

BAMBURGH

The story of the model told by David Hadfield

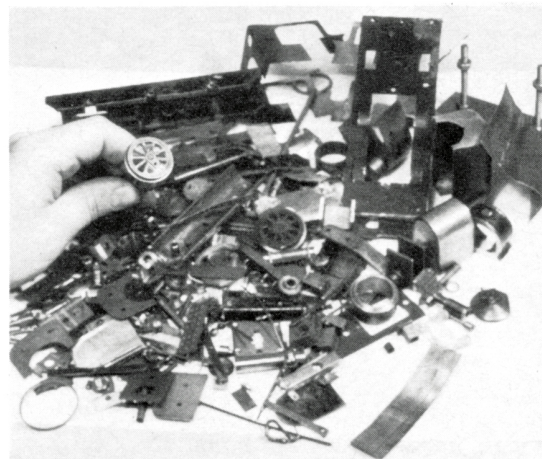
My interest in this hobby lies firmly on the engineering side: from scratch building to applying electronics to railway modelling. I came to build *Bamburgh* after reading one of Bill Tate's descriptions of the Millport & Selfield Railway, a justifiably famous O gauge line which has entertained many enthusiasts both personally and through the pages of magazines. It was in one of his articles that Bill expressed a doubt about ever getting a *Bamburgh* to match the branch stock he had made. At the time I was looking for a prototype suitable for a first effort and this little tank engine seemed an excellent choice. Some people just have to learn the hard way!

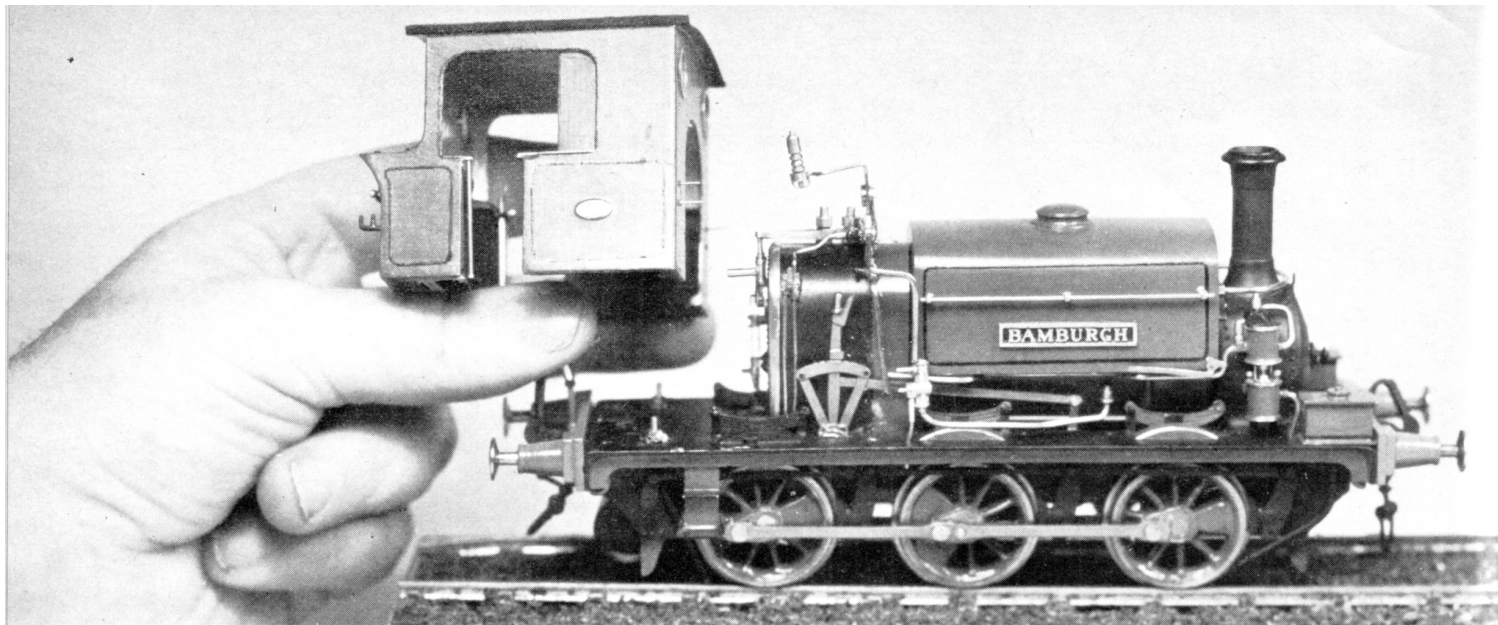
I talked out the project with Bill and came away feeling reasonably confident of success. For good measure I was given the chimney made by the late 'Fanny' Nutter to encourage Bill to make a start on this locomotive. Miraculously, it has survived all my rebuilds.

