

**Reading Society  
of Model  
Engineers  
Charity Number  
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**Free to members**

# The Prospectus

**June 2023**



Filming The Titfield Thunderbolt.  
New series from Alec Bray. See Page 3.

**THUNDERBOLT AND LIGHTING  
7 1/4" LOCO DISASTER?  
A MOTION PLATE  
DAY TRAVELCARD DAY  
TRUSTEE NEWS**

**SUBS DUE FOR 2023/4 ONLY £20**

## A VIEW FROM THE CHAIR

John Billard

As some of you may know our ex president Les Dawson has not been too well recently and now is in the RBH. While he is making progress he is not yet fit to return home at the moment. His daughter, who has been visiting from the States, has said that he would like visitors. He is in Castle Ward Bay 4. We give Les our fondest best wishes and hope to see him back home soon.

The monthly trustees meeting was on 15th May and various topics including Gift Aid, the lease, a trading surplus on refreshments in the clubhouse, and a settlement of our insurance claim for items lost during the thefts last year.

It was announced that the club house alarm system is now complete and key holders for the clubhouse will be told of the access code before it becomes live. On the question of keys it was agreed that members should be issued with a gate key. Because of the position of the gate entrance there is a hazard caused by queuing cars. Member seeking a gate key should contact Jim Brown.

The May public running was again been very satisfactory and Stephen Millwood agreed to be track marshal on 4th June. While this duty is normally undertaken by trustees they would be very pleased if other members would volunteer for this on occasion particularly those who regularly use the tracks.

On the subject of volunteers because of some absences in the summer we would very much like some members to assist us at a number of birthday parties. This is a key income generator for the club and is very popular with our public. I just hope that one or two members will come forward to do what they can. Recently our main organiser Peter Cullham spent no less than nine consecutive days at the club. Occasionally, he may like a day off!

The Stoke Row rally is on 10/11 June and we are exhibiting. We would welcome entries from members as we have ten tables to fill and to be looked after. Please contact Mick Chalmers [machalmers60@gmail.com](mailto:machalmers60@gmail.com)

Members are responding to our reduced subscription system and numbers are rising nicely but we can always do with a few more. In response to this we have started a programme of talks on some Thursday nights which have been very well received the latest being the story of the Lynton and Barnstable railway. We could have done with a few more members in the audience though. These things do take a bit of organising so please watch out for future events.

Finally a reminder that we have a club visit to the Berkshire Museum of Aviation on 3 June starting at 14 30 if you see this issue in time.

**(But I am sorry that this edition may be late as I have now had some computer problems, thankfully resolved now Ed).**

# Thunderbolt and Lighting Part 1

by Alec Bray

## Making Technicolor

One day in early March 1953 an eight-year-old lad excitedly ran across the boys' playground of Oxford Road Primary School to see what was causing all the commotion at the school gates at playtime. Some people were giving out pop-up cards advertising a new Ealing comedy about a railway. Sadly, the young lad never got one of those advertising pop-ups, but he did get to see the film at the "Pavilion" Cinema along the Oxford Road. In those days of continuous performances, he entered a permanently dark and smoke-filled arena, stumbled down the steps, and then fumbled and bumbled along in the dark, lit only by the light from the projector beam as the "B" picture was shown.

The scene from the Main Feature that stuck in that young lad's mind was of a group of people manhandling an old locomotive out of the local museum. The film was "The Titfield Thunderbolt" – the very first Ealing Comedy shot in Technicolor.

