

Introduction to



or



how to fire and control live steam locomotives
in gauge one
by GMT

This is a story of group enterprise. A warning to emulators
is given in the article. Read it! Heed it!

SINCE this project was first mooted in 1958, and a series of articles were presented in the *Link*—the official journal of the Manchester Model Railway Society—during February/July 1960, many improvements have been accomplished; so much so that these articles are now completely out-of-date.

It is my opinion, however, that the preamble to the series might serve as an introduction, if only to warn the inexperienced from any attempt at emulation.

G.M.T. consists of a group of four people—David Getgood, Bob Mills and Stan Thompson (hence the G.M.T.), with Arthur Bridge as chairman of the group.

Preamble

G.M.T. is not a "clique." It is a combination of effort to make models as near the real thing as possible, depending on the resources available. It is ever grateful to the model railway societies—the Manchester Model Railway Society in particular—for bringing them together, and Marc Drinkwater of the West Lancs O-Gauge Group for demonstrating the possibilities of electric control of steam locomotives, without which the system could not have been produced.

We are also very fortunate in being able to retain the services of the G.M.T.

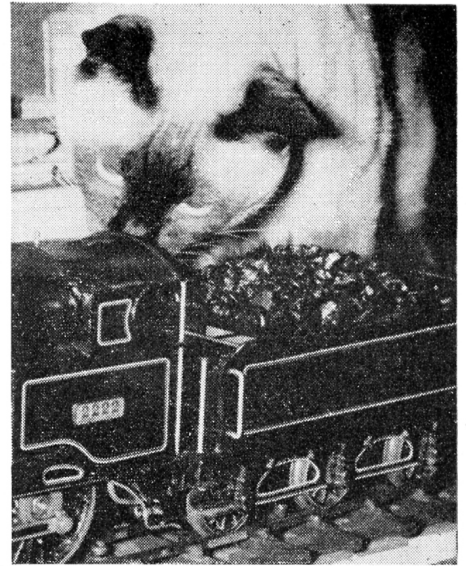
canteen manageress, who calls the weary workers from their labours to refreshment at times most appropriate to the running of the canteen; nearly always, however, at times in appropriate to the job in hand, causing long and protracted negotiations with the shop stewards, progress chasers and the joint consultative committee.

Finally, there is also our liaison officer, KoKo (sorry, Co-Co) the Siamese cat, who keeps a baleful eye on all matters and generally gangs up with the canteen manageress against the workers. This is most essential, otherwise he might starve; that would deprive us of our liaison officer who does an otherwise excellent job during his tour of this vicious circle. On many occasions his cries for food divert the attention of the canteen manageress along channels not entirely connected with the workers.

This then, is the G.M.T. organisation, and it works in spite of the industrial hazards.

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There is nothing new in the idea of firing and controlling model steam locomotives by electricity. Many have been designed and some constructed, with varying degrees of success; they appear in model press articles at odd times, are either believed or ridiculed and then fade into oblivion. Maybe



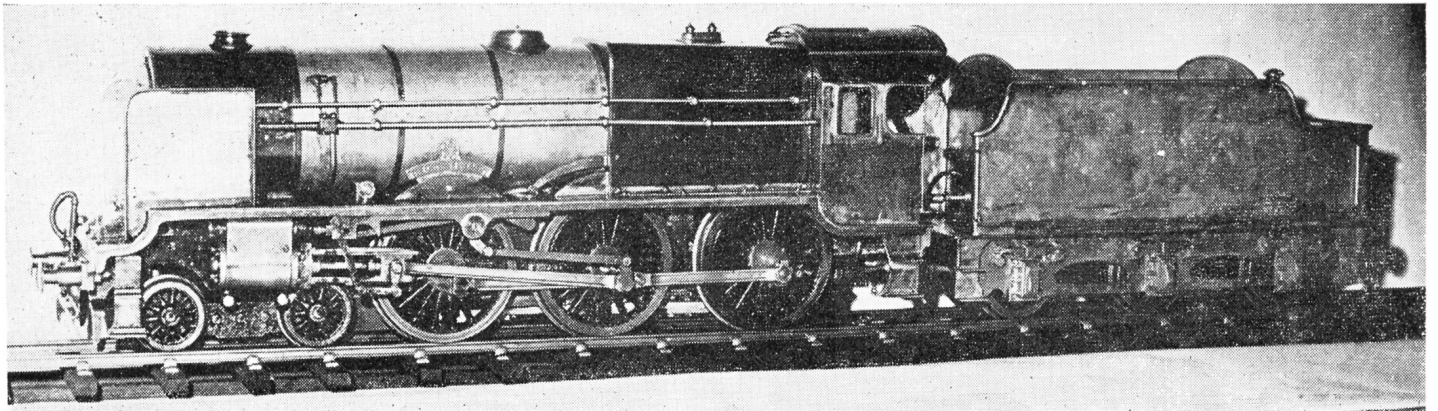
their owners are too proud to admit that it just didn't work, or maybe they still enjoy their handiwork in solitude. We just don't know.*

