

Survivals of old shipbuilding traditions on northern Portugal local boats

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The stretches of sandy beaches along the Minho coast, interrupted by the Cávado, Neiva, Lima, Âncora and Minho rivers, dotted with rocky and pebbly areas in Areosa, Montedor, Gelfa and Moledo, comprise the remote end point of the north coast of Portugal (Fig.1).

The small inlets on the open beach, protected only by the line of dunes and the river estuaries, created conditions for the development of human communities where the construction of the scenic background and fishing architecture of the villages and settlements, the economy, the craft and technology of fishing, the place names, the speech, tales and rites, the clothing, the songs, the festivities and the habits of the populations from Apúlia to Caminha, are strongly marked by the land-sea relationship. Today the region is led by the agricultural-fishing communities of farmer-fishermen: the farmers of seaweed that also collect the *pilado*, small crabs that, after drying in the sun, were also used as fertiliser for growing potatoes and corn, before the introduction of mechanisation in agriculture and industrial chemical fertilisers.

Because of this, it is not possible to put the colonisation of the coastal area of this region into perspective without relating it to the appearance of the fishing ports, the majority of which have come down to the present, or of the distribution of techniques and instruments of skilled fishermen without relating them to the inherent process of dissemination. The dissemination of the cultural lines is inseparable from the material and written culture, from the imagination, from technology, from navigation and from the knowledge of the sea in general. The fishing and agricultural-fishing communities developed a different complexity from that of the rural communities of the interior, making the boat their most significant asset and ownership value. We compare the rural architecture of the region, designed since the end of the 18th century for cattle and corn and we consider the ox-cart and the corn crib (*espigueiro*) as the highest expression of a functional construction model that invariably characterises it.

As the result of being a workboat, it is also a main figure in a model of material culture produced by the fishing universe. There is no uniformity here in the rural universe and in the same village we find boats with a flat bottom or with a keel, carvel or clinker built, ships with stem and sternposts or ships with the bow and the stern cut simply in panels.

They are as truly traditional as the ox-cart or the centuries-old corn crib, but their variety and the existence of Atlantic and Mediterranean models in the same place can only be understood through the sharing of knowledge, through the adoption of the best that each model could offer, considering the practical uses of the boat, of the influences that allow incorporating in these communities the habits and customs of neighbouring or distant places. This point of view contradicts the “isolation” and “living outside the norm” that specialised studies often tend to identify in traditional fishing communities.

Within the same area, the vitality of the traditional systems of apprenticeship and the passing on of knowledge and wisdom permits the adoption of the best technological progresses. Accordingly, this is in great part responsible for the introduction of improvements in the boats that decisively changed them, resulting in new methods of construction, new materials and new nautical models. The few boats that survived without adopting these improvements comprise the universe of traditional boats today. Almost all are unique examples that we are going to review. We found their shipyards, the last shipyards for construction of wooden ships. We