An eight year battle with a difficult prototype started with the discovery that only high standards would satisfy me. The mass of unacceptable pieces grew steadily—with only one break, to build a set of traffic lights for David Getgood's quarter grand junction exhibited at Manchester in 1972—until, finally, *Bamburgh* was shown at the 1974 MMRS Exhibition—with the varnish on one side still tacky!

For the future? A model of *City of Salford* will certainly impose weight restrictions, some much needed trams are now under construction—to Manchester Tramway Group Standards—and, later, a 2-rail Merryweather steam tram and trailer are envisaged.

Far from blunting my enthusiasm for model making, *Bamburgh* proved to be a whetstone.





Brian Monaghan's photographs accompanying this article show the end result of the battle, while last month's magazine featured a view indicating what it took to get there. (The picture of the scrapyards is reproduced again on the previous page.)

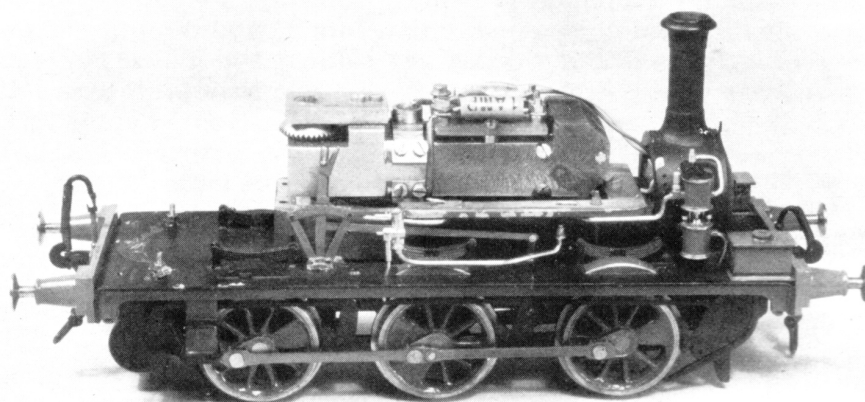
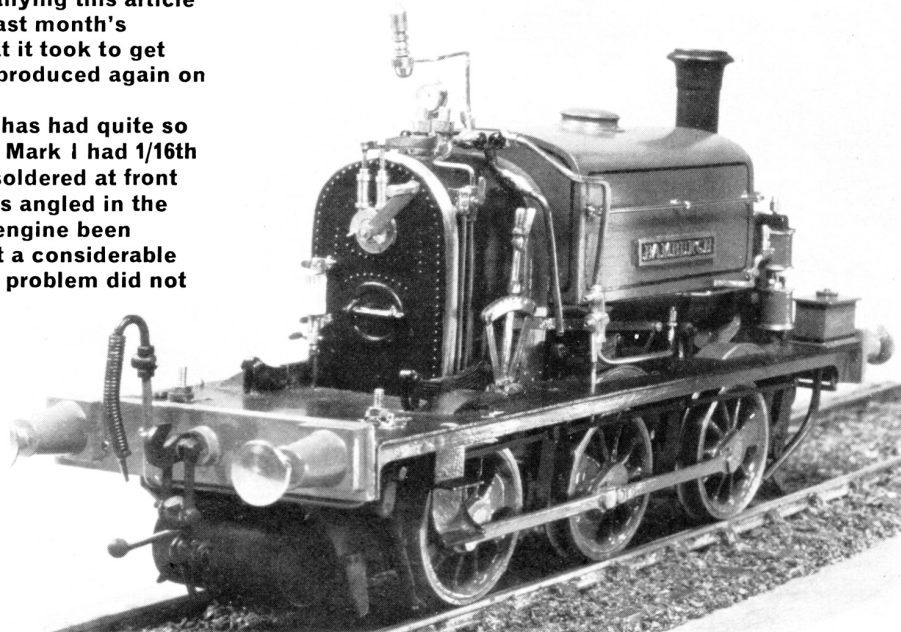
It is doubtful whether any other model has had quite so many or varied main frames, eight in all. Mark I had 1/16th in. mild steel frames with brass spacers soldered at front and rear. The motor, a Pittman DC66, was angled in the frames and drove the rear axle. Had the engine been finished in that form it would have meant a considerable compromise with the boiler outline. This problem did not arise, because Mark I proved virtually impossible to quarter properly. The difficulty was traced to the frames not being parallel and these had to be scrapped.

