11 - Revival of a Lord of the Léman

In the very heart of the Alps there is a lake whose real name is *Léman*. In English it is often wrongly, given the name of the important town on its western tip and called the Lake of Geneva. This is the biggest lake in western Europe with it's length of 72 Km, a surface area of 582 Km^2 and no less than 167 km of shoreline.

In spite of being isolated by its position from all maritime influence, over the ages this lake became an important inland waterway both for merchandise and personal transport.

Early flat-bottomed boats with primitive square sails and no keel gave way with time to more sophisticated craft, built on a keel, rigged with lateen sails and displaying an undeniable similarity to vessels plying the Mediterranean.

From the 13^{th} century the House of Savoy had Galleys built. To this end they engaged specialists from the region of Genoa. In the 16^{th} century carpenters from Nice were building vessels commonly called Barques.

The distinguishing characteristic of the Léman Barques was that they were entirely decked over and that they carried their cargo on this deck. Their construction is based on a floor and frame method, just like big seagoing ships. Their relationship to the Mediterranean Galleys is undeniable; many of the technical terms of the Mediterranean boats are found in these Barques. In contrast to the early boats the Barques had fine lines, which allowed them to tack into a headwind.

With few exceptions the Barques have two almost identical masts. The triangular lateen sails with a long foot are bent onto lateen-yards. Such a rig allows for sailing close to the wind and when tacking.

One of the particularities of the Léman Barques is that the sheaves used to hoist the lateen-yards are placed athwart ship in the mast. This means that when tacking this yard does not have to be brought about from one side to the other; it always remains on the port side. Tacking while going through the wind is simple, contrary to what happens with the classical lateen rig, the yard stays in place. The starboard tack is called "wrong handed" because the sail has to go around the mast and thus runs the risk of being torn. The port tack is called "right handed" since the sail is taken behind the mast. Aerodynamically it is obviously the "wrong handed" tack that is better.

Even though the Galleys and the Léman Barques are constructed in a similar way, their appearance is quite different: the Galley is long and narrow and has a very prominent poop, the Barque is proportionately much wider, its bow is raised and flared while its stern is lower and is flat.

In 1992 "*Mémoire du Léman*" was founded, as an Association, with the aim of mobilising and uniting all the existing and potential interest around this magnificent and imposing sheet of water on the Savoy (French) side in order to revive one of the most impressive and beautiful boats in its long history.

This association mandated me to design and to construct for them this vessel, which is currently the biggest wooden ship navigating on any European inland waterway. To be exact I was given the task of copying exactly a Barque called the "SAVOIE" that had been built in 1896. She had been broken up in or about 1945, and records of her dimensions had disappeared over the years, as had all the technical specifications.

Models of this type of barque showed that the vessel that I was to design should be some 35 meters long, have a beam of 7.9 meters and a capacity to carry 113 m^3 of stones, which represent a deck cargo of about 180 tons of granite.

Since barques were built by craftsmen in the olden days, shipyards used neither plans nor drawings. Barques were made with the aid of templates, as they are made in the Mediterranean to this day. To use such a method in this day and age is quite possible in practice, but such are the times we live in, that it would be unthinkable to win over the necessary sponsors and to present our ideas to the relevant Authorities without showing them in detail pictures (i.e. drawings and line plans) of what we had in mind. Consequently it became my lot to create all the technical plans to reconstruct the "SAVOIE" in conformity with current practice and with present day legislation and to carry out all the calculations that would allow for it to be certified as fit to navigate on the Lake "Léman" as a passenger-carrying vessel.

The reader must realise that at the beginning of this millennium there are no official rules regulating wooden sailing vessels of this size operating on the Lake to carry passengers and crews who are nostalgic for "Old Timers".

Luckily there is an almost bottomless fount of knowledge provided in the records of the late Gérard CORNAZ, a naval engineer who spent a good part of his illustrious career studying the Léman Barques. Fortunately Europe's National Libraries are also well endowed with sources of information on the problem of non-graphical hull design. (J.-P SARSFIELD, E. RIETH, N. PRIETO, J.NAEF, N. CHARMILLOT, M.MARZARI, K.DAMIANIDIS, et al.) There is also a museum in St Gingolph that has an interesting collection of models of this type of boat.

In spite of modern custom, the plans were drawn up by hand (and not by computer!). Templates were the main method used, as in the olden days. The resulting calculations gave a Barque whose principal dimensions were:

Length overall	35.00m (incl. Bowsprit)
Hull length	30.80m
Length of the keel	26.40m
Beam max.	8.30m
Displacement	82 tonnes (light)
Sail area	340. m^2

Some concessions were made to the fact that this "SAVOIE" was built in the 20th century and that it will have to sail among modern day pleasure craft. It ha been fitted with two 60 hp engines and a bow thruster. Regulations also imposed the inclusion of watertight compartments in the hull.

The framework has been done in the traditional way: a white pine *) keel, solid oak for the floors, frames and futtocks as well as for the deck beams. The hull planking is made of solid larch and the garboard strakes are 10 cm thick. The water tightness of the hull is ensured by traditional caulking.

As for the sizes of the individual components, the dimensions used by the traditional builders were respected:

Keel (pine)	40 x 30 cm	
Keelson (larch)	30 x 25 cm	
Frames (oak)	9 x 13 cm	
Typical average frame spacing	38 cm	
Hull planking (larch)	8 – 10 cm	
Deck beams (oak)	13 x 10 cm	
Deck planking (larch)	6 cm	thick
Mast (solid larch)	40 cm	(diam.)
Lateen-yard (diam.)	30 cm	
Tiller (chestnut)	450 cm	

On 11th June 2000 the work on the hull was completed, and it was launched to the cheers of some 25'000 enthusiastic spectators, who came to witness the event.

*) *) White pine is a loose translation of *Picea abies,* a species of pine that grows in Switzerland and that is specifically selected for ship's keels. It is far less common than the so-called red pine. For timber enthusiasts I can add that the oak (often bog-oak) is also locally grown and the fact that it is often tortuous and twisted can be put to good use when carefully chosen for the frames. The origins of the planking is very varied, some of it having come from as far away as the Balkans in the past.

At the time of writing the finishing of this boat has been completed, the masts have been stepped and rigging is in place. Stability tests were carried out at the end of winter 2000 - 2001 the seaworthiness certificate has been granted and as of spring 2001 the “SAVOIE” is fully operational.

You can now come and admire this “Lord of the Lake” in the Port of Evian, and if you are one of those who yearns to sail in a real Old Timer, there is no doubt that you will be able to find a place on board. Were Lord Byron alive today, I would bet my bottom dollar that to visit the Prisoner of Chillon (on the other side of the lake) he would choose to do so aboard the “SAVOIE”.

On the web : <www. barquelasavoie.com>

Author:

© **P.-A. Reymond**,
Naval Architect and Yacht Surveyor
23th October 2002
Switzerland
e-mail <reymondsurveys@gmail.ch>