



**0-6-0**  
**Locomotives:**  
**maids of all work**



**3D printing:**  
**from dreams**  
**to reality**



**Ballast: commercial**  
**ranges and**  
**home-made products**



**Nemours:**  
**French sandpits**  
**in H09**



**Free folder of drawings:**  
**Stock of the Nyon St-Cergue**  
**(Switzerland). Pinguely 0-6-0 T 245.**

# La Mocanita

## Romanian forestry railways in 0e







- Mijn Stuthout, an industrial layout in 1/35 scale
- Olot Girona, conjuring up a vanished line

- My lovely little hill!
- Soil, rocks, flocks, pine trees... Dress up your embankments

- Bend your rails
- Clean your rails

- All the New Year releases

- Woodwork and gradients

## And the customary free folder of drawings

\* subject to changes

**THE MAGAZINE FOR THE NARROW GAUGE RAILWAYS ENTHUSIAST**

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# VOIE LIBRE

## Editorial n° 80

January, February,  
March 2015

## 20 years old and as lively as ever!

It was just 20 years ago that a bunch of enthusiasts, brought together under the LR Presse banner, our publishing house known at the time as Éditions Loco-Revue, thought up a railway magazine like no other.

A magazine that dealt with secondary railways, narrow gauge lines and whimsical trains.

A magazine that gives ample space to dreams, to the pleasures of construction and to the joy of being a scale modeler.

A magazine that takes us off the beaten track(s), helps us model with our hair down and shows us the (permanent!) way.

Over the last 20 years, *Voie Libre* has become THE magazine for secondary railway enthusiasts.

To celebrate this date, and help you keep up with us wherever you may be, we are now launching an English version of *Voie Libre*.

This magazine is yours, it lives through and for you and we appreciate your support, so let's meet again in... 20 years!

• FRANÇOIS FONTANA



Meet us on and

Keep in touch all the year round **VOIE LIBRE** on [blog.voielibre.com](http://blog.voielibre.com)

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## What's New?

H012

### Trains d'Antan: a Pinguely 0-6-0 T

French H0m enthusiasts are now familiar with Trains d'Antan. Over the last few years, this artisan has produced an impressive number of railcars, diesel locomotives, carriages and wagons of the former French meter gauge railway companies. But many modellers thought this range would not be complete until a steam locomotive was released.

It's time to cheer, as we don't have much longer to wait. At the Expométrie/Euromodel's 2014 show, the prototype of a Pinguely 0-6-0 T was running on the modular layout displayed by the GEMME.

The locomotive demonstrated to demanding observers its ability to run over all types of track despite its very slim flanges. Its realistic speed also made a strong impression on visitors.

It can be expected that many steam loco enthusiasts will fall for this all-bronze and brass model, fitted with micro ball-bearings, and that it will be a great success. Assembly of the model, however, will be best be carried out by experienced hands!

GILLES FRESSONNET



#### TRAINS D'ANTAN

12mm gauge track

<http://modele-reduit-train.com/>  
Brass and plastic kit: 390 €

1/43.5  
scenery

### Aubertrain : animals

This manufacturer has released a cast metal cow and horse, both harnessed, supplied painted. Ideal for a station courtyard or for hitching to one of the carts in that artisan's range.

FRANÇOIS FONTANA



#### AUBERTRAIN

<http://aubertrain.com/page-france.html>

Price: not disclosed

IIm

### Design S. Fabre: carrier trucks

The Vevey type carrier trucks are designed to carry standard gauge wagons on meter gauge track. Prototypes from the BAM railway (Bière-Apples-Morges) in Switzerland were chosen to be reproduced in 1/22.5 scale.

This artisan production features stainless steel insulated wheels, fitted to axles with ball-bearings. Even when loaded with a wagon in IIm scale, which can weigh in at a hefty 3kg, running qualities are excellent. The swivelling bolster allows these trucks to travel round R1 curves with an 18cm wheelbase wagon.

#### DESIGN S. FABRE

1302 Vufflens-la-Ville, Switzerland

[sebastien.fabre@bluewin.ch](mailto:sebastien.fabre@bluewin.ch)

Scale 1/22.5

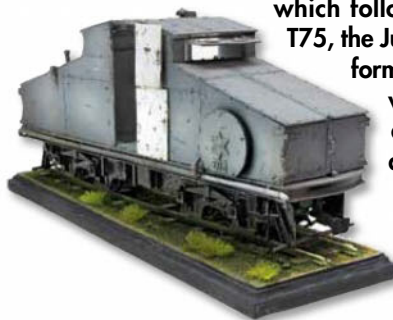
Cost per pair: 220 SF + postage



1/35

### U-Models : 60cm gauge military locotractors

This artisan, specialized in military kits, produces a few fine railway references under the form of resin kits. At RailExpo, we were impressed by his Baldwin and Crochat locotractors in 1/35 scale, which follow on from the Billard T75, the Jung and the Péchot platform. A look at the artisan's website will give you an idea of the many affordable scenic items.



#### U-MODELS

1103, rue de Feucherolles

78630 Orgeval France

<http://www.u-models.com/index.html>

UM256 Crochat 135 €

UM314 Baldwin 85 €



H09  
009

What's New?



## Peco: new carriage and wagon references



Last year, Peco began producing carriages and wagons from the Lynton & Barnstaple railway in 1/76 scale. Two carriage bodies, a four-wheeler open wagon and a four-wheeler closed van are listed in the catalogue. They have just been released with new liveries. These items are now available without markings, in grey or brown livery with black metalwork. Entirely cast in plastic, including the axles, the details are very sharp and the liveries neatly applied. The restricted loading gauge of these vehicles makes them fully compatible with MinitrainS stock. The carriages are existing references, re-numbered: n° 6 for the ordinary carriage and n° 16 for the carriage with brake and lookout. They are available in two-tone Lynton & Barnstaple livery and in Southern Railways green. Here again, the two tones are neatly separate and the markings are superb.

This isn't the end of Peco's programme. Unmarked carriages must have been released by now and other types of wagons, including flat wagons with log-carrying bolsters, are expected any day now.

ÉRIC FRESNÉ

### PECO/GREAT LITTLE TRAINS

Lynton & Barnstaple carriages: 31.50 £ each

GR-400B n° 6 slam-door carriage, L&B two-tone livery

GR-420B n° 16 slam-door carriage with brake compartment, L&B two-tone livery

GR-401B n° 6365 slam-door carriage, SR green livery

GR-421B n° 6993 slam-door carriage with brake compartment, SR green livery

Wagons: 13.75 £ each

GR-200U: grey, unmarked, open wagon

GR-220U: grey, unmarked, closed van

GR-201U: brown, unmarked, open wagon

GR-221U: brown, unmarked, closed van





## MJModélisme: a Billard motor-trolley from the Anjou railway

MJModélisme, run by Marcel Jolly, has released a motor-trolley from the Anjou railway, available in two versions: with a two-sided roof (ref. DRZ01) and with a curved roof (ref. DRZ02). These are

etched nickel silver kits, in 0.2mm thickness, which reproduce motor-trolleys which ran on various CFD or SE meter gauge networks.

DANY MACHI

**BILLARD MOTOR-TROLLEY**  
**Marcel Jolly Modélisme**  
**7, Vieille Route de Concarneau**  
**29000 Quimper.**  
<http://mjmodelisme.free.fr/>  
**Price: 75 € + postage**  
**by bank cheque or transfer**



Both models have a common chassis. Ref. DRZ01, with the two-sided roof, has an enclosed radiator, and can be built open or with high or low half-bodies. For ref. DRZ02 with the curved roof, the apertures are different, and the radiator projects outwards. There is no high half-side, only the low ones are supplied on the etched plate. Several finishing options are suggested in the instructions. A set of water transfers allows for a variety of markings. A 6V micomotor friction-drives a lay shaft fitted with two worm gears. These, in turn, drive the axle gears. The electrical pick-ups are supplied assembled and ready to fit.



The etching is very fine and care must be exercised when removing the parts from the fret. The tip of a scalpel should do the job. Folding the chassis, the transmission bracket and the body is a highly delicate job. Mark the fold lines with a scalpel and use an Etch Mate type tool to achieve good results. Make sure the sheet is properly pinched in the folding tool. The right angle must be perfect, as the chassis is a push-fit into the body. The body aperture infills will be removed once the folding job is completed.



To ease the brazing of the two half-bodies, hold one half between a magnet and a sheet of steel, before offering up the other half-body, ensuring that it is at right angles. Spot-braze, check the squaring and complete the brazing seams. The sheet of paper is there to dissipate the heat, it would be impossible to braze directly on the metal work surface.

Despite the small size of the motor-trolley, all the parts can be dismantled, which greatly eases painting and assembly of the transmission.





H012

## Aubertrain: more from the CP

Following on from the very attractive CP closed van, a four-wheeler flat wagon has just been released by Aubertrain. This is a very accurately reproduced brass model, which should give great pleasure to fans of this railway, but also to all demanding meter gauge enthusiasts. The kit is supplied complete with its axles and bearings. It should be available soon, the price hasn't been disclosed yet.

A new building is also available in the laser-cut wood range: the two-road Saint-André engine shed. The prototype we saw at RailExpo was very promising.

FRANÇOIS FONTANA



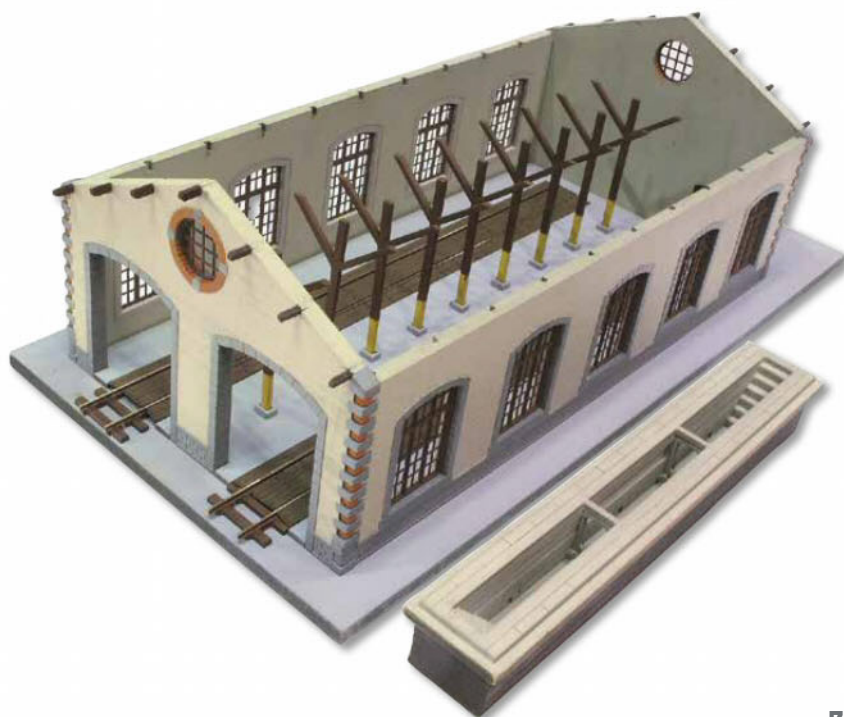
The transmission shaft assembly has very restricted tolerances. Make sure any adhesive leftovers have been removed from the axle to ensure the bearings sit squarely against the worm gears. File down slightly the shouldered side of the bearings to give a little play and avoid the tight spot. The axle must revolve freely.



The two axles are supplied pre-assembled. Check the proper assembly of the bearings. Using Loctite 601, block the small brass tubes which adapt the gears. I opted to braze the transmission axle bearings rather than glue them. Adjusting the driving mechanism is delicate. The micromotor is fixed on the chassis by brackets that are made out of fret leftovers. The motor shaft has been enlarged from 0.8mm to 1.3mm by adding a small tube blocked with Loctite.

This is a pleasing and well-designed little kit, but the small assembly difficulties mentioned here means it isn't really for beginners. The instructions are printed in black and white means the photographs are useless, drawings would have been more helpful. However, a colour version of the instructions can be found on the MJModélisme website.

AUBERTRAIN  
<http://aubertrain.com/page-france.html>  
**Brass and bronze CP flat wagon**  
**Two-road Saint-André engine shed**  
**Ref. 360-10 Price: 125 €**



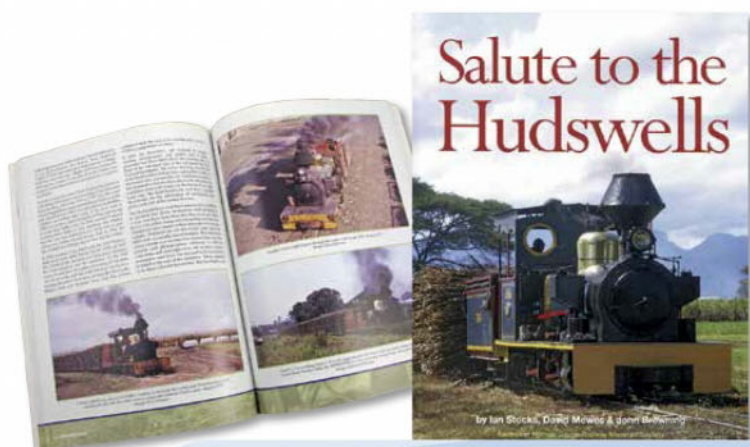


Book

## Salute to the Hudswells

The Colonial Sugar Refinery Co Ltd, installed in Queensland and in the Fidji islands in the early 1880s, opted at a very early stage to build extensive 2 foot railways. Fowler and Decauville were the first suppliers. From 1911, the CSR engines were supplied by Hudswell Clarke. Cooperation between the two companies gave birth to a couple of the most elegant types of narrow gauge locomotives: 0-6-0s and 4-4-0s with separate tenders. The authors of this book have attempted to retrace the career of each of these fine engines as well as the history of the CSR sugar-cane railways. A must-have book which won't disappoint you.

ÉRIC FRESNÉ



**SALUTE TO THE HUDSWELLS**  
**By Ian Stocks, David Mewes & John Browning**  
**Australian Narrow Gauge Railway Museum Society**  
**144 pages in English, softbound**  
**Many photos and diagrams**  
**Price: 35 AUD + postage**  
<http://www.angrms.org.au/>

Book

## Voie métrique en Corrèze. Le POC

After a journey along the *Tramways de la Corrèze*, Stefan Hooß now invites us to discover the POC. This well-documented book calls on a wide range of photographic collections, and draws on ample archives and specially drawn diagrams, including all the stock, a good number of buildings and civil engineering works. The text retraces the history of the network, and describes the route

section by section. There is much anecdotal information about the daily life of the railway, but the operational principles are also reviewed, and a full chapter is dedicated to the stock. A fine book, quite comprehensive, and packed with documents I had never seen before. Many thanks, Mister Hooß !

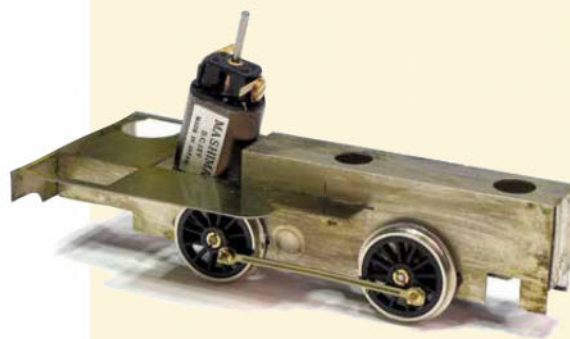
FRANÇOIS FONTANA

**STEFAN HOOß**  
**244 pages, softbound**  
**21 x 29.7 cm. Lavishly illustrated book.**  
 Self-published, available from the LR Presse shop: 50 € + postage

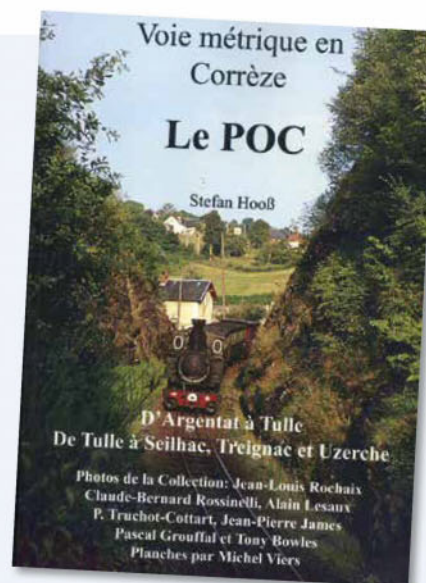
## 016,5 Micro-Modèle: a chassis for the Magic-Train Stainz

Clément Schmitt is truly fond of his Magic-Train... So, from time to time, he decides to produce a new item. In this case, it's an etched brass chassis with fitted axles and pick-up wipers. This chassis features a 5-pole motor and a gearbox designed to provide smooth running and realistic speed. The price has not been disclosed yet, but this item should prove very popular with 0 16.5 fans.

FRANÇOIS FONTANA



**016,5**  
**MICRO-MODÈLE**  
<http://www.micro-modele.fr/>  
**Price: not disclosed**





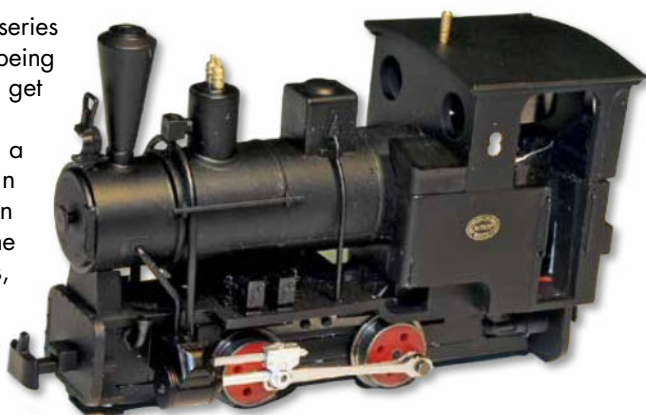
## Minitrains: loads of new releases

The DFB 0-8-0 T locomotives have been such a success that the first series was sold out less than a month after being released! The second series is being distributed and a third one is being produced! Please be patient, you'll get one in the end!

But Minitrains is going the extra mile, as it were, and has released a new 0-4-0 T engine which can be expected to hit our layouts early in 2015. A Krauss locomotive, one of which is preserved on the Austrian Zillertalbahn. The engine is supplied with two end-balconied carriages. The set is available in two versions: black engine, green and brown carriages, or green engine with lining and two tone orange and blue carriages, with the upper part of the body beige.

In parallel, new Pershing bogie wagons are being produced: a flat wagon with stanchions, a low-sided open wagon and a closed van.

FRANÇOIS FONTANA



MINITRAINS  
minitrains.eu



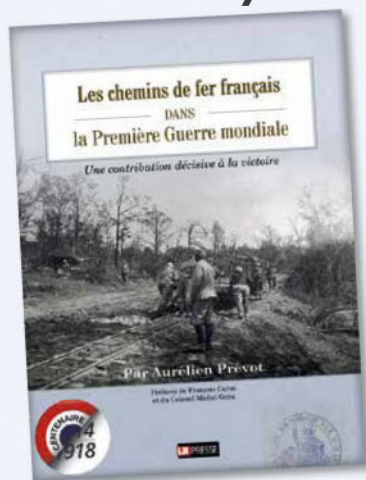


Book

# Les chemins de fer français dans la Première Guerre mondiale

## Une contribution décisive à la victoire

(French railways in WW1 – A decisive contribution to victory)



AURÉLIEN PRÉVOT  
EDITIONS LR PRESSE  
**424 pages (format 21 x 28.5cm),  
more than 600 illustrations,  
including 32 plans, mpas, tables...**  
**Hardbound.**  
Available from LR Presse: 49.90 euros  
+ postage (code CFF1418)

For decades, many believed that the Marne taxis had been one of the tools of victory in WW1. Others even stated that these brave vehicles had only one competitor at the time: horse-drawn vehicles, and that only Germany could rely upon an efficient railway system. This was far from the truth...

Aurélien Prévot's book explains to what extent the contribution of railways was decisive for final victory. This is a major study, the first of its kind on a topic that has remained largely unknown. The outcome of five years of work, including the consultation of thousands of archive documents, this book is also cleverly organized. It allows readers, depending on their areas of interest, to read the 19 chapters in whatever order they may like, without this hindering overall understanding. Whether your focus is military matters or railways, there is an enormous amount to learn

here: organization of the overall national railway network, troop trains, supplies, sanitary trains, heavy and very heavy artillery, the rear, the factories... The book also provides details about the challenges met in the worst possible circumstances by the Engineers Corps, about field railways, secondary railway networks, locomotives of all types, American stock...

The book is thoroughly documented (maps, plans, tables, timetables...) and lavishly illustrated with postcards, photos and period pictures carefully freshened and largely unpublished previously. This is the true work of an historian, aimed at a general readership, never dull, and featuring a detailed bibliography and table of contents, as well as two essential indexes, one by names, the other by places.

JEAN-PAUL QUATRESOUS

DVD

# Voyage dans les années cinquante

## La Bretagne en H0e de Bernard Walter

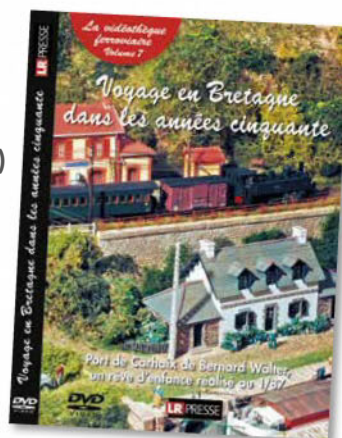
(A journey into the 1950's – Brittany in H0 as seen by Bernard Walter)

Port de Carhaix is an impressive H0e layout sizewise and a very fine model. Above all, it is the outcome of a self-promise made one day by a little boy: to provide the engine he had just been given (a small Egger-Bahn locomotive) with the scenery it deserved. It took almost 40 years for the dream to come true, when Bernard Walter began reproducing Brittany, the region where his wife was born and where he spent all his summer holidays.

The result is there for you to enjoy in this 45 minute film, in which Bernard shows us his layout and explains both the care

he took in catching the atmosphere and authenticity of this region, and its many trades, but also the liberties he took with prototypical reality, sometimes to keep things simple, sometimes just for fun. The fine images shot by Alban Guillou pay tribute to this delightful narrow gauge layout, the very first compromise decided by Bernard, who opted for 9mm gauge rather than the prototypical 12mm, better suited suitable to the meter gauge Réseau Breton. But to quote his very words: "modelling should not be a yoke"!

