

THEN, THERE WERE MINES

Volume 2



Margaret Davies
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Chapter 1. Las Herrerías.

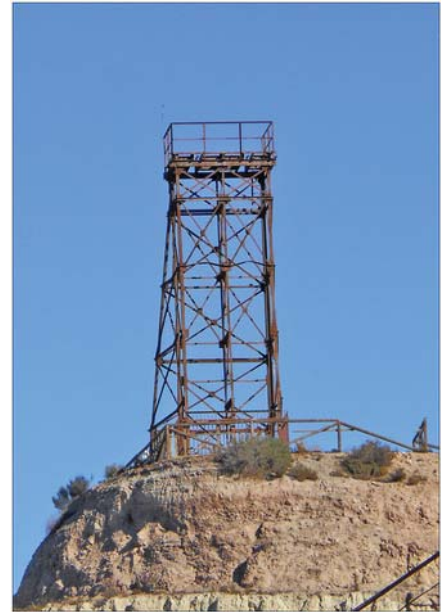
- 1.1. The giant awakes.**
- 1.2. The silver rush.**
- 1.3. The enemy approaches.**
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- 1.6. The glory days.**
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1.1 The giant awakes.

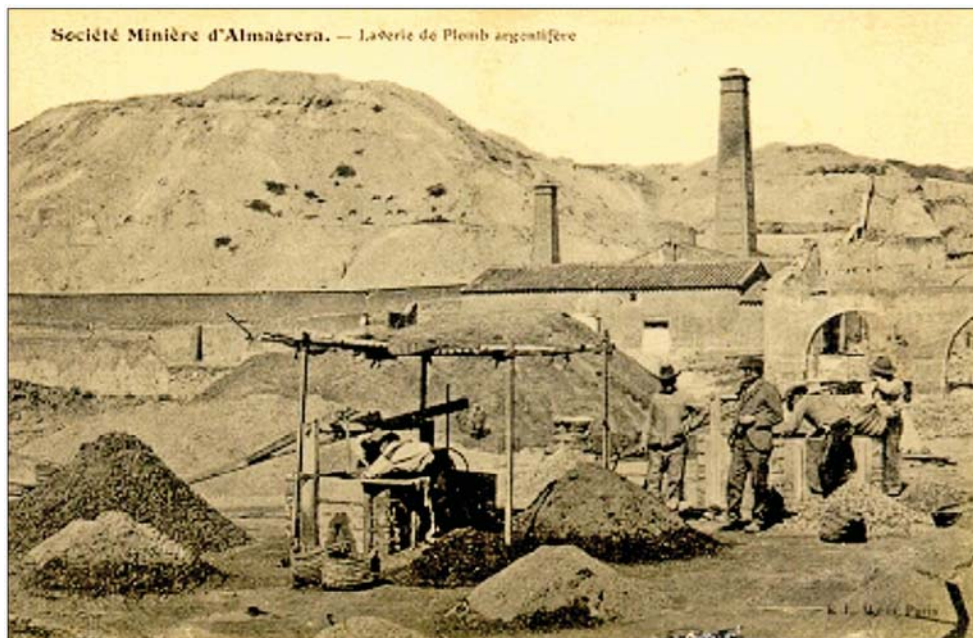
Las Herrerías is a small natural massif, or rock outcrop, sandwiched by two mountainous slag heaps, the result of a millennia of exploitation and open cast mining. Like the Sierra Almagrera, its history is fascinating but, alas, is mostly buried under the debris. The preservation of the head-frame of the mine Alianza, is small compensation for the obliteration of a thriving mining area which, in its day, produced two thirds of the iron ore in the province of Almería and whose silver was renowned for its beauty.

The head-frame of the Mina Alianza.



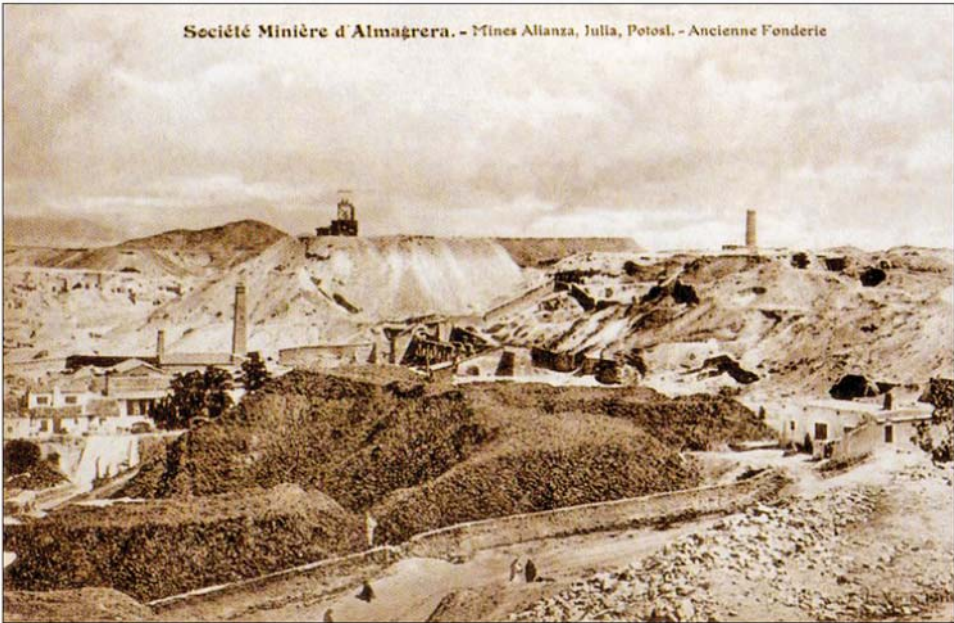
In the 15th century, when the Moors were expelled by the Catholic Monarchs, their knowledge and skills were lost and the area we know as Las Herrerías fell into obscurity. With the passage of time, a belief grew that the slag heaps in the area were the result of ores that had been brought down for processing from the mines in the Sierra by the Romans. Only in the 19th century was it realised that Las Herrerías itself had been extensively mined by the Phoenicians and Romans, and that there were still riches to be found.

