

Voie Libre

#109

THE MAGAZINE OF RAILWAY CREATORS

Removable
drawings

PRATICE

ASSEMBLING A KIT,
UNCOUPLING WAGONS,
SPOTTING A TRAIN,
WEATHERING STOCK,
MODIFYING A LAYOUT,
SUPPLYING LOCOS...

PROJECT

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SALES INSPECTION:
MANAGEMENT OF INDIVIDUAL COPY SALES:
Pagure Presse, tel.: 0144 69 82 82
(For professionals only)

DISTRIBUTION: MLP

Voie Libre is a three-monthly publication
by LR PRESSE SAS
N° CPPAP: 0125 K 86822
Legal deposit at publication date
N° ISSN: 1285-5081

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Main partners:
Ch. Fournereau & B. Fournereau
"Printed in France/Imprimé en France"
Voie Libre is published by

LR PRESSE



April, may, june 2022

Editorial #109

IMAGINATION AT THE HELM

This old slogan still has plenty of life in it. And is even particularly well suited to railway modelling! How to haul yourself out of the current routine? How to avoid obeying dictates? How better to escape than by letting your imagination roam freely, by building a magic world, more or less inspired by the real one

or harking back to what is a not-that-distant past?

Railway modelling offers the possibility of dabbling in art, in culture, in history, in technology, with our imagination at the helm.

So, yes, I definitely adopt this old slogan and wish you full powers!

François Fontana

Follow us on Keep in touch all the year round with **Voie Libre** on blog.voielibre.com

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of fun!

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Central folder

CHEMIN DE FER DE LA CORSE
BILLARD A80D RAILCAR N° 513

In pictures

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BEMO : MOB MOTOR UNITS, HERE COMES THE SOUND!

Four versions of the MOB motor units 7 to 20 are now available in Digital Sound, in addition to the simple analogue versions. Here are two versions: ref. 1383 304, CFZe 4/4 n°1004, in light grey and white, prior to 1956, and ref. 1383 392, the X 22 unit in oxyde red, service version from 1956 to the late 1960s. These models, reviewed previously, are still as finely engraved and feature elegant original liveries that differ from the earlier versions. The added bonus is now the sound function with an ESU LokSound V5 Next 18 NEM 662 decoder, producing good quality and varied sounds. These units run beautifully, and they have reversible lighting: three white lights at the front and one at the rear.

Jacques Royan



BEMO
PRICE OBSERVED: ANALOGUE 330€.
DIGITAL SOUND 427€.

H0-12



BEMO : RHB SELF-PROPELLED VAN, HERE COMES THE SOUND!

Bemo has produced a new version of the RhB self-propelled van De 2/2 151 built by SIG and Alioth in 1909. It is supplied in its 1962 to 1980 livery (its body was completely metallized that year), with a wooden body, painted in oxyde red. An overhaul date is indicated: 26th August 1974. The model is neatly reproduced, with an uncommon double bow

pantograph. Running qualities are as good as ever, especially with the ESU decoder factory-fitted to this reference. The lighting is reversible: three white LED lamps at the front and one white one at the rear right-hand side, as specified by Swiss regulations. The model is fitted with a digital Next 18 NEM 662 socket.

Jacques Royan



BEMO
REF. 1377 125
RECOMMENDED
PRICE: CA. 620€.

H0-12



TILLIG
PRICE OBSERVED : CA. 230€.
ALSO AVAILABLE IN H0-9
REF. 02957.

H0-12

TILLIG : THE MEG T7 RAILCAR WITH A GASIFIER!

Under ref. 02947, Tillig has just released a new version of this charming little 4-wheeler railcar. But this time, fitted with a gasifier, very much in evidence at one end. This railcar was built by Orenstein & Koppel and Gotha in 1939, and was fitted with a gasifier in 1942. Weighing 8.1t, with one single axle driven by a 70hp Daimler Benz motor, it could run at 55 kp/h. It was able to haul a bogie carriage. It ran on the MEG network that was connected

with the Strasbourg tram system via Kehl. This railcar has been preserved, without the gasifier unit of course, and is currently being restored. The unit runs smoothly and its speed is realistic. It is fitted with a digital Next 18 NEM 662 socket. Its reversible lighting features two white lights and two red ones. Unlike the prototype, the model has two driving axles.

Jacques Royan

What's New

HALLING MODELLE : THE WIENERWALD RAILWAY DIESEL TRACTOR

This tractor was built to modernize one of the narrow gauge lines that surrounded Vienna. Sadly, it arrived too late and was unable to slow down the closure processs. Now preserved, it hauls the BBÖ tourist trains. The Halling model, while it features the Wienerwald Railway livery, is actually an adaptation of another reference from the same manufacturer. The running qualities are in line with the brand's high standards.

François Fontana
(based on Halling documentation)



HALLING MODELLE
REF. 207002
PRICE: 249€

HALLING MODELLE : CARRIAGES FOR THE WIENERWALD



With the tractor available, carriages were needed. These models are in fact similar Stängl references. The train consists of three carriages with different numbers: 703, 712 & 714.

François Fontana
(based on Halling documentation)



HALLING MODELLE
Halling Modelle
Ref. 725-203-WW,
725-212-WW, 725-214-WW
Price: 79€

TILLIG : A HARZ BOGIE CARRIAGE

This is a new version of a KB4ip 900-513 bogie carriage from the Harz metre gauge railway. Built in Bautzen in 1932, it is supplied here in the red and cream livery it carried from 1972 to 1986, the year when it was completely rebuilt. It should be noted that this carriage had run previously on the Saxon 75cm gauge networks until 1958.

Jacques Royan



TILLIG
Ref. 13984
Price observed: ca. 45€.
Also available in H0-9.



REE : NEW COUPLINGS FOR THE WAGONS ATTELAGES POUR LES WAGONS

The second run of the first series of CFD wagons in H0-12/H0-9 provided an opportunity for REE to correct a « youthful mistake » on these very attractive models, the very first items of metre gauge stock ever produced by an industrial manufacturer. These small wagons are now supplied with two pairs of loop couplings. The first, which was already found on the first run, locates the coupling level with the buffer beam. On the other hand, the design of the metal loop has been modified and allows the wagons to be coupled « flat » without one of the loops raising and interfering with the coupling process. In this configuration, the REE models are compatible with the historic Gécomodel and Mougél productions.

The second pair of couplings are below the level of the buffers. This makes the REE wagons compatible with the whole Bemo and Tillig H0-12 range. And good news for H0-9 fans, they will also be able to couple these wagons with all their stock. Peco, Bachmann, Lilliput, Egger-Bahn, Jouef, P'tits Kits: everything I tested coupled smoothly with my REE box van.

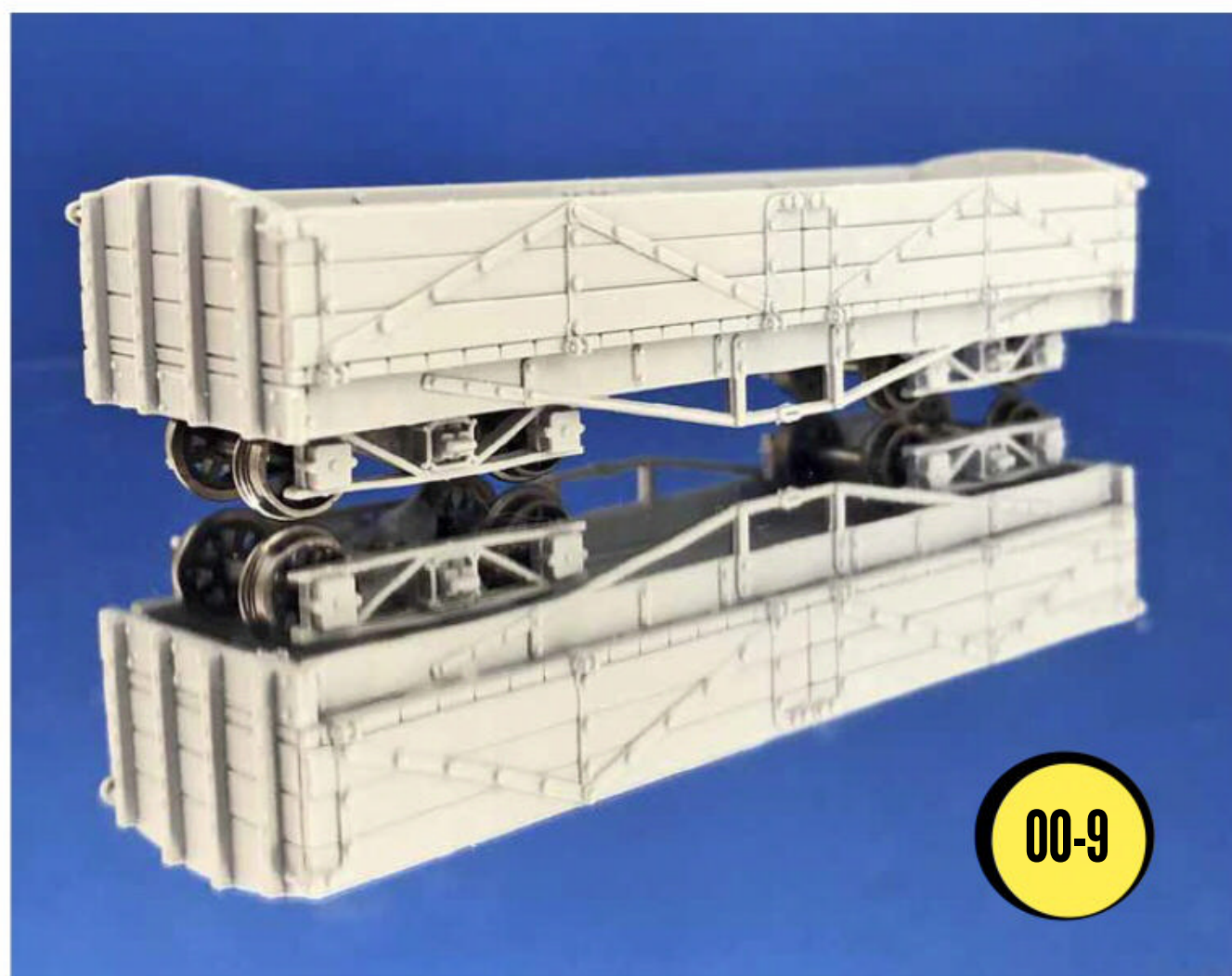
Eric Fresné



REE
SET OF TWO WAGONS
REF. WM-09 TO WM-21
PRICE: CA. 60€



CHIVERS FINELINES : AUSTRALIAN WAGONS



After a few years of slumber, the artisan firm Chivers Finelines is back with a few new references in 00-9. Bogie wagons from the Innisfail Tramway caught our eye. These injected plastic kits are assembled with model cement. They are supplied without axles (6 mm wheels) nor couplings. Their relatively generous loading gauge means they can probably be adapted for 12mm gauge.

Eric Fresné

CHIVERS FINELINES
Ref. RC-811 H TYPE OPEN WAGON
REF. RC-812 OPEN WAGON WITH
CURVED SIDES
Price: 10£
<https://www.five79.co.uk/>

SOFTWARE



www.solidworks.com/makers

SOLIDWORKS BECOMES AFFORDABLE!

Property of Dassault Systèmes, Solidworks is one of the leading softwares, if not the leader, on the market of parametric CAD for industry. Over the past 15 years, a policy of widely distributing this product to the educational community means that many a railway modeller have cut their 3D teeth on this software. The only drawback, and not a small one, was the several thousand euros that had to be spent to obtain a private licence, a cost

well beyond our budgets... Dassault therefore decided to broaden its offer towards the general public by offering a <<makers>> version of Solidworks at a price equivalent to that of a standard office suite. For private use, a licence costs 9.99\$ per month or 99\$ for a year. It also allows you to sell your productions within a limit of 2000\$ worth of profit per year. Watch out, the Web page presenting the offer is in english!

Éric Fresné

Book

A METRE GAUGE MINING RAILWAY

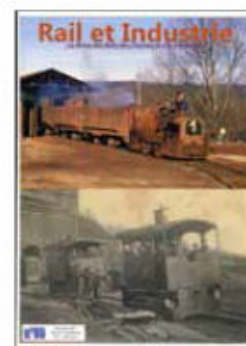
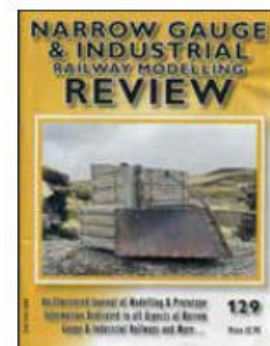
Industrial metre gauge lines, directly connected to standard gauge, were not common in France. The Baburet mining railway, in the Pyrénées-Atlantiques, is one of those rare exceptions. It linked the mining concession of Baburet from Ferrières to the Midi station at Coarraze-Nay, along the narrow Ouzon valley. The line's history is unusual, because it was entirely built by German companies as part of reparations in kind owed by Germany under the Versailles Treaty. Likewise for the rolling stock, supplied by Orenstein & Koppel for the large 0-8-0 T engine used on the line and by Waggonfabrik Lüttgens for the hopper wagons. The line was only operated for some 30 years, including a 4-year interruption... Over 100 pages, the author describes the various aspects of its history, from the outset to closure. The illustrations are well-chosen, plentiful and can provide plenty of ideas for a complete layout project.

Éric Fresné



MICHEL C. DUPONT
VOIE MÉTRIQUE EN BÉARN : LE CHEMIN DE FER MINIER DE BABURET (HORS-SÉRIE) (<< METRE GAUGE IN BÉARN : THE BABURET MINING RAILWAY >>) (SPECIAL ISSUE)
RAIL & INDUSTRIE
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42100 SAINT-ÉTIENNE, FRANCE
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PRESS REVIEW



GATHERINGS

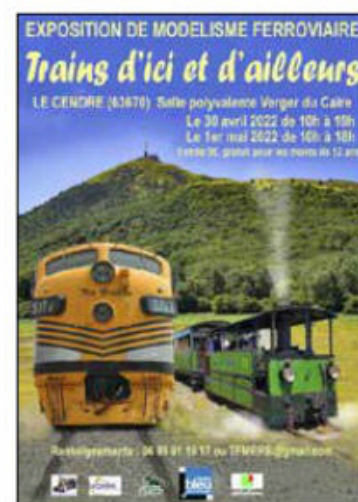


AT LE CENDRE
(PUY-DE-DÔME, NEAR CLERMONT-
FERRAND, FRANCE)

30TH APRIL – 1ST MAY

TRAINS D'ICI ET D'AILLEURS

A delightful exhibition with always plentiful and sometimes whimsical displays. The many US-inspired layouts, often in narrow gauge, are well worth discovering. A change of air and plenty of fun.



GRANGES-PACCOT
CANTON OF
FRIBOURG IN
SWITZERLAND

30TH APRIL – 1ST MAY

PASSIONS FERROVIAIRES AU KAESERBERG

In the wide spaces of
the Kaeserberg layout in
Switzerland, open to the public, discover the creations
of many modellers in standard and narrow gauge.



In Issue 129 of the Narrow Gauge and Industrial Railway Modeling Review, Sidney Leleux takes a closer look at the cleanliness of industrial steam locomotives. The article is lavishly illustrated in colour and it appears that these engines were much cleaner than is generally believed. A topic that the Voie Libre editorial team will examine in a future issue. Rail & Industrie 86 has drawn up a dossier on the Berry tractors and their use in the bauxite mines of Var, and devotes three pages to the road transport of a 60cm gauge Decauville 0-6-0 T. The photos could be a great subject for a diorama! Voie Étroite continues to review the history of the P'tit Train de la Haute Somme, this time with the 1976/1980 period seen through the lens of Bernard Vieu. Our German fellow publication Schmale Spuren studies the construction of a large silo with a loading chute above a track below, and also contains a fine feature article about a railway in South America.

La Rédaction

TOURIST GATHERINGS SPRING EVENTS

After two <<lost>> years and the postponement of many events due to the pandemic, several tourist railways are catching up this spring and are announcing events for the long weekends in April, May and June.

Signed: the Editorial Team

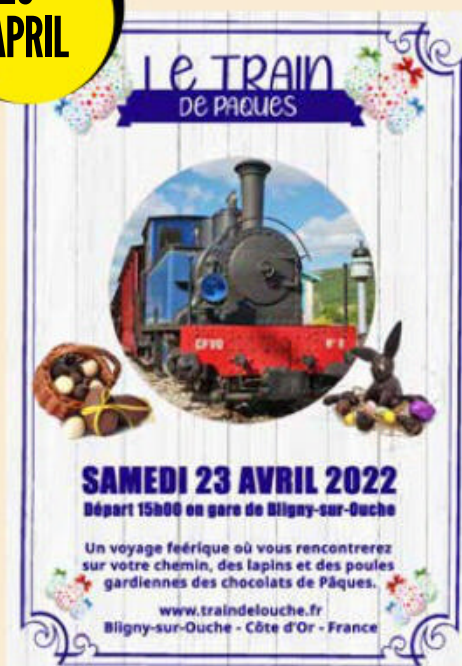


FROM 26TH
TO 29TH MAY

50 ANNIVERSARY OF THE P'TIT TRAIN DE LA HAUTE-SOMME

It should have taken place in 2021, it will be 2022 instead. The APPEVA association celebrates the half-century of the start of tourist operations on the Dompierre sugar mill line during the Ascension weekend (26th-29th May). Visitors will enjoy a cast of heavily sugar-beet leaning trains. The Chemin de fer de la Vallée de l'Ouche will attend with its Couillet 0-6-0 T. The other guest, the Pithiviers transport museum, will bring the La Meuse 2-6-0 T. An opportunity to see both engines run together, for the first time since they jointly operated at the Maizy sugar mill seven decades ago. Goods and passenger trains are planned. The museum will host a modelling exhibition and associations' stands. Trains will run from 10h00 to 19h00 from 26th to 29th May. Advance booking is strongly recommended.

23RD
APRIL



THE EASTER TRAIN

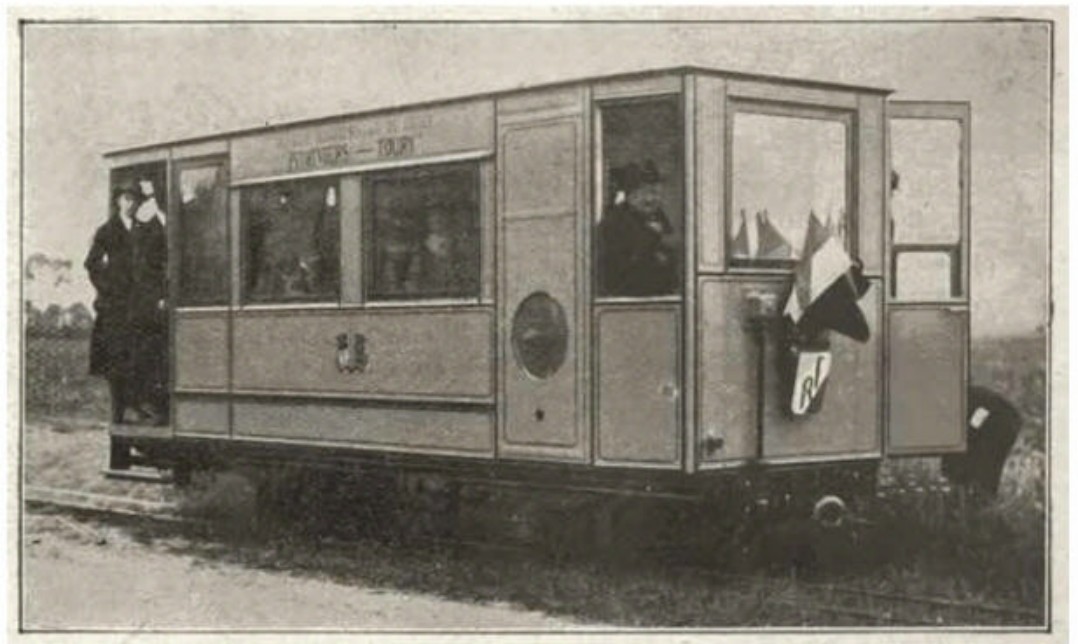
The Chemin de Fer de la Vallée de l'Ouche at Bligny-sur-Ouche kicks off with its diesel-hauled springtime train. A nice way to discover the aspects of Côte-d'Or that are off the beaten track, as it were For all information, take a look at www.traindelouche.fr

DOUBLE ANNIVERSARY AT PITHIVIERS

FROM 4TH
TO 6TH JUNE

2022 is also the year of the 130th anniversary of the opening of the Pithiviers - Toury tramway line. The AMTP preservation society will celebrate the event during the Whitsun week-end, on 4th, 5th and 6th June. This will also be the opportunity to celebrate the 100th anniversary of the Crochat railcar, which spent its whole existence on the railway.

The museum will host a modelling exhibition largely dedicated to narrow gauge. The terminus at Bellébat will witness a vintage road vehicle gathering. On 4th June, Pithiviers station will welcome 141 R 840, based at Les Aubrais, for its return to the national rail network. The organizers have also announced a surprise that will be disclosed on social networks in the coming weeks...



UXEGNEY FORT INAUGURATES ITS 60CM GAUGE LINE

FROM 26TH
TO 29TH MAY

After having had to postpone it for two years because of the pandemic, the ARFUPE association will be organizing the inauguration of its 60cm gauge line that connects the fortifications at Uxegney and Bois l'Abbé. The installations will be open to the public during the Ascension weekend on 26th, 27th, 28th and 29th May. The official inauguration will take place on Friday, with the public attending. Besides trains running on the line, the Schneider and Crochat military tractors, the last survivors of their respective classes, will be on display. Visiting the fortifications preserved and maintained by the association will naturally be possible.





Billy once assembled and completed. A driver, a lifting jack and some light weathering with pastels have been added. Apart from this, the model is just as supplied in the set.

KATO THE DEEPENING WITH STEAM RANGE

It was a pleasure to discover this initiative by Kato, aimed at promoting railway modelling. The Deepening with STEAM range has arrived. But what exactly is it?

Text and illustrations : François Fontana



THE MODEL AT A GLANCE

Manufacturer : Kato

Scale : 1/87

Gauge : 9 mm

Material : mainly card

Price : 64€

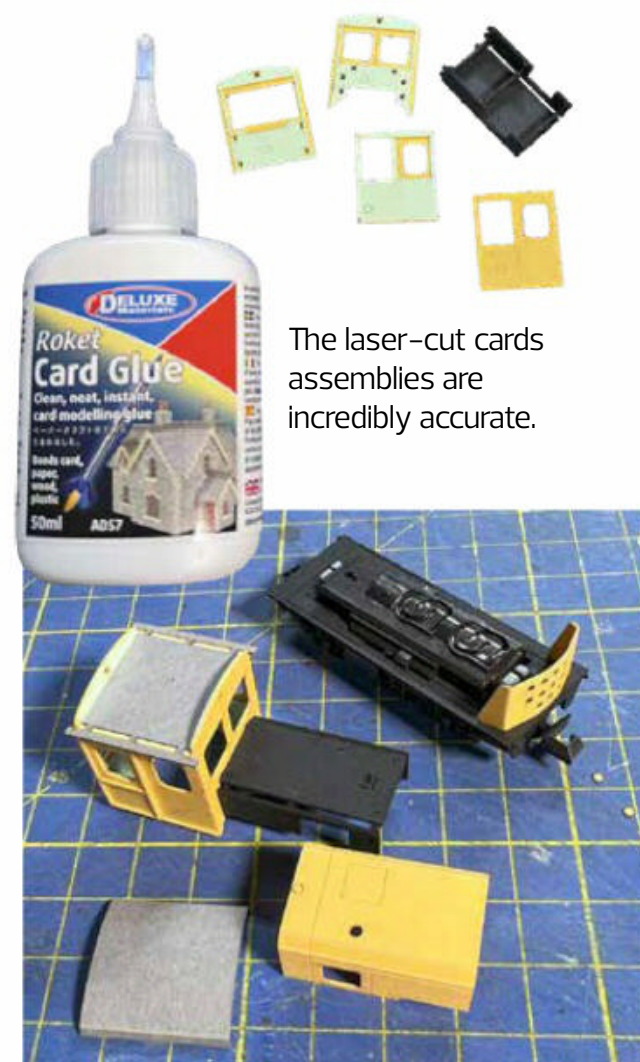
STEAM is an acronym conjured up by the Kato team using the words: Science - Technology - Engineering - Arts - Mathematics. The full name of the range is «Deepening with STEAM». With the concept in place, railway modelling calls on many abilities and opens up a wide range of activities. Among the sets available, I opted for Billy, not because it is an item of motive power, but because it is a card construction project.

THE SET

The packaging is a fine and brightly coloured cardboard box, containing a series of laser-cut coloured card sheets, a bottle of specific adhesive and a driving mechanism. It is supplied with an illustrated booklet telling a story in which a boy and a fox guide the modeller. Assembling the tractor is simple, requires care, but the model is so well designed that it is hard for the result to be unsuccessful. I was just sorry not to be able to read the story nor



The contents of the set.



The various sub-assemblies.

to understand all the information, the text being printed in Kanji.

MATERIAL

There are 7 sheets, six made of coloured card for the armature and the body, and one of rhodoid for the glazing. Each sheet is identified by a letter and each part by a figure, the step-by-step exploded assembly diagram leaves nothing in the dark. A pouch contains plastic parts, the two headlamps and the silencer. Each stage corresponds to one basic principle: shaping, assembly, gluing, etc. The black card chassis fits over the well-known 4-wheeler Kato driving mechanism. The superstructure is a simple push-fit over the chassis once it is assembled. I did not paint the model, as I wanted to keep it in its original condition, but the last page of the booklet tells you how to proceed and how to combine the colours harmoniously.

OUT ON THE TRACK

The Kato driving mechanism is supplied with N scale couplers, they will need to be replaced by couplers imitating the central buffer with a tab, compatible with our usual loop couplers. The coreless motor runs smoothly, but the rather weak gearing ratio

means the vehicle runs a bit too fast. The tractor is also a tad too light, and adding some lead ballast under the bonnet is recommended. There is enough space available.

THE RANGE

The Deepening with STEAM range consists of several sets: an N scale plastic kit railcar,

the H0-9 Billy card tractor, an H0-9 open wagon, made of metal that must be soldered, a series of minidioramas in 9mm gauge track built around curved track lengths. The purpose of all these references is to help modellers discover every time a specific technique and to take their first steps in the world of railway modelling.



The finished model.



TRULY OUTSTANDING THE GEORGE ENGLAND 0-4-0 TENDER SADDLE TANK

The small Ffestiniog Railway George England 0-4-0 tender saddle tank locomotive, produced in 009 by a Peco-Kato partnership, is now available. Announced in late 2019, this model fully keeps its promises.

Text and illustrations: François Fontana

THE MODEL AT A GLANCE

Manufacturer: Peco-Kato

Scale: 1/76

Gauge: 9 mm

Minimum radius: 15 cm

Weight: 59 g

References: 51-251 A Princess,
51-251 B Prince

Price observed: 187,50€

The model is beautiful! This has become customary nowadays: contemporary technologies lead to perfectly accurate reproductions, very fine detailing and breath-taking liveries. My two locomotives, Princess and Prince, were delivered a tad roughly in their very simple Styrofoam packing and cardboard

box. I say «a tad roughly» because this is the only reservation I have, the cabs having become separated from the remainder of the locomotive. Nothing really serious, of course, I click-fitted the structures back in place, plugged in the blower pipe and fitted the safety valve assembly, a beautiful part by the way! It is to be hoped that the next series will be more carefully packaged.

**ON SALE
AT THE SHOP
LR PRESSE**



Princess n° 1 and Prince n° 2, in their fine red livery with black and white lining.



The model is easy to dismantle, note the conductive towbar between the loco and tender. The large loop couplings can be replaced by more discreet ones.

AT FIRST SIGHT

Princess and Prince are mythical locomotives for narrow gauge fans, being the two very first engines to have been built for 60 cm gauge track. This gives an idea of how keenly they were awaited and how carefully they will be scrutinized. The injected plastic superstructure is self-coloured, the rivet lines on the saddle tank catch the light wonderfully, emphasizing how incredibly fine they are, and above all the fact that there are two rows of them. No unsightly moulding marks are visible on the steam dome or the tank filling cap, while the black cab roof is an add-on part. The model is supplied with a set of small gold-coloured knobs to be fitted onto the tender and the sandbox covers, as well as with two N scale couplers that can replace the traditional loop couplings for us Continentals. On the saddle tank, the two name plates are also add-on parts, just like the golden spectacle plate rings. And, last but not least: the livery. The black lining, edged with white, the black outline of the apertures and of the sharp angles, the Ffestiniog Railway and Boston Lodge Works

plates fitted to the cab sides are all incredibly sharp and perfectly legible if you have a magnifying glass!

