Giacomo Gori

The restoration of Bamba: rebirth of a legendary international eight metre

IN A SCENARIO THAT IS NOT WELL SUPPLIED BY LITERATURE AND IN THE ABSENCE OF REGULATIONS, RESTORATIONS OF CLASSIC BOATS IN ITALY ARE CARRIED OUT WITHOUT UNEQUIVOCAL REFERENCES AND ON THE BASIS OF THE FREE CHOICE OF THOSE WHO ORGANISE THEM.

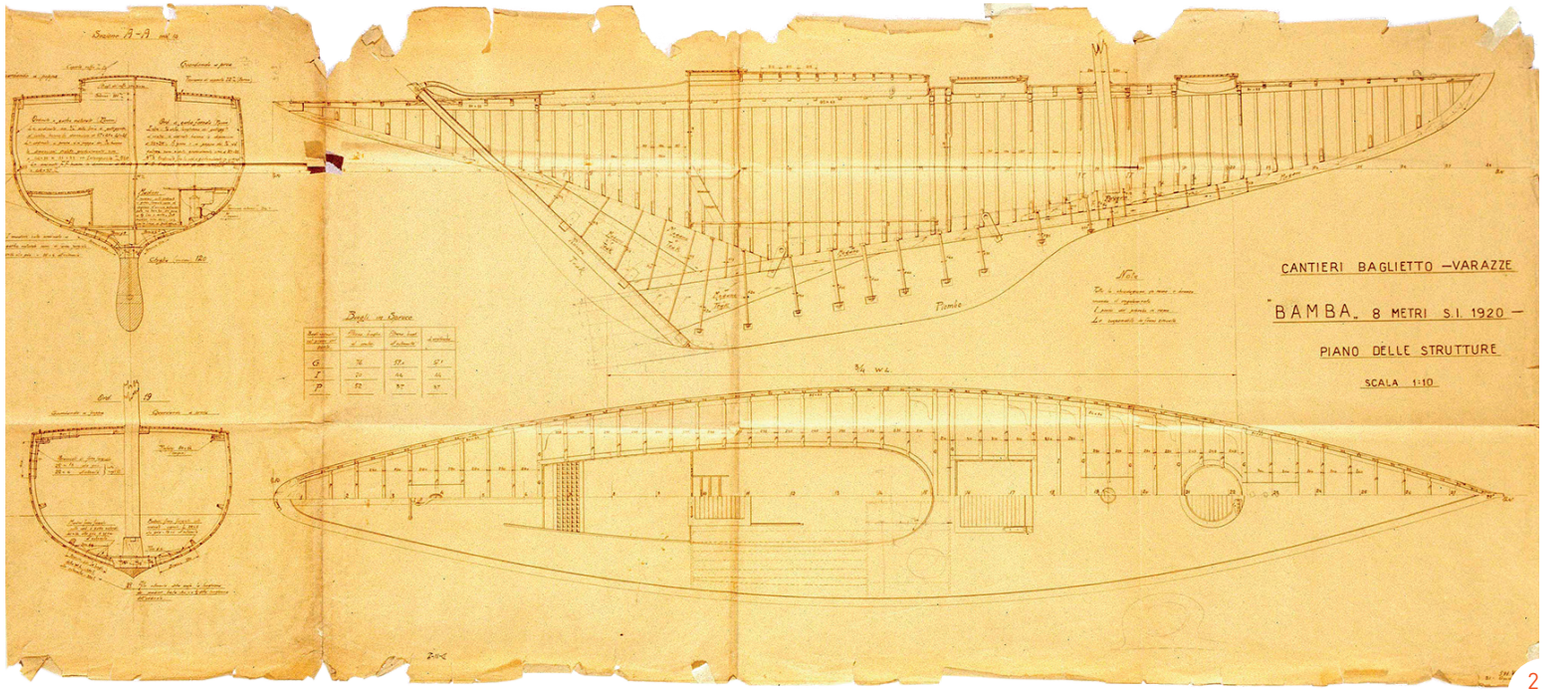
The restoration of Bamba, by the Studio Faggioni in La Spezia and the Cantiere Pezzini of Viareggio, is undoubtedly a significant case. This article is the summary of a research doctorate thesis in the Naval and Nautical Design section of the Department of Architecture and Design (D.A.D.) of the Università degli Studi di Genova: “Restoring and refitting wooden boats - Cultural and technological aspects” - author: Arch. Giacomo Gori, tutor: Prof. Mario Ivan Zignego.

