-formed current of 3 volts a.c.



There are seven 2-light signals, and an 8-light signal gantry, lettered and numbered according to section, with a hand-controlled section of live rail The signal light heads are a divergence from practice and measure 2¼" by 1¼" by 1½". They are mounted on ½" rods, and the ½" spectacle apertures are fitted with the custom-ary cowls, filed to shape from metal rod.

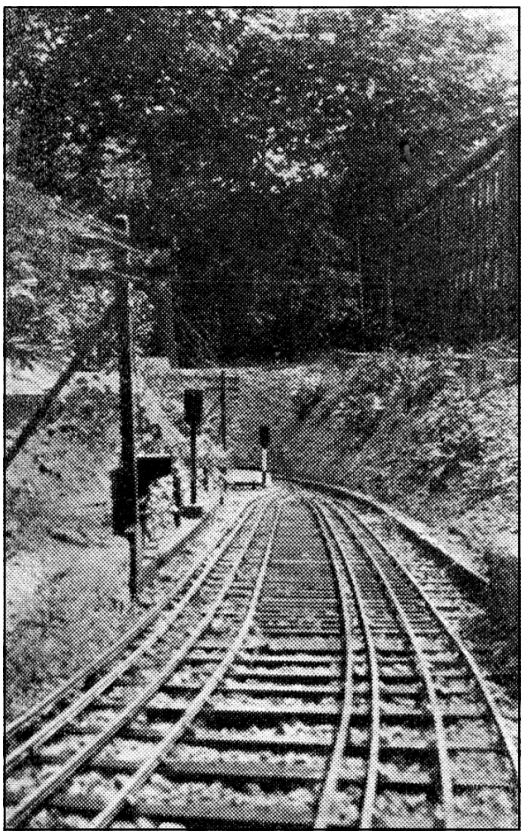
The current for signal lighting is carried by telegraph wires, the wire being bare copper of 20 gauge. The telegraph posts are placed 7' apart, and the wires are supported from the under side of the cross bars to assist the insulation during or after rain.

Of the two terminal stations, Rawsley is the chief, and possesses two bays and a siding. Deepdale, in the cutting, is not finished yet. The whole line will be operated from a switch-board situated near Rawsley.



In the March, 1934 issue of the "Model Railway News," I described the plans in being for the electric model railway for operating outdoors, taking the L.M.S. London Suburban electric stock as the proto-type. Since that date six months' experience of running conditions has been gained, and this may be of interest to readers, particularly no doubt to Mr. Whitworth, relative to his remarks in his interesting con-tribution in the January, 1935 issue. The current was switched on to the conductors in June, 1934, and a two-car train set, driving composite-coach and trailer, has operated without failure since then. In fact, so en-couraging has been the experience that a second train set will shortly be finished and put in service.

It will be remembered that each coach is approximately 30" long and weighs 8J lbs. The train set of 17 lbs. is moved by a Bassett-Lowke Permag motor rated for 8-10 volts d.c., and attains a speed of about 4 m.p.h. I will not attempt to convert this to scale speed ! Incidentally, a worm-gear ratio of 1 to 10 has been employed, but in the second train one of 1 to 15 is to be tried in order to stimulate earlier starting. At present about 8 volts at nearly



3 amps, are required, the amps dropping back to 1J when speed has been attained on maximum voltage.

Before describing the power unit I must state that the running track is B.L. sheradised steel, and has been down 15 months. It shows no sign of deterioration, but as a track, merits as much attention as the rest of the equipment of a railway system, this has had regular oiling and greasing at vital spots.

The track carries no current for power, as positive and negative live rails are employed for this purpose, as in the L.M.S. system, and B.L. brass live rail is used. Insulation relies upon the semi-hardwood sleepers, and no leakage in dry weather occurs. After rain, what leakage there is does not affect running, but rain water on the conductors must be removed.

The power unit which is plugged into the house mains of 240 volts a.c. consists of a Westinghouse metal rectifier and suitable transformer, rated to give an output of 12 volts at 6 amps. Actually, about 15 volts can be applied to the conductors when running is on. This unit was constructed for the job by Messrs. Shenstons of Leyton. Appropriate fuses were fitted and an auto-circuit breaker was added. The unit also houses the transformer for signal lights, which operate on 3 volts a.c. most efficiently, via bare copper 20 gauge wire as pseudo telegraph wires alongside the track.

The system is divided into sections controlled from the switchboard, as described in the previous article, and no voltage drop occurs over any part. So much for a general description of the essentials of the line. The operation depends upon something more than turning a switch—it is that the conductor rails be clean.

It is here that those enthusiasts who employ the running rails as a return for the current in out-of-doors systems appear to have the big problem. Steel rails would seem to collect more dirt than any thing under the skies! Of course, the difference lies in the opposing effects of a rolling wheel and a sliding collector shoe. As I regard my line as a strictly electric one and adhering to L.M.S. practice, I employ the two conductors, and could apparently continue running for as many hours as I care, due solely to the self-cleaning effect of the shoes.

Nevertheless, like Mr. Whitworth, I find paraffin the best cleanser prior to running, and a dash of lubricating oil, say 1 in 25, is no disadvantage.