With the discovery of silver in the Sierra, the hunt was on for other places that it might be found. In 1849 concessions were granted to the company, Esperanza, for the exploitation of lead at Santa María de Nieva and Virgin de las Huertas situated in the south west of the Herrerías outcrop. They found that the extracts from the shallow workings were financially worthwhile.



Lead washing in Las Herrerías below the Atravida foundry at the turn of the century. E.L.Morin.

In the north, Antonio Abellán Peñuela, who later became the Marqués de Almanzora, established the Atravida foundry in 1850 in the area above Eugenio's bar, between the old head-frame and the church. Las Herrerías came into being as a result.



The ruins of the Atravida foundry in Las Herrerías. Mina Alianza can be seen on the skyline. The foundry's chimney, on the skyline to the right, is still standing. E.L.Morin.

In the south, Guillermo Huelin established the Araucana foundry to process the results of his open cast mining in the Sante Matilde mine. This southern area became known as the Roza de Huelin, meaning Huelin's clearing, and later when the number of open cast sites increased simply as Las Rozas.

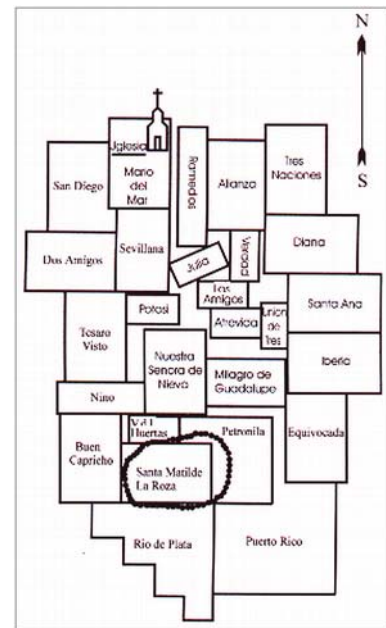


Guillermo Huelin's Araucana foundry in Las Rozas

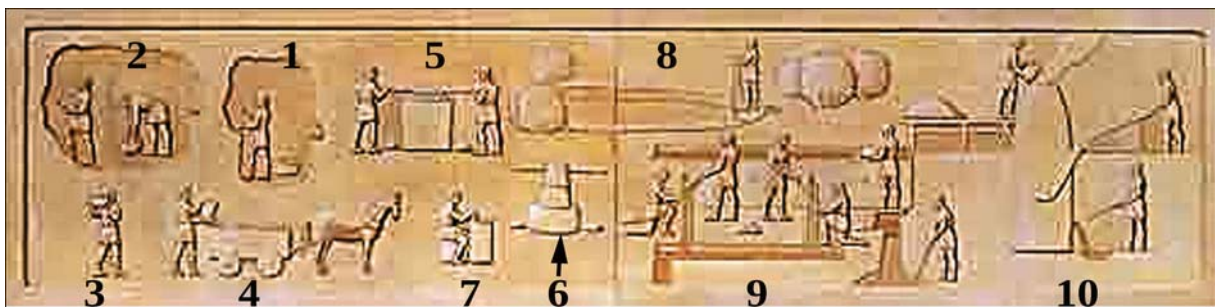
1.2 The silver rush.

In 1870, by chance, the engineer Gomez de Salazar, had a sample of what was considered worthless waste analysed. It was found to be rich in silver. The discovery was followed by the inevitable “Herrerías silver rush”. The fever was such that 50 speculative concessions were granted on the small outcrop, of which about half rapidly exhausted the thin, silver bearing seams and were abandoned.

Plan showing the successful concessions in Las Herrerías.



The remainder were luckier. The old, relatively shallow, mine workings were discovered and explored. To everyone’s surprise, the infill used in these old galleries and shafts contained enough silver to be worth processing using the modern techniques of the day. It was evident that these mines had been hurriedly abandoned by the Phoenicians as underground seams were still rich in ore. Picks and iron wedges were found, along with the remains of ropes and wooden shuttering, clay lamps and human bones, possibly those of slaves.



Frieze depicting the processing of galena in antiquity. Not much had changed in the intervening millennia.

Key:

- | | |
|------------------------------------------------|----------------------------------------------------|
| 1. Exploring the vein. | 6. Grinding the ore in a stone mill. |
| 2. Mining the ore and loading it into baskets. | 7. Further grinding by hand. |
| 3. Carrying ore to a horse-drawn cart. | 8. Drawing water from a cistern. |
| 4. Transporting ore to be crushed. | 9. Washing the ore. |
| 5. Crushing the ore with hammers. | 10. Creating lead pigs by processing in a furnace. |

In addition to the argentiferous galena an enormous quantity of pure silver was found, occurring in “nidos” or “nests”. These were holes filled with beautiful silver thread or filaments. In 1875 the Unión of Tres mine extracted 50 kilograms of such silver in 24 working hours. In the Iberia mine, nests of more than two kilograms were found. A nest of amazing beauty, found in the Milagro de Guadalupe, was presented to the Pope earning the mine owner the Pontifical title Conde, or Count, Miguel.

A nido, or nest, of silver of the type found in Las Herrerías.



The mines in the northern sector generally found silver from about the 50 metre level, while those nearer the roza found it in a narrow band closer to the surface. Beneath this band was an even more valuable mineral, iron. So began a new era of growth and wealth for Las Herrerías as open cast mining of this sought after commodity began in earnest.



