FLOODING IN SAINT-ANTONIN-NOBLE-VAL

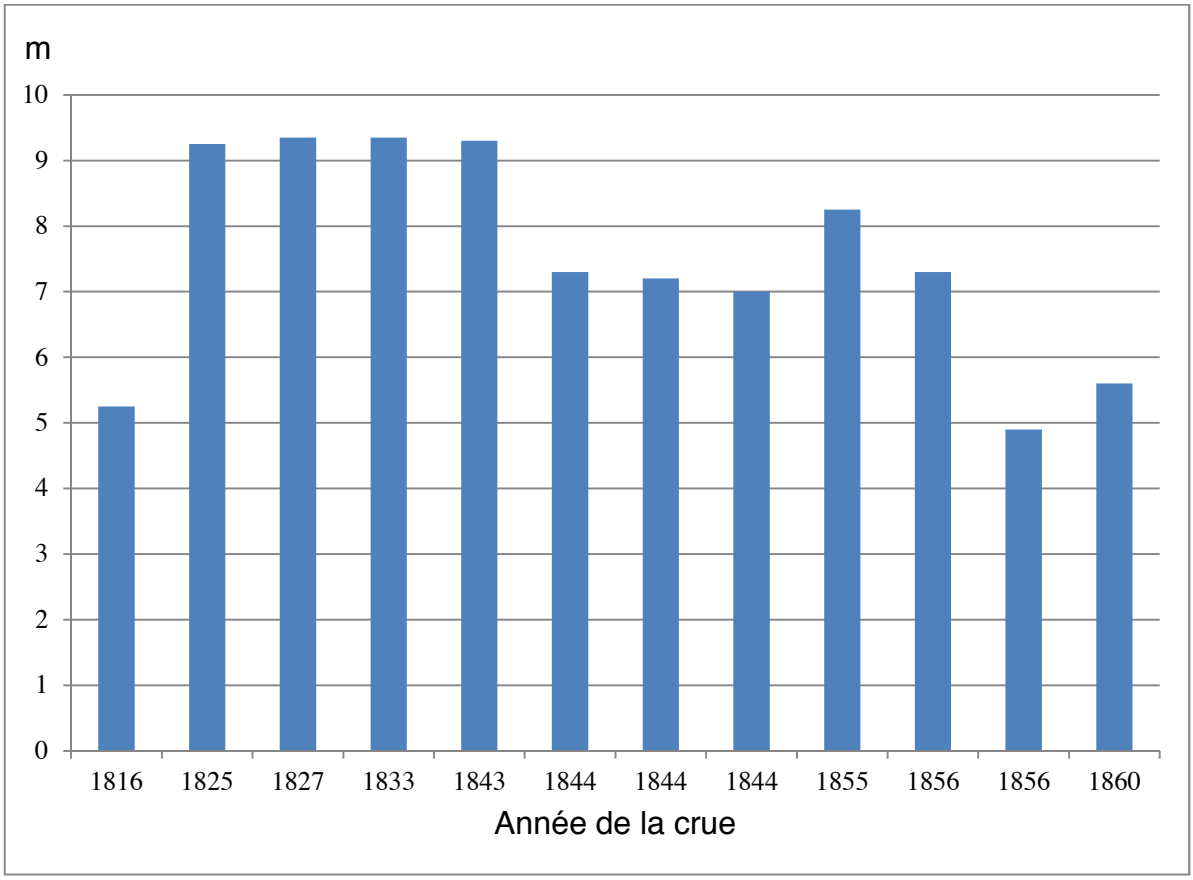
Most people with connections to St-Antonin will have heard about the catastrophic flood which the town suffered in March 1930 but, although this was the worst, it was one of many floods which have affected St-Antonin over the centuries. The consular accounts for the year 1362-1363 mentioned that the inhabitants were accustomed to the overflow of the Aveyron.

In fact the 1930 flooding of St-Antonin was part of a much bigger event affecting large areas of south-west France. The Tarn rose more than the Aveyron and towns such as Montauban on the Tarn and Moissac, situated after the confluence of the Aveyron and the Tarn, were much more seriously affected.

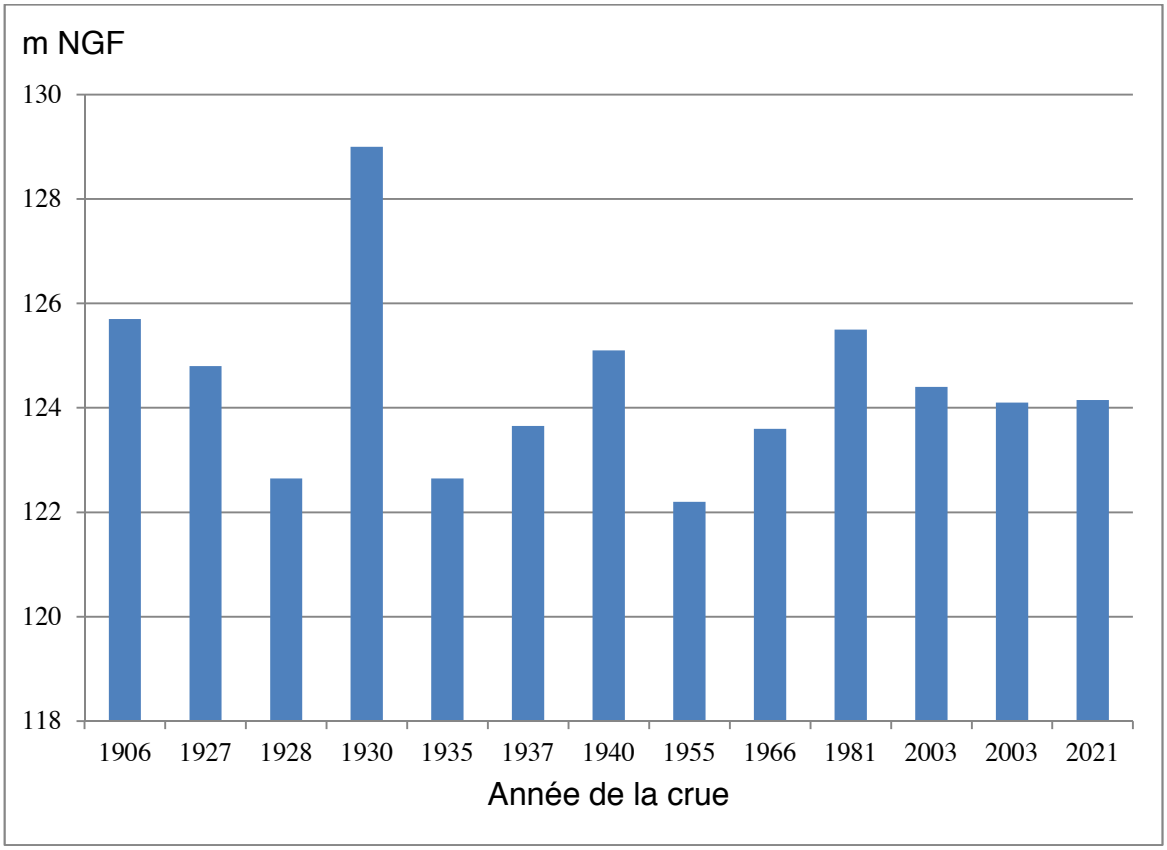
Local archives up to the 18th century report floods in St-Antonin in the following years (there were probably many others but not all the archives have been studied for this):

