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Voie Libre

#103

THE MAGAZINE OF RAILWAY CREATORS

HISTORY

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DISCOVERY

SWITZERLAND: 8KM OF INSPIRATION!

DOSSIER

60CM TRACK ON 16.5MM GAUGE

LARGE SCALES ARE FUN!

#103 – OCTOBER–NOVEMBER–DECEMBER 2020
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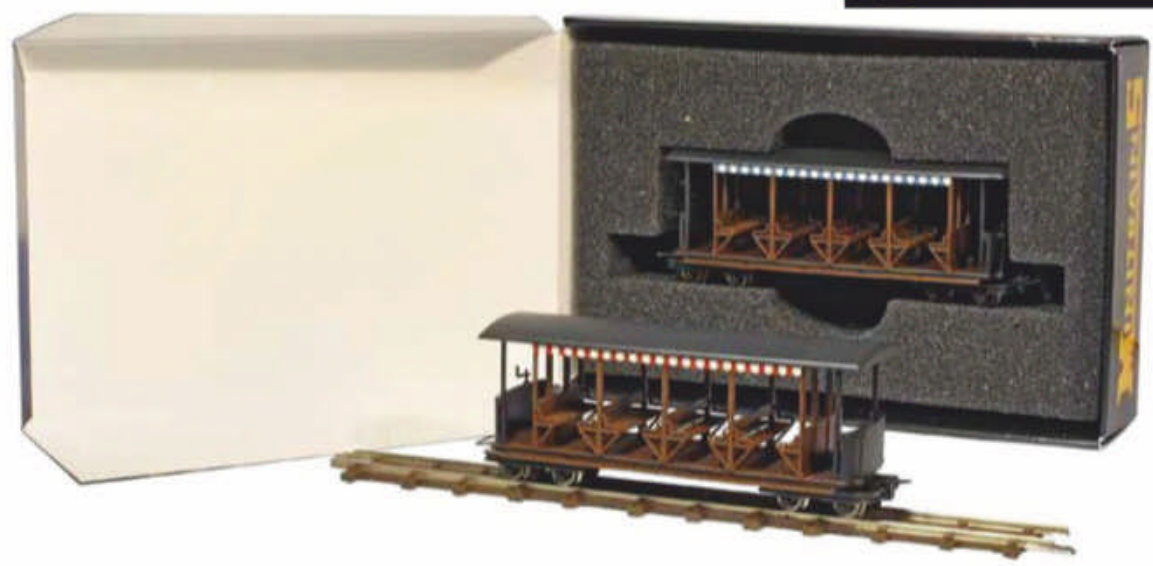
Des baladeuses

MINITRAINS

Indispensables sur les touristiques, balnéaires et secondaires, les baladeuses sont montées sur les châssis de wagonnets standards de la marque. Leur longueur (80mm) bien plus faible que ne le voudrait la stricte reproduction des véhicules réels, leur permet de passer dans toutes les courbes, sur tous les réseaux, derrière n'importe quel petit locotracteur ou machine à vapeur.



HOe

Baladeuse type Decauville bleue

Réf. MT5197

34,90€

Baladeuse type Decauville rouge

Réf. MT5198

34,90€

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Une machine historique pour votre réseau

**Construites à partir de 1916 à 495 exemplaires pour l'armée britannique,
Les Baldwin 10-12D sont de remarquables locomotives à voie de 60 centimètres.
Le modèle en 009/H0e circule sur la voie PECO de 9 mm d'écartement.**

HOe

BACHMANN
QUALITY SINCE 1833

Locomotive Baldwin class 10-12-D

La référence BA391029 représente la locomotive 45211 de 1917 rachetée par le Glyn Valley Tramway, dans le nord-est du Pays de Galles sur lequel elle a circulé de 1921 à 1936.

Réf. BA391029

189,50 €

Baldwin class 10-12-D Tank N°4 snailbeach district noir

La référence BA391030 représente l'une des deux machines d'origine militaire employées sur le chemin de fer minier du Snailbeach District Railway.
Elle est livrée peinte et patinée dans son aspect d'usage industriel.

Réf. BA391030

189,50 €

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LE MAGAZINE DES CRÉATEURS FERROVIAIRES

October, November, Decmber 2020

Editorial #103

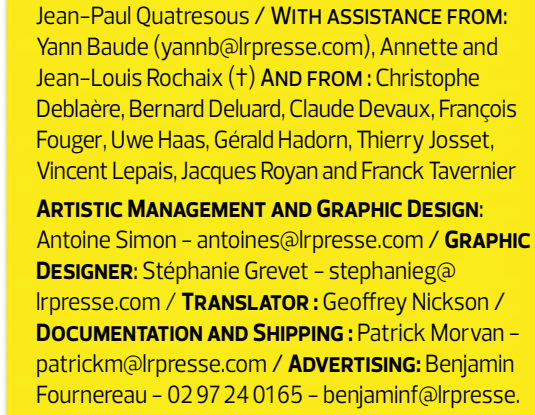
THE LINK THAT UNITES US

With an upsetting end to the summer, the cancellation of a great many events, significantly reduced exchanges, modellers might with good reason feel lonely at the workbench or when operating a layout. Fortunately, the world of communications in which we are now immersed helps us build or maintain links. And the purpose of your magazine is to create such links, enhance them, keep them alive. This autumn issue focusses on modelling practice, on swapping techniques and ideas. Because we are increasingly convinced that railway modelling, with all its strong points, is a great way to remain in touch and experience true solidarity!

François Fontana

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

In pictures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Central folder

CAMPAGNE TRACTOR

BALDWIN 0-6-0 SADDLE TANK

DECAUVILLE TRUCK

FERRO-TRAIN : A STLB DIESEL

Six of theses engines, VL 11 to 16, were built between 1965 and 1967 for the Steiermärkische Landesbahnen StLB, an Austrian private railway, by ÖMAG and Brown-Boveri to replace the last surviving steam locomotives. They weigh 31 metric tons, have a length of 9.80m and can run at 50 kp/h. Originally fitted with a 265kW MAN diesel motor, some (such as VL 12, 13 and 16) were re-motorized with a 390kW MTU unit in the 2000s. These engines are of the diesel-electric type, and as buit they featured a boiler for steam-heating the passenger trains. They are fitted with automatic air brakes for both the engine and the trains. Originally, they sported a bright orange livery, then an StLB monogram was added to the cab sides and to the ends. Since, some units have been repainted in red with white and green strips on the cabs. Units VL 11, 12, 13 and 16 were assigned to the Murtalbahn line (Tamsweg-Unzmarkt), and units VL 14 and 15 to the Feistritztalbahn (Weiz-Birkfeld). VL 11 was assigned in 1971 to the Thörlerbahn (Kapfenberg-Au-Seewiesen) before being transferred back to Murau on the Murtalbahn. Unit VL 13, ref. 204-313-C, is sold in Period III orange livery, without the StLB monogram, a bleached and light-shaded livery that makes the engine plausible for Period IV before the StLB monogram was applied. Unit VL 16, Ref. 204-416, is sold in "blutorange" Period IV livery with monogram.

These engines are powered by a 5-pole Mabushi motor and feature a DCC socket, all four axles are driven and the plastic body is a very fine reproduction. The models run perfectly, mine were factory-fitted with a Zimo ZRS0204-SOUND decoder, the sound of the horns and motor are prototypical. The engines have ample hauling power, they run very smoothly and the slow running is exceptional. Maximum speed is realistic. The model is fitted with directional lighting, 3 white front headlights and one red light at the rear (F2 on the DCC model). On the F1 shunting function, all the white lights are on. Horns, railings and vacuum brake hoses have to be fitted by the buyer. The original etched railings need to be replaced by 0.3mm nickel silver wire, as they are not designed to withstand frequent handling. The instructions recommend trimming the brake hoses supplied to make them more prototypical, but considering how fragile they are, I opted to replace them by electric wire.

Jacques Royan

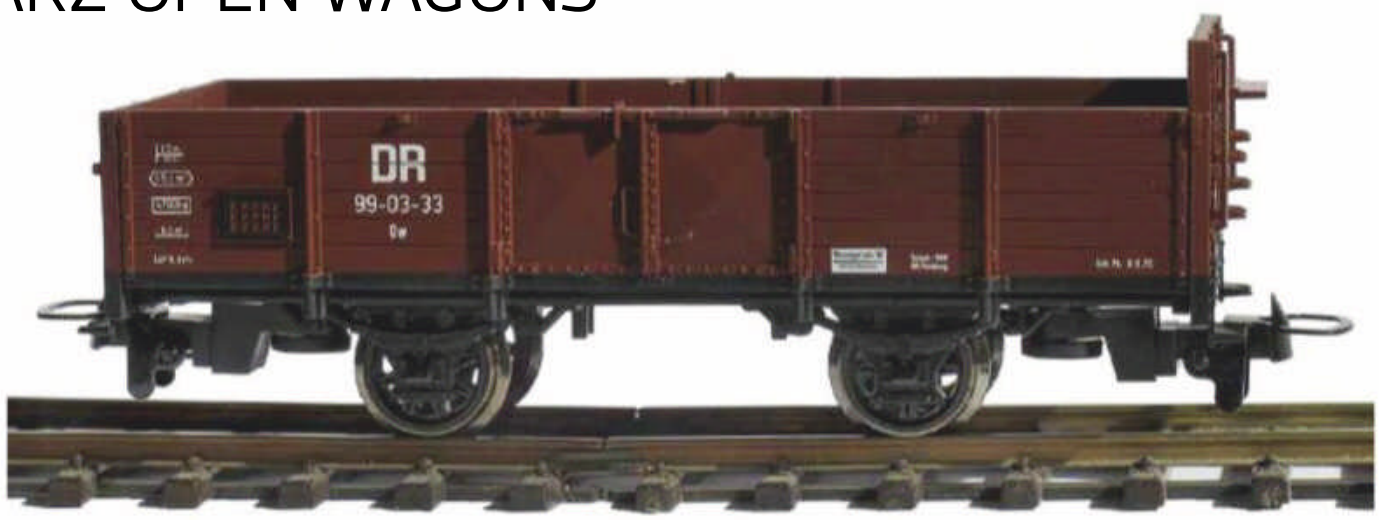
FERRO-TRAIN LÉOPOLD HALLING
LEOPOLDIGASSE 15-17
1230 WIEN (AUSTRIA)
office@halling.at
PRICE: 308€
ZIMO DECODER WITH LOUDSPEAKER + 84€. FACTORY-FITTED + 95€

HO-12

TILLIG : A NEW LIVERY FOR THE HARZ OPEN WAGONS

Here is wagon Ow 99-03-33. Nothing to add when compared to the previous versions: a fine-looking and well detailed wagon, with sharp 1970s markings. This open wagon comes with a pouch of aluminium ingots to represent a load.

Jacques Royan



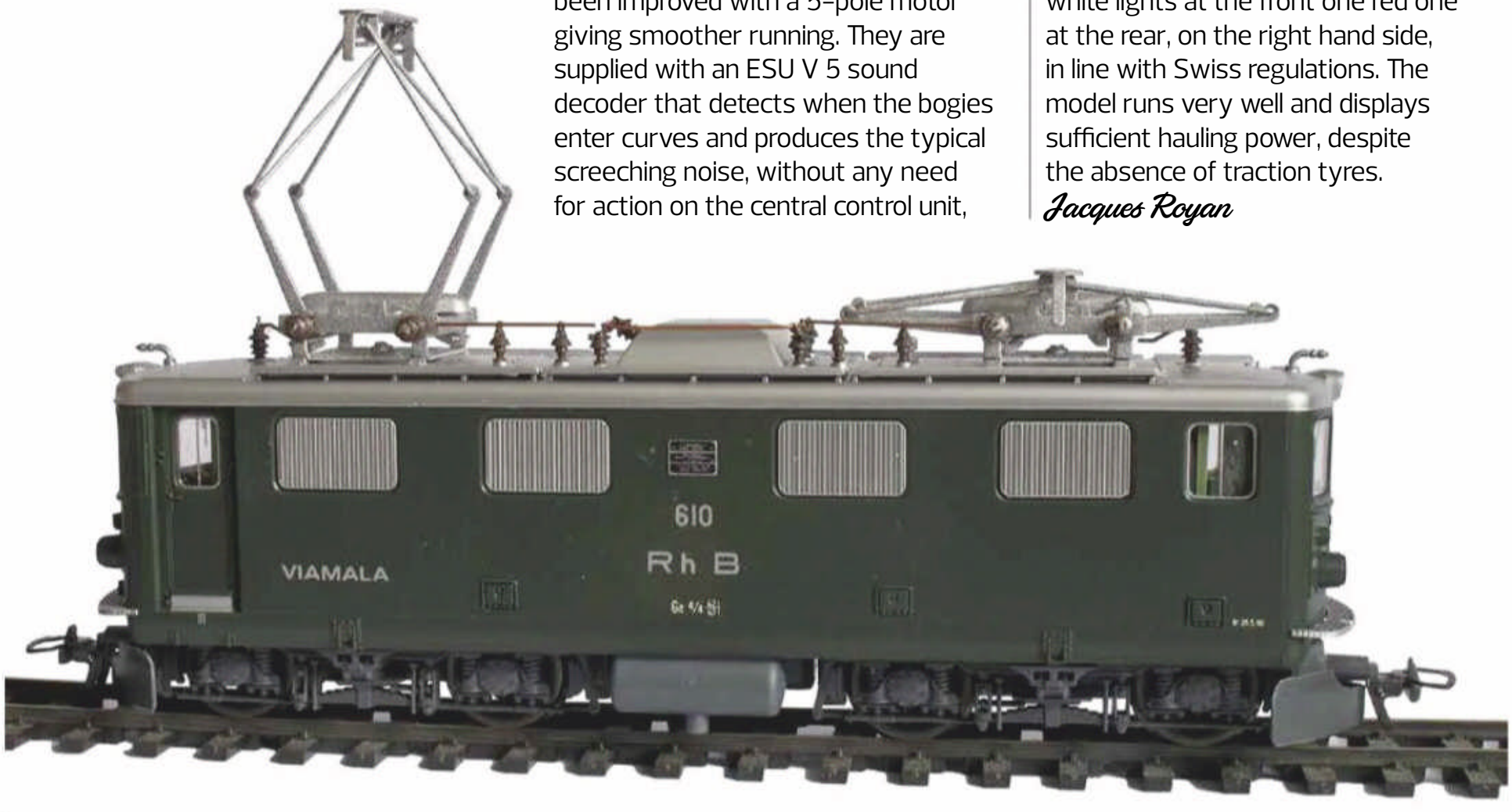
TILLIG /REF.15937 FOR H0-12 / PRICE: FROM 35 TO 40€

HO-12

BEMO : GE 4/4 610 "VIAMAIA" ELECTRIC FROM THE RHÄTISCHE BAHN

The very first Bemo Swiss engine is being re-released in Period IV livery. These models are familiar, and have been improved with a 5-pole motor giving smoother running. They are supplied with an ESU V 5 sound decoder that detects when the bogies enter curves and produces the typical screeching noise, without any need for action on the central control unit, the effect is striking! The other sounds are realistic, in particular the whistle. Lighting is provided by LEDs, with 3 white lights at the front one red one at the rear, on the right hand side, in line with Swiss regulations. The model runs very well and displays sufficient hauling power, despite the absence of traction tyres.

Jacques Royan



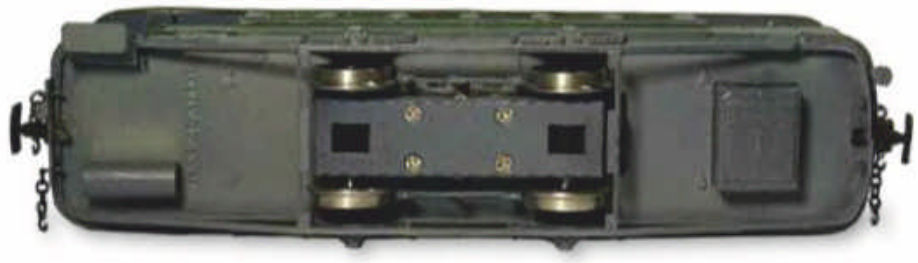
BEMO
REF. 1350 140
PRICE OBSERVED FOR THE DCC SOUND VERSION: 400 €

HO-12

TRAINS D'ANTAN : A PURREY RAILCAR

Cyril Ducrocq has had a truly a smashing idea: a delightful steam railcar. The kit consists of vacuum-cast resin parts, of bronze castings and mainly of etched metal. To solve the tricky problem of curving the body panels, Cyril supplies 3D printed templates. The driving mechanism is new, and calls on a belt drive. The kit also contains printed destination boards. For modellers keen on rare and weird birds, this railcar is a must, especially as a Turgan railcar has also been announced. Oh bliss!

François Fontana



TRAIN D'ANTAN
https://newboutique.modele-reduit-train.com
PRICE: 189€

HO-9

ROCO : ÖBB DIESEL 2095 014-3

ROCO / REF. 33297 / PRICE: 270€

Roco is selling a version of its well-known 2095 diesel in Period IV/early Period V livery from the Waldviertelbahn railway, Gmünd depot in Austria. Running qualities in both analogue and digital (Zimo) are as good as ever and you will have to fit a few super-detailing parts such as the different types of snow ploughs and the etched builder's plates.

Jacques Royan

MINITRAINS : RIESA, AN 0-4-0 T

HO-9

Minitrains has released the small Riesa engine, an industrial Henschel 0-4-0 T. This is the engine that was used to build Greif, the locomotive that runs in the Karlsruhe leisure park. As usual, the body fits around the manufacturer's standard chassis and driving mechanism. The piston slide bar differs from other models. On Riesa, it is single and located in an upper position. The water tanks sport small builder's plates, the rivet lines are ultra-sharp and the cab handrails are add-on parts. Performance is excellent, like all other engines from this brand. The model is available three different versions: black with red chassis, green or grey with black chassis.

François Fontana

MINITRAINS / www.minitrains.eu / REF. 2061 – 2062 ET 2063 / PRICE: 139,90€

HO-9

MINITRAINS : A MODERN TOAST-RACK CARRIAGE

Designed for the Schlossgartenbahn in Karlsruhe, to be hauled by Greif, here are modern toast-rack carriages whose curvaceous shape is reminiscent of the Airstream style. Available in two colours, green or red with black roof, they are fitted to a short chassis, featuring metal axles and a coupling shank. All they need are a few figures to go into service.

François Fontana

MINITRAINS
www.minitrains.eu
REF. 5195 AND 5196
PRICE: 23.90€

SCENERY

RÉGIONS ET COMPAGNIES : A CFD STATION

The station buildings on the CFD secondary networks were very largely standardized. Small, with a semi-detached goods shed and a little garden featuring a well, these structures, sometimes prettily decorated with flowers, contributed to the charm of narrow gauge railways. Régions & Compagnies helps you bring this charm back to life on your layouts with a CFD station building, featuring the goods shed on the left-hand side and the garden on the right-hand side. Except for the figures, the railcars and the track, everything shown in the photo is included in the laser-cut printed kit: base, complete platform, fencing, telegraph poles, well, garden tools, creeper... The inside furnishings are lit. Two CFD level crossing gates are included as a bonus.

Jean-Paul Guimbert

HO-9

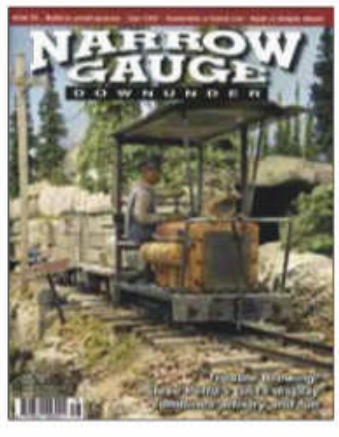
TRAMFABRIEK : A SNOWPLOUGH FOR THE LILIPUT ÖBB BOBO

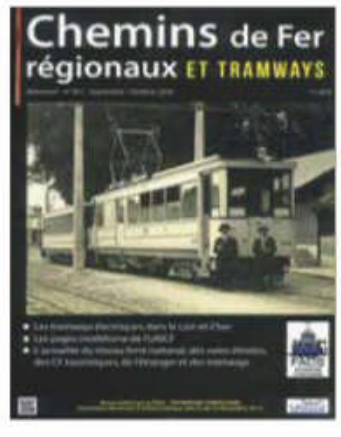
Simple and efficient! A very finely 3D printed plough and an etched brass coupling fit onto the original coupling shank. The job is straightforward: unscrew the keeper plate under the chassis, taking care with the pick-up wiper, and remove the original coupling. After having painted it, position the snow plough, put back the keeper plate, again taking care with the wiper. The appearance of your diesel has changed! Thanks Tramfabriek.

François Fontana

TRAMFABRIEK
www.tramfabriek.nl
REF. TFSNOW
PRICE: 14.50€

PRESS REVIEW





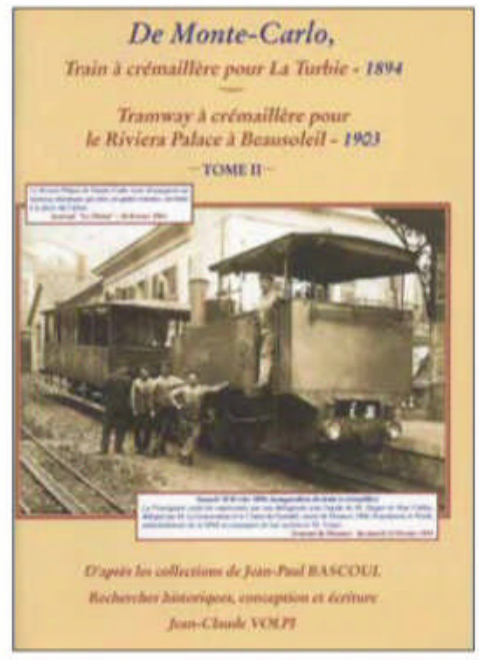
RÉGIONS & COMPAGNIES
REF. MET 008 BV CFD WITH SEMI-DETACHED GOODS SHED ON THE RIGHT-HAND SIDE
PRICE: 14 €

There has been plenty to celebrate lately in the Somme! Many happy returns to the APPEVA association, 50 years old and as strong as ever just as issue 300 of the **Voie Étroite** magazine was published. An excellent opportunity for a fine article on the very early years of the "P'Tit Train de la Haute Somme", where we learn that a Billard tractor can be hauled by a twin-engined (!) Citroën 2CV car to get it started... **Rail & Industrie** has already published 80 issues. It studies in detail the genesis and career of the impressive metre-gauge 4-8-2 + 2-8-4 Beyer-Garrats built by the Franco-Belge company for French West Africa. Here is real challenge for scratch-builders! Again for those keen on unusual machines, **Narrow Gauge Downunder** describes in its two latest issues a model of the forestry railways in the Australian state of Victoria. Using on-board power and a controller developed by Deltang (www.deltang.co.uk) the tractors run, prototypically, on wooden rails! A type of control that opens up a wide range of prospects in many scales. **Chemins de Fer régionaux et Tramways**, the magazine of FACS, the French federation of tourist railways, contains a fine 38-page study of the electric tramway networks in Loir-et-Cher. Enough to prompt us to install overhead wires on our layouts. Enjoy your reading.

The Editorial Team

Book

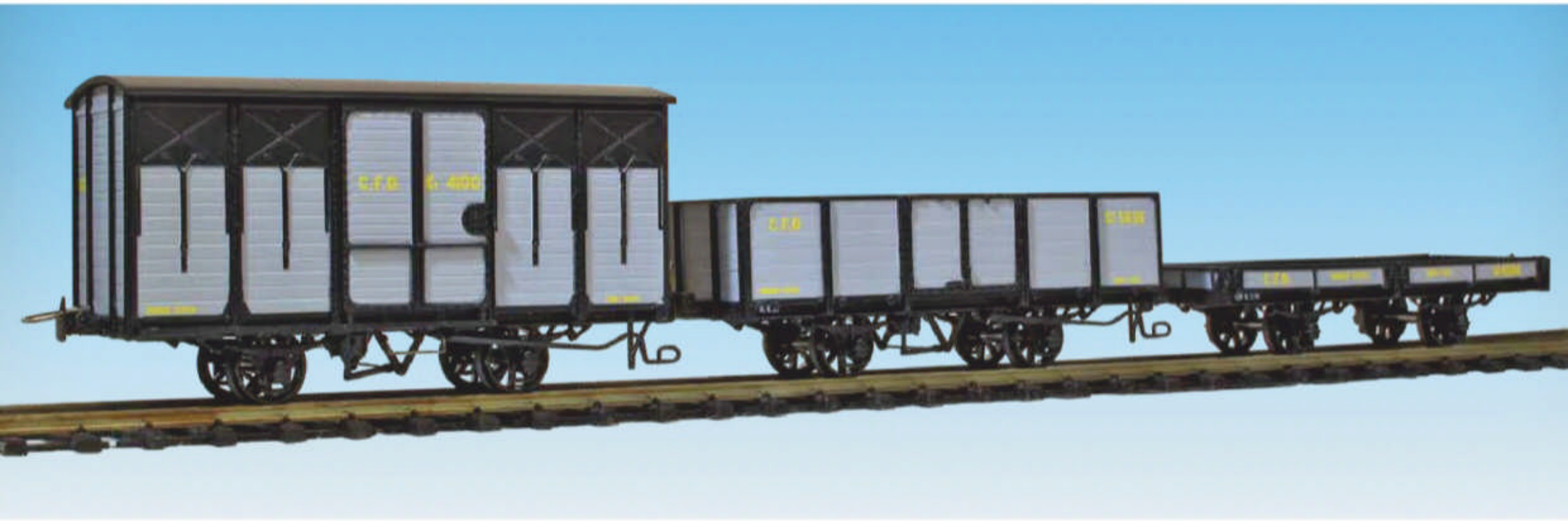
FROM MONTE-CARLO TO LA TURBIE, ON THE RACK RAILWAY



This is a kind of bookazine, 64 A4 pages in colour, stapled together, and containing a great many documents and photographs, as well as a few plans from Jean-Paul Bascoul's collection. The densely documented text by Jean-Claude Volpi tells the story of this rack-and-pinion railway that carried passengers from Monte-Carlo to La Turbie, serving the Riviera Palace and Righi d'Hiver hotels. Clearly, this railway was not created to shuttle workmen to and from the factory! The end of the story was tragic, as plans to replace the steam train by a road service or by a funicular never took shape. The end of the book takes a look at the Riviera-Palace electric rack railway whose route partly followed that of steam railway with inlaid track.
Jean-Claude Volpi takes advantage of this railway study to review some aspects of urban development, water and electrical supply in this area of the French Riviera.
A must-read.

François Fontana

***DE MONTE-CARLO, TRAIN À CRÉMAILLÈRE POUR LA TURBIE* ["FROM MONTE-CARLO TO LA TURBIE ON THE RACK RAILWAY"]**
AVAILABLE, FROM THE AUTHOR: JEAN-CLAUDE VOLPI
9 AVENUE DE LA LODOLA
06190 ROQUEBRUNE CAP-MARTIN, FRANCE
PRICE: 20€ PLUS 6€ POSTAGE



The REE Les secondaires trilogy: box van, open wagon, flat wagon. In grey livery with black metalwork, how classy!

THE CFD WAGONS

REE

They run smoothly and look great, my wagons! Take three! Hardly had they appeared on the market, hardly had they hit the stalls, that the REE CFD wagons were sold out. Patience, a second run is on the way. Let's take a look at the first one.