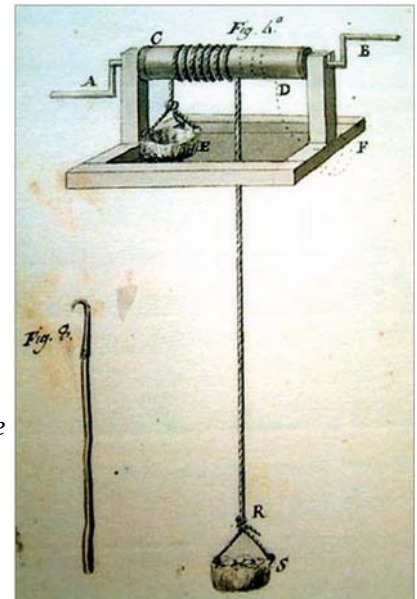
A vision of Hell! The eastern side of Las Herrerías in the 1880s, looking over the Union de Tres, Iberia, Santa Ana and Diana mines.

Rodrigo

1.3 The enemy approaches.

As both subterranean and open cast mining delved deeper the consequences were inevitable. Water started to appear. Here, it was ingress from the Almanzora and not thermal springs as in the Almagrera mines. The depth at which it started to appear varied from 30 to 65 metres and corresponded to the thickness of the argentiferous layer.

The earliest attempts at counteracting the flooding involved bailing the water out, using two barrels on a winch, manually operated day and night by two teams working 12 hour shifts. This laborious and costly system was sustained, in the early years, because of the high returns that the mines were enjoying. However, the unwillingness to make any capital investments and the reluctance of the various mine owners to participate in any cooperative ventures saw more and more water entering the workings.



Manual winch of the type used for bailing water from the mine workings.

As a result, in 1874, the owners of the Unión de Tres installed a steam pump enabling them, and some of their neighbours, to increase the depth of their workings. However, by 1875 other mines needed to install similar machines in order to continue with their exploitations. A multitude of small desagües was not a sensible way to deal with a common enemy. The high cost of installing, running and maintaining these pumps was a burden to most companies. Many owners were in the practice of ceasing pumping, confident that they would benefit from reduced water levels brought about by a neighbour's efforts. By 1882, much of Las Herrerías was in a state of neglect. Those in the southern areas who, as well as open cast iron ore extraction, were still able to exploit the thin argentiferous layer and glean enough from ancient workings, could continue to operate. However, there was no doubting the need for a common enterprise to dry the whole of the massif.



*The old desagüe of the Mina Santa Matilde.
Rodrigo.*

A feasibility study calculated the cost of a central desagüe and demonstrated that the expected outlay was more than affordable by all companies. The principle promoter of the scheme was the president of the Unión de Tres who reasoned that the best place to install the machinery would be in the deepest shaft which happened to be in the Unión de Tres.

Needless to say, agreement could not be reached, with those companies who had already installed machinery each arguing for the desagüe to be sited in their shaft. The reason for the acrimony was because the levy imposed for its operation would be less for the mine owner whose shaft and other infrastructure would be requisitioned for its installation. Eventually agreement was reached and in 1884 the Sociedad Desaguadora Unión de Tres installed the Desagüe de Herrerías not in one of their own shafts, but in the Santa Ana shaft.

Santa Ana.



Las Herrerías was back in business!



The remains of the Santa Ana installations were deliberately destroyed in 1993 before the Villaricos Heritage Protection Scheme could come into force.

1.4 The perfidious French.

Enter Public Enemy No 1!

While all the arguing about the desagüe was going on, La Compañía de Águilas was excavating closer and closer to the Almanzora in its Santa Matilde mine.