The yacht

Bamba is an international 8 m with a very important history and record of victories: she won the Rylard Cup, the Coppa Italia (twice in a row), fourth place in the ninth Olympic Games in 1928 and many other races. In January 2011 Bamba was taken to the Pezzini yard in Viareggio. The restoration project was entrusted to the studio of Stefano Faggioni, who described the work in this way: “a restoration was carried out with careful interventions, where they were needed, and we did not intervene more than we had agreed. The design concerned above all the deck plan, the interiors and constant presence in the yard to solve problems that were also structural such as the reconstruction of the skeg and the join between the hull and the keel.”

To gain access to all the areas, the original furnishings were dismantled. Thus it was possible to get a full view of the hull. There were a lot of problems: futtocks were broken off, pins were rusted, interventions had been poorly carried out from the interior with silicon and polyurethane glue. The problems were mostly below the waterline. The keel, a single piece of oak, was well rotten. The leaks and rusted pins had deteriorated the wood to the point that in some parts it had become gelatinous, soft and in some points crumbled. The sides of the hull were stripped down to the wood to assess their state of conservation, with special attention to the area close to the keel. Initially the idea was to replace just the keel, some futtocks, three quarters of the planking and all the ironware with new components in stainless steel. Pezzini still harbours no doubts about the choice of stainless steel: “This was the most sensible decision to do a job that would last.” But in fact this first hypothesis of intervention saw a lot of extra work added as operations proceeded.

Figure1: Bamba racing. (Francesco Rastrelli Ph)



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The restoration

After removing the worst of the futtocks it became clear that the structure needed putting back together: the frames were no longer fitted into the keel, the rabbet was almost non-existent and there were drips of resin from an old repair that had been badly carried out. The bulb was removed and, since the old keel would then have to be removed, a network structure in pine wood had to be constructed inside the boat to connect the deck beams and the futtocks and prevent the hull being deformed (a beam with cages and diagonal cross pieces). Since the boat was on her cradle, it was possible to support her also from the outside in eight points, one at the bow, one at the stern and six on the sides at points corresponding to the futtocks. Dimes were made in the interior of the shapes and sizes of the futtocks to make new ones.

The boat was lifted from her cradle so that the bulb remained on the land: so two cradles were needed. The original pins, in silicon bronze, were in good condition and were later reused.

At this point the keel was removed and used as a model to make a new one of exactly the same shape in laminar iroko glued with epoxy resin and provided with housings for the futtocks. Frame by frame it was decided which parts of the futtocks needed new inserts. These parts, mostly below the waterline, were made in laminar ash glued with epoxy resin and followed the profile of the templates but were made longer so that when being fitted they could dovetail well with the existing joint. Most of the planking below the waterline had deteriorated and so it was decided to replace it completely.

The boat does not have true wooden floor frames, the futtocks are fitted into the keel. The joints between the keel and the frames are reinforced by stainless steel components. To make these components, in addition to the dimes for the futtocks counter-dimes were also made for the metal fittings to pass to the blacksmith: with more than 40 futtocks it was an extremely complex job.

For the planking, with elements that were wider amidships than at the bow and stern, every second plank was first installed and then the missing ones fitted in later. A technique used to maintain the symmetry of the hull was to use mahogany planks six or 7 cm thick. After being cut to the profile of the existing planks they were cut in half lengthwise, so as to provide two identical planks for the port and starboard sides. The interval of the frames has alternately to futtocks in, and for every reinforced buttock. The planking, which was originally fixed to the frames reinforced with silicon bronze screws, was fixed with stainless steel screws that were easier to find; they were fixed to the common frames using square section copper nails. When the planking was finished, all the holes in the hull where the heads of the nails and screws were driven in were plugged with mahogany plugs and epoxy resin, then flattened and made flush with the hull.