At this time I was undergoing post graduate industrial training and was able to take advantage of facilities to machine a chassis from the solid. This is visible just behind my hand in the scrapyards! This chassis might have been perfect but other design weaknesses forced its abandonment. Mark II would have had a satisfactory outline, though, because it was arranged for the motor to sit horizontally in the boiler and drive a vertical jackshaft through bevel gears. A worm on the jackshaft drove the front axle. A nice idea in theory but, due to poor workmanship 90 per cent of the motor power went into turning this axle, making the engine practically useless before it started.

I had achieved similar unsatisfactory results in the sheet metal department, turning out a succession of scrap parts of every description: two cabs, two saddle tanks, three fireboxes, a footplate and a smokebox can all be seen in the scrapyards.

What kept me going at this time is hard to remember. It was probably a mixture of sheer cussedness and the fact that the quality of the scrap was improving.

The big breakthrough was made with the purchase of an ML7 lathe



Let destruction commence! Top: First stage; the cab is soldered to a brass ring frame at its base and is secured to the footplate by four 10 BA screws from underneath. Middle: The boiler fittings are assembled in the cab first and fitted with it. The large tank under the rear buffer beam is the Westinghouse brake reservoir, the pump being fitted on the side of the smokebox. The 12 BA studs visible are normally hidden by the bunker and are the ends of the rear sandpipes. Lower: The motor only just fits inside the firebox. From the vertical layshaft the drive is taken by a propeller shaft to a gearbox on the rear axle.

and accessories. The lathe, jointly owned with Jim Lloyd, was bought ostensibly for making Manchester scale trams but my thoughts soon turned to *Bamburgh* and a completely fresh start to this project was made. This new approach was given a further shot in the arm when Arthur Peake very kindly offered to make a wheel pattern specifically for this locomotive and to cast a quantity to replace the CCW bogie wheels I had been using.

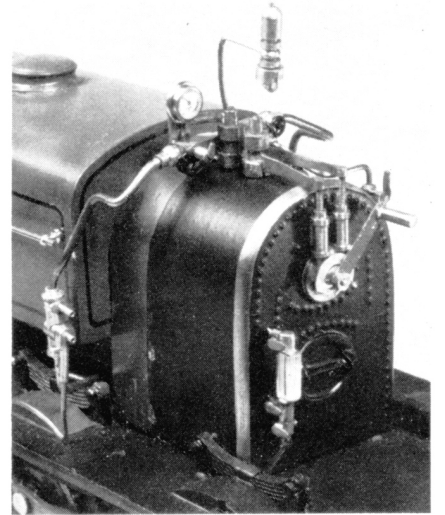
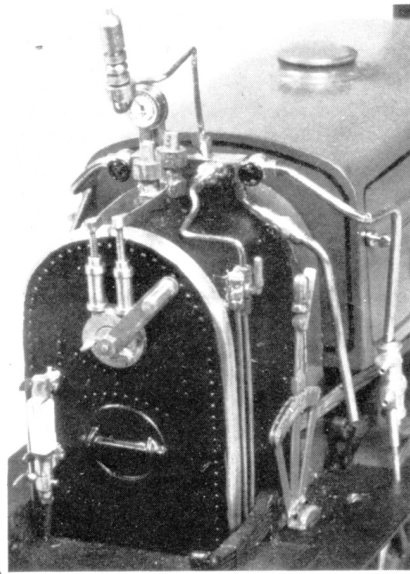
So, with an accurate machine tool, the necessary skill at using it and a set of cast iron wheels, *Bamburgh* Mark III was under way.