Texte et illustrations : **François Fontana**

THE MODEL AT A GLANCE

Scale: 1/87
Gauge: 12 and 9mm
Manufacturer: REE Les secondaires
Price: 59.90€

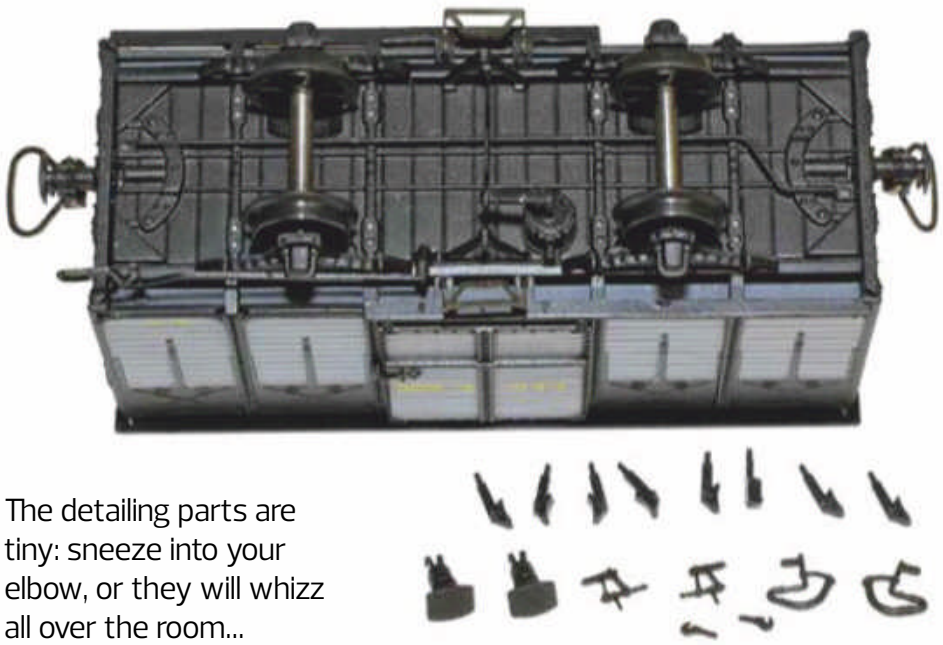
This new range is called "REE Les secondaires" ["REE secondary railways"]. Sold by two in a thermoformed blister pack and a simple grey cardboard box with green lining, the wagons are supplied with a pouch of detailing parts and a small sheet of instructions.

DETAILS

The wagons are supplied with tiny parts that modellers must fit into the chassis and buffer beam housings. This will make the wagons even more realistic.
Use tweezers, the parts are so small that fitting them is a tricky job. If you are afraid of losing them, add a micro-drop of wood glue to the tabs. This will form a joint that will hold these parts, made of POM (polyoxymethylene, a plastic that is virtually ungluable) in the wagon bodies, made of injected plastic or in the chassis, cast in Mazak. Before fitting the brake shoes, select your gauge, the models are supplied with 12mm gauge axles fitted, but 9mm gauge axles are available in the pouch!

OUT ON THE LINE

As we observed on the preproduction models, the running qualities are almost too perfect, look out for runaways on the slightest gradient. But on the track, the elegant outline of the wagons is very pleasing. I chose the grey livery with black metalwork and yellow markings... What can be said? Simply that these models are perfect. A few very demanding enthusiasts observed that a girder was missing below the vents, this



The detailing parts are tiny: sneeze into your elbow, or they will whizz all over the room...

The small Ferro modèles 3D printed resin replacement couplings. Enough to fit 4 wagons. Simple and efficient. The right-hand one is fitted with the REE loop.

The set of 4 etched metal Tramfabriek couplings for two wagons. Once blackened, they are glued under the chassis.

On 9mm gauge track, hauled by a Tillig locomotive, with the Ferro modèle coupling.

will be put right on the second series. The type of plastic used and the high quality paint are such that weathering powders hold very well, this will enable modellers to easily personnalize their wagons.

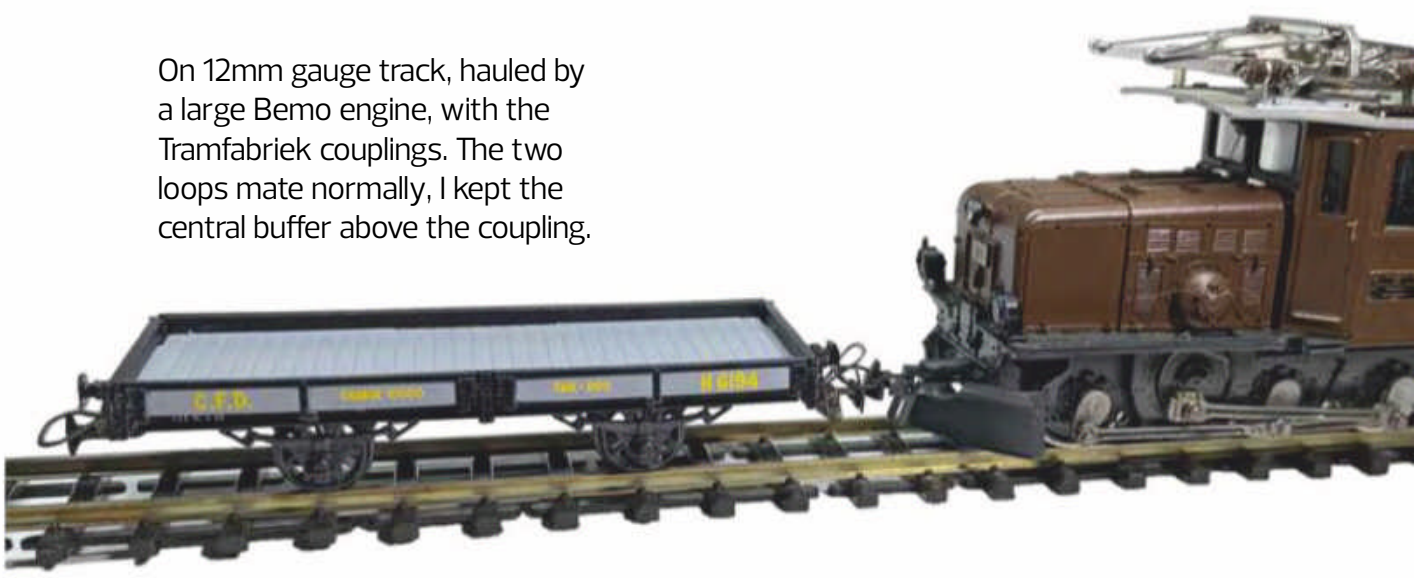
THE COUPLINGS

This is the awkward point, the loops do not lift, and it is impossible to couple two wagons. And above all, the coupling, centred on the CFD central buffer, is not compatible with H0-12 or H0-9 stock from other manufacturers. To solve this problem, we have found two solutions.

Compatible couplings are produced by the young artisan firm Ferro modèles www.ferro-modeles.fr. They must be fitted with the loop removed from the dismantled REE coupling, and fit into the housings on the buffer beams. The price is almost negligible, fitting fairly easy, but the 3D resin used is quite brittle.

The other solution consists in gluing a loop coupling under the chassis.I used the Tramfabriek www.tramfabriek.nl etched metal couplings. They are easy to fit, are chemically blackened using an acid, and are simply glued in place with two-part epoxy or a UV resin. The important factor is that the top of the coupling mus be 1mm below the buffer beam, meaning 4mm below the level of the REE coupling.

Questioned about this problem, the designer was reassuring: "The second series, available before Christmas, will be supplied with standard couplings, meaning that our small wagons will be able to run on all layouts, coupled to all existing stock". Doesn't life on secondary railways sound great?



On 12mm gauge track, hauled by a large Bemo engine, with the Tramfabriek couplings. The two loops mate normally, I kept the central buffer above the coupling.

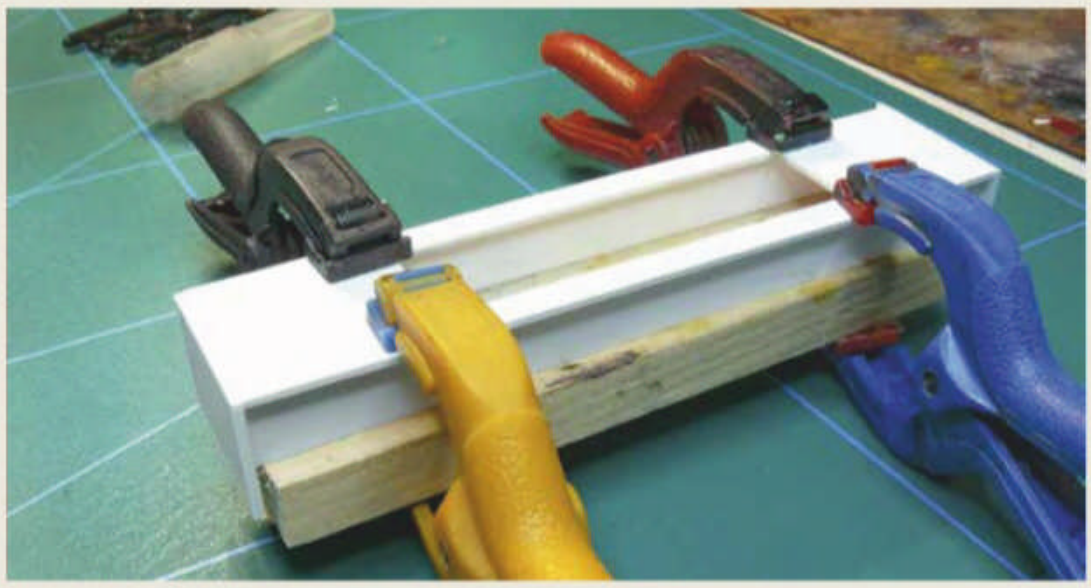
A horizontal-boilered CLASS A CLIMAX

Here is a freestyle model if ever there was one! Christophe Deblaère's very own take on the horizontal-boilered Climax, built in H09 scale out of plastic sheet, and using a Tomytec driving chassis.

Text and illustrations: **Christophe Deblaère**

I wanted my locomotive to run on one of my narrow gauge layouts, which meant compatibility with the H09 or H0n30 loading gauges. As the model did not appear unfeasible, I decided to go for scratchbuilding.

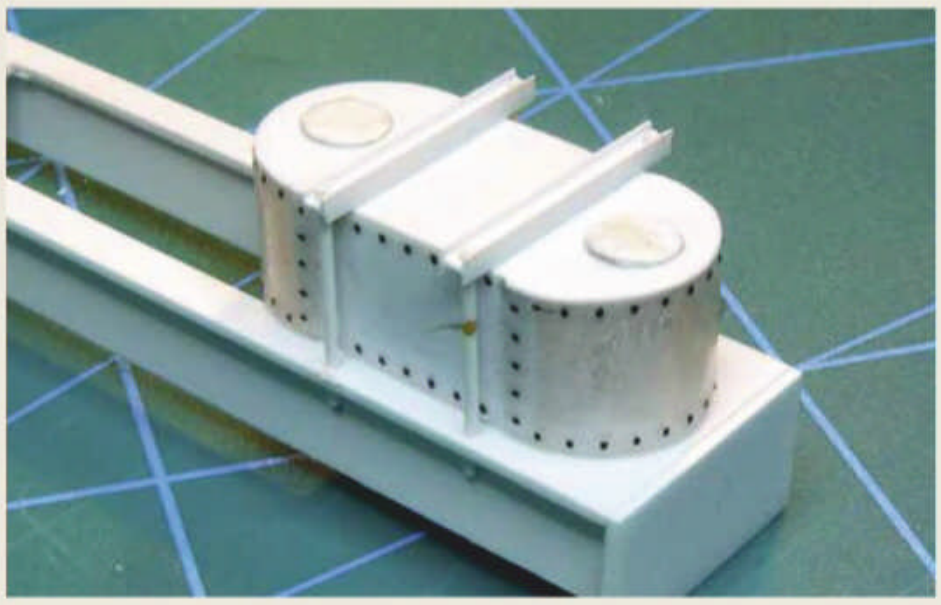
Basing it on a Tomytec chassis, using a few perspective diagrams found on the internet and by opting for a simplified transmission, I built "my very own" Climax, or "my very own ugly locomotive" as I call it. Let's take a look at a few building methods I used, as well as some of my tricks of the trade. ■



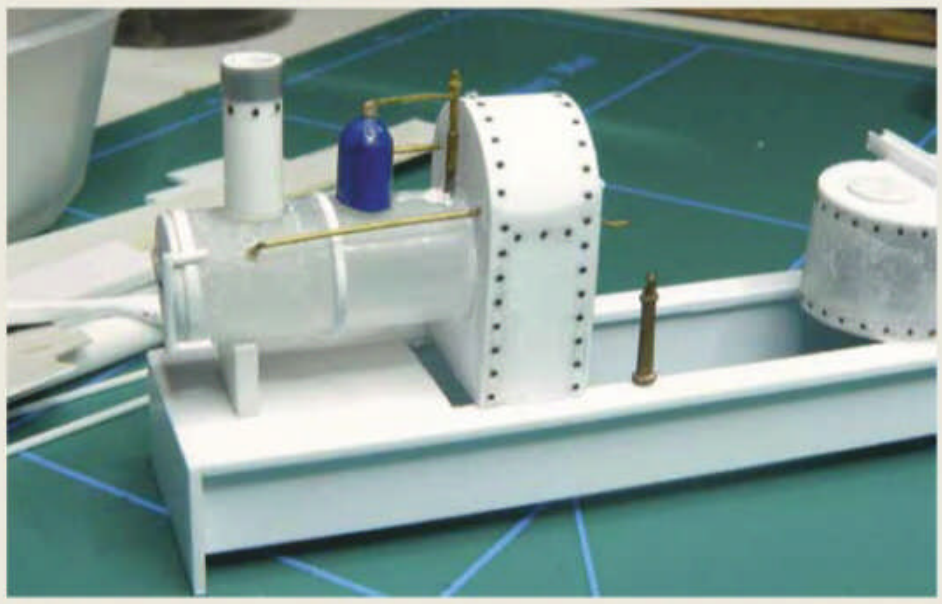
1 A large assembly, built out of 1mm thick plastic sheet, fits over the Tomytec TM10 chassis.

MAIN SUPPLIES

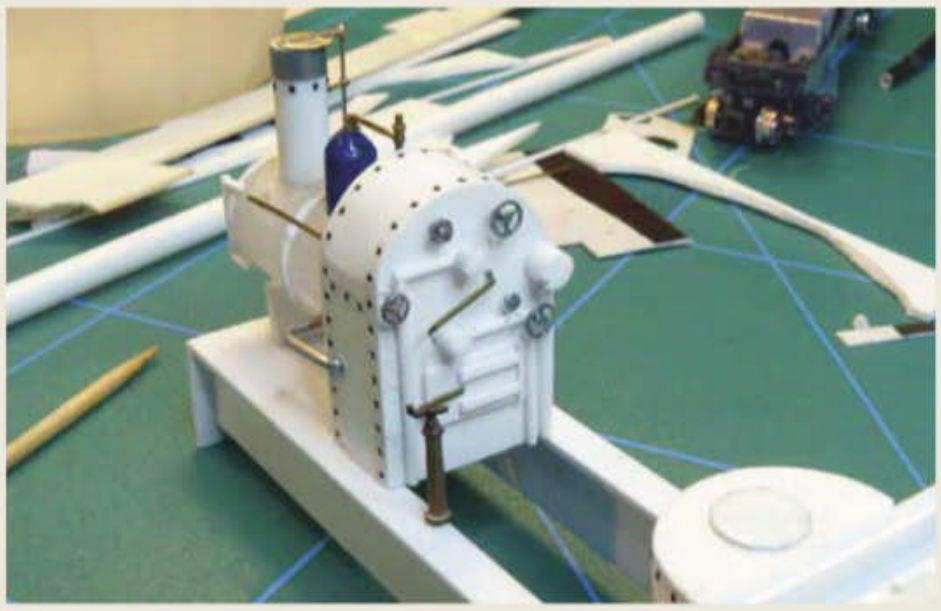
Tomytec TM-10 **chassis**
Archer **rivet decals**
L'Obsidienne **hand wheels**
PLM **valve** and **brake column** (AMF 87 or Mécanic Trains)
Evergreen sheets
0.2, 0.5 and 1mm thick
Evergreen "board & batten" sheet ref. 4544
Evergreen strips:
– flat ref. 8203
– I ref. 272
– L ref. 291
– H ref. 281
– round ref. 220
– various round strips and tubes



2 The water tank is made out of a plastic tube, cut in half lengthways. Two flanks connect the half-tubes. Decal rivet lines from the Archer range are then applied to this assembly. Lengths of H strip represent the struts fixing the tank to the running plate.

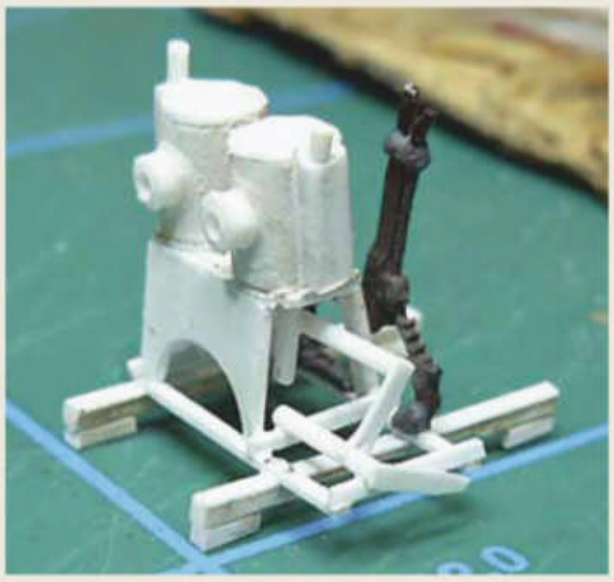


3 The boiler and firebox consist of a series of polystyrene parts: a drug tube, plastic sheet, and various strips. Brass wire and a few bronze castings are added. As was the case for the water tank, these parts are finished off with decal rivet lines. The funnel is a length of plastic strip, the steam dome the tip of a paintbrush.



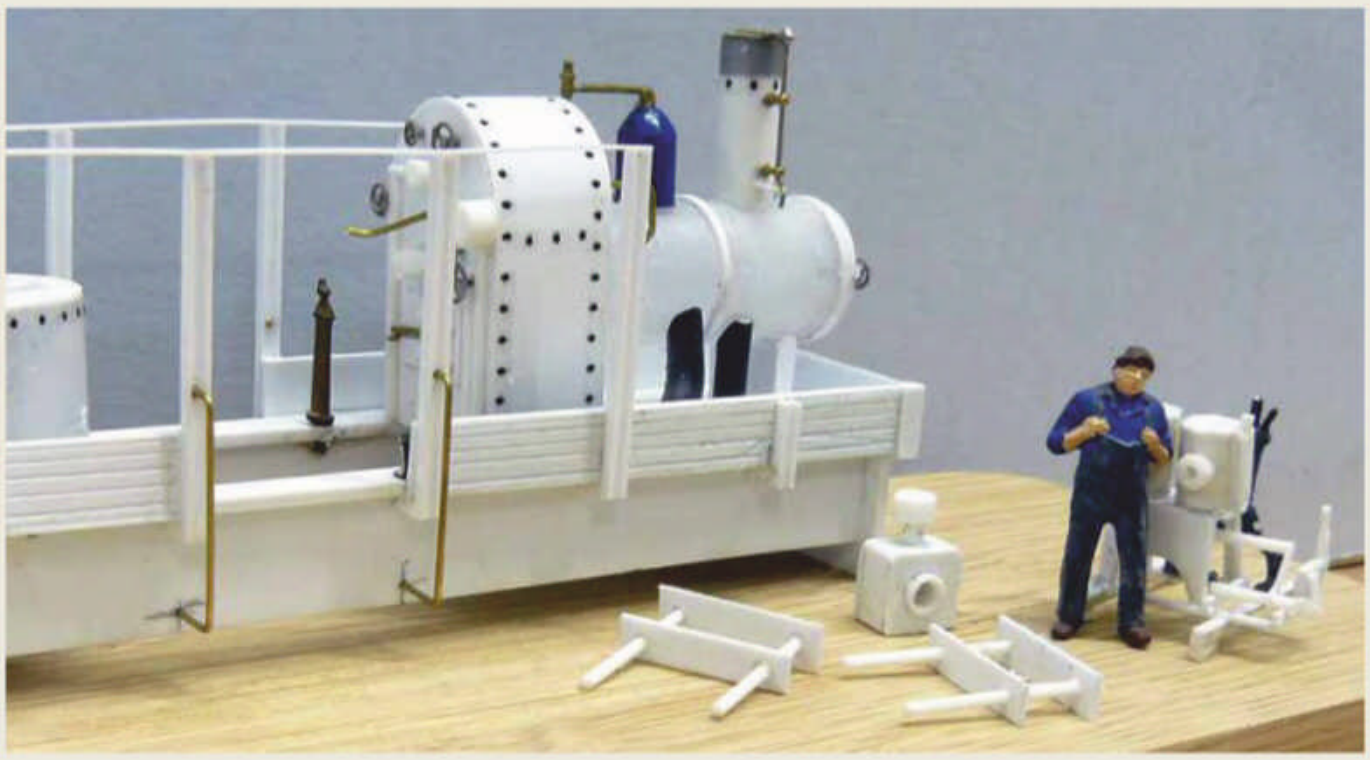
4 A few bits and bobs from the scrapbox: wheels, brake, safety valve, improve the model's overall appearance. The various pressure gauges are disks punched out of plastic sheet. The boiler backhead is detailed with a few valves, a firebox door and the regulator lever.

5 The vertical sides at the front are plastic sheet, grooved to look like wood planks and scribed to imitate the wood veins. The cab uprights call on H strip. Note the bronze water level faucets on the water tank.



6 The steam motor was built (following a request from the Editor) using tubes, round strip, brass U strip and a recycled lever. This assembly is fitted to a support to place it a tad higher, as the Tomytec motor is somewhat in the way!

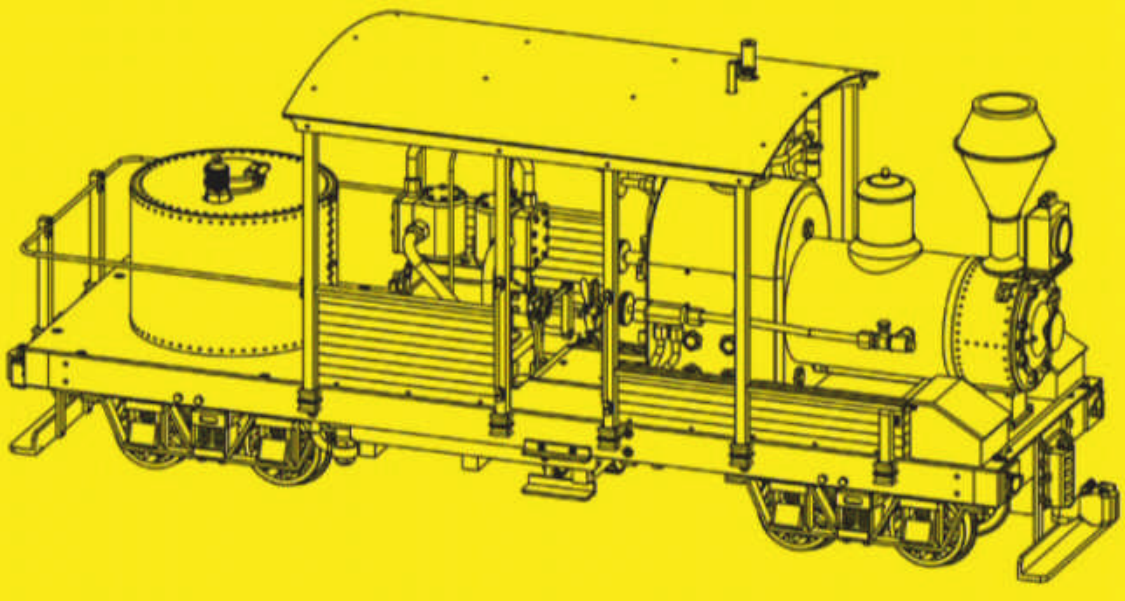
A figure gives a fair idea of the size of the cylinder block.