*Part of the Santa Matilde workings in the 1880s.
Rodrigo.*

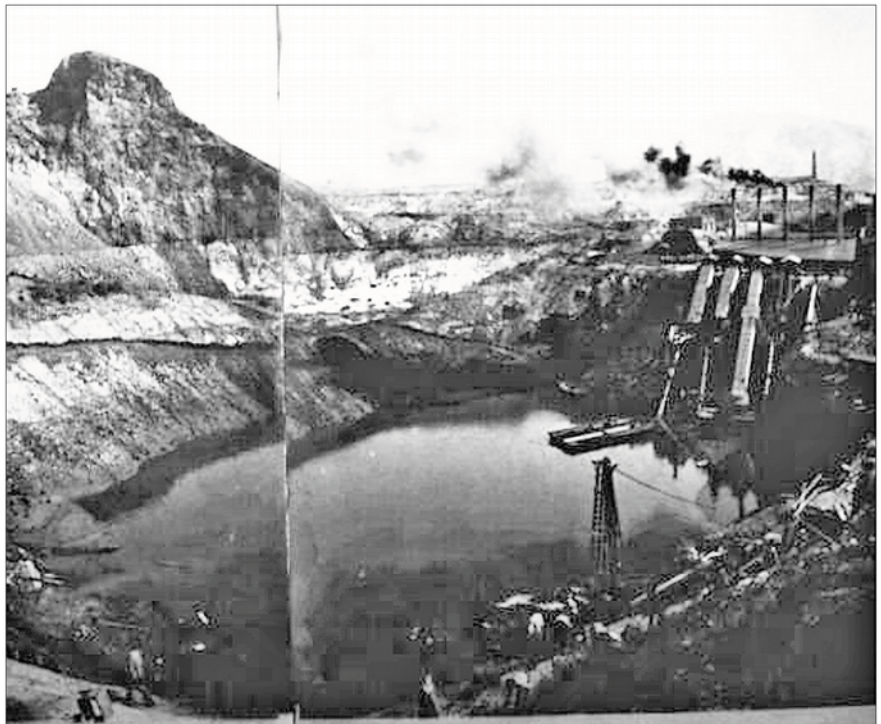


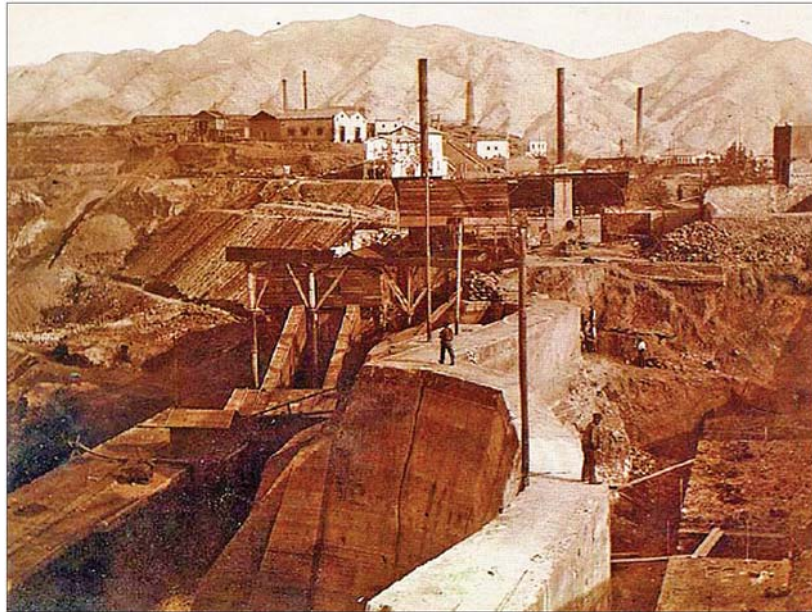
Santa Matilde as it today

The strip that the mine's former owner, Huelin, had maintained as a safety precaution between the workings and the river was being progressively worked out. Disaster struck in June 1884. The Almanzora, swollen by unusually heavy rain, burst its banks and 1,800 litres of water per minute entered the mines with devastating consequences. Every shaft of every mine was affected. The whole of Las Herrerías came to a standstill. The Santa Ana desagüe was paralysed, unable to cope with water ingress of such a magnitude.

*Pumping out the flood waters
at the Roza of Santa Matilde.*

Rodrigo.





Santa Matilde in full production. The old desagüe can be seen at the top left of the picture.

F. de Blain.

It wasn't until nearly 3 years later that La Compañía de Águilas, together with the owners of La Virgen de las Huertas, set about pumping the 20 metres of accumulated water out of the Rozas.

The pumping operation was a typical Águilas affair. Three months after commencement, 11 pumps were in place. 3 on a floating platform, 3 on the surrounding ground, 4 on the inclined planes used to raise the ore up to ground level and one additional small pump. All were powered by a steam generator. The company's engineer had calculated that it would take 8 days to lower the water level sufficiently to enable the points of water ingress to be pinpointed and to assess where to site a contention wall that would divert the water away from the mines. On the 29th of June 1887, with much pomp and circumstance, the 11 pumps were started. 28,500 litres of water per minute were pumped out and the level dropped by 28 cm. in the first four hours. However, the calculations proved to be incorrect. After 3 weeks of continuous pumping the level had only dropped 4.5m and water was still flowing in from the Almanzora. It's an ill wind that blows no good and the slowly receding flood waters exposed further massive deposits of iron ore.

It was decided to try out the pumps in the desagüe of Santa Ana to see if, several years down the line, they would still function. Much to everyone's surprise they did. It was recorded that the liquid that was extracted was as black as ink and gave off a fœtid odour. The Santa Ana efforts benefited the mines north of the Roza but in the Roza itself things weren't going well for the French. Despite pressing into service the pumps from both their abandoned desagüe in the Barranco del Francés, and those from their San Jacinto foundry in Garrucha, the water still hadn't receded enough to dam the ingress. In addition, the irrigation ditch that skirted round the Roza, was a further source of flooding that could not be addressed by simply in-filling as they had no rights to it. In July 1888, La Compañía de Águilas ceded the rights of Santa Matilde, and those of their railway, to a Spanish company. The new company was obliged under its terms and conditions to drain the Rozas by the end of the following year. They made several pronouncements about what they were going to do but never fulfilled their commitments then, in December 1888, further flooding of the Rozas exacerbated matters. The Santa Ana pumps, unable to cope with both the quantity of water in the deeper mines and that which was pouring into the Rozas, shut down.

Las Herreras was at a standstill!

1.5 The battle is won.

There was too much potential wealth at stake for this state of affairs to continue. In 1891 the London firm H. Borner and Company, who also had interests in the Sierra Alhamilla, contracted the exploitation of iron ore in the Rozas and set about the desiccation of the area. The Herrerías to Palomares railway was repaired in order to bring new pumping equipment from the coast to the Roza. A canal, 2m deep, was constructed in order to channel the pumped water into the Almanzora. By June 1892 the contention wall was finally completed and for the first time in eight years the Roza was free of water. Open cast mining in Santa Matilde and half a dozen nearby mines resumed, with the ore destined for foreign foundries. By now the silver mantle in the south had been exhausted.



The contention wall, seen on the right-hand side of the picture, was vital in keeping the Rozas dry. E.L.Morin

Borner was approached by the owners of the mines in the north of the massif with a view to drying out these deeper mines as well. However, in true Spanish style, a squabble broke out. The 12% levy that Borner proposed was unacceptable and the Union de Tres claimed that they could do it for 11%.

In the end it was the German company Brandt and Brandau, together with their engineer Luis Siret, who put forward a proposal to dry the whole of Las Herrerías. All of the owners were in agreement except . . . Borner and the owner of Virgen de las Huertas. The Anglo- German stand- off resulted in Borner pulling out of Santa Matilde. As a consequence the water level there rose 19m, the retaining wall was breached and the entire Rozas was again flooded.

Brandt and Brandau pushed ahead with the Desagüe General de Herrerías. The principle shaft was sunk in the confines of the disused Araucana foundry and was christened Ana Josefa. The pumps were anchored at a depth of 108m, 8m lower than those in Santa Ana.



The Ana Josefa shaft, where the pumps were housed, is situated under the structure to the left of the chimney.

J.M Sanchis



The delivery shaft was one of the two shafts close to Ana Josefa. Of the two, I'm inclined to think that it is the one nearest to Ana Josefa. This one has an extraction opening a short way down it. I think that the pumped outfall passed through this opening, and then ran behind where the houses are now, and into the irrigation ditch.



Two views of the smaller of the two possible delivery shafts.