Mark III was the only attempt to get anywhere near completion and it even ran for a while, in the white, on the Millport & Selfield. The only problem was the noise it made! The racket had to be experienced to be believed. The fault was clearly caused by the motor and layshaft being mounted on the boiler rigidly allowing the noise of the bevel gears and bearing whine to excite the cab side sheets which amplified the din tenfold. This setback at the eleventh hour was extremely disappointing but I started to look for a solution.

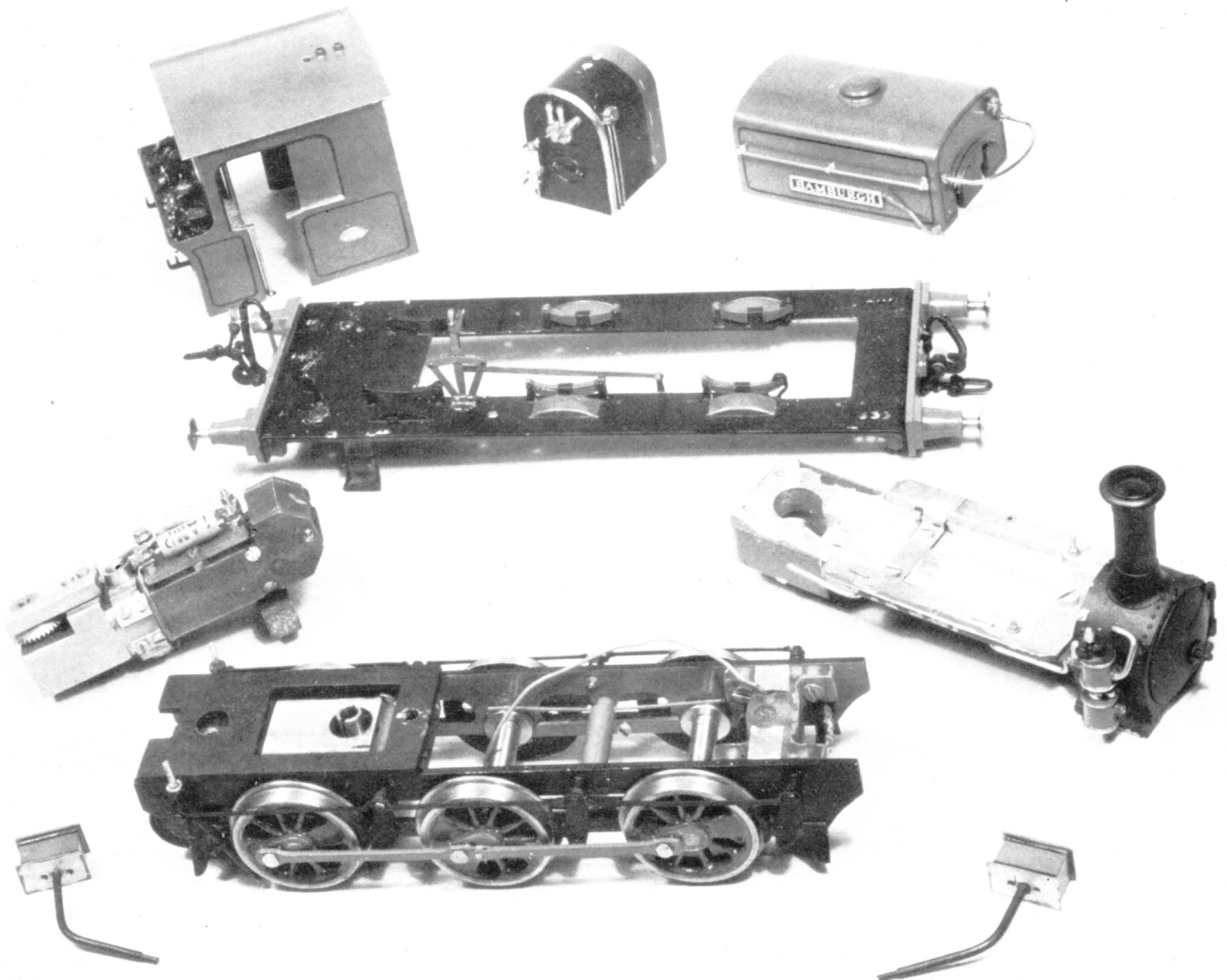
Backplate Details

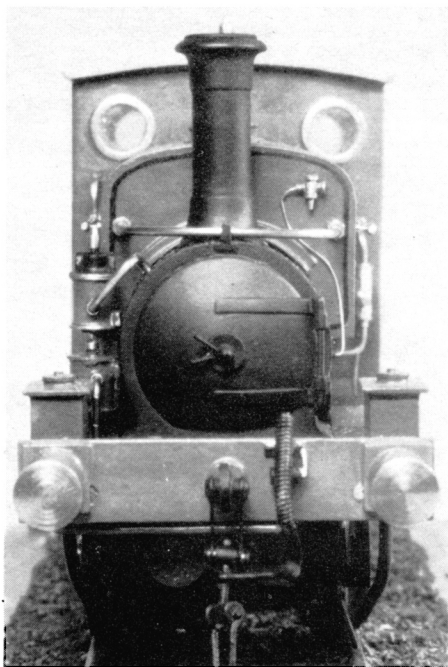
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All the boiler fittings are fabricated from brass or steel turnings, silver soldered together and polished. The handwheels are in two parts, a filed centre with a rim added subsequently. In all, there are some 70 backplate fittings.



Below: The major assemblies laid out. The main frames and footplate are mild steel with all the bodywork of nickel silver. The boiler is turned and milled from 1 inch square alloy bar and spigots in to the brass smokebox. The buffers have to be internally sprung as their centre line is proud of the framing.





This problem was overcome by designing a motor incorporating a gearbox cantilevered off the end of the pole pieces. In this way the motor could be mounted resiliently in the boiler, while still preserving perfect alignment of the primary drive. Using the original but