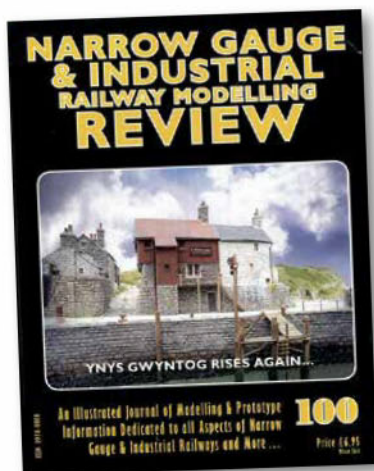
CHRISTIAN FOURNEREAU



LA VIDÉOTHÈQUE FERROVIAIRE,  
VOLUME 7 - 45 MIN  
**Directed by Alban Guillou**  
**Editions LR Presse**  
Price : 14,90 € + postage (code DVDBRET)



# PRESS REVIEW



As 2014 draws to a close, our British fellow-publication **Narrow Gauge and Industrial Railway Modelling Review** celebrates its hundredth issue with a bang. Bob Barlow offers an elegant black bound issue, packed with exceptional models. It also provides him with the opportunity to look back over 25 years of narrow gauge modelling. Another magazine that can pride itself on being among the ancestors' group, the **Narrow Gauge and Short Line Gazette**, explores never-

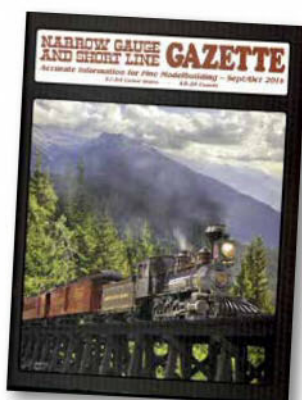
theless new technologies. Jack Burgess, the author, explains how to use Sketchup, the free software developed by Google. With the large number of forums and communities organized around this popular software package, this is an area worth exploring. And why not start by modelling a fine aluminium Decauville passenger trailer from the Camargue railways? Unless you have a preference for their colonial offspring, **Rail & Industrie** dedicates

some fine pages to them, illustrated by plans and photos. Take a look also at José Banaudo's dossier dealing with the Roussel company in Lorraine.

Finally, **Chemins de Fer régionaux et tramways** confirms from issue to issue its interest in contemporary urban transport.

Something of rural railways can be found in issue 366 with a long article of reminiscences about the CP station of Digne-les-Bains. Enjoy your reading in 2015!

• THE EDITORIAL TEAM



## The Brigadelok – again!

The Editorial Team of *Voie Libre* wasn't alone in attempting to modify the MinitrainS Brigadelok. Some fine examples have appeared on blogs and social networks. James Hilton has created a delightful forestry version, whose prototype ran on a German railway. A very simple conversion carried out with plastic sheet, and particularly successful.

• THE EDITORIAL TEAM



## Complementary information

Following publication of the article about the driving mechanism of the De Dion Bouton railcar in VL n°79, some readers enquired about the electric motors used. Well, here is a picture of them in place inside a driving mirror unit recycled from a wrecked car. They are carefully protected by the mirror.

• THE EDITORIAL TEAM







016.5 layout



### The layout at a glance

- Scale: 0e (1/45)
- Gauge: 16.5mm, corresponding to 76cm gauge prototype track
- Control: digital
- Dimensions: 4.3 x 2.6 m
- Type: fiddleyard to fiddleyard

Text and illustrations :

**FRANÇOIS FONTANA**

UNLESS OTHERWISE MENTIONED

# La Mocanita, a journey on the Romanian forestry railways

**Eight modellers decided to get together to build a layout inspired by the Romanian forestry railways. Each of them worked individually to produce La Mocanita in 0e. A great story!**



The forestry railway collective! Bernard, Jacques, Didier, Matthieu, Detlev and François. Crouching, the other François. Eric wasn't with us in Luxembourg.



The line follows the river along the bottom of the valley. Spring 2007. Photo Bernard Junk.

## La Mocanita

This is the name now given to one of the last remaining stretches of Romanian forestry railways, which runs up the valley of the Wasser near Viseu de Sus in the north of the country. This line was built in the 1930s to 76cm gauge to move wood from the felling areas to the processing and shipment zones. Trains ran empty up the valley, from the lowest point at ca. 600m altitude, to 1100m at the highest. On the way back down, with the log trucks fully loaded, there was plenty of work for the brake-men! This stretch is now preserved and steam-operated. <http://www.railtv.fr/Players/RunVideo.aspx?Id=4037>

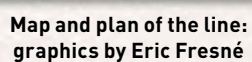
**I**t was at the very end of the Walferdange 2013 show in Luxembourg that the six Frenchmen who had attended the show, together with a Luxembourger, said to themselves: "How about building a layout together and displaying it next year?" There was just an hour left before the show closed, so an idea was urgently needed. Still, these chaps are never short of ideas. First decision: the layout would be narrow gauge, this was pretty obvious. Second decision: it would be in 0 scale and built in at least four different locations, and the gauge would be 16.5mm. Third decision: an original topic was required, something that hadn't been tackled previously... But there's no shortage of original topics!

"How about a Romanian forestry railway layout?

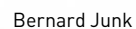
- I already have a suitable locomotive.
- So do I.
- I have a diesel engine.
- And I have log trucks.







**A Resita engine, heavily weathered by Bernard, runs into the station. Carrying straw and wood doesn't preclude passengers!**







Is the weathering too heavy? No, not really! The stock suffered quite severely from a lack of maintenance, and staff had to be inventive to keep it in service as long as possible. Now that the line has become a tourist railway, things have improved considerably!



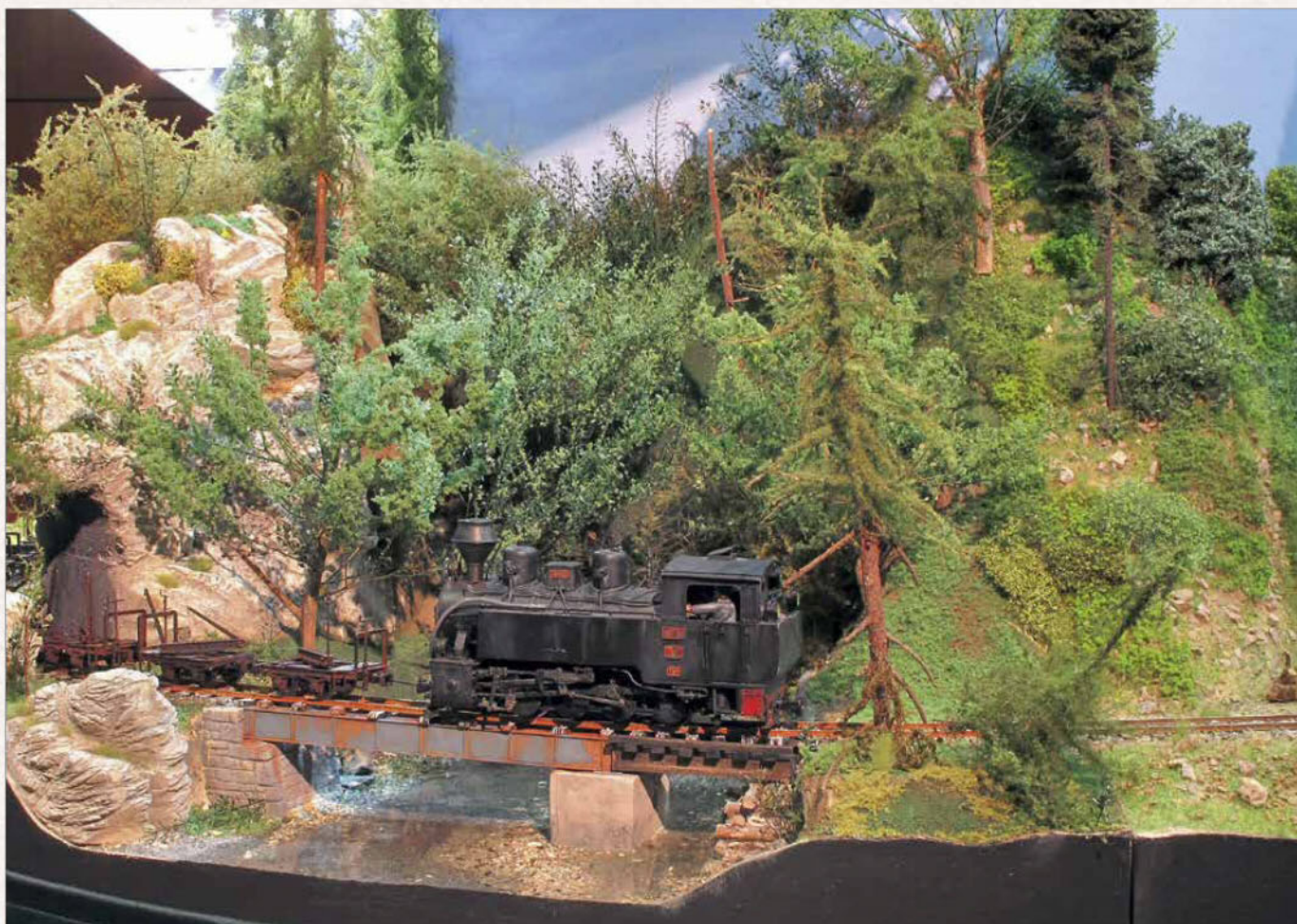
Coming out of the series of tunnels, a six-wheeler diesel is in charge of a string of log trucks.

- – OK, fine, but who is going to build the additional tender and the passenger carriage?
- Have we chosen the topic?
- Oh come on, François! Keep up, will you? It's been agreed that we build a Romanian forestry railway layout!
- Just then, the chairman of the Luxembourg Railway Modellers' Association showed up to say goodbye to the team. That was when one of them, the eldest, or maybe the most experienced, mentioned:
- For next year, how about the Romanian forestry railways, 8 meters long? The chairman of the association answered:
- A fine topic, and an original one; can you show me some photos or a plan?
- Aaah, weell... we don't have any with us right now! But I'll send you →

Back in Cozia station, actually the only one on the layout. The building is run down, but still in service.







**A Resita taking an empty rake of log trucks up the valley.  
Trains pass on short spurs installed along the line.**

**Here is one of these passing points.  
The Resita runs past a loaded train  
of log trucks, parked on the spur.**

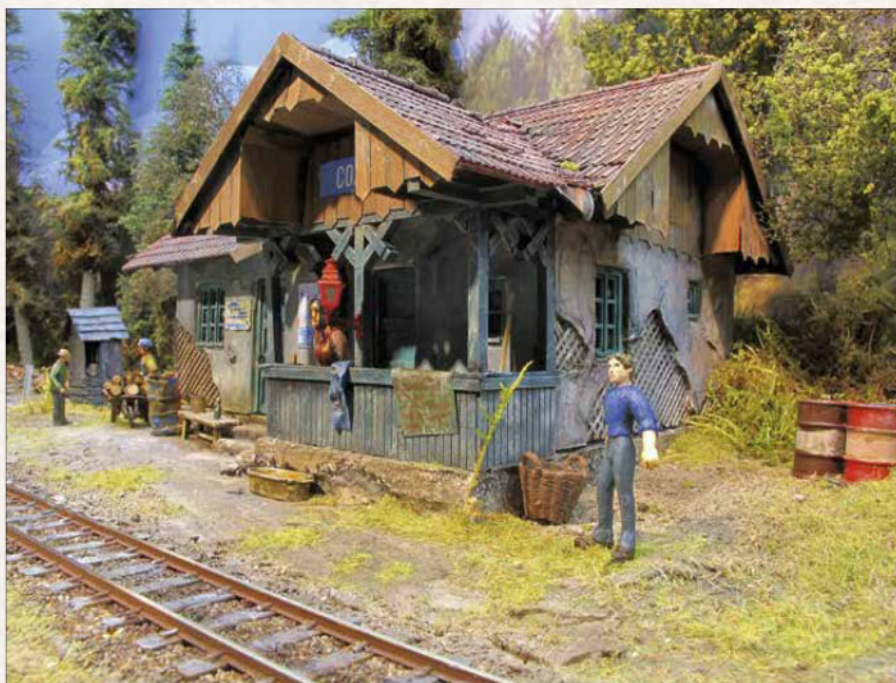




→ some... said the most experienced.  
– OK, that's settled! We'll see you in 2014!"

And that's how, without the foggiest idea, my Sedan mates, Matthieu and François, along with Didier and Jacques of Escadrille Saint-Michel fame, as well as Detlev and Bernard, the two locals, dragged Eric and I off to the distant shores of Romania, on a railway we had only ever heard of!

The station consists of a simple loop and a short dead-end siding. This is first and foremost an industrial railway! Two Resita engines are passing: one of the standard type, the other a modified one with a longer cab enclosing the coal bunker.



The station was completely scratchbuilt by Bernard.



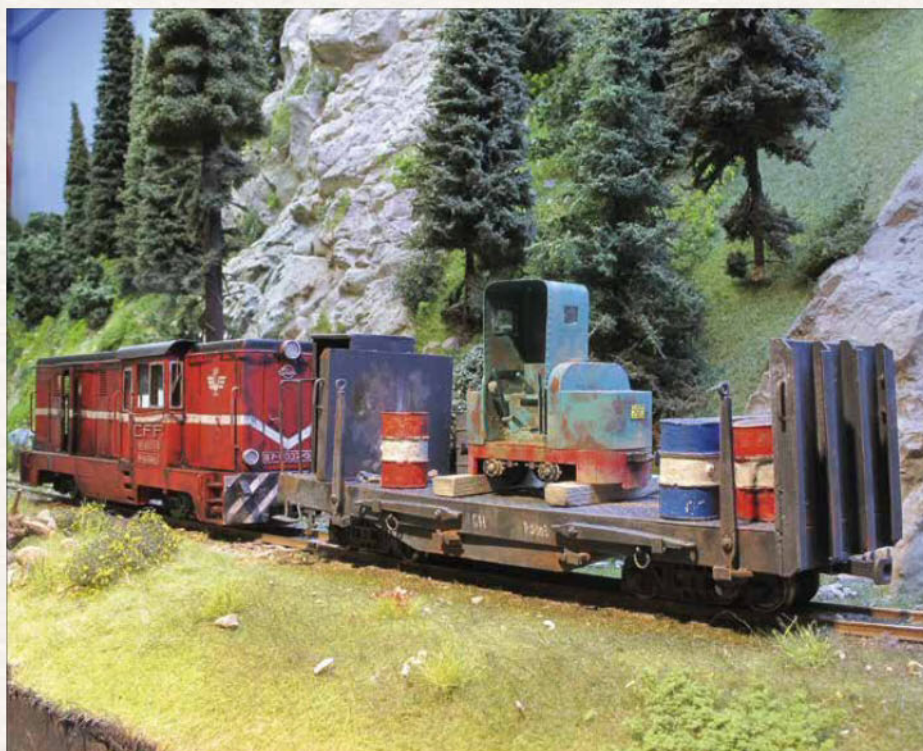
## Documentation

The first stage in the journey was conducted from my desk. Jean-Louis Rochaix had presented in *Voie Libre* some photos of his travels, while Jacques Trèves had dedicated a fine feature on RailTV to one of his excursions in the valley of the Wasser, the river followed by the line. Bernard sent us many photographs. We had to get a feeling for the place, identify the colour and the nature of the ground cover, the grass and the trees that are found there. We had to immerse ourselves in the scenery to figure out how the train ran through it.

## First meeting

One team was at work in Sedan, another in Thionville, a third one in the Orge valley, and the last one in Saint-Etienne. The ideal configuration for building a joint layout! It was precisely at the Saint-Etienne show that Matthieu came with all the interface panels for each module. He also had a sheet of notes showing some figures such as the depth of the layout, the type of track selected and its precise location on the baseboard, the height of the top fascia and how it was arranged, the type of connecting bolts, the references of the lights and of the paint to be used for the layout caisson. Apart from this, it was "do as you see fit, we'll meet on the Friday in Walferdange to put everything together, and it had better work! Oh





The diesel engine is waiting on the loop. No less than the rolling stock, the shepherd and his flock grazing alongside the track play their part in creating the proper atmosphere.

Locomotive L4H5 hauling a bogie flat wagons loaded with a tiny 60cm gauge diesel engine; a nod to Jacques, who is restoring a full-size one! We are here bridging two modules built 400km from one another... Well, it worked!

yes, by the way, in terms of general colours, we have opted for late summer”.

## Technique

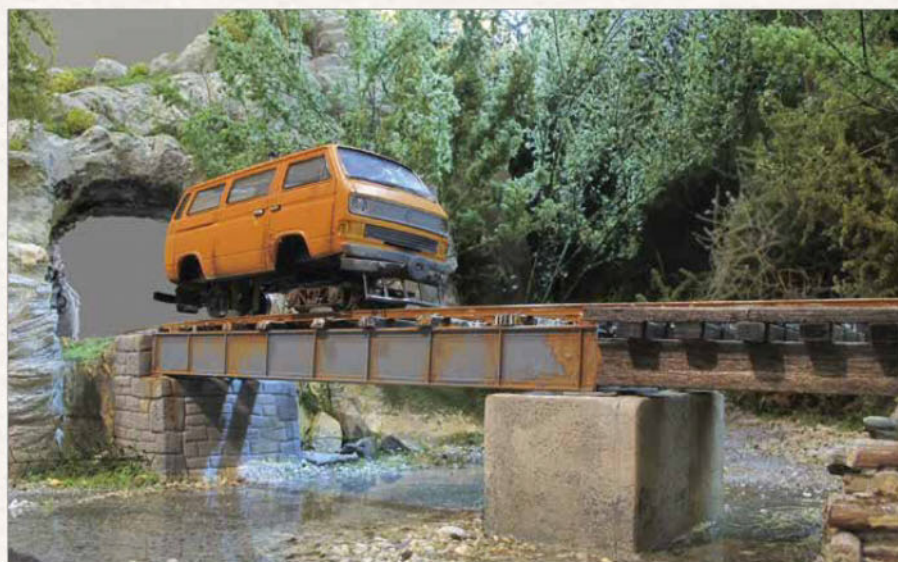
The structure was built out of 10mm thick plywood, with 130cm high legs and a digital control system, the red wire at the rear and the black wire in front. Detlev took charge of connecting all the modules on site the Friday

evening. The places for the connecting sockets of the Digitrax controllers had been planned for in the front panel, but all the wiring still had to be done... A good two hours' worth of work! The track and the few turnouts are from the Peco Oe range. The four turnouts are operated by wires from the front of the layout. Two large fiddleyards with traversers allow for running round the

trains and ensure operational variety. The rocky outcrops that line the trackbed were made by casting plaster or by on-site sculpting, with colours mainly in a range of greys. The ballast of the track is irregular, and it is largely blended with earth from the embankments. Strips of warm-toned LEDs provide overall lighting and contribute to the railway's atmosphere. We also fitted halogen spots to create some shadows and provide an impression of sunlight in the valley.

## Stock

The two Resita 0-8-0 T locomotives, typical of those built in Romania, are German KS Model-leisenbahnen kits, fitted to a Bachmann American 2-8-0 chassis. The large L45H BoBo L45H is from the same supplier. Given the number of log trucks required, Bernard made a 3D model, then had as many as we needed printed. Not forgetting a small 6-wheeler side-rod diesel engine, a kit fitted to a commercial H0 chas-



The Custom's Volkswagen van seen crossing a bridge over a tributary of the Wasser. The bridge, having suffered some damage, has been partially repaired using local lumber and a temporary deck. A stop-gap solution that could well last a long time.





**A heavily loaded wood train runs down the Wasser valley, with a L45H diesel in charge.**

→ sis, nor the Custom's motor-trolley, a Volkswagen van fitted to railway axles by Guy Kern. On the Saturday morning, Jacques, who is a kind of general mechanic, successfully tested all the motive power.

Well, believe it or not, the layout operated perfectly over the whole weekend! The show was on a par with our madness, and despite some jitters on Friday night, everything was ship-shape the following morning. ■



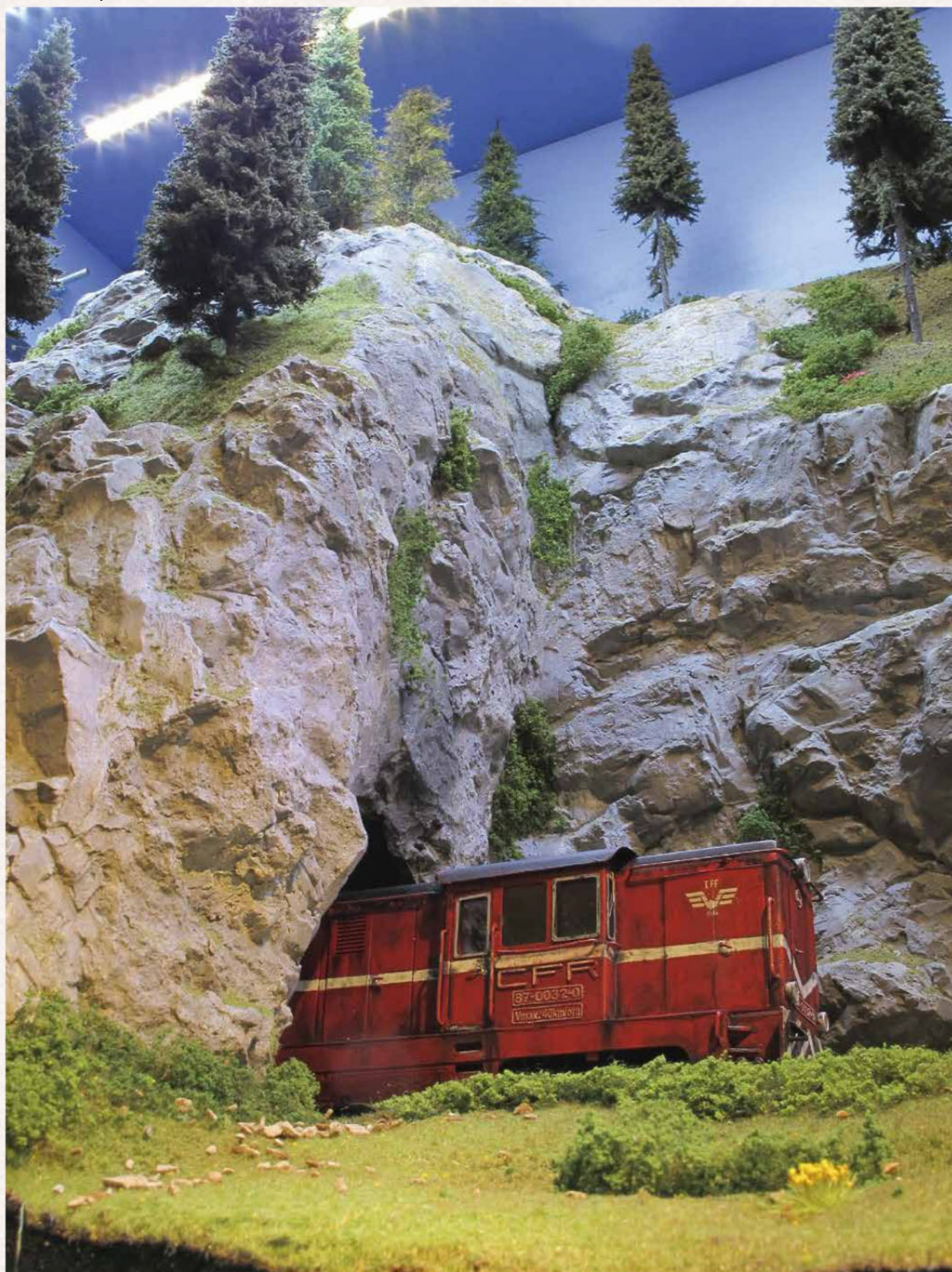
**The typical log trucks were created by Bernard. There are enough for two full trains and two empty ones! The couplings are kits from the ZT Modellbahnen range, made of injected plastic.**



**A Resita engine runs into the station, with a goods train.**



A passage along the cliffs under the rough stone tunnels. The layout evokes the impressive sites of the Viseu de Sus line.







Text and illustrations :

**GILLES FRESSONNET,  
FRANÇOIS FONTANA**

*Le Carrefour du pont*, built by Gérard Huck, is a module that's part of the GEMME's H09 layout. Created specially for the Expométrie show, this pleasing scene represents a crossroads at the entrance of a small provincial town. A narrow gauge line runs through the site on an overbridge. The atmosphere of the scene is highly convincing. Construction calls upon Carton plume® foamboard and Redutex roof sheets, repainted and weathered. A few commercial items and clever use of the scrapbox are enough to make this module a great achievement.