The rudder blade, in mahogany, was modified so that it fitted with the profile of the keel. To add this new “slice” in laminar iroko part of the rudder blade where it was to be added was cut straight to provide a large flat zone for gluing. The new solution also makes it easier to remove the rudder blade. The following phase was caulking with cotton fibre; finally the lead bulb was remounted and fixed with the pins, welding up the holes around the bolts

Figure2: Bamba, original design by Giovannelli. (Archivio Faggioni)

Figure3: Compromised keel and structure of Bamba. . (Pezzini archive)

Figure4: Dimes for the futtocks, floor beams and keel. (Pezzini archive)

Figure5: Dimes and counter dimes for the blacksmith. (Pezzini archive)

Figure6: Laying the new planking. (Pezzini archive)

Figure7: New keel and planking. (Pezzini archive)

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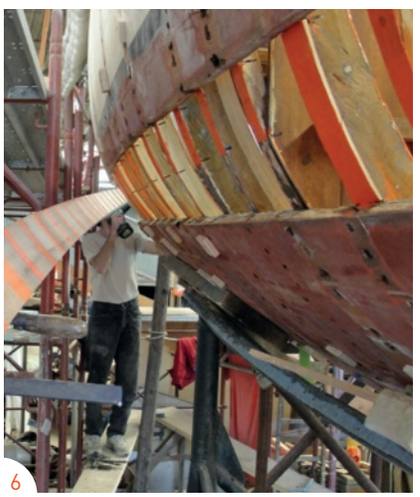

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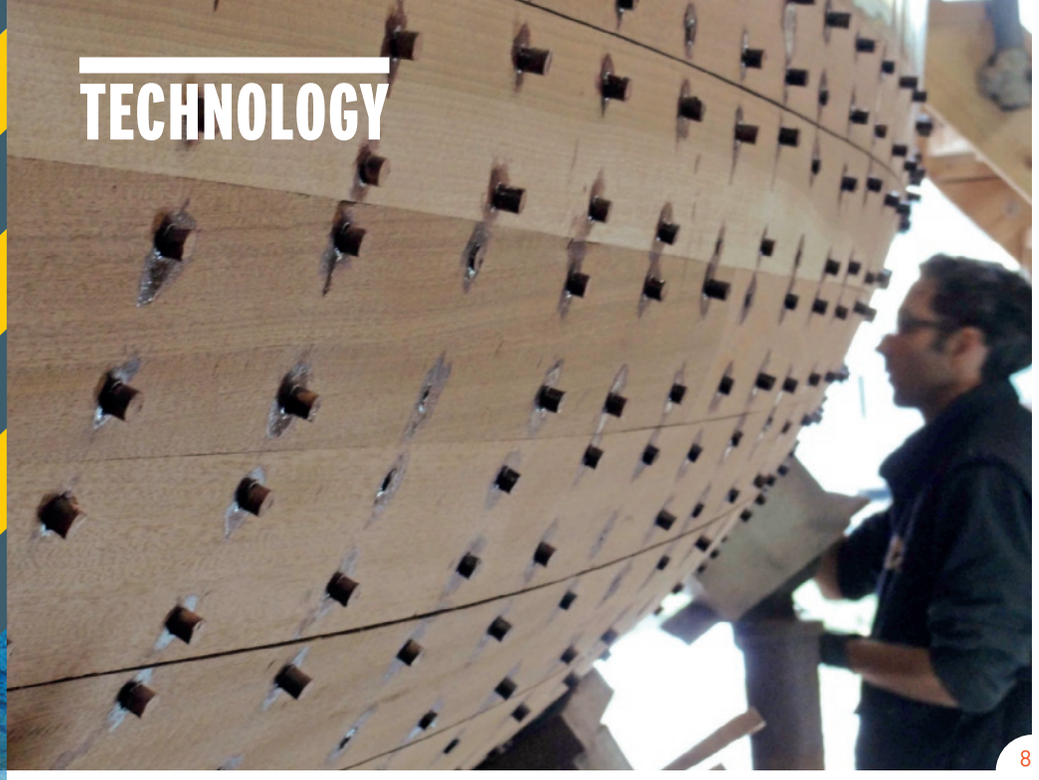

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1927
BAMBA
CANTIERE

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piastra di base
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piastra di base