1394	1412	1532
1552	1571	1572
1618	1686	1688
1696	1711	1723
1728	1732	

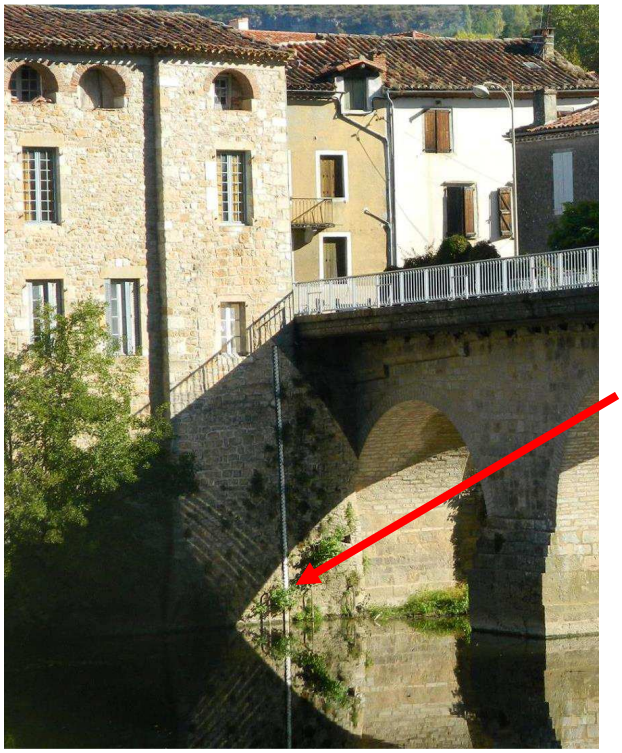
In the 19th Century the height in metres of flood waters was recorded at Montricoux:



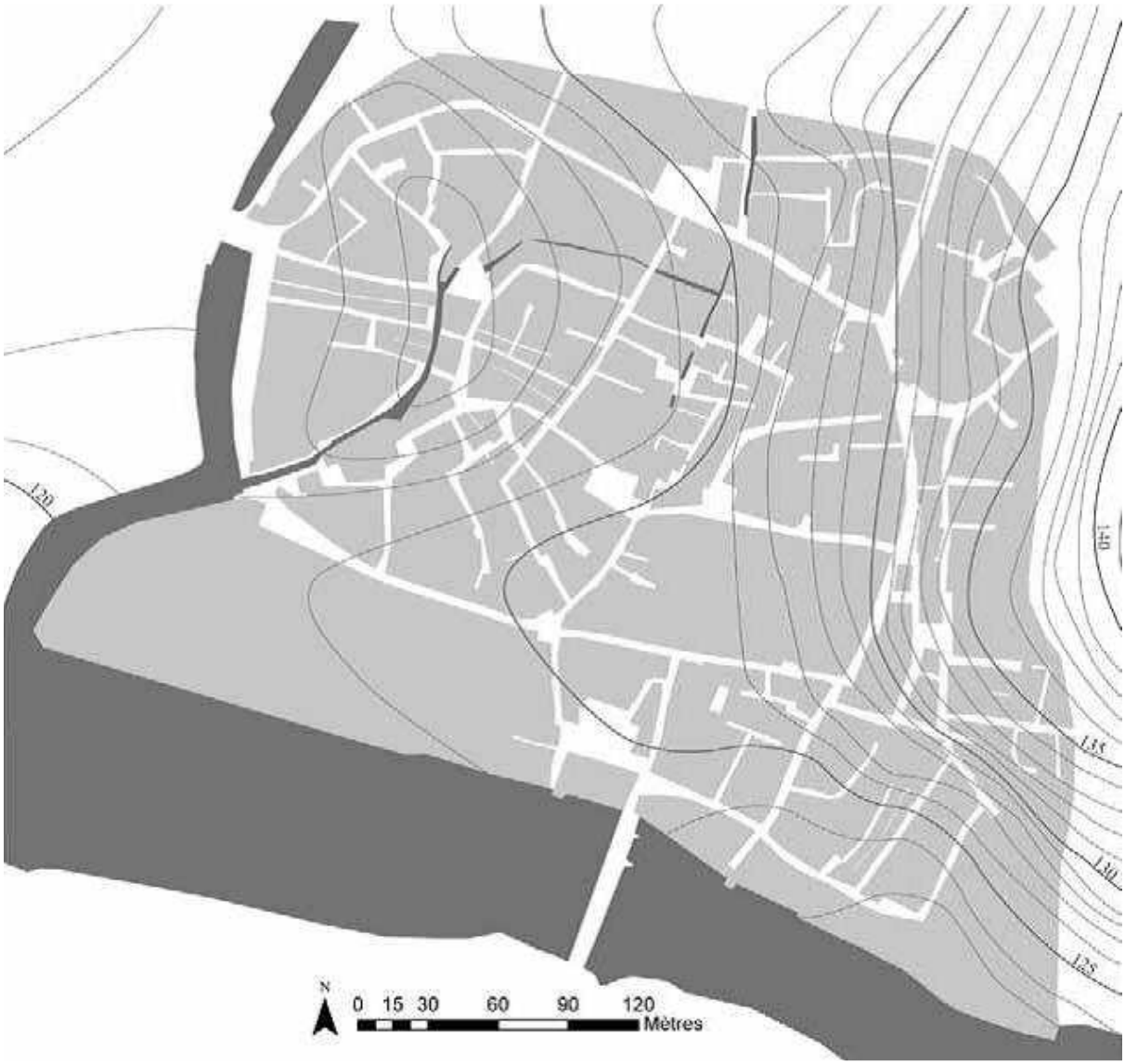
Since the 20th century measurements have been taken on the scale which is fixed next to the town bridge in St-Antonin and here these have been expressed as metres above sea level (NGF = Nivellement Général de la France):



