



Contribution from MELLIONNEC



Water through the centuries

Life is impossible without water and the people of Paxos are well aware of this. The control of this resource is the cause of some conflict between states throughout the world. These have two important objectives : quantity and quality. "Blue gold" poses and will pose increasingly in the future problems as important as those created by oil.

I. What about Brittany ?

A. Geographical situation

Brittany doesn't suffer particularly from the lack of water. Its position facing the Atlantic, South of the Channel and at the extreme west of Europe where the masses of warm humid air meet the cold continental front create abundant rainfall of about 1085 mm/year. This rainfall is quite well spread throughout the year. However some dryish summer s result in low water levels.

B. The influence of the land

The terrain, a mixture of granite and sandstone, schist and clay allows little water to penetrate but this land of valleys creates numerous flowing water courses.

- Towards the north, into steep valleys
- Towards the south, into large, calm rivers. These have been canalised. The result is that Central Brittany is the water tower of Brittany.

II. The importance of water in the history of Brittany

A. Settlements

Because of the number of rivers that have their sources in Central Brittany settlements have developed.

- The **first traces** of people were found 700 000 years bc.
- The **builders of megalith** lived 5 000 years bc.
- The **Celts** probably arrived in successive waves beginning in 2 000 years bc. They settled near to water points because water is indispensable for life and necessary for their religion. The worship of water is characteristic in the Celtic religion and sacred water courses were named after Celtic goddesses. Votive offerings were made to the gods who had the power of healing and influence over justice and the results of combats ... They threw into the lakes, rivers, wells and sources precious objects, mostly weapons, cauldrons, figurines of the new-born, horses, jewels ... These rites have not disappeared : people still throw small coins into fountains like Trevi in Rome in Italy or in Rostrenen where the children retrieve them (my daughter did this). The sacred water have inspired a number of beliefs and legends that still survive today.

- The Romans. After the defeated of Alesia in 52 bc., the Gaule became integrated into the Roman empire. In Carhaix (Vorgium) we have the traces of a aqueduct. This aqueduct unique Brittany is 27 m long and carried 6 000 m³ of water everyday.
- The invasions. Throughout the 9th century, the Vikings made successful attacks on Brittany. They settled in the isles (Groix, Noirmoutier ..) and used the rivers to invade the country and devastate everything on their way. During the 10th century, the Celtic structure started to weaken but all wasn't necessarily negative. Mr Duby thought the pillages were the origin of the economic growth in the 11th century (treasures of the cathedrals were change into currency, exchange and production of new items ...).

B. Water mills

It is in the 11th century that the water mill arrives in Brittany (the Greek Strabon speaks about water mills in the palace of Mithride in the 1st cent. bc.). According to Mr Le Bacquer, there were 12 mills in the barony of Rostrenen and in 1809, Gilles Blayo counted 264 water mills in the district of Pontivy.

These mills which were powered by the energy from the rivers had a number of functions :

- Flour mill : wheat, oats, rye, buckwheat.
- Paper mill : turning cloth into paper (Mellionnec)
- Tan mill : crushing tree bark for leather and dyes.
- Pump-house : for draining wet land and irrigation
- Saw mill : to cut wood, marble and slate
- Foundries for processing minerals and metals
- Oil mill for crushing nuts and flax
- Mill for processing hemp, flax
- Boat mill
- Powder mill
- Clay mill grinding pottery clay (Quimper)
- Mill for producing electricity : these were the first to supply in the country side. The mills have almost all disappeared now, as have the washhouses, the wells and the fountains.

C. The canal Nantes to Brest

Conceived by Vauban, building of the canal was started by Napoleon to stop the blockade of Brest by the English.

The first boat used the canal in 1842 but it was very little use for the transport of merchandise. Nowadays it's used for producing electricity, reservoirs and tourism (canoe, boat trips and fishng).

III. Present state of water in Brittany

A. Water, a habitat

On the bassin versant of the Blavet on which Mellionnec is situated we find two remarkable species and biological indicators of the quality of water :

- The European otter
- The Atlantic salmon These two species are part of the natural heritage of Brittany.

B. Water usage

In the 19th century, the state delegated the care of water to three private companies. These companies sell drinking water to 69 % of the French population, the public authorities supply 25 % and the independents share the other 6 %.

In Brittany, the annual consumption is about 268 million of cubic meters. On the pie-chart, it shows you the distribution of charges for water in Brittany.

- Domestic
- Industrial
- Agriculture.

C. The impact

The human activities have an impact on the quality of water. The least damaged water courses are in the less densely populated area and/or where agriculture and industry isn' t greatly developed. One measures the deterioration of water by

- chemical analyses For financial and often political reasons only a few pollutants are analysed : currently nitrates (agriculture), phosphorous (washing powder, chemical fertiliser) and pesticides (agriculture, gardening). Sadly, a number of other pollutants exist (e.g. mercury).
- biological indicators The slide shows clearly the evolution of the salmon population in France. The same is happening in the bassin versant du Blavet. These observations show clearly the deterioration in general of the water quality in Brittany.

D. A management plan for the future

Faced with this alarming situation it is essential to implement an efficient management plan. On the 16th June 1975, the EC defined a European norm for an acceptable level of nitrates in drinking water which is 50 mg/l.

On a national level different laws and directives are derived from the EC directive.

- Law of 1976 put in place precise thresholds for agricultural rearing standards. In 2005 all farms must be regulated under this law.
- The nitrate directive of the 12th December 1991 is concerned with the protection of water from pollutants from agricultural sources.
- The law concerning water of the 3rd January 1992 brought to attention the "common" character of water and has reinforced sanctions and also puts in place the tools for implementing : the SDAGE Schéma Directeur d' Aménagement et de Gestia de l' Eau. Sadly today there are few controls and legislation is little respected.

The role of the associations is therefor very precious in exercising constant pressure on the government to fully implement the laws.

The association also play an important role in making the decisions on the measures and implementation methods and in educating people to become good eco-citizens, particularly the children.

To sum up, behaviour both individually and collectively must change before we reach the point of no return.

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