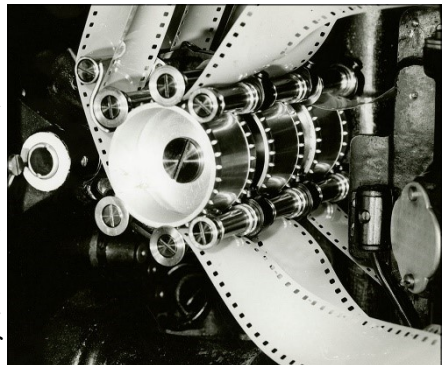
### **Left A Technicolor Camera**

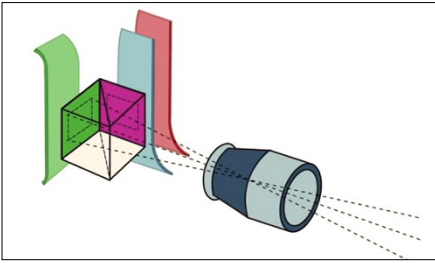


At this time, Technicolor was using a three-film technique. The original film record was made on three separate black-and-white films. In the camera, a beam-splitting optical prism, located behind the camera lens, splits the light into two paths. One strip of film was filtered to record the green parts of the image onto the black-and-white film, while the other two primary colour records were exposed onto two black-and-white film strips in "bipack" (sandwiched together); the front film was blue-sensitive only, while the back film was sensitive to red.

### **Right The film gate in a three colour Technicolor camera**

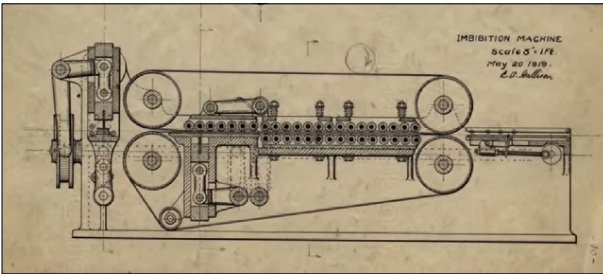
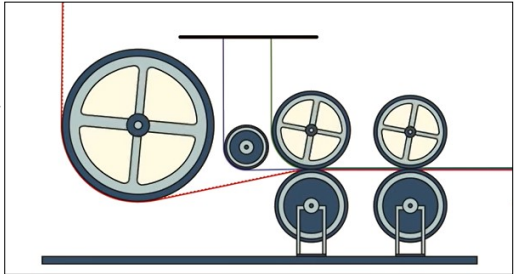
These three strips were developed separately as negatives. To create the final, positive film for theatre projection, these colour-separated negatives were projected onto specially prepared film stock which, when processed, produced relief images in hardened gelatin – in other words, the film was rather like a printing block. These three relief





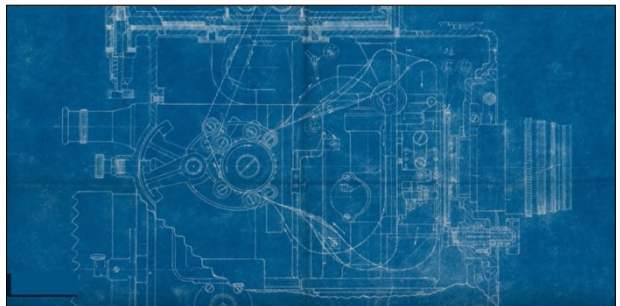
**Left** Beam split in a Technicolor camera  
**Below** Pin belt diagram  
**Lower** Technicolor dye imbibition process  
**Bottom** Blueprint of a Technicolor camera

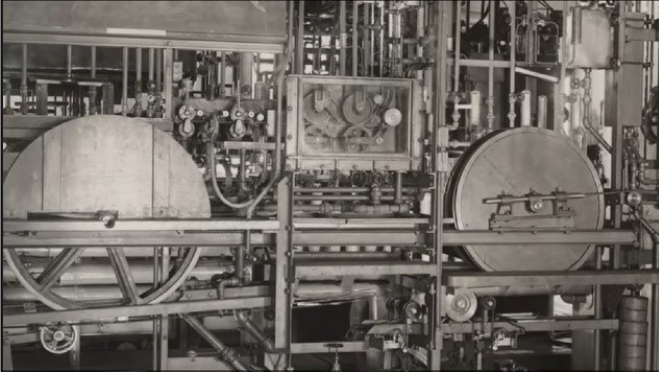
images were used to absorb an appropriate dye for subtractive colour mixing (as used in book-printing -white is the absence of colour, black is all three colours): the dyes were cyan, magenta, and yellow, and these “matrixes” were pressed close to a blank celluloid film for several minutes for