The bottom of the scale, the low water level, is at 118.2 m NGF so you can see that the 1930 floodwater was 11 m (36 feet) above normal.



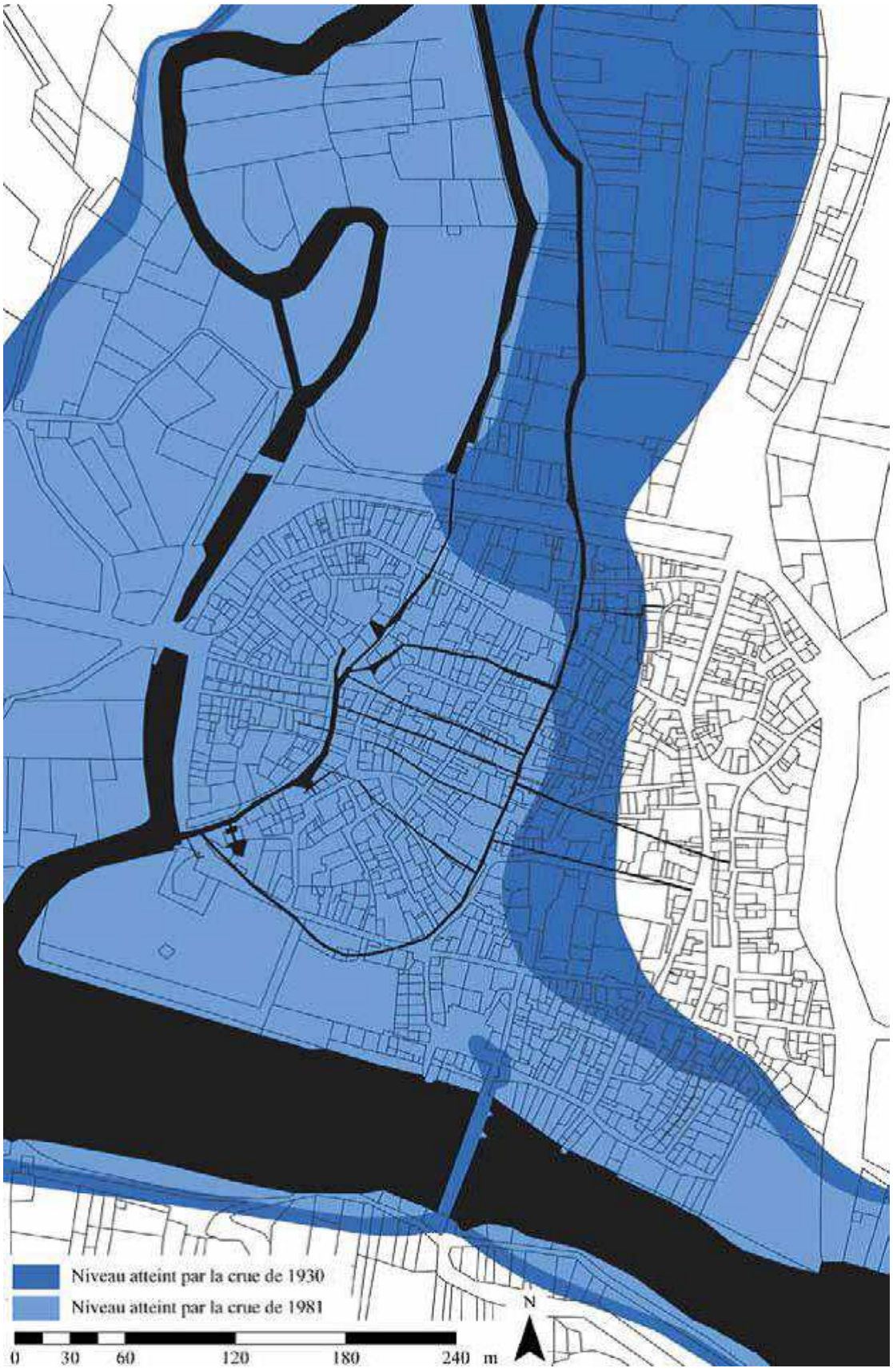
Using a plan of St-Antonin with contour lines overlaid enables a clear understanding of how the town is affected by flooding of the Aveyron and Bonnette rivers:



The lowest point in the town is in Bessarel at 120.35 m NGF, merely 2 m above the low water level of the Aveyron.