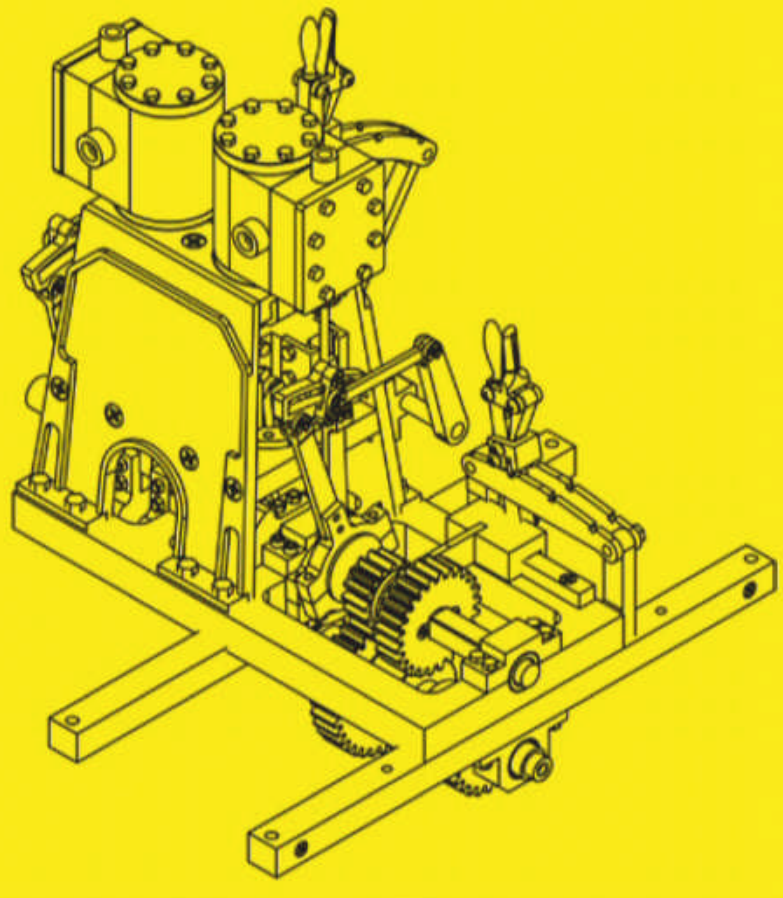


7 Install handrails, fit steps, make a large headlamp.

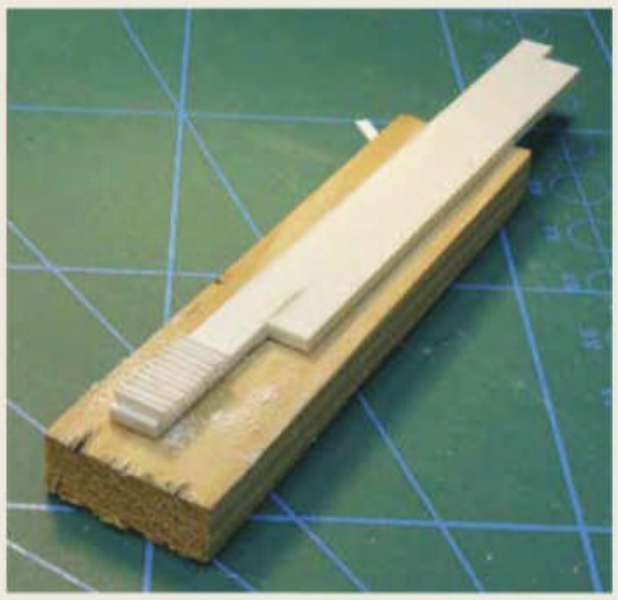
THIS MODEL WAS INSPIRED BY DRAWINGS FOUND ON

http://www.lauriegreensweb.com/Vert%20Shay/vert%20shay.html
http://model-shop.net/a-climax-class-a-live-steam-locomotive-model/
http://sloat_lumber_co.tripod.com/IDEAFILE.HTM



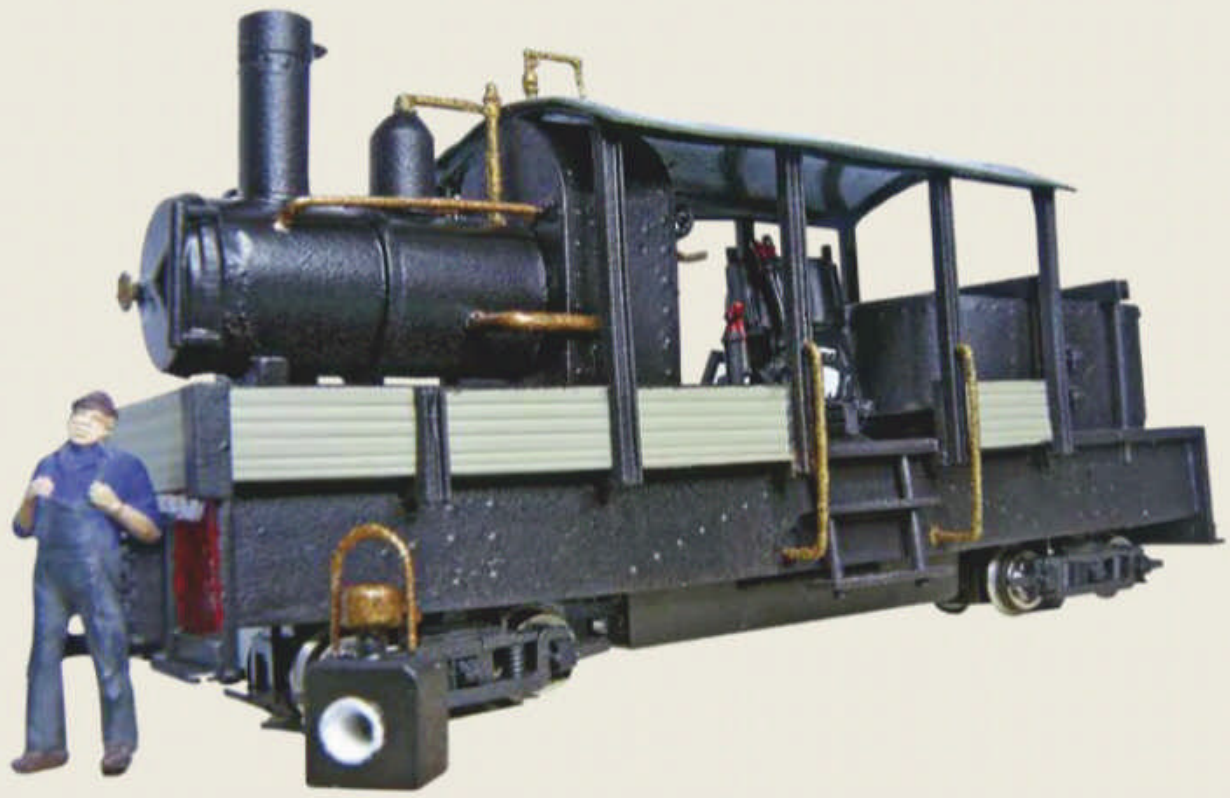


8 The coupler blocks consist of plastic strips glued perpendicular on a flat strip. Once the adhesive has set, they are filed into shape.



9 The roof is cut out of brass sheet, curved into shape and an arc is soldered on at each end. The tips of the arcs fit into the vertical H uprights.

10 The entire assembly is given a coat of primer, then painted black. The sides are given an aged wood shade, the roof is green, the bronze parts are painted ... bronze! The controls are given a few touches of red.



11 A few detailing parts are added: a shovel, a chain, an oil drum... A thorough weathering, two figures, some wood cut into small logs and... job completed! The headlamp was glued in front of the funnel. The couplers are articulated and fixed to the buffers, as per the prototype, via a cotter pin.

Military line or industrial railway?

An essential tool for war-related mass transport, 60cm gauge railways were not restricted to the front lines. Thanks to a series of pictures preserved by the Britanny Museum, *Voie Libre* describes a line built a long way from the fighting, at Rennes.

Text: **Éric Fresné**
Illustration (unless otherwise mentionned):
Britanny Museum collections

A group of "Munitionnettes": hundreds of women were recruited for sorting casings and manufacturing shells.

ACKNOWLEDGEMENTS

Many thanks to Fabienne Martin-Adam, in charge of the inventory and documentation of the collections of the Britanny Museum, for her help in illustrating this article.

Recycling was already fashionable during WWI

Long before 1914, France was actively preparing for war. Most prefectures and a number of sub-prefectures accommodated at least one active regiment. Rennes, the seat of the 10th Military Region, was naturally no exception to this rule. All the more as two artillery regiments and one of the 9 national arsenals were located in this city. Distributed over two sites – Arsenal-Ville and La Courrouze – the arsenal comprised in particular a powder store and shell loading workshops. Naturally, WWI and its duration boosted the activity of these establishments.
The Arsenal facilities were enormously extended between 1914 and 1918. The number of staff employed, essentially women, grew in proportion, so much so that line 3 of the city's electric tram network was extended as far as La Courrouze in 1917 to make life easier for the workers.

RECYCLING

With the front stabilizing during the 1914-1915 winter, artillery became the major player in fighting terms. Able to shoot 8 shells per minute, the 75 calibre guns, pride of the French Army, could consume from 120,000 to 150,000 shells per day. This meant that the same number of brass casings built up every day behind the field batteries. In wartime, such an amount of metal could not remain unused. The Artillery therefore put into place a full-fledged recycling chain for these casings.
They were collected along the front lines and shipped by trainload to the arsenals, in ▪▪▪

IN THE MIDST OF WAR

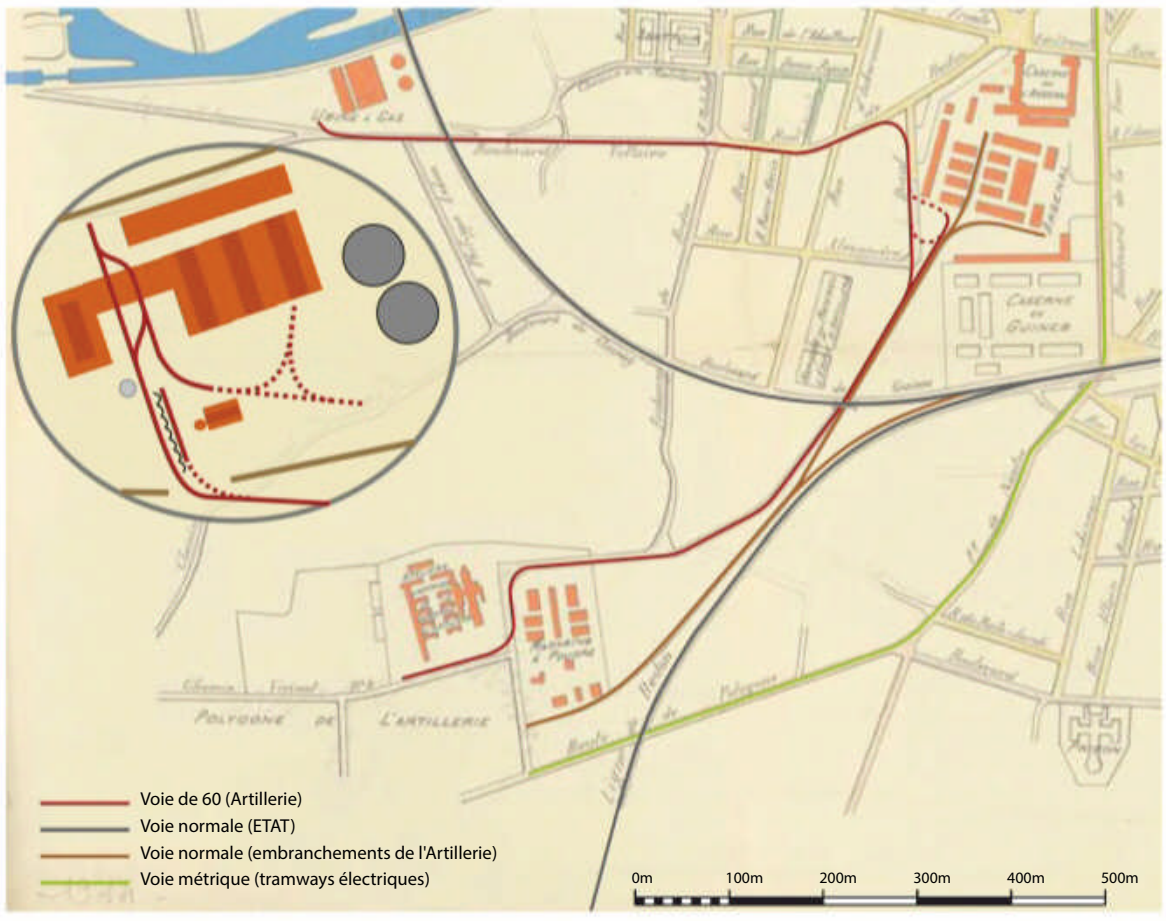
Even in the outskirts of Rennes, a line using such an engine can only be an Artillery line!

Fonds Valois/La Contemporaine

On the front, the Artillery quickly organized the recycling of shell casings. This pair of makeshift open wagons, built on Péchot chassis, contain the equivalent of one night of shooting by the 75 calibre guns in the Massiges sector (Marne).

The gas works after WWI. The 60cm gauge line skirted the wall from the East, to the right, before entering the courtyard where the water tower stands.

Map of the line



Drawing graphic design by Éric Fresné

particular that at Rennes. It was in the city gas works, commandeered as early as 1915 for this purpose, that the casings were sorted, cleaned, machined and annealed when re-usable. They were then sent back to the Arsenal. The parts that were too damaged were smelted.

A PRODUCTION DISTRIBUTED OVER SEVERAL SITES

Because of its dangerous nature, the shell production line was distributed over 3 sites, each located at least one kilometre from the next. Producing thousands of units per day meant considerable transfers of materials. Therefore, in late November 1915, the general manager of the Rennes workshop applied for permission to build what is described as two 60cm gauge lines. They were designed to connect the Arsenal-Ville facility with, on the one hand, the gas works, and on the other, La Courrouze. This was in actual fact a real little railway network that was planned. The municipal administration having approved the technical file, the City Council, during its 6th December 1915 meeting, approved the request subject to payment of the symbolic sum of 1 Franc per year to guarantee the city's property rights on the trackbed and therefore the temporary nature of the railway.

ACCUMULATION

Dumped by the wagon-load, the 75 calibre casings pile up absolutely everywhere in the gas works. They are sorted and prepared before being re-used by the Arsenal.

Built in the South-West suburbs of the city, mostly taken up by market gardens, the two lines followed the city streets, notably boulevard Voltaire. The stretch connecting Arsenal-Ville to La Courrouze followed the standard gauge military branch of the Arsenal over most of its route. It would seem that the track itself consisted of the standard steel sectional elements of the «1888 Artillery type», without check-rails, neatly embedded in the streets and factory yards. Figuring out the exact trackplan is not easy. A passing loop can be observed inside the gas works, as well as a longish service siding ▪▪▪

60CM GAUGE RAILWAYS A LONG WAY FROM THE FRONT

The line serving the Rennes arsenal is far from being an exceptional case. Right from the beginning of the Great War, various establishments linked to the war effort were given 60cm gauge railways. Without being exhaustive, one can mention the well-known case of the Bergerac powder works. The administration in charge of producing powder operated an internal railway network with a total length of almost 60km, using three Decauville 0-4-0 Ts. In 1916, the same entity went as far as having a proper 60cm gauge tramway built between the factory and the town, operated with stock bought second-hand from the La Trinité to Étel tram line. Other examples include the Jacob Holtzer forges at Unieux (Loire). They were issued with Decauville 0-6-0 T N° 1632, an Artillery order.

Military forestry railways also resorted on a large scale to 60cm gauge track. For example, the forest near Dreux was heavily felled to supply Paris with firewood. A battery from the 68th Foot Artillery Regiment was in charge of operating the network created for this purpose, using eight 0-6-0 T engines, two 0-4-0 T locomotives and here again «1915 type» wagons, all this stock being supplied by Decauville.

The Anglo-Canadian troops also built forestry railways using their own 60cm gauge stock. Not forgetting either the line built between Tourgéville station and the sanitary camp at Mont Canisy, in Seine-Maritime, operated with Baldwin 4-6-0 T engines, and Clayton open wagons and box vans.

DR/Coll. Guy François

An outcome of the Artillery orders, Decauville 0-6-0 T 1632 is at work in 1917 at the Jacob Holtzer forges in Unieux (Loire). Yet another example of a military line a long way from the front.

Once inside the factory, the line led directly to the workshops.

▪▪▪ on a low embankment. The railway must also have had the means to turn engines, as one locomotive is visible facing in two directions in the factory yard. As was customary with the Artillery, a triangle must have been installed somewhere...

THIS IS TRULY AN ARTILLERY RAILWAY

If one follows the description above, these lines were no different from any other industrial railway, quite common in those days. But the rolling stock makes the difference and confirms that the railway did indeed belong to the Artillery. In late 1915, some 260 Artillery engines were available, including the Péchot locomotives built before 1914 and the first deliveries of wartime orders issued to French, British and American industry. Among the four types of locomotives then in use on the front, the Rennes Arsenal was awarded one engine from the smallest series in numberical terms: one of the 20 saddle tank 0-6-0 T engines bought off-the-shelf from Baldwin in the autumn of 1914 and delivered exactly 16 days later!

In my view, choosing this engine for the Arsenal line was not a matter left to chance. First of all, with a weight of 13 metric tons in working order and a fairly long wheelbase, these engines soon turned out to be aggressive for the 9.5kg per metre portable track. In practice, these locomotives were usually found on the railways built in the ▪▪▪

PROSPER PÉCHOT WAS FROM RENNES

The son of a local medicine professor, Prosper Péchot was born in Rennes in 1849. He left the city after his baccalaureat to join the Saint Louis imperial "lycée" and afterwards the Polytechnique elite engineering school in Paris, traditionally in charge of training Artillery and Engineers officers, the "technical" branches of the Army. After the Franco-Prussian war and the end of his training, probably to move closer to his family, Péchot in 1873 joined the 10th Artillery Regiment stationed in Rennes, with Lieutenant rank. This was when his career really began, a career largely devoted to military railways. He supervised the construction of the branch connecting the arsenal to Rennes station, which ran under the line to Saint-Malo. A route used, 40 years later, by the 60cm gauge line built by the Artillery...

The wagons are also from the Artillery stocks. They are 1915 Decauville flat wagons, with their bodies more or less removed to allow for the biggest possible load of casings at each journey to the Arsenal.

ORIGINS

There is no doubt about the origins of this engine. It is one of the twenty 0-6-0 saddle tank engines ordered for the Artillery, off the shelf, from Baldwin in November 1914. Specifically, B19 (41781/1914) as shown on the smokebox door roundel.

The skips have probably also been commandeered. At any rate, they illustrate almost everything that was produced by Decauville over the previous two decades...

For the photo, the driver and fireman, probably Arsenal workmen, have left their engine. A factory manager has taken their place.

▪▪▪ Vosges region, around Epinal, where the track had been laid with care. It is therefore not surprising that the Artillery chose to assign one to Rennes rather than another, more flexible, type. Furthemore, these saddle tank 0-6-0s, very American in apperance, were fitted with a bulky spark-arrestor funnel. In an environment packed with explosive materials, an engine with this feature was an element of safety. Two reasons that may explain the choice of the Artillery.

The second locomotive was equally original. This was a Campagne 18hp diesel engine, a «weakling» normally used in depots or as inspection trolleys on the front. The Artillery procured only 5 of these machines new, but commandeered at least as many from various industrial companies. The machine used at Rennes was probably one of the latter units.

The wagons supplied by the Artillery consisted of «1915 type» bogie units designed by Decauville and derived from the drop-side flat wagons built for Morocco. They were perfectly suited to carrying crates of 75 calibre shell casings. The shunting of worn-out casings was carried out by a hotchpotch of skips, almost certainly comandeered also.

A VERY SHORT LIFE

Like all the Artillery railways, the Rennes Arsenal line was short-lived. Directly after the Armistice, production and staff numbers dropped dramatically and the manufacturing of ammunition ended during the following winter. The recycling workshop located in the gas works closed for want of casings to recycle, and with it the 60cm gauge line.

Short casings, of a larger calibre than the 75, and spotless after their treatment, are ready to leave for the Arsenal.

COMMANDEERED

The second engine, a commandeered Campagne diesel locomotive, is probably mostly in charge of the shunting of the casings inside the factory.

TO FIND OUT MORE

The online collections of the Britanny Museum are available at: <www.collections.musee-bretagne.fr>.

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60cm track on 16.5mm gauge

In a way, 1/35 scale, 1/32 scale is the large scale for narrow gauge enthusiasts. Very convenient, it means that standard gauge chassis and axles in 1/87 scale can be used to reproduce prototype 60cm gauge track. The dossier that follows will help you become more familiar with this universe, almost entirely reserved to scratchbuilders. And why not, possibly encourage you to create a project of your own.

A small depot

1/32 scale is big, even in narrow gauge.
And when you own a large collection of locomotives, building a depot is an attractive option to give them space to move. Uwe Haas describes his Friedland depot.

Text: **François Fontana based on input from Uwe Haas**
Images: **Uwe Haas**

The large tender 0-8-0 is waiting at the entrance to the depot. This a very fine all-brass model, manufactured in 1/32 scale by the Dingler artisan brand.

For Uwe, it all started with the offer from the Dingler artisan company: the reproduction of a tender 0-8-0, built by Vulcan in 1925. This model in If, meaning 1/32 scale running on 16.5mm gauge track, is a perfectly accurate scale model of prototype 60cm gauge track. A splendid all-brass locomotive whose prototype, preserved on the Froissy-Cappy-Dompierre heritage railway, still sees regular service.

François Fontana: Hello Uwe, tell us the story of your small depot.
Uwe Haas: It's a model of a real site. It was located north of Berlin in the province of Mecklemburg-Pomerania, specifically the Friedland depot. The MPSB 60cm gauge railway was more than 200km long. Built from 1892, the line carried building materials, passengers, but mainly sugar beet. There were several sugar mills in Ankjlam, Jarmen and Friedland.

FF: This splendid 1/32 scale locomotive is now preserved!
UH: Yes, you can see it running on the APPEVA museum line in France. When operations ended on the Mecklemburg-Pomerania railway – the MPSB – in 1969 (passenger traffic ended on May 31st that year, followed by goods traffic on September 29th), the rolling stock was sold to various museum railways. 0-8-0 n° 99 3461, a tender engine built by Vulcan in 1925 was transferred to France. ▪▪▪

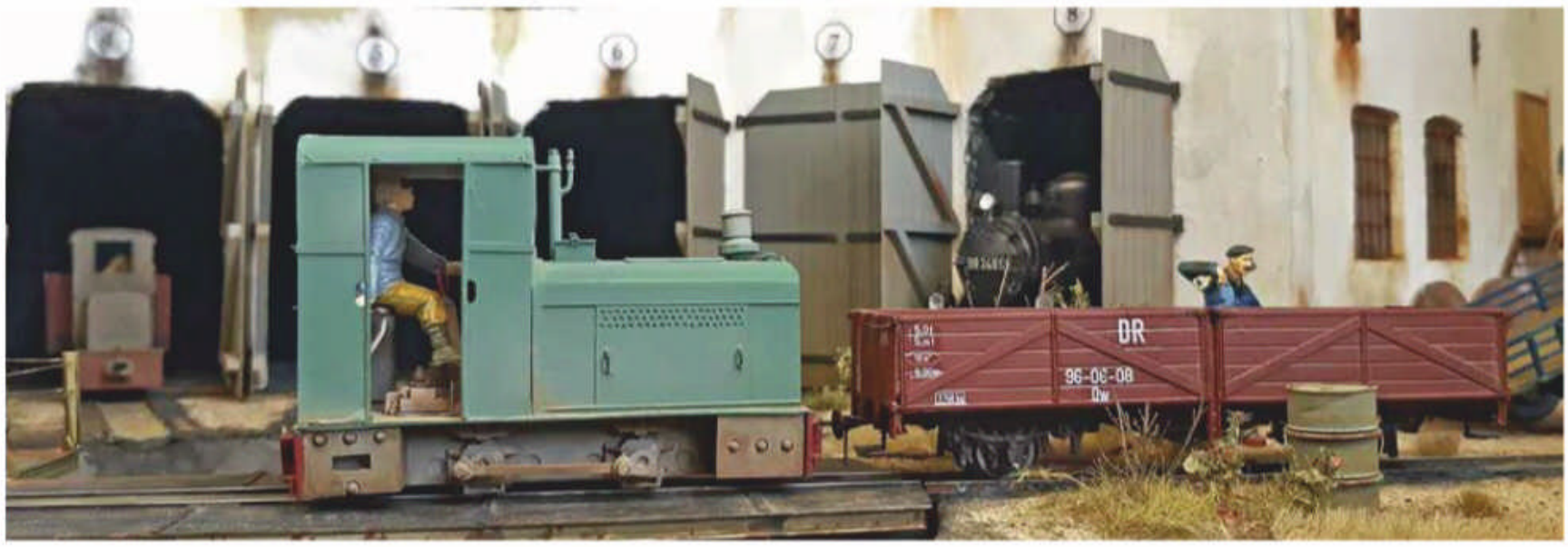
After having moved onto the turntable, the engine runs ont its storage track..

Another large engine, an HF 130 C, a military diesel locomotive ordered from Orenstein & Koppel, Jung, Gmeinder, Deutz... by the German army.

The layout at a glance

Scale: 1/32
Dimensions: 90 x 70 x 45 cm
Control: analogue
Inspiration: Friedland depot, MPSB company

The layout also uses smaller machines such as this diminutive Orenstein & Koppel tractor...



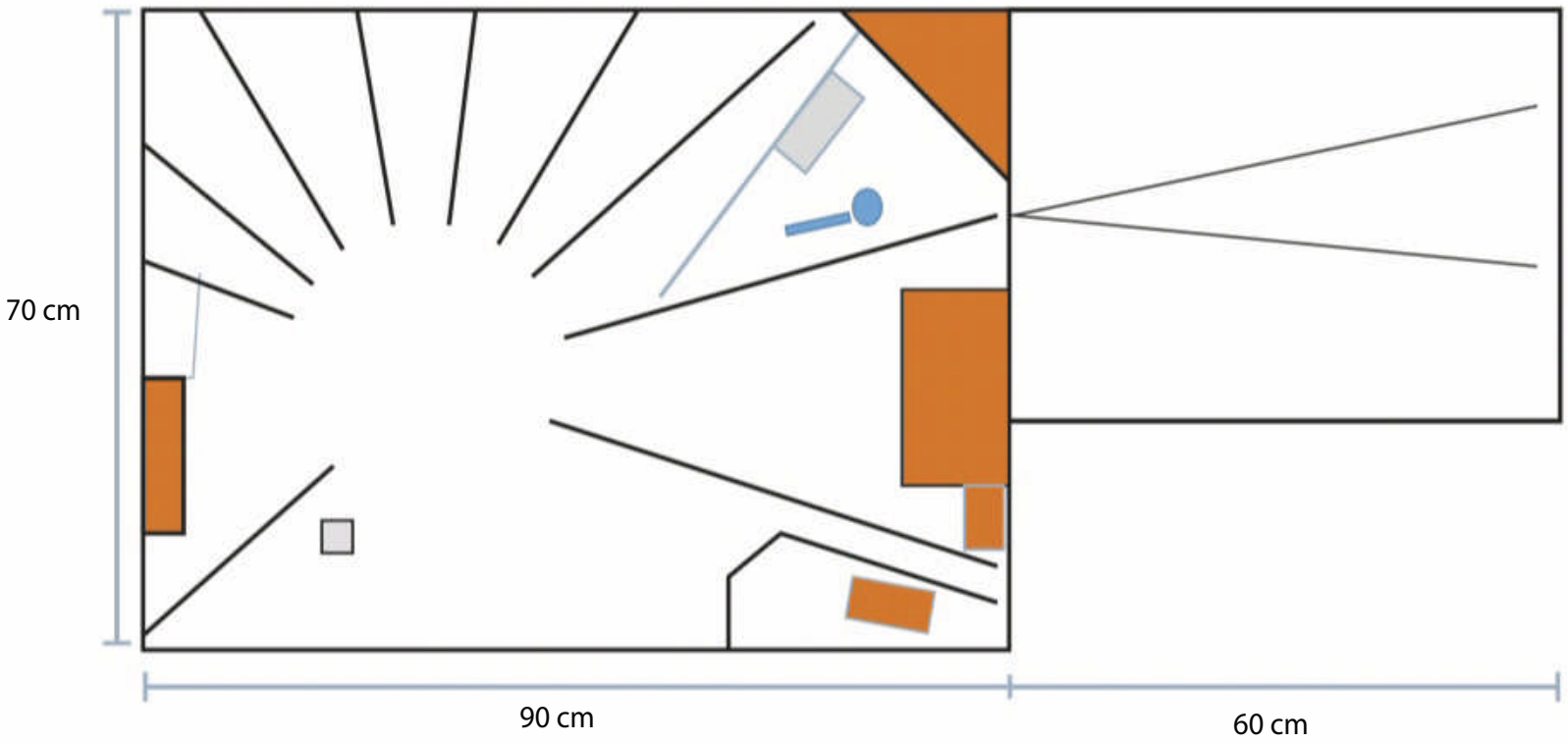
... or this Deutz.

▪▪▪ FF: How did you design your layout?
UH: Originally, the depot at Friedland featured a 16-track roundhouse served by a turntable. I modelled 8 of these. The track leading into the depot passes between two buildings, in actual fact it does not lead outside. The turntable serves 10 tracks and there are no turnouts. The layout infrastructure is a sheet of plywood reinforced by wooden sides. The track is from the Peco range, with the sleepers more widely spaced, and is laid directly onto a sheet of 3mm thick cork. The turntable is a length of wood, suitably decorated, which revolves in a plastic pit. The driving mechanism is quite simple... by hand! A series of gears, including a bevel gear, is operated via a handle.

The turntable is hand-operated by the duty worker.
It's easier when they are two for the job!

The turntable can accommodate one large engine and a small wagon or one long wagon and one small engine. Plenty of scope for shunting.

View from the top.
The half-roundhouse takes up all the rear of the scenery, and is flanked by two towers.



Friedlander depot on the MPSB.

Scale 1/32 .
Gauge 1f.
16.5mm track.