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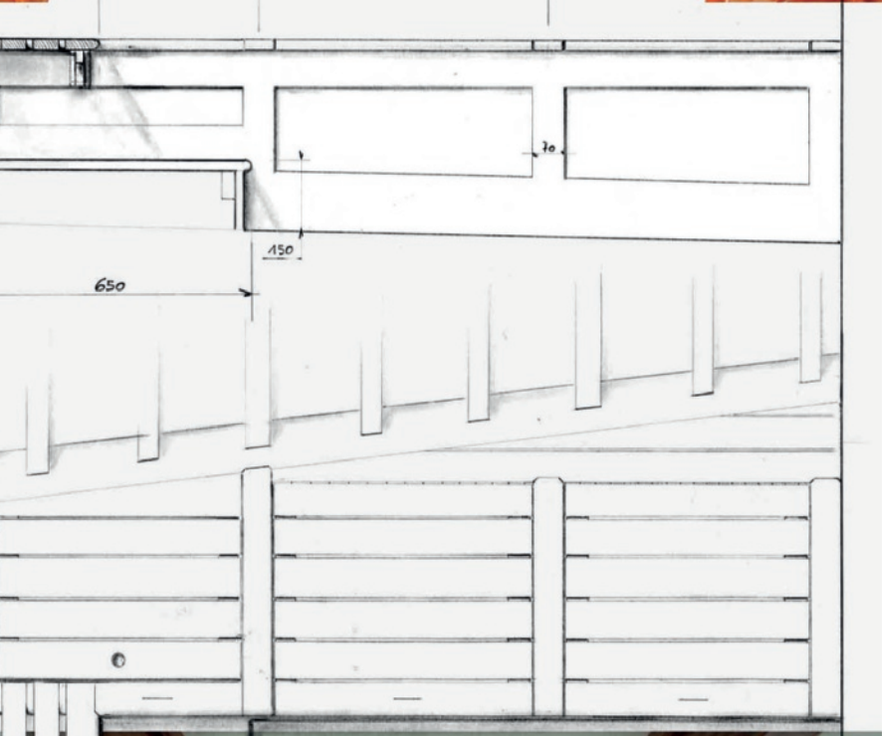
70
150
650

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with a mixture of lead and tin. Then a hybrid cycle was supplied to the wood with red lead and epoxy. The joint between the keel and the planking was filled with epoxy material where cracks remained. The scenes were also filled, but with a single component filler: at this point the hull was solid.

The interiors

Then work began on the interior. Faggioni describes the aim of the work: "The interiors were in solid mahogany: it was heavy to look at and weighed a lot. Necessarily we decided to lighten it to have the original design displacement. Two bulkheads, the one of the bow cabin and the anti-collision one right forward, were removed to open up space in the forward part of the boat. The interiors were painted completely in white, greatly increasing the amount of light in the sense of space. A double bench was created at the bow, very simple, with no framing, just a simple shape. When racing the mattress can be removed leaving the bench which can tolerate water, and the whole environment can be used as a sail locker and manoeuvring area. In the galley we had a lot of trouble putting a fridge in, then we opted for a small drawer fridge. The wooden surfaces for the galley and head washbasins are lined with zinc sheeting. The head remains the same size though now it's layout is more rational. In the cockpit there were hatches in the side that had nothing to do with the geometrical nature of the cockpit so it was decided to simplify the design with much more linear doors. The hatch of the deckhouse, which opens towards the outside, was fitted with a double hinge (more precisely there is one hinge, a wooden panel and then a second hinge), so that once open it can be completely flattened using this double movement on the side of the deckhouse." The new furnishing, which is much lighter than the old one, was made with modern light and wooden sandwich ply. The electric cables pass, as has always been done traditionally, through copper pipes. Lamps of the era were installed in the deckhouse while forward LED strips were hidden under the stringer to illuminate the whole side and underline the original structure. Studio Faggioni also optimised the deck plan: besides modifying the runners the forestay, which was made up of twin cables too close together, was also modified a new one was painted in after references were taken during the launch. In this phase the new anchor points for the hoist in stainless steel connected to the keel were tested.

Figure8: Glueing the plugs with epoxy resin to fill the holes in the planking where the copper nails were driven in. (Pezzini archive)

Figure9: New futtocks and new keel in laminate. (Pezzini archive)

Figure10: The bronze fitting of the tiller we adapted and reused. (Photo G. Gori)

Figure11: Modification of the skeg. (Pezzini archive)

Figure12: Modification of the rudder blade. (Faggioni archive)

Figure13: Stefano Faggioni and Massimo Pezzini discussing solutions. Many decisions on this intervention were taken in the yard. (Photo James Taylor)

Figure14: Entrance area with the sofas: before and after. (Studio Faggioni)

Figure15: Forward area with the benches. (Studio Faggioni)

Figure16: Zinc surface for the galley. (Photo G. Gori)

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The interview

Studying the restoration of Bamba created many opportunities to talk to Stefano Faggioni in broader and more general terms about yacht restoration. This interview summarises what he said.