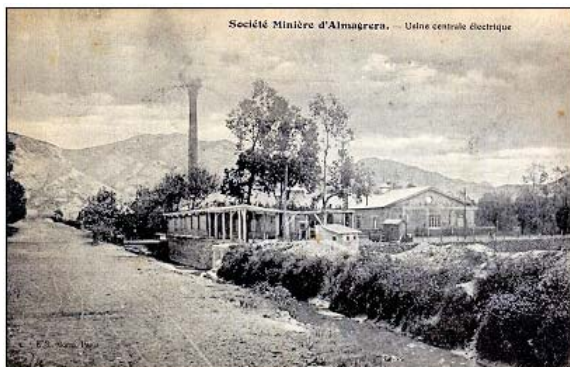


The top of the more likely delivery shaft,

*A view of the extraction aperture in the shaft
All photos, G Garcia 2008.*

Some of the Araucana buildings were re-purposed as offices and maintenance sheds for the desagüe. A network of tunnels, for the purpose of channelling water to the main shaft, was constructed. In addition, some of the northern mines had individual pumps installed to clear accumulations of water. For the time being Nature was held at bay, the area was dry.

Brandt died in 1900 and was buried at El Arteal. In 1901 the company, Brandt and Brandau transferred the service contract to Luis Siret and the French company Société Minière d'Almagrera. Siret introduced modern technology in 1905, powering the desagüe by electricity, generated in the new power station that the Société had built at Las Rozas.



*The electricity generating turbines were housed in the building on the right of the photograph.
E.L. Morin.*

The same building is surrounded by a high wall today.

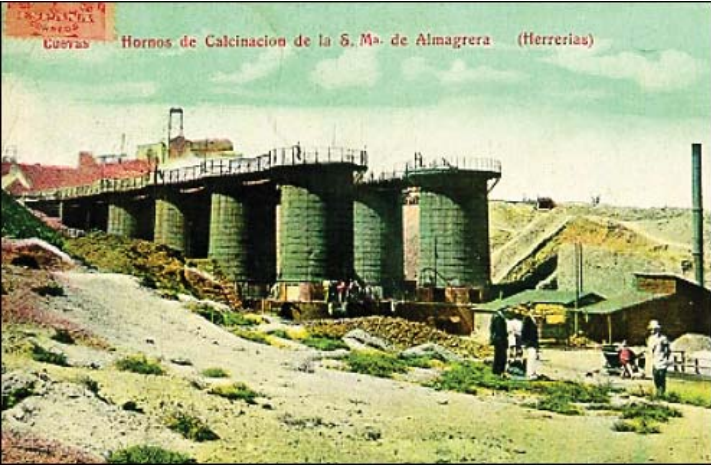
The French maintained the *desagüe* until 1929 when the Spanish firm *Empresas Eléctricas e Industriales* took it over and operated it until the Civil War.

1.6 The glory days.

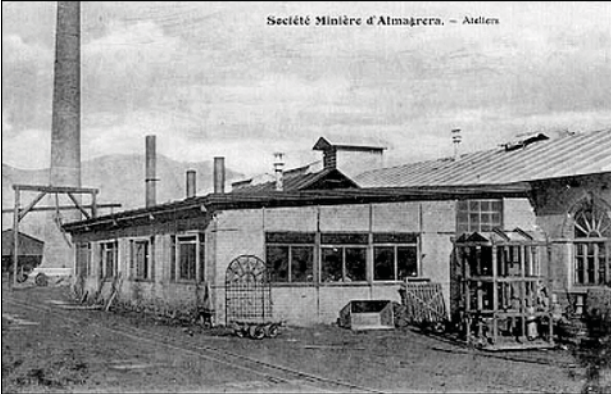
With the indefatigable Luis Siret at the helm, the *Société Minière d'Almagrera* quickly became the major player at Las Herrerías. Through rationalisation and the implementation of modern techniques and innovations Siret was able to make the mines profitable. In a short space of time the *Société* either owned or rented almost all of the concessions in the massif. The 8 modern calcination ovens that they constructed at the Milagro de Guadalupe were the wonder of the day.

Société's Calcination ovens.

F. de Blain.



The massive extraction of iron ore in Las Rozas was the principle activity and it was in Las Rozas that they had their base, and where their presence is still felt. Driving or walking through Las Rozas it is impossible to miss the buildings that housed the *Société's* workshops and power plant. These classic examples of French, turn of the century, industrial architecture have been converted into apartments, mainly by the English.



Above left, E.L. Morin.



Above right, F. de Blain.

The two pictures above show both sides of the workshops as they were in 1905. The photograph on the right shows the workshops converted into apartments as they are today.



The elegant mansion house, partially hidden behind a later perimeter wall, on the north side of the irrigation ditch, housed the Soci t 's engineers, while the adjacent building accommodated the domestic staff.



The engineers' accommodation.



Servants' accommodation.



Details of the mansion. Above, the moulding from over an archway in the entrance hall. On the right, detail of the patio tiles.



The mansion was later used by MASA as a recreation centre for their employees until they ceased activities at El Arteal after which it became part of a naturist camp-site run by an Irish couple. I suspect that the ugly breeze block wall dates from then. The motto, in Gaelic, above the entrance certainly does. It is currently in the hands of a developer, but plans, shown below, have been shelved for the time being. Even in it's state of decay, it is a beautiful building that deserves better.



Siret and his family lived in the house beyond the workshops. There were plans to turn the building into a Luis Siret museum, but a combination of squatters and exhausted funds have stymied these.