# Expométrie, Expotrans Luxembourg and Railexpo



Take a look at the video feature about Railexpo 2014 on Loco-Revue's YouTube channel:  
<http://youtu.be/7y8grmsC4oc>

**In autumn, narrow gauge modelling is on show! This year, we attended Expométrie in Châtelleraut, Expotrans in Walferdange and RailExpo in Pontoise. Follow us down the aisles.**

**O**bviously, our visit is short, and it cannot be complete or completely objective. We have opted to show you a few creations that caught our attention. Gilles Fressonnet visited Châtelleraut on our behalf, where he observed the many productions of French modellers. At Expotrans Luxembourg, the public discovered La

Mocanita, which is the subject of an article in this same issue. The Walferdange show is traditionally open on the Netherlands, Belgium, Germany and France. The ideal place to discover gems from elsewhere! As for RailExpo, the 2014 edition featured Italian and Spanish layouts, as well as two French creations which we will review later. ■





On the GEMME's H012 layout, Philippe Gabard's module could easily illustrate another instalment in the adventures of the Titgoutt family (see VL 77). The subject is transshipment between the meter gauge line of the Tramways de la Chalosse et du Béarn and the narrow gauge (H09) line which serves the wine coop.



The scene is packed with details, each of which deserves several minutes of attention. The stock is all out of Philippe's workshop: heavily modified commercial bases mix with scratchbuilt models. Watching the author, under the shade of his hat, working on a locotractor, makes for a great modelling moment. The work done on the figures of the module is equally impressive, even though Philippe admits that 1/87 scale is a tad more complicated than the 1/72 scale of military railways which brought him to railway modelling proper.

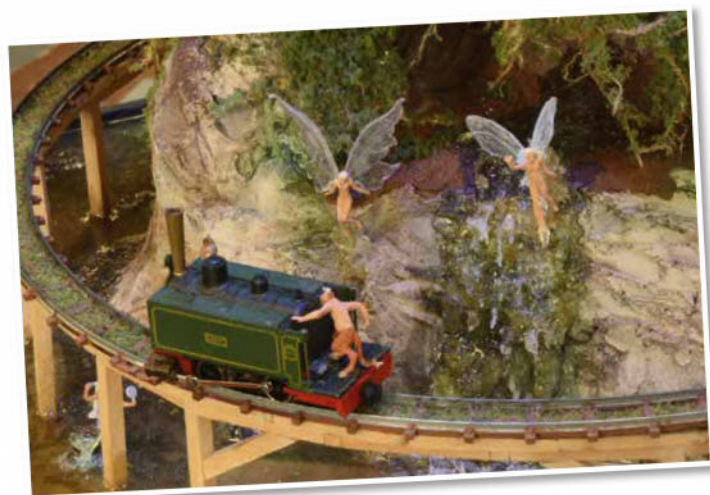


Gérard Lorant displayed two of his American modules in On30: The Maglia Pass Mining Company and Trenton Paradise Station, the latter being the more recent of the two. Inspiration here is very free; this is the Far West and U.S. 3 foot gauge track.



Pierre Fichet represented 0 meter gauge modellers and the Cercle du Zéro. His layout depicts a freestyle halt on the Chemins de Fer de la Provence, with a recording of cicadas to make the scene more authentic! The collection of meter gauge stock

found on the layout was of great interest: a Scott Pétolet steam railcar, a Pola Diva motorized van with a real wood body, a Brissonneau & Lotz electric motor unit from Morbihan... All these vehicles are fully scratchbuilt by the author in plastic sheet.

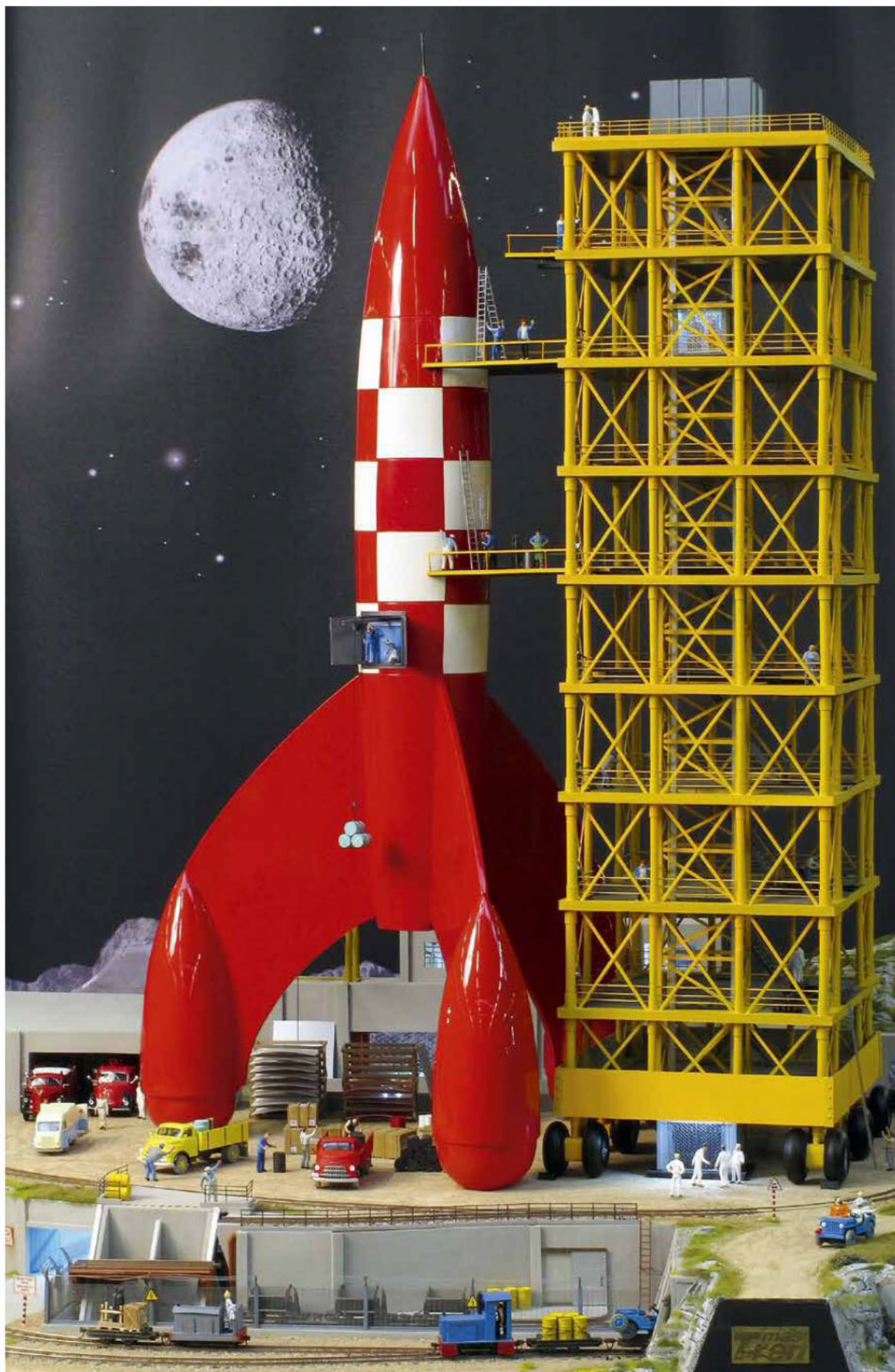


The layout built by Michel Roueil and his wife differs somewhat from conventional narrow gauge. In a world largely inspired by graphic novels and the universe of Heroic Fantasy, staged by Michel, the small Jouef loco (of which he is a great fan) runs around a rocky peak inhabited by unicorns, fairies and fauns, under the watchful eyes of a dragon; meanwhile, blue dolphins and other marine creatures frolic in the water at the foot of the cliff! This original creation caught my fancy at first sight.





Follow the adventures of Tintin, and take off with him and Raul Vals, the Editor of the Spanish railway magazine *Mas Tren*. Raul imagined a railway that serves the launch pad of the Moon rocket used by the famous reporter. The layout is in 0 scale, and makes use of a few vehicles and whitmetal figures from the Atlas collection.







Hans Louvet's brickworks is built in 1/43.5 scale. It's a small circular layout which represents the oven areas of a large industrial brickworks in the Netherlands. The narrow gauge track is used to move the clay from the quarries to the mixers, and also the raw bricks between the dryers and the ovens. Everything here is scratchbuilt, and Hans is always ready to provide detailed information about his layout.

Are you fond of gherkins? Well, you should know that once they have been picked, they are steeped in tanks of brine, and then sent to the conditioning workshops. And how do you think they travel from one place to the other? By train, of course! At any rate, this is the way the story is told by Jack Trèves on his new Aerial & Pickles layout in 09. We'll re-visit this place.



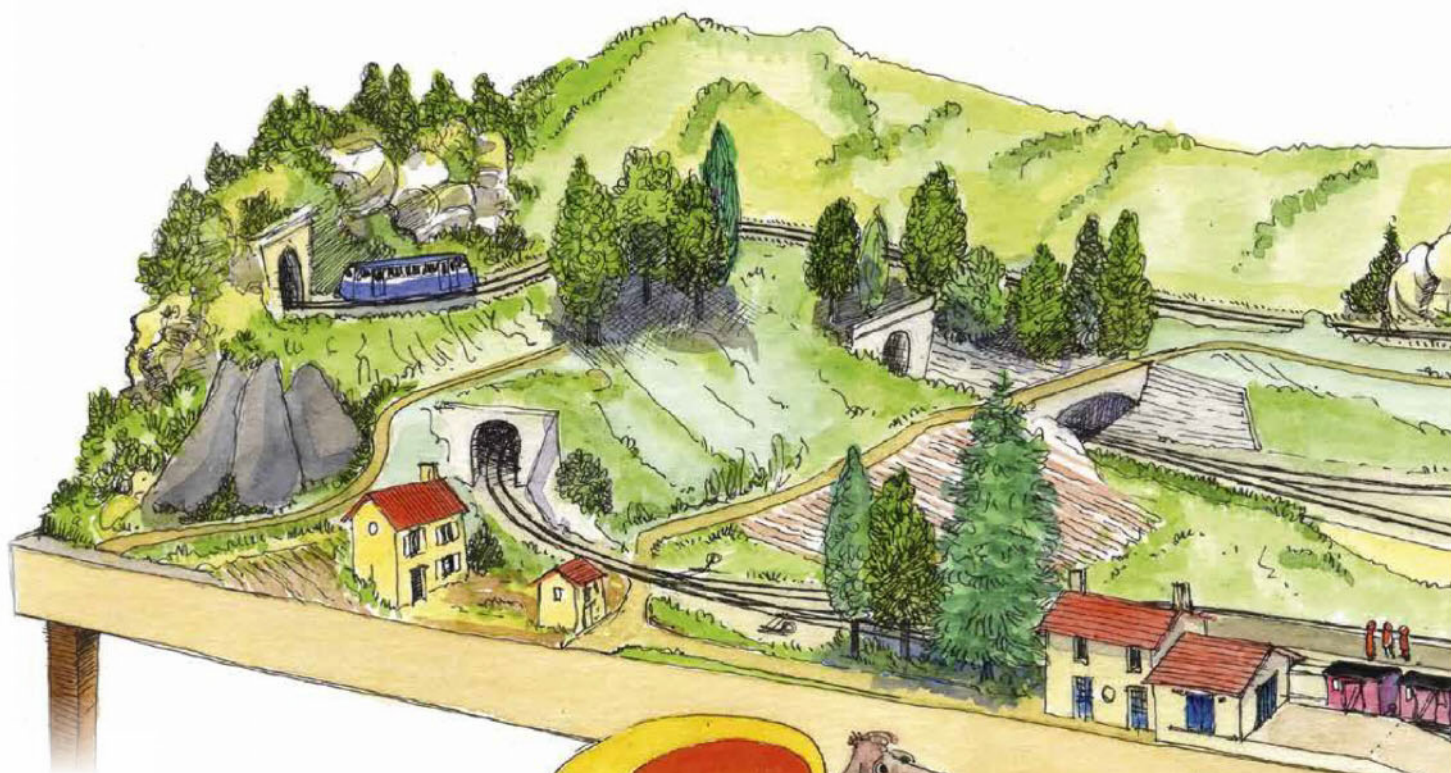
Where is fish caught to be turned into smoked fillets? In Normandy, by the Saf'ate company. A layout completely scratchbuilt in 1/35 scale by Sébastien Caniel. This is how we conclude this tour of the leading autumn shows. This article illustrates the wide range of sources of inspiration: Switzerland, Catalonia, North America and France, industrial or imaginary railways... Not forgetting the large choice of scales and gauges: H09, H012, 014, 0m, 0n30, showing how diverse and lively narrow gauge modelling can be.







# Two loops



We run through a station, and beyond a tunnel, it re-appears on our right. Another tunnel and the station is now on our left! What is this magic?

Text and illustrations :

**FRANÇOIS FONTANA**



**T**his project is inspired by an extraordinary site on the *Chemins de Fer de Provence*: Le Fugeret station. After a short stop – the station is basic, with just three parallel tracks – the train resumes its journey. Beyond a straight and steeply graded stretch of track, the line curves to the right before entering a tunnel. At the other end, the scenery unfolds on our

right and we discover below the station we have just left. But very soon we are back in the dark, with the engine running at full power on the gradient. Finally, we emerge once again into the open, with splendid scenery to our left and Le Fugeret station in the distance. Darkness engulfs us again. The third and last tunnel takes us into the wings of this small railway theater.

## In H0

This is a simple project: a small station, with its loop track and goods siding. Followed by a long series of loops to admire the trains. I chose the track in the Peco range. You'll need four turnouts for the station, two right-hand and two left-hand. I added one, which isn't prototypical, for a private siding, to enhance operational interest.



# and three tunnels



The trackplan has been altered somewhat: the straight stretch beyond the station is shorter, the first loop is longer, and the track on the ledge is right above the station. The second curve is above the lower level station throat, which helps to compress the distances somewhat and reduce the depth of the lay-

out to something manageable when you have arms of a standard length, as I do!

## Buildings

A few artisans produce suitable buildings, in particular the delightful CP station, with semi-detached goods shed, from the Aubertrain range. You'll have

to foresee a wide central platform between the second and third tracks. A level crossing is located at the station throat. Although un-gated, it could be fitted with gates and a small keeper's house. You'll also need five tunnel portals and a small overbridge for pedestrians. For the private siding, one possibility could be a wool mill with its stationary steam engine; there used to be many of them in the area! ■ ➔





Peco flexible track  
minimum radius 20cm

290cm

100cm



Fiddleyard



Rolling stock



Three diesel locomotives in H0m. All are models drawn by a British modeler in cooperation with a French enthusiast! Photo Jean-Michel.

Text and illustrations :

**FRANÇOIS FONTANA**

UNLESS OTHERWISE MENTIONED

# 3D, has it happened?

Over the last few years, 3D printing has become increasingly widespread. Whether what is produced in this way is just roughcast or a finished product, a sketch or an accomplishment, is still a matter for debate. The lines below are written from the railway modeller's point of view.



A few painted or unpainted models. All are in H0 scale, all were bought directly from 3D printers in personal stores.

**W**hen I was a child, the reproducing machine invented by Hergé in *Tintin and the Shark Lake* fed my dreams! Well, such a machine now exists. But as can be expected, it is generating controversy between supporters of technical progress and those more attached to tradition. How to choose between such different opinions?

We carried out our own experiences, and asked a few modellers for their point of view. Outlined below are the conclusions of this process, not the line toed by 3D professionals, but lessons drawn by ordinary users. And although these lessons are surprising, one thing appears certain: 3D is here, and here to stay. And we had better get used to it, as we are in for some surprises!

## The first step consists in ordering

The first experience is my own. I am a poor user of computers, I have some basic knowledge of 2D drawing, and 3D is quite beyond my abilities! So I







This is the interface page of the Sculpteo website where I ordered my Abreschwiler log carriers. A small tool is available to check the very fine areas that risk breaking. Note the price for five chassis.



Here is the parcel I received from Shapeways! Just as it was delivered five days after the order.

Opening the parcel, the small pouches contain the models, the invoice, all this carefully protected by "chips".

→ have to be content with buying what is produced by others. At first, I turned my attention to the commercial websites of two 3D printing companies, Shapeways and Sculpteo. These two outfits offer designers the possibility of creating their own shop. Shops that are housed on the company's website. In other words, you draw, you have your creation printed; if the result is satisfactory, you offer other people the possibility of buying your creations. Part of the revenue is for you, the remainder is used to cover the company's overheads and the printing of the model. For a customer such as me, it's a fairly simple matter: I check out the thousands of references available, the trickiest part being to find your way through this maze. Selection criteria are essential, so rich are the catalogues. I then choose the material in which I want the model to be printed, I pay for it online and await delivery at home! Both companies were tested, both are equally reactive, both offer proper service. A first message informed me that my order has been registered. A second one of the safe payment of my order. A third one, received two days after payment, told me that the order was going into production. Two days later, I received a postal package number to track delivery of my order, which showed up on my desk the following day. In just five working days, I had chosen and ordered a model, which was supplied to me carefully packaged and protected.

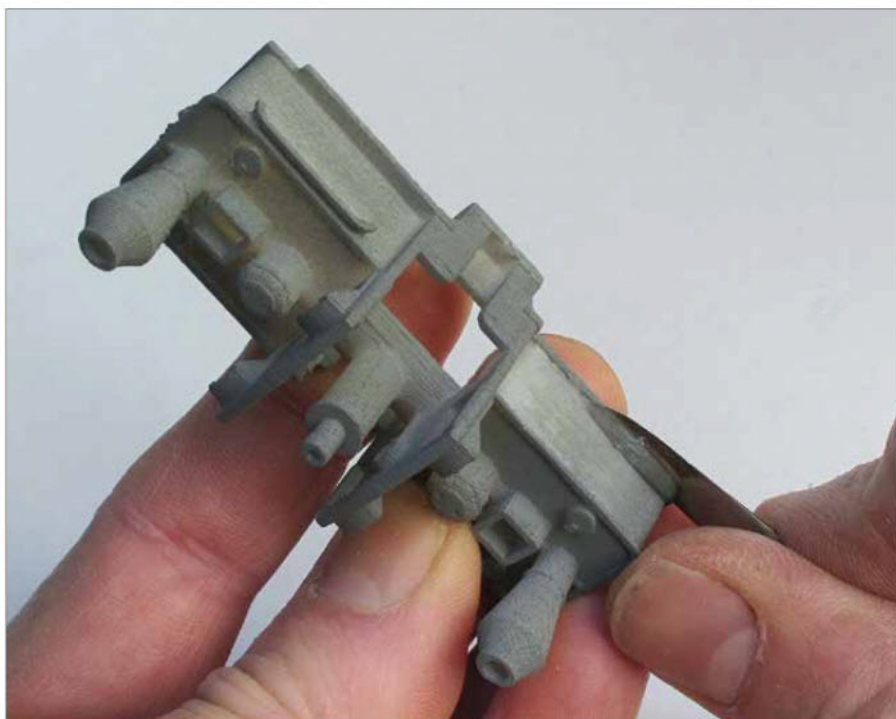
## A community of creators

We are accustomed, in our usual shopping universe, to consulting manufacturers' or artisans' catalogues. But things are different when it comes to this new technology: we are dealing here with a community of enthusiasts whose *modus operandi* is totally original. It is easy to get in touch with a creator, to exchange opinions, to suggest an improvement to his model. In the world of 3D creation, there's no tooling, no horrendously expensive prototype. A drawing can be

**My first 3D printed model. A freestyle engine, bought from a British creator. Made of dental resin! Hard, somewhat brittle, with a coarse resolution. But that was in the early days.**







To smooth down the relief, I used a blade held at right angles.

printed in no time at a very affordable price. This is how Jean-Michel reacted when he discovered that a British modeller had fallen for his favourite series of diesel locomotives.

**Voie Libre: Jean-Michel, in the course of your many exchanges with a British modeller, you were able to get a model to evolve and to have three derived models created. Is 3D a community?**

**Jean-Michel:** More than a community, in my own case, it was almost

the story of a friendship: meeting on the net and exchanging by email with Ivan, this British modeller that nothing destined to become interested in French meter gauge railways, was a real human adventure. In itself, it was almost more interesting than the items that were produced. The prize being the shared pleasure of creating these three original engines in H0m scale, he on his computer, me on my workbench, and possibly to make them available to others!

## How about getting to work?

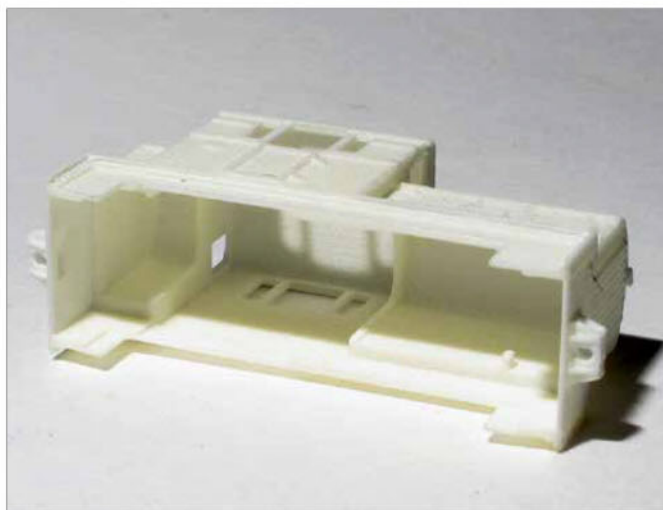
Ordering is the easy part! But not sufficient for some, as you remain dependent upon what's on offer. 3D printing means we can create what we want. But to do this, we have to roll up our own sleeves and get to work

**Voie Libre: Bernard, you wanted some very specific models. Up till now, whenever this happened, you had to grab your tools and build the models in question out of brass, plastic sheet, and pretty much anything you could lay your hands on, unique models. 3D printing opened the door to mass production. But did you know how to draw?**

**Bernard Junk:** I had been wanting to learn more about this promising technology for quite some time. But the main problem I was facing – like many other people – was the ability to draw in 3D. Last summer, while on holiday on the Atlantic coast, I attended a workshop named "Digital comes to the beach". This was organized by a fablab (a workshop offering digital fabrication) in a neighbouring city. A short training session enabled me to become acquainted with the Sketchup drawing software, while another showed me how to use a 3D printer. Later on, I sent my files to 3D printing professionals in order to get a higher quality than what the cheaper printers available on the beach could produce.



This model has been sitting on a shelf in the sunlight for four years! It's time I painted it, it seems stable to me!



And the sides aren't thick. This body is designed to fit over a commercial driving bogie.





On this model, the thick layers and the many sharp angles are very obvious.



And that's just about all there was to it. The resource was available in the area, it was just a matter of finding it. Bernard found it and made use of it. On his La Mocanita layout, described in this issue, you can see his 3D creations.

**Voie Libre: Eric, you are into 3D printing and you started with simple models. How do you design them?**

**Eric Fresné:** Having no training in this area, my approach to 3D modelling is intuitive. Just as if I was working with plastic sheet. I start by drawing the basic part. Then I "cut" it by giving it thickness through extrusion. I can then "glue" other shapes to this basis and extrude them in turn. The part can also be "milled" by removing material. I see this as virtual machining.

To finish off the job, tools are available for chamfering or rounding off the parts. Sometimes by trial and error, I manage to get what I want.

