

ROUTE OF THE TRANSFORMATION

SCIENTIFIC ROUTES IN GIRONA





Diputació de Girona



Ready to satisfy your infinite curiosity?

These routes through the *comarcas* (similar to counties) of Girona aim to provide an alternative to conventional tourism, offering a proposal that has the added bonus of providing scientific and sustainable knowledge. These routes have been designed based on a specific science-related theme, around which a weekend outing can be planned. There's something to explore in every comarca! Through this guide you will learn, for example, among other things, who Professor Margalef

was; how the cannons on the ships that sank in the Mediterranean are recovered and restored; the chemical process that lurks behind the making of a simple cheese; why wetlands were important to the Greeks and Romans; how long to wait before recorking an oak tree; which animal skull is the most sought-after at the Archaeological Museum of Banyoles; or where the Romans mined gold in Cerdanya. When tourism and science go hand in hand, the result is spectacular.

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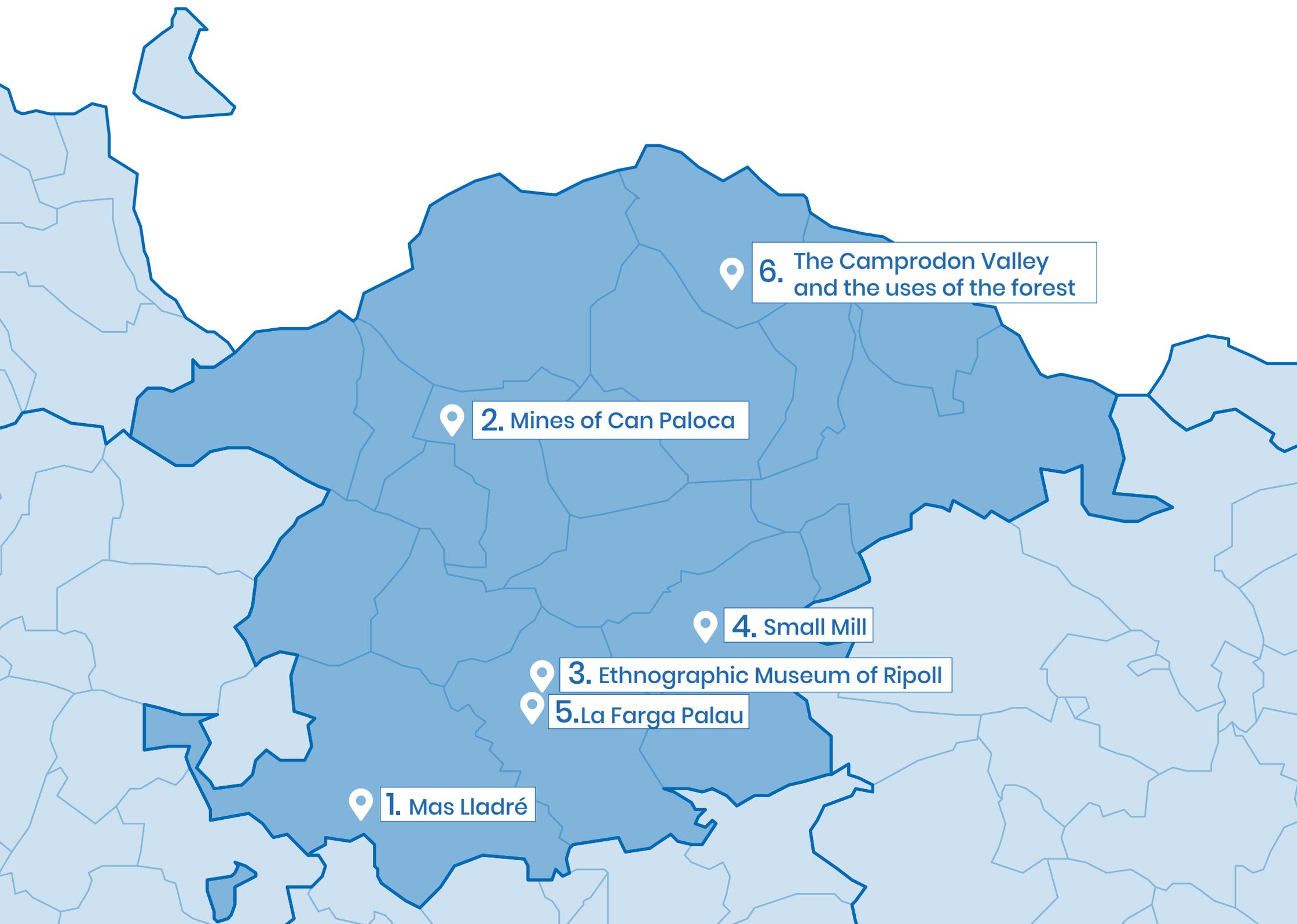
“A Poble de goll, de vaques i mulats, de pa negre i espès, de boira baixa; un poble amb els carrers sempre mullats i amb un riu a l’entorn com una faixa.