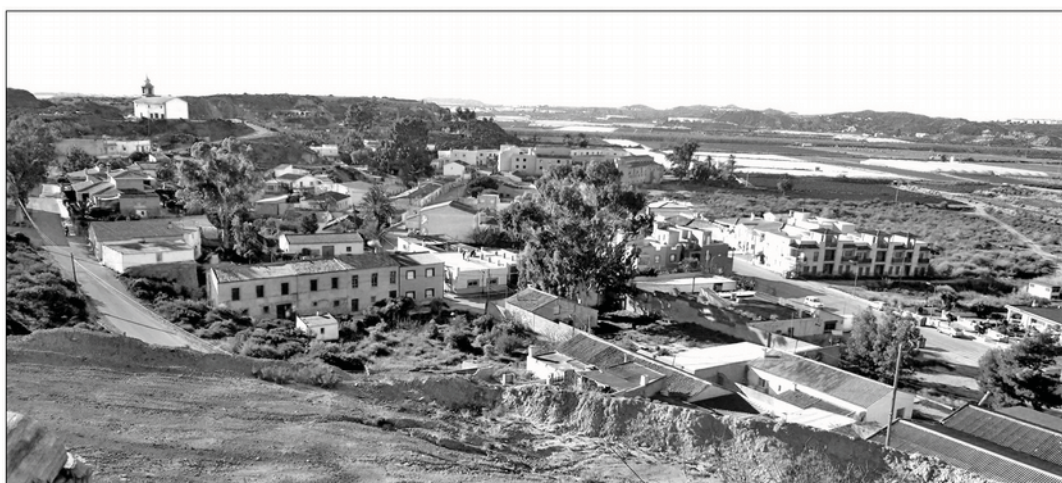


The greatest boost to the Soci t 's profitability was the construction of the loading pier at Villaricos and the railway from there to Las Rozas and, later, to El Arteal. (More on the railways in the next chapter).

By the time of the First World war, Las Herrer as was a thriving, industrial town with thousands in full employment. The old Atravida foundry above Las Herrer as had been taken over by the Soci t  and Siret converted its main building into a hospital and pharmacy. In addition, there was a school, shops and a workers' casino, or social club.



Las Herrer as, 1915. Sierra Almagrera y Herrer as. Bolea.



Las Herrer as, 2015. The hospital building is central with the 'Spanish' church in front of it.

Following the death of his wife in 1895, Siret commissioned the church that dominates the Las Herrerías skyline. Its Northern European design, with its tile hung spire seems so out of context in a Spanish village. One is reminded of a victor's standard, planted on high, for all to see. However, I suspect that the indigenous population continued to worship in the Spanish church situated next to the hospital and that only the gentry frequented the “foreign” church.



Another Atravida building put to use by the Société was the one at the bottom of the hill, next to the workers' cottages. This was converted into a “Company Store”. It was fairly standard practice in Northern Europe and indeed North America in the late C19th and early C20th to pay part of an industrial workers' wages in the form of “vales”, or tokens, redeemable in such stores. These establishments were renowned for their profiteering and this system of payment was being challenged by the 1920s. The real or perceived injustice of the system is still felt in Las Herrerías, where it is seen as a uniquely foreign imposition, something meted out by the French on the Spanish.



On the left, one of the old Atravida buildings that was converted into a company store.

Below, street views from 1905 (E L Morin) and 2015.

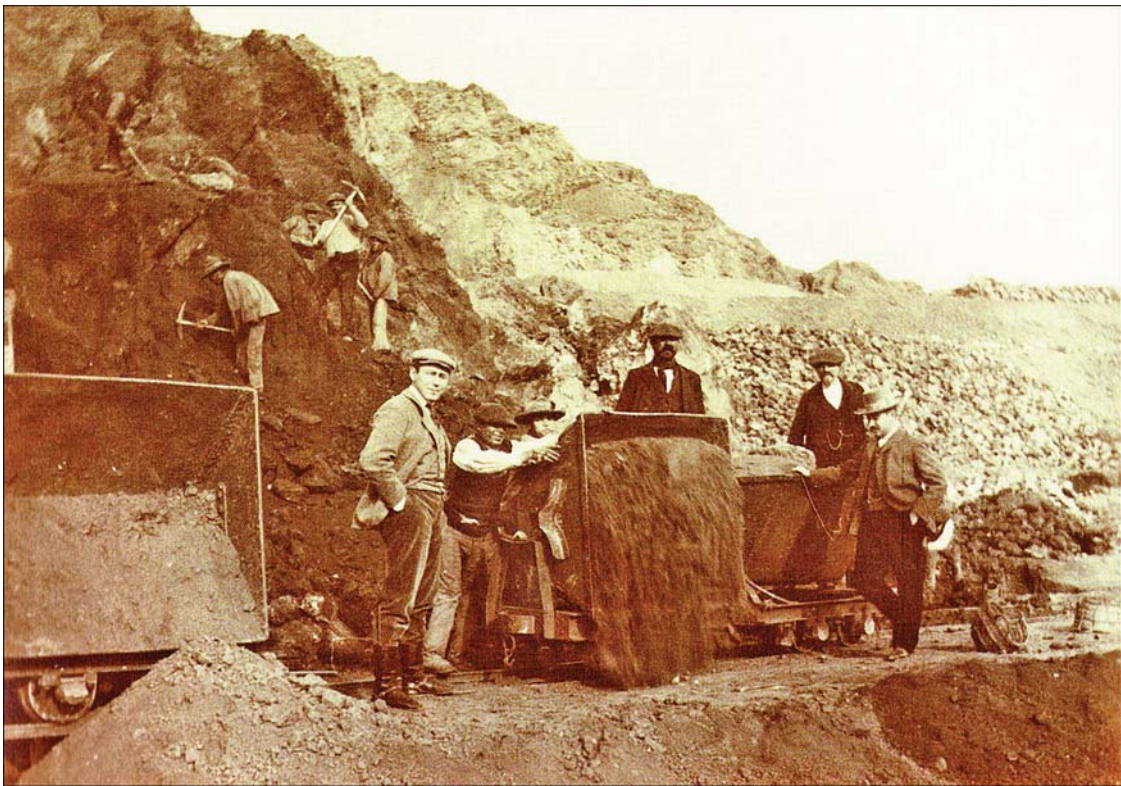


The other grudge still held against the Société is the fact that they were forced to reduce the workers' wages when the First World War took its toll on the business. Virtually everything came to a standstill, coal and coke could not be imported from Britain nor ore exported for steel processing. The 1920s saw a bit of an upturn but things were never the same again.