each colour, held in position by a pin belt as the film stock was continuously moved through the lab. This was the “dye-imbibition” process. The colour rendering on each such final print could be very carefully controlled – and each film print

could be unique in its colour rendering! Very great precision was required to mechanically print the three images onto a black and white film which already had been photographically exposed and developed to show the frame borders and the soundtrack – and all within a film frame measuring 22mm by 16 mm (0.864 ins by 0.630 ins), which would then be projected in the cinema onto a screen over 40 feet wide. The cameras were manufactured by the Mitchell Camera Corporation (costing at least \$30,000 each), but all taking lenses were custom made by Taylor-Hobson in England. The film company using Technicolor didn’t just rent the camera –





**Left Technicolor processing plant**

the package included camera assistants, a colour

consultant (who advised the Art Director about suitable

colour palettes to use), all the film stock and all the processing required. 29

cameras were made for live action use in the US, but in England only 4 cameras were made – and two of these were used on “The Titfield Thunderbolt”. The three-strip camera was a carefully engineered and manufactured machine, but there were certain aspects that differed slightly from camera to camera, for example, the registration of the three negative films. The Technicolor lab knew the characteristics of each camera and so compensating adjustments were made in the production of the optically prepared print matrices.

The “Thunderbolt” was Ealing’s first Technicolor film, but it was one of the last to use this three-strip process – it was out of use in the US by 1955. Technicolor was both an intensive and expensive system, and so was generally used only for prestige productions: the three-strip process also needed a lot of light. One advantage of the Technicolor dye transfer (imbibition) process is that, because the process used stable acid dyes, Technicolor prints are now considered of archival quality. A Technicolor print from the dye transfer era retains its vibrant original colours virtually unchanged for decades with proper storage.

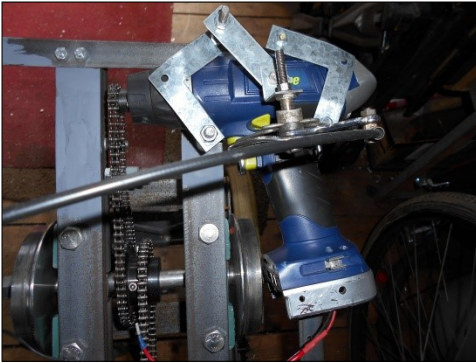
*(Next, filming the Titfield Thunderbolt)*

## **BUILDING A 7 ¼ “ ELECTRIC LOCO continued by TERRY WOOD**

### **A disaster**

After checking that everything worked ok on the new loco it was time to give it its first run on the track and this it did ok until it got to the first gradient when it slowed right down and smoke started coming out of the PWM controller. This was supposed to be a steam outline electric loco but I didn’t realize that it would pour smoke out as well!

Time to have a rethink about the power source. The reason why the motor controller gave up the ghost was because the gearing was too tall and rather than go to the complication of fitting a train of gears or yet more chains and sprockets, I decided to use an old cordless drill that I had lying about. This



would solve two problems at a stroke a, the gearing would be much lower and b, the drill has a built in PWM speed control so all I had to do was fathom out how to fit it on to the chassis of the loco. A drill is a very awkward shape for bolting down solidly to a frame but luckily this particular drill had 2 flat sides to it and so it was a lot easier to secure it to the chassis, also the original sprocket fitted onto the shaft where

the chuck normally goes this meant that the sprocket would be very close to the front of the drill thus putting less strain on its shaft and bearing.

I then clamped the drill on to the chassis using four M6 studs and two right angle mending plates purchased from a famous DIY store. The base of the drill where the battery normally sits had to be cut down to clear



the chain drive to the rear wheels and was also bolted to the chassis to give extra rigidity. When I started to run the drill I noticed that it was moving slightly due to the studs at the front being too far apart this I cured using a bigger diameter M8 stud on the side where the chain was and fitting a nylon spacer over the stud so that when it was bolted up it pressed hard up against the drill to stop it moving, I also fitted a chain tensioner to the chassis because the drive chain was endless. I then changed the battery which was originally 12 volts for the 24 volts battery I use in the 5" gauge loco.