PEEPING UNDER THE APRONS

Start by uncoupling the engine and tender by simply pulling on the towbar, which doubles as an electrical conductor. Good news: the tender picks up the current! The steel tips of the half-axles revolve in embossed metal journals that leave a certain amount of freedom, which helps absorb any unevenness in the track. Ballast is fitted inside the tender.

The red plastic cab and superstructure of the locomotive clip-fit onto the chassis, no glue! The engine block is removed in the same way, from below the black injected plastic chassis-boiler assembly. The long coreless motor features a fine worm gear that drives the axles through a cascade of straight gears. The front end of the motor shaft is fitted with a large flywheel, solidly fixed between two bearings. A cast metal ballast surrounds the driving mechanism. This is heavy duty stuff! The model is not pre-fitted for a DCC decoder. The

very fine spoked metal wheels are chemically blackened and the rear axle is fitted with adhesion tyres; we shall discover below the virtues of this arrangement. The motion, painted red, is made of metal and is truly superb!

OUT ON THE LINE

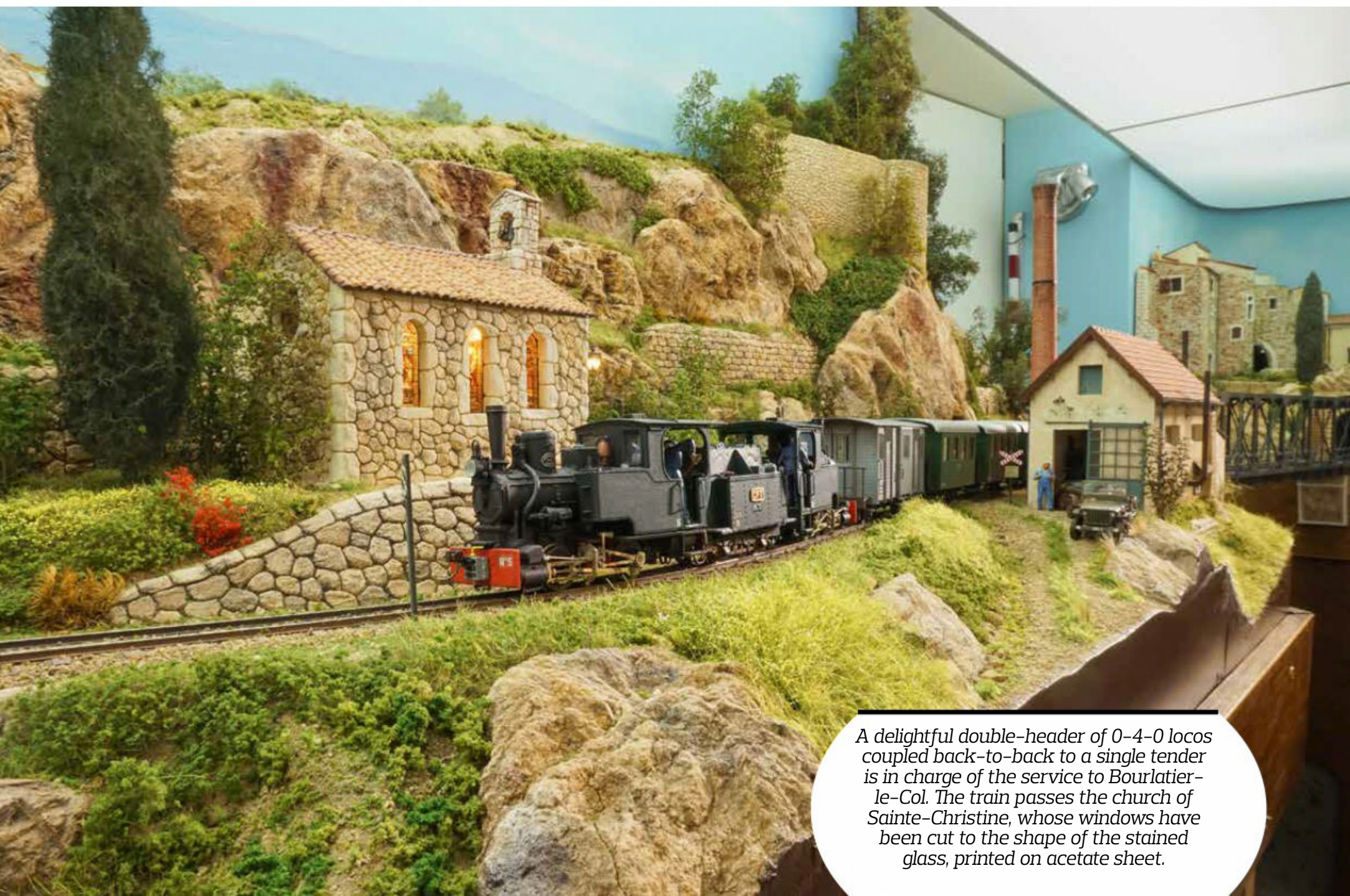
The locomotive and its tender are designed to handle the Peco 22.8mm radius curves; naturally, I tested them on a tighter one: the engine runs happily through an Egger-Bahn 14cm radius curve. The motor starts up on the first notch of any analogue regulator, and the engine runs slowly in absolute silence. I carried out my usual tests: oval of track with 22.8cm radius curves, gradual gradient up to 10 %, the engine climbs smoothly! The limit does not lie with the locomotive, but with the hauling line, as the wagons overturn when there are more than 28 axles on the train. The traction tyres have proved their worth. This locomotive is a remarkable success, warmest congratulations to the Peco-Kato tandem!

The county of Tanargue: *imagination takes power*

Immersing oneself in Philippe Floquet's 0 scale layout is like setting out on a fine journey. The distant heir of the Count takes us on an exciting guided tour.

Text and illustrations: François Fontana

Philippe Floquet enjoys welcoming modellers and showing them round his world. I write «showing» on purpose as it is necessary, when descending into the basement, to forget everything else, to act as if entering a theatre, to shrink yourself down to 1/43.5 scale and to be prepared to face a large chunk of local and railway history, even if... But steady here. Philippe, a keen photographer, a lover of fine mechanics, a highly experienced modeller, has dedicated the past 20 years to designing, building, polishing off his



A delightful double-header of 0-4-0 locos coupled back-to-back to a single tender is in charge of the service to Bourlatier-le-Col. The train passes the church of Sainte-Christine, whose windows have been cut to the shape of the stained glass, printed on acetate sheet.



After having made a U-turn, the train returns to the central peninsula: Bourlatier-le-Col station.



The layout at a glance

Scale: 0 1/43.5
Gauge: 32 and 16.5mm
Dimensions: 8 x 4m
Control: Roco DCC

The imaginary map of the County of Tanargue.

personal universe. His work is so thorough that even the most critical eye will have trouble spotting the slightest inconsistency. And yet, despite being truer than the real thing, Tanargue is nevertheless a pure work of fiction.

A well-built scenario

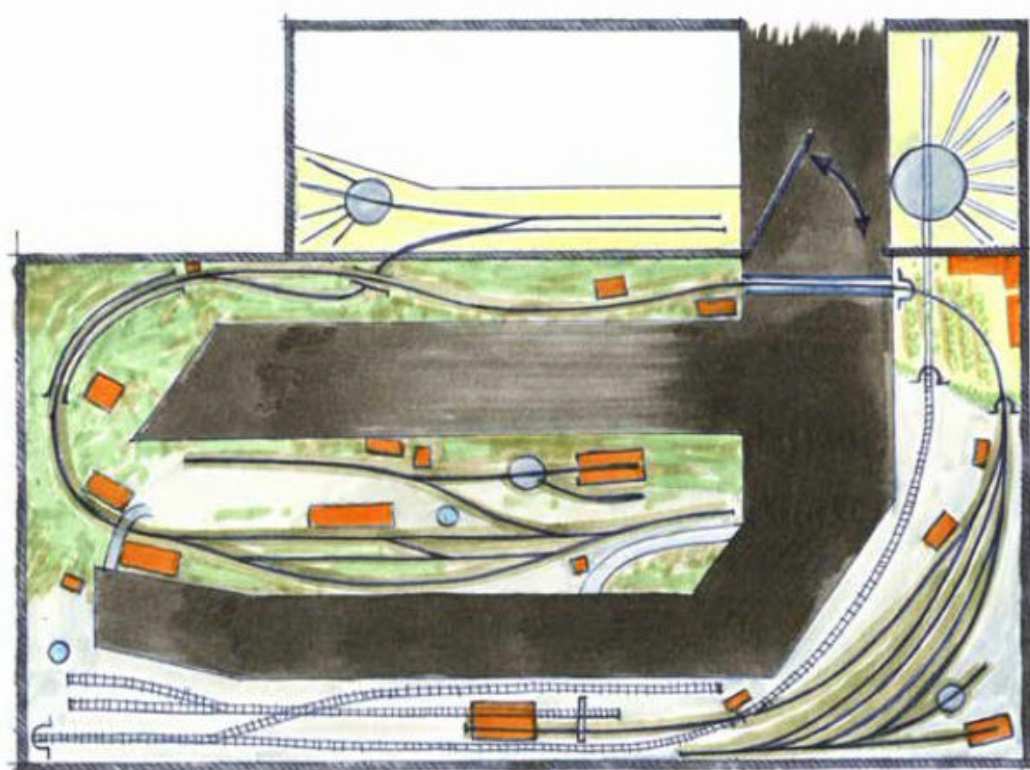
Before even starting on the project, there was a determination to create a perfectly consistent universe. And like any creator, Philippe provided himself with the means to do so. He

began by patiently writing his scenario, by determining the borders of his fancy County, by creating its economy. He built a history that was truer than truth, what with the celebrities encountered there, and what with a relief that constrained local life. Before entering Tanargue, this tiny 8 x 4 metre world, Philippe hands us a narrative that tells us all about the local life. We learn of history, geography, geology, economy. It all started with a gallant soldier who spared an Emperor and was awarded a stony territory in the middle of nowhere.

Making use of his background, his culture and his fame, this man transformed the area and got the best out of it. He imported 760mm gauge railways to feed the standard gauge network that the Compagnie du Grand-Central de France* had routed via his lands... And having absorbed this knowledge and enjoyed a cup of coffee, it is time to move downstairs. First stop, the workshop, adjacent to the layout. By Jove, a real operating theatre! For me, living in a workshop that is... let's say messy, ■■■



Three tracks for shunting and parking a consist, a station yard and a depot. Bourlatier-le-Col is a large station.



■■■ I have never seen anything like this. But Philippe explains how he designs quality work in a calm and peaceful atmosphere, with good music playing. Clearly, there is something to be said for this, and the idea percolates through the thickest brains! Then, Philippe opens the door and...

A major shock

The room is bathed in a fine, slightly warm, light. It is the end of springtime, the ochre-stained limestone rocks contrast with the light green foliage. Here and there, some crops are a better clue to the season: haying is in progress in one location. Elsewhere, tomato plants are being fixed to their props. The neatly pruned vines are not yet laden with grapes. The buildings are neat, just lightly weathered, but carefully maintained, no ruins, no rubble, no rotten beams. The backscene is simple blue sky, with a light misty veil, nothing threatening. ■■■



The workshop, adjacent to the layout.
A fine example of cleanliness and tidiness.

*En couverture : The diesel
locotractor, built on a
former 0-6-0 steam engine
chassis, crosses the large
viaduct with a goods train
bound for Les Sagnes.*



The train is alongside the platform.
In the background, the Tanargue
Oil and Soap Manufacture is
adjacent to Les Sagnes station.

0-16,5 Layout



The figures are painted by Philippe who takes great care ensuring that all the cabs are peopled.



The depot foreman is far from easy-going! Still, we did manage to freely stroll around!



The self-propelled snowplough, a very useful piece of equipment, including in April, when heavy spring snowfalls are not unusual. This is another scratchbuilt model.

Discover the Tanargue standard gauge layout in Issue 900 of Loco Revue.



The cattle-loading track. The Citroën livestock van is waiting in the yard. Note the loading ramp for the sheep.



This model was entirely designed by Philippe on a the basis of a Roco H0 scale chassis. The turntable is a Kitwood Hill Models kit.

■■■ The layout has varnished wood edging. The controls, rare, are located on the front fascia and consist of small white knobs and unobtrusive lever switches. On the white-painted ceiling, varnished wood pelmets frame the lighting slabs. Everything is smart, neat, perfectly finished! A dream layout, how not to believe in the story?

The plan

The layout takes up an area that is 8 metres long and 4 metres wide. On the long left-hand side, the standard gauge part: this is the exchange station, Les Sagnes, where the narrow gauge CFT (Chemins de Fer du Tanargue) trains meet the standard gauge PLM ones. This is the industrial part of the County, it features a few factories, some mechanical construction works, the Tanargue Oil and Soap Manufacture. Narrow gauge and standard gauge leave the station through a tunnel dug under the Pamombelle vineyard, which takes ■■■

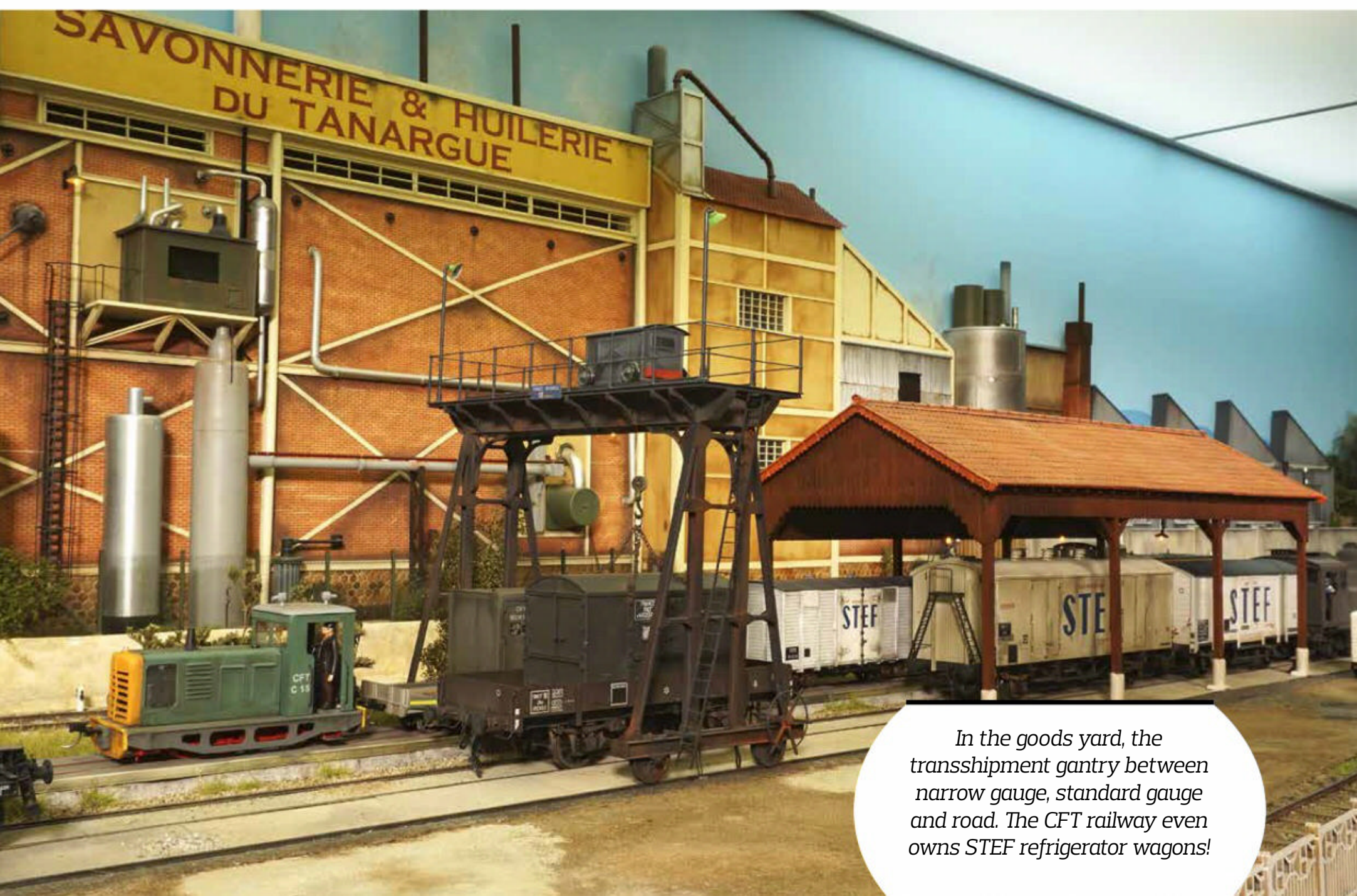


The motor trolley leaves the depot.

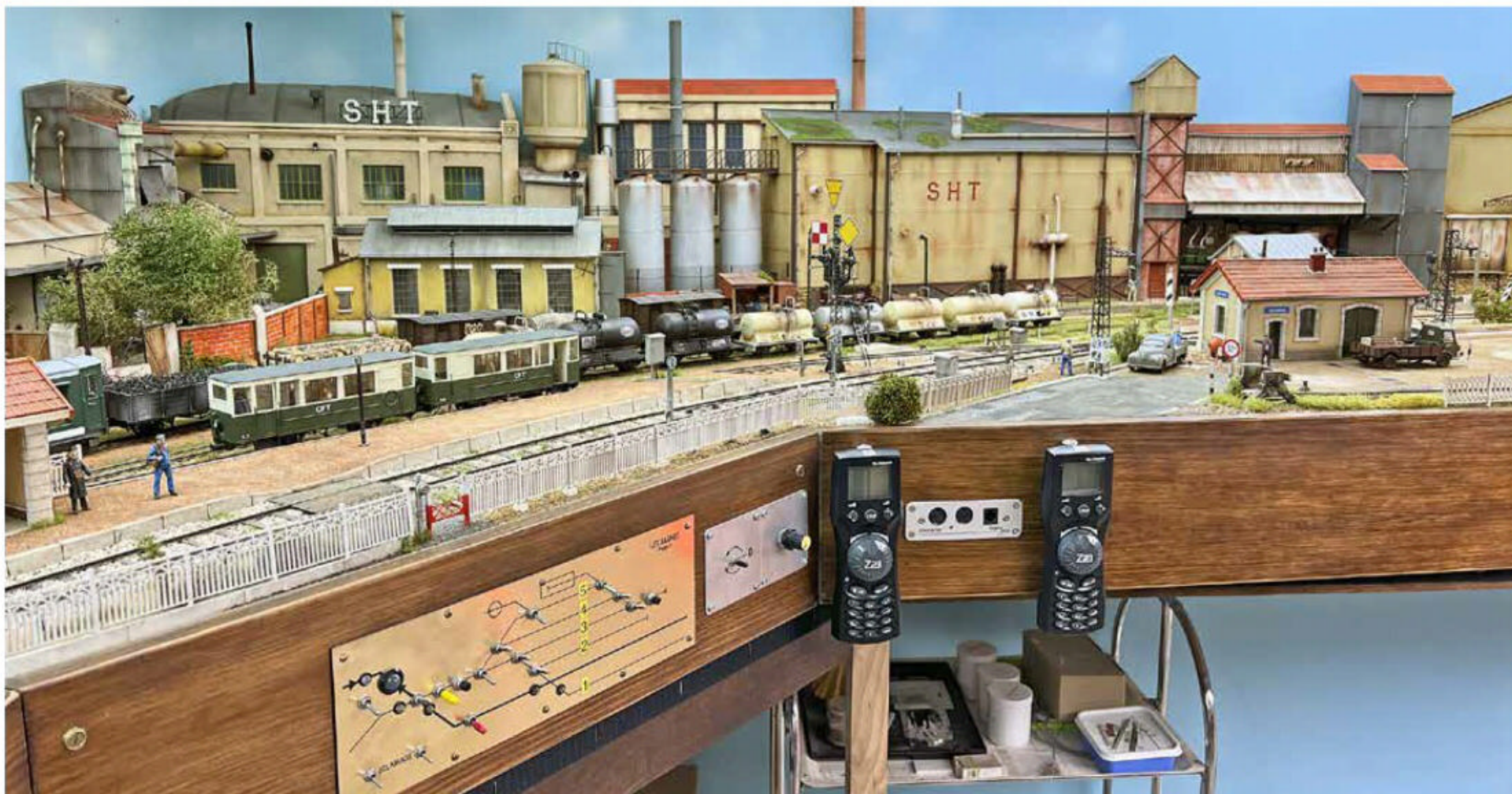
0-16,5 Layout



Let us return to Les Sagnes station. A freestyle locomotive is waiting for the track to become clear under the tunnel. The pair of Crochat railcars (Raymond Duton models) has just arrived.



In the goods yard, the transshipment gantry between narrow gauge, standard gauge and road. The CFT railway even owns STEF refrigerator wagons!



The layout is impeccably presented. Mimic diagram and controls on the front fascia. Ceiling fitted with fluorescent tubes and diffuser filters.

■■■ up the small side of the room. Inside the tunnel, the two tracks cross, the standard gauge leaves the room and leads to the fiddleyard. The narrow gauge line passes the entrance corridor to the layout on a trellis viaduct, and runs along the right-hand side wall to the other small side of the room. There, after having made a U-turn, the track enters the station of Bourlatier-le-Col, built on a long peninsula in the middle of the room. This station is the focal point of the narrow gauge layout.

Technique

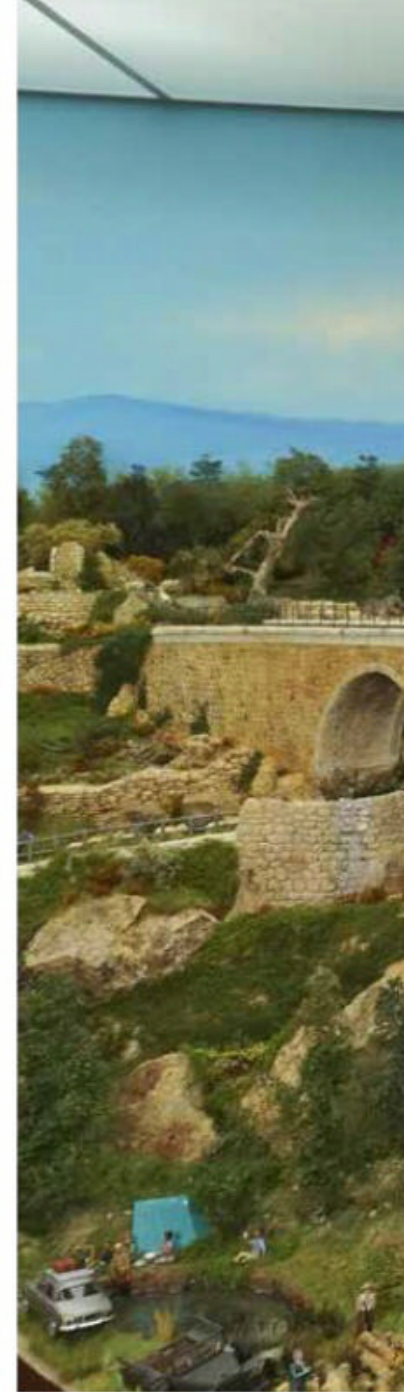
On the technical side, the solutions chosen are classical, simple, well proven... But above all thoroughly mastered! There is not a single location where the slightest hesitation can be encountered as to the technique to be used. The benchwork calls on the customary lumber infrastructure supporting a plywood trackbed. The sleepers are cut mechanically and the rails fixed with spikes. Control is via two Roco digital central units whose Multimaus hand-held controllers can be plugged into the front of the layout. But Philippe now uses wireless controllers, far more ■■■



At the far end of the station, the track is laid on the roadside. An ancient bread oven is still in use.



Beyond the junction, the diesel locomotive is running back towards Bourlatier-le-Col. and crosses the metal trellis viaduct above the passage.



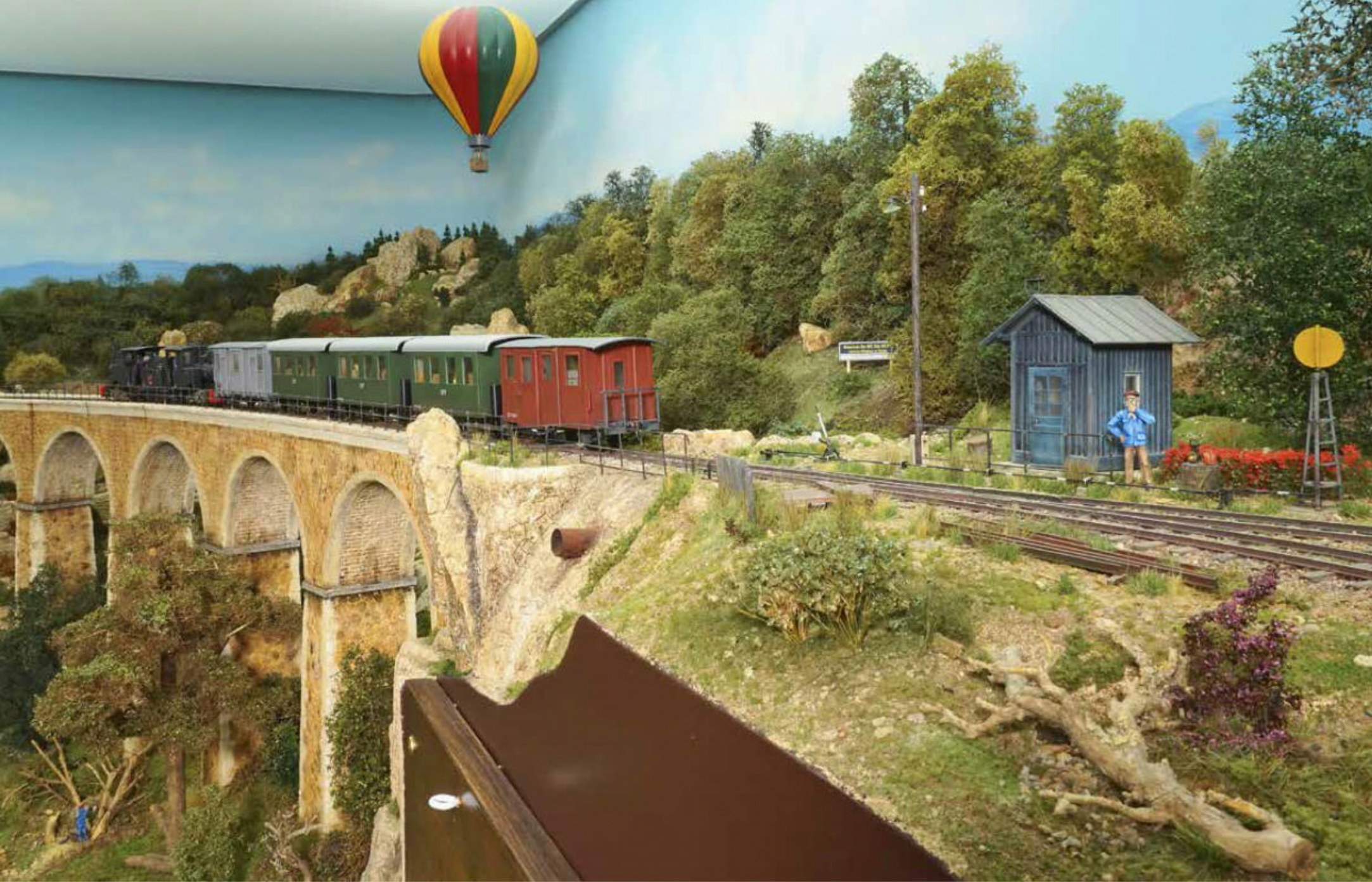
Asperjoc halt, just at the top of the gradient near the junction, is where the large viaduct starts. This is the highest point on the line.

Philippe in his universe. What a delightful time we spent in the sunshine, on the border between Haute-Loire, Ardèche and Lozère.