3D printing works by applying successive layers, either by adding rigid material, or by adding liquid material which is then treated with ultraviolet light. The layers are ultra-thin, and the final result depends on their thickness. It can easily be understood that a series of thick layers will lead to a coarse result, shaped like a staircase, whereas a succession of ultra-thin layers will smooth off the contours. However, the outcome of the process also depends on how the part is orientated. Jack Trèves tells us about his own experience.

**Jack Trèves:** The quality of a 3D print depends on several closely linked

parameters. One of the most important is how the model is orientated during printing. It's easy to understand that an open wagon whose shape is like a sawn-off cone must be printed on its side to avoid having "steps" appear when printing. However, with mainstream 3D printing companies, you cannot generally control the printing direction, which is usually chosen so as to optimize the filling factor of the printer plate. The final result is therefore something of a lottery,

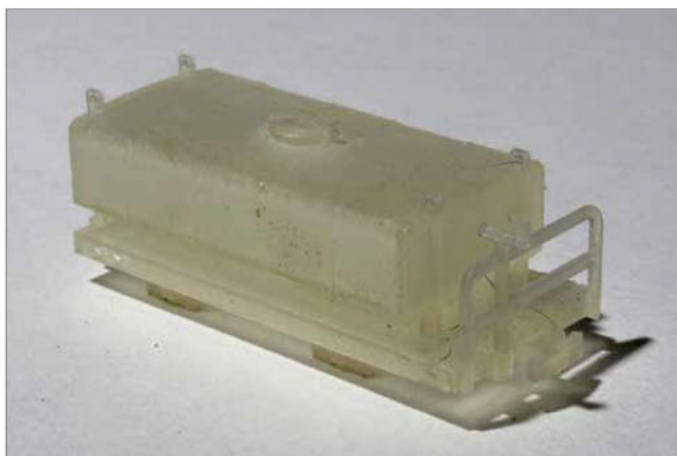
sometimes you win and the model is printed in the right direction, but this is infrequent.

With the French company Sculpteo, if you ask for a series of 20 to be printed, you can choose in what direction the printing is done.

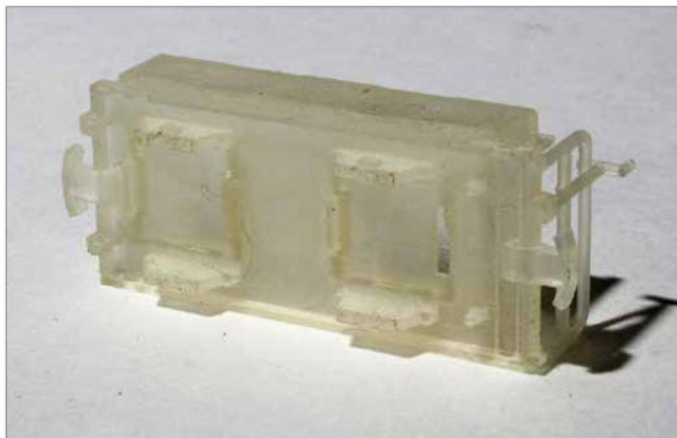
**Voie Libre: Does the quality of the result also depend on the type of material chosen?**

**Jack Trèves:** If you opt for a high definition standard of printing, such as the Frosted Ultra Detail offered by Shapeways, the direction in which the part is printed becomes less important, but another difficulty appears: the automatic locating of the brackets which must be printed at the same time to support the part. These brackets imply a local modification of the surface quality and can this lead to an equally unacceptable result.

So while it is obvious that we are still at the early stages of this technology, the future might have some surprises in store.

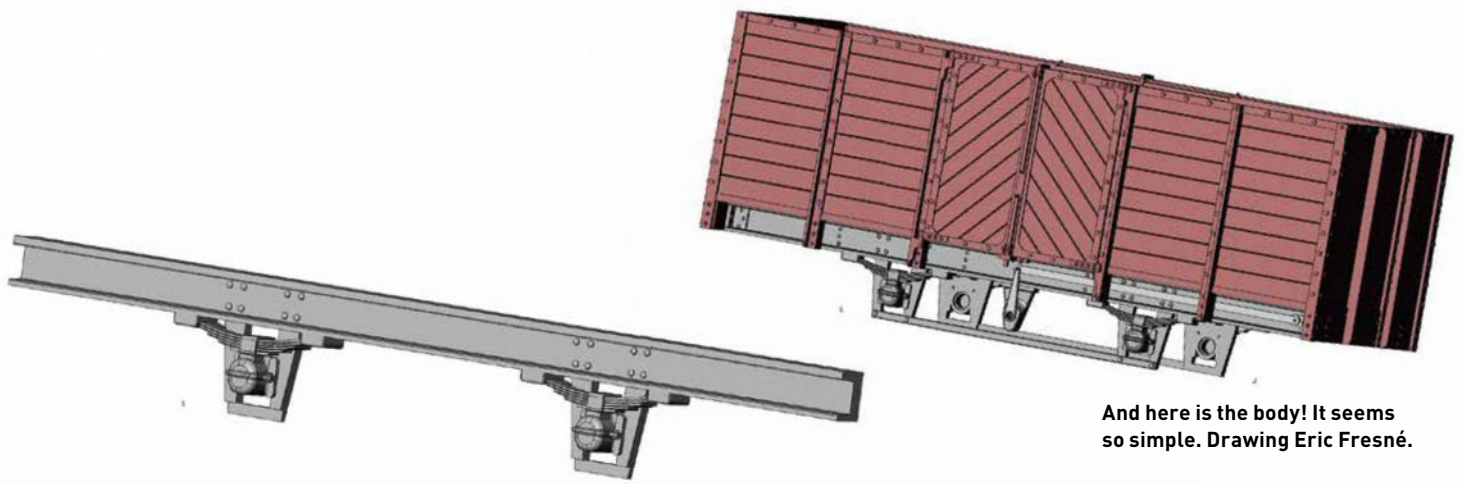


Ultrafine quality by Shapeways, three years old now! The surface quality is almost perfect.



One surprising aspect of this technology is the possibility of creating hollow volumes! Like the inside of this Feldbahn tank.





And here is the body! It seems so simple. Drawing Eric Fresné.

A Decauville chassis solebar. Drawing Eric Fresné.

What must be kept in mind is that the model should be designed thoroughly, carefully drawn, and that it's always better to opt for the finest printing standard possible.

### What to do with the prints?

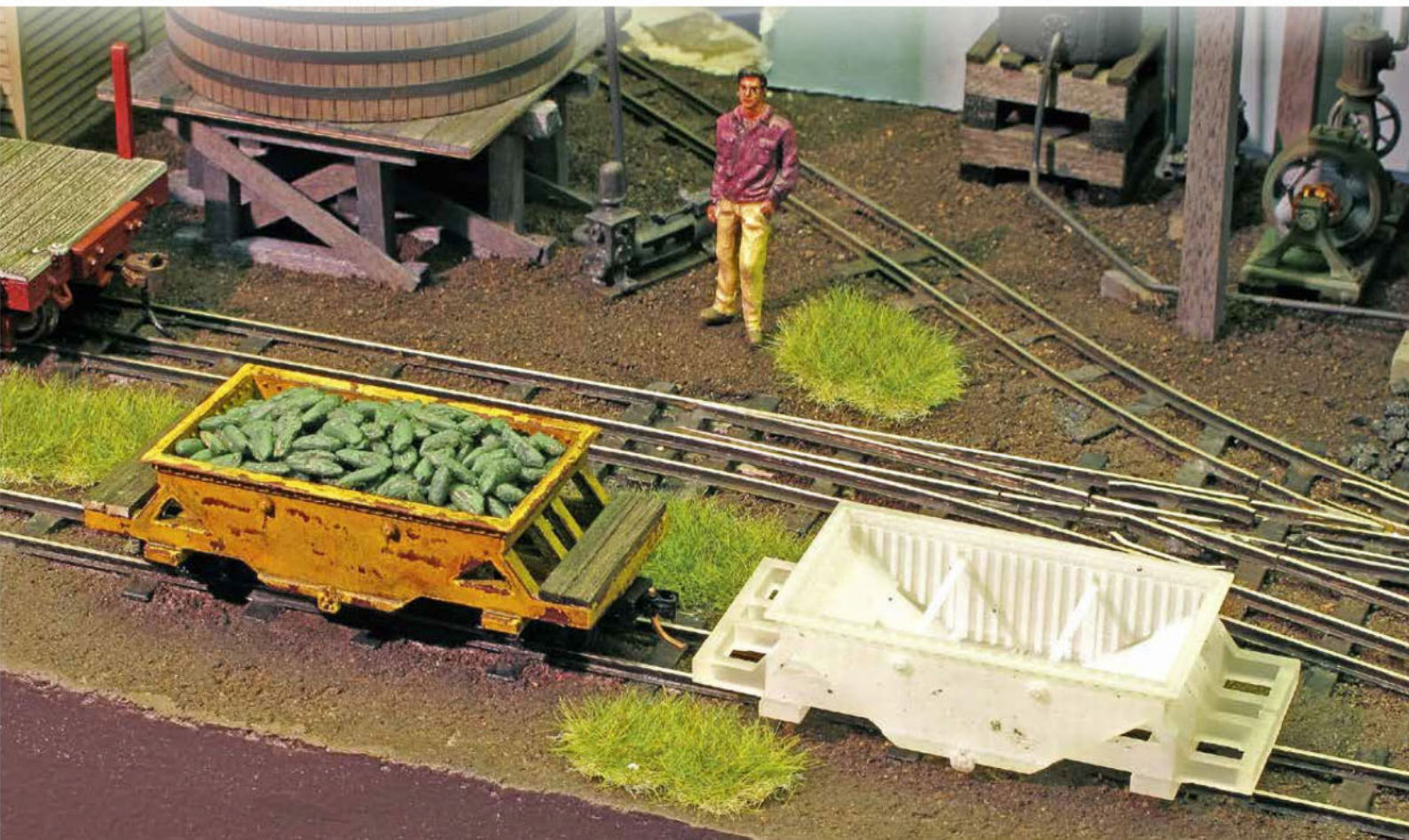
In the very early days of 3D printing, it was said that the materials would not last, that they were brittle, hard to work with, in summary only suitable for mock-ups! I began buying 3D prints four years

ago. My experience doesn't go back further in time, but all of my 9 models have been submitted to a wide range of unfavourable conditions: exposed to cold and warmth in my workshop, unheated in winter. Exposed to the sun behind a window, protected or not by a coat of primer or paint. And what I observed is this: I observed nothing! Not the slightest change, not the slightest sign of alteration.

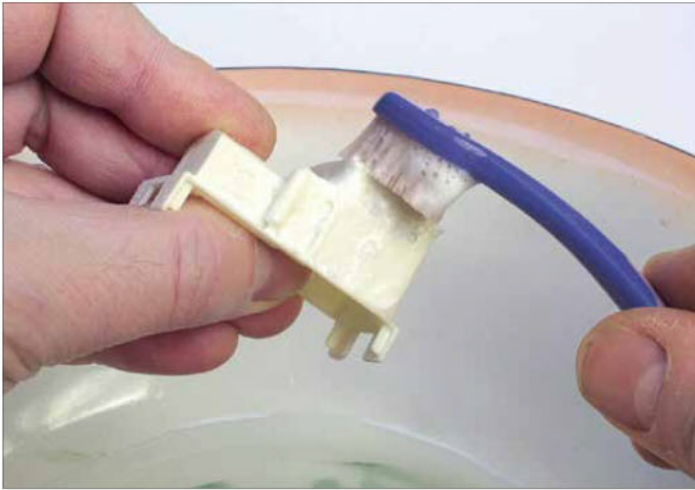
Some prints are indeed coarse, and working on them with a file isn't the

proper approach. The file doesn't work properly with the material, and above all you risk removing the small details. On the other hand, you can crush the angles with a strong blade. The result isn't ideal, but once painted it has the appearance of weather-worn sheet metal. A kind of in-depth weathering. When it comes to finer standards of printing, the surface quality once primed and painted is quite acceptable. My own experience isn't that old, but with all the types of paints I used, acrylic or

Jack is here to call us back to order, these skips were printed in one piece, but the rivet brackets created problems! On the painted model, this is almost invisible!







The model is carefully cleaned with Marseille soap and warm water.



A good coat of primer is applied. I use Modelmates black.

oil-based, there doesn't seem to be any need for a coat of primer!

**Jean-Michel:** On Shapeways bodies printed in Frosted Ultra Detail resin, some preparation is essential. Personally, I always clean them on delivery.

Then I apply primer. I use a can of grey Tamiya Surface Primer, rather than the white Fine Surface Primer, which is too fine and would emphasize the printing defects. I also use another very useful product, a black acrylic primer supplied in spray cans by Prince August (Acrylic

base), it doesn't have a reference number. It can be used as it is, both for the undercoat and the finishing coat, ideal for painting steam locomotives.

**Voie Libre:** We also use a primer supplied in spray cans by Modelmates, which has the advantage of being a very deep matt black!

Well, having read all this, how about giving 3D printing a try? Editions LR Presse is preparing for the first quarter of this year a special issue dedicated to computer-assisted modelling. Don't miss it! ■

Once painted and weathered, who would think this body is one single part?



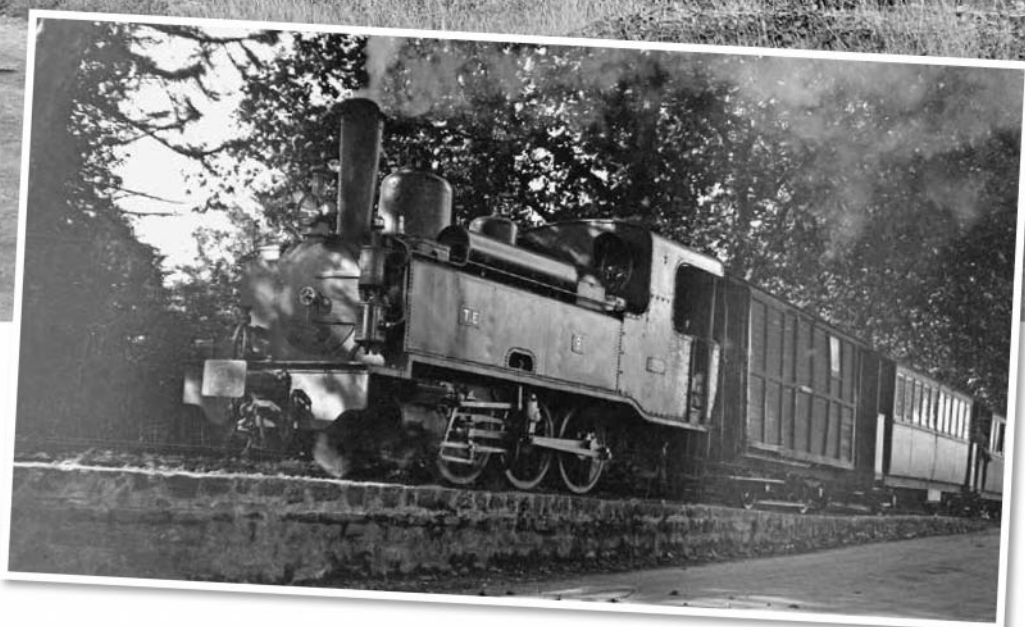




Discovery



A van, two or three end-balconied carriages and an 0-6-0 T in charge! A typical train of French secondary railways. (Photo J. Renaud/Coll. R. Thévenin).



# The 0-6-0 T type, engines that aren't as secondary as they look

## Bibliography

*De la construction et de l'exploitation des chemins de fer d'intérêt local* ("Building and operating secondary railways") by Émile Level, Paris, published by Dunod, 1870.

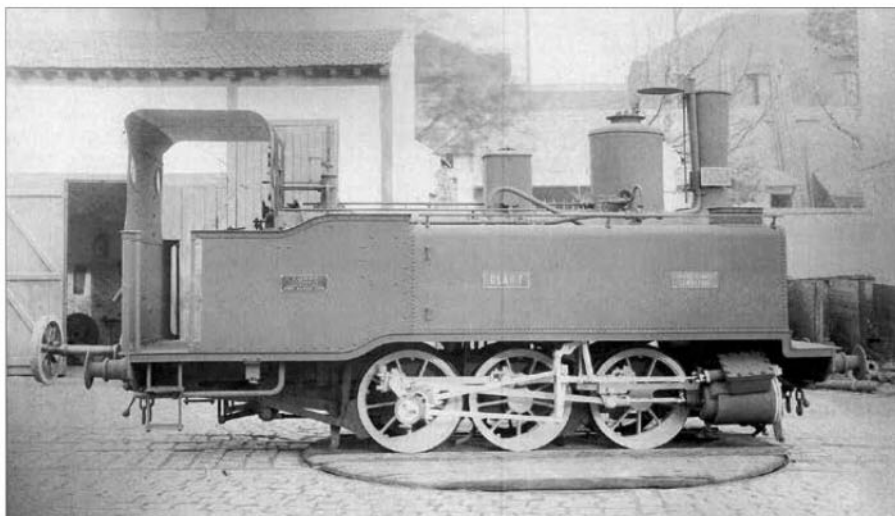
Text : **ÉRIC FRESNÉ**

**Why did a crushing majority of secondary railways opt for the 0-6-0 T type for their locomotives? *Voie Libre* provides you with some answers.**

**B**y 1860, railway engineers were very much engaged in a hectic race to speed and power. However, at the same time, the budding concept of local light railways had a totally different focus. Seeking first and foremost to be economical, such railways implied somewhat drastic choices. To







Clary is a 0-6-0 T (n° 493/1888) supplied to the Cambrésis railway. The Allan valve gear, the primitive cab, the square sandbox and the dropped running plate at the rear are typical of the early secondary locomotives built by the Lucien Corpet company. (DR/Coll. H. Dupuis).

➔ limit earthworks to the greatest extent possible, curves were often very sharp. The tracks called on lightweight rail, seldom heavier than 20kg per meter. Finally, designed as “feeders” to the main line network, these secondary railways were often single-track branch lines ending in cul-de-sacs and usually poor in turning facilities. In actual fact, the equation faced by the operating

companies was fairly simple: how to run lightweight trains on non-heavy track? Émile Level gave the solution in a book published in 1870 : “The type of engine to be used on local secondary railways will obviously be the mixed type, suitable for both goods and passenger services, with all wheels coupled”. And Level recommended using four- and above all six-wheeler locomo-

tives, weighing no more than 14 tons empty, or 16 tons in working order.

### From the function to the machine

Level’s vision turned out to be particularly accurate. After the Franco-Prussian war and even more so after the 1880 bill was introduced [translator’s note: the 1880 bill was the main piece of ➔

The industrial origins of the Corpet 0-6-0 T engines explain their rustic features. N° 15 (n° 653/1897) of the Économiques du Sud-Est railway (Jeancard group) is being repaired on an outdoor siding. (DR/Coll. H. Dupuis).



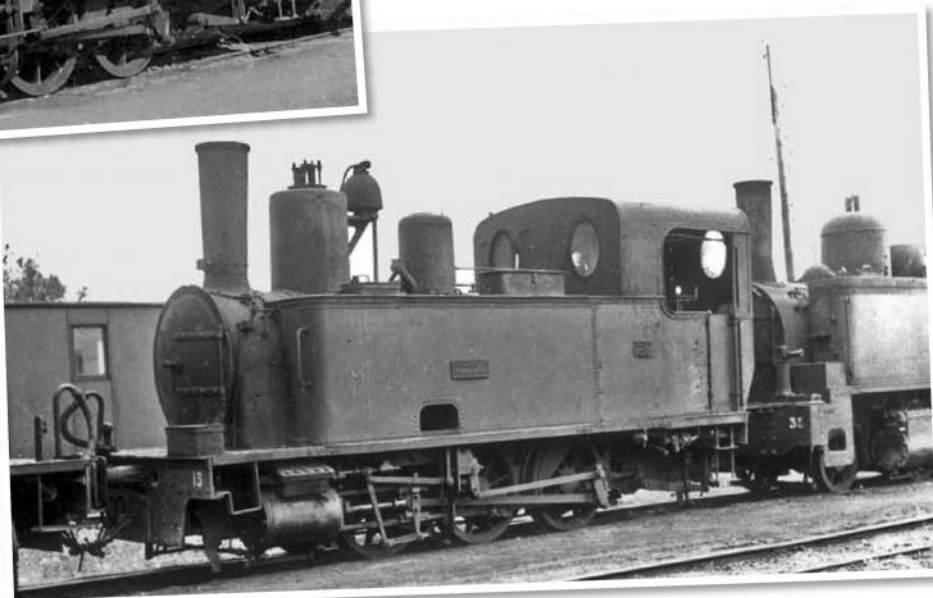




In addition to «standard» 0-6-0 T locomotives as designed by Corpet, secondary railways also made use of Belgian-inspired tram 0-6-0 T engines. Tubize sold many of them in France via its affiliate, Blanc-Misseron. French manufacturers, such as comme Buffaud & Robatel, were also successful in producing this type of engine. Le Parmellan (1898) was supplied to the Annecy-Thônes tramway (DR/Coll. É. Mandrillon).

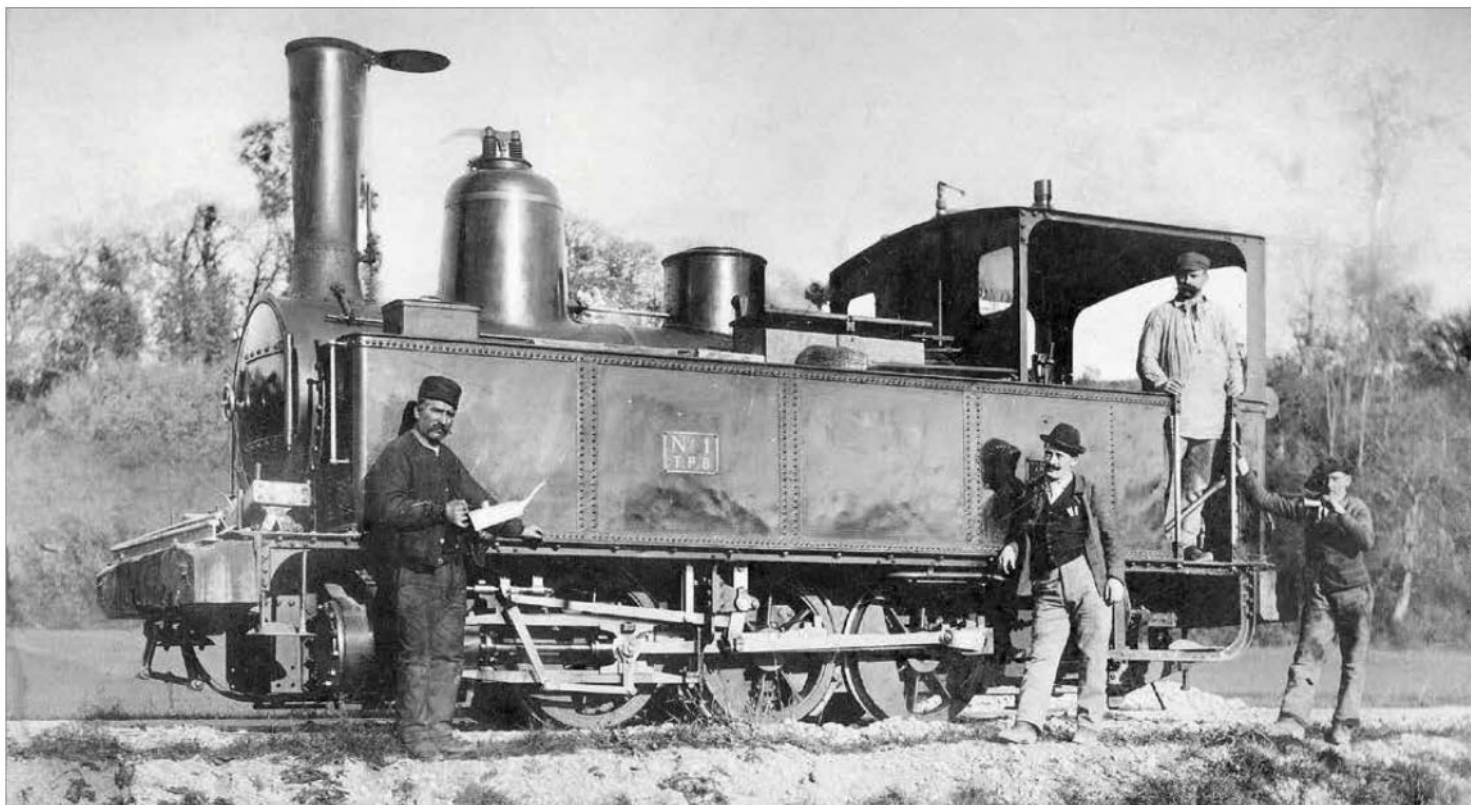


From 1889, production of 0-6-0 T engines became dominant at Corpet, later Corpet-Louvet. The original type evolved over time (closed cab, Walschaerts valve gear...) and around 1900, model D195, supplied to the TIV in 1902, could be considered as the signature secondary 15 ton 0-6-0 T locomotive (DR/Coll. H. Dupuis).