Giacomo Gori: What kind of restoration was carried out on Bamba?
Stefano Faggioni: I don't want to classify specifically but in my opinion it was a good restoration: when you go on board your stepping onto a 1927 boat in all senses. What you should avoid at all costs is adopting the "classic style", rather the restoration should produce a "racing classic".

What were the main aims of the restoration of Bamba?
There were some problems in the interior: getting the weight down, to have the original design displacement again, was perhaps the main aim of the project. The interior furnishings were really heavy. Bamba is a boat with two personalities, racing and cruising.

With the restoration of Bamba, though you don't want to classify it, with the interiors we are at the limit between restoration and a slight refitting. The situation designed never existed before.
No, but I'm very proud of it, it's also a question of design maturity. I feel happy now, I know that what I do is justified by maturing experience. It's a kind of intervention I will certainly repeat.

Did the project evolve while it was in progress?
Yes, completely, but following a clear basic philosophy.

Other things you didn't manage to do in restoring Bamba or that you would like to have done differently?
The only thing I would like to have done differently is the cushions. I would like to have used sailcloth, even pieces of sails from other boats, if it had been possible even those of the "Vespucci", ennobled by wind, sun and salt.

In general, when an owner comes to you with the idea of restoring a classic boat, how do you plan the intervention?
The moment you see the boat you understand what she needs. When you get to know

Figure1a: Baracca Faggioni, Cadimare: Stefano Faggioni. (Photo G. Gori)

Figure2a: Baracca Faggioni, Cadimare: carpenter's tools. (Photo G. Gori)