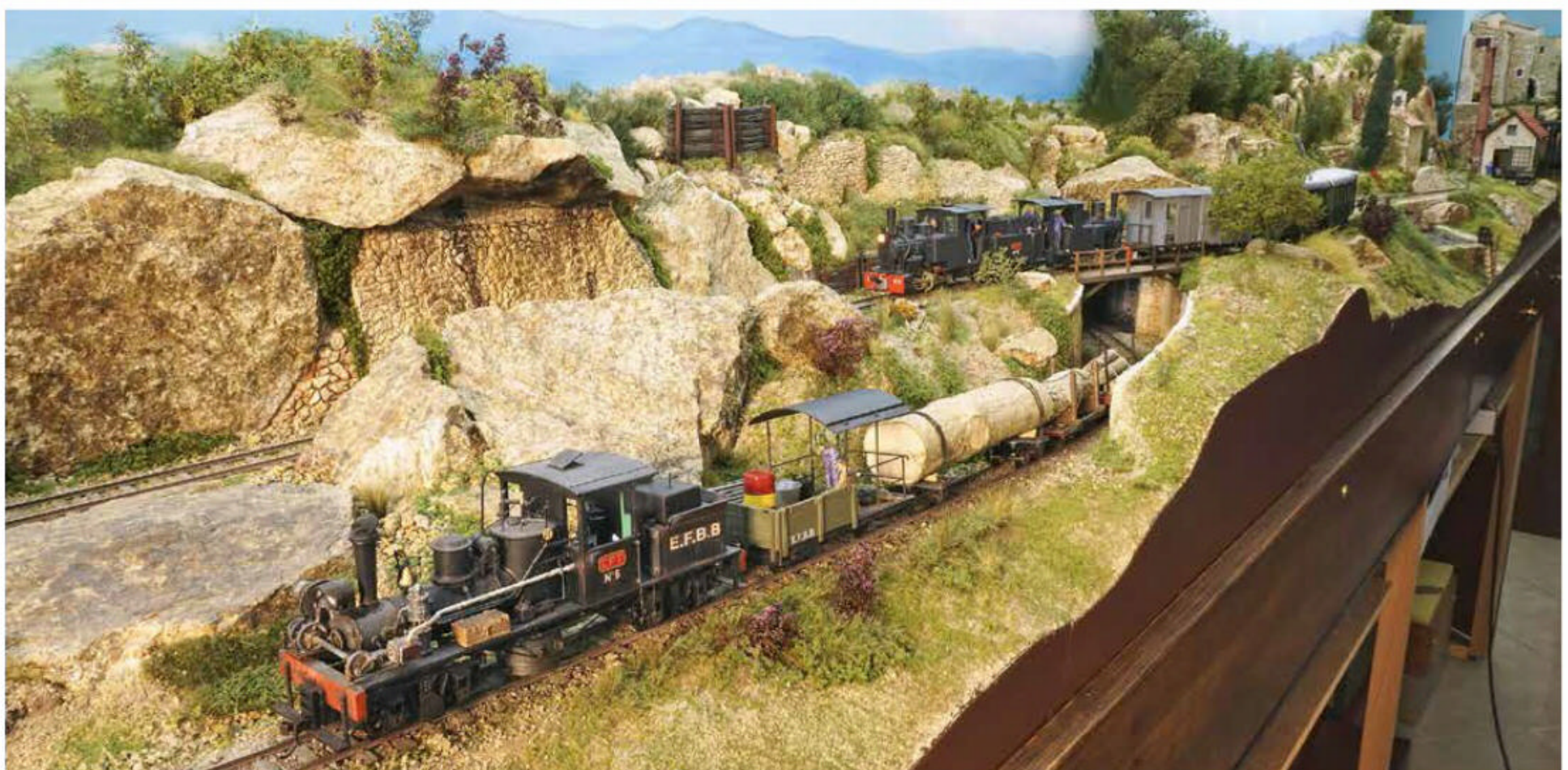
... practical! An emergency stop knob is available if needed, to protect the scenery but above all the rolling stock. On the scenic side, the sculpted rocks, the retaining walls and the buildings are engraved in glue used for plaster panels. I wrote « sculpted rocks », because in many places, the rocks are actually real stones gathered from the Tanargue! The trees are made out of sea foam inserted into natural trunks. The various flock materials are from commercial ranges. Anything that Philippe does not master completely, he delegates! This is how Jean-Jacques Chat installed the decoders in the locomotives, how Didier Lemaitre was put in charge of – very successfully – painting the backdrop, how François-Xavier Jamois subtly weathered a few engines. Many others have worked on this or that within the County! ■

*Translator's note : the Grand Central was a failed standard gauge network project covering most of the Massif Central area, promoted by the Duc de Morny. Its territory was subsequently divided up between the PLM and PO companies.



The train leaves, crossing the Raltier on a large masonry viaduct, entirely engraved in glue for plaster panels!

Should you want to contact Philippe, write to the editorial team, your letter will be forwarded.



On the gradient, the logging Shay, imported to Tanargue in the 1920s, is waiting for the evening express train to pass. Passengers have priority! The locomotive, a Bachmann model, has been improved with a Backwoods Miniatures detailing kit. The rocks are real stones from the Tanargue!

Assembling A 3D MODEL

3D printing is becoming increasingly widespread and items produced in this way are now part of the basic supplies for railway modellers. However, some precautions are required when assembling and decorating such prints, to ensure a fully satisfactory result.

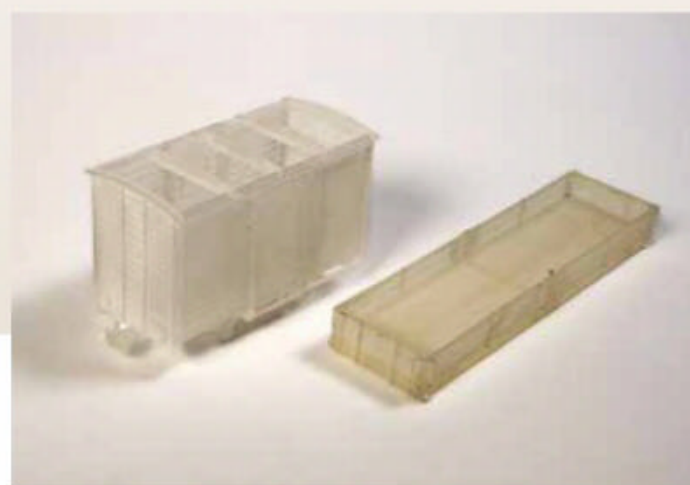
Text and illustrations: **François Fontana**
With help from François Fouger



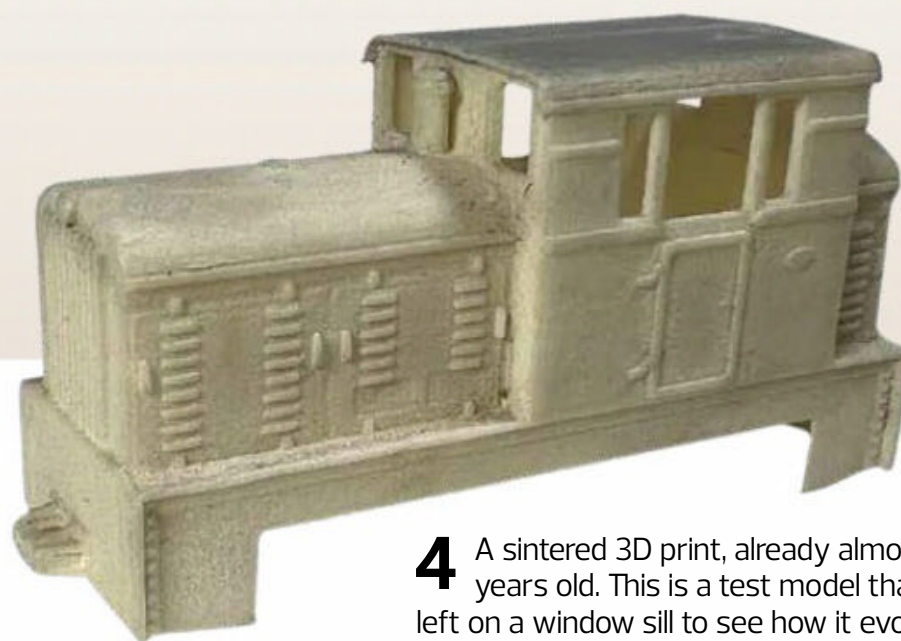
1 A selection of 3D printed items. Almost all the techniques are present here.



2 PLA wire print. The 0 scale drums are very fine, a wire with embedded wood was used. They are ex-printer and no extra work is required.



3 FDP print, the result is ultra-sharp, but will require a thorough cleaning.



4 A sintered 3D print, already almost 10 years old. This is a test model that was left on a window sill to see how it evolved over time. So far, nothing to report!

Like laser-cutting a decade ago, 3D printing has become a must-have for railway modellers, and such prints are now common on many layouts. Whether they are personal creations or specific parts bought from artisans, these parts require some preparation.

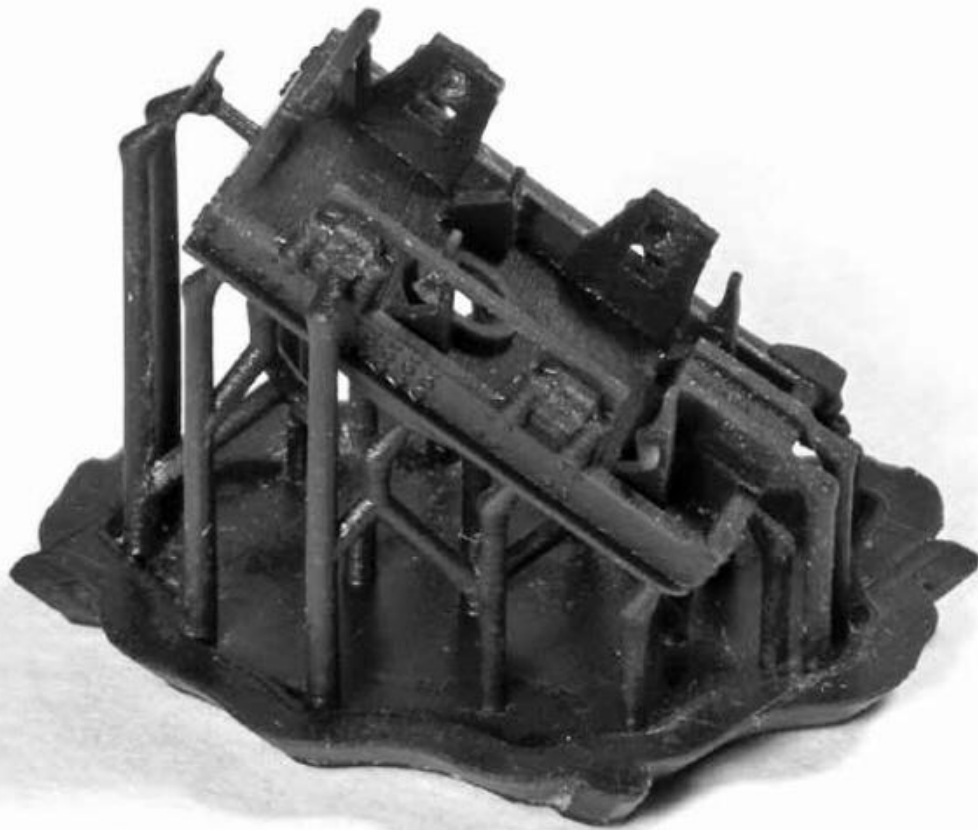
WHAT KIND OF 3D PRINTING ARE WE TALKING ABOUT?

As previously discussed, there are several processes for additive manufacturing – the proper name for 3D printing – fusing, sintering, liquid application... Depending

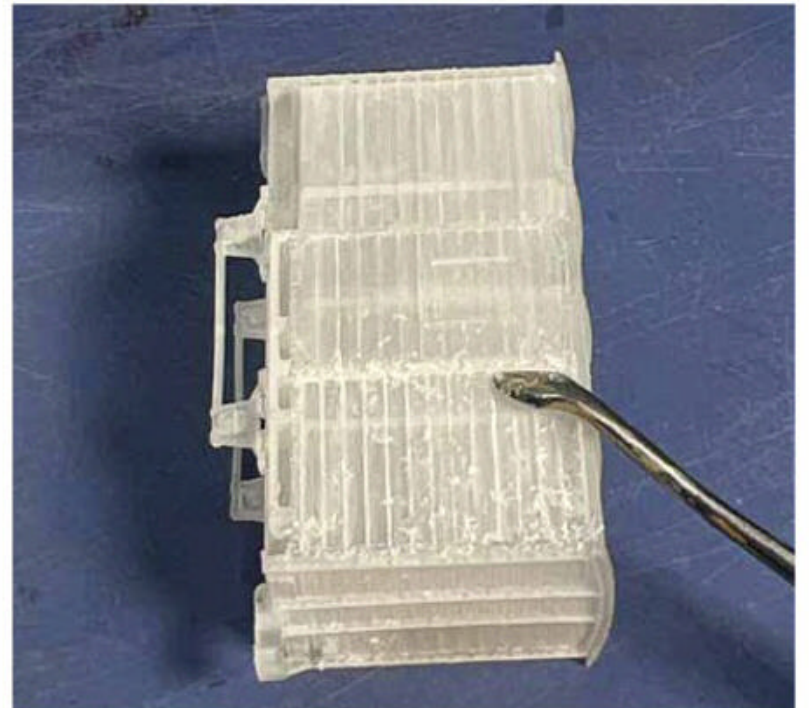
on the system used, the model does not have the same physical qualities and therefore, does not react in the same way when being used.

What must be distinguished:

Printing by applying fusible material: in wire printing, the machine calls on a wire of material which is melted by a heated nozzle and applied in several layers onto a plate. During the printing process, the table moves downwards or the nozzle upwards. In the case of Multijet or Polyjet printing, two printing nozzles apply the molten material for full parts, and the coating wax for hollow parts – soluble wax that is eliminated afterwards. ■■■



5 A resin print, the part is shown here upside down. Meticulous cleaning is required, or alternatively a long exposure to UV light.



6 Rubbing the surface of an FDP ultra-sharp print. A flat and non-cutting tool is used.



7 The wax leftovers, not eliminated by the alcohol bath, are clearly visible. But they are invisible to the naked eye.



8 Here is the catastrophic result of faulty cleaning! A simple dry brushing is enough to remove the paint, which holds only onto the wax, not to the plastic.

■■■ Printing by fusing or sintering. The powder used is very fine, contained in a tank, and is glued by fusion using a laser beam.

Photo-sensitive liquid resin prints. A coat of resin is polymerized by an ultraviolet beam or flash, printing takes place on a plate that moves gradually upwards.

It is easy to understand that depending on the technique used, the raw material is not the same. PLA and ABS for fusible material printing, nylon for sintering, resins of all kinds for liquid printing. But as techniques are evolving very quickly, metal printing is now becoming available to

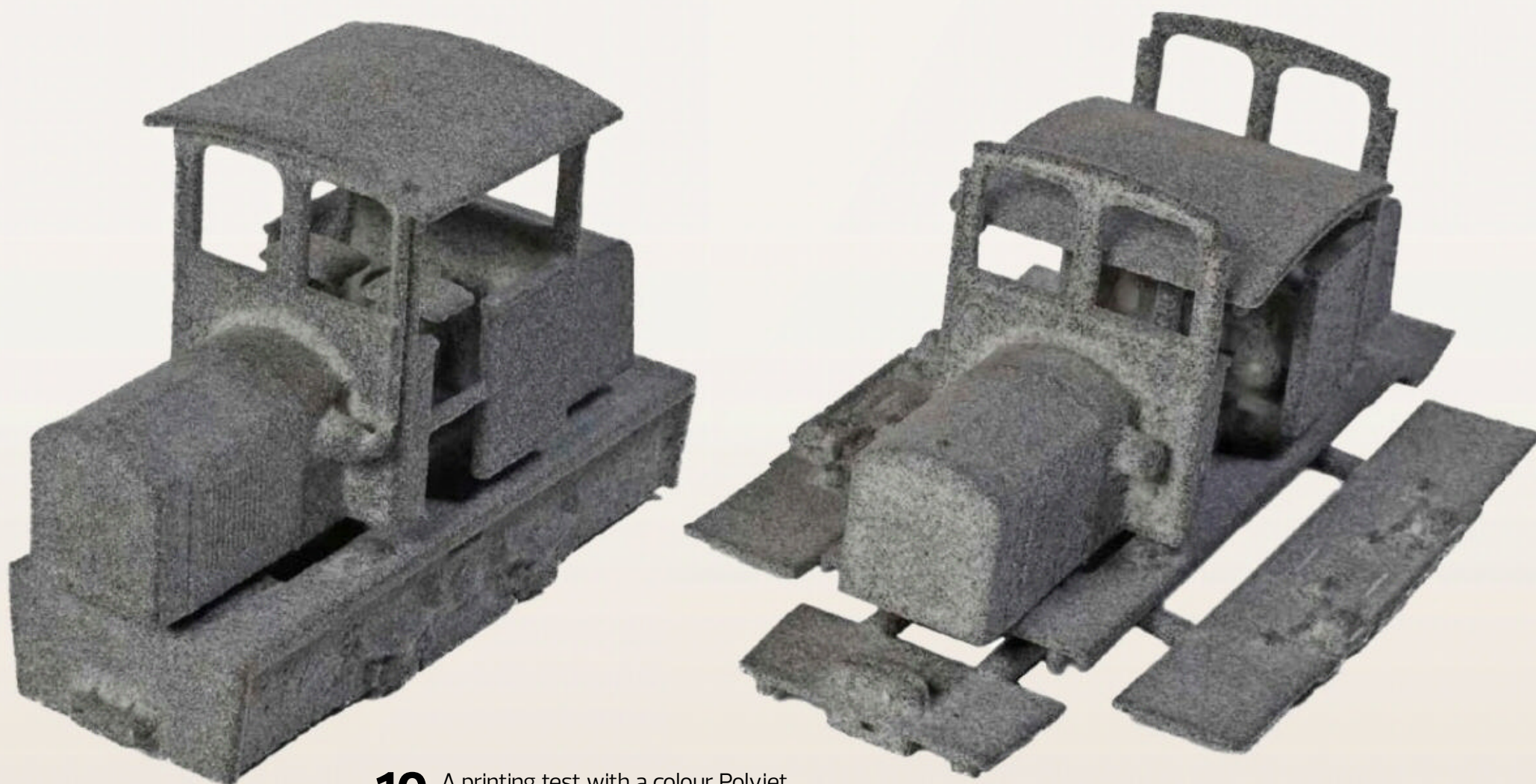
the general public, and all types of materials are added every day to sub-contractors' catalogues.

A GOOD CLEAN-UP

Whatever the type of printing used, thorough cleaning is required. The easiest parts to clean are in theory those made by sintering. The laser beam welds the powder, nothing more; sometimes, there is a little residue left that can be removed by brushing the part under tepid water. Wire printing is hardly more problematic. Cleaning the parts with tepid water and a degreasing ■■■



9 The three-colour print of this model, made with a wire printer, could almost do without painting.



10 A printing test with a colour Polyjet machine, the resin is coloured coat by coat with specific ink. For the time being, the result is not very sharp, but improvements are just round the corner!

**CLEAN,
CLEAN !!**



11 My first 3D printed model; it is now almost 12 years old. It is a wire print with materials which at the time were only used by dental technicians. The coats were very visible, but the locomotive is still here!

■■■ agent is sufficient. For Polyjet prints – Frosted Ultra Detail (FUD) and Fine Detail Plastic (FDP) parts – the work is more tedious, because the residual wax must be removed. Logically, the printing company cleans the part in an alcohol bath. But in most cases, some wax remains, which turns yellow over time, ends up by altering the surface of the model and causes unpredictable reactions with paints. Scrubbing the part under very hot water with a domestic cleaning agent is essential. Finally, the case of resin parts. Once they are complete, cleaning them with alcohol might be sufficient, provided it is done properly. To err on the side of caution, it is wise however to expose the parts to ultraviolet light to fully polymerise the remainder of the resin. You must also check for the absence of any hollows. If there are





12 The latest model, in FDP, painted after having been carefully cleaned.



13 A wire-printed model, it has been given a coat of primer and the roof has been sanded down gently with a cardboard nail file.

any, it is imperative to open them out and to clean the inside of the part with alcohol. The risk of having some non-polymerized resin remaining prisoner leads to the parts cracking and to resin dribbling out onto the surface: a catastrophic result for a fine paint job!

SOLVENTS

Traditional solvents have hardly any effect on 3D prints! Alcohol does not alter the surfaces, and ensures proper degreasing. Acetone alters the surface of PLA prints and to a lesser extent of ABS prints, it has no effect on nylon and other FUD or FDP materials. This inefficiency of solvents is precisely what is going to cause us some concern when gluing!

GLUING

Once everything is thoroughly degreased, the time has come to apply glue, and this is when fun starts.

UHU 3-in-1 (black ring) and Roket Deluxe Materials adhesives can glue PLA parts together. They are ineffective on other materials. And even for PLA, the best solution in my view is to apply molten PLA with a suitable gun. For FUD, FDP, resin or nylon prints, the only possible adhesives are cyanoacrylates. But here again, the most suitable solution will be resin that can be polymerized under UV light.

BEFORE AND DURING PAINTING

Irrespective of the material, primer must be applied before painting. On prints that have faulty reliefs, apply a surfacing primer, as it removes a fair amount of small defects in the layers. Once carefully degreased, use a product suitable for the airbrush, or a spray can. Once the condition of the surface is satisfactory, any paint will do. Personally, I use solvent-based acrylics. —

Operating **UNCOUPLING MAGNETS**

On his Carpates and Sainte-Agnès layouts in O scale, Gilbert Gribi uses Kadee couplers and the uncoupling devices designed for them. He tells us how to install a reliable uncoupling system.

Text and illustrations: **Gilbert Gribi**

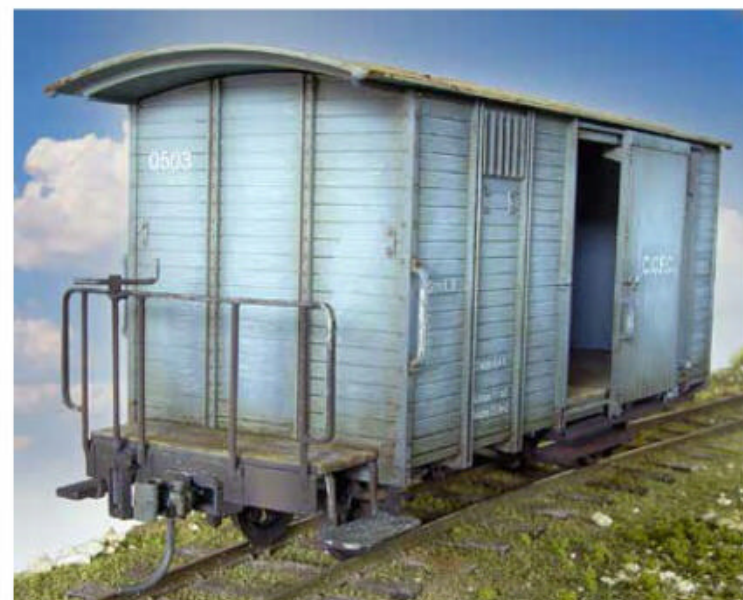
**ATTRACTION
REPULSION**



On the Sainte-Agnès layout, the small Paramé engine is shunting a consist on which all the wagons are uncoupled..



1 Kadee uncoupling sequence.



2 A wagon fitted with a Kadee coupler.



3 A Magic Train wagon with its Kadee On3 couplers and its new non-magnetic ballast.

The Kadee coupler comprises a jaw-type hook, fitted in the middle with a curved shank that flattens out just above the track. This shank, when it is located above a magnet, or an electro-magnetic decoupler, concealed under the track, swivels and opens the jaw of the coupler, freeing the wagons. By moving the train slightly, both couplers find themselves in an open position allowing wagons to be shunted backwards without being coupled. Coupling on a curve is not possible with this system and wherever possible, it is recommended to have a straight stretch of track, ca. 10cm long, on either side of the magnets. My narrow gauge tracks in 0 scale are home-laid, they are not always perfect and are not dead straight like high-speed lines (this give charm to small companies' secondary lines, with trains that wobble a bit), so in other words, this is not an ideal situation for the operation of Kadee couplers.

AN UNSUITABLE SOLUTION

Kadee offers two fitting solutions. One with a loop, the other with a lever. I tried the loop solution and do not recommend it: to control your train, you need both hands because if this was not the case, it is almost impossible to control the train and uncouple at the same time.

FATAL ATTRACTION!

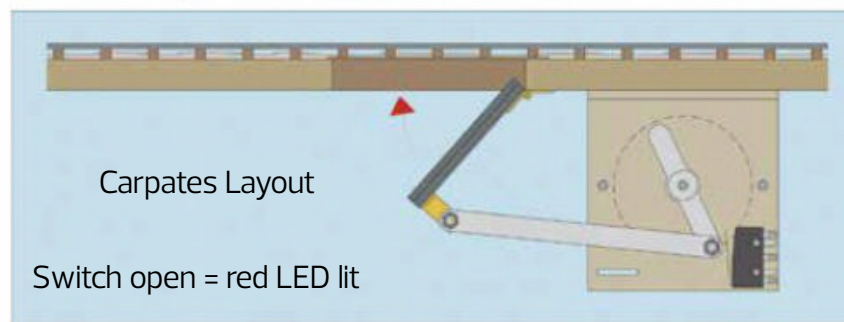
I fitted all my Bachmann and Fleischmann stock with Kadee On3 couplers. On the Fleischmann Magic Train stock, the lower part of the chassis corresponds exactly to the fixing height of the Kadee housing. Magic Train carriages and wagons have steel axles and a

ferrous ballast that makes uncoupling impossible: the magnets attract the wagons! I replaced the axles by brass ones and the ballast by a sheet of white metal. With these modifications, I can easily uncouple and shunt my wagons backwards. On the other hand, they frequently uncouple when passing over the magnets. As the solution of fixed or electric magnets did not suit me, I designed and fine-tuned a retractable motorized system under the baseboard. ■■■

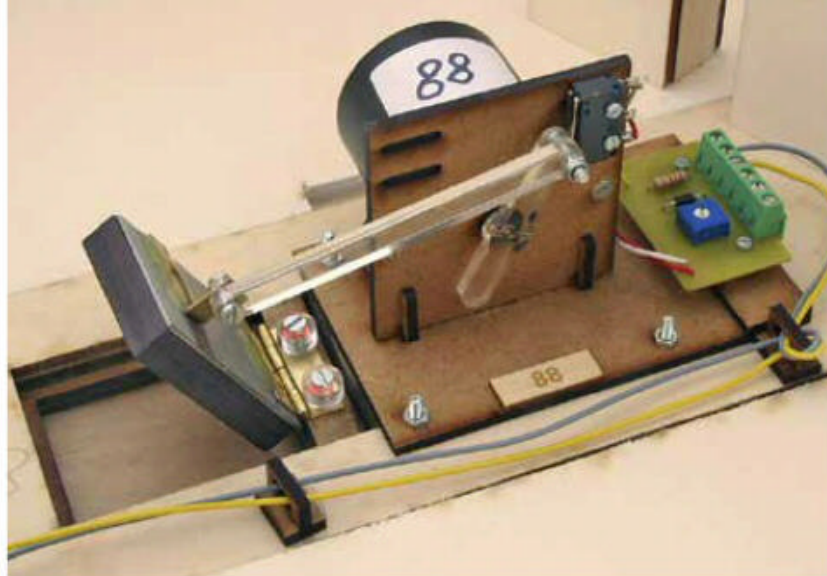
THE MOTORS

I have been using the Switchmaster motors for a long time, both for operating turnouts and magnets. When compared to solenoid motors, the former are relatively silent, and have a good gearing ratio. They can be used with DC. For operating turnouts, they do have the drawback of not featuring a polarity switch.

TECHNIQUE



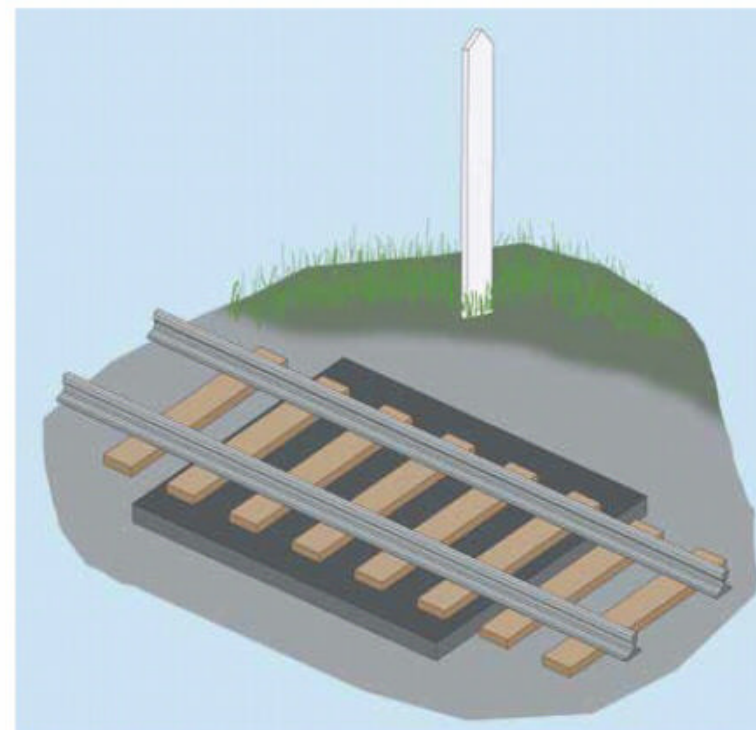
4 The operating principle of the uncouplers on the Carpatès layout.