Corpet-Louvet 0-6-0 T engines were available in several versions. Starting with heavier types such as N° 13 (n° 838/1899), a 17 ton engine supplied to the Cambrésis railway. (DR/Coll. H. Dupuis).





Alongside Corpet-Louvet's production, which held a dominant place, the Lyon-based Pinguely company managed to hold its own. Engine N° 1 of the Pont-de-Bonvoisin tramway (n° 25/1896) is a heavy, 24-ton, locomotive. (DR/Coll. É. Mandrillon).

→ legislation regulating French secondary railways], secondary networks popped up all over France. And operators did indeed favour the 0-6-0 T type. The first engines bought were often locomotives designed for industry. They were already available from the catalogues of some manufacturers such as Gouin or Anjubault. Gradually, some builders developed specific types for secondary railways. Such was the case for meter gauge lines, which required new models suited to this gauge. The Lucien Corpet company, which succeeded to Anjubault, specialized in this field. The Corpet design office developed 0-6-0 T locomotives derived from those supplied to the Caribbean sugar mills. Their short wheelbase and restricted axle loading (5 tons on each pair of wheels) allowed them to travel on lightweight and winding track. Their



Pinguely locomotives are fairly distinctive: an angular outline, a conical shaped steam dome and a straight running plate are typical features. This one belongs to the 102 type and was supplied to the Tramways de l'Aube system (n° 103/1901). (DR/Coll. É. Mandrillon).

stocky appearance was enhanced by the two side tanks containing both coal and water. When Lucien Corpet died in 1889, production had hardly started. He never knew how successful his engines turned out. With almost 900 units built, Corpet-Louvet became the leading manufacturer of meter gauge 0-6-0 T engines in France.

## Competitors and imitators

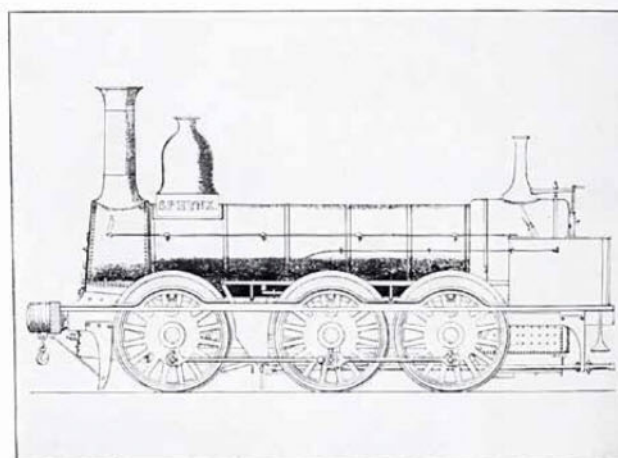
Besides Corpet-Louvet, which can be considered in a sense as representing the «French school», another approach was chosen for building meter gauge 0-6-0 T engines. When deciding to invest in French secondary railways, baron Empain brought with him a loco-



## 0-6-0, the ideal principle?

Studying it more closely, our 0-6-0 T locomotive is basically a Long Boiler type engine, which had been patented in the U.K. in 1842 by Stephenson. The boiler barrel is carried on three axles, the cylinders are located forward of the first axle, while the firebox is located behind the third axle. This arrangement means a longer boiler can be used, with a larger firebox, and the load more evenly spread on the track, translating into improved tractive effort. The Long Boiler is also a safer locomotive: in the event of an axle breaking accidentally – a not uncommon incident at a time when manufacturing wasn't as reliable as it is nowadays – four wheels remained on the track. With its three driving axles and medium-sized wheels, the 0-6-0 T type became the universal locomotive: able to run in both directions, to haul medium-sized loads at average speeds... A sort of maid of all work, born at the very beginning of the railway era!

FRANÇOIS FONTANA



A Long Boiler.



Piguet wasn't really a "major" manufacturer of 0-6-0 T engines. But the locomotives supplied to the Tramways de la Corrèze were among the very last locomotives of this type to have remained in service on a French secondary railway. (Photo Bazot/Coll. É. Mandrillon).

motive concept that was very trendy in his native Belgium: the tram engine. In practice, this was a standard 0-6-0 T, designed for roadside operation. To achieve this, controls were fitted to both ends of the locomotive. In this way, the driver was always at the front of the train. The engine featured an overall body concealing the boiler and the motion. This concept proved very popular in France, within the Empain group, of course, but also with other companies.

Nevertheless, the Corpet-Louvet 0-6-0 T remained the signature type in France. So much so that other manufacturers produced almost identical engines. The Pinguely company, based in Lyon, can be considered as Corpet's main competitor. Production began two or three years after Corpet-Louvet and Pinguely delivered on average seven locomotives per year for three decades. It is also worthwhile mentioning the Piguet company, which supplied the 0-6-0 T engines of the Tramways de la Corrèze.

## What about the other gauges?

Standard gauge secondary railways came into existence a good decade before their meter gauge equivalents. ➔





Faced with the same constraints as their meter gauge counterparts, standard gauge secondary railways also made use of 0-6-0 T locomotives. This engine, built by SACM for the Guë - Ménaucourt railway, is broadly contemporary of the first meter gauge 0-60 T engines. (Photo Renaud/Coll. R. Thévenin).

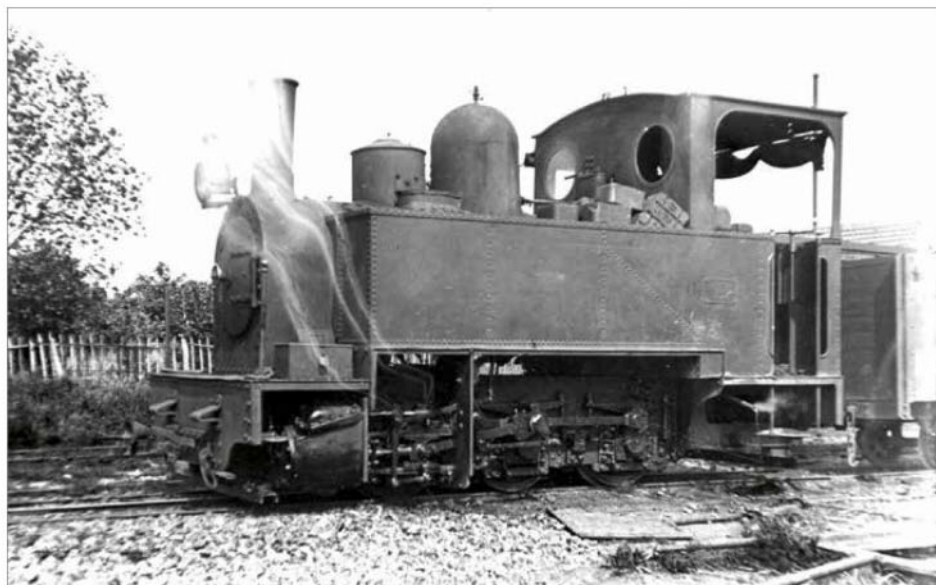


Even more so than meter gauge railways, standard gauge secondary lines often called upon stock built by industrial locomotive manufacturers, notably Belgian ones such as La Meuse or Couillet, the latter having built this 0-6-0 T used on the Guë - Ménaucourt line. (Photo Renault/Coll. R. Thévenin).

Although not very well represented, German manufacturers were not completely absent from the French secondary railway scene. In 1937, Couthon sold a Krupp 0-6-0 T (n° 741/1925) to the Étival-Senones railway. (Photo Renaud/Coll. R. Thévenin).







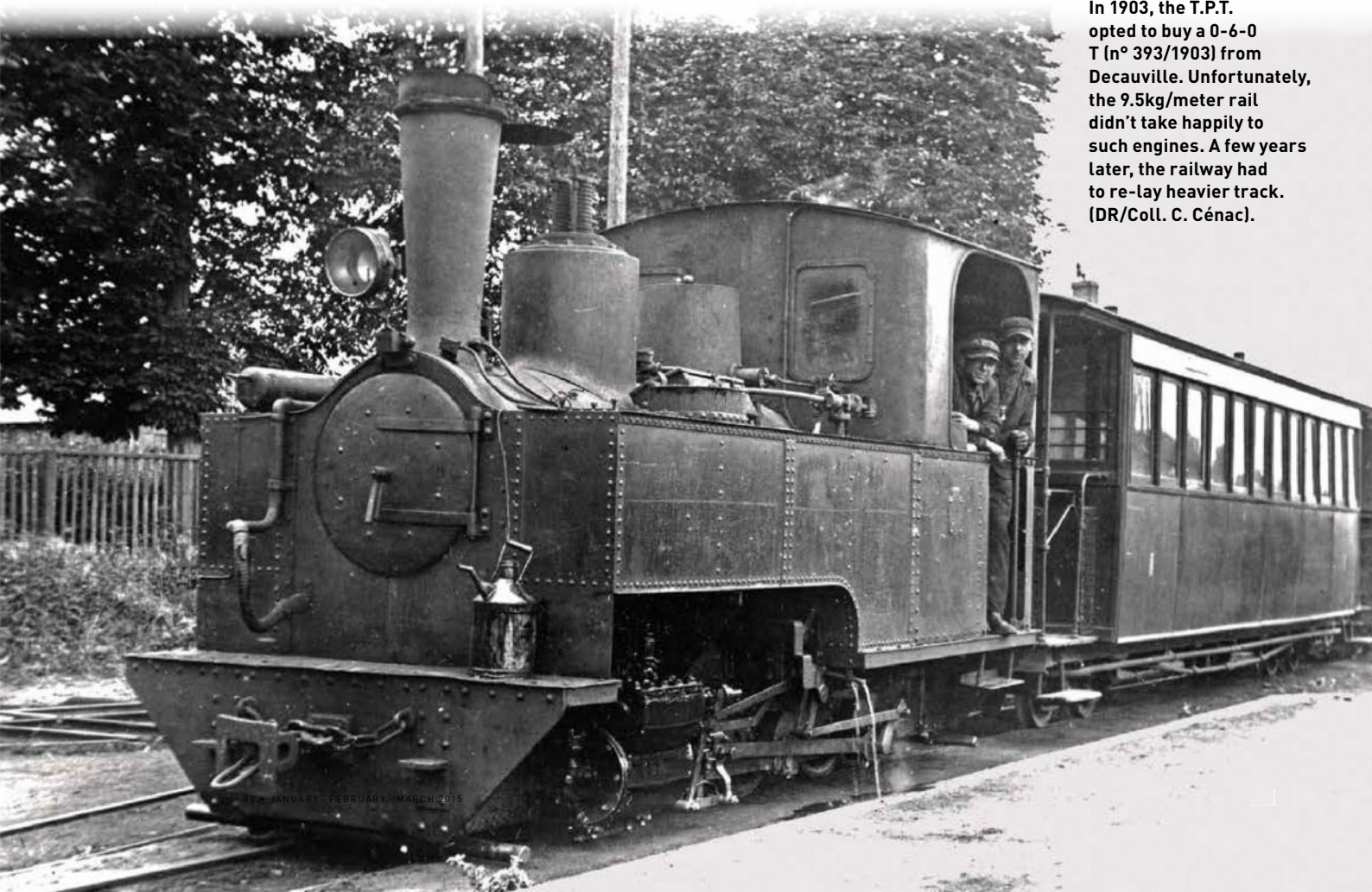
Another 60cm gauge railway used a 0-6-0 T: the Paramé to Rothéneuf tramway, which bought a 10 ton locomotive (n° 282/1902) from Blanc-Misseron – actually the Belgian manufacturer Tubize. After many adventures, it ended up on the T.P.T. (DR/Coll. C. Cénac).

Many thanks to Henri Dupuis and Élie Mandrillon who kindly made their knowledge and documentation available for writing this article.

➔ Therefore they pioneered the principles laid out by Level. As 0-6-0 T type engines were extensively used by main-line companies and industry, secondary railways found what they needed in the catalogues of the leading French or Belgian locomotive manufacturers. When it came to 60cm gauge, however, the universal 0-6-0 T type reached

its limits. The track used was often too light. At a mere 9.5kg per meter, the Decauville track would have had trouble dealing with a heavy axle loading. Manufacturers compromised by first designing 0-6-2 T engines, thus spreading the load somewhat. It wasn't until 1902 that 60cm gauge 0-6-0 T engines were produced, and pretty heavy ones at that.

The locomotive supplied by Tubize to the Paramé to Rothéneuf tramway weighed in at a hefty 13.5 tons in working order. The Decauville engines of the T.P.T. were hardly lighter... And all of them wreaked havoc on the tracks, obliging the operating companies to lay heavier rail. A short-lived experience, unlike what happened with meter gauge. ■



In 1903, the T.P.T. opted to buy a 0-6-0 T (n° 393/1903) from Decauville. Unfortunately, the 9.5kg/meter rail didn't take happily to such engines. A few years later, the railway had to re-lay heavier track. (DR/Coll. C. Cénac).





Diesel locomotive n°101, ex-Doubs, a Gécomodel kit, heading a goods train, is seen crossing the viaduct over the "hole", on its way to Noyers from the fiddleyard.

Text and illustrations:  
**BERNARD DÉLUARD**

# A PVC and concrete viaduct second and last instalment

In issue 78 of VL, Bernard Déluard built his viaduct. The remaining task consists in installing it in the garden and bringing it to life with the essential finishing touches!



## 1 Trackbed

A coarse wooden template is used to check how the viaduct will be installed on site.



## 2 Reinforcement

On the station side, the viaduct is fixed to the trackbed by a round metal rod, 11m in diameter, with a depth of 30cm. On the opposite side, the trackbed will be built later. The reinforcements located in

the middle of the viaduct will be embedded in the concrete filling, while the round rod will extend into the trackbed beyond. Note the flat metal rods that hold the form-work in place during construction.





### 3 Pouring the concrete

The casing is made watertight with silicone putty. The concrete, loaded at 320 kg/m<sup>3</sup>, is poured in three phases. I start by the piles and the abutments; the liquid concrete is tamped with a round rod pushed in many times. The second layer is then poured until the casing is almost full, and also thoroughly tamped.



### 4 Finishing the trackbed

The finishing layer consists of a blend of mortar and fine sand. It is levelled using the PVC girders as a guide. The concrete must then be allowed to set, which can take some time!



### 5 Cornerstones

Essential to the final appearance of the viaduct, the corner stones are cut out of 1mm thick PVC for the arches, and 2mm for the piles. The PVC is coated with fine sand. On the other side, it is deeply engraved with an Olfa P450 knife. I cut out rectangles of ca. 10 stones, using scissors for the 1mm PVC and a circular saw for the thicker PVC.

The rectangle is held in a vice, the protruding part is heated with a thermal paint remover until it becomes soft. It is then folded at right angles with a cold section of metal L girder, which speeds up cooling and keeps the PVC at right angles.



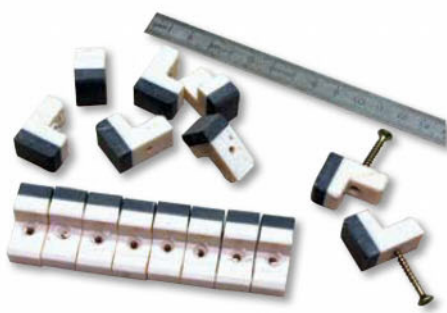
### 6 Long and tedious, but fine!

The stones are cut out one by one with scissors and cutters. The other stones, pile crowns and half stones between the arch stones, are made in the same way, but not folded. This is a tedious, but worthwhile job; I cut out ca. 800 stones!

### 7 The corbels

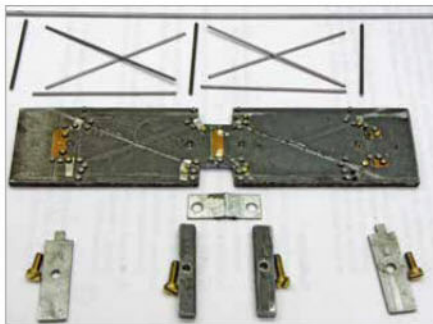
These large protruding stones, fixed at the top of the piles, are used to support the arch construction scaffoldings. They are made out of PVC strips glued together,

held in place in a vice then trimmed to the proper length. The corbels are drilled to reinforce their gluing onto the viaduct using 3mm diameter fiber board screws. The angles are smoothed down with a coarse file, and the join between the two stones



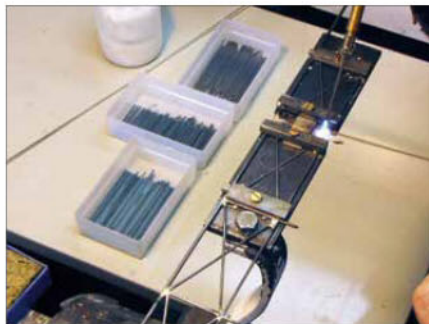
is made in the same way as for the corner stones: a hacksaw blade and a triangular file. The corbels are flocked by steeping them in sand. Once the stones are fixed in place, the screw head is concealed with flocked adhesive.





## 8 Preparing the railings

To ensure sturdiness, I used 1mm piano wire, silver-brazed using an oxygen torch. I made a template; where the diagonals meet required hollowing out the support with a drill bit and a file. The four parts arranged underneath hold the various elements in place; a range of wedges allow for the different diameters of piano wire used. This template will be kept for any future repairs.



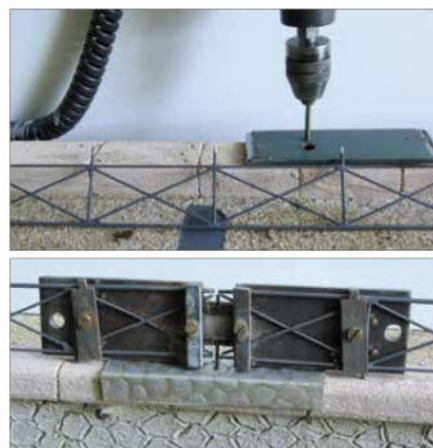
## 9 Brazing the railings

The top of the stanchions is ground flat to improve contact during the brazing phase, while the opposite end is filed to a point to improve penetration into the fixing holes. Hard silver brazing is carried out with an Oxypack type torch, fitted with a fine tip. The horizontal strips of the railings must be nicely straight, don't hesitate to correct any misalignment by de-soldering here and there.



## 10 Finishing touches

I ground down some brazing points to reduce their thickness, and took advantage of this to also flatten the top of the railings in the same way. A coat of anti-rust primer and two coats of grey Humbrol paint were then applied.



## 11 Fixing the railings

Holes are drilled in the ridge stones using a template cut out of a length of metal L-girder, ensuring verticality and even spacing from the edge. The holes are drilled one after the other as the railing is set in place, using the sharpened tips of the stanchions, ensuring

even spacing and avoiding warping or distortion. Each railing consists of two parts, each just over one meter in length; they are brazed together in situ, using the template. The stones are protected from the flame by an aluminium cut-off.



## 12 Facing stones

The corbels are glued and screwed in place first, using a cardboard template. I continue with the pile capstones. The last job is the arches and piles. A small flat paintbrush is used to apply adhesive to the part and to its support. Proceed stone by stone, as minor adjustments can be sometimes required to preserve the alignment with the engraving of the intrados.



## 13 At long last, tracklaying!

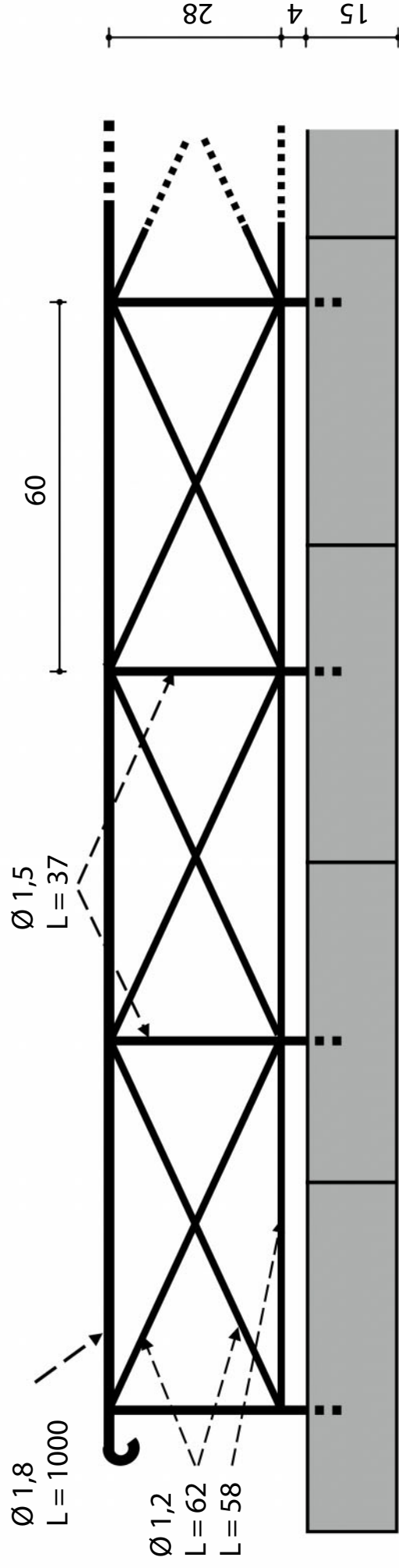
The sides of the Sunset rails are given a coat of grey anti-rust paint, and two coats of rusty brown paint for metalwork. This is oil-based silky paint, with some matting agent added. The PVC girders of the viaduct having been drilled and tapped at M3, the sleepers are fixed onto them. Then the track is coated with diluted cement, applied with an enema pear, and sprin-

kled with calibrated gravel chippings. Once dry and set, any excess chippings are hoovered off.

The viaduct is then completely painted with two coats of outdoor acrylic paint, coloured with universal pigments. Weathering is carried out with a paintbrush, using more or less dark acrylic washes. In any case, time and winters will do a better job than mine!