One member of the G.M.T. Group held quite a lot of correspondence with a modeller in the south who was experimenting with the idea as long ago as 1945. He gave it up as impracticable because he just did not understand and was backed in this opinion by others who he thought really did know.

The next contact with one of these ideas was the exhibition of Marc Drinkwater's "Duchess" at our Christmas Show in about 1953. Again the G.M.T. laddie nodded his head sagely and told all and sundry it wouldn't work. He wasn't the only one either! How wrong we were; and how ironic that this self-same engine showing its paces on the West Lancs. track in their H.Q. at Crosby during our visit to them in the summer of 1958 should start the ball rolling all over again. Mills stood spellbound. Here was the pipe-dream which had been in his noddle since 1913—an accomplished fact. A steam engine which you could drive by pressing buttons, and no mess either; even that was taken care of.

* *Maybe they blew up!*—ED.

The latest engine; an L.M.S. "Scot".



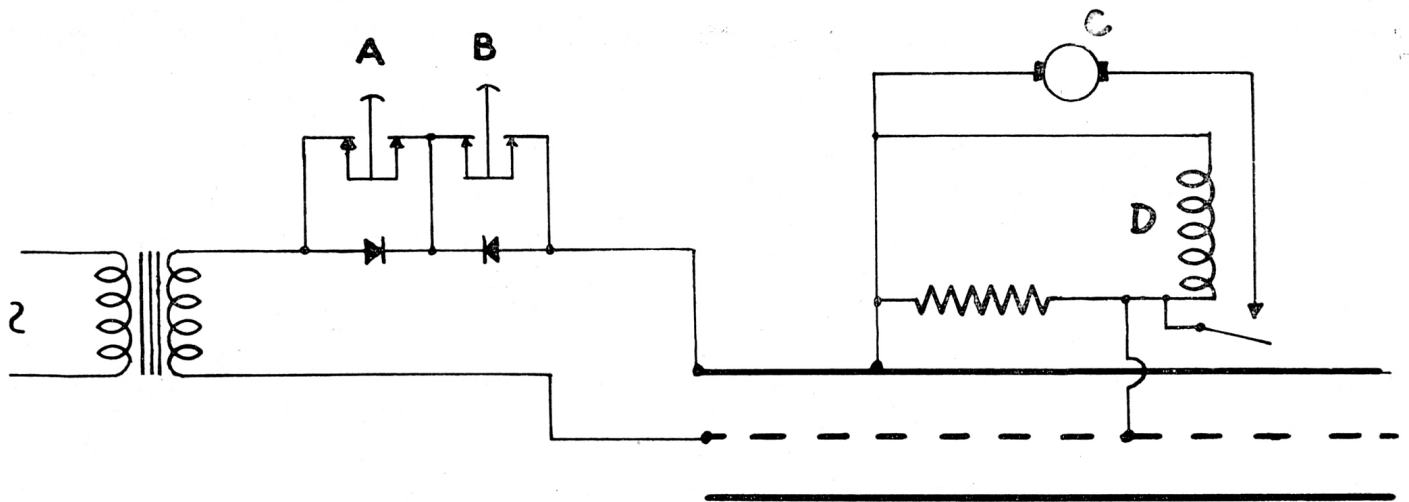
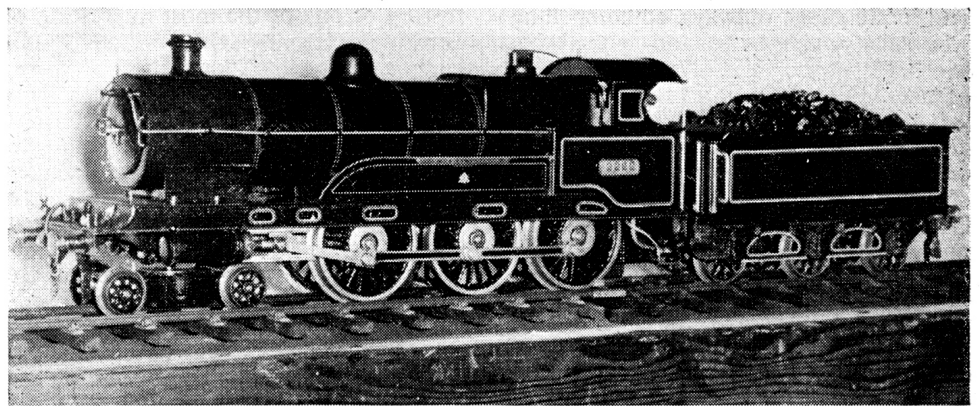