Layout Plan

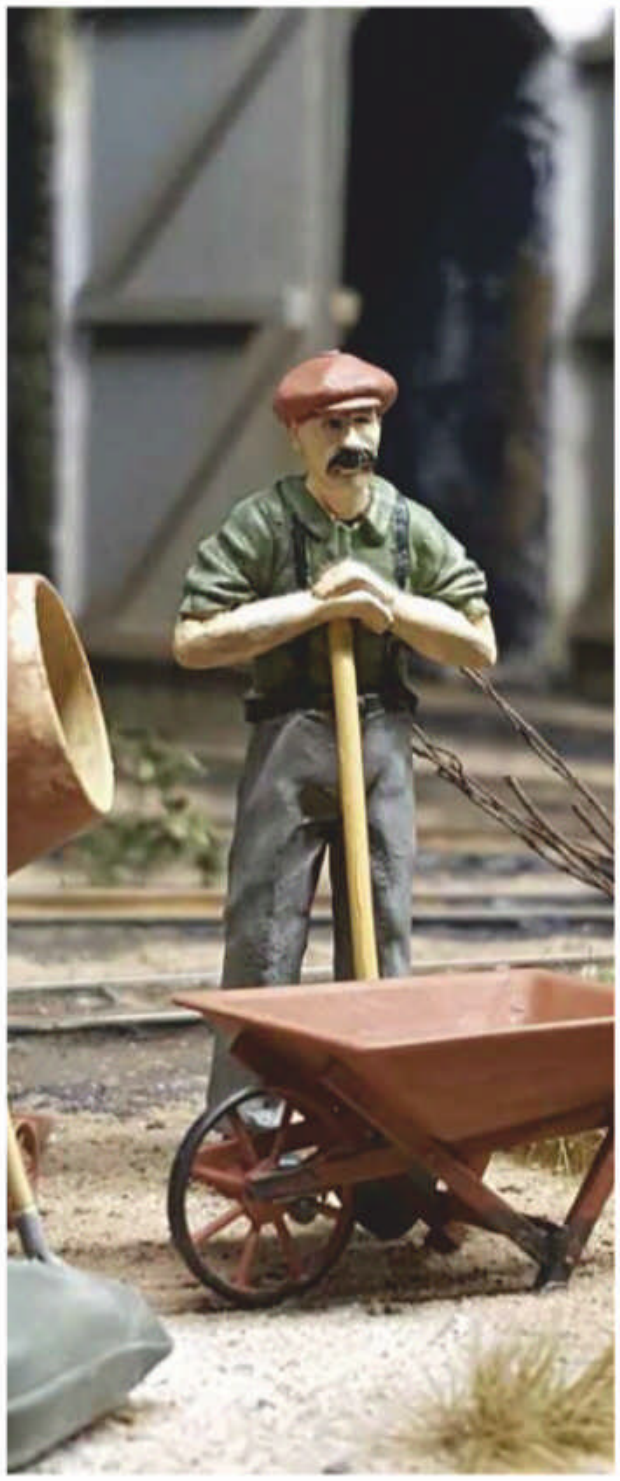
FF: And your buildings?
UH: I wnated the layout to be light and easily transportable. All the buildings are designed in the same way, with a stryrofoam core coated with plaster-based filler material. This coating is engraved and decorated during the drying phase. I use water colours and pigments, applying several successive washes. The doors are cut out of plywood sheets, reinforced by square strips of lumber.

FF: How about the scenery?
UH: The customary sands and flock materials, to which I add many dried plants for the shrubs and the trees. 1/32 scale offers plenty of accessory kits such as the farm tractor, the agricultural trailers or the many tools.

FF: Your depot features many figures, where are they from?
UH: From the MK35 cats plastic kit range. Once assembled in whatever position suits me, they are carefully painted and weatehred like everything else on the layout.

FF: This small depot is a very fine idea. Many thanks Uwe.
UH: It isn't very large, just 90 x 70cm, but it provides scope for my motive power to move around, as I now have a fairly large collection of Henke, Dingler, U-Models and Plusmodel engines. The layout fits into a caisson with lighting, and is a showcase where my diesel and steam locomotives can exercize. ■

There must be something jamming the winch, but what? The figure is from the MK35 range.



The MK35 artisan range is packed with figures that are perfect to evoke scenes from the 1920s to the 1960s. This covers most of what modellers need.

LET'S DISCOVER 1/35 SCALE

With U-Models and its Campagne tractor

You have always dreamt of discovering 1/35 scale? Do not seek any further, for several years U-Models has been offering several fine quality 60cm gauge static locomotive kits, easy to motorize, and quite affordable. Ideal for beginners!

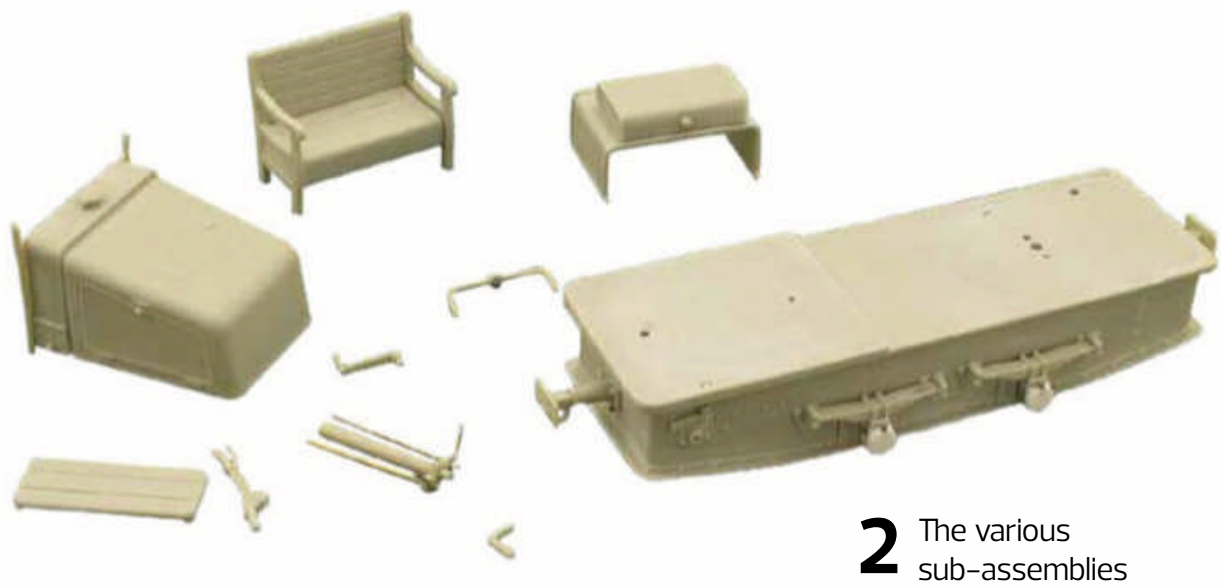
Text and illustrations: **Franck Tavernier**

Despite its worn condition, our tractor still has plenty of life in it.

Main supplies

Campagne **tractor kit** (U-Models)
Hanazono-Tenshodo **bogie**, wheelbase 24.5mm, 11.5mm diam. wheels (Micro-Modele)
M1.6mm square brass **nuts** (Micro-Modele)
1.5mm thick white **plastic sheet** (polystyrene)
Lead sheet
Polyurethane primer (Vallejo)
Acrylic paint (Tamiya and Prince August/Vallejo)
Extra-fine **oil paint** (Rembrandt)
Pigments (Mig)
Cyanoacrylate gel adhesive and liquid Loctite (Colle 21, Prince August)
X-Acto type **knife**, scalpel (Swann Morton)
Fine **sandpaper**, **files**, **bits**, **airbrush**

1 The various parts making up the kit.



2 The various sub-assemblies before painting.

The U-Models brand took over the range created a good while ago by the «13th DLM», in particular the Billard T75 diesel tractor and the Péchot flat wagons, whose splendid master-models were created by Raymond Duton. U-Models carried on where the 13th DLM started, by developing the range of 60cm gauge models, including inter alia: the Baldwin 50HP, Jung ZL114 tractors, or the short and long chassis Campagne tractor. This is the model we chose to illustrate this article.

MOTORIZATION

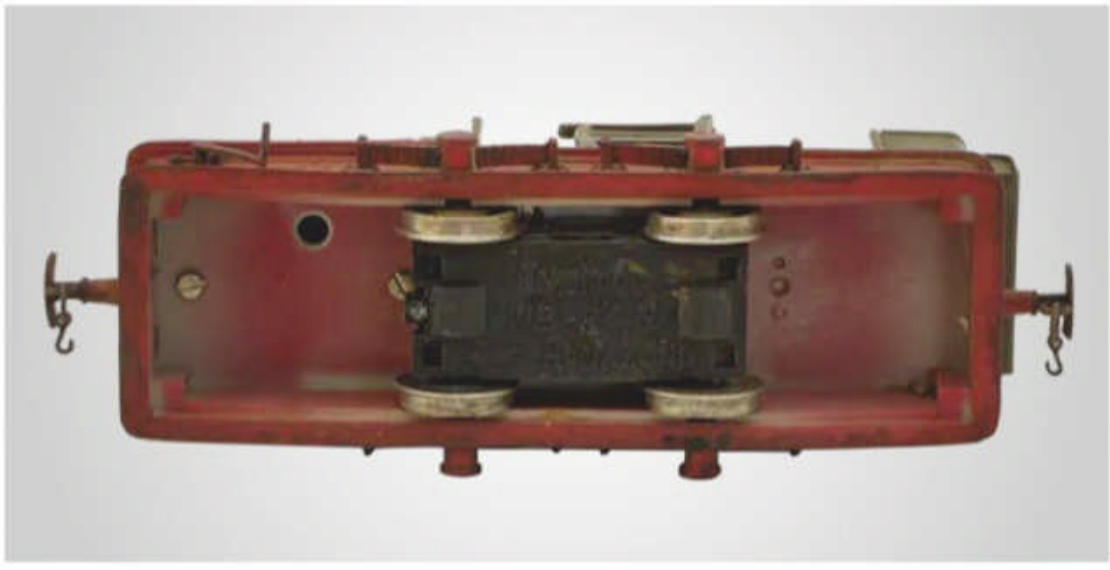
This kit est is a static model designed for the militaria market. But it can easily be fitted with a 24.5mm wheelbase Tenshodo bogie. The 10.5mm diam. wheels, fitted to this bogie, must be replaced by 11.5mm diam. wheels, suitable for this model. As the performance of these bogies is average, it is strongly recommended fitting a digital decoder. This will assist with starting, slow running and will restrict the maximum speed.
It is located under the engine bonnet, which is held in place by screws in oder to ease access **(see box p. 32)**. The decoder takes the place of the dummy motor, which can be kept in your scrapbox. The space available under the chassis is used to add ballast, essential to the smooth running of your model. The wheel axles are trimmed off at ca. 1mm from each wheel, to make them easier to inser inside the chassis. Finally, the unsightly bogie keeper screw, which would be visible between the bonnet and the seat, is replaced by two pieces of extra-fine 3M double-sided adhesive tape, glued to a 32 x 19 mm plastic wedge, 1.5mm thick, with a 6.5mm diam. hole drilled in the middle. This wedge is glued with cyanoacrylate gel adhesive onto the bogie.

ASSEMBLING THE KIT

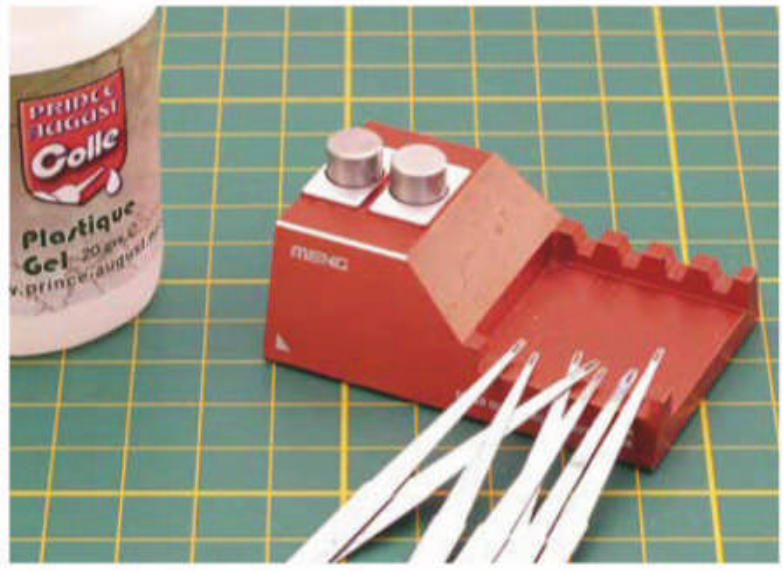
The cast polyurethane resin parts that make up the kit do not display anay major faults, except some slight bubbling in places. This can be corrected by applying some Tamiya Basic Type Putty. Trim the flash, sand delicately to ensure that everything fits together neatly. Follow the instructions for assembly, and take a look at pictures found online.
It is recommended to use cyanoacrylate gel adhesive, as it has a longer curing time than the liquid version, meaning you can adjust the parts without getting stressed. To do so, a CA adhesive applicator made by MENG / DSPIAE is useful, as you can pick up and apply a micro-drop of adhesive using stainless steel application tips of various sizes, very easily and with no waste. This will ensure a very strong bond!

PAINTING AND WEATHERING

After having thoroughly degreased the sub-assemblies with a suitable detergent, applying a coat of primer will help the paint to hold properly on the resin. ▪▪▪



3 The Tenshodo bogie under the chassis, fixed with double-sided tape.



4 The DSPIAE adhesive application tool is very helpful.

▪▪▪ Painting takes place by sub-assembly: chassis, bonnet, seats, levers, cab. In this way, they can be assembled neatly once painted. The basic colour can be green, blue, yellow... for a civilian version, pretty much anything goes, that's modeller's licence.

Our own model is inspired by the T14 tractor preserved by the AMTP (Association du Musée des Transports de Pithiviers). The proportions were estimated depending on the effect sought, on the basis of a Tamiya XF26 Deep Green. The chassis was given a coat of XF7 Red. The bonnet panels, cab and chassis were given a lighter shade with a touch of XF3 Yellow added to the base colour.

The wooden parts, after having re-engraved the wood veins with a scalpel, are treated with XF59 Desert Yellow, modulated by adding XF52 Flat Earth and/or XF57 Deck Tan to the base colour. A light wash of Extra Fine Rembrandt Raw Umber highlights this area. The micro-paint is applied with a natural hair 00 brush, dipped directly into XF9 Hull Red XF9 for the various scratches, dents and rust patches, and XF55 Deck Tan on the wood to simulate the wear. Various filters are applied with a n°12 flat brush, using a range of shades, in particular Vallejo 76.505 Light Rust on the chassis and 76.514 Dark Brown on the bonnet, seat brackets and cab. The hollow parts and structures are shaded with several localized washes of Sepia Wash 73.200, Umber Wash 73.203 and Black Wash 73.201.

The various levers, axleboxes, buffers, as well as the floor, are gievn several washes of candle black Extra Fine oil paint thinned with turpentine, and of Mig European Dust pigment, followed by more washes based on candle black oil paint, until you obtain the oily-looking result you are after. The levers, pedal, and edge of the floor are aged with Gun Metal 71.072 and the Mig Gun Metal pigments. Finally, the lower part of the body, the axlboxes, the chassis and the couplers are given a coat of European Dust and MIG Light Dust pigments. There, your model is complete, you can sit back, breathe and enjoy your work ... That's all folks!

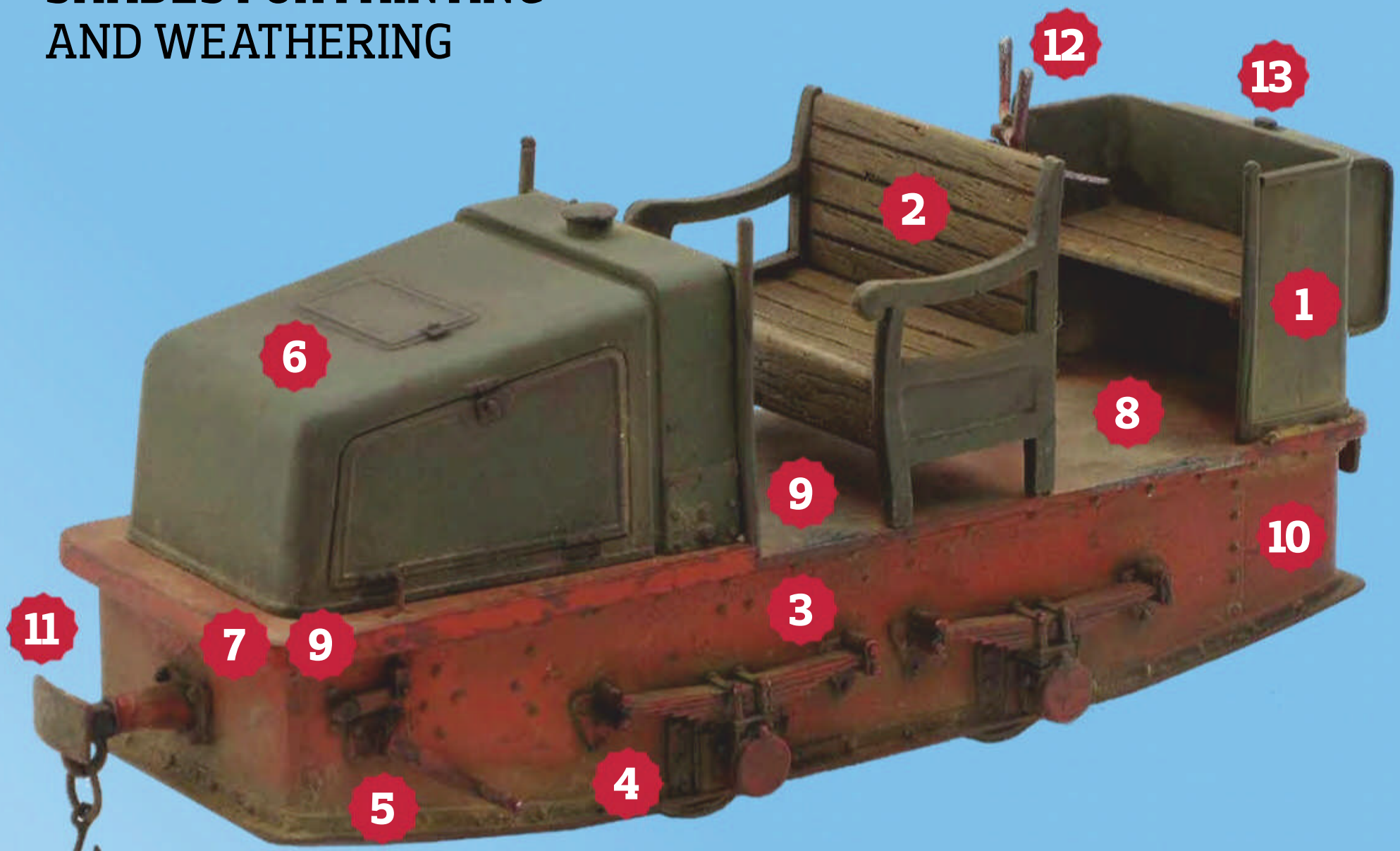
MAKING THE BONNET BRACKETS

The engine bonnet is held in place by screws. To achieve this, use square M1.6mm brass nuts, 3mm wide. Take a length of Evergreen #146 strip and drill it out in its centre to a diam. of 1.6mm. This part must be roughly of the same length as the inside width of the front end of the bonnet. Glue a nut onto it using cyanoacylate gel adhesive. On either side of this nut, place two lenghts of #146 strip, glued with Extra Thin Quick Setting Tamiya plastic cement, to block the nut in place. Above this assembly, glue a length of strip, drilled out in its centre to a diam. of 1.6mm, its length roughly equal to that of the previous assembly so as to enclose completely the square nut. Adjust the ends so that they fit inside the front bonnet, with as little play as possible. Glue this bracket inside the bonnet with two-part epoxy adhesive

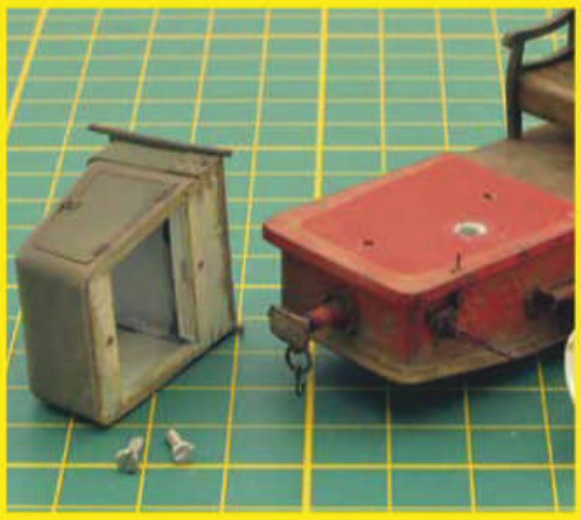
Repeat the job with the rear end of the bonnet. Along the axis of the chassis, drill two 1.6mm diam. holes, 7mm from the front edge of the chassis, and spaced by 21.5mm. Complete the work by drilling a 3mm diam. hole, for example, to accommodate the wiring between the decoder and the driving bogie.

The nut brackets are glued in place with two-part epoxy adhesive.

SHADES FOR PAINTING AND WEATHERING



1. XF26 Deep Green. Dark Brown 76.514 filter.
2. XF 59 Desert Yellow, XF52 Flat Earth and/or XF57 Deck Tan. Raw Umber wash.
3. XF7 Red, Light Rust 76.505 filter, European Dust pigments.
4. Candle black oil thinned with turpentine.
5 to 7. Sepia Wash 73.200 washes, Umber Wash 73.203, Black Wash 73.201.
European Dust pigments.
8. Gun Metal, European Dust pigments.
9. XF 9 Hull Red.
10. Rivets weathered with XF9 Hull Red.
11. Candle black oil thinned with tupentine, European Dust pigments.
12 and 13. Gun Metal 71.072 and Gun Metal pigments.



The nut, enclosed in its glued plastic strip bracket, is clearly visible here.

A Campagne tractor in Saône-et-Loire

Vincent Lepais

In issue 100 of *Voie Libre*, we discovered the Bondy tractor used by the Vairet-Baudot brickworks. Let's now discover the second machine used by this factory, a Campagne model.

Text: **Vincent Lepais**

ACKNOWLEDGEMENTS

Many thanks to Patrick Mourot and to Colette Campagne for the historical information they provided, to Morgane Moello, Director of the Le Creusot Eco-museum and to the town administration of Ciry-le-Noble for giving me access to the tractor. Many thanks also to Sébastien Delefortrie for his help.

The company created by engineer Ernest-Alexandre Campagne (1871 – 1952) began building railway equipment in 1907, first in a workshop located in Paris, on boulevard de Beleville, then in a rail-served factory in Juvisy. The company specialized in building « bespoke » equipment, including small series of rolling stock. Campagne built motor trolleys and standard or narrow gauge tractors for industry, the Army or the colonies.

When the outer Eastern suburbs of Paris were redeveloped, pressure was put on local landowners and the company sold its property, moving in 1964 to new premises in Saint-Léger-sur-Dheune in Saône-et-Loire. Campagne never really got over this move. Later work dealt mainly with supplying spare parts for existing equipment, and the construction of some ultimate items of rolling stock. No one having offered to take over the factory, it closed in 1983.

A 'BASHED" MACHINE...

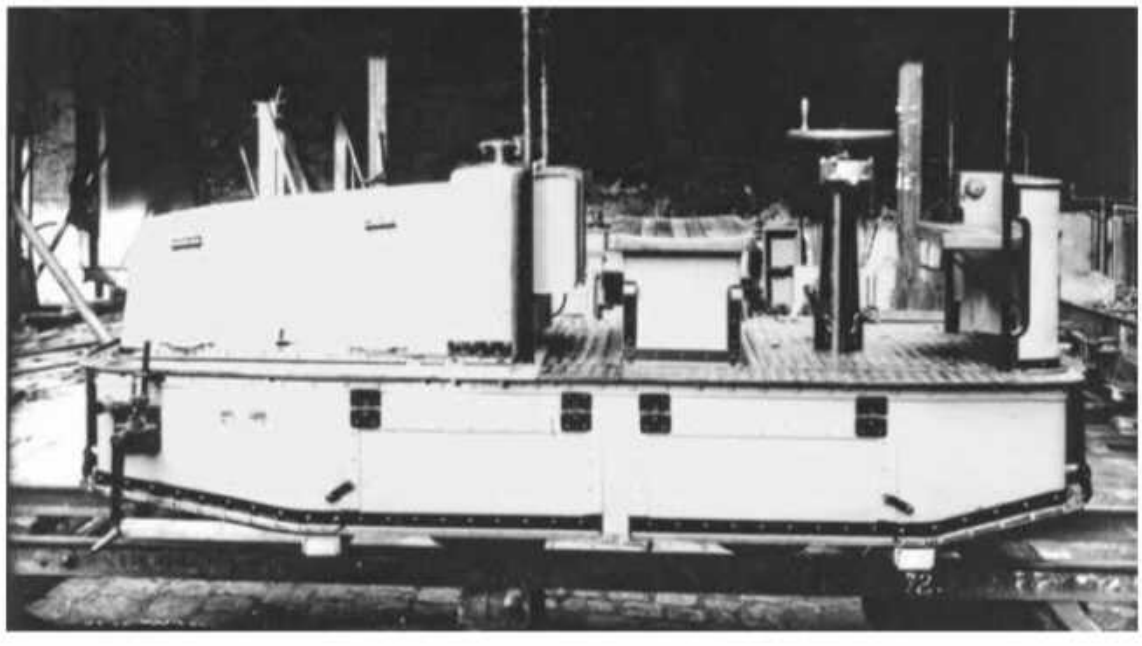
When measuring the engine preserved at Ciry-Le-Noble, an obvious manufacturing difference can be observed between the chassis and the upper parts. The bonnet is asymetrical, the welds have not been smoothed, and the only remaining side vent has nothing in common with Campagne practice. The cab, built out of 3mm thick sheetmetal, is bolted onto a structure made of L-girders. The tractor has been re-motorized, and it proved necessary to rebuild the bonnet and the cab. Furthermore, while the hole for the starter handle is still in place on the left-hand side of the chassis, it is visible that it has been replaced by a handle guide bolted to the front of the chassis itself The radiator, the wooden seats, the control column and the sandboxes are the only original parts on the upper half of the machine.

Above the inset part of the chassis where the axles are located, four hinges are visible on each side, onto which aprons concealing the axleboxes must have been fitted. This arrangement could be found on a number of Campagne productions.

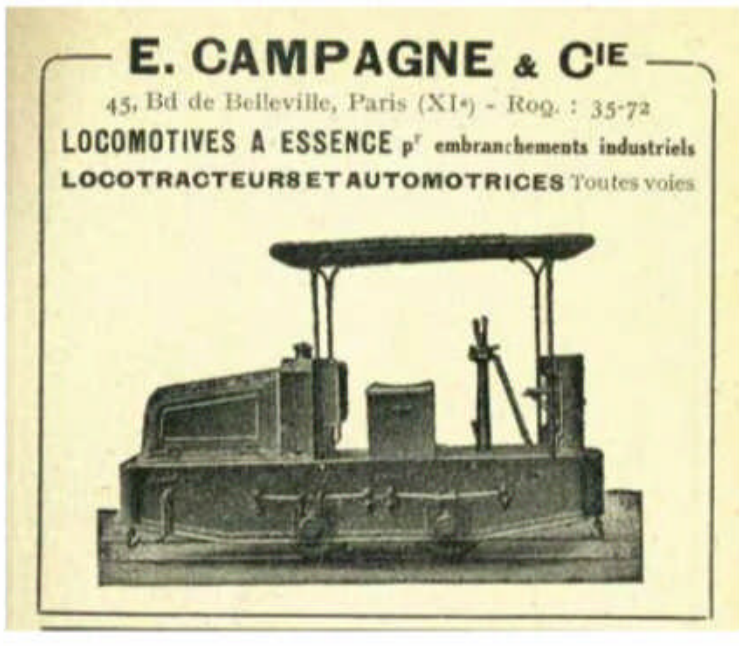
No documents were found relating to the tractor's life at the brickworks, so its delivery and remotorization dates are unknown.