Un poble enyoradís, que feia olor de palla i herba morta; un poble amb samarra de pastor i un gos a cada porta.....”

Joan M. Guash

ROUTE OF THE TRANSFORMATION EL RIPOLLÈS

Ripoll is known as the cradle of Catalonia, the resting place of the mortal remains of most of the kings from our history. An impressive monastery that will take your breath away and an otherworldly landscape that will transport you to another place. A history of mining, the Iron Route, counts, fairies and abbesses. This route, however, reflects on what lies behind every history, product or person: a transformation. A process of change that lets us understand what was and no longer is, and what is known or remains unknown. Ripollès undoubtedly hides the science of change, the science of transformation.



1. Mas Lladré



2. Mines of Can Paloca



5. La Farga Palau



3. Ethnographic Museum of Ripoll



4. Small Mill



6. The Camprodon Valley and the uses of the forest

1. Mas Lladré



The products of Ripollès are sure to impress. The way the raw material is processed is part of the care and love for a job well done, and is also the result of experience. One thing's for sure: if you want to talk about a transformation, you have to know first-hand about some of the region's star products: the meat and dairy products of Mas Lladré.

Before arriving in Ripoll, you come across a left turn towards Berga, Les Llosses and Borredà on the C-26 road. Take this turn and, some 12 km in, you'll find a green sign pointing in the direction of Santa Maria de Matamala. There's a total of 200 metres from this sign to the turn-off for the farmhouse. You have to pay close attention, because as you get closer, in addition to cows, there are also dogs and cats, small and old, who also have their run of the place and are quite eager to come out and meet you at the start of the path.

Mas El Lladré is a farmhouse located in Les Llosses, a small village in the Pyrenean region of Ripollès. If you can't find the turn-off that takes you there, you can always call Marina or her father, who will be delighted to give you directions.

Either one will offer you a chance to tour (by appointment) their agricultural and livestock farm, which alternates the milk production

activity with the artisanal preparation of dairy products, especially cheeses (which, by the way, have received various awards in different national and international competitions). Marina, who explained to us how her farm works, is one of those people who is impossible to forget because of the passion she puts into her work and her enormous capacity to convey that passion.

Both the livestock activity and the production of dairy products are traditional, family operations and, therefore, of limited production. They use the milk from their cows to produce high-quality products: cottage cheese, yogurts, fresh cheese, custard and more. They also sell fresh beef, pork, lamb and goat from their farms. Making the product themselves and selling it to the end consumer results in good traceability and reliable information for the consumer.

This point on the route isn't just interesting to understand how raw materials are transformed, but also how they've had to transform their main source of business by opening up to tourism to survive.



2. Mines of Can Paloca



Mining is part of the historical heritage of the Ripollès region. It is a witness to the technical and industrial development of ages past and essential to understanding the present reality of the territory. The years of mining marked and transformed the lives of its inhabitants and left behind a rich heritage.

Can Paloca was a small iron mine, where operations began in the early 16th century, at the zenith of Catalan metalworking in the Ribes de Freser valley. Various shafts and open pit operations were part of this mining complex, which is accessible from Ventolà. Four of the twenty-six operations yielded iron oxides that supplied the workshops in Planoles, Ventolà and Campdevànol. The other mines provided arsenic and gold. When the ore was depleted, the mines were abandoned. Today, visitors can take in the different mineral formations in the walls and ceiling through one of the side entrances.