lengthened Pittman armature, it took six weeks to design and three months to make, because it was machined from the solid with some 90 per cent wastage. I took the drawings to Sydney Stubbs for comment before starting in view of the magnitude of the job. Not only did I obtain his approval but he also offered to make the bearings as well.

I was only too happy to accept this offer and a large measure of the success of the motor must be attributed to his work.

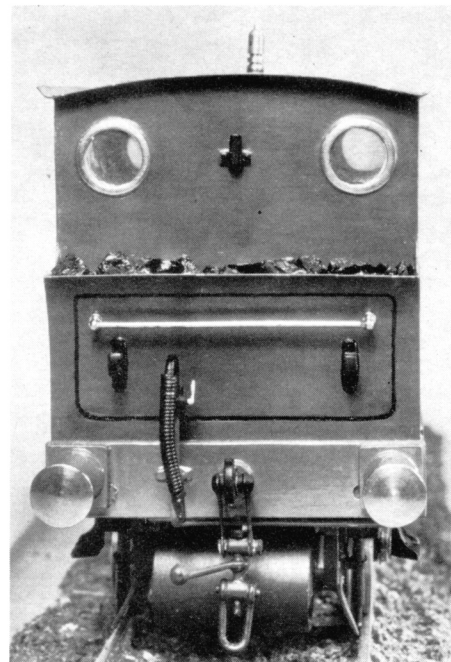
After such a tale of disaster we finally reach Mark IV. I propose leaving the photographs to speak for themselves and will close with a few comments on painting.

I heartily detest painting – be it the side of a house or a model – and *Bamburgh* has done nothing to improve this attitude. With just three weeks to finish the job in time for the 1974 exhibition, Jim Lloyd and I discovered that painting a model is by no means easy.

The engine was dismantled completely and washed thoroughly in near boiling water laced with detergent, rinsed in hot clean water and left to dry. It is advisable to avoid handling the pieces but I found that no grease or fingerprints are implanted provided your hands have been washed in hot water first.

I bought an airbrush specifically for this work but was disappointed with the result; I suspect that there may have been something wrong with mine as others report very favourably on their use. Because of my experience, the majority of *Bamburgh* is brush painted.