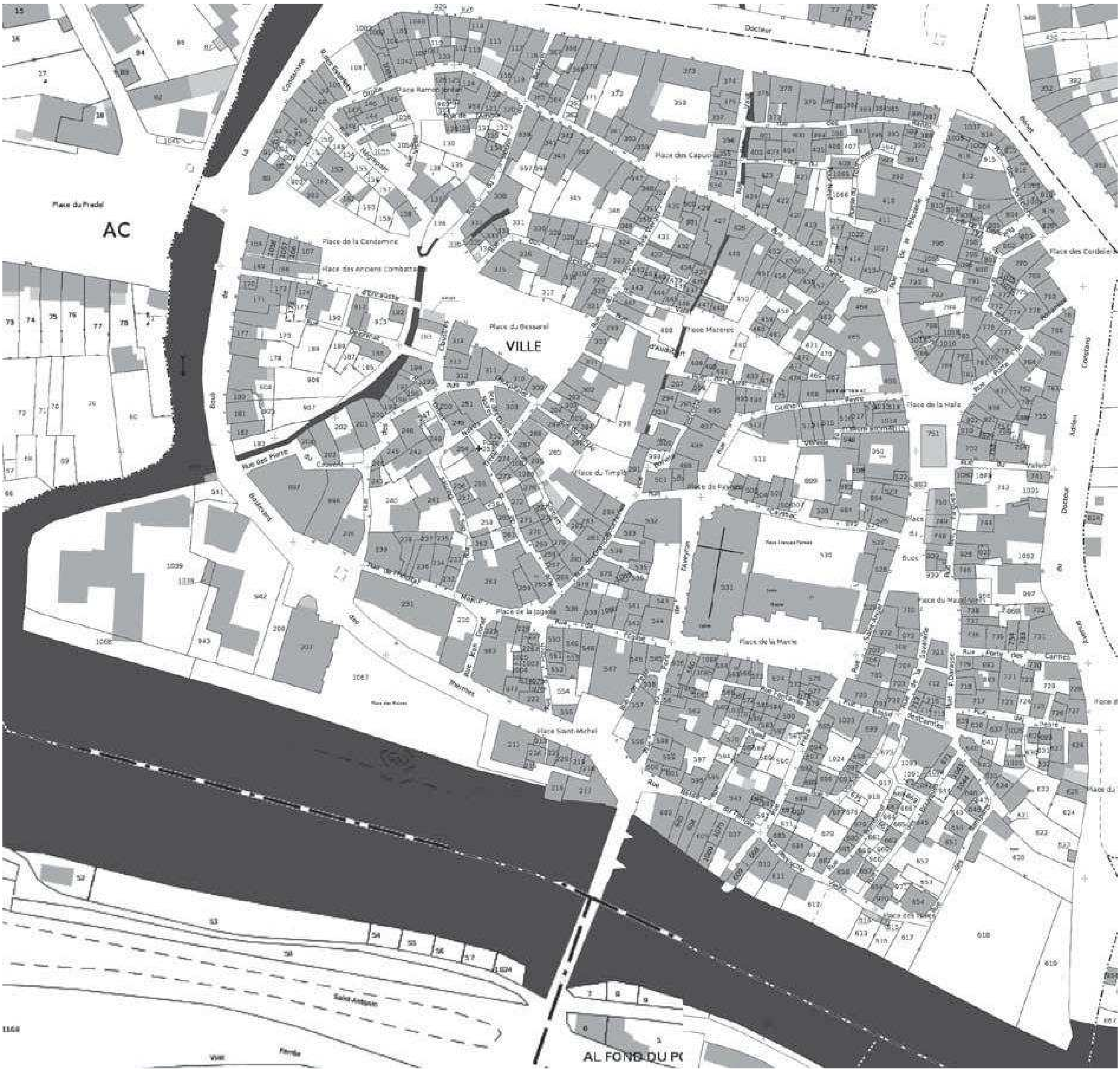
Note: this plan and the following are based on the “cadastre napoléonien” showing the Bessarel area intact and the streets on the north side of the bridge before the alterations made in the early part of the 19th century.

Analysing various accounts and data shows that the floods of 1394, 1618, 1906, 1940 and 1981 passed 125 m NGF, whilst the 1930 flood reached 128 m. This can be illustrated by superimposing the floods on the contour lines for 125 and 128 m:



Much of the area of the tanneries and Bessarel were rebuilt after the 1394 flood but with lower quality building materials such as rubble stone and timber framing.

For comparison, the modern town plan shows the changes to the Bessarel area following the 1930 flood as well as the early 19th century changes on the north side of the bridge:



The water flow of the Aveyron has been measured since 1914 over the weir at Loubéjac near the village of Piquecos to the north of Montauban, which is shortly before the Aveyron flows into the Tarn. The average flow over 100 years is 56.6 cubic metres per second (m³/s) whilst seasonal variations give an average flow in winter between December and April of between 81 and 113 m³/s with the highest being January. Conversely the August average is only 8.51 m³/s.

There can be very big fluctuations in the flow rate over very short periods, for example as low as 1.6 m³/s during a period of drought.

On 4th March 1930 the flow at Loubéjac was beyond accurate measurement but it was at least 3,000 m³/s being about 30 times the average for March.

In St-Antonin in March 1930, three quarters of the town were flooded and the water passed over the town bridge and through the railway tunnel. 376 houses were flooded. In 45 houses the water reached the attic or the roof. In 187 houses the water reached the ceiling of the second floor, the ceiling of first floor in 80 houses and the ceiling of the ground floor in a further 29 houses. In the end 19 houses collapsed and 20 were badly damaged. As a result of this flood, a large part of the Bessarel district was demolished, making the large square of the same name which we see today. The water supply to the thermal establishment from the source de Saleth was destroyed and was not repaired, putting an end to the project of transforming St-Antonin into a spa town.

Two people died in the 1930 flood in St-Antonin.

On 2nd February 2021 flooding affected 60 houses in St-Antonin and in some of them the water was 2 metres high in the ground floor.

The old Notre-Dame girl's school, next to the Salle des Thermes

In 2005 Miss Antonia Calmette, pupil of the Notre-Dame school in 1930, then teacher at that same school until 1952, gave this verbal account of the flood *(translation)*:

"During the day of 3rd of March 1930, Saint-Antonin felt threatened. At noon, on leaving the school, the pupils rush to the "Jardin Des Moines" to go and see the river, The Aveyron rises slowly but surely and it is still raining. Alarmed, the people of Bessarel vacate their ground floor and move their furniture to the 1st floor - already the Bonnette is overflowing. This river that comes from Caylus flows into the Aveyron nearby.

During the day every hour which passes is worrying, these are the Carnival holidays. Many boarders at the Notre-Dame School have left for home for the occasion. About 15 remain. In the evening, a lecture with slide show on Palestine was planned but it is cancelled. The school

mistresses, especially the bursar, plan provisions. We do not change our ways and follow the normal evening routine - meal, then bed.