The differences between a standard tractor and this unit make it a unique machine, with the charm of vintage home-bashed equipment, a sure sign of a busy working life. Let's hope the drawing in the central folder inspires you to scratchbuild your own machine, it will definitely be special!

Despite substantial modifications, the appearance of a Campagne tractor remains quite distinctive.



Like the Ciry-le-Noble unit, many machines built by Campagne featured "aprons» protecting the running gear.



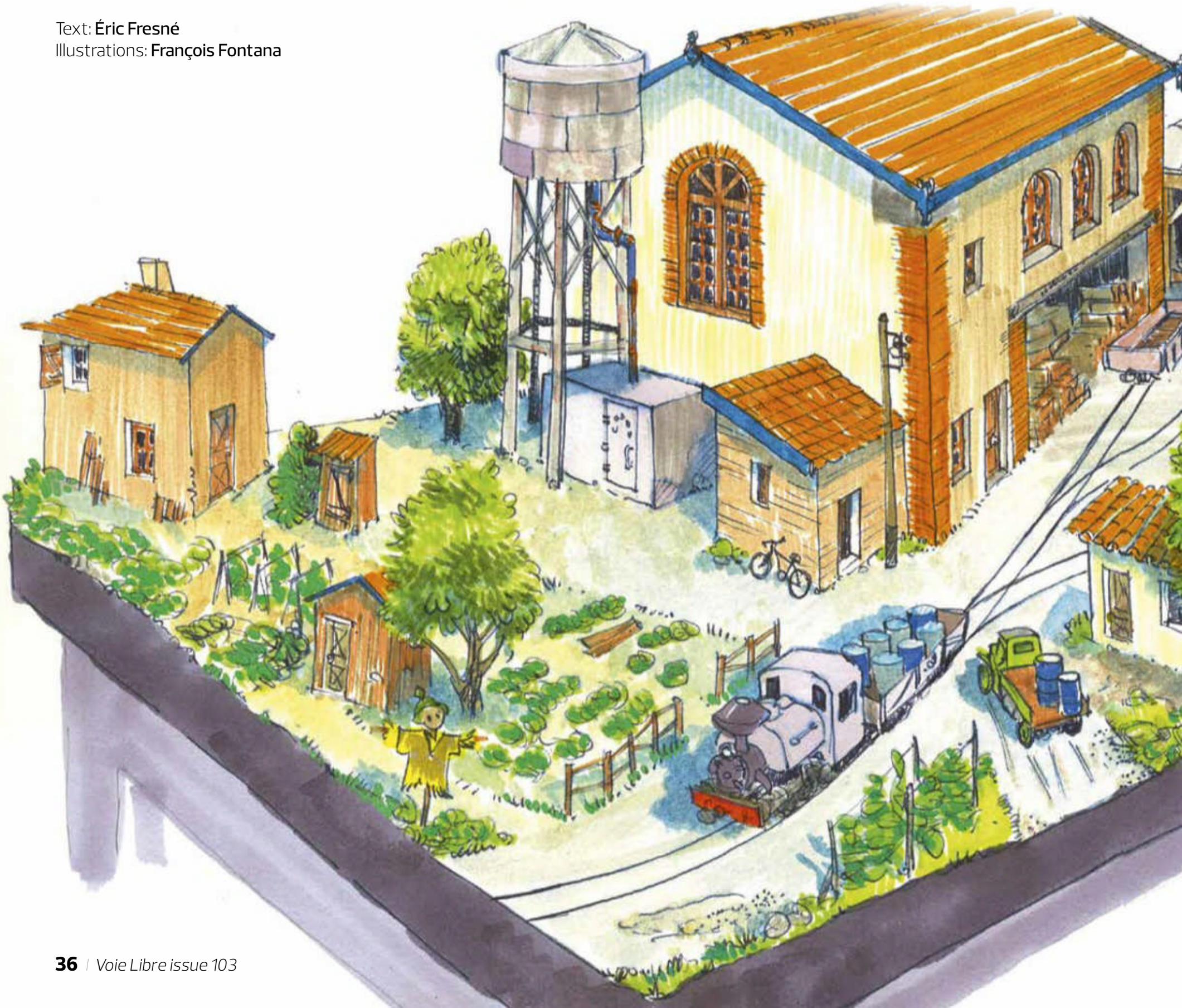
Coll. Raymond Duton

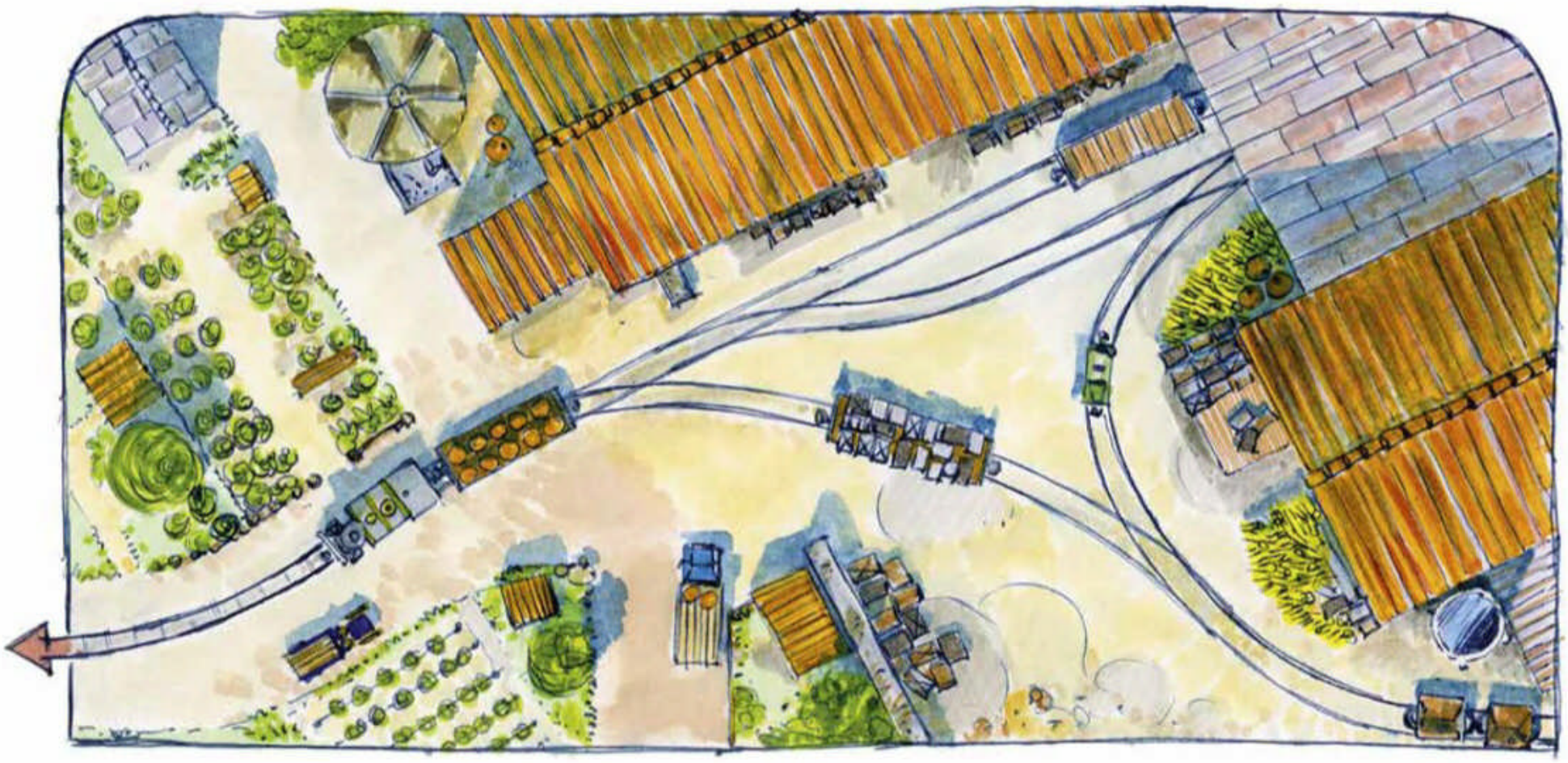
Half-way between a tractor and a motor trolley, these small machines were typical of the Campagne brand from the 1900s to the 1930s.

The “Munitionnettes” district

A railway such as the one described in the Historical section of the magazine was bound to inspire a layout project. So here is the gas-works in 1/35 scale.

Text: **Éric Fresné**
Illustrations: **François Fontana**





Layout Project

In such a large scale, a line cannot possibly be modelled in its entirety. Fortunately, the factory itself can provide a topic for a small layout. So we suggest building a 140 x 80cm showcase. The buildings will determine the space available for the trains, while a small market gardens area is located in the foreground, as a reminder of the local environment in the early XXth century.

The trackplan is essentially designed for shunting. The dead-end siding and the triangle provide scope for shunting the wagons and running an engine round a train. The fiddleyard is used to switch consists. Peco 0e-16.5 track, partially embedded, is perfectly suitable for this project.

One of the strong points of 1/35 scale is the availability of a wide range of military models, be it for accessories, figures or rolling stock. Besides the U-Models Campagne tractor reviewed by Franck Tavernier on page 30, Blitz has a 1915 Decauville platform in its range (ref. 35GL 1050 59,90 €). This is a static resin model which can probably be fitted with 16.5mm gauge axles. In 1/32 scale, Slater's produces Hudson skips (ref. 32W51 55,00 £ for as et of 3) that are quite acceptable for a French layout.

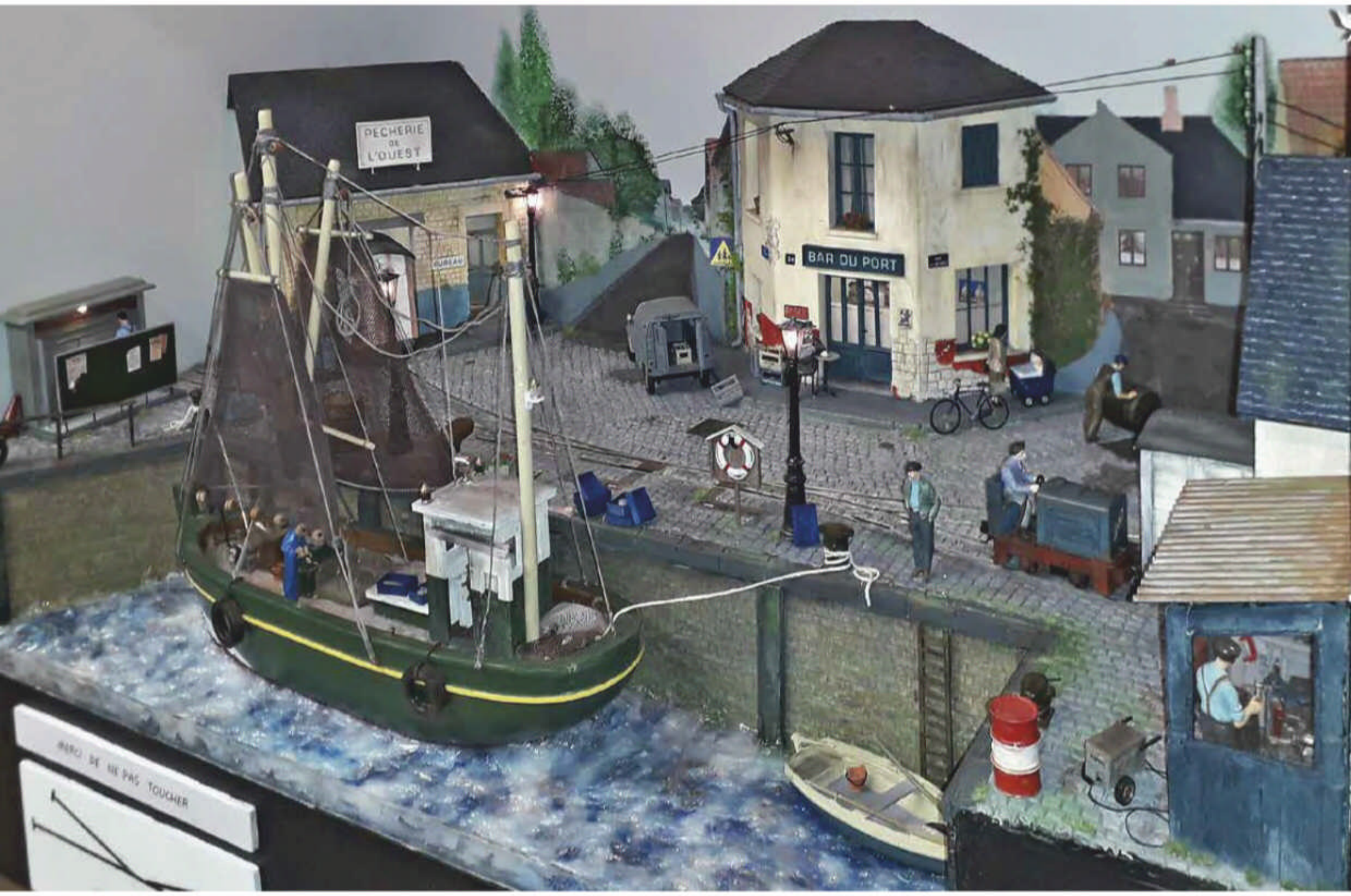
The Tiny Harbour

Text: François Fontana
based on input from Claude Devaux
Photo: Claude Devaux

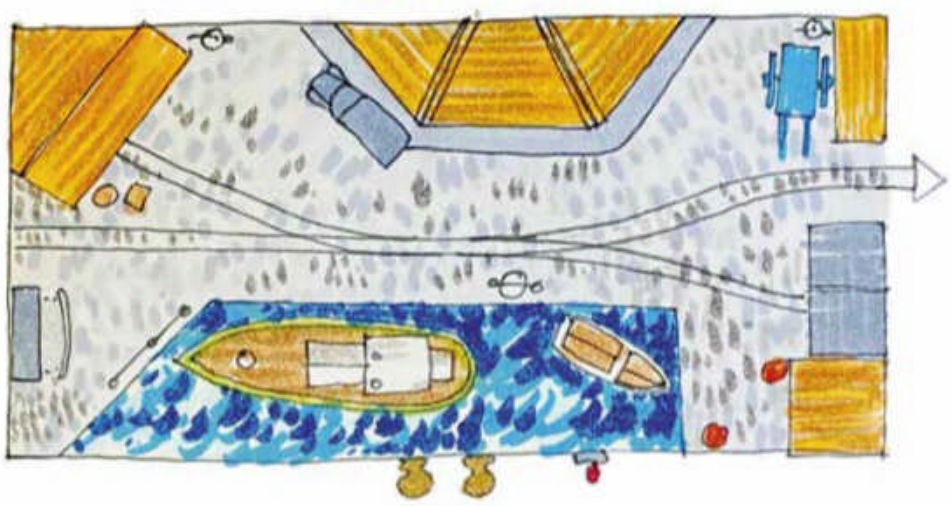
The larger the scale, the smaller the layout! This is what Claude Devaux would seem to be claiming. Here is his latest creation, *Le P'Tit Port* in 1/35 scale, a true pocketsize layout!

Having the sea nearby, wanting to evoke marine activities from a few decades back, the pleasure of working on a layout in a scale that allows to model the tiniest details, such are Claude Devaux's motivations. We met him at a show with his latest layout, *Le P'Tit Port* [The Tiny Harbour].

François Fontana: Hello Claude, here is a new creation in 1/35 scale, tell us about Le P'Tit Port please?
Claude Devaux: It's a small layout, just 80cm long and barely 40cm deep. The trackplan is very simple: coming from the fiddleyard, the track enters from the right, and two turnouts, located toe-to-toe, give



Overview of the layout seen from the right-hand side. The twilight atmosphere is provided by the street lights and those inside of the buildings.



Layout Plan

The layout at a glance

Scale: 1/35
Dimensions: 80 x 40cm,
fiddleyard 50 x 40cm
Track: Peco code 100
Turnouts: Peco, hand-operated via rodding
Control: Roco Z21
Couplings: Kadee

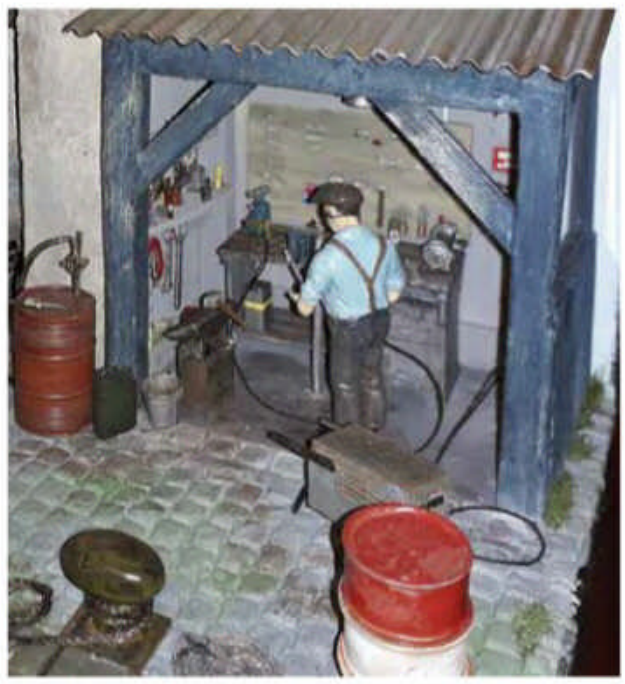
access to the two canning plants. To the right, the *Établissements La Marée*, to the left the *Pêcheries de l'Ouest*.

FF: What about the technical aspects?
CD: Nothing very complicated: the track is from the Peco code 100 range, the two turnouts are operated from the front fascia of the layout via rods. My tractors are operated by a Roco Z21 central unit and its Multimaus, and are fitted with ESU sound decoders. There is plenty of space for decoders in 1/35 scale rolling stock!

FF: Turning to the scenery, is it all scratchbuilt?
CD: Yes, almost. A few building façades are from the cast plaster MK35 range. They are significantly altered and adapted to my requirements. Other buildings are completely scratchbuilt out of thick card coated with Gesso. All are lit and detailed, including the insides that are inhabited by MK35 figures, whose attitudes are modified to meet my needs and those of the furniture! The paved areas are made out of air-drying plasticine, the paving stones are embossed with a specially made tool. A small fishing boat is moored alongside the wharf. The hull is from a souvenir boat bought by the seaside, to which a scale cabin was added, together with some lobster pots and crates of fish.

FF: On such a small surface, you managed to give an impression of depth and have succeeded in creating a very atmospheric scene?
CD: The back of the layout is painted: a false perspective gives the impression that the streets extend beyond each side of the harbour cafe. The seams between the backdrop and the volumes are concealed by signposts, pylons or some vegetation. As for the twilight atmosphere, it is produced by artifical lighting. I modified the lamp-posts to make them operational, while the workshops and the shop window are lit to contribute to the early evening effect.

FF: What about the rolling stock?
CD: the Jung tractor is 3D printed, while the Billard is from the U-Models range. My wagons are built out of thin wood from camembert cheese boxes, on Peco chassis. All this stock is fitted with Kadee couplings, with the magnets concealed under the tracks. This makes shunting and running these small trains very enjoyable. ■



The welder is at work under a wood shanty. Blue sparks regularly light up this side of the scenery.

The seams between the alyout and the backscene are cleverly concealed. Various objects clutter the pavements and the quayside, giving life to the scenery. It is possible to have fun on a very small surface!

Autumn evening.
A cool and slightly damp atmosphere, time for a warm drink rather than a beer!

Au Pif

This is a little gem! A little gem, but built in a large scale. Let's have a drink at *Au Pif* and listen to its creator.

Text and illustrations: **François Fontana**

Designed and built by Thierry Josset for the 2019 LR Presse/RAMMA challenge "Trains in the Night", *Au Pif** is a micro-layout in 1/35 scale, extremely simple but exceptional in terms of artistic quality. A small impressionist picture in three dimensions. Broadly brushed with ample feeling, particularly well lit, it sweeps us away at first sight exactly where its creator wants to take us. The nightime chilliness of this canal – or laguna –side scene is such that one almost feels the need for a pullover!

François Fontana: Hello Thierry, I can picture myself in Au Pif! Tell us about your creation?
Thierry Josset: This layout is a total invention. When I build a layout, I have a basic concept, I arrange the volumes, but I always let my imagination roam freely, so that creation takes the lead rather than modelling work. I try to follow the standard rules of composition, of distribution of masses, of colour combination. However, while the track is laid right at the beginning and cannot move, the scenery matures over time and things fit into place and come to life at their own rythm. I frequently return to such and such a part, making modifications, improvements.

FF: Technically, how do you proceed?
TJ: All the architectural elements are cast in plaster, tile by tile, brick by brick, ▪▪▪

* Translator's note: "Au Pif" is a colloquial expression that can be roughly translated as "by guesswork".

▪▪▪ stone by stone. I use silicon moulds, in which I vacuum-cast fine coloured plaster. My pigment powders are dosed to within a milligram, but I do obtain slightly different shades that generate some variety. The parts are allowed to dry for a dozen hours before being removed from the moulds. The buildings are then erected, like real ones, using fine plaster-based mortar. When I want a paving stone rusted by a piece of metal, I include iron powder in the plaster and let the rust act naturally under the vacuum bell. This only takes a few hours. The half-timbering is made of wood, the rowing boat also.

FF: Are there a few off-the-shelf items?
TJ: Yes, the figures are kits selected for their positions and facial expressions. The furniture consists of etched brass assemblies, the accessories are from commercial ranges. This is one of the advantages of 1/35 scale, lots of artisan productions are available, offering a wide choice.

FF: And what is more, I observe a weird tractor and even water-lilies!

TJ: The tractor was assembled around a 9mm gauge MinitrainS chassis. The body is made out of aluminium, which is frosted and then glued with cyanoacrylate. For the water-lilies, I used a small office puncher and green Canson drawing paper. The flowers are a simple strip of 80 gram paper, curled and painted once in place on the leaf.

FF: Talking of paint, how do you proceed?
TJ: I use oil paints, which take longer to dry, meaning I can return to the work in several phases, modifying the shades, enhancing the effects , taking my time. I like the coats to be thin, and the details should not be clotted up with paint. For weathering,I use the traditional pastels, applied dry.

FF: The final touch is the lighting.
TJ: I use simple grain-of-wheat bulbs fed via two different sources. One of them is weaker, to generate lighter shadows. As for the filament bulbs, they provide that yellowish colour temperature that contributes to the night-time atmosphere.

Displayed in a simple plywood caisson, only the decorated part of this oval-shaped layout is visible.

FF: Many thanks Thierry for all this technical information and tips.
TJ: I don't use any special techniques, and each modeller will achieve equally good results using a different approach. What is important is using the techniques that are best suited to each person's way of doing things. Whatever the gesture, it must seem natural! ■

The half-timbered house is based on a prototype measured in Colmar, in Alsace. The scene is lit by the streetlamps.

Change your motor with Tramfabriek

I replaced the old clunky motor of my Liliput 0–6–2 T by a powerhouse! And the job was really quick, thanks to a Tramfabriek kit.

Text and illustrations:
François Fontana

The principle is fairly simple: replace your old 3-pole motor, noisy and jerky, by a small coreless unit, smooth and powerful! Every modeller can get that far. However, as it turns out, the diameters of the shafts aren't right, the motor is a different shape, the dimensions are incompatible!

TRAMFABRIEK AND ITS SOLUTION

Fortunately, the solution pops up in a small pouch, via the post office! Sven van der Hart, whose company is called Tramfabriek, has developed a series of driving mechanisms specifically adapted to old favorites from the H09 narrow gauge world. His online catalogue is quite extensive; take a look for yourself.

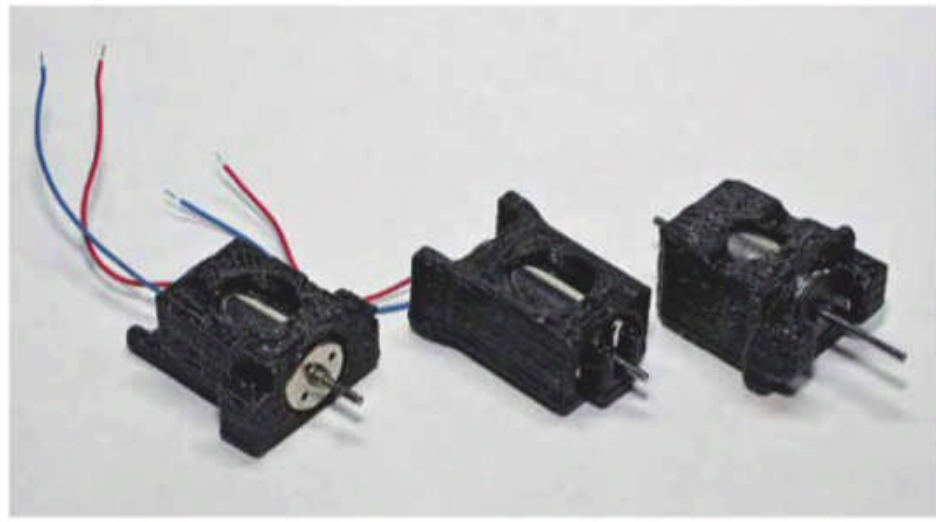
www.tramfabriek.nl
Price: 25.50 € for the Liliput 0–6–2 T
Direct purchase from the website
Payment via Paypal or bank card

The kits consit of a coreless motor, of a 3D printed motor cradle, and of a connector or sleeve to fit the worm gear. The conversion is ultra-simple, online instructions on the manufacturer's website provide all the explanations you need.

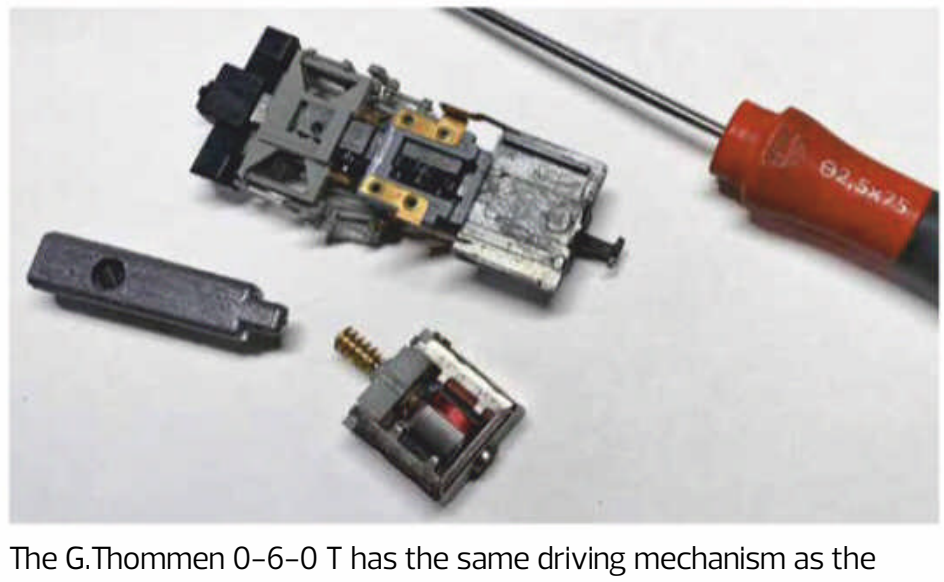
THE LILIPUT 0–6–2 T

Having identified the generation of my locomotive, I ordered the right kit. A few days later, I received a small parcel containing the famous plastic pouch. The procedure for opening up the engine is fully detailed in the online instructions and is quite straightforward. Removing the original motor is even easier, I cut the wires flush with the terminals. Fitting the new motor into the cradle is child's play, and I won't even mention fitting ▪▪▪

The chasis of my Liliput 0-6-2 T engines.
In the foreground, the modified model.
Behind, the chassis with the original motor. It is quite obvious that both motors take up exactly the same volume.