5 An uncoupler of the type used on the Carpatès layout.



6 Location map of the uncouplers on the Carpatès layout.



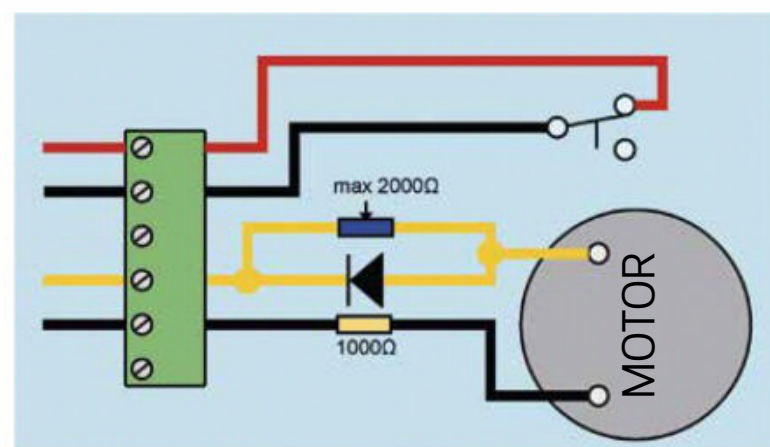
7 Location of the uncoupler under the track.

RETRACTABLE MAGNETS

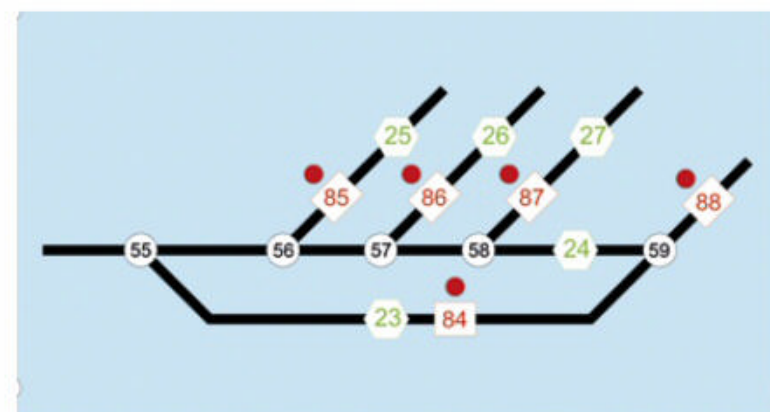
The system installed on my Carpatès layout consists of a Switchmaster motor, of two magnets, of a steel plate glued onto a hinge and of a circuit board. The two Perspex rods are there to operate the magnet and the switch. The assembly is fitted to a 3mm thick MDF support. The magnet fits into a housing located under the sleepers, it consists of an MDF frame covered with a sheet of 0.5mm thick plywood. The height of the sleepers has been reduced by 0.5mm, as well as the length of the spikes, to avoid the magnet becoming glued to them. Given the significant thickness of the baseboard - 18mm – two magnets are needed.

SOME ELECTRONICS

The switch has two functions: it cuts off the electrical supply and mechanically interrupts the throw of the motor, which must be as short as possible. But sufficient all the same to ensure that in the lower position, the magnet does not affect the coupler shanks nor uncouple the wagons. And when the magnet is in the uncoupling position, it activates a red LED on a control panel, showing that the magnet is in the raised position. The circuit board features a 1000 Ω resistor, compulsory for Switchmaster motors, a diode and a 1000 Ω potentiometer. This latter component slows down the motor,



8 Electronic control circuit board.

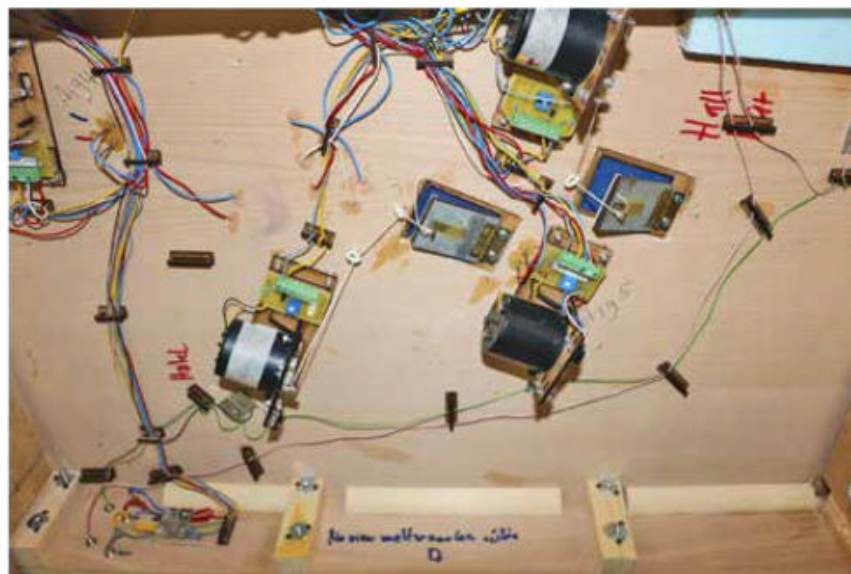


9 Control panel: the uncouplers in red, the turnouts in black, the itineraries in green.

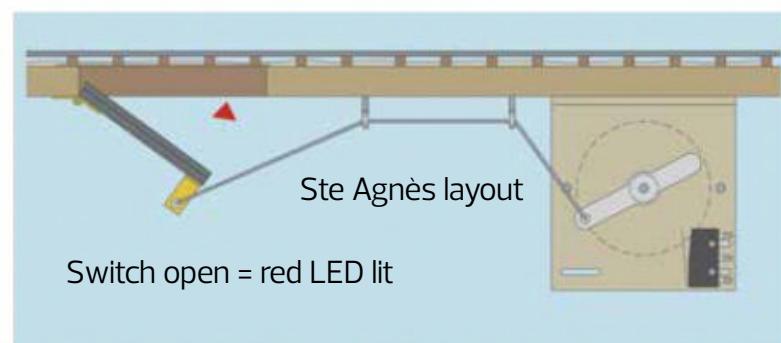
which tends to accelerate on the downward movement because of the weight of the magnets. In the opposite direction, the diode shunts the potentiometer.

AN ALTERNATIVE MOTORIZED SOLUTION

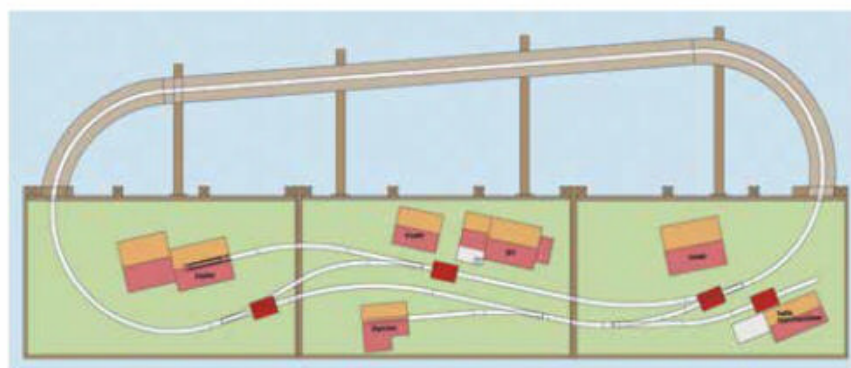
For the small Sainte-Agnès layout, I opted for a simpler solution by using string rather than articulated rods. The advantage of this system is that, depending on the space available, the motors can be installed anywhere. The strings run through pad-eyes. The electric part is the same as on the Carpates layout.



11 Location of the uncouplers under the baseboard.



10 Operating principle of the uncouplers on the Sainte-Agnès layout.



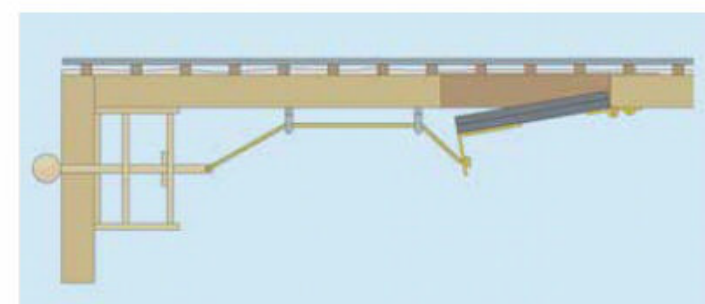
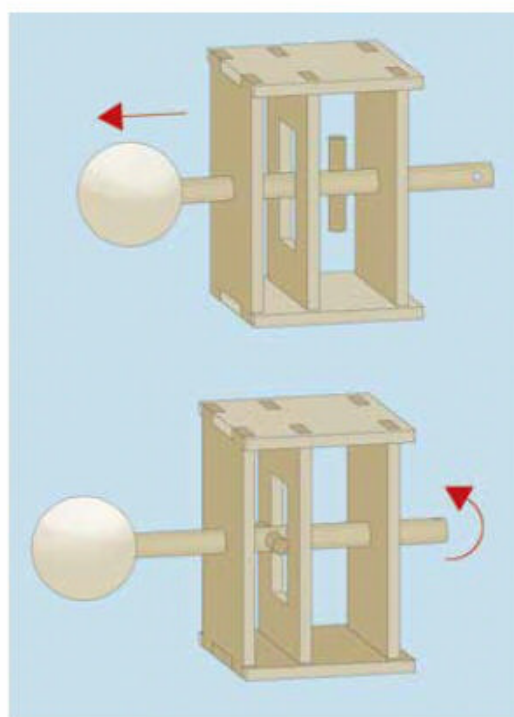
12 Location map of the uncouplers on the Sainte-Agnès layout.

COULD NOT BE SIMPLER!

Another solution is possible if you do not want to use a motor. A simple mechanism used as a tab consists of 5 sheets of 3mm thick MDF assembled into a box, a 3mm rod, another of 2mm and a knob. A string connects the 3mm rod to the magnet. Operation is very simple: the knob is pulled outwards, then turned through 90 degrees to lock it. The middle sheet holds the small 2mm rod which is horizontal, locating the magnet permanently under the sleepers.

SCENIC INTEGRATION

Once the track is decorated, the position of the magnets becomes invisible. Their position is indicated by various posts, barrow crossings or figures. These markers are essential as the margin for uncoupling is very restricted.



14 The general principle.

13 The control and locking system for the hand-operated uncouplers!



15 The barrow crossing conceals the uncoupler.



16 The post shows the location of the uncoupler.

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Weathering **A CFD BOX VAN**

The arrival of the REE Secondaires range delighted many a modeller. Once the add-on details have been fitted, these wagons certainly look the part. But a small something is still missing to bring them truly to life: a spot of weathering!

Text and illustrations: **Gauthier Souvignet**

**MAKE IT
GRUBBY!**



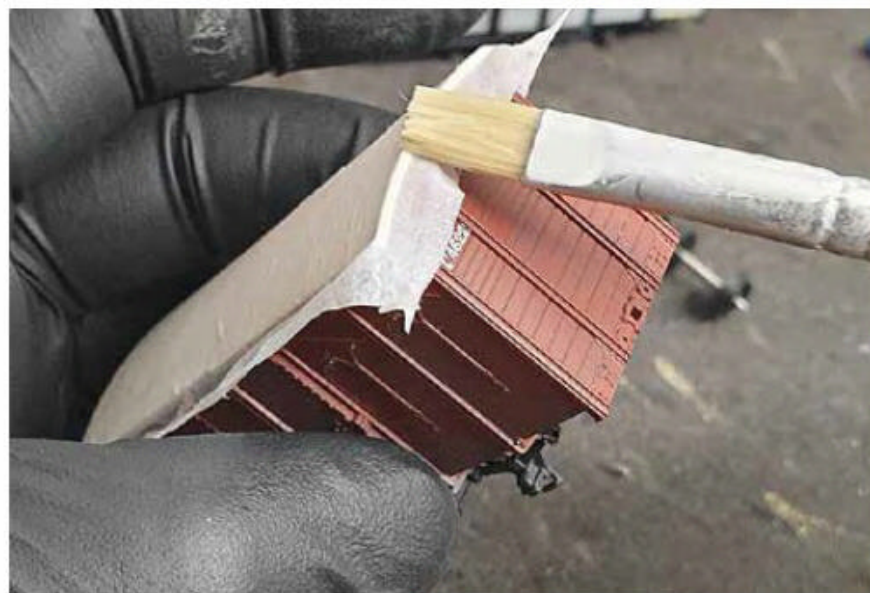
1 Dunières CFD station, a box van is parked on a track leading to the turntable.

Weathering, an exercise that is often repelling and likely to discourage modellers, is not actually all that difficult. People fear failure or a lack of inspiration; but let us take heart, very pleasing weathering jobs can be accomplished in a few steps. I opted for a box van with a tarred canvas roof. To avoid any risk of unsightly marks during the weathering process, I wore protective gloves.

TARRED CANVAS ON THE ROOF



1 Remove the wagon's axles to avoid them getting in the way during the weathering process. Open up a paper tissue from a box and not from a packet (the sheets are thinner); a private label brand will be quite sufficient. Cut out a rectangle slightly larger than the size of the roof.



2 Blend a small quantity of wood glue with water, in a proportion of ca. 50/50. Take a flat stiff brush and moisten the paper gradually, ensuring it remains properly stretched. Take care not to tear the tissue by pulling on it too hard.



3 Cut the tissue in the angles with some fine scissors. With the large flat paintbrush, glue the edges. Make sure the overlaps of the tissue do not touch the body of the wagon.

SUPPLIES

Scalpel	AMF87: P202 (grubby white), P502 thinner
Fine scissors	Polak pastels: 5769 (black), 5763 (dry soil), 5775 (rust)
Paintbrushes: flat and fine, new and worn	Decapod paint: 8003, 8000
Airbrush	
Rag	
Latex or nitrile gloves	AK Interactive thinner: AK 049
White tissues	Zebraline
Wood glue	Patience...
AK Interactive: AK7003, AK025 (Fuel Stains), AK049	



4 Before removing the excess tissue, let it dry to make the cutting process easier. To speed up the drying, you can place the wagon in a small cardboard box on a radiator. Once dry, the tissue must be stiff. With a scalpel fitted with a new blade, trim off the excess tissue.



5 Apply light touches of a wash of Decapod acrylic black paint, using a soft brush, without rubbing the tissue so as not to tear it. Let it dry thoroughly.

WEATHERING THE BODY



6 Use a wash of AK 7003, thoroughly mixed, and apply it with the soft brush all over the body, the chassis and the axles. Do not overlook any nook and cranny, the wash will provide a basis that will be needed later. Spread the wash generously, even if it does not look like anything.



7 Once the black wash has dried thoroughly, spread the pastel, here again lavishly. Use a dry and fairly soft brush and the Polak 5769 pastel.



8 Apply AK 049 thinner with a fine brush all over the pastel.



9 With a rag, rub down the pastel-wash combination, bringing the weathering back towards the uprights. By doing this, the centre of the planks will be clean, but not the sides. This fills the seams between the planks, giving depth.

OPTIONAL BLEACHING

An optional stage: bleaching the bodies of some wagons to represent the effect of sun, rain, frost, snow... In the airbrush cup, prepare a blend of AMF87 P202 grubby white and its P502 thinner. Several applications will provide the desired result. Proceed crescendo, from all angles. As the coats are extremely fine, the drying time is very short, so it is easy to observe the result prior to the next application.



10 Clean more or less to obtain a heavy or lighter weathering. No need to go any further: in the days of the CFD, the wagons were generally kept clean. Forget the rusty and dilapidated wagons of the last years of operation...

WEATHERING THE ROOF



11 The canvas on the roof must be tarred to be waterproof! Spread Polak 5769 black pastel with the flat wide brush. Start from the middle of the roof, moving towards the edges.



12 Blacken the entire roof in a homogeneous manner. The weathering can be left as is to evoke a recently overhauled wagon with a new roof.



13 For a roof with a worn appearance, using the flat brush, apply Polak 5763 dry soil pastel to the middle of the roof. Pull it out towards the edges irregularly to obtain a worn effect. Simulate runs.



14 If the beige shade is too obvious, tone it down by re-applying a little black. Take care not to brush the roof for too long, as you risk wearing the tissue and producing holes.

THE DEVIL IS IN THE DETAILS



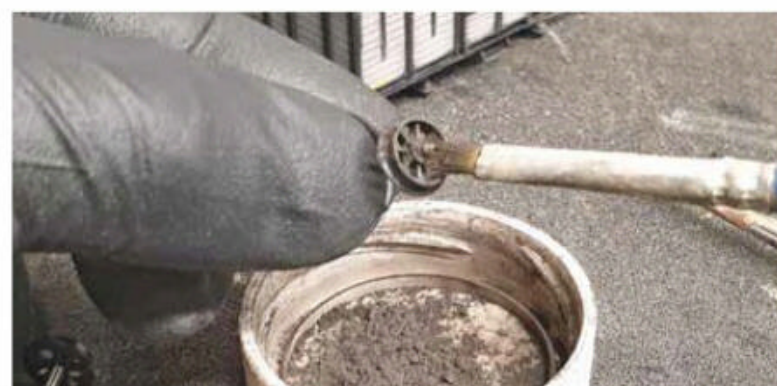
15 Coat the chassis with Polak 5769 white and Polak 5775 rust pastels. Tone down with a stiffer brush. Apply grease and oil generously to the axleboxes – on the real thing, they always dribbled oil – using AK 025 Fuel Stains. With a very fine brush, apply the weathering on the rotating or friction parts, the leaf spring brackets, the leaf springs, the axleboxes, their lids and sides.



16 Another detail that contributes to a fine finish: the very thick black grease, a gooey mixture that withstands everything, especially the weather, on the buffers and the door runners.



17 Use Zebaline, that black graphic paste used for restoring cast iron, which is ideal for reproducing the pasty appearance of real grease. Use a worn brush with very short hairs; dab the areas and avoid a smooth aspect.



18 Tarnish the very shiny appearance of the axles and wheels with black pastel and a touch of rust. A coat of varnish will fix the weathering and protect it from any damage.

Grab your wagons and above all, have fun!

SEE
DRAWINGS
IN THE CENTRAL
FOLDER



D. Oberlin

N° 513 seen from the carrying bogie end.

THE LAST BILLARD RAILCAR
TO PROVIDE A PUBLIC SERVICE!

The Corsican Railways

A-80-D N° 513

Built in 1938, this Billard A-80-D type railcar, N° 513, enjoyed a lengthy career on four different networks. It was withdrawn as late as 2002!

Text: Vincent Lepais

Photos: Jean-Pierre Dumont, Éric Martin, Didier Oberlin

The Billard, Chatenay et Cie company was created in 1920. Specializing at first in making parts for the car industry, it evolved gradually towards building motor trolleys for railway companies such as the P.O, Etat, P.L.M., the Société des Chemins de Fer Economiques, the Belgian State railways, not forgetting colonial railways and the Army. Billard also manufactured platform tractors. In 1928, it was re-named Société des Anciens Etablissements Billard. The former Etat shed located on Rue Robespierre in Tours having become available, Billard moved in there in 1931. After having produced a wide variety of railway equipment ran-



N° 513 seen from the left-hand side at Bastia, the door has not had a window fitted yet..



N° 513 seen from the carrying bogie end with its additional radiator.

ging from 50cm gauge to standard gauge and having supplied a great many networks, private sidings, factories and quarries, the company went into liquidation in 1965. SocoFER, still located in Tours today, was then created.

THE EXCEPTIONAL TECHNICAL FEATURES OF THE BILLARD RAILCARS

To understand such a long life, let us take a closer look at the design of the bogies, highly innovative for the times. Passenger comfort was improved, while higher speeds could be achieved when compared to secondary railway railcars from other manufacturers. The body enjoying a better suspension, the railcar's lifetime was consequently extended. The patent was registered on 27th February 1935.

The bogies

The driving bogie featured a triple suspension. Each axlebox was connected to the bogie chassis by two coil springs and a leaf spring. The bogie was fitted with a mobile bolster to which two leaf springs were fixed, and articulated on inclined guide rods fixed to the chassis, the latter ensuring the realignment of the body when leaving a curve. Thanks to this system combining vertical and crosswise suspensions, track holding and comfort were greatly enhanced. Finally, the bogie carried the motor directly, via silent blocks.

The carrying bogie differed from the previous one by its suspension system. Each axlebox featured only a leaf spring. On the other hand, the mobile bolster had leaf springs and coil springs. The same realignment system was fitted.

Each mobile bolster was fitted with a flat pivot plat whose friction parts were made of bronze. The ends

featured slide pads which mated with those fixed onto the chassis of the body.

In addition to standard braking systems, each bogie was fitted with an electromagnetic brake, with one pad on each side between the axles.

THE BODY

It was of the tubular beam type, assembled by welding and riveting. The floor was 38.5cm above rail level, with the parts located above the bogies 70cm above rail level. With this low-slung design, the railcar's centre of gravity was lower than the bogie pivots and passenger access was made easier. As the A-80-D type was designed for short journeys, it did not feature a toilet compartment. ■■■



Unloading N° 513 in Corsica.



J.P. Dumont

N° 513 seen at Bastia next to an ABH 204 and to a Billard with a body rebuilt by Carde – photo J.P. Dumont



J.P. Dumont

N° 513 at Bastia depot. In the foreground, a former Vivarais trailer..

IT'S NOT ALL ABOUT MECHANICS...

The Billard concept, developed in close cooperation with the CFD company, consisted of the railcar-trailer pair adapted to requirements. The railcar could accommodate 32 passengers, and it was possible to add to it either a trailer or another railcar. The various configurations possible were a single railcar, two railcars coupled together, one or two railcars + trailer or even three railcars and two trailers. The option selected depended on the number of passengers. This was a flexible system for lines that did not require the systematic use of large capacity railcars.

BIBLIOGRAPHY

Magazine des Tramways à Vapeur et des Secondaires N°24.
Autorails de France volume IV, Yves Broncard, published by La Vie du Rail.
Billards autorails du maquis, Cercle Ferroviaire Corse.

HISTORY OF N° 513, AT FIRST ON THE CONTINENT

N° 513, builder's number 1023 with Billard, was built in 1938 and originally fitted with a CLM diesel motor. Delivered on 3rd January 1939 to the Compagnie des Chemins de Fer Départementaux for their Indre-et-Loire southern network, it remained in service there until closure in October 1949 and was fitted with a different motor, the CLM unit being replaced by a Willème one. The railcar was then transferred to the Saône-et-Loire CFD lines until these closed on 15th September 1953. It moved south to the Tarn, whose network was taken over on 1st January 1954 by the Société Auxiliaire pour les Chemins de Fer Secondaires (SACFS) until closure on 31st December 1962.

THEN IN CORSICA

SACFS had been in charge of the Corsican network since 1st June 1965. N° 513 arrived on the island on 23rd June 1966, after undergoing modifications carried out by the Carde company in Bordeaux. These were also applied to Billard railcars N° 510 to 512. The motor fitted in Indre-et-Loire was replaced by a 4-cylinder Willème of the 517-4 type. A second radiator was fitted at the carrying bogie end, to ensure better cooling in both directions. The seats were removed and the glazing doubled by mesh metal grilles. Two large doors sliding outside the body replaced the small original ones on the former passenger compartment. A door was added on the carrying bogie end to access the driving position. Finally, sturdy stone catchers were fitted to both ends of the body. This new design meant that Billards 510 to 513 would be used for parcel services. At the end of its career, N° 513 became a service unit. Two seats were added at the carrying bogie end next



J.P. Dumont

N° 512 at Bastia.



N° 511 seen from the engine end at Ajaccio.



A Billard from the 510 to 513 series at Ajaccio.

to the driver's seat, with a grille in between. A window was opened on the left-hand sliding door.

THE LIVERIES

N° 513 had a red and cream livery until 1972, the year when the Corsican network was taken over by the CFTA company (Société Générale de Chemins de Fer et de Transports Automobiles). Red paint was then applied to its roof. The last livery was garnet red and grey, with orange lining. The sliding doors displayed the indication «SERVICE MT».

PRESERVATION

Thanks to the Cercle Ferroviaire Corse, some stock has been preserved, including Billard 513. It is currently stored in Lumio, together with pilot-trailer

113, diesel locomotive 114, Renault railcars ABH 204 and 206 and CFD railcar X-2004, as well as two Kf box vans.

IN THE MODELLING FIELD

The very first models of Billard railcars in H0m scale were made by Mougel, an artisan brand that no longer exists, but this production has been partly taken over by the artisan brand Interfer. The Atlas replica can be used as a base for bashing... Apocopa has produced a kit in G scale with a resin body. The REE Les Secondaires brand has reproduced the Vivarais Billard A-80-D in 1/87 scale, compatible with both 9 and 12mm gauge (see VL n°102). Provided the inside furnishings and the body are modified, this model can be converted into a parcels railcar. ■

Many thanks to Didier Oberlin for his unflagging documentary help, and to Eric Martin and Jean-Pierre Dumont for their photographs.

EXCERPTS FROM THE MAINTENANCE BOOKLET OF N 513

1966: clutch repaired in July; clutch housing cracked and self-starter replaced in September. In October, replacement of a coil spring on an axlebox and of the exhaust.

1967: in January, the front driving axle breaks, it is replaced by an axle from railcar N° 504. Replacement of three coil springs on the carrying bogie and repairs to the clutch housing. In May, the gearbox casing cracks. On 12th December, accident at the Luciana level crossing, the

solebars and driving cab on the carrying bogie end are damaged. 1969: return to service in February after replacement of the motor, the gearbox and the fuel injection pump. The carrying bogie has been overhauled and the bent axles replaced. On the 27th, the engine casing breaks after coming into contact with the front axle. Strengthened springs are fitted, together with rubber blocks on the axleboxes and an exhaust

box. In June, the front driving axle breaks, leading to breakage of the engine casing. On 22nd July, engine breakdown at Francardo. In December the front guide rod breaks, then the front axle. 1970: return to service in February after repairs to one of the bogies. In May, replacement of the carrying bogie following breakage of an axle. The booklet stops there...

The second life of the Old Glory mine

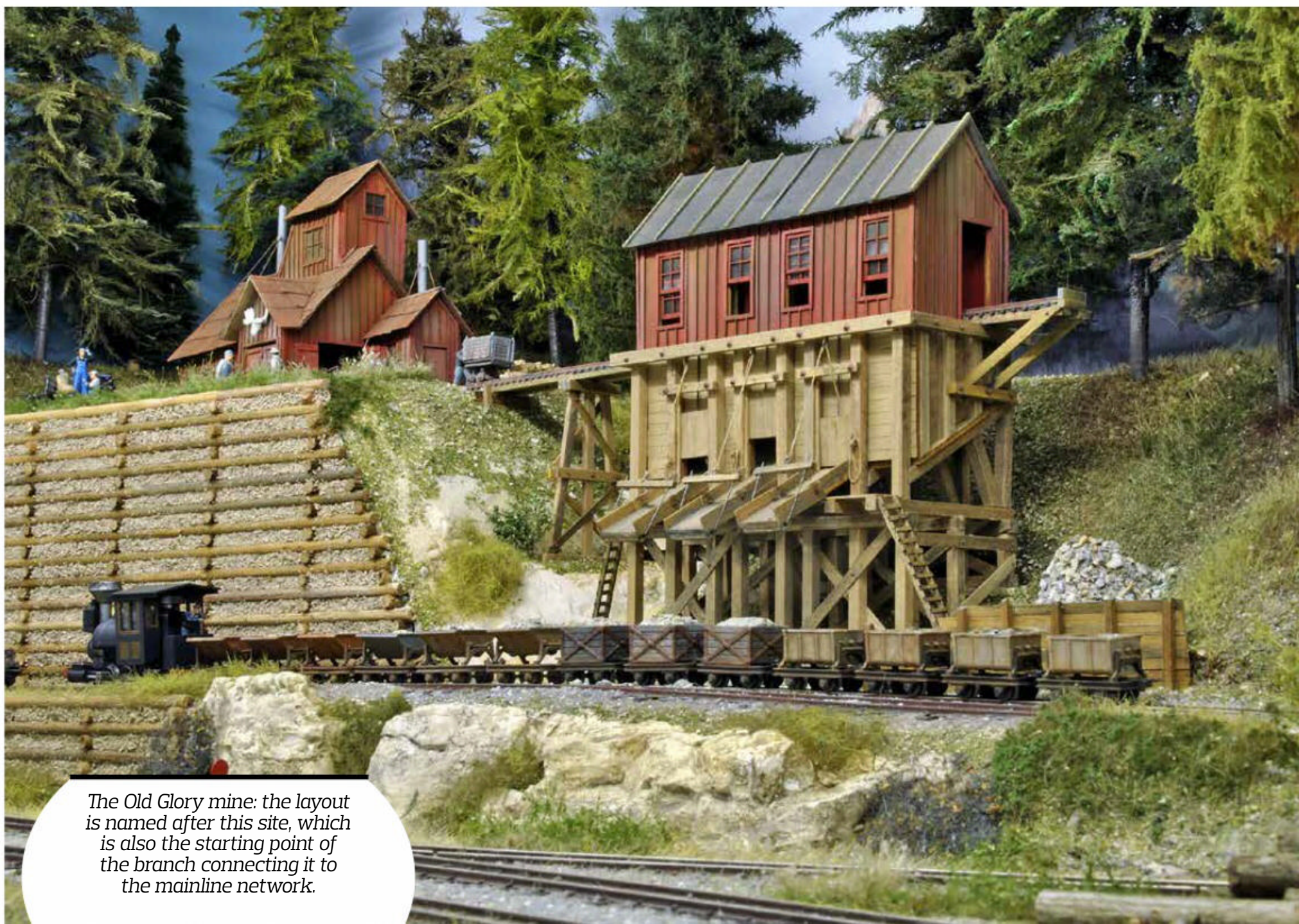
Back to the Old Glory mine; a layout built by Jean-Pierre Muratore and redeveloped by Olivier Taniou, who tells us about the mutation process!