This mine is a clear example of how the process of mining evolved, since you can see how, at first, the materials were extracted in the open air until, little by little, after forming veritable caves which posed the danger of collapse, the mining industry decided to tunnel and excavate from within the mountains.

The walk to the mine is astonishingly beautiful. At times, you'd think you were walking in the Swiss Alps. It should be noted, however, that this route isn't suitable for small children or adults with vertigo.



3. Ethnographic Museum of Ripoll



Located in the county capital, the Ethnographic Museum of Ripoll is memory and life itself, because it preserves and communicates a legacy of the people who preceded us and it helps us understand a society based on its tangible and intangible heritage. This museum explains the customs of the people of the town and the region where it is located, but also of the society of today and of a few decades ago.

The current museum was founded in 1929 under the name Archivo Museo Folklorico de Ripoll, and was born out of its founders' realisation that society was changing rapidly, that industrialisation was bringing about new customs and new ways of doing things, and that an important heritage could be lost in a very short time.

The museum building is arranged into areas and collections, most notably the collections pertaining to shepherds, peasants, trades, popular religion, Catalan metalworks, wrought iron and the handheld firearms of Ripoll.

The Museum, then, can provide an insight, for example, into one of the most important industries that the region had: the transformation of iron into metal products, such as tools or weapons. The iron mining operations in Ripoll and in the neighbouring comarca of Conflent, on the other side of the Pyrenees, led

to the creation of an important metallurgical industry. On this visit, which we recommend doing with its director, Roser Vilardell, as a guide, you'll gain an understanding of how risky it was for the town to be the headquarters of the war industry during the First Carlist War, for example, or of how some of the inventions that to us look like examples of modern-day life, like the clothes dryer, were already in use in the late 18th century.

By the end of the tour you'll realise that transformation affected not only the past, but that everything we now consider modern is already being surpassed by technological innovation. The museum features a display with tools that could still be considered useful today, but whose days are numbered.



4. Small Mill



The Molí Petit is an old flour mill that was run by the Monastery of Sant Joan de les Abadesses. It's home to the Interpretation Centre of Riberes de l'Alt Ter, a protected area of the Natura 2000 Network.

The mill building retains much of the original structure of the internal hydraulic mechanism. It was the monastery's old flour mill. Records show it was already in use in the 14th century, and until the 1970s it worked with water drawn from the Arçamala stream through a canal as its sole source of energy. In 2003, given the historical importance of the building, its state of abandonment and the risk of collapse, the municipal government issued a plan to refurbish the main building's external structure. Later on, it took out a public tender for the interior refurbishment and upgrades needed to convert the Molí Petit into a facility to promote environmental awareness. Nowadays, visitors to the Molí Petit can learn how the raw power of water can be used to easily move heavy wheels that crush wheat grain into flour. The mill has been very carefully reconstructed, in keeping with the authentic milling activity and using the same resources.

After learning how the miller works, visitors move on to the process of turning flour into bread – a workshop that shows how what we now buy in a bakery was still a routine household chore not that many years ago.



Els cereals

El blat, bàsicament és el blat, és un producte la forma degradada al consumir humà, principalment per fer pa, també per a l'alimentació de porcíes per al bestiar.

El gra s'utilitza al molí per a la producció de farina prouca de cereals de la zona i principalment són cereals, tot i que també s'han emprat lleguminoses, com les llavors o altres farinats com la del gra de blat.

<p>Blat de muntanya, muntanyenc, canya. Dos tipus. Un: farina (barbades), que s'utilitza, normalment, per fer pa. Culler d'orenga, que es prepara fregent per fer el pa i es venen amb el producte. És un producte molt típic de l'antiga i actualment s'utilitza a tot el món.</p>	<p>Blat, forment. És el més comú. Un: farina (barbades), que s'utilitza, normalment, per fer pa. Culler d'orenga, que es prepara fregent per fer el pa i es venen amb el producte. És un producte molt típic de l'antiga i actualment s'utilitza a tot el món.</p>
<p>Blat de muntanya, muntanyenc, canya. Dos tipus. Un: farina (barbades), que s'utilitza, normalment, per fer pa. Culler d'orenga, que es prepara fregent per fer el pa i es venen amb el producte. És un producte molt típic de l'antiga i actualment s'utilitza a tot el món.</p>	<p>Civada. És el més comú. Un: farina (barbades), que s'utilitza, normalment, per fer pa. Culler d'orenga, que es prepara fregent per fer el pa i es venen amb el producte. És un producte molt típic de l'antiga i actualment s'utilitza a tot el món.</p>
<p>Ordi. És el més comú. Un: farina (barbades), que s'utilitza, normalment, per fer pa. Culler d'orenga, que es prepara fregent per fer el pa i es venen amb el producte. És un producte molt típic de l'antiga i actualment s'utilitza a tot el món.</p>	<p>Segut, secor, sega. És el més comú. Un: farina (barbades), que s'utilitza, normalment, per fer pa. Culler d'orenga, que es prepara fregent per fer el pa i es venen amb el producte. És un producte molt típic de l'antiga i actualment s'utilitza a tot el món.</p>