In 1926 the Société relocated to North Africa where it had other mining interests.

The end of an era!

The more I read about the Belgian, Luis Siret, the more I appreciate what a great man he was and how much he contributed to this little known corner of Spain. A brilliant engineer, whose part in extending the life of mining in the area by 40 years, thus providing employment for thousands, should not be underestimated. Also, it was largely due to his efforts that Cuevas had potable water by the middle of the C19th. Siret, the amateur archaeologist, who on discovering artefacts in the mines, went on to become a famous and respected author of several seminal works on the history of the area. My favourite image of him is this one, with his flat cap on his head, his hands in his pockets and a big smile on his face.



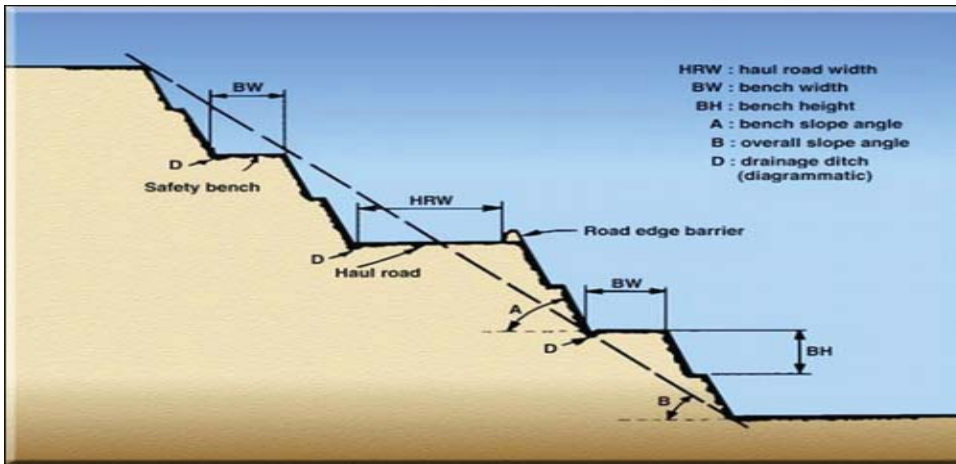
The smiling Luis Siret is on the left of the photograph. Sierra Almagrera y Herrerías. Bolea.

It was with great sadness that I heard a 50 year old native of Las Herrerías blaming him for the flooding of the Roza. So much for oral history!

1.7. The big white hole.

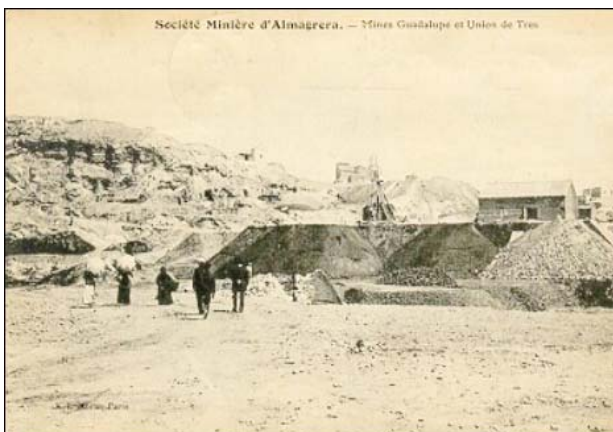
In the late 1980's, the Almanzora was canalised between the newly constructed dam at Cuevas and the coast at Villaricos. With the flow of water down the course contained by the ugly concrete channel, the problem of water ingress at Las Rozas was removed. The Basque company Minersa, part of the Grupo Berja, started to extract the barite present in great quantities in the roza. The Corta Santa Matilde was the result.

The Corta Santa Matilde in 2004.
J.M. Germán Cecilia.



A corta, in mining terms, is an inverted pyramid, excavated in steps by heavy machinery.

Although called Santa Matilde, it is actually on the site of the Milagro de Guadalupe.



The site as it was in 1905 E.L. Morin.

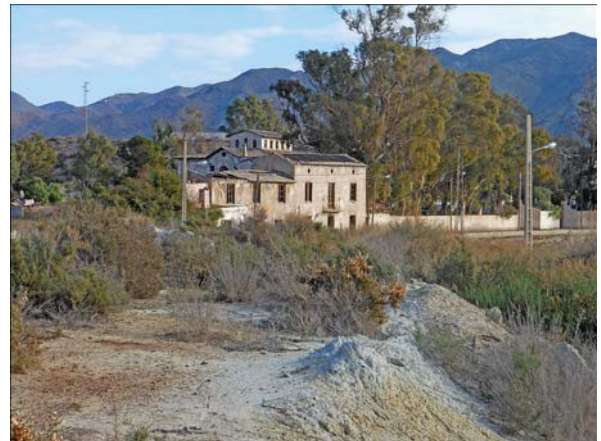


and the view today. The remains of the Unión de Tres are still standing.

The grey marl spoil from this enormous hole in the ground was dumped upon the remains of the mines Santa Matilde, Petronila and Virgen de las Huertas. The contention wall, built to prevent flooding, is still shown on the current National Geographical map, but is in fact buried beneath the waste. Nowadays, the whole site is used for the fly-tipping of every conceivable sort of rubbish.



The contention wall as shown on the map and the site as it is today.



As well as Guadalupe, the corta cut through the workings of the mines Union de Tres, Iberia, Atravida and Conciliación. As they cut down, many old underground workings were compromised by the new excavations. Probes were used to track these old shafts and galleries.



Probing for old workings using a percussive drilling rig.

Gonzalo Garcia

In the picture below, the interface between the white clay and the mineral can clearly be seen, as can some of the old, previously underground, workings.



Note that the excavator arm in the bottom right-hand corner is not a toy and neither is it at the bottom of the corta.

Gonzalo Garcia.

This hole was immense!