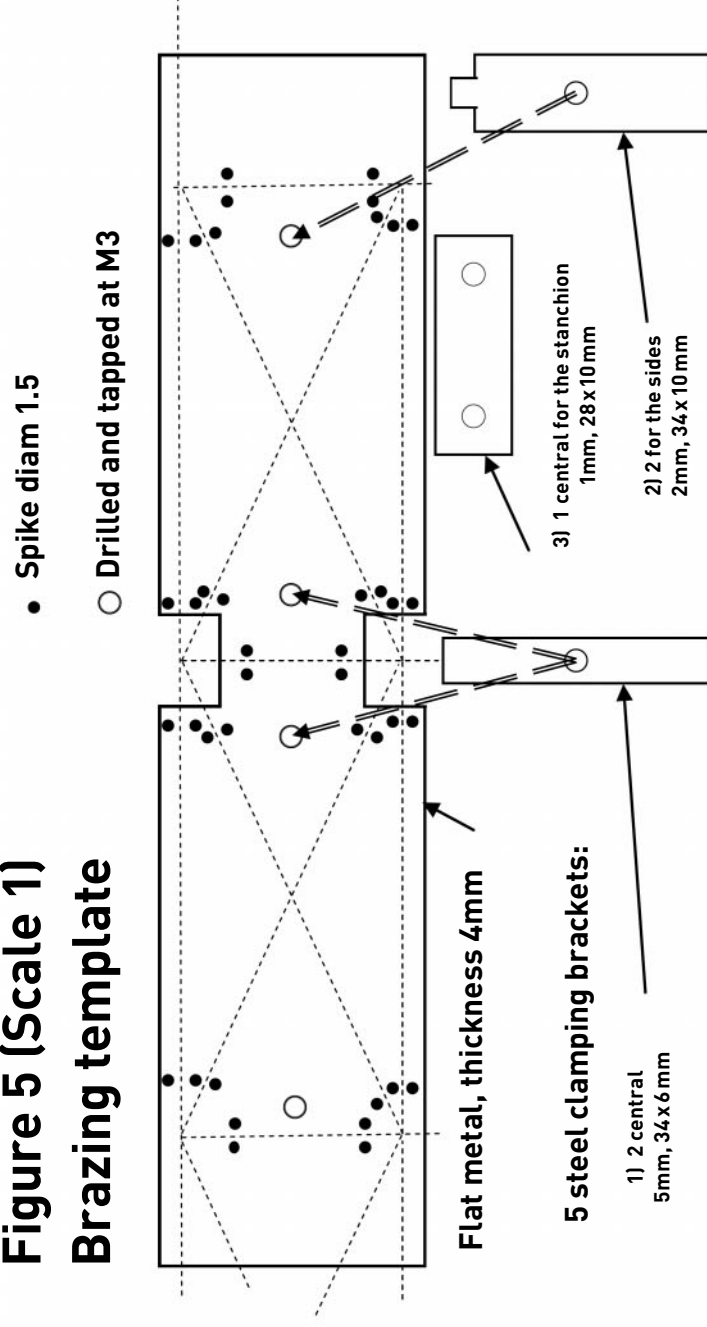


### Figure 4 (Scale 1) PARAPET



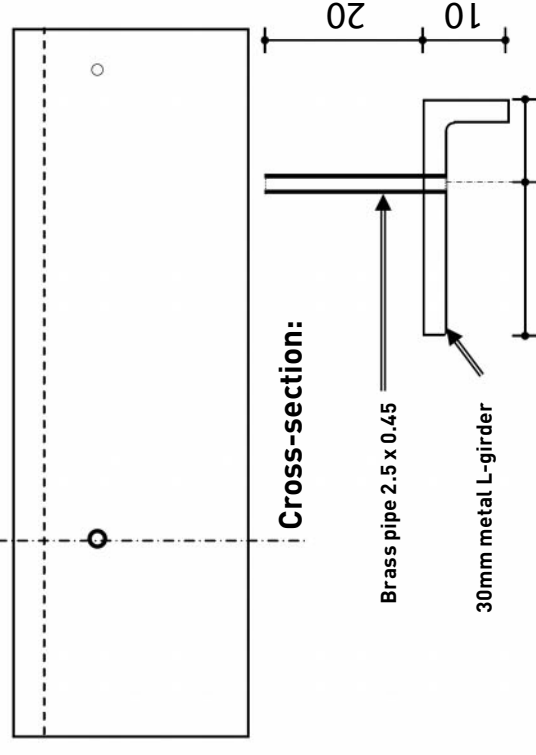
## Figure 5 (Scale 1)

# Brazing template



## Figure 6 (Scale 1)

# Template for drilling the ridge stones







H09 layout

# Sand pits on a slimming diet

## The layout at a glance

- Scale: 1/87
- Gauge: 9mm, Peco track
- Control: Roco digital
- Inspiration: Nemours sand pits
- Dimensions: 140 x 100cm without fiddleyard

Text and illustrations :

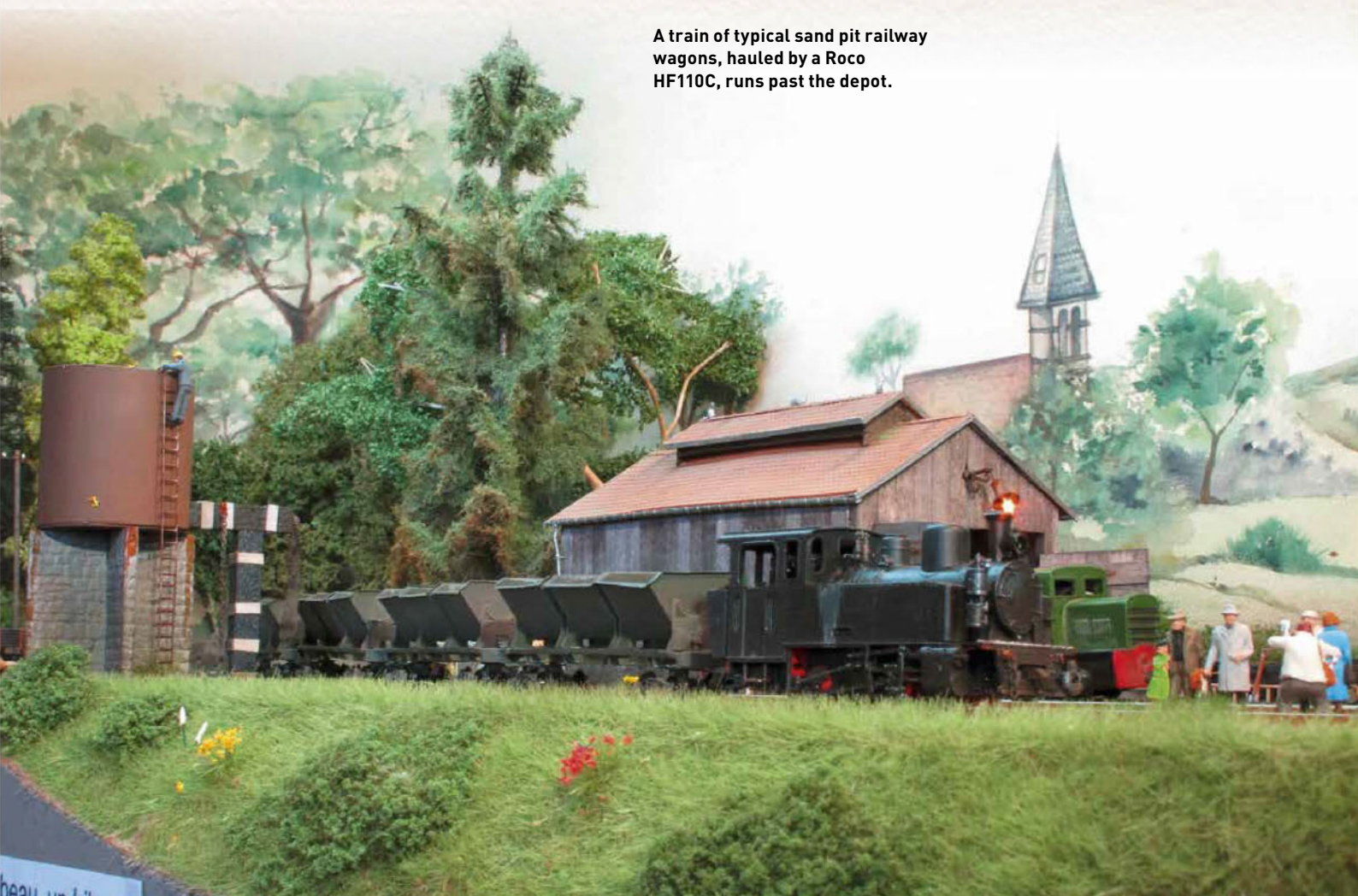
**FRANÇOIS FONTANA**

**UNLESS OTHERWISE MENTIONED**

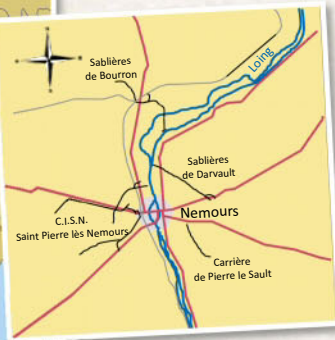
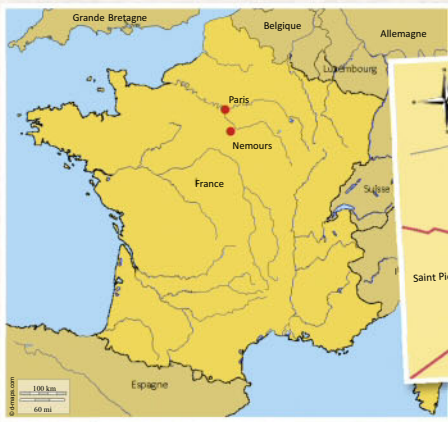
Trains have been known to change layouts, layouts have been known to change owners, but layouts which change gauges are less common! Nevertheless, this is what happened to the Nemours sand pits layout built by François Gilbert and Matthieu Jacquemart.

Faithful readers, remember, we had described the saga of the construction of this layout in Issues 63 to 66 of *Voie Libre*. Inspired by many period pictures and a few visits to the former industrial site, François Gilbert and Matthieu Jacquemart had built a layout that illustrated some specific areas of this railway, located south-west of Paris. They had opted for O scale and 14mm gauge, to be as prototypical

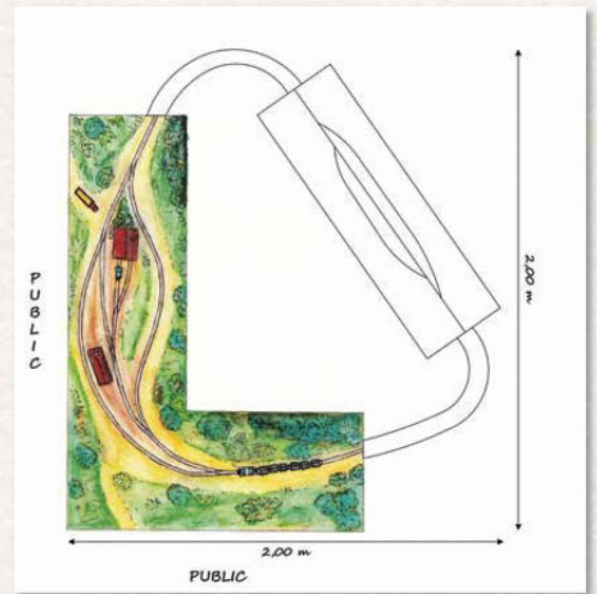
A train of typical sand pit railway wagons, hauled by a Roco HF110C, runs past the depot.







Maps: graphics by Eric Fresné



Portrait: François and Matthieu.

The entrance to the locomotive depot has an etched metal gate. A DFB 0-8-0 is hauling a train of sand-laden skips. The coal merchant must have forgotten to empty his load!

as possible. However, interested by the recent releases of stock in 009/H09, they got hooked on what was for them a new scale. The possibility of reducing the footprint of the layout to two modules only, the scope for enhancing its operational interest, for running trains continuously, and for having a much

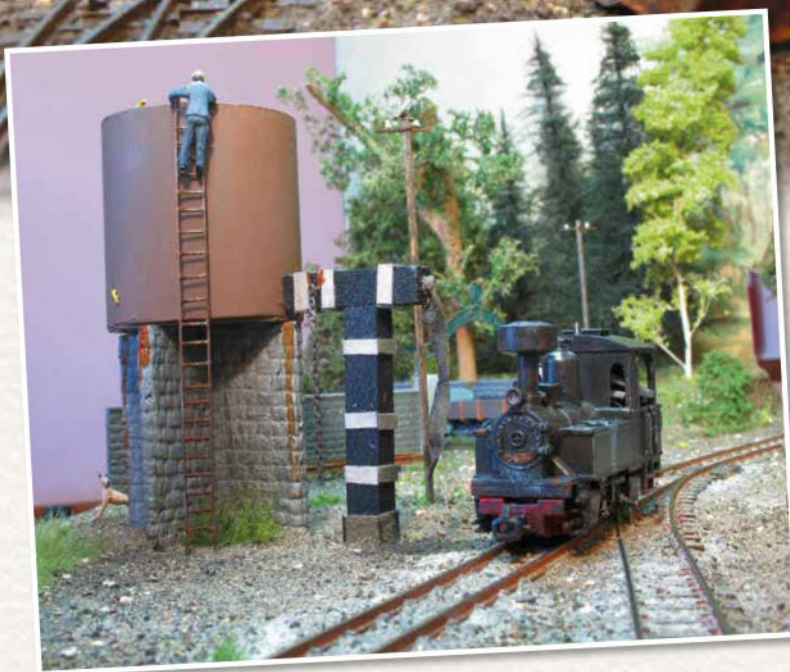
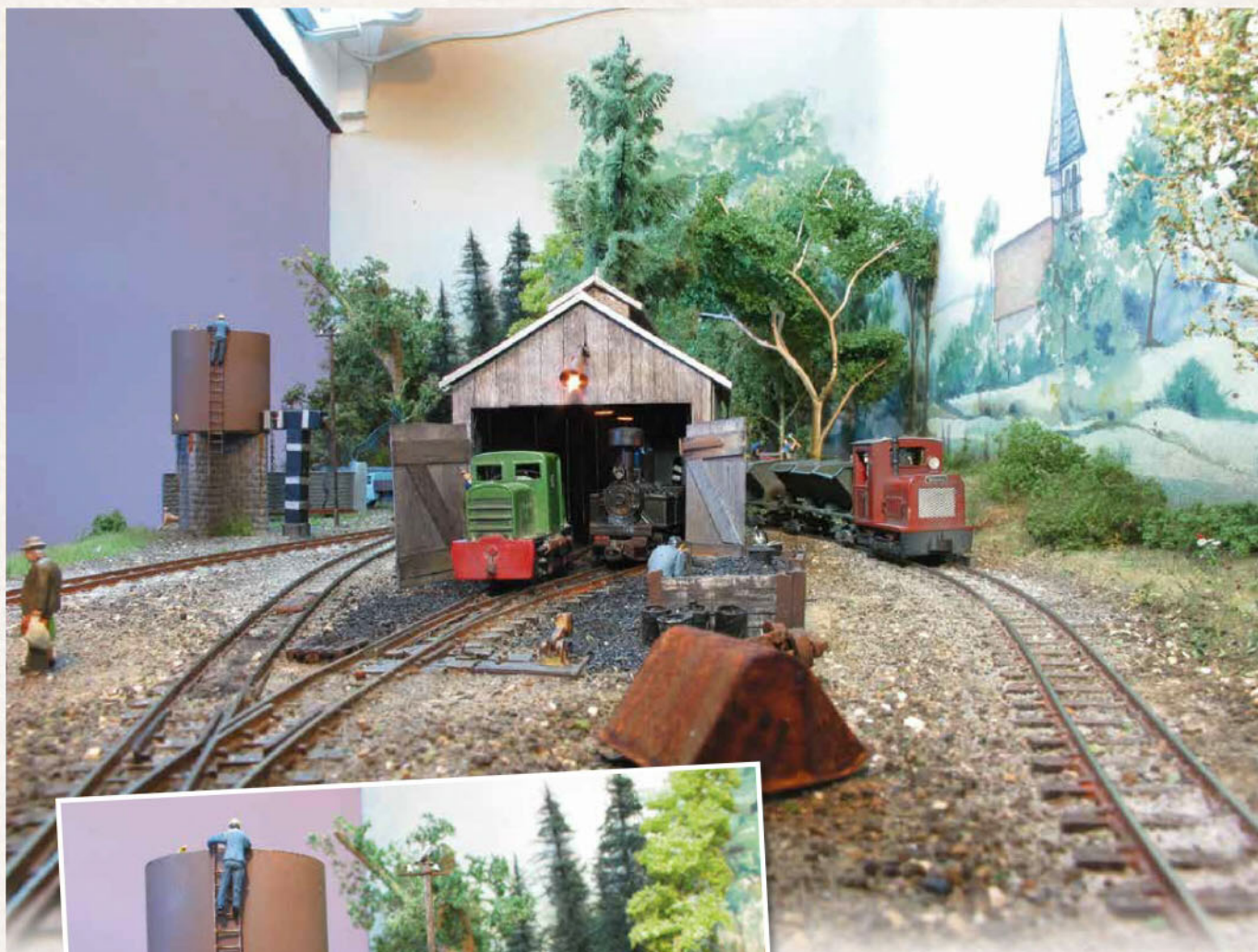
larger fiddleyard... All this was very attractive! And so they decided, disregarding reason, to change the scale of the layout and convert it to 009!

### A scale problem?

Well, fine, but the original layout had been designed and drawn for 0 scale.







Lost amongst the trees, here is the depot. Diesel haulage is taking over from steam. The small Roco 0-6-0 T is stored cold, while the Billard T75D, a Meridian model, and the Minitrains Gmeinder, are in charge of operations.

Might there be a water problem? Jacques has left his locomotive to have a look for himself inside the water tank.

→ The trackplan, of course, but also the buildings, the trees and the backscene had all been worked out for 1/43.5 scale. Switching to 1/87 meant installing trains that were half the proper size for this environment. So before ripping up everything, they carried out a few tests. And to their surprise, they discovered that trees that were an adequate size in 0 scale looked fine as specimens found near the forest of Fontainebleau. The backscene, painted in water

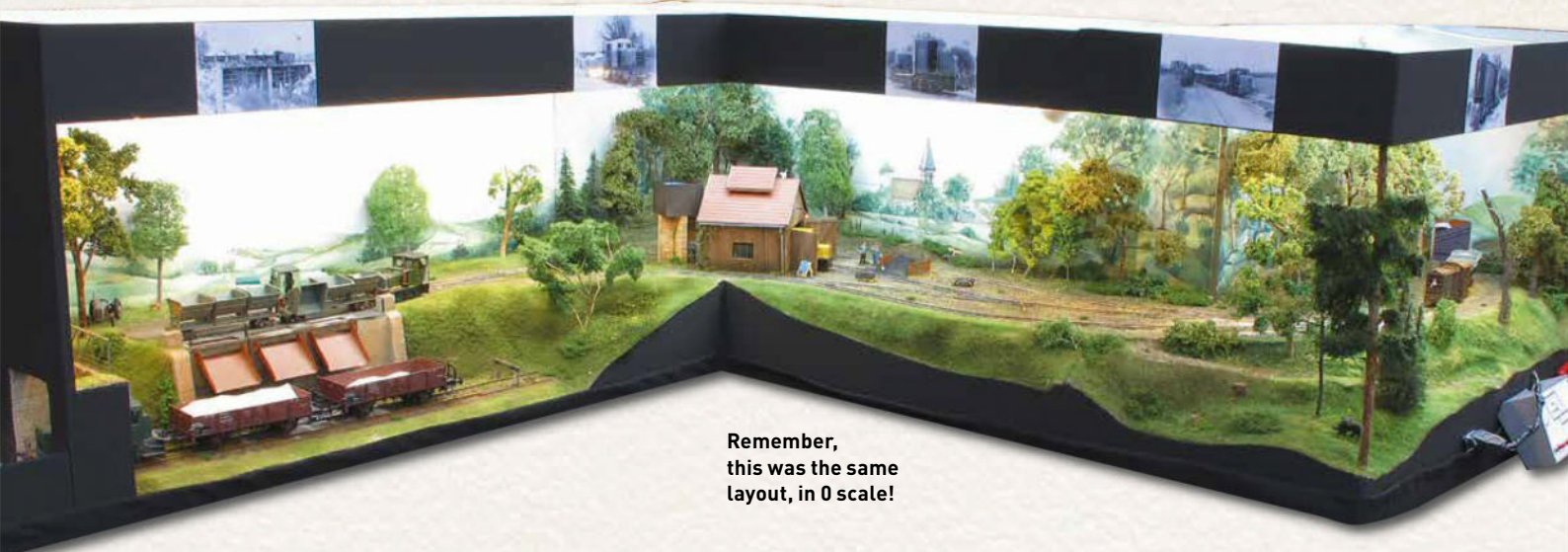
colours, blended in just fine and even though it didn't give quite the same impression of depth, was perfectly acceptable in 1/87. So, without further ado, they grabbed their tools and began wrecking!

### Deconstruction...

Naturally, they started by removing the 0 scale buildings. Then all the trees and bushes. The figures were returned to their boxes, together with all the small

accessories. The 14mm gauge track was carefully lifted, not to recycle it, but to prevent damage to the trackbed. To do so, they dampened the ballast with a mixture of warm water and domestic alcohol. Once the glue had gone soft, they removed the ballast with a spatula, until the wood surface appeared. As the new trackplan foresaw a loop, earthworks were required to route the track – prototypical! The embankments were cut back, the trackbed reinforced.





Remember,  
this was the same  
layout, in 0 scale!



The 009 layout seen as  
a whole, it's smaller than the  
0 scale version but roomier!



The relief has been modified, a cutting dug, 9mm gauge track laid. The new layout is taking shape, note where the 14mm gauge track used to be, quite visible on the plywood. (Photo François Gilbert)

Nothing was left of the original layout except the woodwork, a few grassy embankments here and there, a few trees and the painted backscene.

### And reconstruction

The new track, from the Peco range, was laid, sub-baseboard turnout motors installed, wiring put in place leading to a control panel with switches. A major ballasting operation followed: the trackbed, too wide, had to be narrowed, and grass grew along the sides. Bit by bit, the layout was recalled to life and the trees were put back in place. Naturally, all the buildings are new structures. A few specific scenic details



The motive power and rolling stock calls extensively on industrial ranges: in this case, the Minitrains Gmeinder. The decoder is fitted inside the cab and will be concealed by a driver.



Minitrains again, the small Krauss engine is hauling a service train with an ancient Jouef Decauville toast-rack carriage at the rear, for carrying the workmen.