Text and photos: Olivier Taniou

Better known on modelling shows for his Swiss stations in H012, Jean-Pierre Muratore built this American layout to display the rolling stock he had collected over the years. The theme selected, inspired by one of Dominique Aumenier's layouts, was a short line serving a mine in the Rocky Mountains. Faced with track and wiring problems, the builder got bored with the layout and wanted to get rid of it. I took it over, without the rolling stock and the fiddleyard. It was renovated and modified over the two months before the Chambéry exhibition in October 2021.

Amongst the Rocky Mountain peaks

This layout, displayed in a showcase, is designed for exhibitions. Looped, it lets viewers watch the trains go round.



The Old Glory mine: the layout is named after this site, which is also the starting point of the branch connecting it to the mainline network.



The station of Little Town fits between the running lines in the foreground and those leading to the mine in the background. The boss of the mine has driven down to the station in his Ford T, an Artitec model, one of the rare road vehicles on the layout.

Shunting is possible, the mine is served from the station via a steeply-graded double switchback. Two rocky cliffs frame the decorated part, located between two tunnels that conceal the accesses to the fiddleyard. The scenery consists of sculpted Styrofoam, covered with plaster strips, with the cast plaster rocks integrated into them. Pastels are used to colour the relief. The track is laid in the foreground, along the bottom of the valley.

From 12 to 9mm gauge

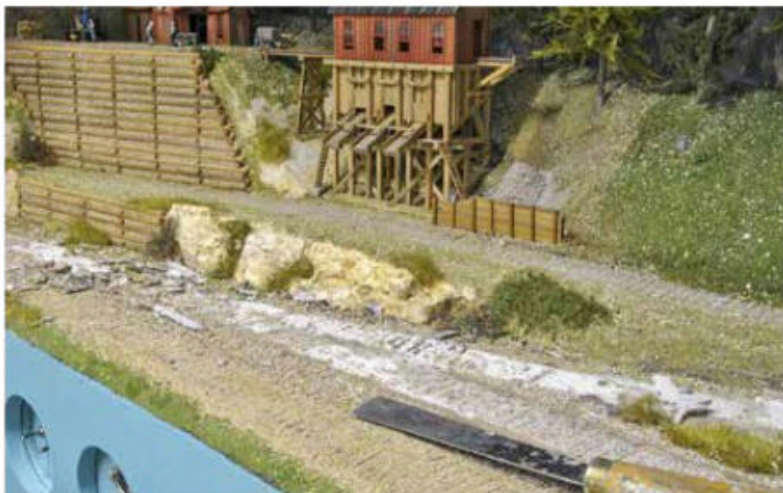
I began by removing part of the vegetation in the foreground and

the turnout motors under the layout. To remove the track, I sprayed water with a few drops of vinylic glue added. After a few minutes, once the ballast is well soaked, a cutter blade can be run under the sleepers and the track and ballast lifted. In some places, the Depron layer was removed with the track, which obliged me to mend the area, either with Depron or with a filling medium. As the trackplan suited me, I kept it, but changed the gauge to 9mm. I opted for the Peco H09 – 009 range. As the angle of the turnouts differed from the original 12mm gauge track, I had to move the turnouts. Along the retaining wall in the background, I fitted a turnout serving

a dead-end siding, to accommodate a future engine shed. Laying, ballasting and decorating the track called on traditional techniques. Tortoise turnout motors are fitted under the baseboard. Unlike my other H09 layouts, I have long sidings, there is plenty of space in the American West!

Improving the layout

I added a station in the middle of the layout, just behind the running tracks, to justify passenger trains calling there. I adapted the Australien-inspired station kit from Architecture & Passion. The Styrofoam embankment had to be carved out to make space for a station yard and an access ■■■



Lifting the tracks. Once well soaked, the old track is removed. Note the turnout motor operating knobs on the front and the electrical supply socket.

The layout at a glance

Theme: an American short line

Scale: H09

Period: 1920/1930

Track: Peco 9mm

Control: analogue (Gaugemaster)

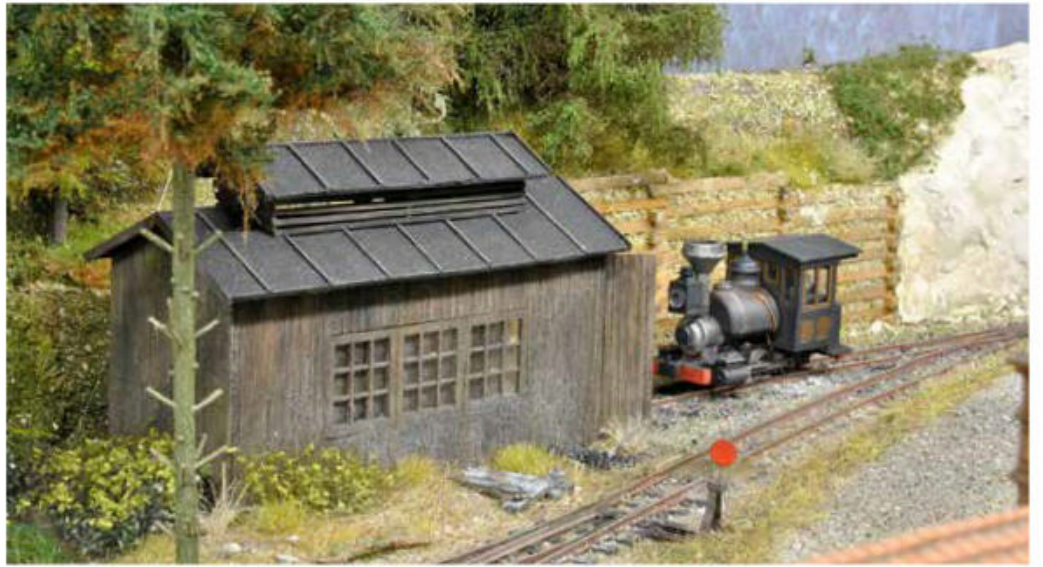
Dimensions: 2 x 0.45m for the decorated part

Lighting: 2 LED 4000 K tubes (daylight)
fitted under a mobile pelmet

0-9 Layout



The inside of the station is painted, furnished and lit. One additional partition has been added. The figures and accessories are located only in those places visible through the windows from the front of the layout.



The engine shed, a light structure made of wood, accommodates the Porter between shunting sessions. A few accessories have been arranged around it. Note the red disks on the turnout levers.



Overview of the layout.

Short Line?

These American lines, a few kilometres long, used to serve a mine, a local industry, a company... Working with shoestring budgets, they had to be content with second-hand stock from various railway companies, and operated with very simple rules.

■ ■ ■ road, parallel to the track leading to the mine. A wooden engine shed, in my view a must-have on a US layout, was installed in the background. It was built out of plastic sheet. The windows are from plastic kits, the roof is made of card with a painted masking tape cladding. The log retaining walls on the embankments, the tunnel portals and the trestle bridge had been built by Jean-Pierre using wood strips, based on photographs. The mine building is a Banta Modelworks kit.

Wyoming is an area of woodlands

The Rocky Mountains are extensive, but my attention was drawn to Wyoming. Not being familiar with this area, I used Rocky Mountains pictures, made available by a French tourist couple, or found online, to work out the colour of the ground and of the vegetation. The ground cover is sifted grey earth. The embankments are flocked with fibres applied with an electrostatic devices. The original vegetation was from the Anita décor, Sylvia décor and Coastmans Scenic Products ranges. I added some 20 MBR Model spruce trees (available from the LR Modélisme shop). The trees, of different heights, are arranged so as to reduce the linear appearance of the embankment in the background. The most attractive ones are in the foreground, the others at the back to give volume.

Out on the short line

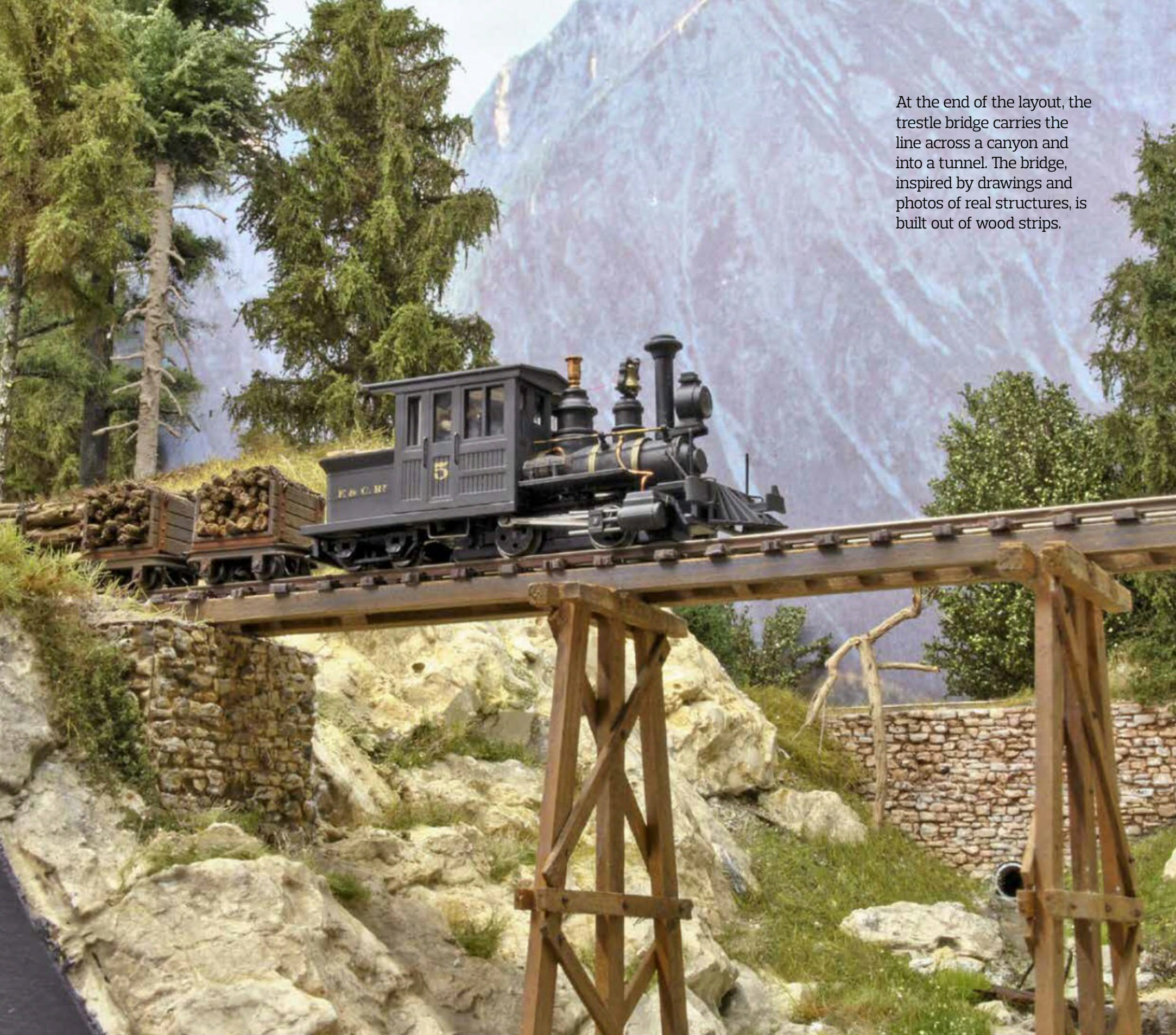
Three engines are enough to operate this layout. A MinitrainS Porter 0-6-0 tank

engine is in charge of shunting between the station and the mine. The MinitrainS Forney 0-4-4 hauls the trains on the line, with help from a Bachmann Baldwin 4-6-0. The MinitrainS engines have been detailed and weathered on the basis of photographs. Consist changes take place in the fiddleyard behind the layout. A bunch of MinitrainS and Roco skips was bought in a swapmeet. They were dismantled and the axles blackened. The chassis were airbrushed and the accessories painted with a fine brush. Pastel-based weathering was applied with a brush once the skips were put together again and loaded.

Plans for digital/analogue

The layout was completely re-wired. I kept the turnout control knobs on the front of the layout, à la Jean-Pierre. On the layout's first outing, at the Chambéry exhibition, it was controlled by a Gaugemaster unit. An analogue/digital switch was fitted, because operating with a wire no

At the end of the layout, the trestle bridge carries the line across a canyon and into a tunnel. The bridge, inspired by drawings and photos of real structures, is built out of wood strips.



longer suits me. I do not want either to clutter the detailed inside of the cabs on my engines to squeeze in decoders. Therefore, a single sound decoder, able to handle strong voltages, will be fitted under the layout. In this way, I will be able to drive my trains with my mobile Ecos or with a smartphone while following the train around. The layout will produce the sound of an American locomotive, while the station lighting will be connected to the lighting output of the decoder. ■



Trains of up to 15 wagons can pass and be shunted in the station.



J.-L. Rochaix

Level crossing
shortly before
La Sagne Eglise

Ponts – Sagne – La Chaux-de-Fonds (PSC)

RAILWAY

Located in the Jura area around Neuchâtel in Switzerland, the Sagne valley remains relatively unknown, despite its distinct charm.

Text: **Gérald Hadorn**



Since 26th July 1889, a metre gauge railway connects the two main villages, Les Ponts-de-Martel and La Sagne, as well as a handful of small hamlets, to the watch-making centre of La Chaux-de-Fonds. Unlike the vicinal railways in the neighbouring French part of the Jura, this railway has survived and is about to be modernized once again.

The line

At La Chaux-de-Fonds (alt. 994m), the line is adjacent to those of the Chemins de fer du Jura leading to Franches Montagnes and of the CFF to Neuchâtel, Bienne and Le Locle-Besançon. From there, it first runs parallel to the CFF Neuchâtel tracks, then branches off near Le Reymond before reaching the small pass at La Corbatière, the highest point on the line (alt. 1120m). The gradient is at its steepest on this stretch (40 ‰). The line then drops towards the bottom of the valley near the hamlet of La Sagne Eglise. Shortly beyond, it passes La Sagne station and on a gentle slope, finally

reaches the terminus at Ponts-de-Martel (alt. 1009m), a 16.26km journey in total.

Somewhat lightweight locomotives...

The original rolling stock consisted of three small 0-6-0 steam locomotives (G 3/3 1 «Ponts», 2 «Sagne» and 3 «Chaux-de-Fonds»), four 4-wheeler carriages, complemented by two more in 1891, and various goods wagons. The locomotives were a disappointment due to their restricted power and a maximum speed of 20km/h. In 1904 and 1915, they were replaced by three more powerful engines, able to run at 35 km/h (G 3/3 4-6).

A rocky history

Traffic did not grow as expected, and the company soon faced financial difficulties. As early as 1893, the railway had to be bailed out by the State. It was only at the end of WWI that strong growth was registered, in particular thanks to the shipment of large quantities of peat. Sadly, this recovery was short-lived and





BDe 4/4 n°4

between two walls of snow,
leaving La Chaux-de-Fonds,
4th February 1978.

G.Hadorn



Overview of

Les Ponts station
14th July 1963.

J.-L. Rochaix

*The former station
at La Sagne.*

114th July 1967.



J.-L. Rochaix



Steam train at La Chaux-de-Fonds,
shortly before electrification.



BDe 4/4 unit N° 4 between Le Reymond
and La Corbatière, **1st February 1992.**



Work train with tractor Tm 11 at La
Sagne, **9th September 2018.**

G. Hadorn

G. Hadorn

BDe 4/4 unit n°2 passes a new motor unit

at La Sagne – the new
station building is visible –
in 1996.



J.-L. Rochaix



Ph. Kälin

Snow-plough train outside
the new depot at Ponts-de-
Martel, **11th March 2005**.



C. Bernard

Photo stop on leaving La Chaux-de-Fonds: CMN
trains CMN bound for Les Ponts de Martel and
CJ train bound for Saignelégier, **27th July 1986**.



J.L. Rochaix

BDe 4/4 unit N° 6 at La Chaux-de-Fonds,
21st May 1992.



J.-L. Rochaix

Ponts-de-Martel station and its former goods shed in 1960.

road competition grew strongly. By 1926, closure of the railway was on the cards again. Operation continued as best as possible and in 1936, it was only financial support from local government that saved the railway, which then performed invaluable service during WWII.

Towards electrification

After the war, prospects improved: government showed willingness to finance the modernization of the PSC, provided the company merged with the Régional des Brenets to form one single entity. The new Compagnie des Chemins de fer des Montagnes Neuchâteloises (CMN) was created on 26th June 1947. Electrification in 1500V DC was decided and three years later, five electric motor units (CFe 4/4 1-5) and two pilot cars (Bt 11-12), all new and distributed between both lines, replaced steam haulage. For reasons of cost, they were bought in Italy. Operation became much more economical and the total length of the journey along the Sagne valley was cut from 47 to 25 minutes. Traffic grew satisfactorily, but the financial situation continued to generate concern, to the extent that in the mid-1950s, threats reappeared concerning operation of the railways. In February 1959, trials of a bus service were unconvincing; it was decided to maintain the rail service and that any deficit would be compensated by public money, with the award of subsidies to renew the fixed facilities and the rolling stock.

Modernization

Among other items, one can mention the replacement of the level crossing on the Neuchâtel – La Chaux-de-Fonds cantonal road by a 323m long tunnel on the Raymond gradient (1967), a partial service using carrier bogies for standard gauge wagons and the phased replacement of the wooden posts carrying the overhead wires by metal posts (starting in 1972), as well as the construction of a new station at La Sagne (1978). New modernization programmes have been implemented since the 1980s thanks to framework budgets awarded by government. The decision to keep

the rail service, taken in 1987 following a new evaluation, led to the immediate modernization of three motor units. The two remaining ones were replaced by two new units in 1991 (BDe 4/4 n° 6 and 7); a third one followed in 1996 (BDe 4/4 n° 8). These three units now operate all the traffic, together with a saloon-pilot car (Ast 21), built in 1998 on the chassis of motor unit N°1, which was scrapped. Goods traffic has vanished completely.

Public service

After further threats, the future of the line now seems safe, at least in the medium term. In November 2021, the authorities decided to finance the purchase of two low-floored double units. They are part of a joint order to the Stadler company, from the Chemins de fer du Jura and the Transports publics du Chablais for the Diablerets line. The CMN company no longer exists as such, since its merger with the Régional du Val de Travers (RVT) and the Transports du Val de Ruz (VR), which led to the creation of the Transports Régionaux Neuchâtelois (TRN) in 1999. The latter have since merged with the Transports publics du Littoral neuchâtelois in 2012 to give birth to the Transports Publics Neuchâtelois (transN), which currently operate four railway lines, three funiculars and many urban and regional bus and trolleybus routes. ■



J.-L. Rochaix

Ponts-de-Martel station, with BDe 4/4 unit N° 6, 21st May 1992.

La Sagne, the new station building

with BDe 4/4 units N° 2 and 4,
27th July 1986.



C. Bernard

Saloon carriage

Ast 21 and BDe 4/4 unit
N°6 at La Sagne Eglise,
9th September 2018.



G. Hadorn

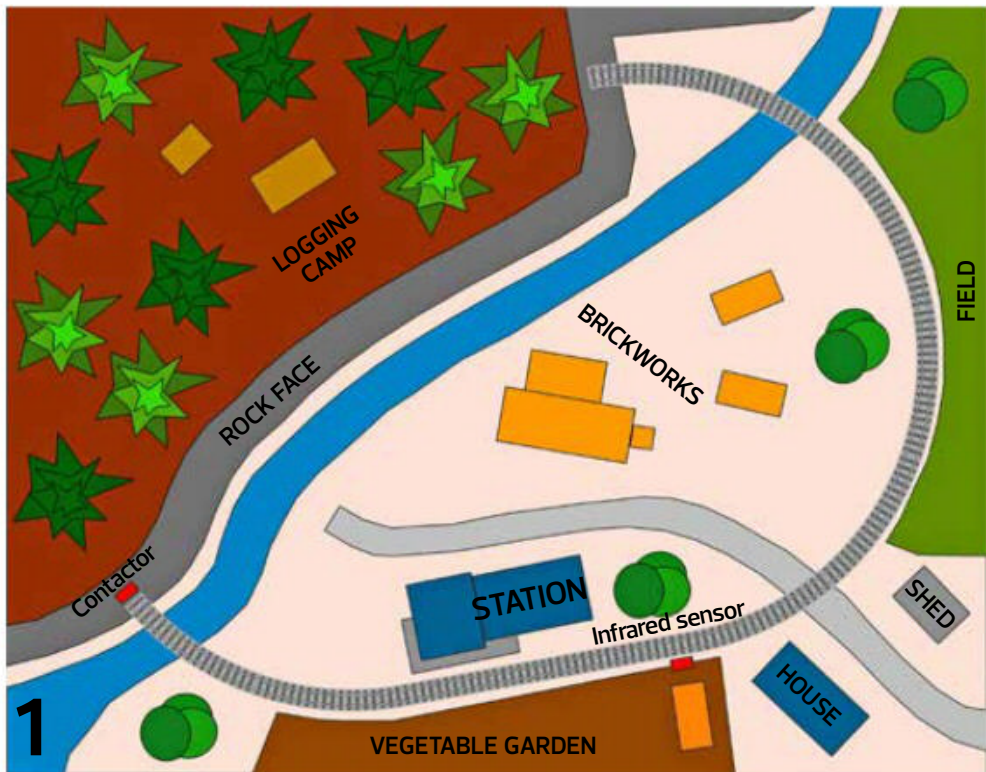
SIMPLE AUTOMATION

At least once in their life, all modellers have bought – or been offered – a starter train set with an oval of track. With a few tricks, an Arduino and a handful of very affordable components, find out how this basic circuit can be made more interesting than it might seem at first.

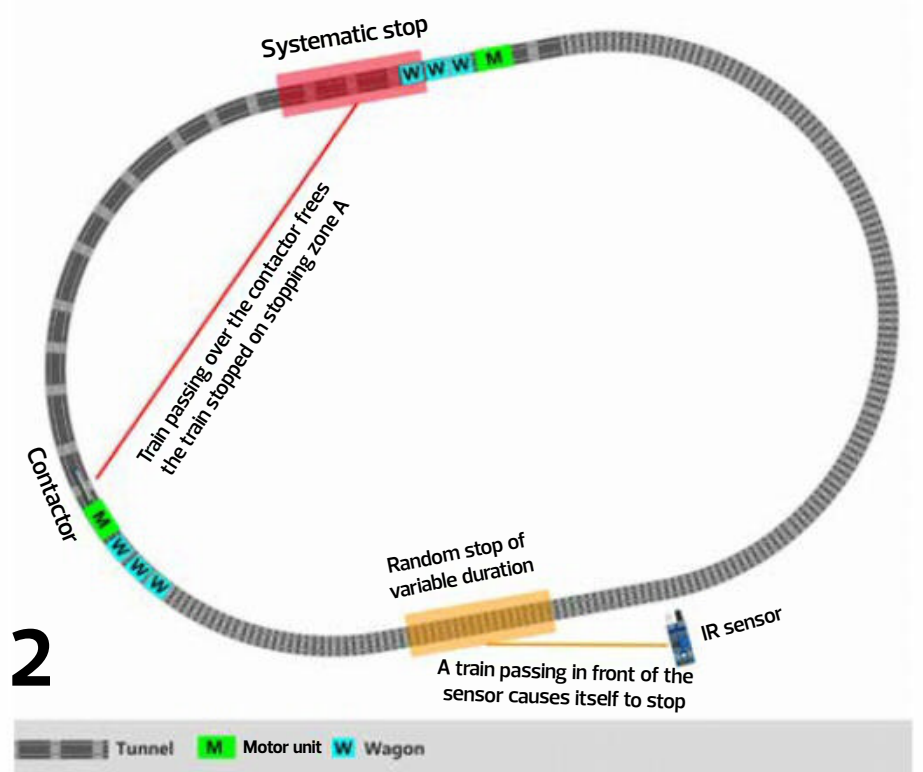
Text and illustrations: Jean-Baptiste Bournisien

DOWNLOAD THE
ARDUINO CODE
FROM THE VOIE
LIBRE BLOG





General diagram of Au Val de Base.

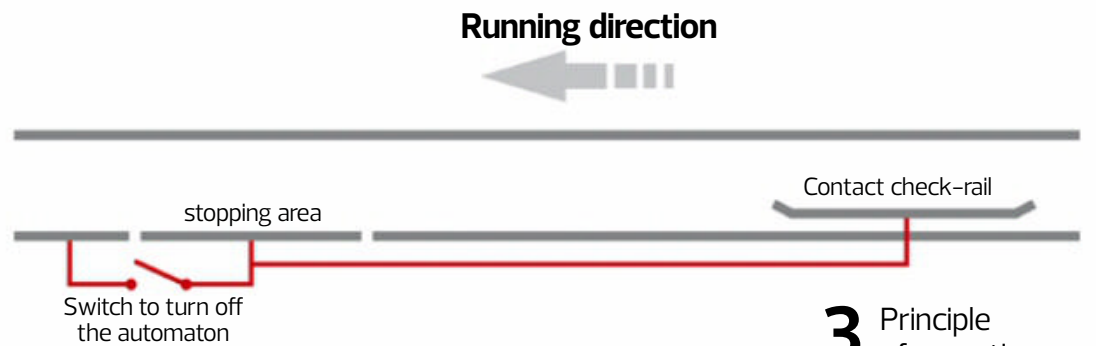


Location diagram for the electronic components.

When I decided to delve into the narrow gauge adventure, I opted for the Roco set (blame it on François Fontana, see Voie Libre N° 90). For just under 130€, it features: a steam locomotive, or a diesel tractor. Four to six wagons, depending on whether they are 4-wheeler or bogie wagons. A regulator and an oval of track. When you know that the regulator alone is priced at almost 80€, this is not a bad deal. And in fact, such is the case. However, there is one item that might risk remaining in the box: the oval of track that manufacturers have been supplying in starter sets since the Dark Ages of modelling, as it were. Once the excitement of unpacking has receded, watching the trains run round soon becomes boring. The circuit can of course be expanded, adding a turnout here, a turnout there, and producing a more interesting layout in terms of operations. What I decided was to set myself a small challenge: how to make a basic oval as interesting as possible... Welcome to Val-de-Baze!

SEVERAL TRAINS, AND A STOP AT THE STATION (OR NOT)

When tackling a looped layout, whether it is oval, circular or of a less geometric shape, the first impulse is to break the monotony by concealing part of the track, usually with a scenic divider, a tunnel... For my own project, I opted for the second possibility and went the full monty: one third of the layout is taken up by a mountain (photo 1). When I took this decision, I thought: suppose the train entering the tunnel is not the one coming out of it? This



3 Principle of operation via a treadle.

would be less dull for the viewer, don't you think? One question leading to another, I also thought of how to make things yet a tad more complicated... Why not stop the trains in the station randomly, and for a variable period of time? Fun and games ahead!