Història dels molins

Com tots sabem, els grans dels cereals tenen la finalitat de generar i convertir en una nova planta, per aquest motiu, com a resultat d'aquesta important reserva energètica, s'ha desenvolupat una sèrie de molins que han permès per una altra estructura que li dona productes. Així doncs, per obtenir aquests molins, s'han desenvolupat molins amb diferents tipus de molins, que podrien servir en funció de les necessitats dels molins amb aigua i, de pa, de preses i d'altres productes relacionats.

 Molí manual	 Molí hidràulic	 Molí de bestiar animal
 Molí de roda vertical	 Molí de roda horitzontal	 Molí de pedra
 Molí de vent	 Molí de vent i hidràulic	 Molí elèctric

5. La Farga Palau



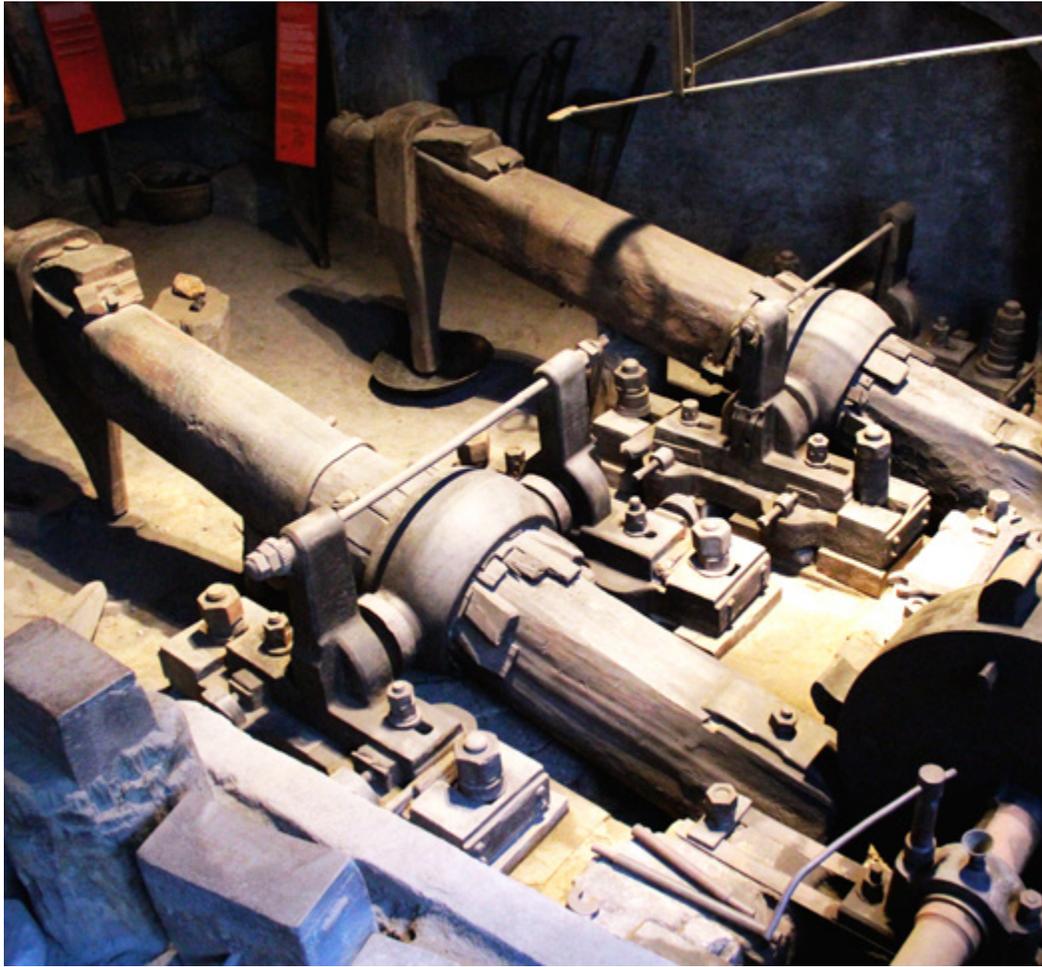
Forges were old workshops where ore was transformed into iron. La Farga Palau in Ripoll is one of the last examples of a historic industry, both locally and in Catalonia as a whole. It was founded as an iron forge in the 17th century, and it remained active for five centuries, although later it was transformed into a copper forge (manufacture of copper boilers and plates), until it closed for good in 1978. Nowadays it has been restored and is the only fully preserved forge in Catalonia. Don't miss this chance to visit and learn about its facilities, recognised as a world metallurgical landmark.