The next problem was how to control the drill's speed and the easiest way I could do that was to use an old bicycle cable brake caliper attached in such a way as to squeeze the trigger button on the drill. At first I made up two right angle brackets using more mending plates and at the other end I used an old brake lever attached to one half of an old electric scooter's handle bars so that when you squeezed the brake lever it would then squeeze the trigger but-



ton on the drill it looks a bit Heath Robinson but it works, this also had the advantage of having a very simple wiring loom the two wires from the drill going straight to the battery via a fuse making the cables very short.

I then made up a square body panel so that I could sit on the loco while it was going round the track without the need for a trolley. This time it was successful and got round the track no problem without any dramas although you had to be careful with the controller because it controlled the drill motor smoothly up to nearly full speed and then it connected the drill directly to the battery and a sudden jerk would occur and you had to slow it down again in order to continue a steady speed, the other ad-

vantage with using such a low geared transmission is that you don't need any brakes because if you let go of the control lever suddenly the loco stops dead and so you have to be very gentle on the brake lever control.

After proving that the system worked I then moved the drill to the centre of the chassis in order to fit the dummy boiler cover, this then meant moving the transmission right over to the far left end of the front axle in front of the left wheel so it will be interesting to see if this has any bearing on the handling of the loco when its pulling a trolley.

*To be continued.*

## NOTICES TO MEMBERS

**New members this year:-** Rob Booth, David Dollery, Chris Makin, Richard Mullard, Chris Mullard, Steve Ward, Mayank Yadav.

And re-joined this year Andy Midwinter

Jackie Lunnon of tea bar fame is also now a member. Membership rules having changed, she is the sponsoring member of Quin Lunnon.

New and old we welcome them to club activities.

**Club security:-** Club members can apply to Jim Brown for a gate key. Please contact on [jimebrown655@gmail.com](mailto:jimebrown655@gmail.com)

A new clubhouse alarm system will be inaugurated on 1 June. Existing clubhouse key holders should contact Mike Chalmers for more information. [machalmers60@gmail.com](mailto:machalmers60@gmail.com)

**Stoke Row Rally 10/11 June.** Assistance at the weekend and entries will be welcome. Please contact [machalmers60@gmail.com](mailto:machalmers60@gmail.com)

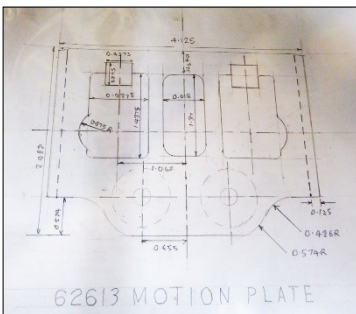
**Birthday Parties** Peter Culham would appreciate some additional help this summer for these happy events. Please contact him on [peteculham@gmail.com](mailto:peteculham@gmail.com)

# BUILDING A CLAUD

## Motion plate John Billard

Having straightened out the frames and checked that it was all square the next stage was to make the motion plate. Older readers will recall that I am building this engine with few published drawings as an adaption of the Martin Evans design. Such a change has been to place the valves under the cylinders as per the original engine. This has meant that I have had to design my own motion plate. Finding the exact place to locate it between the crank and the cylinders was critical.

In traditional fashion I have produced a drawing using the works drawings as a start. The motion plate has a dual function of locating the slide bars and the valve spindles which are guided by castings in the original. I have decided to use the position of the spindles to find the spot. The Great Eastern design requires that valve spindle guides are angled to the motion plate. I couldn't find a way off machining this satisfactorily so the motion plate itself was recessed to provide this angle. This allowed the machining of the spindle guides to be straightforward.