THE OPERATING PRINCIPLE

Train A enters the tunnel and, via a simple electrical contact, feeds the area of track located at the opposite end where train B is stopped, letting it move forward. B is quickly replaced by A (photo 2). Train B continues its journey until it reaches the station area where the infrared sensor (IS) detects its arrival. It is then determined randomly whether train B must stop. In this case, the relevant relay switches off the power in the station area, stopping the train. After a variable period of time, the relay powers up the station area. Train B sets off again, enters the tunnel, feeds the area at the opposite end, letting train A resume its own journey... and the loop is looped! Literally...

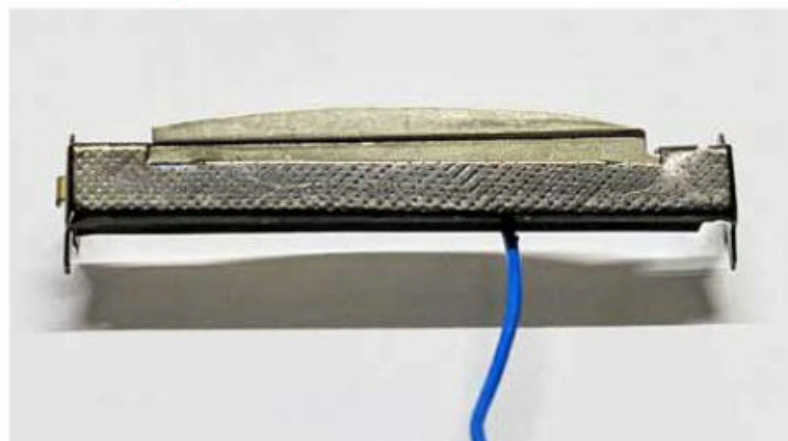
ALTERNATING TRAINS

For alternating trains, we shall use an age old system (photo 3). Or almost, as Jean-Pierre Hacard, who suggested the idea, told me he had already used this system ■■■

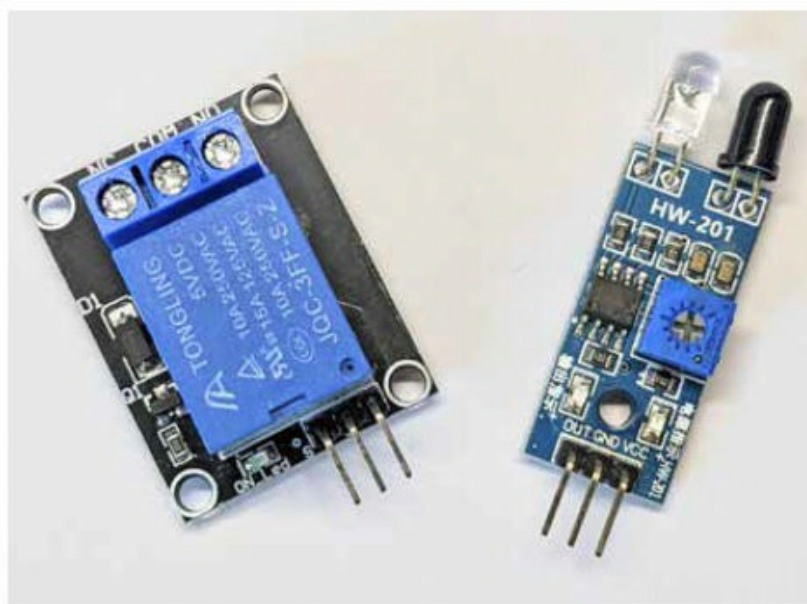
SUPPLIES

One **Arduino Uno**
One **5V relay module**
One **infrared detection module**
Dupont cables
At least one **Arnold contactor** réf. 7440

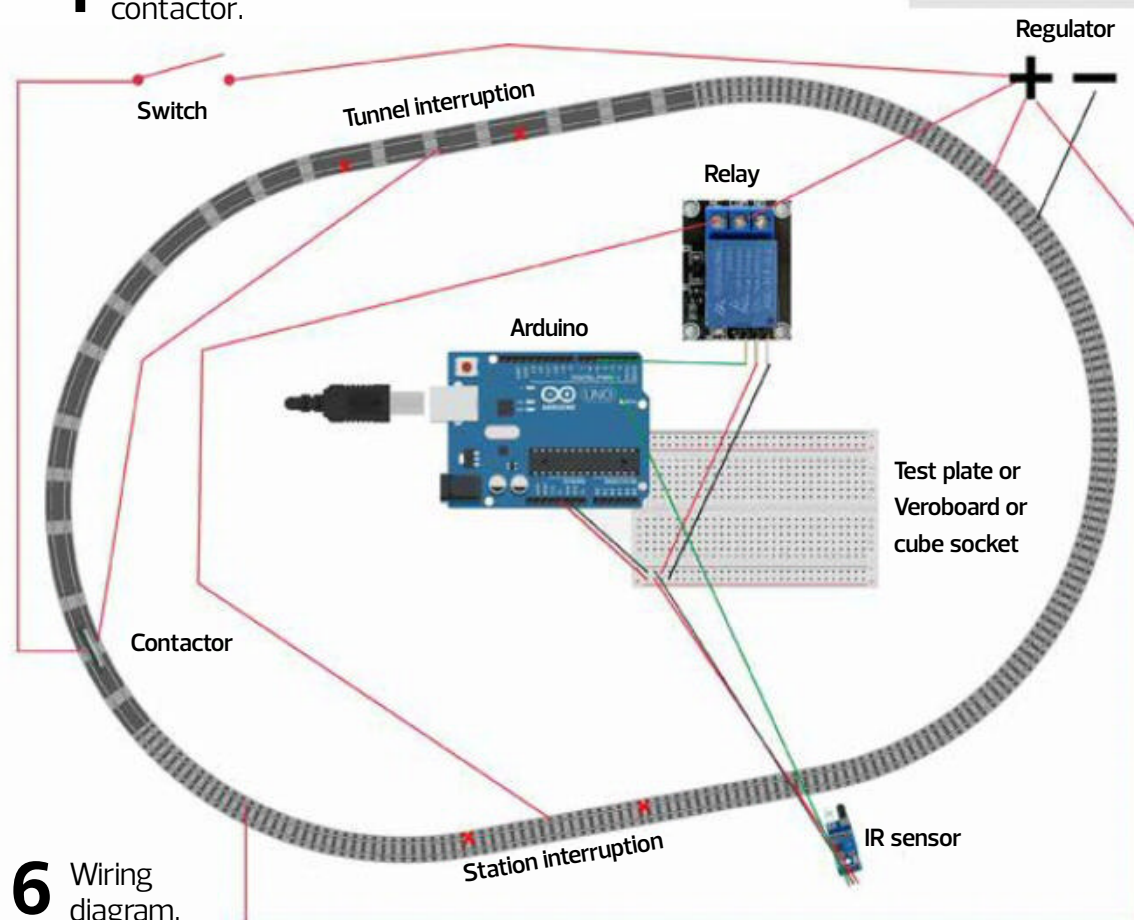
TECHNIQUE



4 The track contactor.



5 The Arduino card, the infrared sensor.



6 Wiring diagram.

■ 60 years ago. It is the axles of a train that mechanically switch on the power in the parking stretch located inside the tunnel. From a practical point of view, you can fix up a check-rail yourself. I opted for the easy way out: an Arnold contactor for N scale (photo 4), which is unfortunately out of production now but can still be found easily second-hand or on auction sites, etc. Alternatively, Minitrix produces a similar device integrated to a 50mm long straight length of track. I fitted three in a row, but you can go for two or even just one. The number will depend on your trials and will vary according to how your engines collect the current, their inertia, the length of your trains, their speed and the length of the parking stretch. On my layout, it is probably a bit too long.

STOPPING IN THE STATION

Stopping in the station is managed by an Arduino, with some help from two simple and affordable components: an infrared sensor to detect the arrival of a train in the station, and a relay to stop it on the stretch of track opposite the station building (photo 5).

WHY ISN'T EVERYTHING MANAGED BY THE ARDUINO?

To be honest, this was my initial idea and the first solution I tested. Unfortunately, the infrared sensors are notorious for their false positives and their very erratic operation (the programme sometimes let the train parked in the tunnel go whilst the other train had only just emerged). Other sensors are more reliable, such as those calling on the Hall effect or reed switches, but require the fitting of a magnet under the rolling stock, and this I did not want. If you wish to find out more about the detection of trains on the tracks, I recommend you read issue 870 of Loco-Revue.

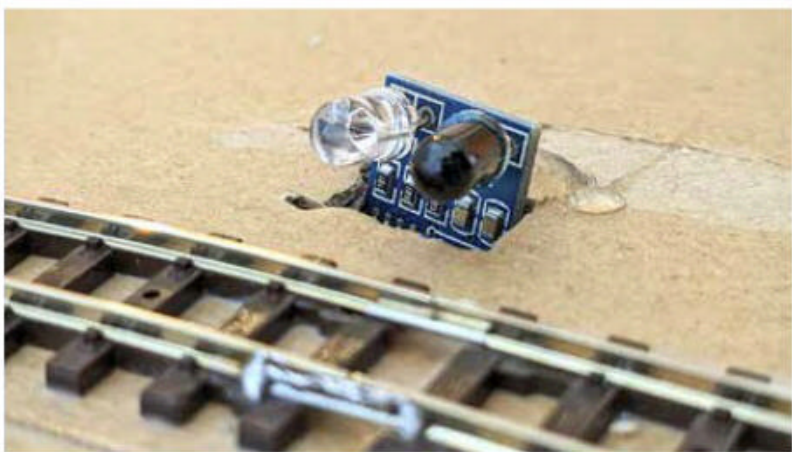
WIRING AND CODING

Wiring should be straightforward (photo 6). The parking stretch in the tunnel is connected both to the connector(s) and to the regulator via a switch, so that the automatic system can be deactivated.

On the Arduino side: the infrared sensor is connected to pin 4. The relay to pin 5 (other choices of pins are of course possible).

On the relay screw terminals, the wire from the regulator is connected to COM, and I recommend you connect the wire from the isolated stretch to the NC. In this way, if you do not feed the Arduino, the layout will behave as if there was no insulation opposite the station building. Thanks to this, and to the switch mentioned earlier, the layout can still be used as a simple non-automated oval.

Note that depending on your trials, you might need to fine-tune the sensitivity adjustment of the infrared sensor: this is done via the potentiometer, using a small screwdriver. Finally, if the components connected to the 5V supply of the Arduino are simply a relay and an infrared sensor, the electrical supply should be able to handle them. But if you plan more components, you may



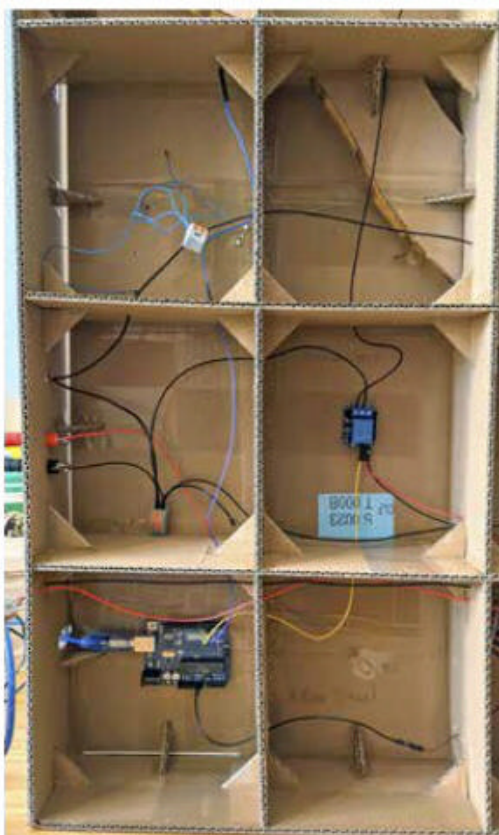
7 The visible part of the infrared sensor.

ARDUINO BASICS

This article does not deal with how code is typed, compiled and downloaded to the Arduino platform. Many tutorials on such basic notions are available. I recommend for example the tutorial found on the Locoduino.org site called «Arduino: toute première fois»

(<https://www.locoduino.org/spip.php?article217>), that will guide you step-by-step through the various stages. But do not worry, we will return to this topic soon in Voie Libre.

The code used for this layout can be downloaded on the Voie Libre blog



8 The components under the layout.



The locomotive is detected by the infrared sensor.



The sensor is concealed behind this small trackside shanty.

have to plan feeding them via an external transformer, simply making sure you connect its «-» to the «GND» of the Arduino.

The Arduino, the relay and the infrared sensor are hot-glued below the layout. The infrared sensor obviously has to stick out above track level (photo 7); I will conceal it at a later stage with the scenery. For connecting the cables (in the non-Dupont option), I solder them and isolate them with heat-shrink tubing, or I use Wago type terminals (photo 8).

A RUNNING-IN... OR EXHIBITION LAYOUT!

Besides being an excellent way of tackling the Arduino platform, this project provides you with an affordable layout for running in your engines – by switching off the automatic functions – as well as with an attractive exhibition display once decorated. The animation generated by the automation, when compared to the simplicity of the trackplan, will amaze viewers. All you will need to do is tell them how you did it!

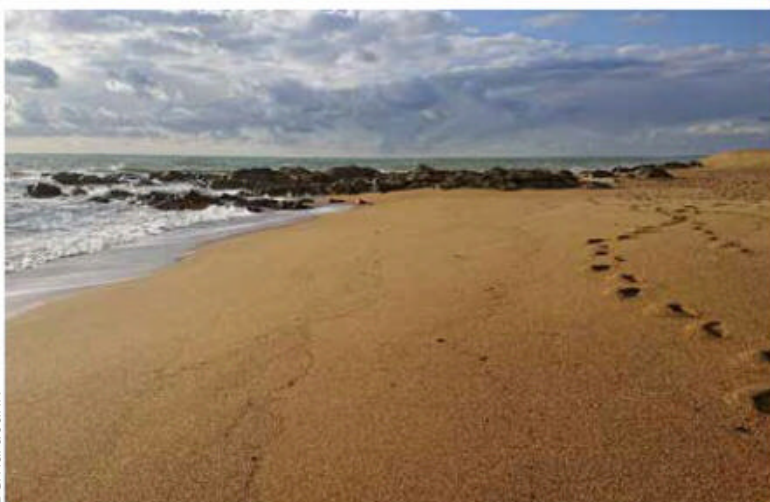


The track is on several levels, with some steep gradients.

The rich beaches of Olonne

Holidays and railway discoveries can go hand in hand! Here is a project that was born from a delightful tourist excursion. Under the guidance of Bernard Junk, I discovered some unknown aspects of the Olonne area.

Text: François Fontana and Bernard Junk
Drawings: François Fontana



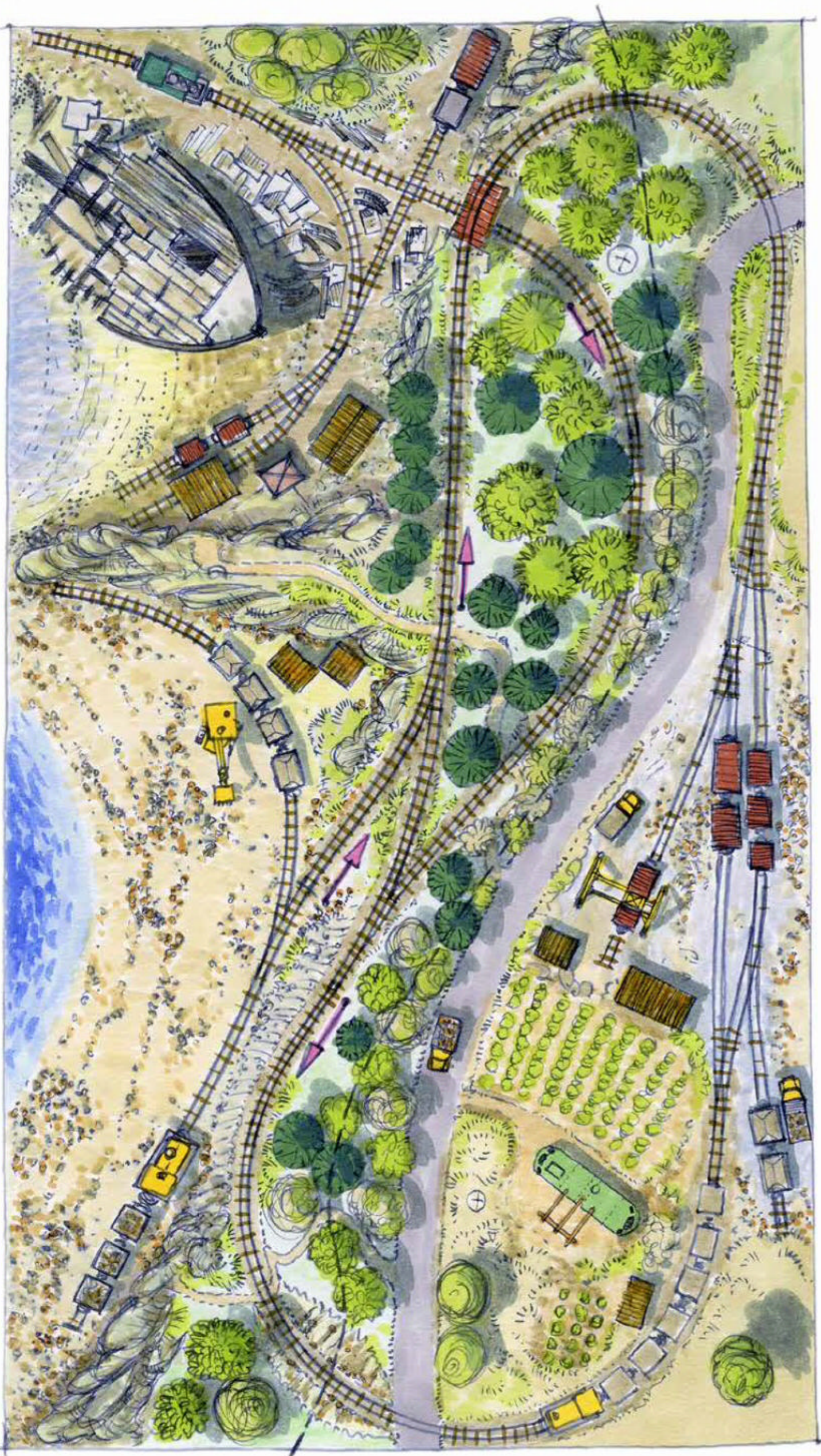
Bernard Junk

The real dune ridge is somewhat set back from the coastline, in our project it is closer.

During a summer meeting at Les Sables-d'Olonne, Bernard helped me discover the railway heritage of this fine part of Vendée. We saw what was left of the metre gauge railways, the former COFERNA works, we inspected the route of the tramway that ran along the city walls... But what surprised me most and by far were those short-lived industrial lines that crossed the dune ridge to reach the wilder shores of the ocean. These 60cm gauge railways were what I wanted to bring back to life through this project.

THE MAGIC OF MODELLING

Short-lived is indeed the word: the first line lasted just 5 months in the spring of 1911, the second one had a longer and hence more chequered life between 1926 ■■■



The layout at a glance

Dimensions: 80 x 140cm
Scale: H0, 9mm gauge track
Minimum radius: 15cm

*The layout
project takes
up a surface
of 0.8 x 1.4m.*



Bernard Junk

Note the specific colour of the sands and rocks on the Olonne beaches.

and 1961. The project below suggests an unlikely compression in time as both lines are included. It also features another fine railway story, but let's take things in the right order and see how history can back up our modelling.

INFERNET IN THE SAND

Imagine a proud warship, painted white to sail in the warm waters of the South. Named «Infernet», after a Nice-born admiral who showed gallantry during the French Revolution and Empire, this vessel was a cruiser. Despite being fitted with a steam engine able to propel the ship at speeds of more than 20 knots, it appeared to be poorly armed and too greedy on coal!

A second life for the Billard

During one of my visits to Jacques Denis, in the course of which he told me anecdotes about the narrow gauge railways that ran through the Olonne dune forest, which he had been familiar with during his youth, I saw on the kitchen table a copy of an issue of Voie Libre he had just bought. The cover picture was a fine shot of a Billard railcar. That was when his wife Jocelyne said to me : «I lived in there!» What do you mean, «in there?» I asked her. And Jocelyne told me the story...

After WWII, there was a very serious housing shortage. «My father, she said, bought from a scrap merchant the body of a Micheline from the Vendée secondary railway, which had just been closed. He had it moved onto a piece of remote land at La Chaume, this part of Les Sables-d'Olonne where we still live today, and fitted it out as a dwelling. He poured a bed of clinker covered with tiles on the floor, painted the railcar green and black and replaced the original door by a fine wooden one. Small curtains on the windows gave the railcar a homely appearance.

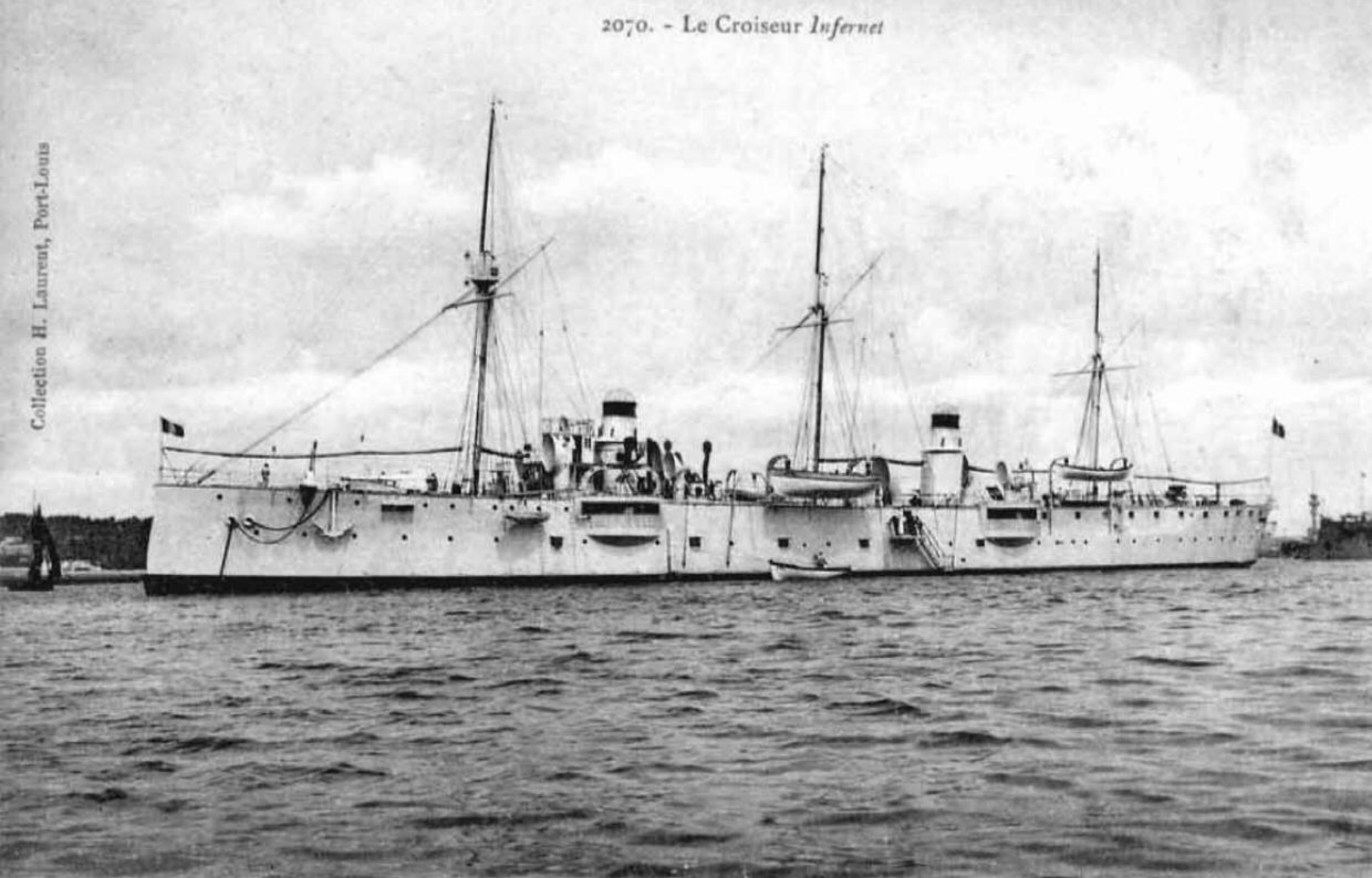


The inside was divided into three compartments: my bedroom was in the curved part, my parents' at the opposite end and between both was the kitchen. The engine compartment was used as a storage area. We lived in there for almost 10 years». «When we got married, continued Jacques, I attempted to retrieve that railcar body. Unfortunately, when we attempted a lift, it broke. All I was able to salvage were the windows ...» The first question that came to my mind was whether there were photographs of this unusual dwelling. «Sadly, no, we do not have any, I was

told, despite photographs having been taken, as it was something of a curiosity!»

This is what led François, to whom I told the story and who was as frustrated as I by the absence of a photo, to imagine the scene and put it on paper in the form of a fine drawing, slightly romanced and toned down... According to a local source confirmed by Jacques, other Billard railcar bodies may have been used for the same purpose, ending their lives as makeshift dwellings in the area.

Bernard Junk



The *Infernet* before meeting its dismal end.

It was soon left aside, laid-up and destined for scrapping. This is when things turned weird: sold to Germany, it was supposed to be towed to the Baltic, but a storm decided otherwise. The *Infernet* broke its moorings and ran aground on the coast of Olonne, on a beach that now carries its name! All the details of this story are told by Roland Mornet, a naval historian, in his book «Les naufrages de Vendée» («Shipwrecks of Vendée»). What is worth remembering is that the Germans chose to break up the vessel on site and to ship the metal by rail.

THE PARACOU PEBBLES

The second source of inspiration is less unusual: a pebble quarry. The beach at La Paracou in 1926 was a huge tongue of shingle spread over the bedrock; it ended on the landward side at the foot of the sand dune ridge. The beach was connected to the Aubraie road by a «conche», a kind of passage through the middle of the dune ridge. In the 1920s, local market gardeners ■■■



Les Sables-d'Olonne. — Echeuement de l'« *Infernet* », ex-croiseur français (16 novembre 1910), n'est plus qu'à 20 mètres de la dune à 5 heures du soir.

Lucien Amiard, Sables-d'Olonne - N° 4115 - Reproduction interville

*The *Infernet* on the morning of 16th November 1910.*



Completely bogged down, the cruiser could no longer be towed and was scrapped on site.

... used to grow vegetables there, the land being very fertile. A private entrepreneur asked to quarry the sand, gravel and shingle from the Paracou using a 60cm gauge railway to move these materials inland before loading them onto lorries. This work was interrupted by WWII, when another contractor took over before being commandeered by the Todt Organization to work on the Atlantic Wall fortifications during the German occupation. The department of Vendée inherited the facilities after the liberation of France, and the quarrying continued for a few years in connection with various development projects linked to the seaside resort of



Jacques Denis standing in front of his model of the Paracou train, which he had driven in his childhood.



*The 10hp Dyba
cableless tractor.
A small scale model
by Jacques Denis.*

Les Sables-d'Olonne. In 1973, due to coastal erosion, the local council put an end to all quarrying.

THE PROJECT

North of Les Sables-d'Olonne, the coastline turns almost due North. Of the two beaches, Paracou is the southernmost. We drew a layout on which both periods are combined. The trackplan is an oval with sharp curves: to the south, the radius is 22.5cm, to the north it drops to 15cm. To the west, the beaches, to the east, the transshipment area beyond the dune ridge. The 60cm gauge track runs down to the two beaches via two «conches». On the far side are the unloading area into the lorries, a loop track, sidings for the wagons and a small shed for the locomotives. As the Infernet was 95m long, it was impossible to model it whole, so we imagined that the scrapping process was almost over and that only the bows and a few frames on the keel remained.

In the loop south of the layout, we fitted the peculiar residence of the parents of Jocelyen Denis, whose husband had so much to tell us about the railway history of Olonne.

THE STOCK

Not much is known about the scrapping of the ship, except that the work site was

served by a steam locomotive, some skips and track from La Rochelle. A team of some 50 workmen, under the orders of German officers, were employed for this task. For the Paracou beach, a bit more information is available, thanks to Jacques Denis' memories, who witnessed operations shortly after WWII. While the first period called on a steam locomotive, petrol-driven tractors were used later on; 10hp Dyba units at first, then German Schöma and Deutz machines. The trains

consisted of 6 to 12 V-tippers. The stone was loaded partly by hand, but mainly by two electric loaders and a diesel shovel. When modelling, and whatever scale is chosen, there are plenty of small tractors or steam engines available. Likewise for the trucks and V-tippers. A motor shovel, a couple of loaders, a few 4-wheeler dumper lorries, and you are all set to go. For the structure of the Infernet, on the other hand, you will have to work from basic materials! ■



All that remains of the Paracou beach quarry, two lengths of rail poking out of the sand dune.