La Farga Palau occupies the ground floor of buildings, with the water tubes, pile drivers, coal bunker, the furnace and the forge. Separate from the workshop are the waterwheel, the ditch and the pond used to store the water of the Freser River, the soul of the city of Ripoll, and also of the forge for a time, since it was generated the energy that made it work.

The forge retains all of its original tools, machines and structures. 17th-century Ripoll in particular was full of forges, with over twenty dotting the community. This was so because the region offered an abundance of all the natural resources this industry required: the raw material (the iron ore extracted from the Ribes valley), the forests (which supplied the charcoal to melt the ore), and the water (from the Ter

and Freser rivers), the source of the hydraulic power. Catalan forge or the Catalan method is used to describe the revolutionary technique that the master smiths started using to make iron, and that introduced a new system of blowing air, invented in Italy but that was fully realised here. This system was implemented throughout Europe and the United States due to the performance, efficiency and quality of the iron it turned out. A veritable revolution for pre-industrial society.

Once inside, you can imagine what it must have been like to work in an iron furnace and the high temperatures that the Farga could reach. It's amazing.



6. The Camprodon Valley and the uses of the forest



The transformation in the Ripollès region is not exclusive to the agri-food and industrial sectors. In fact, innovation and the need to make this unique environment sustainable resulted in municipalities such as Llanars in the Camprodon Valley being the first to have the new generation of biomass boilers. Llanars has about 1,200 hectares of forest, one of the densest in the region. Due to the need to keep the forests in good condition, resources were initially devoted to recovering pasture fields. Although this helped, the result was not enough, so it was decided to splinter the trees that were less marketable and were of lower value. In addition, biomass favours forest management, promotes improvements and reduces the risk of forest fires.

Splintering can be done with freshly cut or dried trees. If done with a fresh tree, the fragment is stored in a warehouse long enough for it to dry so it can be used. As an aside, the fragment, the forest biomass splintered into small size, has a calorific value of 2.9 kWh/kg.

If you take the road from Ripoll toward Setcases, you will drive through Llanars, a quiet town with stone houses where you can breathe in the relaxation. Here we suggest making a stop to visit a machine room, under an arched gallery next to the Plaza de l'Om, where you can see the boiler that is used to supply heat to different

municipal facilities such as the school, the co-op, the City Council and the future expansion of the dance hall. Panels explain how this change in how the forest is used has yielded a heating system called "district heating", meaning the heat is generated at a specific point and distributed along the streets to each of the municipal buildings.

Once in Setcases, a must-see to enjoy the beauty of the forests in the region, a walk along its steep streets will reveal the history of the village where education, dance, jobs and natural and industrial heritage are an example of how the transformation has affected the entire city throughout its history.

Focusing now on wood, point number 6 on the itinerary shows how the use of wood has evolved since the city was created, since it has been one of the sources of natural wealth not only for home use, but for construction and for commercial uses by way of charcoal, or to supply forges in the 20th century, such as Farga Ripoll. The relationship between Setcases and wood is so close that of the three mills that the village had, one of them, Manyito, was used exclusively to saw wood.