The three replacement motor units corresponding to the three generations. Note that the motor selected for the third generation is bigger.



The G.Thommen 0-6-0 T has the same driving mechanism as the 0-6-2 T engines. However, the shaft between the motor and the worm gear is much shorter: the worm is fitted with a brass sleeve to compensate for the difference in diameter between the shaft of the coreless motor and the inside diameter of the worm gear.

A SPECIFIC PULLING TOOL

From the same website, I bought a miniature gear-puller. Cleverly designed, it features tips of several different diameters. The smallest, for a 1mm shaft, is fairly fragile, but Sven can supply spares!

The various parts making up the gear pulling tool.

Removing the worm gear with the 1mm tip.

▪▪▪ it to the chassis! Two drops of solder to connect the wires, and everything is up and running!
The only awkward point is retrieving the worm gear from the original motor! Even with a specific pulling tool, this isn't always possible. I had to use a worm gear from my box of spares. I always have several in stock, and this turned out useful in the present case.

OUT ON THE LINE

The behaviour of the locomotive is radically changed. The new motor, smooth, starts very slowly. Slow running is impressive. The noise level is significantly lower, except for the orginal gear train! My locomotive runs far better, that's beyond doubt, and backing onto a train is very pleasant. To achieve this result, however, I did have to carefully clean the electrical pick-ups, degrease the mechanism and clear all the dust. Replacing the motor is only worthwhile if the engine is properly maintained.

IDENTIFY YOUR LILIPUT 0-6-2 T!

Text and illustrations: **Jean-Michel Bellières**

The production of the Austrian 0-6-2 T U class locomotives extends over no less than 4 technical generations: it is important to know which generation your own engine belongs to before ordering a Tramfabriek driving mechanism.

FIRST GENERATION: LILIPUT-WIEN, FROM 1968 TO 1986

With their very sober superstructure and all-plastic motion, these models are the easiest to recognize. There were three successive production runs.

- At first: metallic grey motion (very fragile) + full disk wheels.
- Then: light grey motion (more robust) + full disk wheels.
- Towards the end: light grey motion, perforated wheels, no figure in the cab.

The G.Thommen 0-6-0 T belongs technically to this first generation, and its motion and wheels evolved in the same way as the U class.

SECOND GENERATION: LILIPUT-WIEN, FROM 1986 TO 1992

This radically improved version must no be confused with later Liliput by Bachmann productions, as it differs from them by:

- a motor without flywheel;
- motion that is not blackened and small hook couplings, without a loop.

THIRD GENERATION: LILIPUT BY BACHMANN, 1996-2010 PERIOD

This first Chinese production differs from the previous one by:

- a motor fitted with a flywheel.
- blackened motion and link and pin couplings, with a loop;

Note: all the Uh type locomotives belong to this third generation!

FOURTH GENERATION: LILIPUT BY BACHMANN, FROM 2010 TO NOWADAYS

Beware, the Tramfabriek driving mechanisms are not designed for this last generation, identifiable in particular by the casing that conceals the motor in the cab.

To the left, the first production (ref. 702), to the right, the third (ref. 707). The second generation, not illustrated, combines the full-disk wheels of the first one and the improved motion of the other.

The non-blackened motion and the small, loop-less coupling hooks, are typical of the second generation (ref. 714 63).

U n°2 (from the set ref. L177700) in front of the impressive Zillertalbahn Uh n°5 (ref. L141491): in addition to the blackened motion and loop couplings, the third generation brass flywheel can just be seen inside the cab of the U.

Inside the cab, note the plastic casing that conceals the motor completely (ref. L141482).

G. Hadorn

The castle at Blonay, with motor unit 104 seen running past it, is one of the most photogenic locations along the line. Shot taken on **26th October 1969**.

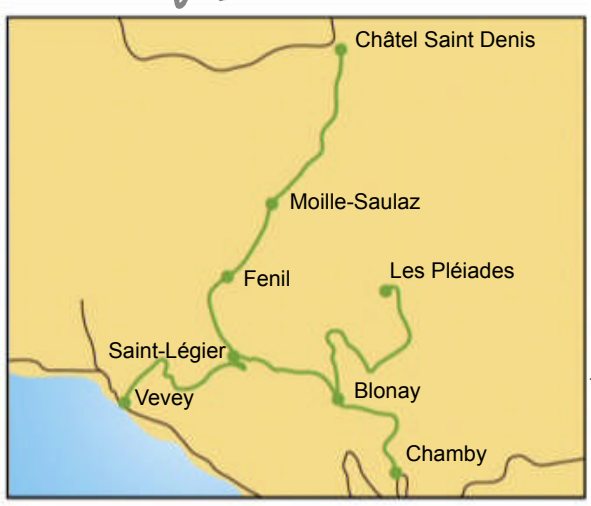
CHEMINS DE FER ÉLECTRIQUES VEVEYSANS (CEV)

From Vevey to Chamby

The CEV network is already familiar to readers of Voie Libre: the rack and pinion section to Les Pléiades and the Châtel – Saint-Denis branch were described in issues 45 and 100, respectively. Let's take a look now at the oldest section, from Vevey to Blonay and Chamby.

Text: **Gérald Hadorn and Annette Rochaix**
Illustrations (unless otherwise mentioned) : **Gérald Hadorn, Jean-Louis Rochaix**

Map of the line of Switzerland



Infographies Éric Fresné

The distant origins of the Vevey – Chamby line can be traced back to the ambitious project of a 128km long narrow gauge rail link from Vevey to Bulle and Thoune, for which permission was granted in 1890. Having failed to obtain the necessary funding, the promoters of the line had to give up. However, the idea lived on: a decade later, the construction of the metre gauge network consisting of the Montreux-Oberland Bernois (MOB), the Chemins de fer Electriques de la Gruyère (CEG) and the Chemins de fer Electriques Veveysans met, modestly, the original objective.
The Vevey-Chamby provides access to the Bernese Oberland, by connecting with the MOB at Chamby, while serving the villages of Saint-Légier and Blonay. Having obtained Federal permission on October 6th,1899, the line was opened on October 1st, 1902.

Brief description

8.67km long, the line is entirely on its own right of way, with a 50‰ gradient over most of its route. Between Vevey and Blonay, it ran through a rural area of vinyeards and orchards. The last 3 kilometres, up to Chamby, ran through more mountainous terrain, with meadows and forests. There are few civil engineering works : two tunnels (83 and 45m long) and a 75m long stone viaduct, with a radius of 60m, across the Baye de Clarens torrent between Blonay and Chamby. The station buildings are modest affairs, built of wood. The intermediary stops feature a simple shelter. The CEV shared facilities with the Jura-Simplon (future CFF) at Vevey and with the MOB at Chamby. The superstructure has no special features : it is identical to that found on the Châtel – Saint-Denis branch. ■■■

MOB trains bound

for Montreux and Les Avants and CEV motor unit 1 bound for Vevey, seen at Chamby.

Ca. 1904.

Coll. CEV

The Bahyse level crossing at Blonay

It has since been fitted with gates.

In 1962

J.-L. Rochaix


G. Hadorn


J.-L. Rochaix

BFe 2/3 12 moto unit in original livery and shunting engine N° 81, in service from 1931 to 1964, outside Vevey depot **in 1960**.


J.-L. Rochaix

The Blonay – Chamby line runs through meadows and forests. In general, one motor unit was enough to cope with the small amount of local traffic. ABFe 4/4 103 is seen above Chantemerle on **1st May 1966**.


G. Hadorn

MOB motor units sometimes ran between Vevey et Blonay; here, Be 4/4 1001 passes CEV N° 7 at Clies, **15th July 1997**.

6-wheeler motor unit N1

is on one of its last passenger duties, between Gilamont and Clies, on **30th October 1970.**

G. Hadorn

BDeh 2/4 74 + 73 + Bt 222 + 221 seen between Saint-Légier and Château d'Hauteville, **29th July 1999**.

G. Hadorn

Two sets from the 7000 series running in multiple units between Gilamont and Clies, **1st August 1999**.

G. Hadorn

Since 2017, all services are covered by units from the 7500 series. Decorated for its inauguration, N° 7501 is seen arriving at Saint-Légier on **11th December 2015**.

G. Hadorn

A motor unit from the 7000 series

passes Cornaux on **24th May 1998**, the first day of the short-lived take-over by the MVR of a regular service on the Blonay – Chamby stretch.

Stock

The original stock consisted of 3 four-wheeler electric motor units, two passenger carriages and a handful of wagons. Slow and under-powered, the motor units were complemented in 1930 by more suitable four-axle vehicles (101-105 series), which then took over most of the traffic. Some 20 carriages and wagons were bought until 1913; except for one flat wagon, all were 4-whelers. Partially modernized and with a few additional items added in later years, the railway was operated with this stock until 1970.

Evolution until 1970

The company's life very much resembled that of most other Swiss metre gauge railways. After the prosperous period of the early XXth century, traffic dropped considerably with the outbreak of WWI. Things improved slowly during the 1920s, but the economic crisis of the 1930s interrupted this trend, with the CEV finding itself in a precarious financial situation. The paralysis of road traffic during WWII generated a significant increase in rail traffic, leading to considerable wear on the fixed facilities and aging rolling stock. Renewal was very much in order, but financing such work was far from easy... In the 1950s, the question of whether to continue operating the railway or transferring services to the road was very acute indeed. Considering the financial situation of most metre gauge railway companies, public support was essential. For the CEV, the significant decisions were taken in the early 1960s: public entities agreed to preserving the Vevey – Blonay – Les Pléiades line and to financing its modernization, provided the Blonay – Chamby section were closed and the Châtel – Saint-Denis branch replaced by a bus service. These measures were implemented in 1966 and 1969. The CEV then concentrated on the remaining line: renewal of the track, creation of a passing loop at Clies, implementation of colour signalling, improvement of the level crossings and purchase in 1970 of four new motor units, BDeh 2/4 71–74, able to run on adhesion and rack sections. In the following years, a fifth motor unit was bought, together with four pilot trailers, leading to the withdrawal of most of the original stock.

From one century to the other

A new page was turned on 1st January 1990, when management of the company and operation of the line were taken over by the MOB. The Blonay – Chamby section,

preserved and operated since 1968 as a heritage railway, allows for the transfer of CEV vehicles to the MOB central workshops in Chernex and, occasionally, sees MOB motor units run as far as Vevey. Such exchanges became regular when four articulated units, Be 2/6 7001–7004, were bought in 1997–78. Their purpose was to operate the regional CEV Vevey–Blonay and MOB Montreux–Les Avants regional services, but these units also ran on the Vevey – Chamby – Montreux route from May 1998. However, the latter service did not meet with success, and was withdrawn two years later. The blending of these various services went one step further when the CEV merged with the Rochers de Naye railway and the local funiculars, effective on 1st January 2001, giving birth to the ▪▪▪

Coll. CEV

In the autumn of 1902, boaters are compulsory in Blonay station!
The picture was probably taken before the official opening of the line.

Locomotive N° 82

seen shunting at Blonay on **23rd April 1974**.
This engine is still in service today.

G. Hadorn

M. Grandguillaume

Motor unit 102 bound for Chamby emerges from Cornaux tunnel on **20th February 1966**.

■■■ Transports Montreux–Vevey–Riviera (MVR) company. All the lines are managed by the MOB.

Nowadays

Nowadays, the countryside along the Vevey–Blonay line has become largely built up and the railway service has become essential. Significant public financing led to a new phase of modernization that included, inter alia, the purchase in 2015–17 of 8 new ABeh 2/6 7501–7508 motor units, able to run on both the Vevey – Les Pléiades line and the MOB network, the complete conversion of Saint-Légier station, the renovation of the safety facilities and the construction of a new passing loop before Vevey to allow for a 15-minute interval service. The redevelopment of the facilities at Vevey station is already planned. These many projects, which are common all over the Swiss railway network, aim in particular to allow access to the trains by disabled people, without assistance from other persons. ■

PAST AND FUTURE

Unlike the Blonay–Chamby section, which is now a heritage railway and recalls a railway world that only elderly people remain familiar with, the Vevey – Blonay section has undergone a complete transformation. The efficiency of the latter combines perfectly with the atmosphere of the former! Since 1968, the Blonay–Chamby heritage railway has operated a tourist service over this stretch, using its large collection of vintage stock.

G. Hadorn

At the rear of the train crossing the Baye de Clarens viaduct.

France is represented by the ABCDf 15 carriage from the Réseau Breton.

5th September 2009.

On sunny days,

crowds require that long trains be run, such as this one seen between Clies and Gilamont, on **18th February 1968**.

J.-L. Rochaix

ABFe 4/4 103 seen at Chamby

Note the distinctive shape of the building, due to the restricted space beween the CEV and MOB tracks. On **21st October 1965**.

J.-L. Rochaix

How I detailed Greif
THE MINITRAINS TENDER 0-4-0

Hyper-dynamic, MinitrainS produces every year new models, of a simple design but which run beautifully. A delight for enthusiasts who feel like personalizing their engines.

Text and illustrations: **François Fontana**

GREIF TO SUIT MY TASTE

When I saw this engine in its display case in Nuremberg, I fell for it at once! It's the true representation of the steam locomotive as drawn in comics and graphic novels, a combination of clichés that are the very essence of a Western steam engine!

Created from scratch around an industrial 0-4-0 T built by Henschel, Greif, as such is its name, runs every day in a park in Karlsruhe, with a string of low-slung carriages, whose bodies are evocative of the famous Airstream caravans.

Out of the box

On opening the customary yellow-lettered black MinitrainS box (Ref.2060), Greif appears, safely installed in a thermo-shaped white plastic cradle, with its small bogie tender slotted vertically on one side. Unsurprisingly, the engine is fitted to the brand's usual 4-wheeler chassis : red disk wheels with four holes drilled out, and a flywheel on top of the vertical motor, the latter being inside the cab. The wheelbase is the same as for all the other 0-4-0 engines, however, there is a single piston cross-head slide, as this model has simplified motion, without any valve gear. Like the prototype, Greif displays a fine red livery, which extends even to its impressive cow-catcher. ▪▪▪

MY MODEL

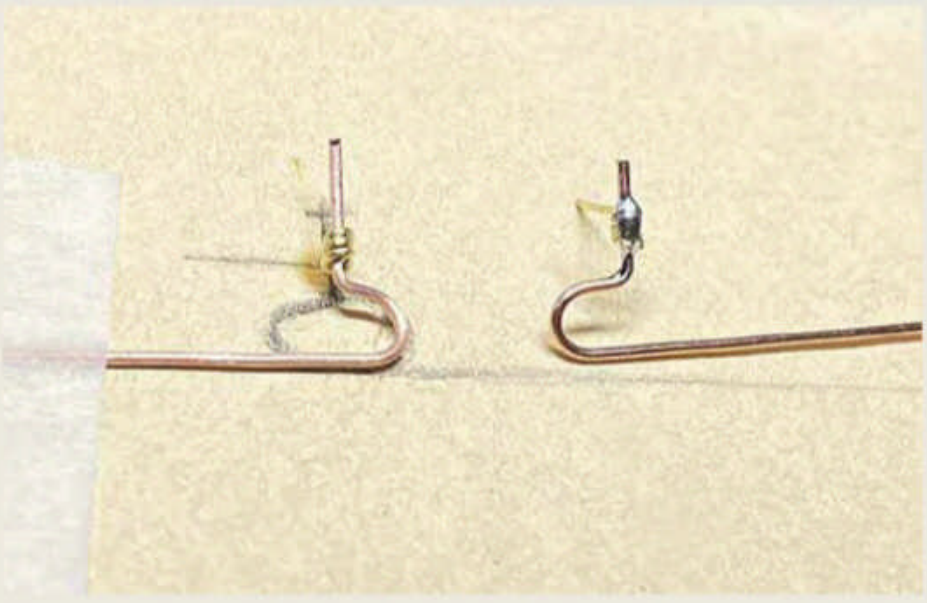
I was tempted at once to personalize this small locomotive. Adding the various missing pipes, fitting glazing to the front windows of the cab, as well as clack valves on the boiler barrel. I also dealt with the small tender: some fenders to hold a larger load of logs, and a fall-plate. I used very basic supplies: 0.5 and 0.7mm diam. brass wire, 0.2mm thick brass strips from kit frets, 0.3mm thick transparent plastic sheet for the glazing. The spark arrestor on the funnel was fitted with some wire mesh cut out of a Scale Link sheet. As for the tender, it was filled to the brim with logs, just like the real one!

Keep in mind that any work on the model will make the guarantee null and void.

THE COMPRESSOR

Before undertaking any work, I carefully un-glued the cab, making sure not to break it! Located on the left-hand side of the locomotive, the air compressor is connected to nothing. With the cab removed, the upper air tank is drilled right through with a 0.8mm diam. bit. A trapeze-shaped length of 1.5mm square plastic strip is glued against the front panel of the cab. With 0.5 and 0.7mm diam. brass wires, I reprsent the various input and output pipes which are supported by the part that holds the boiler on the chassis, and in holes drilled in the cab. Take car, because of the motor, the brass wires must not extend into the cab by more than one millimetre. A quarter of the may up the bliler barrel side, from the smokebox all the way to the firebox, I added a handrail, made of 0.5mm diam. brass wire. The front windows of the cab are glazed with 0.3mm thick transparent plastic sheet, glued with white glue from the inside of the cab.

THE CLACK VALVES



Clack valves, which are used to introduce water into the boiler, are missing, and very obviously. Two lengths of 0.7mm diam. brass wire are put into shape, based on photos of the engine found online. The valve is evoked with some twisted and soldered 0.5mm brass wire, whose lower end runs into a hole drilled in the boiler barrel, half-way up and half-way between the name plate and the first boiler ring – the hole cannot be drilled very deep, otherwise the bit will soon meet the large metal ballast. The pipe is painted black, the clack valve in bronze colour.

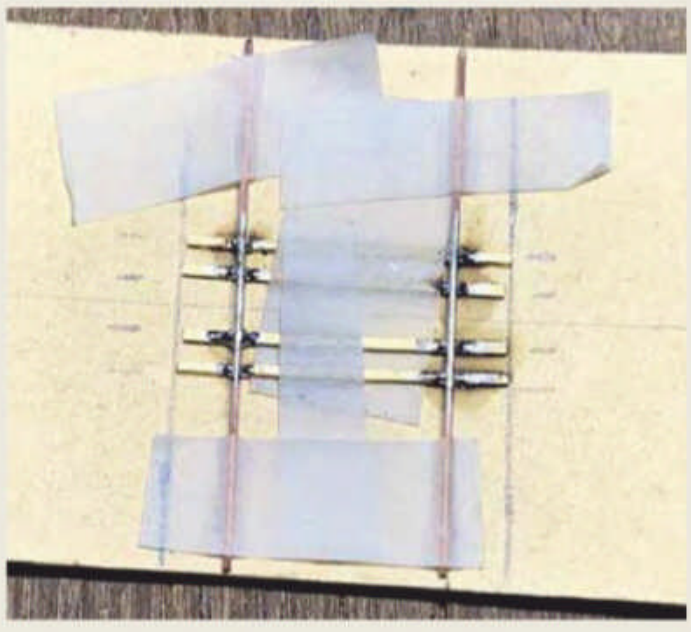
THE SPARK-ARRESTOR GRiLLE AND THE FALL-PLATE

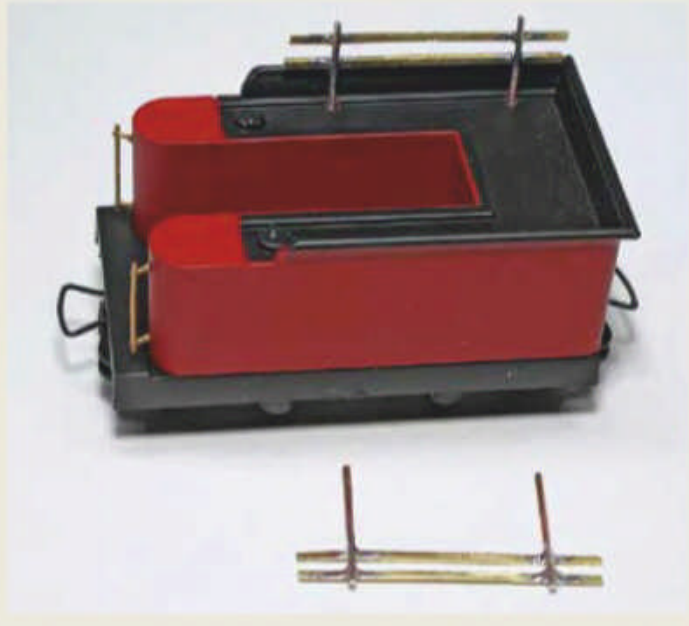
A length of 0.5mm diam. brass wire is shaped into a circle to fit inside the funnel. It is soldered to the piece of wire mesh, which is then cut out. Painted matt black, it fits into the funnel. The regulator ro dis evoked with a length of 0.5mm wire between the top of the steam dome and the front strut of the cab.

Made out of 0.2mm thick plastic sheet, the fall-plate is 9mm wide. It is glued to the tender and its ends on the cab side are cut to a radius of 2mm. The engine can stil run through all the curves, even a 14cm radius, running both forwards and backwards. Once in place, the fall-plate is painted black and generously weathered.

THE LOGS

I called on a hazel-nut tree in the garden! A 4mm dry twig fitted the bill. Cut into 5mm long pieces and split along the middle, it provided me with a load of logs that I glued in place with wood glue.





THE TENDER FENDERS

Two lengths of flat brass strip, left over from kit frets, are soldered spaced by 2mm onto a 0.7mm diam. brass wire. I use a small template drawn on a piece of card, with the parts held in place by adhesive tape. The fenders fit into holes drilled into the top of the tender.
A drop of wood glue, a touch of paint and the job is complete.

▪▪▪ To polish off the job, I applied some light weathering to the engine, it is still very clean, like all locomotives in amusement parks, but the motion and the wheels look better once given an oily appearance. Two figures give a bit of life to the engine: the driver, in the cab, is glued against the side on a strip of plastic sheet.
On the tender, the fireman is ready to chuck a few logs into the firebox. An oilcan, a greasy rag and a shovel complete the junk stacked on the water tank. ■

Building in the garden
A LIFTING BRIDGE

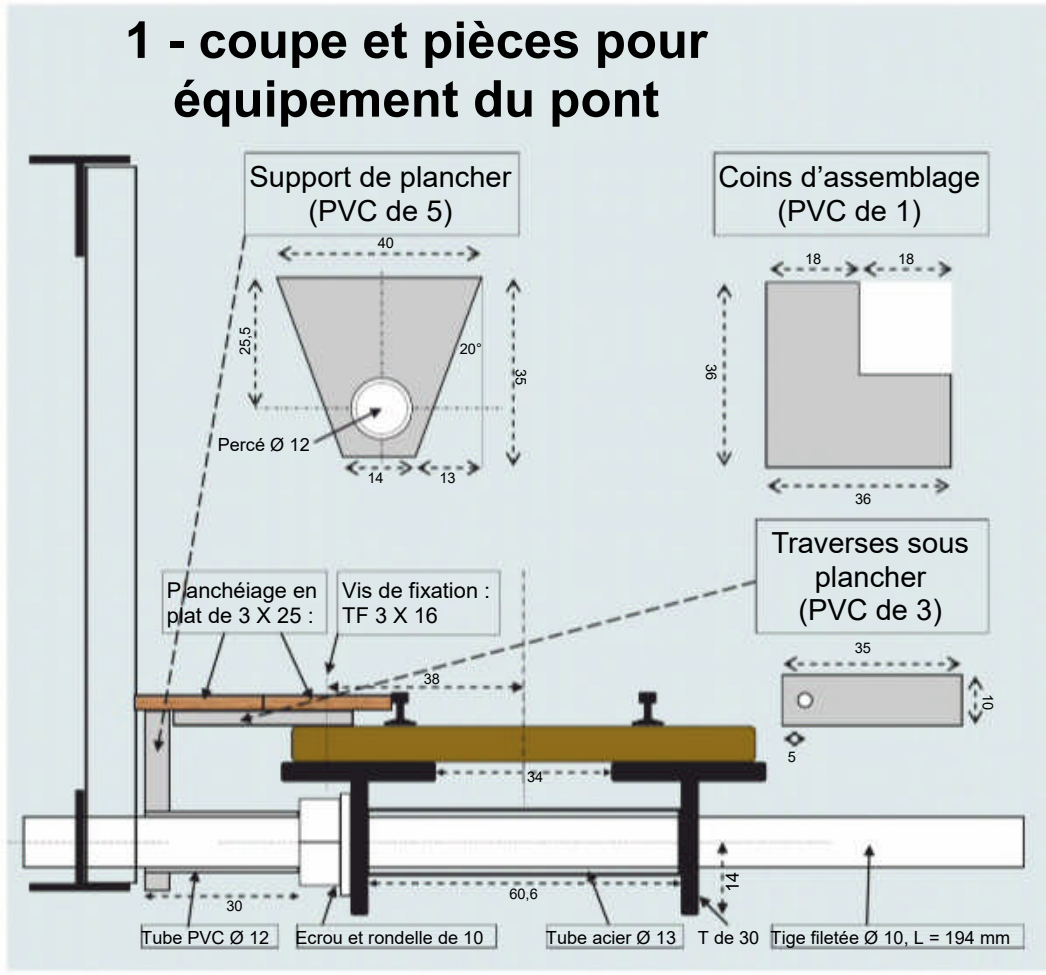
Bernard Deluard is a familiar figure, he regularly describes the construction of his fabulous garden railway. Today's topic is how to build a lifting bridge.