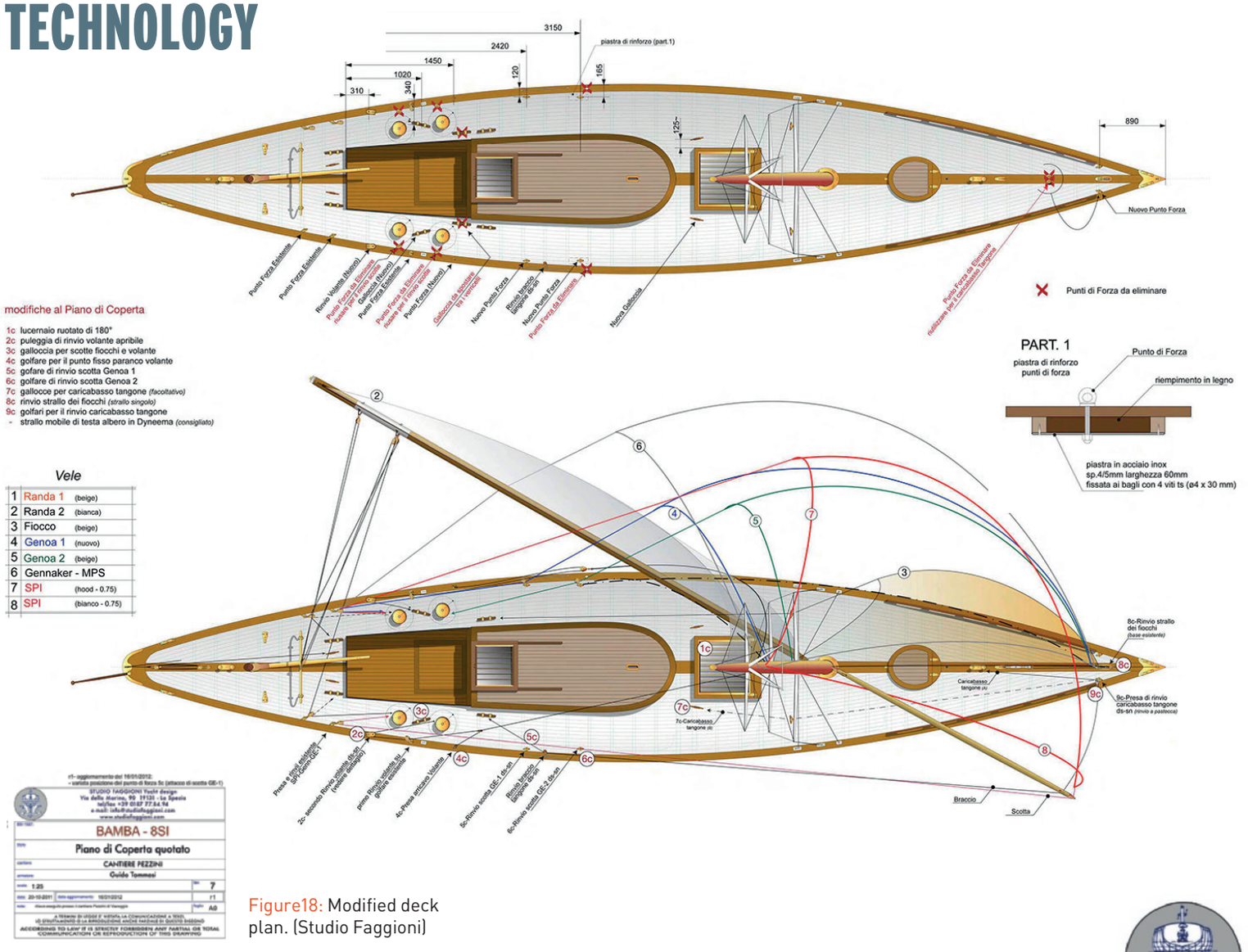
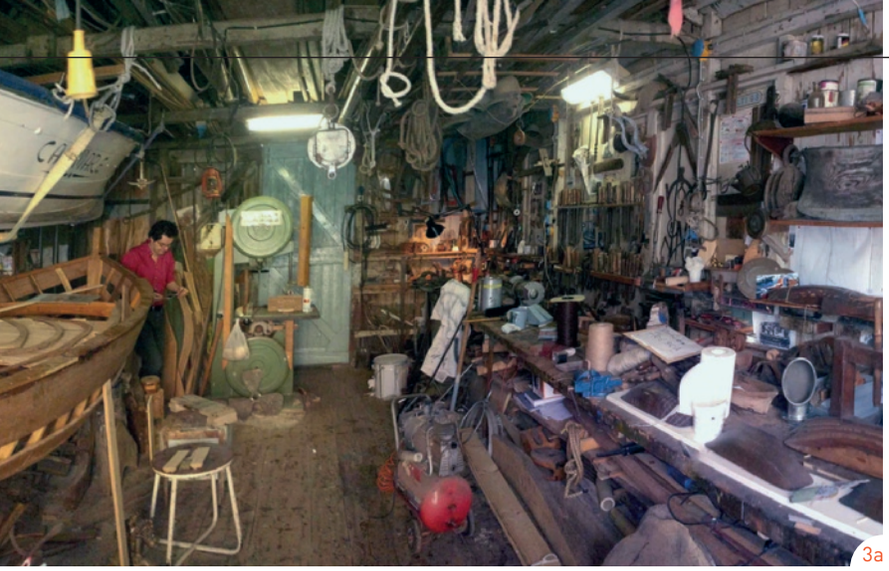


Figure18: Modified deck plan. (Studio Faggioni)

DATA OF BAMBA	
TYPE	INTERNATIONAL 8 M CLASS (8 I-11)
DESIGN	FRANCESCO GIOVANNELLI YARD BAGLIETTO, VARAZZE
LAUNCH	1927
LOA	13.97 m
WATERLINE LENGTH	9.64 m
MAX BEAM	2.55 m
DRAUGHT	2.00 m
DISPLACEMENT	8,980 Kg
LEAD BALLAST	5,325 Kg
SAIL AREA	73.35 SQUARE METRES
RESTORATION WORK	2011/2015

THANKS
THE DESCRIPTION OF THIS RESTORATION WAS MADE POSSIBLE BY THE CORPORATION OF STEFANO FAGGIONI (STUDIO FAGGIONI) AND MASSIMO PEZZINI (CANTIERE PEZZINI).

Figure17: Bamba's final modified sail plan. (Studio Faggioni)



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the owner, you know what he needs. Once you know which yard will do the job, you put everything together and something unique comes out of it that belongs to the DNA of the boat in that moment. On the basis of the elements you have you decide on the project.

Is it better to speak of planning a restoration or designing a restoration?
There's no doubt, a restoration always needs designing. Doing a restoration without a project is impossible because very often you have to recreate something.