At midnight our mistresses wake us: "Get up! Get dressed! The water is rising: you have to help us." But in reality, there is no question of it. Here we are crossing the classroom and climbing the stairs to the first floor. There, in the “workroom”, sitting on benches, leaning on the desks, we wait. We don’t sleep.

Below, outside, the bell of the gate tinkles. We guess that the water has invaded the courtyard and maybe the terrace. Soon, the wind and waves shake the playground bell. It will ring all night long. The whole district will testify later.

Between us, we are convinced that at dawn we will see the water almost at the height of the window. This was true.

In the morning the school is an island. From the window of another room, we can see the Condamine road. A road? No, a river carrying bottles from the pharmacy, cartwheels, hay bales, corpses of sheep, crosses coming from the cemetery...

We spend the day going from one window to another. From the front of the first classroom where we have ended up is a lake as far as the eye can see, right to the station where the railway line is completely flooded. The water surges past, roaring, making big swirls. From the infirmary, we see the Place de Bessarel submerged. You can no longer see more than the second floor of the houses. It’s like a large calm expanse of water.

We are very quiet, knowing, without wishing it, that there is still the possibility of climbing up to the attics. The provisions provided by the bursar are sufficient.

It is now the second night. We sleep on our desks or on the floor, more or less comfortable. I do not remember more ... Amongst us, still not a shadow of worry, which earned us a restful sleep.

When we wake up, we wonder how our neighbours and all the surroundings had survived these hours, probably dramatic for some.

On the 4th of March a father of the Pierrou family, known to all Saint-Antonin, came in a boat, at the risk of his life, to bring us bread. It must be said that the current was so rapid between the École Notre-Dame and the Rodolausse factory that the danger
was great.

Finally the decline of the flood is announced. The next day we can go out. In the classrooms, the desks were full of water ... and our books and our exercise books ... don’t talk about them!

In the town consternation reigns; a baker weeps. The church has also been invaded, by a meter of water someone said.

Our director receives us at her home in the Rue de la Pélisserie, at the top of the town. Many of us go home with their parents. I, who live only a few kilometers from the town, can, with caution, cross the bridge which has no longer parapets, the pavements of which are partly destroyed and which is covered with mud and various debris. Water is still within reach. I arrive at home, at Teussac, passing through the tunnel and following the railway line. At home, my mother and grandmother waited for me anxiously.

A month's leave followed this sad episode. From Montauban, teams came to clear up. The soldiers of the engineering corps worked well too. After the disinfections, they wanted with their pump, to empty the cellar of the school. But our Director Miss Bosc dissuaded them. Indeed, this work was not necessary. There was a system previously foreseen by the monks, which allowed water to drain away and return to the river. We learned that a piano had passed through a window and had stopped at the bottom of the garden, where the Bonnette flows, and that Dr. Bénet, the mayor, was much worried about our fate, but that he was reassured when he had learned that we had found refuge in the central building, built of stone.
The mistresses who supported us during this flood were: Miss Bail, Miss Bessède, and Miss Marie Rose. We spent several nights praying and reciting the rosary together which calmed and settled us.

The water descended slowly, over several days, perhaps a week. After which we were able to see the road again with the mud and debris. The apocalypse."

Few photographs of the flood seem to have survived or perhaps few were taken as local people had other things to think about and professional photographers from Toulouse or Montauban had bigger catastrophes nearby and anyway couldn't travel to St-Antonin easily because the railway was damaged.

The 1855 bridge at Rocher de Bône destroyed in 1930
The bridges at Féneyrols and Cazals were also swept away

1930 flood damage looking down Blvd des Thermes from Place St Michel

A street in St-Antonin, March 1930

Damage to the town bridge caused by water and debris washed over it in the 1930 flood

This well-known photo is of a boat in the Bessarel area as the 1927 flood subsides. Note the water stain on the building at the back.

Another photo of nearly the same view.
The boat was possibly rescuing people stranded in their houses as they are not the same as in the previous photo.

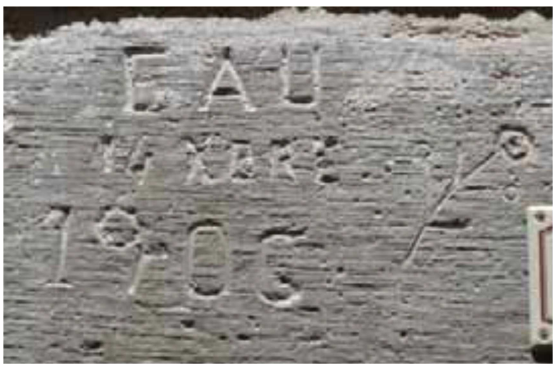
The Aveyron still rising under the St-Antonin Bridge during the 1981 flood

Blvd de la Condamine: The flood of Dec 2003

02.02.2021 the water is about 20 cm higher but the flood of Feb 2003 was even higher.

In the chart on page 2 you see the water level of the Aveyron measured at the bridge but the level of the Bonnette and consequently the flooding in the Bessarel/Condamine area can effectively be higher depending on the amount of water flowing down the Bonnette which cannot escape fast enough into the Aveyron. Consequently the water in this low part of the town can rise more than the measurement at the bridge would indicate.

Various houses in St-Antonin have markers showing the water level reached in different floods; these are some examples:



"EAU 14 XBRE 1906"
Rue de l'Hospitalet

1906
8 Rue de la Treille

"L'EAU LE 11 DEC 1906"
Rue du Moulin du Bessarel

"1930"
Rue Droite

“CRUE Du 2-3 MARS 1930”