Text and illustrations: **Bernard Deluard**

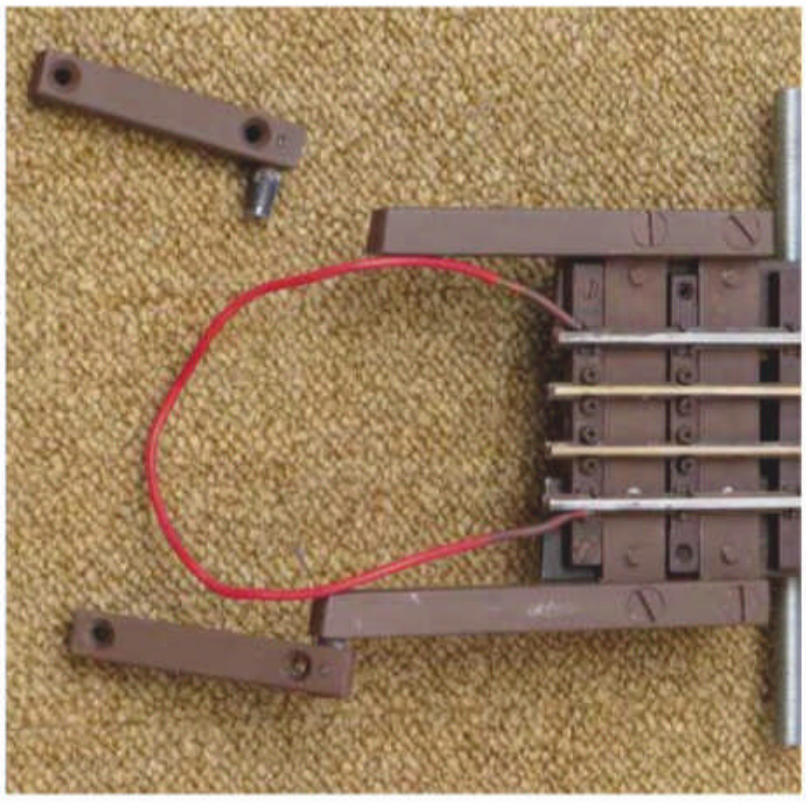
BERNARD BRIDGES THE GAP

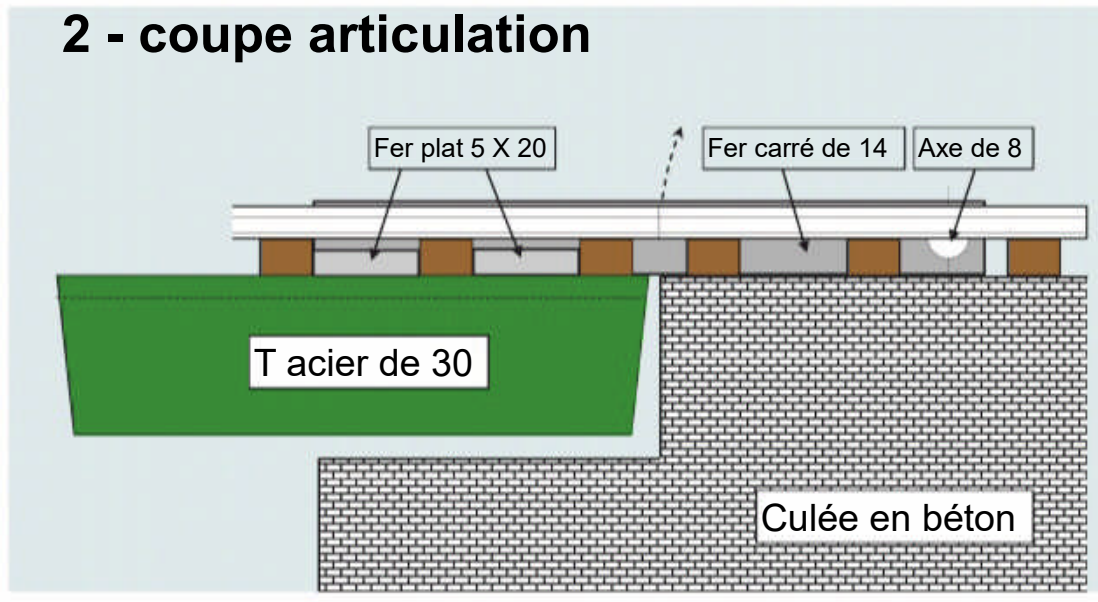
As the viaduct described in Issues 78 and 80 of Voie Libre *led to a dead end, I extended the track by a good dozen metres to the next corner of the garden where I installed a balloon loop. To ensure access inside it, I imagined a lifting bridge based on a prototype.*

To give this bridge a realistic appearance, I sought inspiration from a type of girder structure that was found on the Côte-d'Or metre gauge network. One of them was still extant in the 2000s, crossing over a small road at Mirebeau-sur-Bèze. This enabled me to take a few detail shots.

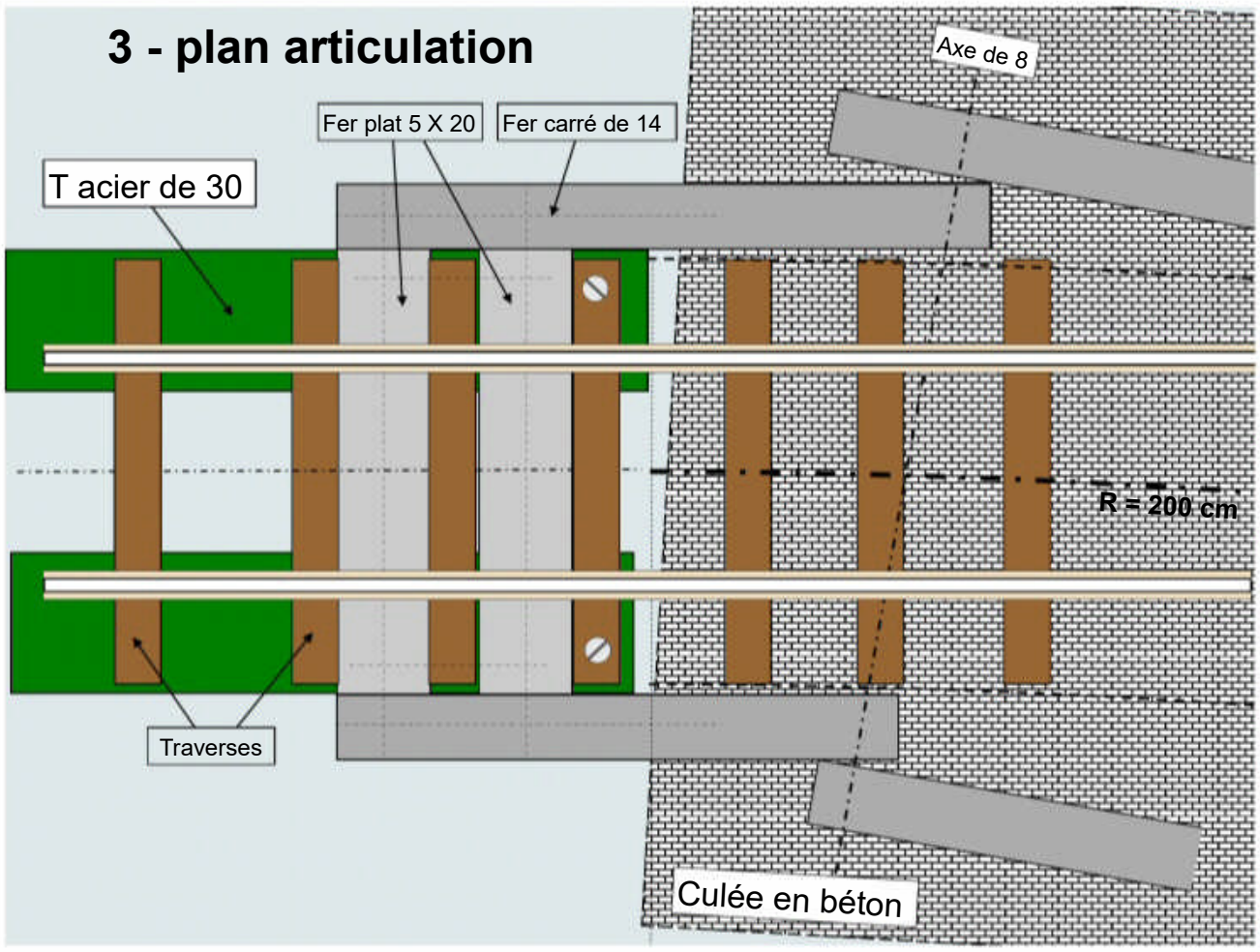


1 The structure of the bridge consists of two garden fence posts, 30mm T-shaped girders. They are held together by 10mm diam. threaded rods, with lengths of 12mm diam. steel tube used a spacers. This assembly is extremely sturdy **(drawing 1)**. The railway sleepers, from the Sunset range, are screwed onto the T girders and drilled out to M3 wherever needed.

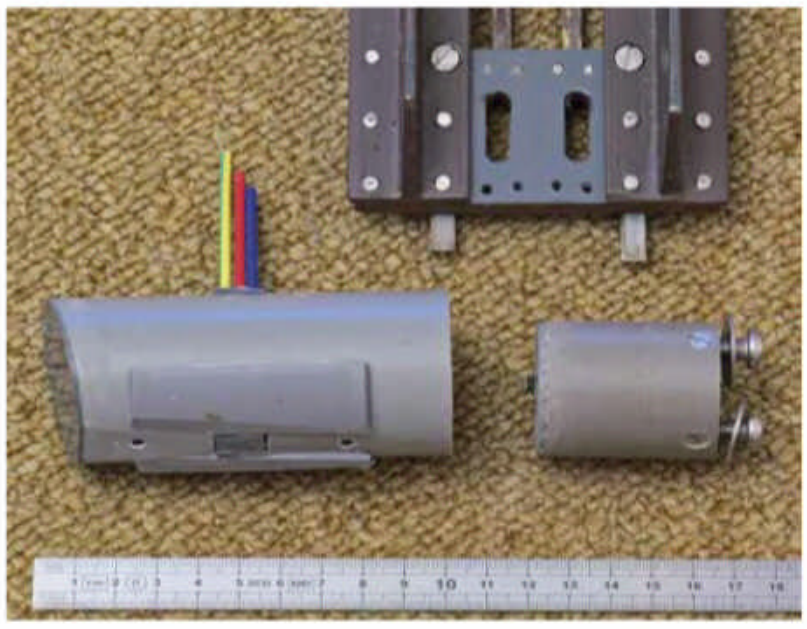




2 **View from above.** The end of the bridge on the hinged side is designed to allow the bridge to rest at a slight angle when open; the rotation angle is therefore set at 80° instead of 90° in relation to the axis of the bridge. The red wire, welded to the end of the rails, provides the electric power. The steel parts are bolted together, ensuring excellent robustness **(drawings 2 & 3)**.

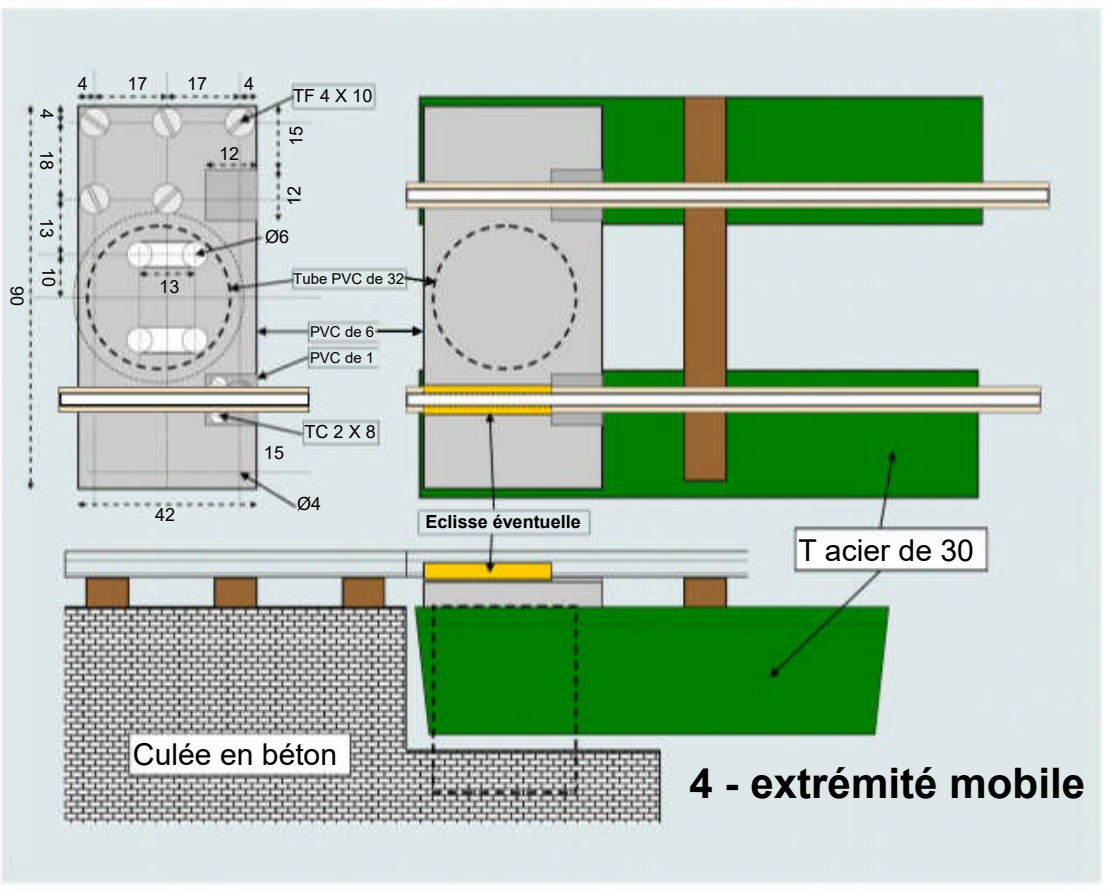


As per the prototype, any terrain movements must be foreseen.



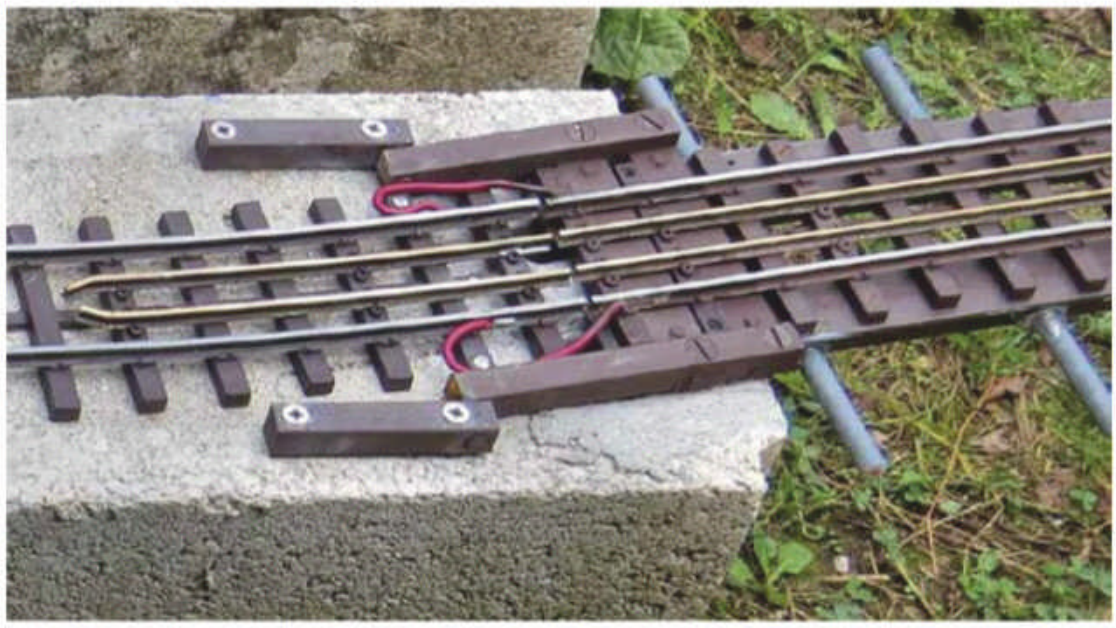
3 **View from below.**
The other end of the bridge is designed to fit very accurately into place to ensure continuity of the track **(drawing 4)**. The bridge is fitted with an offcut from a 32mm diam. PVC sanitary pipe, with a small sprung tab in the middle, which operates a reversing switch located in the female part. This part is configured to slide slightly lengthways to allow for any shifting in the ground ; should this occur, the length of the rails will have to be adapted. Should the bridge become too long, the rails will be trimmed; in the opposite case, short lengths of rail will be added, held in place by long rail joiners, made to measure. I do hope however that things will not move too much!

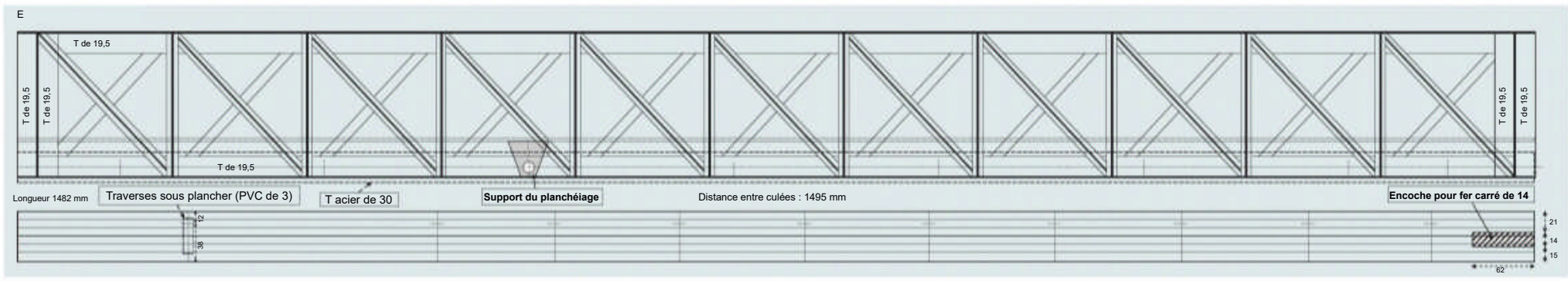
4 The bridge abutment, at the opposite side to the hinges, contains the female part – visible at the lower left on the previous photograph. It is made out of another 40mm diam. PVC tube offcut. The three wires of the reversing switch (yellow, red and blue) ensure that power is off when the bridge is not perfectly in place.



5

At the hinged end, four 5 x 50mm stainless screws hold solidly in place the two lengths of 14mm square steel, fitted with an 8mm diam. axis. Electric continuity is ensured by 1.5 mm2 flexible wire. The inside check rails, made out of 6mm high rail, are there to prevent a train from leaving the track in the vent of a derailment, as per the prototype.



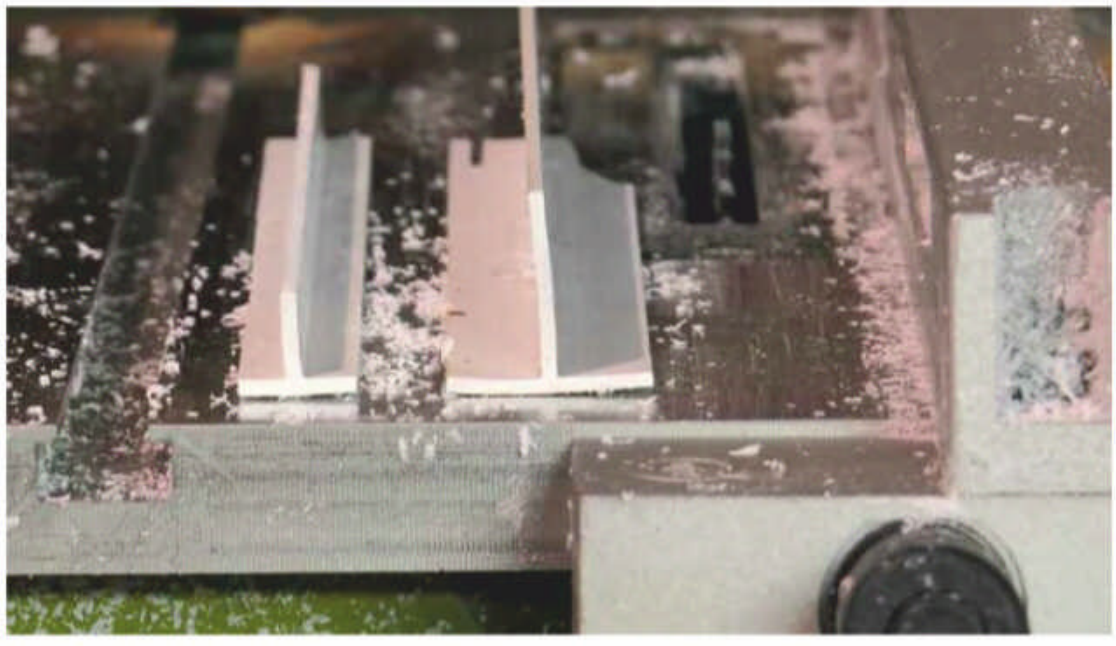


6 A load test was carried out and was highly enjoyable! And as could be expected, thanks to the two 30mm T-shaped girders, there was no flexing!

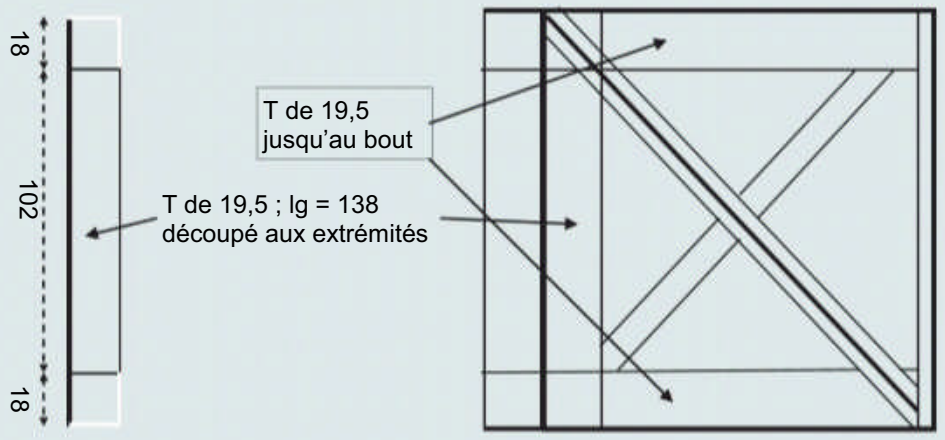
As the structure of my bridge is very rigid, the side girders can be made out of PVC strips.

7

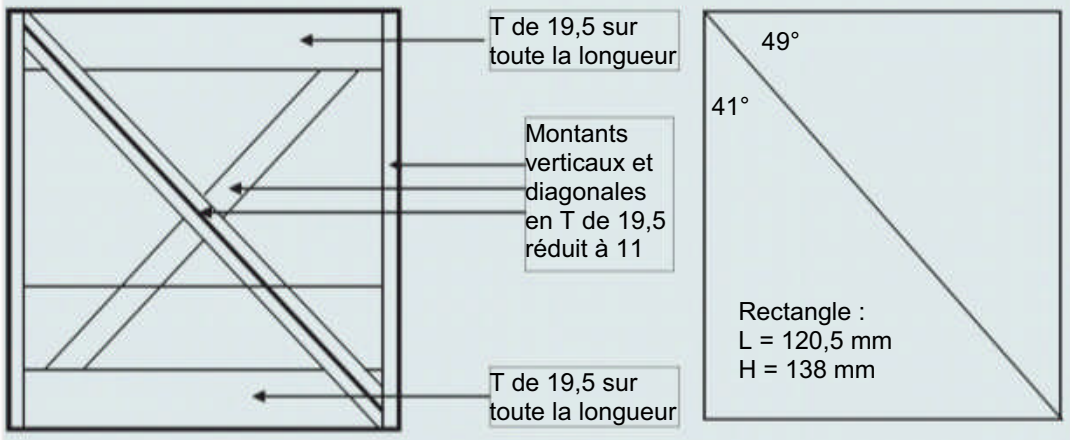
The PVC strips are available from DIY stores have a length of 1m or 2.60 m. For these girders, I used 19.5mm T-shaped strips. I reduced the dimension to 11mm using a circular saw, fitted with a parallel guide to evoke the angle struts. Watch out for your fingers!



Elément d'extrémité :

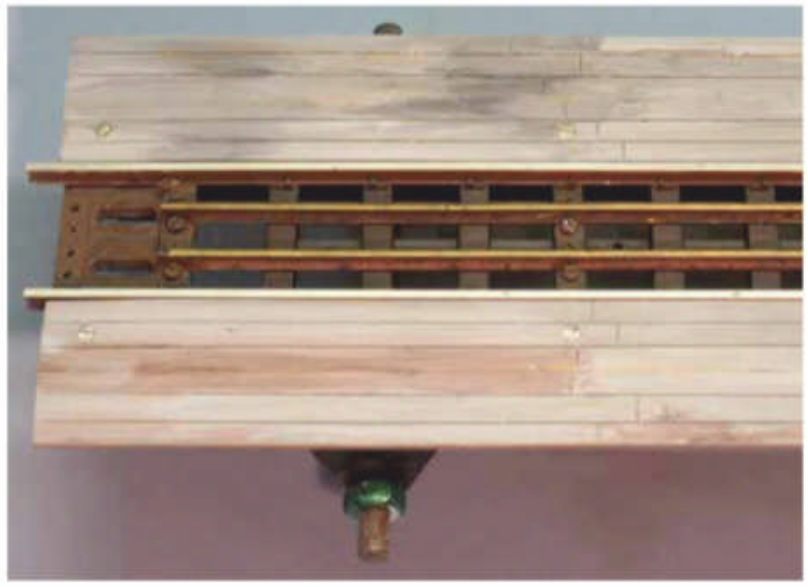


Elément courant :



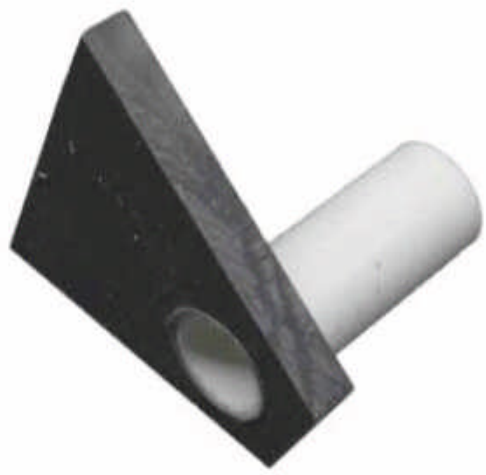
Calcul de la longueur du T de la diagonale : **183** mm

Montants verticaux :
Entraxe 131,5 mm
Longueur : 138 mm

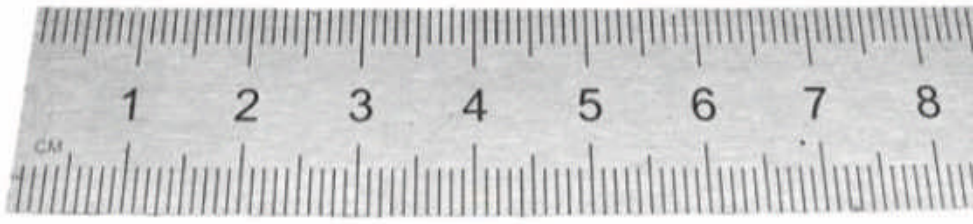


8 The decking is made out of 3 x 25mm flat strip **(drawing 1)**. It is grooved with an Olfa P460 cutter to evoke the boards, and then painted and weathered in shades of grey (less than 50...).