**Please note that subscriptions are due from 1 April. These have been reduced to £20. We have had many renewals and a good number of new members but if you are not one of them please contact Mike Manners on [michael.manners2@ntlworld.com](mailto:michael.manners2@ntlworld.com) or 07817 271981.**



## **TRAVELS WITH A TRAVELCARD**

**by John Billard with Stephen Millward**

It was a while ago when fellow member Stephen Millwood suggested that we might have a day travelling around London using a Day Travelcard. This gives complete access to local GWR trains, the Elizabeth line, London Overground Zones 1 to 6, the Docklands Light Railway, reduced fares on the London cable car, and the London Clipper riverboat service. So plenty of scope to sit back and watch the city go by.

So on 2nd May starting from Twyford we travelled on the familiar line to Ealing Broadway and to the District line to Turnham Green. Then on to Gunnersbury for a welcome coffee break at a wonderfully alternative place by the station. We then went to West Brompton via Willesden Junction and onward to Wimbledon where we took the tram to West Croydon. This was the first journey for me on a London tram since 1952!

By this time we were definitely in need of pint and we found a pub nearby that I certainly approved of since it banned baseball caps. (for security reasons). Even better it was a proper pub with no food available.

Crossing the road back to the station it was return to the rail on a journey to Shadwell taking in the original Marc Brunel Thames tunnel. The next mode of transport was the Docklands Light Railway as far as Royal Victoria. The DLR is always fun with its switch back curves and fairground feel. One can pretend to be the driver as well by sitting in the front of a carriage.

It was then time for delayed lunch in the environs of the former London Docks. It was a shared pizza that summed up the impersonal international feel of the place so far removed from the working past. It seemed right to fly away on the Emirates cable car to the Greenwich peninsula. From air to water we showed our travel cards and boarded the Clipper riverboat service to Bankside. What an unrealised resource the Thames is these days! Apart from pleasure boats we saw refuse barges and little else. I can remember in my youth unloaded big ships in ballast sailing downstream with their propellers visible and turning. But it was a bright afternoon with good views of Tower Bridge and HMS Belfast. And these craft can really go.

A riverside walk took us to Blackfriars station. This has been completely rebuilt with covered platforms bridged across the river. We were surprised by the crowds waiting for trains for their way home. Commuting still lives. We boarded an inbound service to Whitechapel and from there we completed our journey on the Elizabeth line back to Twyford.

So that was our trip for the day. There is much more scope for a further excursion to other parts. But beware, Transport for London (TfL) has announced that it wishes to abolish the Day Travelcard in September. Reading Council has protested as well as many more.



*Left Twyford*

*Below Turnham Green*



*Left Gunnersbury*

*Right West Brompton*



*Left At the Old Fox and Hounds  
in West Croydon*



*Left* Shadwell, DLR approaching.

*Right* Royal Victoria (ex Docks)



*Left* Pool of London

*Right* London Bridge

Photos John Billard



## DIARY

### JUNE 2023

Thursday	1st	Special Needs	13.30—16.00
Saturday	3rd	<b>Club Visit to the Berkshire Museum of Aviation</b>	14.30
Sunday	4th	Public running Setting up from 09.30	12.00—16.00
Saturday	10th	Club running	10.30 onwards
<b>Saturday</b>	<b>10th</b>	<b>Stoke Row</b>	
<b>Sunday</b>	<b>11th</b>	<b>Rally</b>	
Thursday	15th	<b>On the Bench night</b> Club house	20.00
Tuesday	20th	Club running	10.30 onwards
Thursday	22nd	<b>Club Talk by Alec Bray</b> <b>Simulated valve gear</b>	20.00

### JULY 2023

Sunday	2nd	Public running Setting up from 09.30	12.00-16.00
Saturday	8th	Club running	10.30 onwards
Thursday	11th	<b>On the Bench Night</b> Club House	20.00
Tuesday	18th	Club running	10.30 onwards
Thursday	20th	<b>Club Talk The End of BR(S) Steam by John Billard</b>	20.00
Monday	24th	Special Needs	11.30-16.00

**Note from the Editor. Please provide photographs as separate files and not embedded into the text. No pdf files please.**

Opinions expressed in PROSPECTUS are the personal views of the contributor and cannot be taken as reflecting the views of the trustees or editor.

**The deadline for the July issue is 20 June**

Contributions may be submitted in hard or soft copy to the editor.  
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