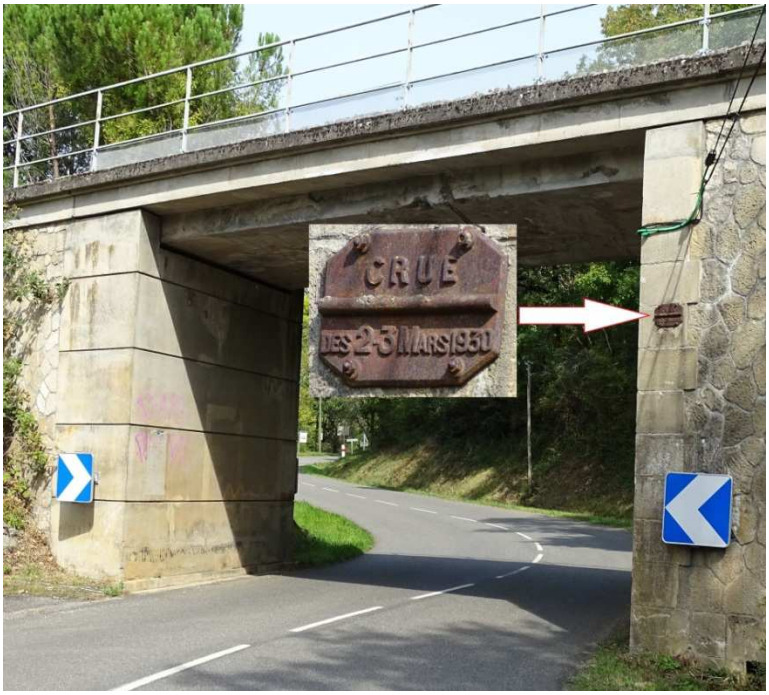
“EAU 1981”

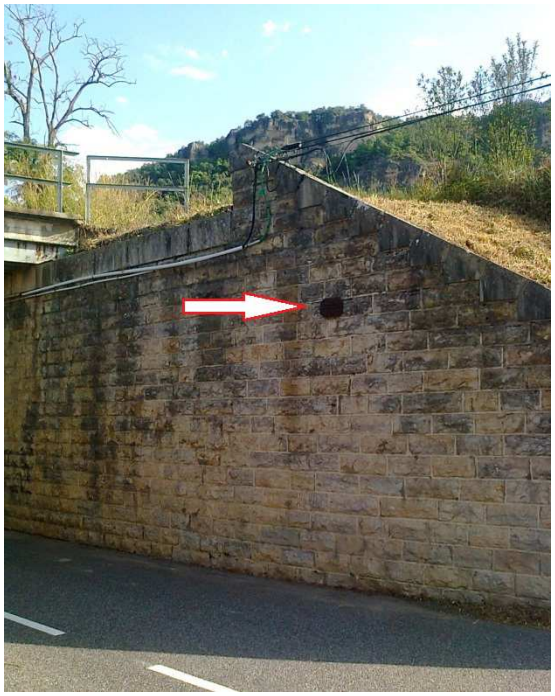
Both in Rue des Claustres

2nd February 2021 view towards Rue des Claustres showing the difference between the flood levels in 1981 and 2021

(Photo: Bruno Bangamra)

Further upstream the left hand photo shows a cast iron flood marker is on the railway bridge as you go from Milhars to Lexos and the right hand photo shows a similar one on the railway bridge near the Lexos football ground on the Lexos side of the river.





The same marker is in the Tunnel de Bône, where the water had gone over the bridge and destroyed it, as illustrated already:

In 1870 a metal bridge was built at Cazals to give the village access to the railway on the opposite bank of the river Aveyron and a small station was built to serve the village. Unfortunately this bridge was destroyed by the flood in December 1906. A new bridge was opened in October 1908 but this was also destroyed by the 1930 flood. The army built a temporary bridge whilst the Mairie of Cazals built a footbridge (which still exists). Eventually a new suspension bridge was opened on November 16th 1933, which is the bridge we see today. This is the same design of suspension bridge as that built at Féneyrols to replace the one swept away there in 1930, which was itself, as at Cazals, a replacement of an earlier bridge destroyed by one of the floods in the first part of the 20th century.

Cazals footbridge under construction in 1930

It was mentioned at the beginning that the 1930 flood was much worse for the Tarn than the Aveyron. Following an exceptionally wet winter and days of heavy rain along with melting of heavy snowfalls, large areas of southwest France suffered flooding.
At Saint-Sulpice-la-Pointe, where the river Agout joins the Tarn, the Agout rose 22 metres above normal whilst at Rabastens the Tarn rose 18 metres and at Montauban it was 12 metres above its normal level and the town was devastated. 25 people died, 1,092 houses were destroyed and 10,000 people were left homeless.

Postcard posted in April 1930, showing a Montauban house wrecked by the flood

12 km south of Montauban the village of Reyniès was completely destroyed. In this photo the stain on the walls of the church, more or less the only building to survive, shows the water level at the top end of the village at the height of the flood.

Worse was to come in Moissac, downstream of Montauban and the confluence of the Tarn and the Aveyron. The flood of the two rivers swept away 1,400 houses. 120 people died and 5,896 were left without homes.

As at Loubéjac on the Aveyron, the water flow rate of the Tarn had been measured at Moissac throughout most of the 20th century, giving an average of 233 m^3/s (cubic metres per second). The daily average measured on 4th March 1930 was 4,000 m^3/s with an estimated peak flow during the day of 6-8,000 m^3/s.

(Note: an Olympic swimming pool is nominally 2,500 m^3)

These two photos illustrate the scale of the catastrophe in Moissac:

Analysis of the 1930 flood

In the 1930 *Revue de géographie alpine,* a very detailed 50 page analysis of the flood was written by Maurice Pardé of the newly formed School of Hydraulic Engineering at Grenoble. Pardé was a Hydrologist and expert in potamology, the study of rivers.