Salgo Mining

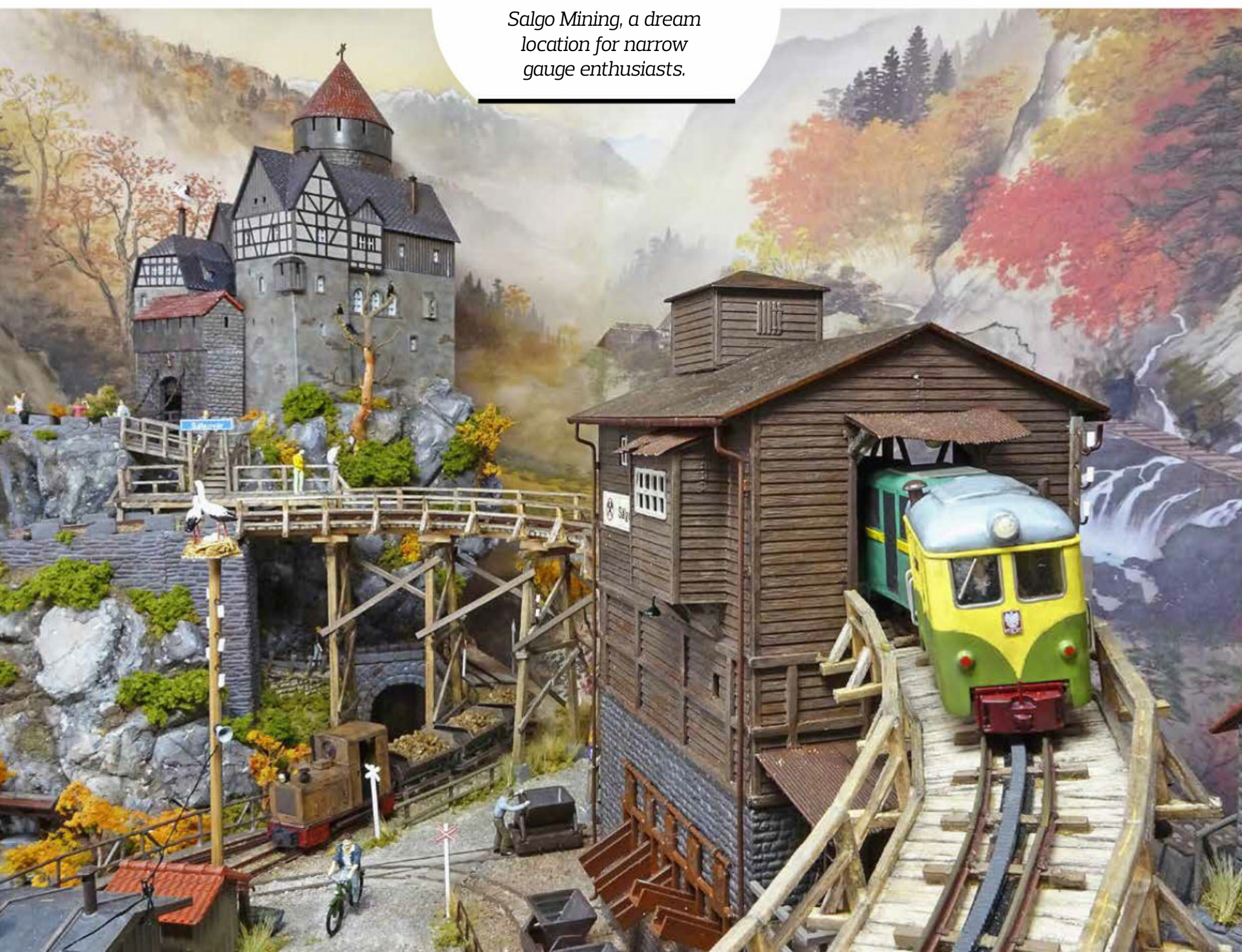
Takeshi Mashimo is a Japanese modeller who spent a few years living in Hungary. On his Salgo Mining H0-6.5 layout, he resurrected many memories from this period... Highly enjoyable!

Text: François Fontana d'après Takeshi Mashimo
Photos: Takeshi Mashimo

Internet is magical! We met Takeshi on an international platform, we exchanged with him and he sent us a series of photographs of his layout, together with a lengthy modelling confession. We summarize his own words here; the account of 5 months in the world of modelling.

This layout draws its name from a Hungarian town in a former coal mining district. I lived there for 4 years until 2015. I imagined a railway where trains travelled up and down steep gradients around the

Salgo Mining, a dream location for narrow gauge enthusiasts.



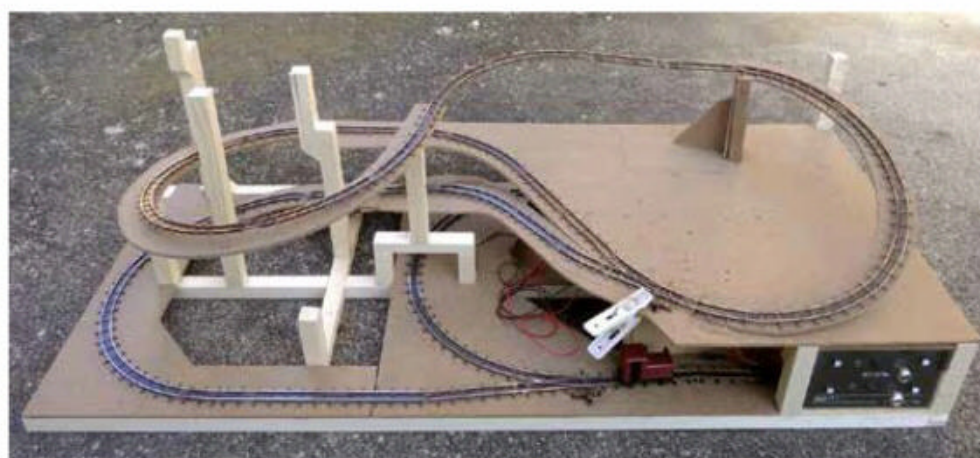


Extending over three levels, the H0-6.5 gauge track serves a mine and a tourist cave at the -7cm level, the mine head at the level 0 and the transshipment stage as well as a medieval castle at the level + 9 cm.

mine, adding a castle and a limestone cave. I opted for the Busch Feldbahn range, as its large power and magnetic adhesion allows it to climb walls and almost run along the ceiling!

The trackplan

The layout consists of two sub-assemblies: on the surface, an 8-shaped layout with steep gradients, below an oval on the level, both circuits being connected by a graded loop. The surface layout features the ore transshipment building on the right-hand side, the castle on the left-hand side and the large wooden trestle bridge that connects them. On the lower level, the mining galleries and the limestone cave. I designed the trackplan with as few concealed tracks as possible, so as to ...



The layout consists of two loops – an oval and an eight without a crossing – connected by a steeply-graded spur.

The layout at a glance

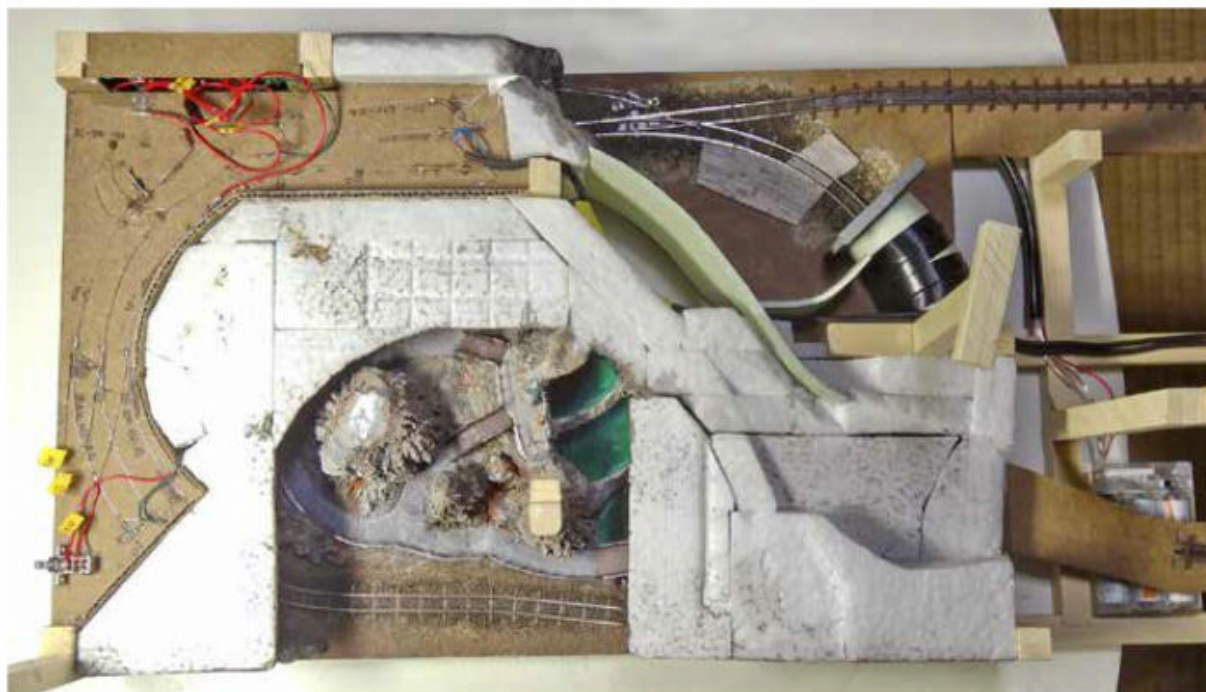
Scale: H0 (1/87)

Gauge: 6.5mm

Control: analogue

Dimensions: 68 x 28.5cm, 42.5cm high

H0-16,5 Layout



The lower level had to be completed before the upper level was built. Note the battery blocks for the electrical supply and the wiring along the roof of the mining tunnel.

■■■ enjoy watching the trains from all angles to the greatest extent possible. The total difference in height between upper and lower levels is 16cm, a scale 14 metres!

The benchwork

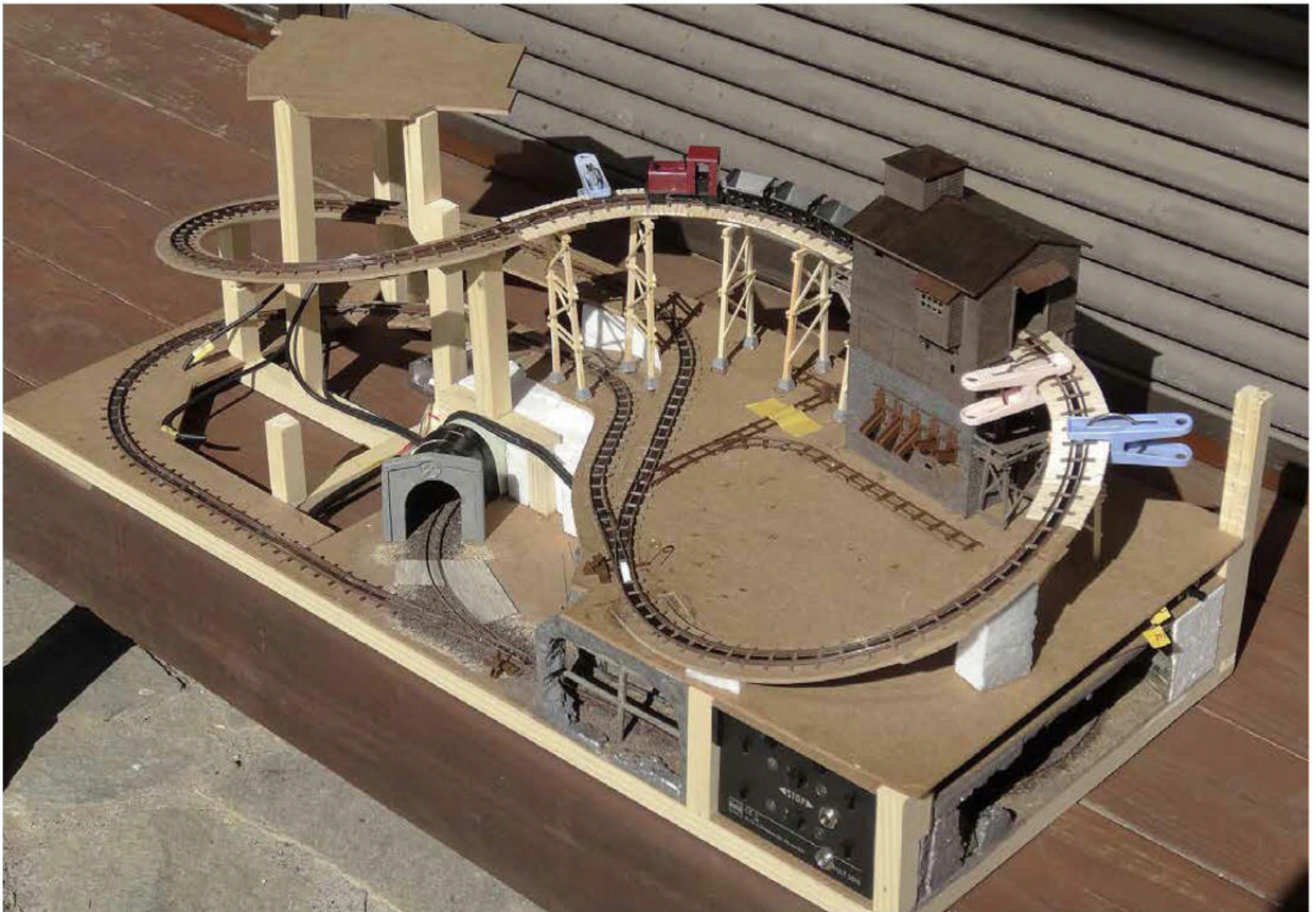
The layout structure is made out of 15mm square lumber, the trackbed out of 3mm thick MDF. The lower level structure supports that of the upper level. Because of this, I had to complete the scenery of the lower level before tackling work on the upper level.

Tracklaying

I used three starter sets to which I added two turnouts and a few sections of straight



At zero level is the turnout connecting the spur from the lower level and the large 8 of the upper level.



The control block fits into the front fascia of the layout. The track located under the trestle is from an Auhagen set and is purely cosmetic.

track. The Busch track, fitted with a steel blade between the rails, is sturdy and unflexible; I did however bend it here and there, probably too much, as this caused a few derailments. I shaped the trackbed by dampening it before gluing it in place, and gluing the track on top. When the wood dried out, some warping resulted, causing the track to lift in places. It took me quite some time to obtain a track that was in line with the plan I had drawn! The electrical supply blocks for the two circuits are concealed under the scenery.

Relief and scenery

The relief consists of carved blocks of polystyrene. Wherever the slopes are too ...



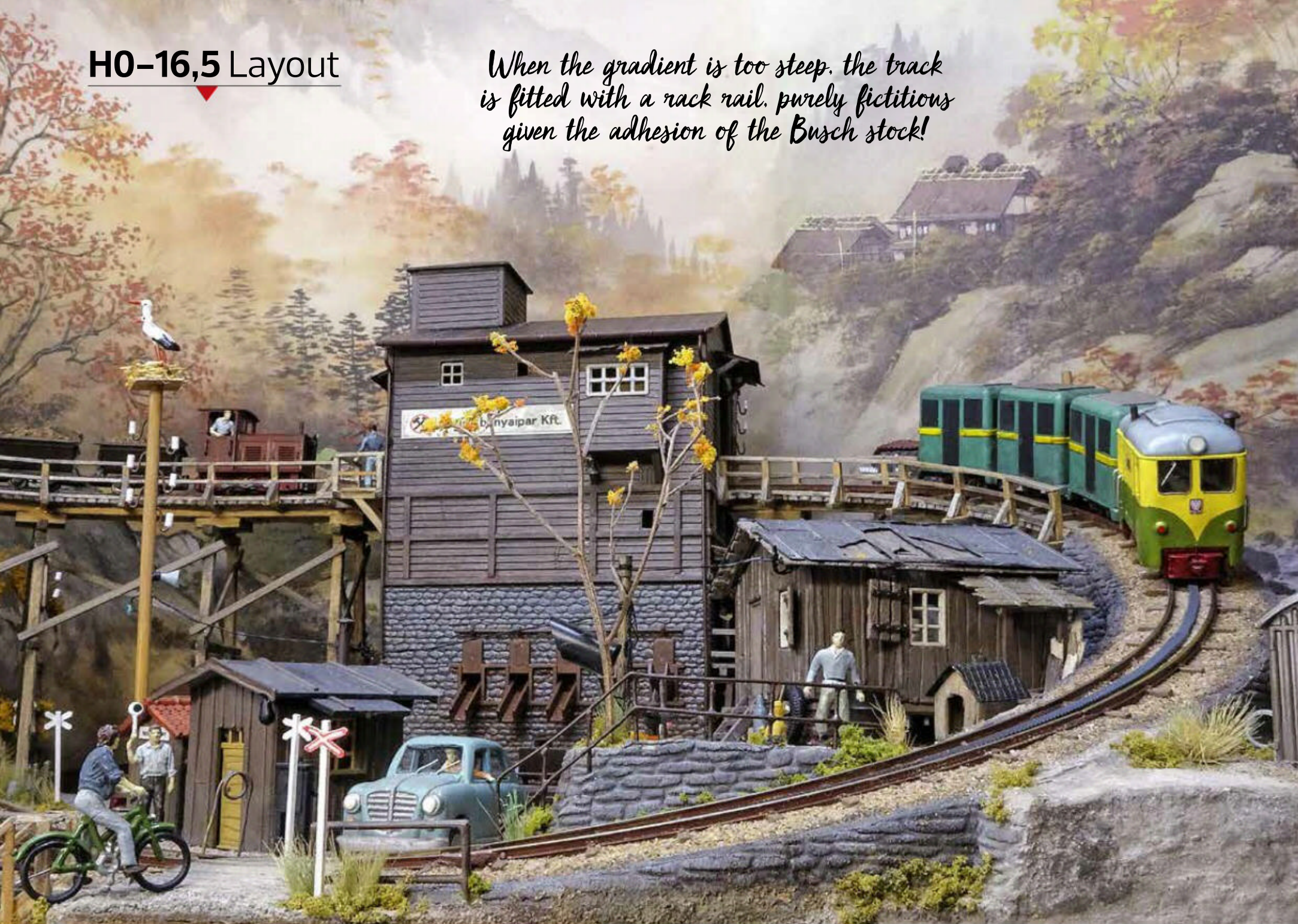
The small Decauville engine, in charge of a train of wooden toast-rack carriages, serves the castle. The rocks are carved out of polystyrene, the flock materials are from commercial ranges, the railings are made of balsa.

**WATCH
SOME MORE**

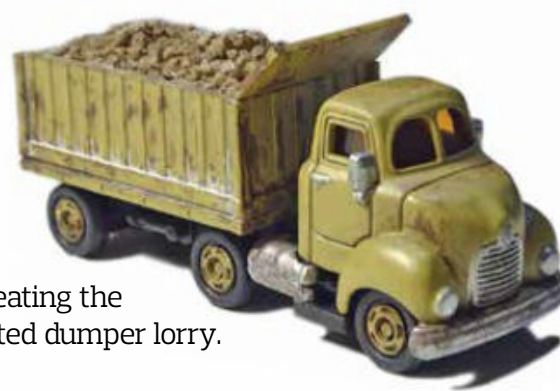
Discover the video
on the Voie Libre
blog

H0-16,5 Layout

When the gradient is too steep, the track is fitted with a rack rail, purely fictitious given the adhesion of the Busch stock!



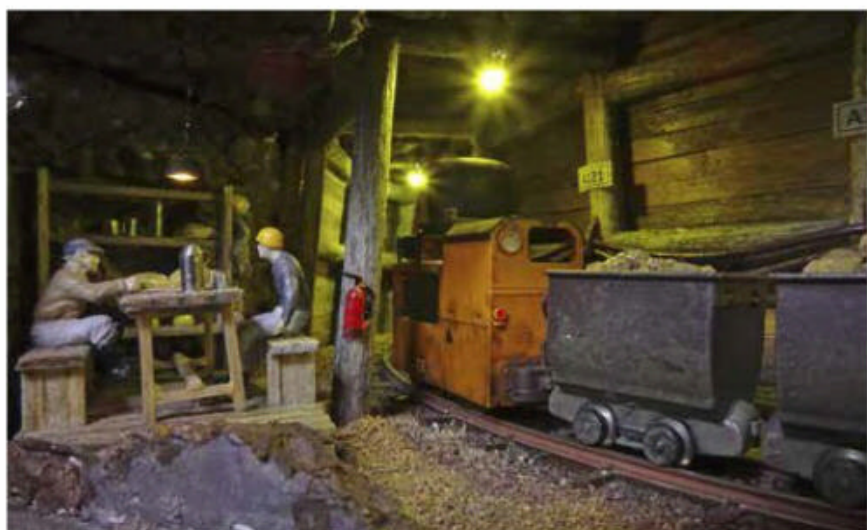
The Disney toy used as a base...



... for creating the articulated dumper lorry.



A peek into the gallery, total height is just 5cm.



The miners are taking a break in a disused gallery.



The large trestle seen from the back, the vegetation calls partly on real plants. The Auhagen building has been modified: the doors were opened to let the trains through, the small adjacent office has been moved.

■■■ great or too steep, I fitted large retaining walls. This relief is then painted with several coats of paint, of different colours. The tracks are ballasted in the customary way and in places embedded in a layer of clay sprinkled with plaster. Building with light weight techniques and materials means the layout weighs only 2.4kg, making it easily transportable. The ground is covered with various flock

materials, as well as natural ones such as moss, which goes yellow once dry, used to reproduce foliage.

Buildings

I modified an Auhagen building, in particular the ore chute whose doors were opened so that the train could run through it. The small adjacent office was moved. The castle tower has been raised slightly, it is glued

to a plastic bottle top whose screw is fixed onto the base of the building. This means I can remove it when the layout goes into storage! The retaining walls are made out of embossed sheets or carved out of polystyrene. The railings are made out of balsa, but being too fragile, they have often been broken and glued back in place. The wooden trestle is built out of 3mm square wood strips. ■■■



The Busch tractor, the mock-up of the small locomotive and the actual plastic sheet model.

This type of scene was created before being installed.



The body conceals the large condenser used to compensate for gaps in the electrical supply.

H0-16,5 Layout

The tunnels, the cave

The tunnels are 5cm high. Above is all the wiring for the tracks and lighting. To model the wooden mine props, I used waribashi, the traditional Japanese disposable chopsticks. Strips of balsa are glued between the props. I added various pipes and electric cables.

For the cave, I was inspired by one I had visited in Croatia. On the polystyrene structure, I spread air-drying clay, which provides a texture evocative of limestone rock. The three pools of the underground lake are lit by white LEDs which, through the blue-shaded surface of the water, light up the cave roof. A path allows visitors to walk around the lake. However, once the top part of the layout is in place, this scene becomes invisible.



Takeshi with his layout.
In the background, a few
of his creations in N mini.

Rolling stock

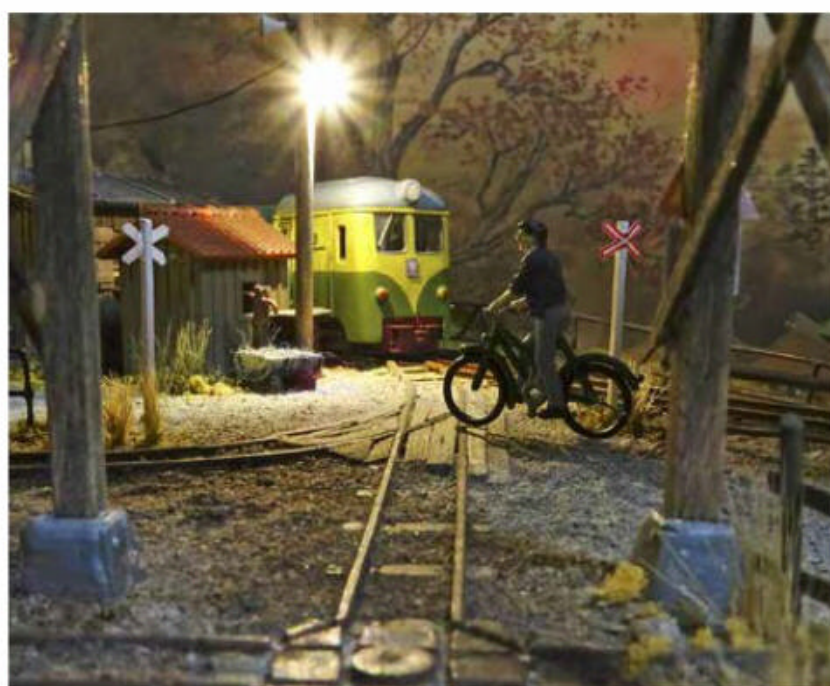
The Busch chassis were modified, the original tractor was shortened to better suit my taste. The other chassis was used as a base to build a small box-shaped locomotive. The aim was to give it the appearance of a former Eastern-block production, a fine red star would suit it

*The tourist train brings
visitors to the limestone cave
and the underground lakes.
Very atmospheric lighting.*





As night falls, the lights come on. The backscene is a large wall calendar.



Just for kicks, the last evening train! Sweet dreams!

perfectly! Because of faulty track-laying, the engines tended to stop erratically! All the locomotives are therefore fitted with a supercondenser, with the added benefit of gradual stopping and starting. The battery locomotive was too small to conceal the condenser. The closed carriages were made out of electric relay hoods, while the open carriages are made of wood. The road vehicles are modified toys, the Austin A30 is a Thomas model, the dumper lorry a Disney toy. ■

Fitting out **YOUR DEPOT**

Éric Fresné continues to fit out his Quittancourt depot, a job undertaken in Issue 108 of Voie Libre 108. After the water supply and the inspection pit, dealt with in the first instalment, it is time now to tackle coal and oil.

Text and illustrations: **Éric Fresné**

**FULL OF
ENGINES!**



April 1922, the ground at the MRL depot at Quittancourt has had time to become weathered after 3 very busy years.

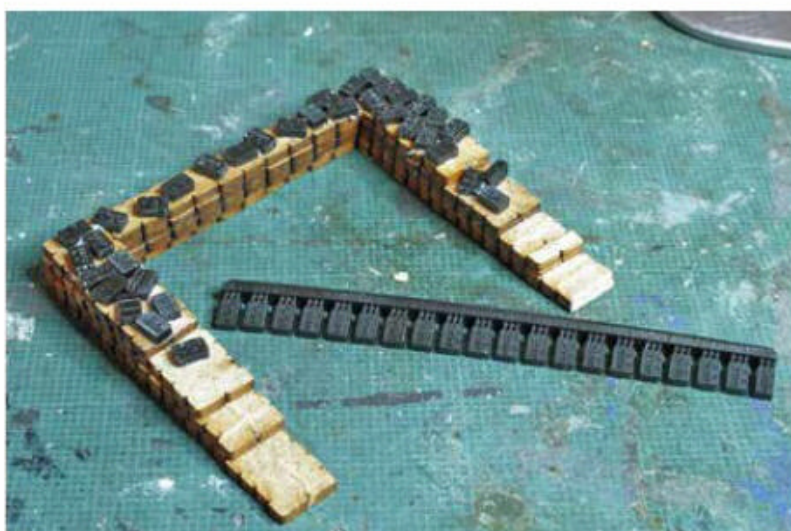
Still inspired by the MRL depot at Vienne-le-Château, near Suippes, I deal in this second instalment with fuel supplies for my locomotives. The photograph shows a coal stage as large as the water tower. It consists of a border made of briquettes that hold in place a comfortable reserve of mixed coal and briquettes. I modelled it using laser-cut card and real coal. As for the petrol-driven tractors, and due to a lack of documentation, I imagined a very basic installation consisting of a Japy pump – made out of polystyrene – and 200 litre drums.

And to finish off the work on my depot, I took particular care with the ground. The ground of an active steam depot is quite something! What with coal, oil, water, ash and clinker, its original colour vanishes under a grubby crust the colour of anthracite. Many methods can be used to represent such ground. I started by coating the baseboard with very fine grey sand. Once fixed in place with matt acrylic medium, it was given many washes of water-based black ink until the result I wanted was achieved. A lengthy job, but a rewarding one. It gives this part of the depot plenty of character.

THE COAL STAGE



1 Fabricating the coal stage calls on a well-established technique. The border, made of stacked briquettes on the prototype, is laser-cut out of 1.5mm thick MDF. This was a bespoke job done by Cités Miniatures and based on drawings I supplied.