Apart from initial milling and sorting, I don't think that any further processing was carried out in the roza. There were two or three buildings at the entrance to the site, but I think that these were administration blocks rather than part of a processing plant.

The on-site milling and sorting of the barite.

J.M. Germán Cecilia.



When excavation ceased, Minersa should have levelled the site but failed to do so. While the present day hole is only a fraction of the size that it used to be, it is still dangerous. The drainage ditches on the benches and haul roads have already eroded. Serious land slip is occurring as a result. Fortunately, the arid nature of the area prevents the accumulation of vast amounts of water at the bottom of the hole.

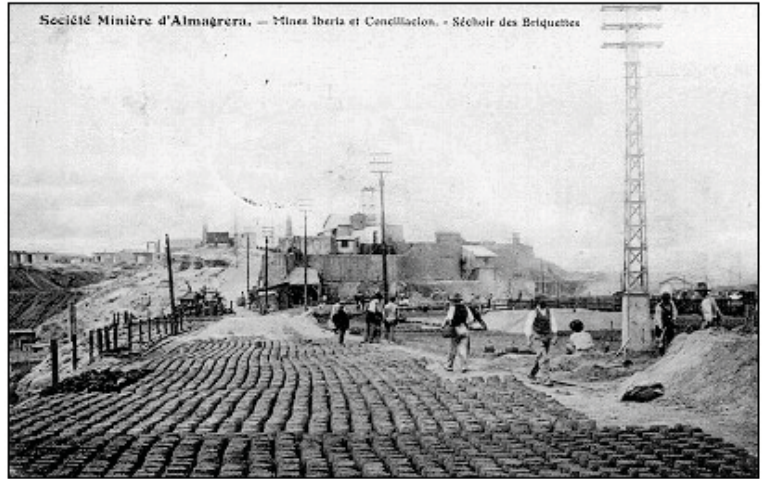
1.8. Of this and that.

A puzzle solved.

In the series of postcards produced for the Société and recently released by the Diputación de Almería, there is one of the mines Iberia and Conciliación showing hundreds of blocks laid neatly on the ground. The caption referred to the “secadero de mechas”, or fuse drying. The French caption on the card read “Séchoir de Briquettes”, as in barbecue starters. Could the blocks be home made fuses for dynamiting the face of the slopes to loosen the iron ore? Unlikely.

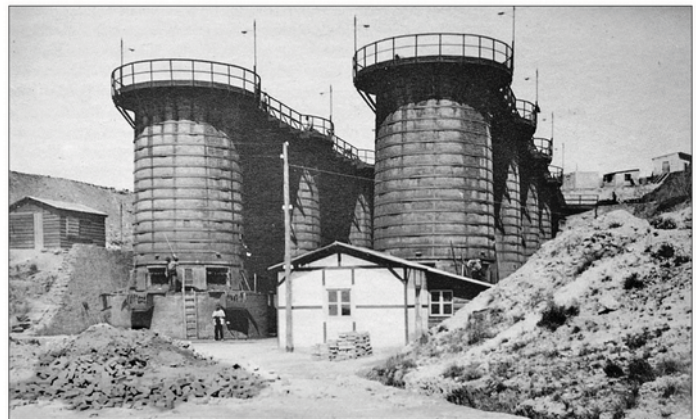
Postcard showing the Iberia and Conciliación mines with the mystery blocks in the foreground.

E.L. Morin.



Could they be mineral ingots? The iron ore was simply calcined on site so that was dismissed. Then I uncovered an interesting piece of information. The Sociedad Argentífera de Almagrera leased part part of the Araucana foundry from Luis Siret. They equipped it with mills, centrifuges, dissolution tanks and vacuum pumps and scavenged silver from the waste dumps in Las Herrerías, using the Macarther-Forrest Cyanide Process. The silver extracted by this chemical method was formed into “panes” or loaves. Could this be the answer? Nice try, but the experiment was short lived as the results were too poor to justify the costs, and certainly not good enough to be the mystery blocks. So what were they?

Bolea gave me the answer. The same print was in his book of postcards 'Memoria Visual del Siglo XX (1901-2000)', His caption noted the drying of bricks for use in the mines. How obvious was that? The calcination ovens would have taken thousands of bricks. The desagüe and auxiliary shafts were brick lined and I suspect that the tunnels, built to channel water to the desagüe, were also brick lined. There was a brick kiln at El Ardeal but was there a brick kiln in Las Rozas? There is no trace of it today.



A pile of bricks (unusable?) in front of the calcination ovens.

F. de Blain.

Bricks, possibly produced on site, were used to line the main shaft of the desagüe.

mtiblog.



Where was this?

I was intrigued by this photograph of Luis Siret, and his family, together with other company directors and officials. It was obviously taken somewhere in Las Rozas, but I couldn't figure out where. After several visits, clutching a copy of the picture and trying to work out the angles of the shot, I finally placed it. The archway (left of picture behind the carriage) led into a courtyard behind the lower of the two rows of company buildings in Las Rozas. While the upper row housed the workshops, the lower row served as the office and administration block. Nowadays the courtyard serves as the gardens of the dwellings into which the block was converted. There is an old well in one of them.

The board of directors in Las Rozas.

E.L. Morin.



The same arch today.

New Settlers.

Much of this account of Las Herrerías has concentrated on the southern roza, possibly to the detriment of the northern areas. Unfortunately, care needs to be taken in the area around the church in the demarcations

of Remedios, Mario del Mar and San Diego, and in the area behind the vandalized block of flats, where the remains of the mine San Andres are situated. The gypsies, who have colonized these areas, do not take kindly to strangers - particularly those with cameras! Three or four years ago, the area round the church was very much a shanty town, nowadays, those huts are far more substantial and there are fewer gypsies.

*The huts are nowadays
far more 'des res'.*



A sign of the times is their web site, where they are demanding rights. One wonders what the mine workers would have thought about that. At Las Herrerías, the early miners lodged in caves, no bigger than burial niches.