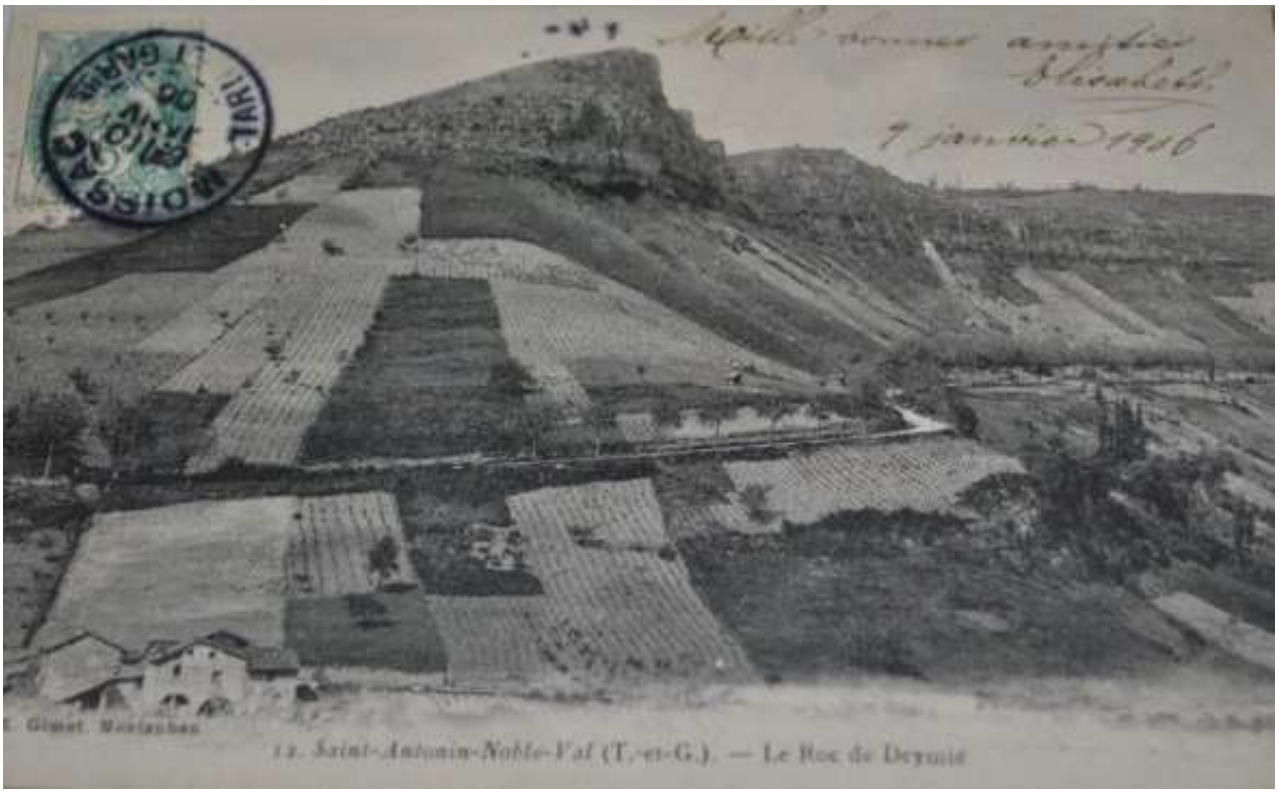
He reported that in total 210 people lost their lives, thousands of domestic animals were killed, 2,700 houses were destroyed as well as numerous smaller buildings, 11 large bridges were demolished, several kilometres of roads and railway lines were swept away and more than 20 railway lines were out of service.

Much of the data on the previous pages comes from Pardé's study. He also showed that between October 1929 and February 1930 the rainfall in much of Le Midi was double the seasonal norm. He also explained the atmospheric and climatic conditions resulting in the extreme rainfall in the days and hours immediately preceding the floods.

He concluded that a major contributor to the flooding was the deforestation which had taken place in France over the centuries. He recommended reforestation, construction of reservoirs and embankments as well as building higher bridges and stronger buildings. An early warning system was recommended as well as better departmental studies of Hydrometeorology.

Communications are obviously easier than in 1930 and early warning systems are in place. St-Antonin has a PPR (plan de prévention des risques naturels) in place which means insurers cannot refuse flood insurance for properties liable to flooding and must pay out if the government decrees a natural disaster in the Journal Officiel, but you must have claimed within 10 days of that.

As far as reforestation is concerned, you only have to look at old photographs to see that the decline in the marginal agriculture on the hillsides since the early 20th century, as well as reduced exploitation of woodlands for fuel and other uses, has led to a natural reforestation of many areas:



Apart from new houses, the Roc Deymié above St-Antonin is now completely covered in trees compared to this 1906 postcard.