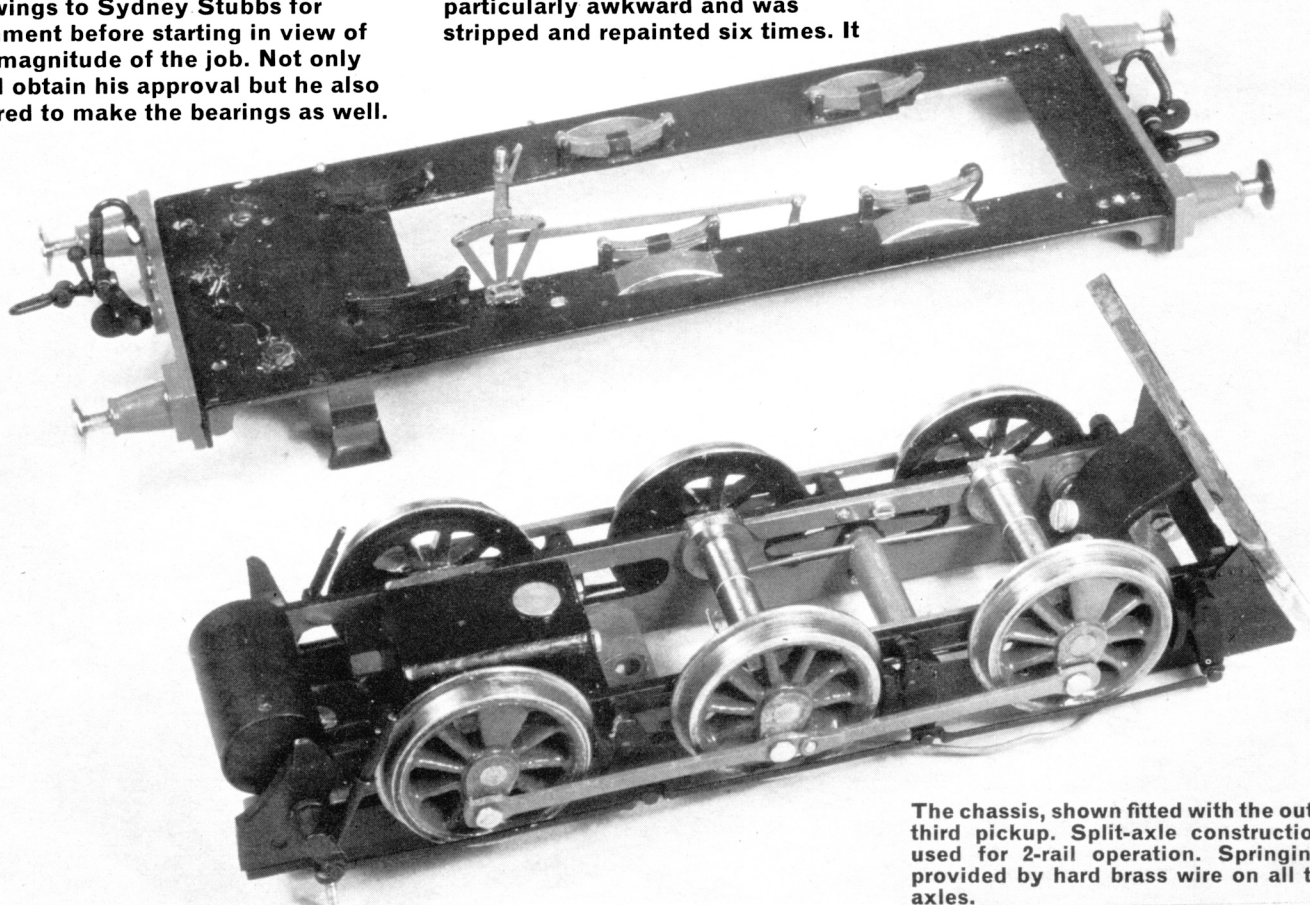
Some parts were primed with Floquil and others with Humbrol chromate. When fully dry, thin coats of top colour were applied. For some reason the cab proved particularly awkward and was stripped and repainted six times. It



is now a modelling requirement of mine that all principal sub-assemblies must be suitable for total immersion in Nitromors.

The lining out was done by Jim Lloyd, using a very fine brush and Floquil. He was still tackling some of this task on the evening prior to the opening of the exhibition, but *Bamburgh* was complete at last.

All I have to do now is persuade Bill Tate to run it.



The chassis, shown fitted with the outside third pickup. Split-axle construction is used for 2-rail operation. Springing is provided by hard brass wire on all three axles.