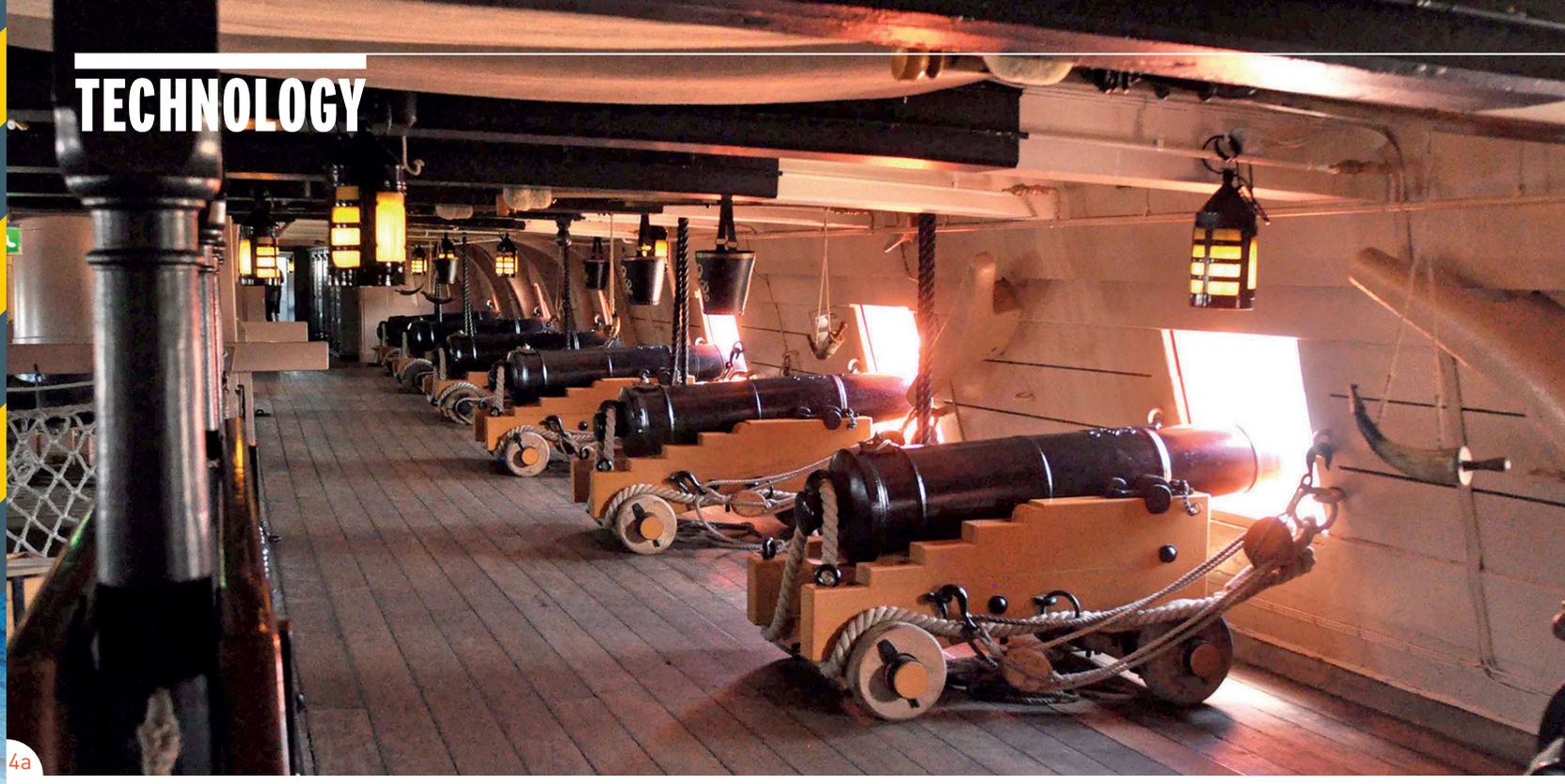
What are the limits of restoration? Where does refitting start? Is refitting intrinsically respectful (even if it can completely break with the history of the boat) or does it have limits that must not be surpassed?
Refitting can be done on any boat, even a boat built two years ago: it aims to improve the life of those who use the boat. Restoration too: but restoration must also consider the historical importance. Boat demands respect.

On the limits of an intervention: are there any if there is risk of losing the boat?
The basic principle is trying not to lose the boat. The limit depends on the owner. But it's unlikely that somebody will end up with a classic boat if he wants something super modern!