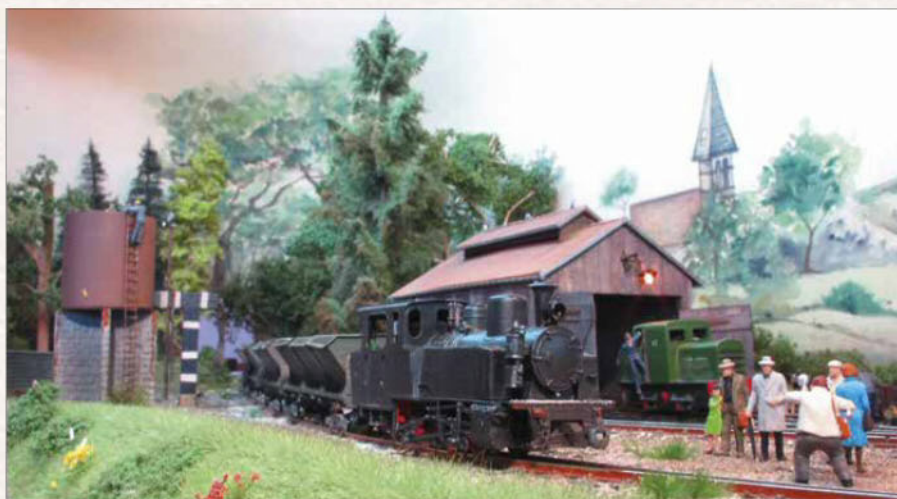


→ were fitted: the etched metal gate, the very fine water tower and the small passenger shelter which justifies the regular railcar working for the staff.

Flocking materials had to be replaced, and the size of the grass fibers had to be reduced. Smaller trees were made, which grew as if by magic among the larger ones. A number of new bushes were also required.

### The slimming machine

Even though the new layout is smaller than the original one, it gives the impression of having more depth and scope. Even though the relation between 1/43.5 and 1/87 is two, when it comes to surface, it's four, and in terms of volume, eight! The engine shed, quite impressive on the original layout, is literally lost under the trees in the second version. The way the trains run into the forest is quite impressive. Naturally, the trains retain the same overall length,



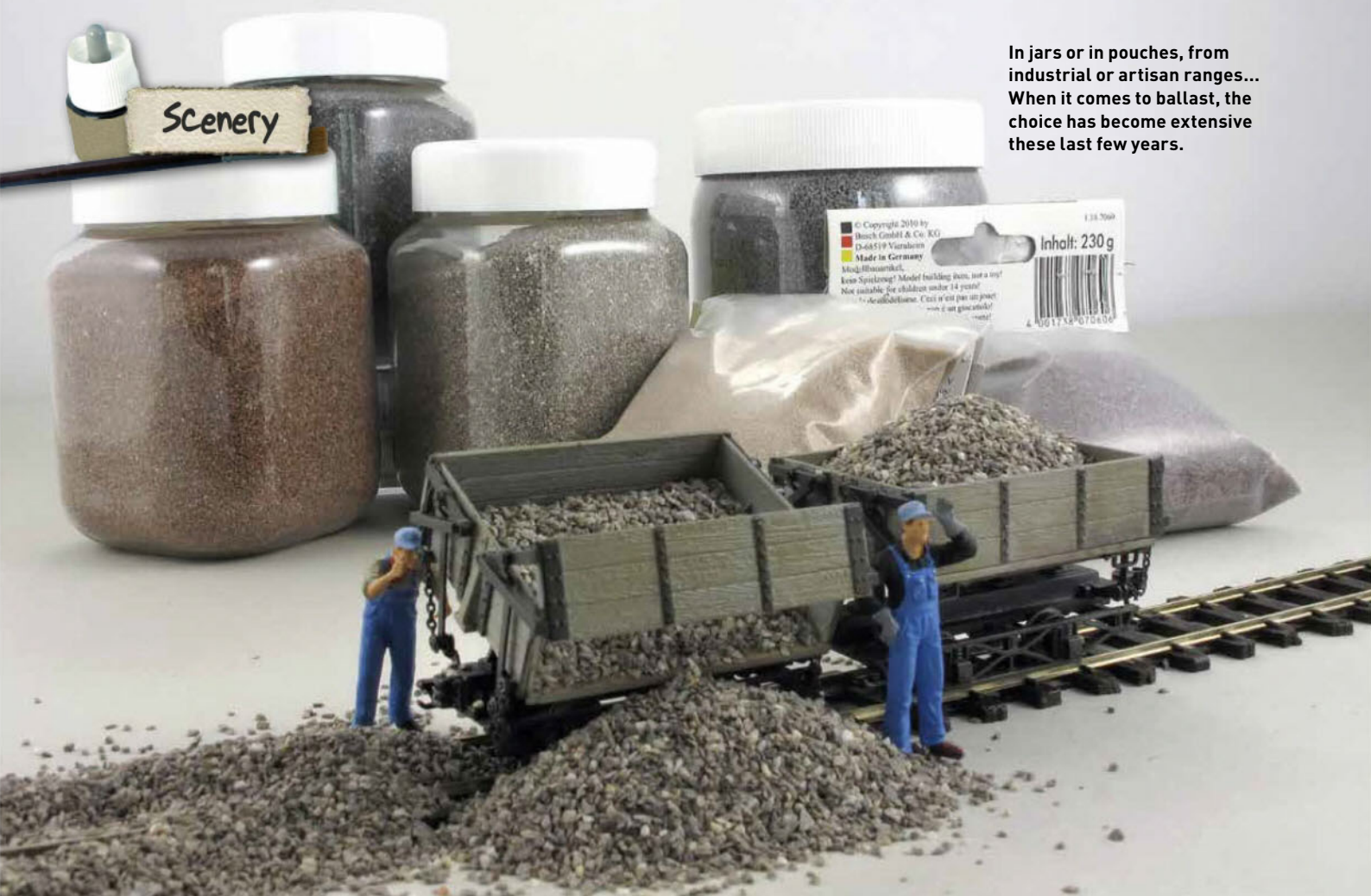
The Roco 0-6-0 T leaves the depot with a typical sand pit train, made up of wagons built by David, a friend of François and Mathieu.

but the number of skips has doubled! The larger fiddleyard and smaller cost of stock in 009/H09 offer scope for greater operational variety. As for the viewers, some, who had known the former layout, were open-mouthed! ■



Seen coming out of the shed, this is an old glory, but still very much up to the job: the Meridian T 75 D diesel engine, a whitmetal kit with a Nigel Lawton driving mechanism.





In jars or in pouches, from industrial or artisan ranges... When it comes to ballast, the choice has become extensive these last few years.

# Products for ballasting

After having described his ballasting techniques in Issue 79 of *Voie Libre*, **Éric Fresné** reviews the various products that can be used for ballasting narrow gauge and industrial tracks.

Text and illustrations :

**ÉRIC FRESNÉ  
& FRANÇOIS FONTANA**

**O**n a layout, the track is the focal point of the scenery. As trains run along it, they will draw the eye to the ballast. This is why careful thought must be given to the materials that will be used, depending on what the layout builder wants to represent. There is a wide variety of commercial products available for representing standard ballast. I will review some in this article. And if you feel like wandering off the beaten track, or rather away from well-tamped ballast, you'll see that many other products can do the job...

## Ballast for our layouts

Going through the catalogues and websites of the various manufacturers, I identified something like 9 ranges of ballast, from industrial or artisan producers. For different reasons, I was unable to obtain samples of all of them. So my comparison will not be comprehensive, but the table I drew up attempts to present things in the most objective way possible.

All the brands I was able to test have one point in common: the manufacturers all use mineral material to repre-



## Comparative table of the various products studied for this article

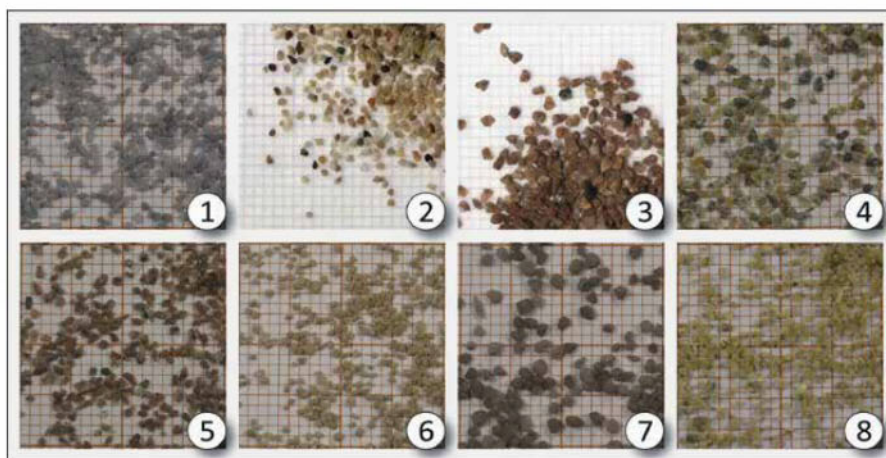
	Sample number	Designation	Nature	Shape of grains	Grain size	Shades	Price	Scales available	Address
A.B.E. (Atelier Belle Époque)	1	H0 Ballast	Crushed stone	Long	0.5 to 1.5mm	6 (5 single, 1 blended)	7.53€ per 500ml	N/H0/0	19 bis, rue Saint-Rémy 28700 AUNEAU www.abe28.fr
Décapod	2	Fine H0 ballast	Crushed stone	Angular	0.8 to 1.2mm	5 (blends)	6.80€ per 500ml	H0 fine/ H0/0 fine/0	100, rue Louis Blanc 61160 MONTATAIRE www.decapod.fr
	3	0 scale fine ballast	Crushed stone	Angular	1.2 to 2mm				
Polak Models (ARA Production)	4	H0 ballast	Crushed stone	Angular	0.5 to 1.5mm	16 (blends)	2.94€ per 240g	N/H0	19, rue Germot 03200 VICHY www.araproduction.fr
L.D.P. (Le Décor Principalement)	5	H0 ballast	Crushed stone	Long	0.5 to 1.5mm	4 (single shades)	5.50€ per 385g	N/H0/0	60660 MAYSEL www.ledecorprincipalement.fr
Busch	6	Fine H0 ballast	Sand	Round	← 1.0mm	3 (single shades)	2.30€ per 230g	H0	Available from retailers
	7	Medium H0 ballast	Sand	Round	→ 1.0mm	6 (single shades)	2.30€ per 230g	N/H0	
Heki	8	Yellow sand	Sand	Round	0.2 to 1.0mm	1 (single shade)	3.50€ per 250g	H0	Available from retailers

sent the ballast. But industrial suppliers use coloured sand, whereas artisans prefer crushed stone. The difference is fairly visible and personally, I would consider crushed stone as being slightly better visually. The appearance of your ballast will also depend on the size of the product chosen. Apart from the medium-sized ballast from the Busch range, which I find really oversize, all the grains are to scale. Keep in mind, however, that they are designed for standard gauge. Only Decapod has «fine» references which are better suited to the ballast sizes found on secondary railways. This must not constrain you in your choice. Grain size has more to do with visual appearance than with the slavish reproduction of reality.

One last important point: when you choose the colour of your ballast, think carefully of what you want to reproduce. Aged ballast tends to display variable colours. So opt for blended shades or buy several assorted jars.

### Alternative products

Besides the many references dedicated to ballasting, it can be useful to take a look at other products on offer. A variety of granules, designed for other uses, can be put to work as ballast. Heki sand, reference 3331, is amongst them. When the extensive 60cm gauge



Comparative photographs of the various grains. The graph paper gives you an idea of their size and the enlargement shows their shape.

The use of alluvial sand was very common on strategic railways in Eastern France. The Heki sand is a very good reproduction of this type of material.





→ field layouts were built around the fortresses in Eastern France, the Artillery and contractors made extensive use of alluvial gravel to ballast the tracks. The Péchot sleepers, hollow and not very thick, embedded themselves better into such ballast than into sharp stones. In 1/87 scale, Heki sand, whose grains are round in shape and not highly calibrated, is perfect for representing this type of material used on strategic railways.

### Ballasting without ballast: yes, we can – and it's free!

Secondary railways and industrial systems often used materials very different from the properly calibrated ballast we are accustomed to see on main-line railways. Careful observation of pictures taken on the former gives an idea of the range of materials used: pretty much anything. But as no supplier, be they industrial or artisan, has

dared sell jars of pretty much anything, you'll need to make up this type of ballast yourself. The five examples below are based on reality. They were made using elements collected in the great outdoors, complemented by commercial flocking materials to represent vegetation. You'll need a small hammer and a sieve to crush and calibrate your findings. Don't forget to pass them through the oven set at 180°C to fry any unwanted bugs. ■

#### Let's meet at the sandpit

The large sand pits around Paris made use of 60cm gauge track to carry the sand. On this soft material, there was no need for ballast and whenever a skip overturned, the track had to be re-levelled...

I used sieved quarry sand, keeping only the very finest part. A small amount of earth, also sieved, gives variety to the ground. Noch powder ref. 95000 is sprinkled over the track and Mininatur clumps of grass added.



#### Grass-killing ballast

Many factories which had large coal-fired boilers used the clinker left over from coal combustion to ballast their sidings. This had two major advantages, the material was free and it killed the weeds.

As real clinker is hard to crush, I opted for basalt chippings that I crushed and sieved. A small amount of earth, lightened with Noch powder ref. 95010, contrasts with the black shade of the ballast. The Mininatur grass remains at a safe distance from the track.

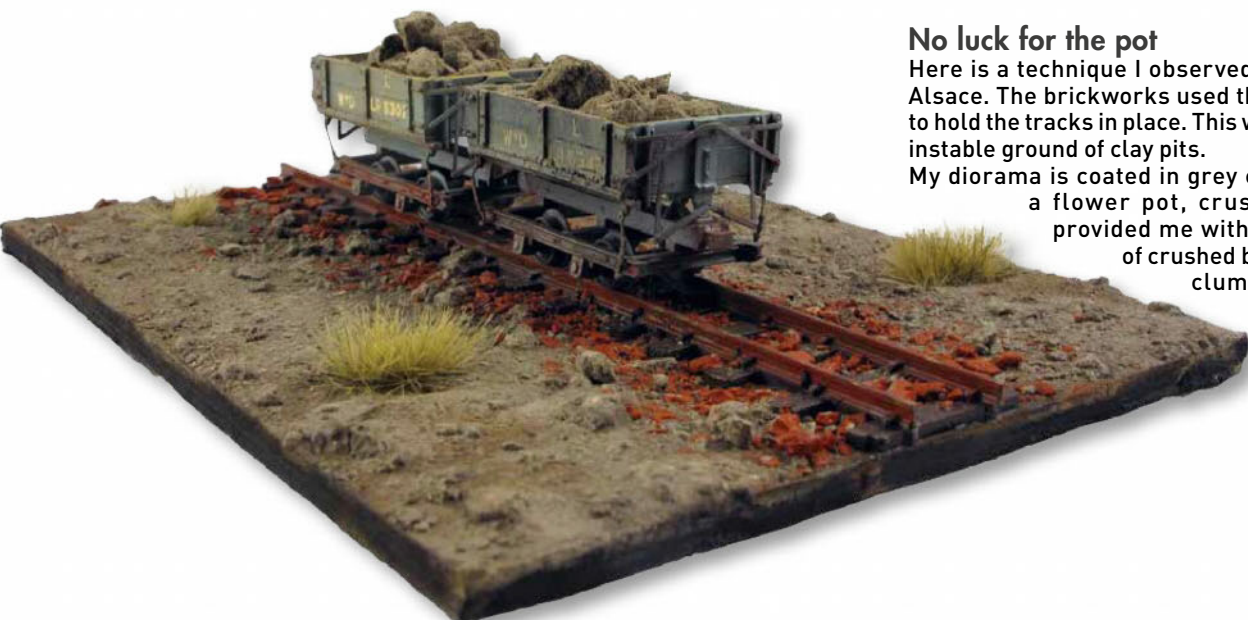




### No luck for the pot

Here is a technique I observed in Belgium and in Alsace. The brickworks used the baking leftovers to hold the tracks in place. This was essential on the instable ground of clay pits.

My diorama is coated in grey clay. A chunk from a flower pot, crushed into powder, provided me with ballast the colour of crushed brick. The Mininatur clumps are of a rather light shade.



### Deep in the woods

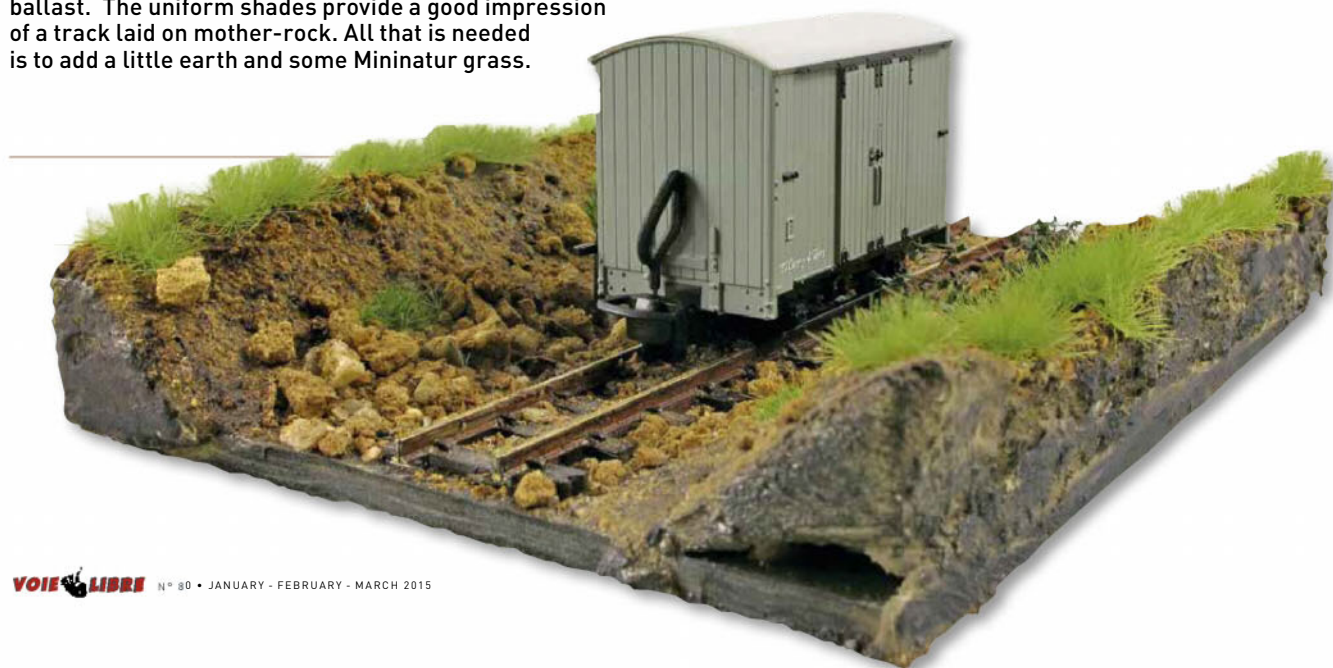
On forestry railways, a lot of the track was moved around to follow the felling areas. Here again, no ballast. The track was held in place directly by the topsoil.

The finest left-overs at the bottom of a bag of heath-peat provided me with a kind of dark brown fibrous powder. Blended with a little earth, it is perfect for representing forest soil.

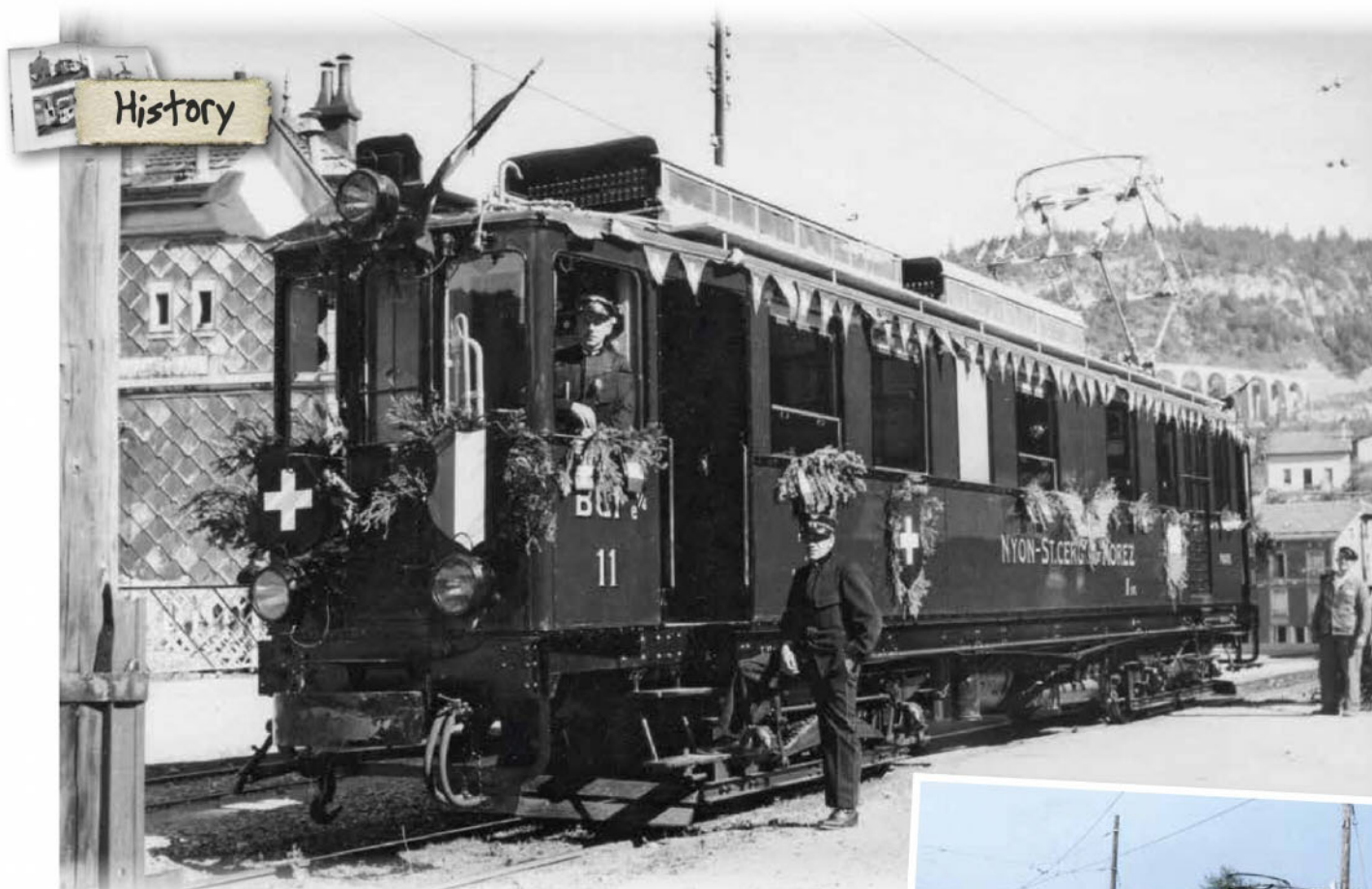


### From producer to consumer

During WWI, artillery regiments that were in charge of laying 60cm gauge track often met enormous problems in finding suitable ballast supplies. The men often got the stone from the local embankments. All that was needed then was to crush it on-site and tamp it under the track. On this diorama, the track runs through a cutting. A small block of soft stone, coarsely crushed, provided what I needed to cover the slopes. The finest part was used for ballast. The uniform shades provide a good impression of a track laid on mother-rock. All that is needed is to add a little earth and some Mininatur grass.







Motor-unit BCF4/4 11, decorated for the 30th anniversary of the railway, seen at Morez-SNCF, in 1946. Collection André.

Text : **JEAN-LOUIS ROCHAIX**

A Nyon-bound train arriving from La Cure at Trélex, on 16 July 1983. Photo J.-L. Rochaix.



# When I was 12 – on board the red train!

For Jean-Louis Rochaix, this issue of *Voie Libre* coincides with 12 years of contributions to the magazine. This is why we suggested that he describe a railway company as he knew it when he was... 12 years old himself.