Fig. 1 above. Centre: The "Cloughton" Bottom: The "Crab."



The electrical and mechanical arrangements were explained—simple! We were shown inside the control box—fantastic! Stan Thompson said he could do the electrical side, Mills had a $\frac{3}{8}$ in. scale 0-8-0 chassis completed and waiting for the coal-fired boiler, and that is how it all started.

Arthur Bridge agreed to let us use his outdoor track for the experiment, as his layout was equipped with a centre third conductor for about two-thirds of its length, but very little was done that year.

Some of you may have had similar ideas. You may even be tempted, after reading this article, to try yourself. A word of warning here. **THIS CAN BE VERY, VERY DANGEROUS.** It is not the kind of you can just copy from notes or drawings, as we used to make radio sets from kits of parts and magazine articles. In this business you either **KNOW** or you **DON'T KNOW**, and **DON'T KNOW** includes "THINK." Electricity at the voltages and amperages used in this equipment is lethal to small animals and painful (at least) to human beings. **YOU HAVE BEEN WARNED!** We don't want to start a procession of small boys or their elders to the ex-Government stores to purchase cheaply any part or parts they might think will do the job. They probably will not. What they can do is this: they can weld your model to the track or make your rails and point rodding glow red hot. Couplings can fuse. You can set the house on fire or you might get off lightly as we did by just melting the flanges of the wheels. Therefore, if you are not absolutely certain what you are doing, **LEAVE THIS ALONE.**

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Marc Drinkwater's Circuit is delightfully simple. Its basic form is shown in Fig. 1.

He used 60 volts a.c. (max.) and 360 watts for the heaters. Control is by pressing one of the two buttons marked "A" and "B." When this is done the a.c. supply is cut off from the track and in its place halfwave rectified d.c. is fed. On the locomotive there is an electric motor "C" which in turn is brought

into the line by a relay "D." This relay is of the high impedance type and will not operate on a.c. current. When d.c. is applied to the track the relay picks up and switches the motor into the line. Button "A" puts positive on the line, button "B" puts negative on the line. You have, therefore, a contrivance on the engine coupled to a motor which is capable of being reversed, and this can be made to do anything depending on your own mechanical ingenuity.

The engine stands in neutral. By pressing button "A" the motor will put the engine in forward gear and open the regulator. If the engine won't start (just like the big ones on occasion) you press button "B." This reverses the motor, closes the regulator, puts the engine in backward gear and then again

opens the regulator. If you want the engine to go forward you again press button "A." (In fact, in starting from cold you clear the cylinders of water by this method.) If the engine is travelling forward and you want to slow it down, you press button "B," giving short staccato presses until the engine slows down to the required speed. If you want to go faster you do the same with button "A." If you want the engine to stop, you press button "B" in short bursts until the engine stops. If the engine is running in reverse you do the same with button "A." It takes a little time to get the feel of the buttons, just as it takes a real driver time to get the feel of the regulator. Once this is obtained, driving is delightfully simple and the engine responds according to your skill.

To be continued