If the owner wants air-conditioning or a dishwasher on his classic boat is this a problem?
I can't see the problem.

Could it be a good thing to regulate restoration of classic boats, like the restoration of buildings for works of art, to try to avoid grossly mistaken interventions?
Personally I think regulating restoration would be the worst thing. And then, who would draw up the regulation and who would enforce it?

Given that there are sectors that on the subject of restoration have a lot of literature compared with yacht



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and ship restoration, is it correct to look at these to evaluate attitudes and considerations that come out of them?

The yachting sector has specifics and peculiarities and here you can't completely adopt intervention philosophies coming from other sectors. For example, for a classic car it's acceptable that the paint be original, even if slightly faded, with the usual patina of age and some imperfection. But on a boat it would be unthinkable to have a "conserved" state of paint (unless it were a museum restoration). At the very least you would need to change the standards and a "conserved" vessel in the yachting sector (still sailing) could perhaps also be repainted.

The yachting sector has problems that are completely different from those of buildings, classic cars etc. If you don't use a boat you lose it, and to be used you must guarantee to hundred years of life with the restoration. You can't say "in five years' time we'll patch it up again."

In the United Kingdom there is a very important naval and yachting tradition. In the Portsmouth Historic Dockyard there is the Victory (1765) and it is an exceptional result to be able to see today and go on board the ship with which Horatio Nelson for the battle of Trafalgar! But to preserve a ship for this long there is a price to pay. Apart from the astronomical cost of the work, it's necessary to substitute very many parts of the ship, to have some plastic, with the risk of spoiling the overall effect.

Yes. And the sensitivity with which some of the work on the structure of the victory was managed is open to discussion. But then you step into a piece of history and you feel the emotion. The English did for the Victory what we should have done here with many vessels that instead have unfortunately been demolished.

Often a vessel finds its best condition one or two years after the launch, when certain things have been put right. Depending on the history of boat has had it could be that its most significant configuration in terms of history, use or even build is not the original one. How do you tackle this in the projects you follow?

Obviously you need to take into consideration the original project, but also all the evolution of the boat over the years. For example, Astra changed her rig six or seven times because it was optimised on the basis of observations while she sailed. The ideal configuration can be a long way from the original project and when the have been efficacious optimisations this is what you should refer to.

Let's take it to extremes: for a boat that has had two particularly interesting periods, with different configurations, is it reasonable in a restoration to refer to characteristics of different periods even if you end up producing a condition for the vessel that has never existed?

Absolutely, in the end this is the end product: something that is a mix between the history of the boat, your experience of the project…

A boat evolves during its existence. When it stops evolving and starts to need restoring?

Restoration is part of the life of the boat, the owner is

Figure3a: Baracca Faggioni, Cadimare: general view with the workbench. (Photo G. Gori)

Figure4a: Interior of the "Victory" with many parts reconstructed. (Photo. G. Gori)

Figure5a: Baracca Faggioni, Cadimare: Compass timbers (in italian language = "stortami"), wooden pieces that already has particular shapes to use for creating structural parts of the vessel. Today they are very hard to find; as an alternative, depending on the intervention, wood can be bent with steam or parts constructed in laminate. (Photo G. Gori)

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part of the life of the boat, from that point the future of the boat is guaranteed by the elements you find…

With this logic, the boat has a life from its launch until today and from today until tomorrow: in a restoration carried out today can we think of inserting updated details?
Today we sail with electronic instrumentation that didn't exist before. What should we do? Navigate with a sextant? It's clear that you have to compromise with electric winches, generators, modern instruments. It's no use being ridiculous, there's no sense in it! The trick is to hide these things in the right way.

How important is it that a given component of a boat be the original one or a new one made in the same wood and in the same way?
If the structure of the boat is rotten you have two put it right. A wooden structure that was in oak I would do in lamb in it because I can't remove the planking and must I intervene with existing planking? Perhaps…

But doesn't this compromise the originality? Is it an acceptable price?
It's a price you have to pay. When the original wood is rotten, it's rotten, you can't recover it, you mustn't recover it!

Is an epoxy glue a material you think can be used in a restoration?
Today you can't deny the use of epoxy glue. There is a limit you mustn't go beyond: laminating the hull with fibreglass for example condemns the boat to death, it doesn't breathe anymore and begins an inevitable decay.