**B**orn in 1932 in Nyon, a small town of 5,000 inhabitants at the time (17,000 today), located between Geneva and Lausanne, I was very familiar with the "red train", as the Nyon-Saint-Cergue-Morez railway was known. Until the autumn of 1944, Switzerland was entirely surrounded by Nazi Germany and Fascist, then German-occupied,

Italy. The train could seldom cross the border into France, and if so only with German permission or following action by the French Resistance. The borders being closed, the inhabitants of Geneva could no longer go skiing in French Haute-Savoie, and flocked to the Swiss Jura instead. The little train was packed with passengers every winter weekend.





Boy-scout Jean-Louis Rochaix is on the far left of the photo. Photo Louis Rochaix 1944.

Saint-Cergue - La Cure stretch continued during 1917, with French interned labour being used.

## Stock

Operations began with three 2,200 Volts DC motor units: BCFe4/4 1, and the very similar BCFe2/4 5 and 6 units, supplied with only one driving bogie. In 1918, they were converted into 4/4s. To this must be added two composite four-wheeler carriages, numbered BC 20 and 21, and three third-class carriages, C 22 to 24, built in 1915 by SIG (Schweizerische Industrie Gesellschaft), in Neuhausen. The goods stock comprised four closed vans, K 30 to 33, four open wagons, L 40 to 43 and the flat wagons M 1 to 8, built in 1913 by SIG. The latter, which were used for building the line, were equipped in winter to carry skis. This stock soon turned out to be insufficient. In 1918, the NSiCM was supplied with two large bogie carriages, BC4 51 and 52, also built by SIG, and two additional motor units, BCFe4/4 10 and 11, very similar to the previous ones, with fewer seats but larger van compartments.

In 1921, the Morez - La Cure (MLC) stretch was opened, but as specific stock had not yet been delivered, the Swiss stock was used over the whole line. The

Extra carriages were added to the busy trains. As children, we enjoyed travelling on the ski wagons. These were low-sided flat wagons, with the sides dropped, and fitted with triangular metalwork to carry the skis. This left a sort of "sheltered" space down the middle of the wagon. It was very cold there and trying to reach the lonely toilet available on the train was out of the question. This facility was located inside the motor-unit and only on the Swiss ones. The only possibility in the event of an unbearable urge was to relieve oneself into the snow while the train was running, standing on the handbrake platform.

## A restricted loading gauge

Starting from the station square in Nyon, the red train connected with the CFF services. At the time, I found the stock very ugly, because it was so narrow. In Switzerland, most meter gauge secondary trains are 2.65m wide, whereas the NSiCM was only 2.20m. This was the result of French demands for the stretch between La Cure (the border town) and Morez in France, which ran along the road almost all the way.

The Swiss stretch from Nyon to Saint-Cergue opened in the midst of WWI, on 12 July 1916. Work on the



Graphics by Éric Fresné.





Arrival at La Givrine of a winter sports train in the 1940s. Passengers rush to collect the skis from the dedicated wagon. Coll. M. Dehanne.



Skiers aren't the only creatures to take the train! Cows that have spent the summer months in the mountain meadows of the French and Swiss Jura are seen waiting in the station square at La Cure for the train that will take them back to the valleys. 1940s. Postcard.



A train bound for Les Rousses on a roadside stretch near Goulard. September 1948. Photo J. Chapuis.

→ following year, the Chemins de Fer Electriques du Jura – as the company was known between La Cure and Morez – saw its first two carriages delivered, identical to 51 and 52, but built by Dyle and Bacalan, as well as carriages BC4 61 and 62, two closed vans, K 34 and

35, three flat wagons M 9 to 11 and four open wagons, all from the same supplier and very similar in outline to the Swiss stock.

Over the years, more stock was added, but it would be tedious to describe all of it in detail. Two items are worth

mentioning: motor unit BCF<sub>e</sub>4/4 from the Morez - La Cure, built by Dyle et Bacalan, was transferred to the Swiss part in 1924, meaning two motor units were numbered 1, the first with NStCM markings and the second with *Chemins de fer Electriques du Jura* mark-





Motor-unit BCFe4/4 5 has derailed between Les Rousses and Turu tunnel, following sabotage by the French Resistance, in 1943. Photo NStCM.



A double-headed winter sports train, with its ski wagon, seen at Crêt du Rosset, below La Givrine. Even though the train is going downhill, the pantographs have been raised to provide heating for the carriages. 12 February 1967. Photo S. Jacobi.

ings. The latter was finally re-numbered ABFe4/4 3 in 1958. The second French motor unit, BCFe4/4 2, built by *Compagnie Générale* at Villefranche-sur-Saône, was delivered only in 1936. This completed the motor-unit roster.

### Operations: whimsical!

I have many fond memories of those wartime days: in winter, the overloaded skiing trains. In summer, the city-dwellers making their way to the villages served by the line to stock up on food supplies. Although food rationing was in place throughout the war, and coupons were



French motor-unit BCFZe4/4 1, built by Dyle et Bacalan for the mechanical part and BBC (Brown Boveri Cie) for the electrical part, seen leaving the factory in 1924. Power 4 x 70 kW. Photo BBC.



## From axles to bogies

Among all these vehicles, the only ones that impressed me were the carriages bought second-hand in 1938 from the *Chemins de fer Vicinaux de Haute-Saône*. Short, but fitted with bogies, they had been built at the turn of the century by ANF Blanc-Misseron. They looked very ancient to me. With match-board sides and small windows, they were dark inside. Still, they

The pantograph will have to be raised before the train can depart again. The carriage is number 24, still the worse for wear after being fitted with bogies. Trélex, 16 July 1983. Photo J.-L. Rochaix.

came in very useful in winter for the skiing trains. As for bogies, they played a significant part in the "modernization" carried out in the 1950s. All the four-wheeler carriages were converted at the time using bogies from the CFV Jura and Haute-Saône systems. The first attempt was made in 1950 with C 24. To ensure the bogies could swivel sufficiently, the fish-belly chassis was cut back significantly. This was an easy job, but unfortunately, when the carriage was shunted a little too roughly, the chassis promptly bent. A different method was then used for the conversion process. By cutting out some parts and welding on others, the central section of the chassis was widened. This didn't enhance the appearance of the carriages, but it did improve their comfort somewhat.

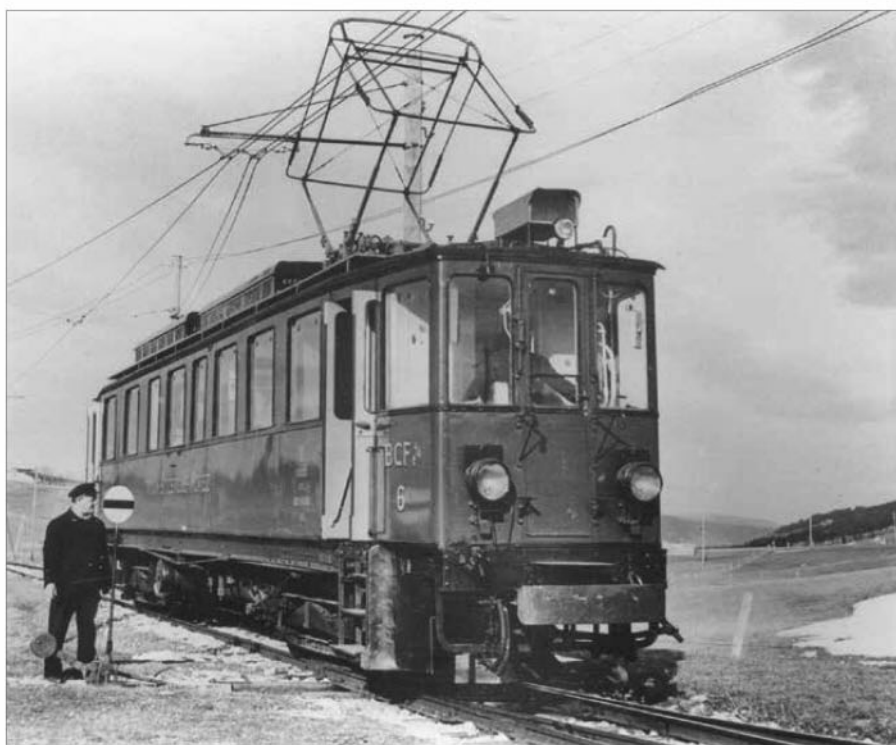




A Nyon-bound train running down from Les Plantaz, with the pantograph down. The motor-unit, ABFe4/4 3, is the former French BCFe4/4 1, renumbered. 2 May 1964. Photo M. Grandguillaume.

→ always accepted by shopkeepers, the individual rations were very skimpy. Railway operations were somewhat relaxed! Once they had arrived in Nyon, the trains moved down to the goods exchange sidings, located a few hundred meters from the passenger platform, for shunting the motor-unit round its carriages. The train then returned towards the station square, stopping short of it, with just the front of the motor-unit visible in avenue Viollier. The crew then crossed the street to the "Café du Chemin de fer" for a "quick one" before the next departure.

Discipline was significantly more lax than it is today, and I recall a trip down the line from St-Cergue, when my father and I were allowed into the driver's cab. During the journey, said driver, very much the worse for drink, had handed over the controls to my father! In summer, trains ran downhill using only the brakes, with the pantograph lowered to spare the overhead wire! The pantograph was raised only when starting up from stations on the level. The trains stopped at the border, depending on the events of the day, the whims of the German occupying forces or the sabotages carried out by the Resistance. It was also in those days that smuggled goods and fugitives crossed the border via the Franco-Swiss hotel-restaurant located exactly astride the border at La Cure, where some doors opened onto Switzerland and others onto France.



With French staff in charge, BCFe4/4 is seen shunting at La Cure-France, in 1950. Photo J.-M. Hartmann.

### Alive and kicking!

After the war, I continued to follow the life of this pleasing railway. I was sorry to see the section from La Cure to Morez close in 1958, and was afraid the Swiss section would suffer the same fate. In 1982, I was relieved when it was announced that the railway would be kept running and when its first proper modernization was undertaken: renewal of the track, replacement of the original single contact wire by a proper

catenary, conversion from 2,200 Volts DC to 1,500 Volts DC, delivery of five Be4/4 201 to 205 motor-units and of five Bt 301 to 305 pilot carriages.

All this stock was delivered between 1985 and 1986 by BBC and Ateliers de Construction Mécaniques de Vevey. A sixth motor-unit, BDe4/4 211, was delivered in 1991.

In 2004, the train was removed from Nyon station square, with the terminus transferred below the CFF tracks.





With motor-unit BCF 5/4 5 in charge, a mixed train is awaiting departure on the station square at Nyon, note the short four-wheeler carriages. The motor-unit is already on the gradient leading down under the CFF tracks. The carriages are still of the four-wheeler type. September 1948. Photo J. Chapuis.



Flat wagon M 6, a survivor, seen at Les Plantaz, 17 May 1985. Photo T. Keller.



A train crossing avenue Viollier at Nyon in 1959, outside "La Rotonde", or "Café du Chemin de fer". Photo J.-L. Rochaix.



Two trains pass in Saint-Cergue station, shortly after the 1956 class change. Photo J.-L. Rochaix.



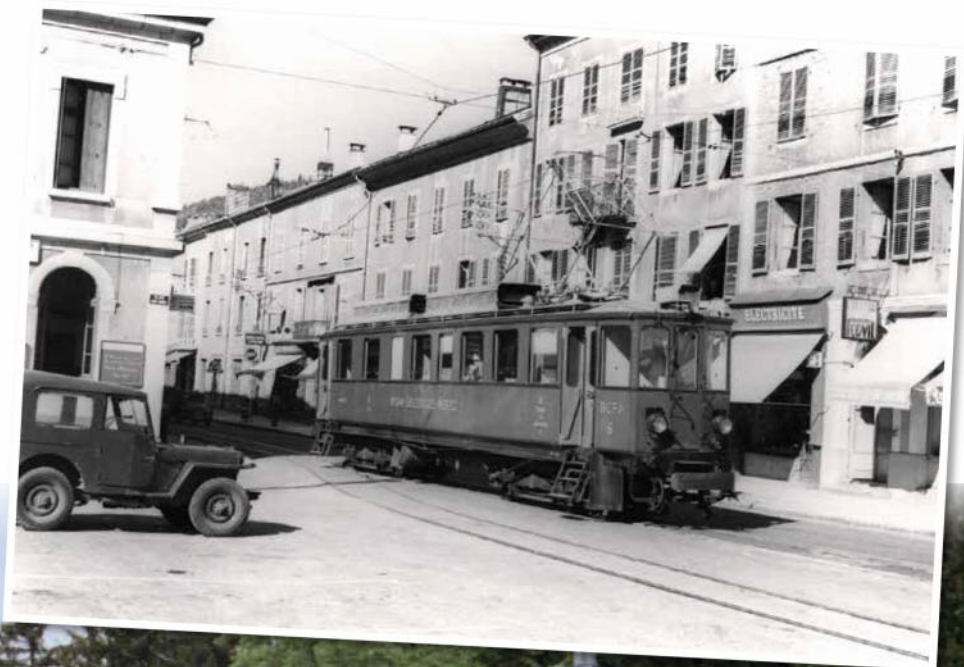
→ The original stock has left the railway but some items were preserved and ran on tourist railways: Blonay-Chamby, La Mure, Haut-Vivaraïs... An association of enthusiasts has salvaged BCF<sub>e</sub>4/4 10 from La Mure, and plans to restore it and have it back in service for the railway's 100th anniversary in 2016.

The current stock is beginning to show its age. The company has ordered new units from Stadler, which should start entering service from 2016.

The "red train" of my childhood survived for a long time. Over the years, several generations knew it largely unchanged. It was only after 70 years and a thorough modernization that it finally came to lose its original colour. ■

**Motor-unit BCF<sub>e</sub>4/4 5 seen in the street at Morez, on place de la République. 1st October 1956. Photo J. Bazin.**

The drawings of the stock mentioned in this article appear in the central folder. They are from the book *Voies étroites du Jura vaudois*, ISBN 2-88 125-006-7, Edition La Raillière, J.-L. et A. Rochaix, Travers-Bancs 14, CH-1092 Belmont, Switzerland.



**Between La Cure and La Givrine, 9 June 1991. Photo J.-L. Rochaix.**





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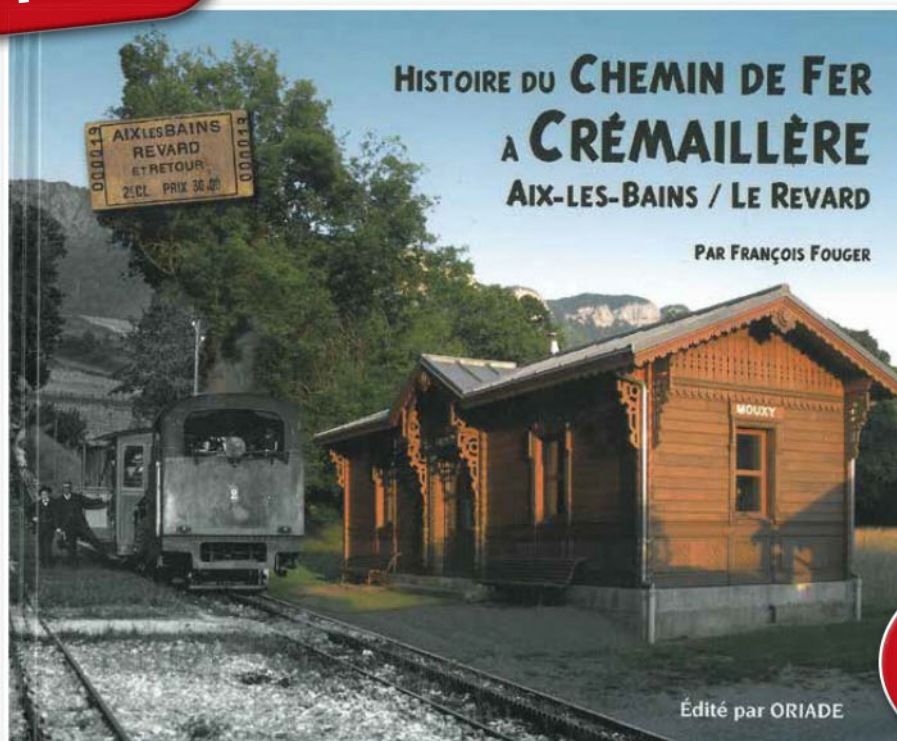
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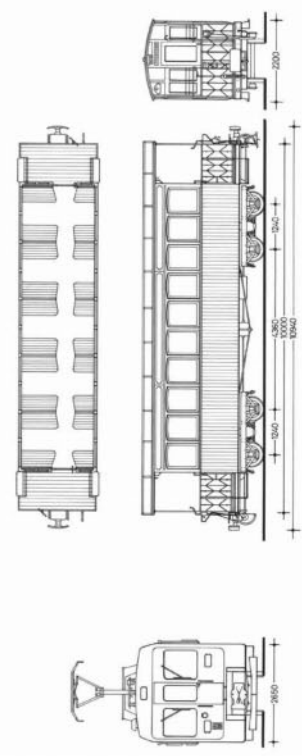
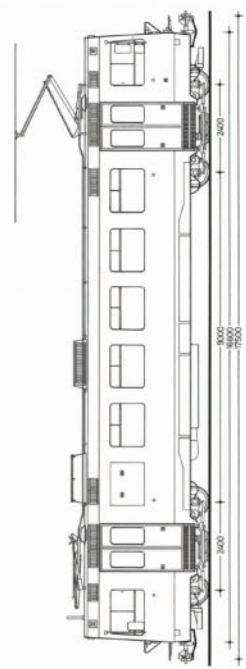
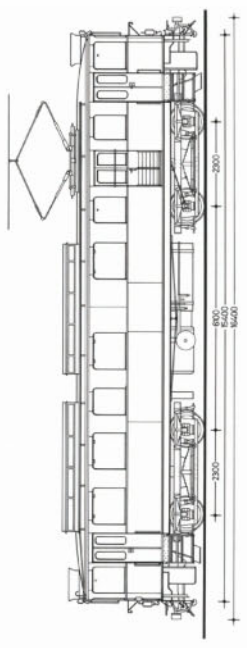
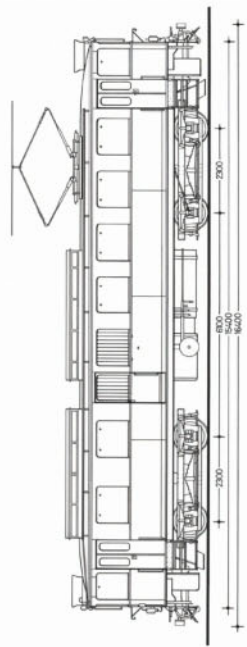
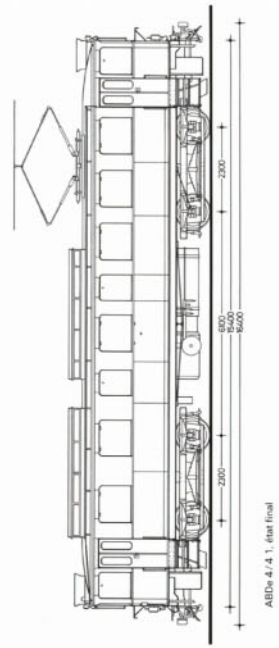
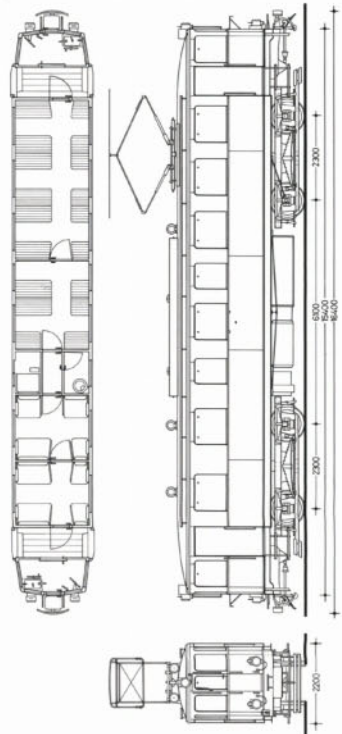
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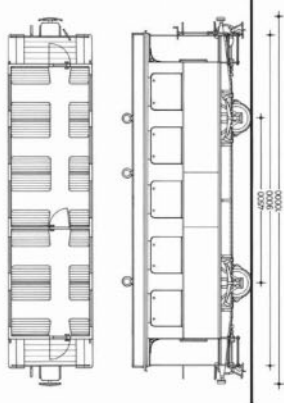
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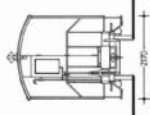


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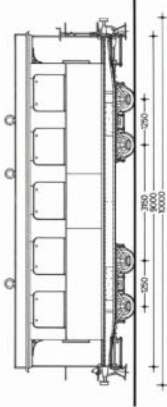
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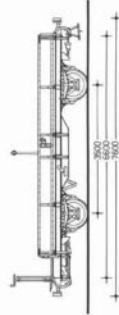
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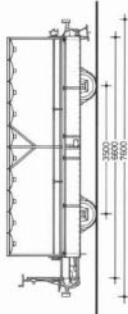
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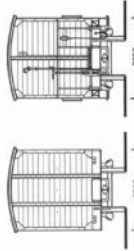
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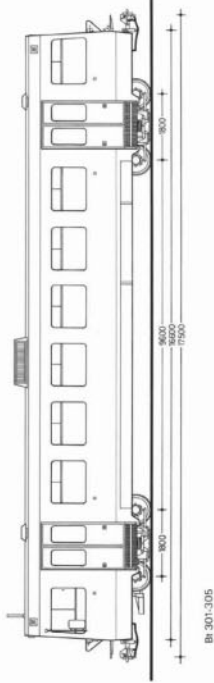
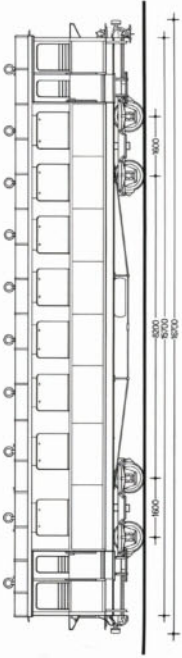
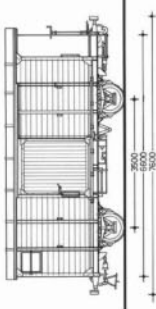
M 1-B



M 4, en version hiver



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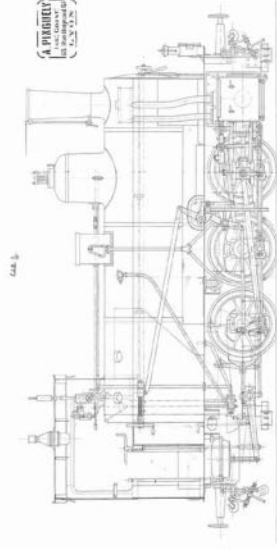
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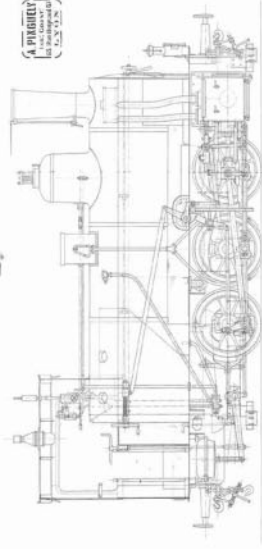
Elie Mandrillon collection, scale 1/43,5

LOCOMOTIVE-TENDU N° 245

à six roues complètes



Etat 1



Etat 2