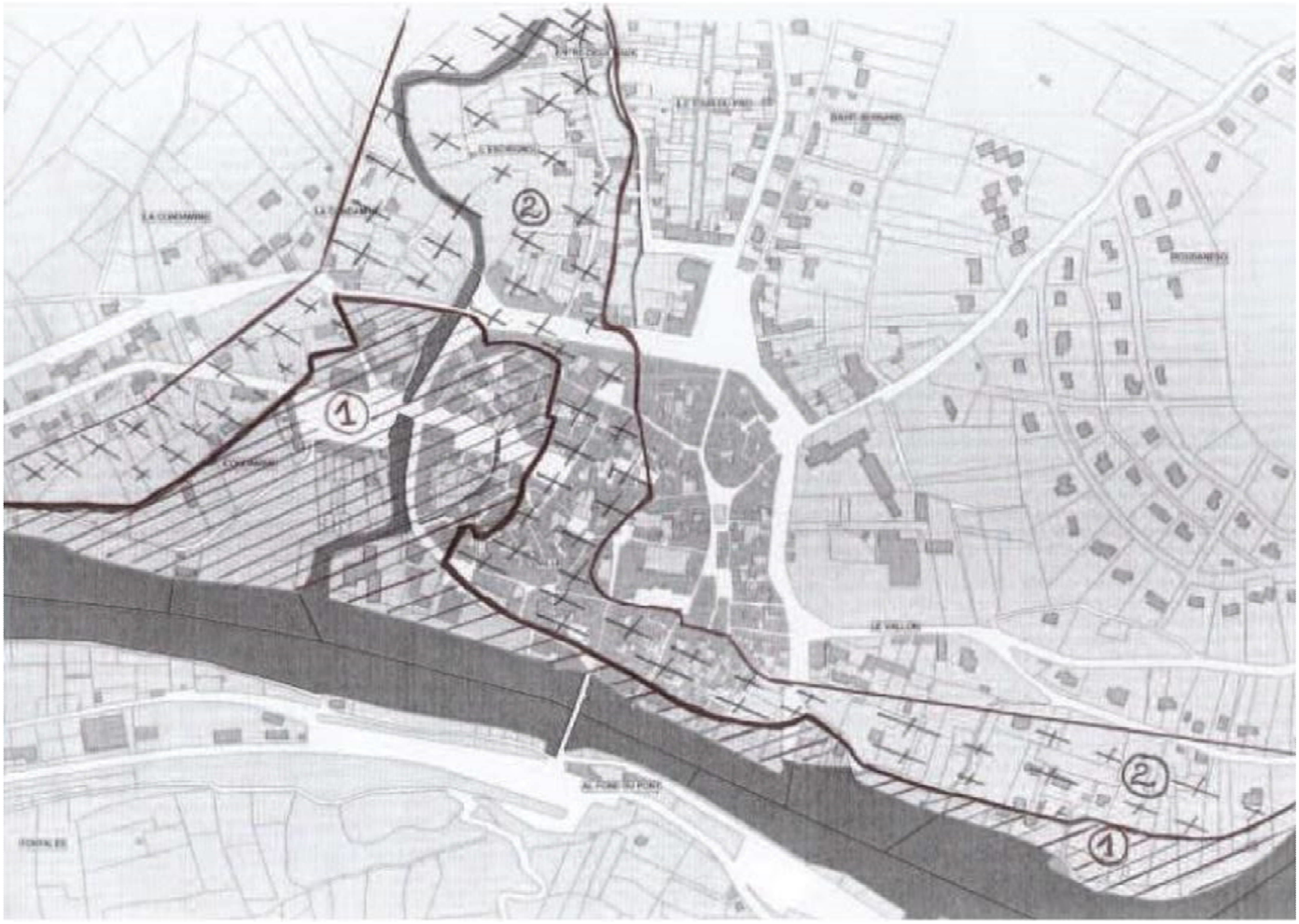
PLAN COMMUNAL DE SAUVEGARDE

In 2009 the Mairie of St-Antonin instituted a Safeguarding Plan for the Commune which involves an automatic flood warning system.

A database of telephone contact numbers was set up divided into two zones:

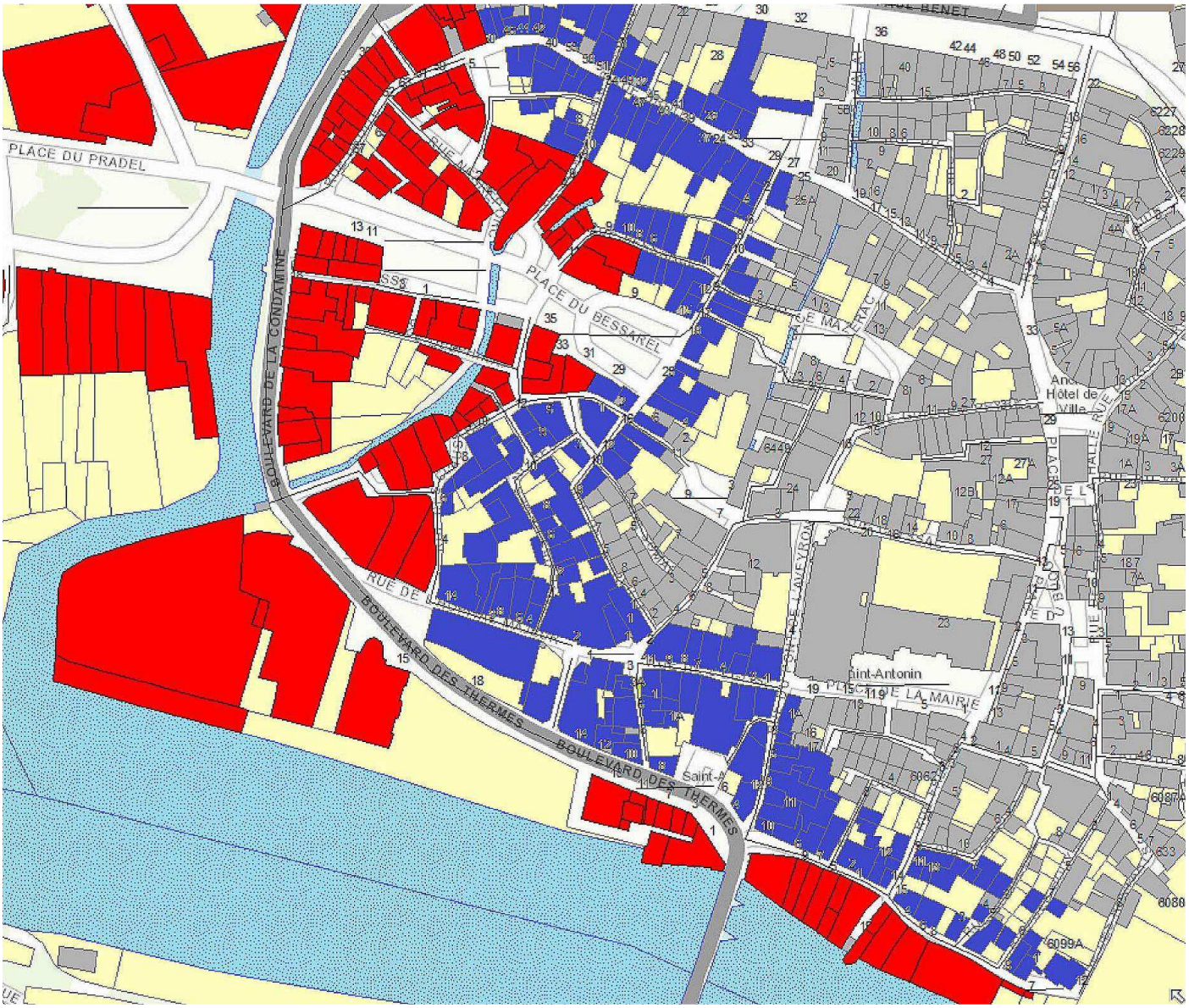
1. Yellow Zone representing the area affected by the 2003 flood and shown as no.1 on the plan below (hatched with diagonal lines)

2. Orange Zone representing the area flooded in 1981 and shown as no. 2 on the plan below (marked with crosses)



If you own or rent a property in these areas you should ensure that the Mairie has your phone number (land-line and/or mobile).

For the town centre, this was made clearer in 2015 with the plan on the next page using red and blue to represent the 1 and 2 zones:



John Dawson
Researched and written to satisfy my own curiosity and interest.