2 The rows of MDF briquettes are simply glued on top of each other. To improve their appearance, I added one row of Aniche BS briquettes from the Decapod range (ref. 1650).

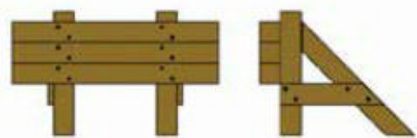


3 The coal stage is then filled with real crushed coal glued with Liquitex matt medium. Before this, the briquettes were sprayed with a coat of black Gesso, whose mineral texture is very evocative of compressed coal dust.



4 The location of the coal stage was cleared with an old gouge. The stage is held in place with a few drops of Cléocolle adhesive. Final integration will take place when the depot ground will be dealt with.

QUICKIE JOB: A BUFFER STOP



British Army «regular» buffer stop (H0 scale).



5 This buffert stop was inspired by a British Army prototype. It consists of parts cut out of 2mm square strip and 0.5 x 1.2mm flat strips. You will need two legs (12mm), two struts cut at an angle of 45° (15mm), three cross-beams (20mm) and two reinforcing struts angled on one side (10mm). I start by assembling the legs, the cross-beams and the reinforcing struts. The, the three cross-beams are glued just above the reinforcing struts. In this way, the feet protrude 1mm above the sleepers. The legs are spaced by 8mm.



6 Once painted and weathered, my buffer stop is installed at the end of the coal stage siding. Its base is prototypically buried in a heap of ballast.



7 Even such a simple scenic element as a buffer stop can undergo small variations. This one, installed in the middle of nowhere, is a 3-legged reinforced version of the previous one.

A JAPY PUMP AND OIL DRUMS



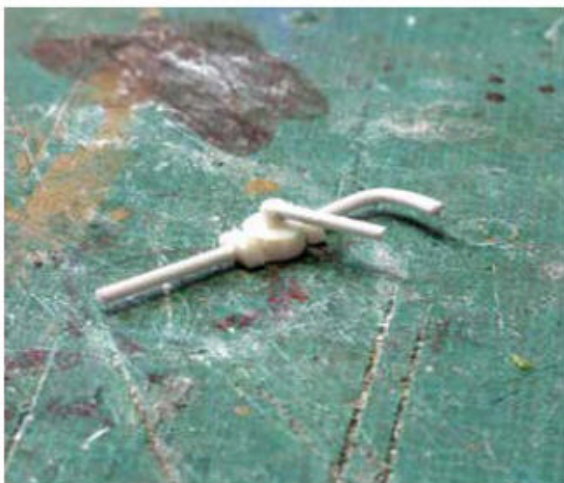
8 For supplying petrol to my tractors, I decided to model a classic Japy pump. It is made up of various Evergreen round strips. The first stage consists in drilling crosswise to a diameter of 0.8mm a 3.2mm round strip.



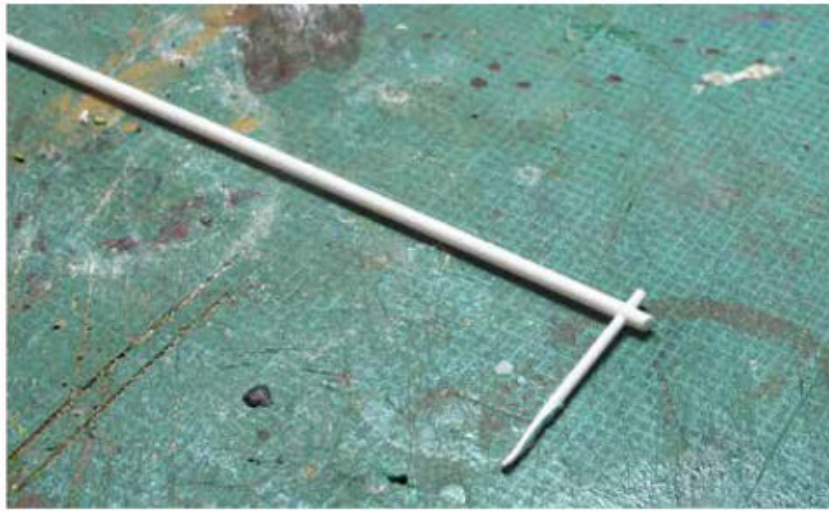
9 The body of the pump is cut out to the right thickness using a razor blade.



10 The body of the pump is then threaded onto a 0.75mm round strip, with two lengths of 2.5mm tube, ovalized to represent the two connectors.



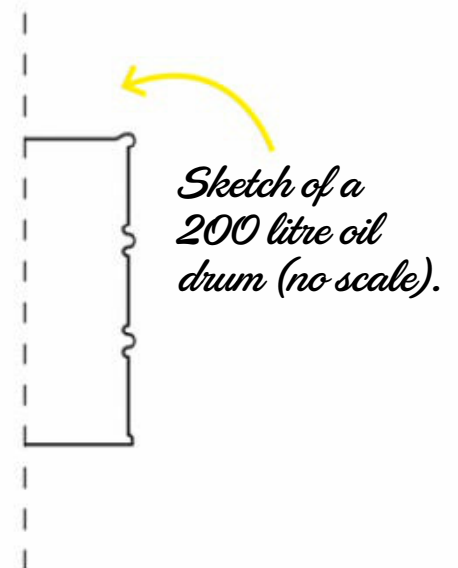
12 The job is completed by gluing the arm right in the middle of the pump body, by cutting the hoses to the right length and by bending the output tube.



11 The arm of the pump consists of 0.75mm and 1.2mm round strips threaded into one another.



13 Albert is going to fill up the Schneider! The Japy pump was painted and stuck into a 200 litre drum (see box). The ground around the drums is given a coat of silk black acrylic paint to represent the spills.



Practically all the oil drums, intact or dented, visible at Quittancourt are 3D wire prints. The master model – if I dare say so – was made using the Onshape online modelling platform (<https://cad.onshape.com>). The initial sketch was a half-drum seen in longitudinal cross-section, developed over 360° thanks to the «pivoter» tool. A second circular sketch was produced to generate the filler cap. Onshape allows for the export of .STL printable files. Passing from an intact drum to a dented one requires downloading Blender (<https://www.blender.org/>). Blender is a free 3D modelling software with extensive capabilities. To dent my drums, I imported the .STL file into Blender and used the «elastic deformation» sculpting tool, applied somewhat randomly until the proper result was achieved. Each dented drum was then exported in .STL with a new name. In this way, I built up a stockpile of more or less dented drums, ready to be printed. They were painted and weathered using water-based acrylics.

GRUBBY GROUND FOR THE DEPOT



14 Whatever the original colour of the ground in a depot, the area where engines are prepared soon displays a very characteristic anthracite grey shade.



15 I probably did not opt for the easy way out when making the ground in my depot. The method chosen is slow and tedious, but the result was well worthwhile. Rather than using filler material, I opted to spread a coat of very fine sand that will give texture to the ground.



16 I then proceeded in more or less the same way as when fixing ballast. I sprayed water all over the surface of the ground until the sand was thoroughly soaked. The water must well up. This is essential for the gluing phase to be successful.



17 I was also heavy-handed when applying the thinned acrylic matt medium. It was applied so as to ensure that the sand was properly coated.



18 To finish off the job, I sponged off the excess liquid with tissue paper.



19 Before the medium dried out, I improved the integration of the coal stage into the ground of the depot by sprinkling crushed coal all round it.



20 I also spread coal all over the place. There is plenty of it. This was done on purpose, as most of it will be hoovered off once the medium has dried out completely. But the leftover will make the ground slightly shiny.



21 The sans I use was chosen for its grey-blue shade. I will now give it a grimy appearance, generated by the activity in the depot. Water-based black ink from the Pebeo range is applied all over the surface, thinned and with Payne grey added. I proceed in several coats, letting each one dry thoroughly before applying the next one. The last applications do not cover the whole surface, to make a few areas darker.



22 I improve the integration of the depot ground into its environment by brushing on natural earth all round the edges.



23 To round off the job, vegetation is added, leaving a bare path towards the station tracks.



24 The combustion of coal in locomotive fireboxes produced ash and clinker. A bit of dark sand, in this case basalt, is a very good evocation of what was removed from the engine grates at the end of a day's work. I imagined that this clinker was stocked in a heap next to the depot entrance before being used as ballast.



25 Finally, once the ground has been treated and the surrounding area touched up, the depot blends very nicely into the environment of my layout.

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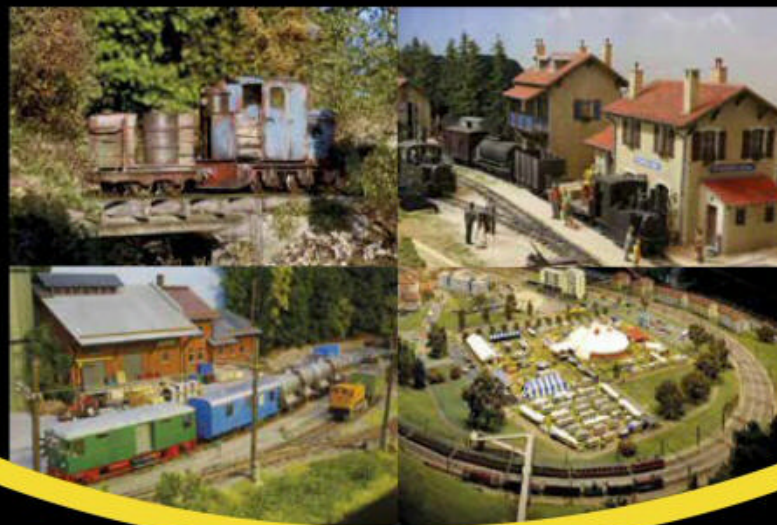
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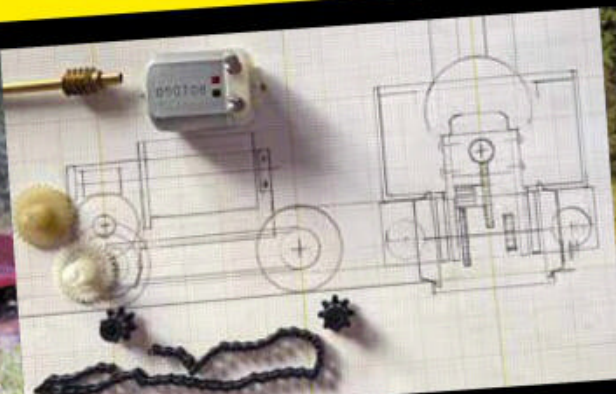
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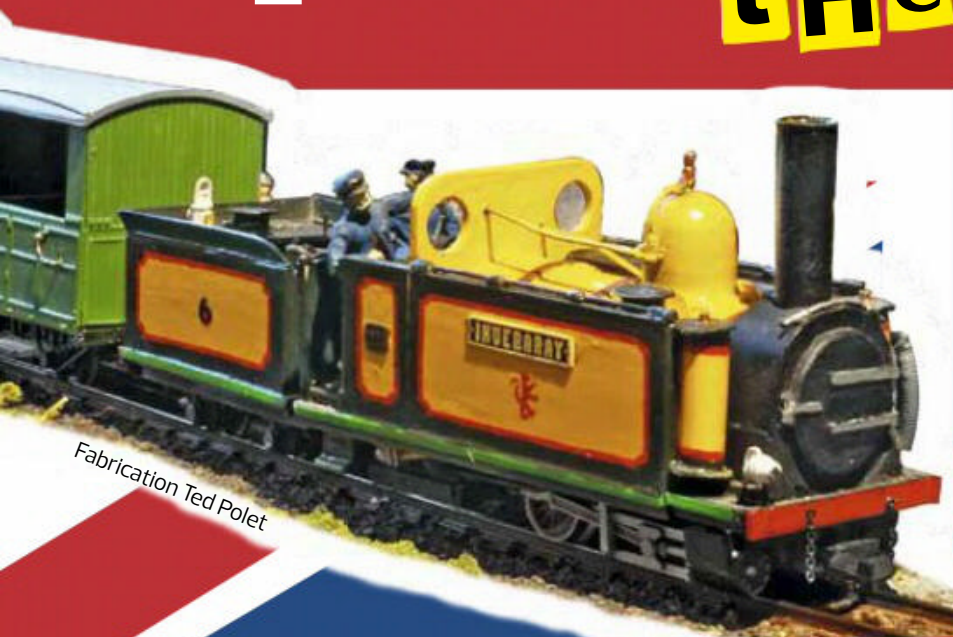
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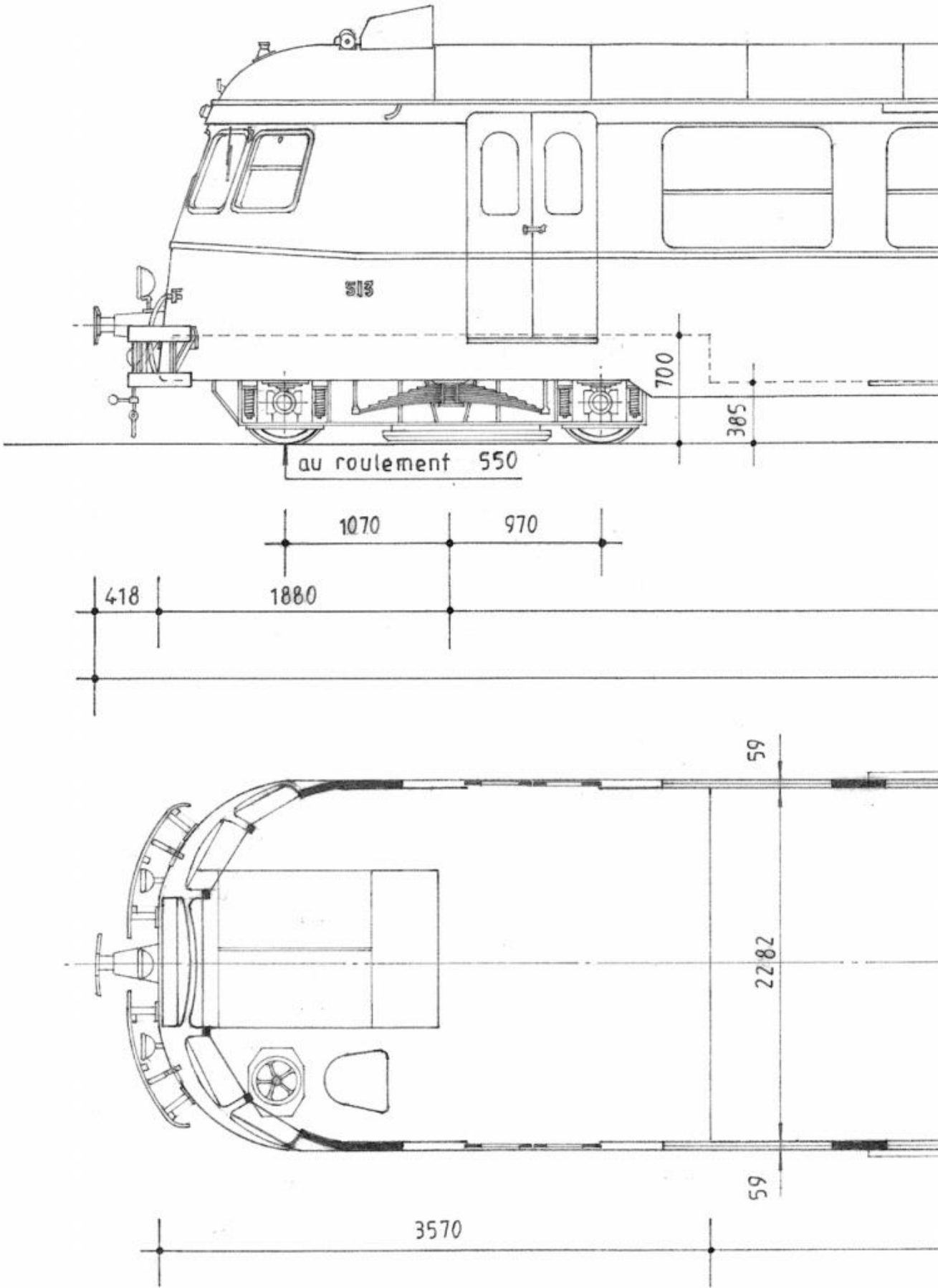
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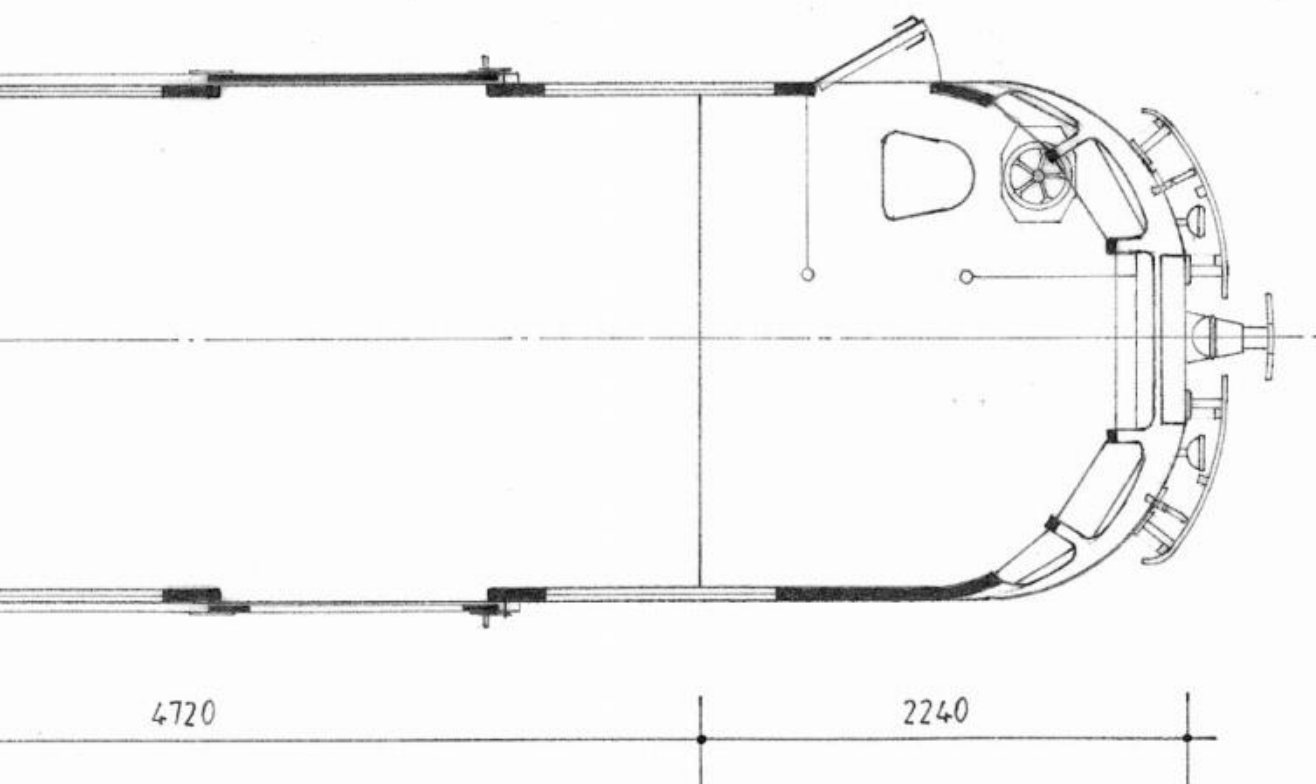
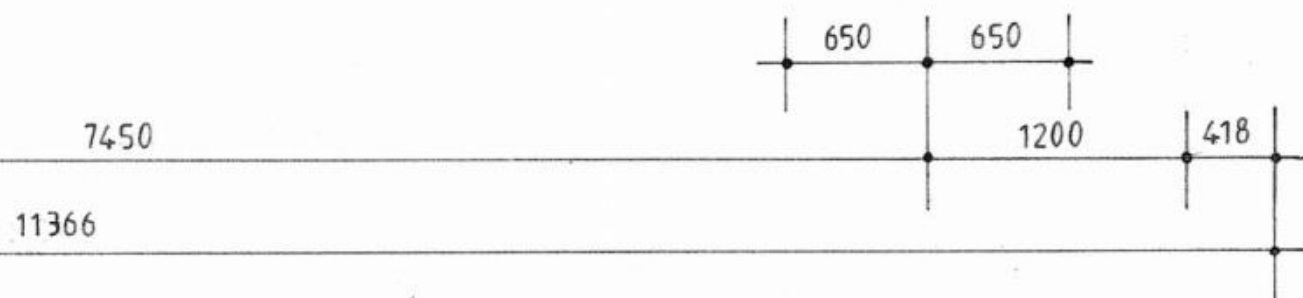
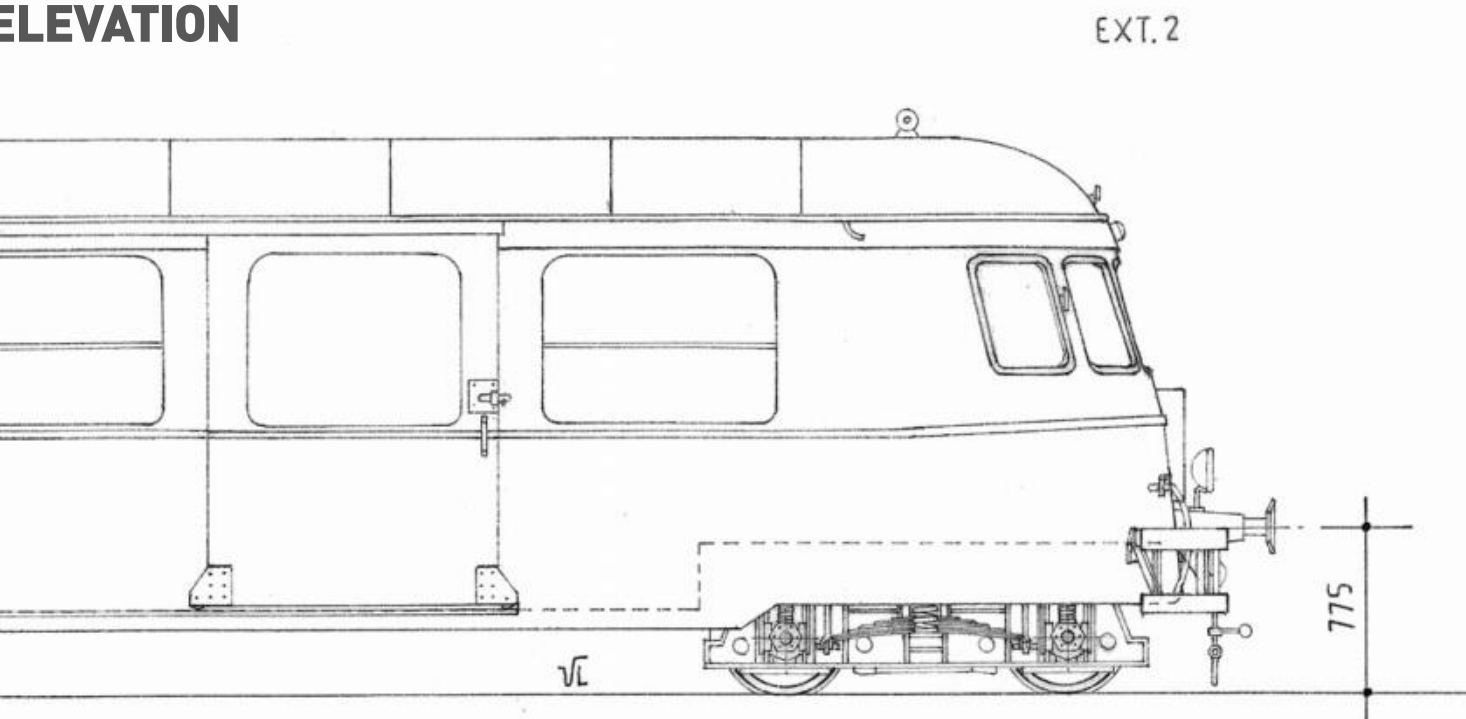
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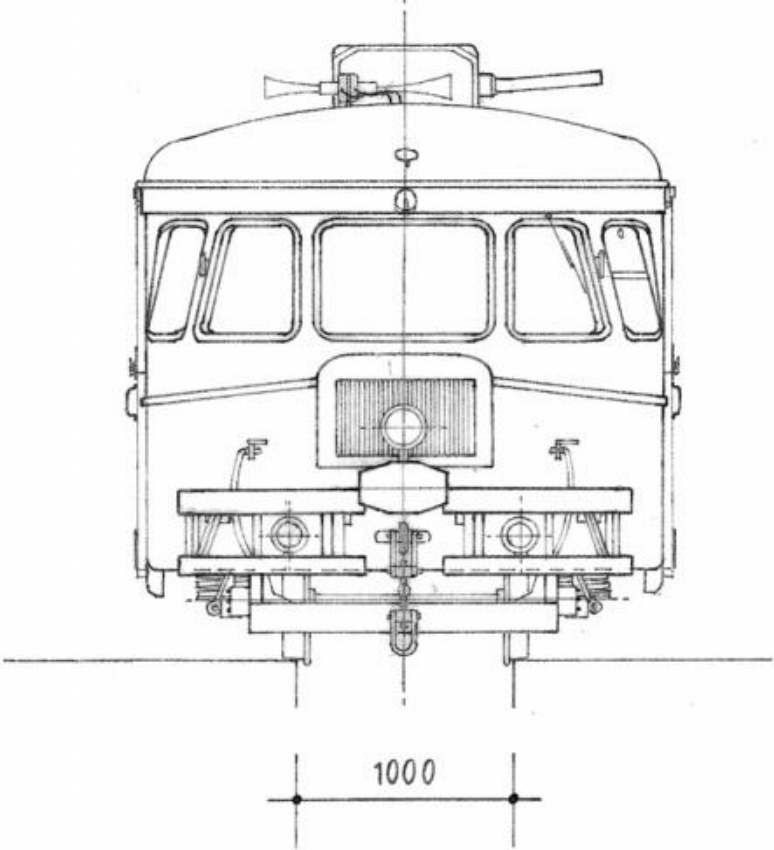
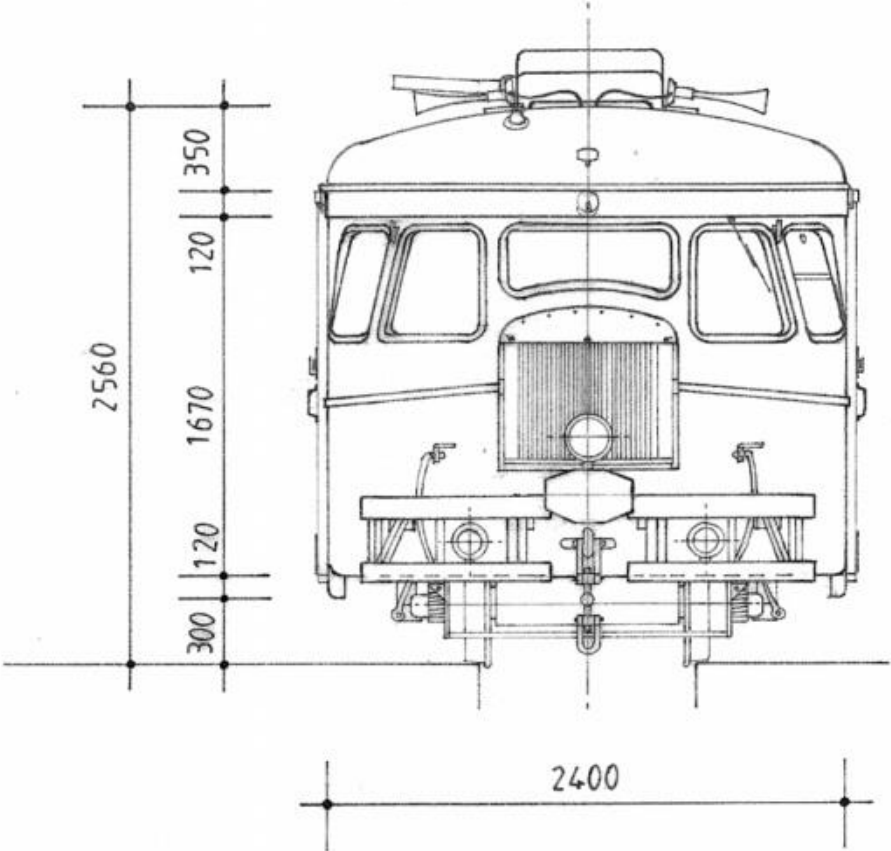
ELEVATION



N



END 1



END 2

RIGHT-HAND ELEVATION

EXT. 2

EXT. 1