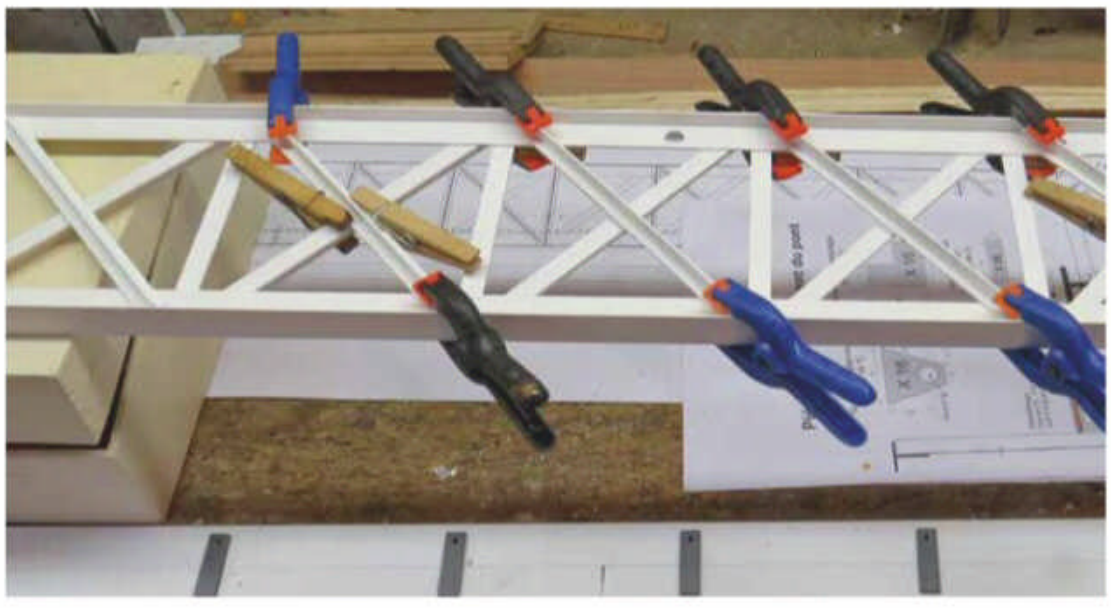
9



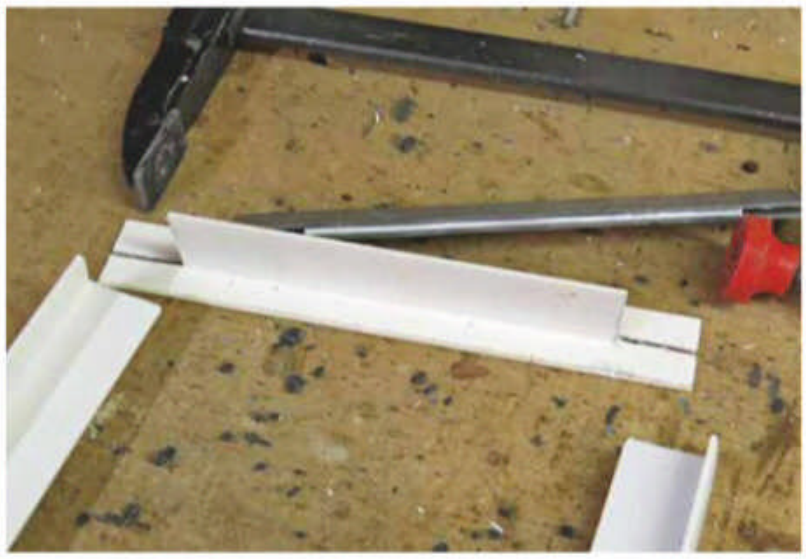
The decking is screwed, on the rail side, to the sleepers, using the same screws as those that fix the sleepers to the steel structure. On the girder sides, it is held on the threaded rods via these PVC brackets **(drawing 1)**.



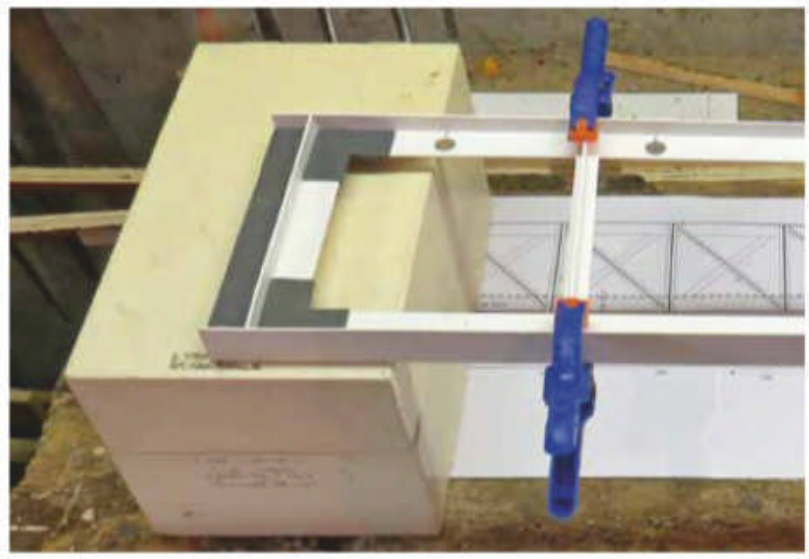
10 Following the plan, the vertical struts are glued in place, between the girders, with PVC gel adhesive, taking care to properly clamp the assembly. It is raised with wedges to ensure that everything remains straight. After 24 hours, the adhesive has set and the assembly will be very solid.



11 In the same way, the angle struts are glued in place. Where they cross, a 1.5mm thick flat strip is inserted, glued and held in place with two clothes' pegs. On the workbench, two sets of decking are visible, one of which, upside down, shows the grey PVC cross-beams that hold the two white PVC flat strips.

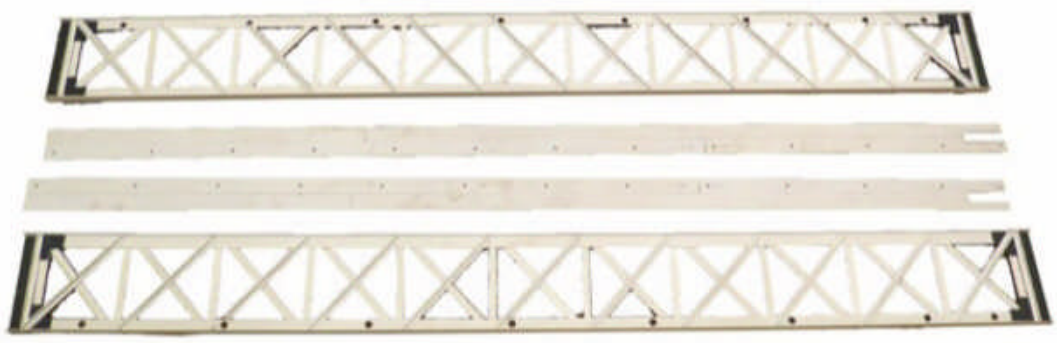


12 At each end, a part cut out of 19.5mm T-shaped strip is glued in place **(drawing page 61)**. The end strut, glued against the T, consists of two lengths of 1mm thick PVC with a 1.5mm thick strip sandwidched in between. The clamp is ready to hold the assembly while the adhesive sets.



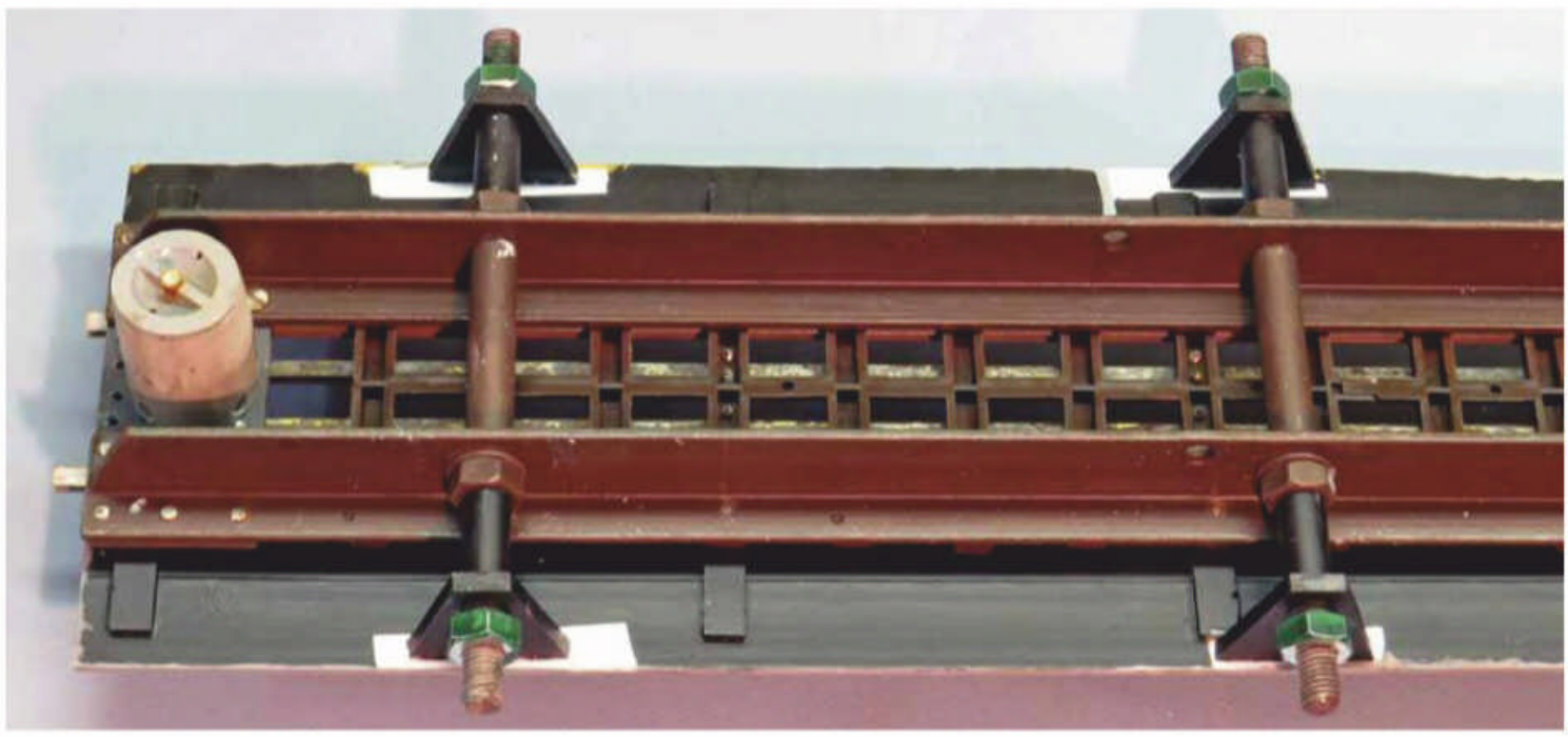
13 Afin de renforcer ces extrémités, des pièces en PVC gris de 1 mm en forme de L **(plan 1)** sont collées comme le montre la photo.

All this must be done with care to remain within the specified measurements.



14 Here are the sides and the decking. Once the assembly is finished, 10mm diam. holes are drilled in the lower girders to accommodate the tips of the threaded rods. Two 10mm nuts will sandwich the girder, the nuts having previously been painted the same colour as the bridge to be as unobtrusive as possible, as they are obviously over-scale. 3mm holes are drilled out and countersunk in the decking, as indicated in **stage 8**, in the steel girders through the track sleepers.

15 After having applied a coat of primer, the decking was painted black underneath and grey on top, and weathered. The girders were painted green.



16

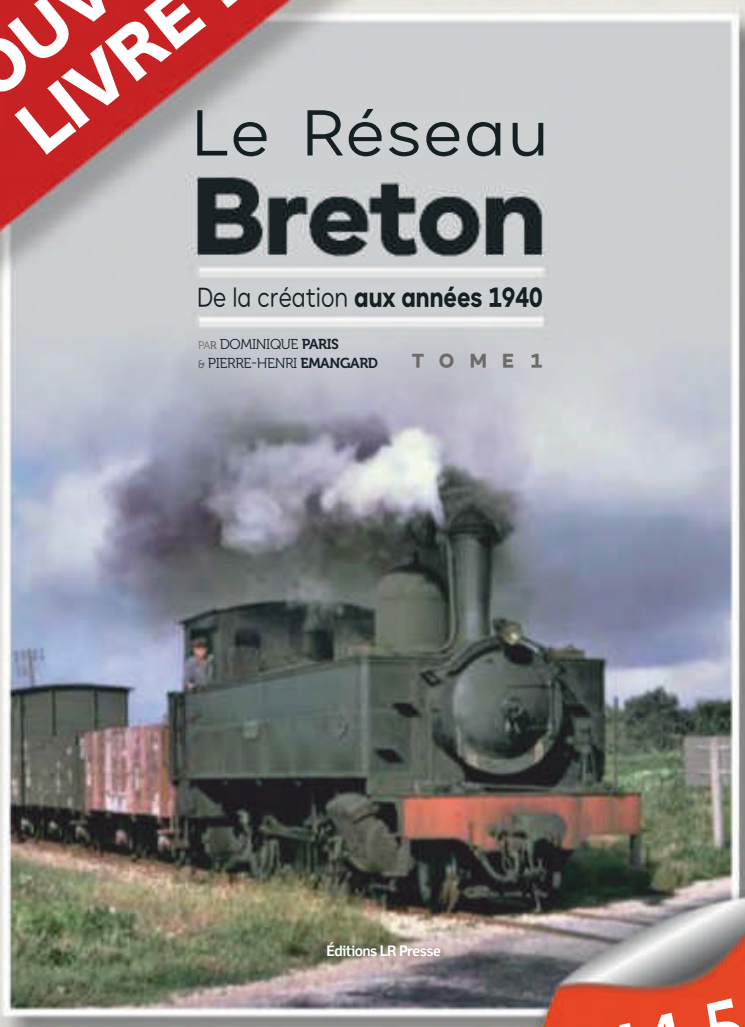
Seen from below. The 10mm diam. threaded rods that hold the two T-shaped girders together are quite visible. The girders will be fitted onto the ends of these threaded rods. The underpart of the decking is glued to the brackets **(stage 9)** that run through the threaded rods.

NOUVEAU LIVRE !

LE RESEAU BRETON

Tome 1 | De la création aux années 1940

par Dominique Paris et Pierre-Henri Emangard



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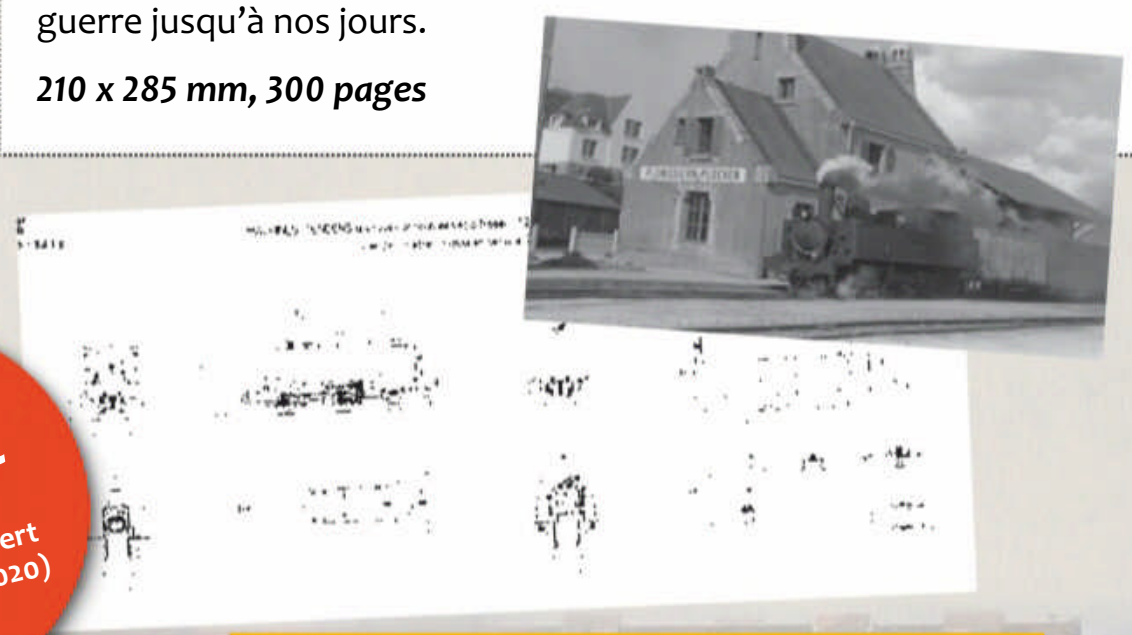
Ce nouvel ouvrage retrace l'histoire complète de ce célèbre réseau à voie métrique qui desservait principalement l'intérieur et l'ouest de la péninsule bretonne. Dans ce premier volume, les auteurs retracent l'histoire du réseau depuis sa création jusqu'à l'immédiate après-guerre, accompagnée d'une étude complète du matériel roulant de la période. Environ 300 photos, plans et documents d'archives inédits illustrent les 300 pages de ce premier ouvrage. Le tome 2 traitera de l'histoire et du matériel du réseau, de l'après-guerre jusqu'à nos jours.

210 x 285 mm, 300 pages



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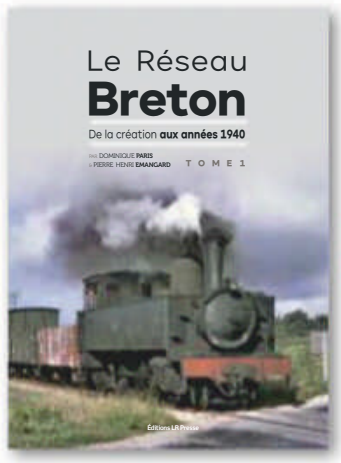

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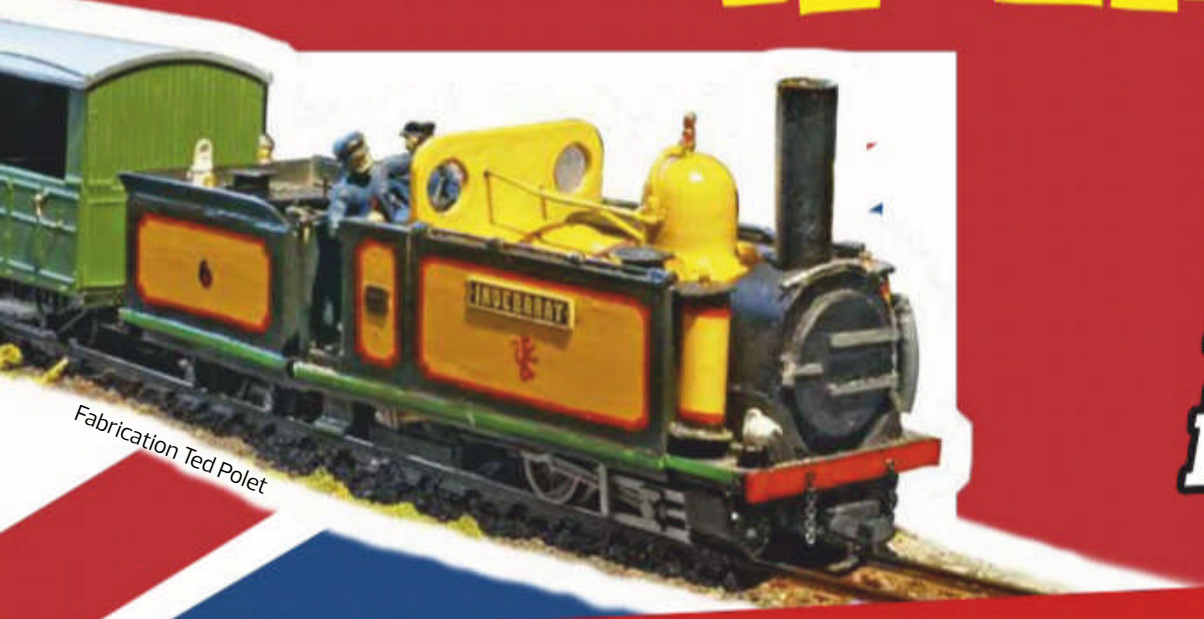

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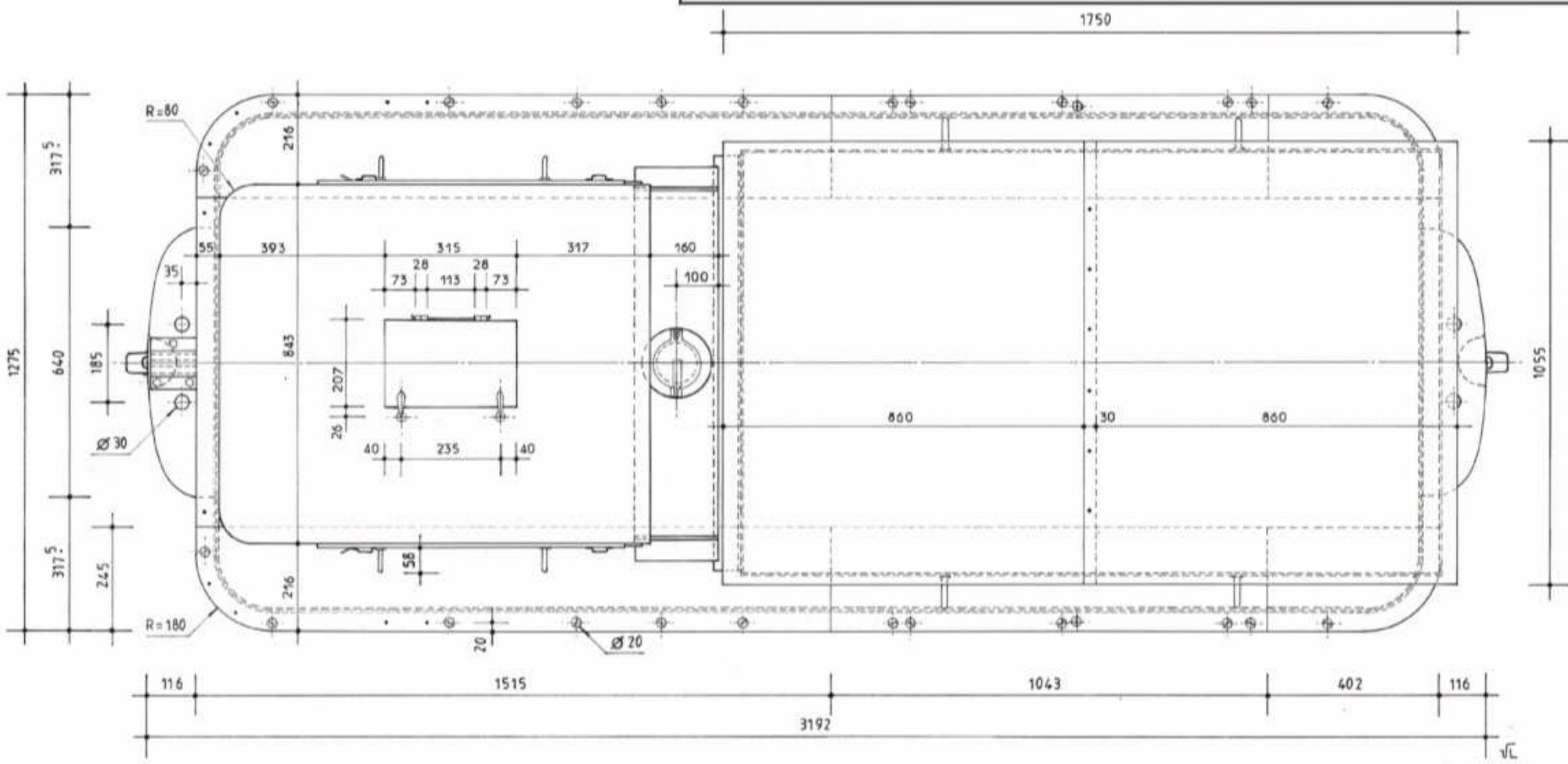
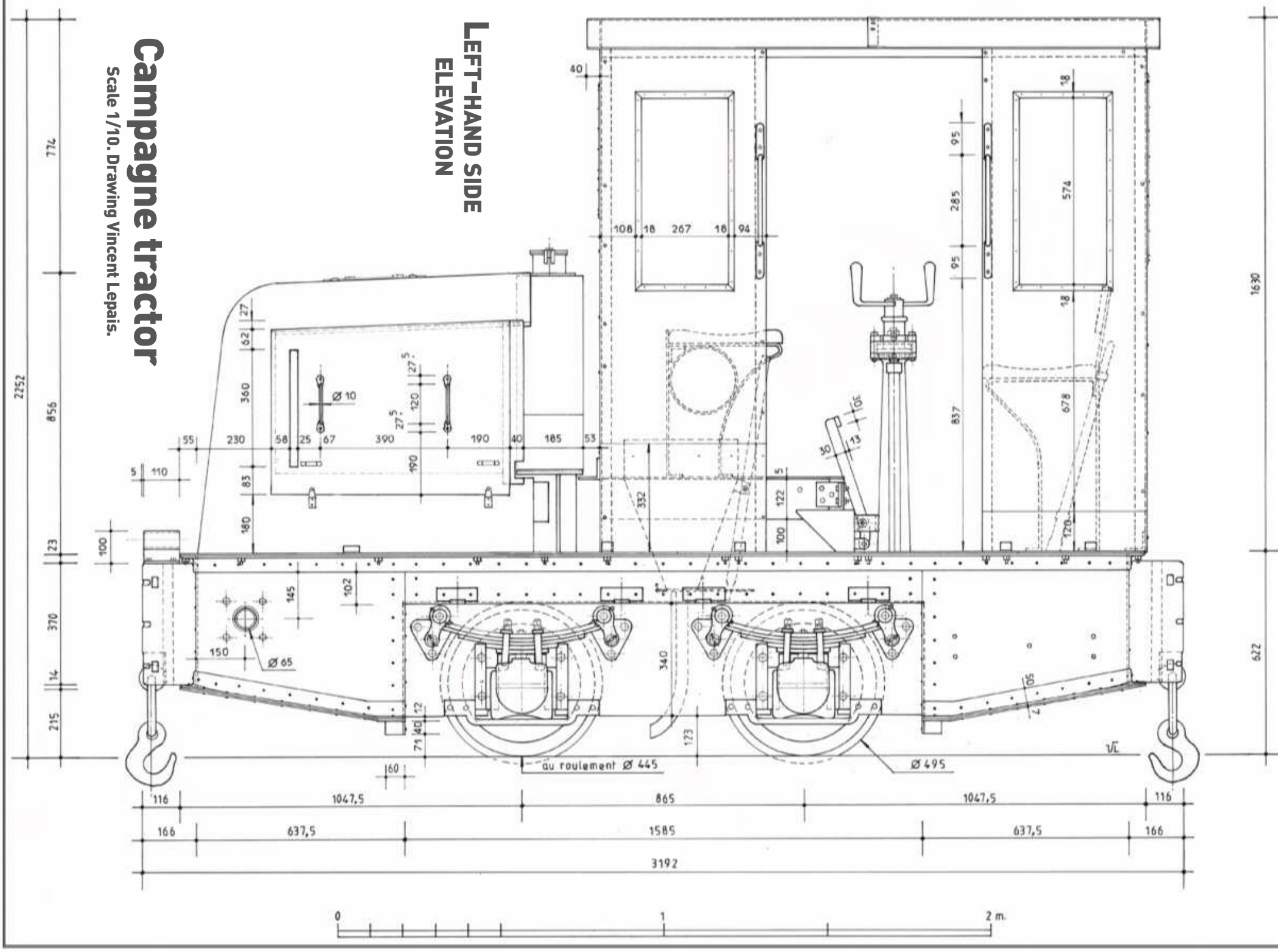


Left-hand side elevation



Champagne tractor

Scale 1/10. Drawing Vincent Lepais.