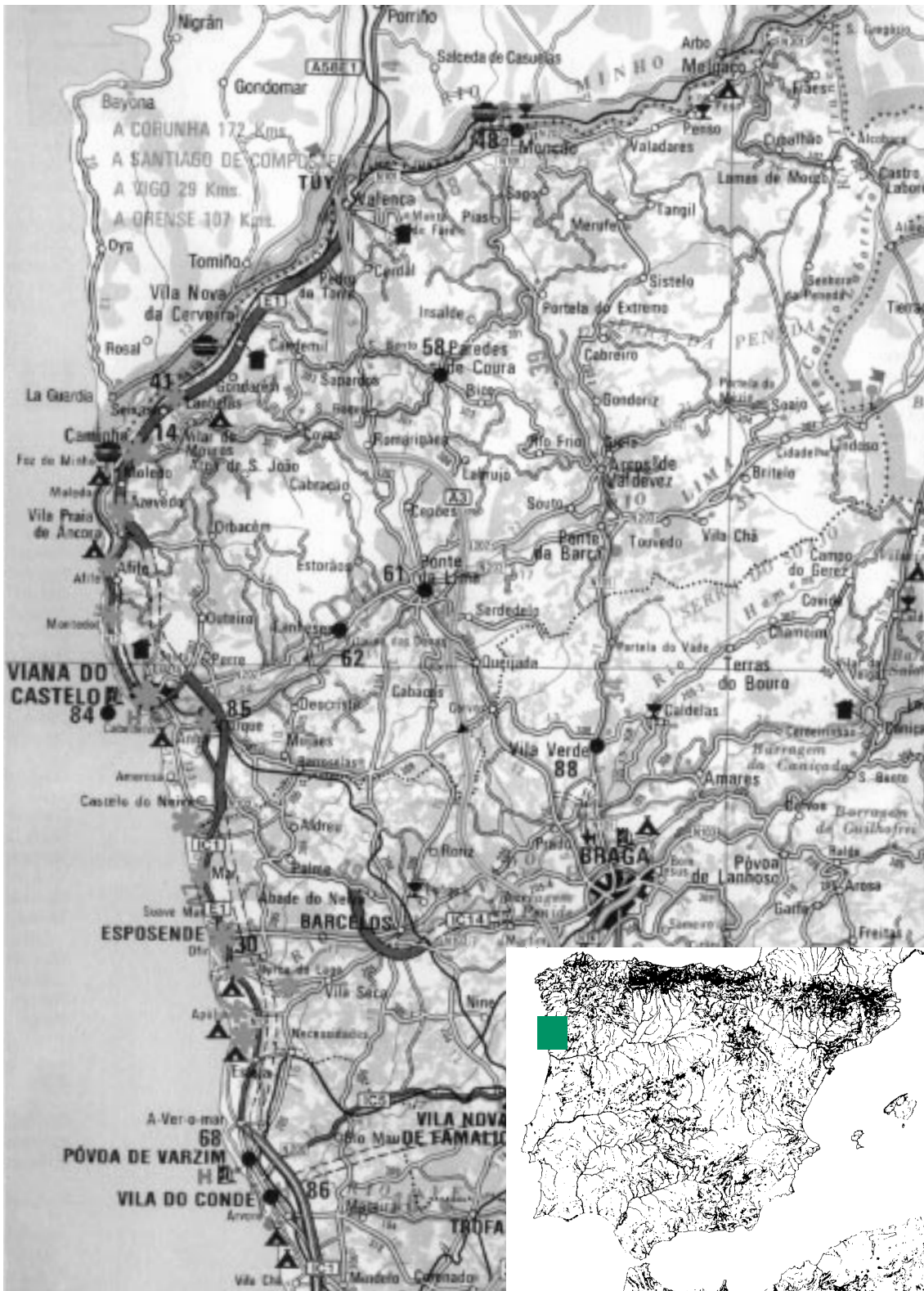


FIG. 1 – North coast of Portugal map.

found out that they construct modern powerboats, *traineiras* (trawlers) and *palangreiros*, ships between 12 and 23 meters from one end to the other for the local fishing and coastal communities. They use a few electric tools, confined almost only to cutting tools. They know the proportions of the boat starting from the calculation of the clean keel, a calculation laden with secrecy as in the past. We thus hear words such as *alefriz* (rabbet), *talão* (heel), *vau* (beam), *gio* (transom), *coral* (stern knee), *escoa* (stringer), *coice* (heel), *sobressano* (false keel), *sobrequilha* (keelson), *baliza* (frame), *manco* (fashion timber), *malhete* (mortaise and tenon joint), *pés de carneiro* (deck post) or *escarva* (scarf). In addition, the language is what most attracts our attention. They perform the work of joiners for connecting the wooden pieces, but they are accompanied by pegs, screws or epoxy glues. They use the metric system, but they speak among themselves in *braças* (fathoms), *palmos* (palms) and *polegadas* (inches). We propose, then, a trip in search of a forgotten heritage: the survival of the ancient tradition of naval construction in the traditional boats of the North of Portugal.

1. Traditional Boats of the Minho Coast

A mandatory reference in the studies of naval construction on the coast of the province of the Minho, the Cávado river appears enclosed between two strong coastal communities with naval traditions, Vila do Conde and Viana do Castelo. The maritime, trading, salt production, fishing or naval construction activity on this river was so important that it would lead to the creation of the municipal district of Esposende at the end of the 16th century. In the survey of 1552, the Cávado already appears as the shipyard that constructed the greatest number of caravels up to 40 tons; in the whole kingdom.

Almost at the beginning of the Cávado estuary, which has a pronounced curve that protrudes unusually into the estuary and mouth of the river (more than 2 km N to S) is located the old town of Fão (dating back to 959). Near the mouth, on the opposite shore arises the town of Esposende created by Royal Charter from King Sebastian on August 19, 1572. It was still at the end of the 16th century when Esposende built its Church of the Misericórdia (the Santa Casa da Misericórdia is the charitable institution in Portugal), where the brotherhood of Our Lord Jesus of the Mariners, which is thought to be earlier than the foundation of the Santa Casa, was established with a chapel existing up till the present time. A short time later Fão also introduced its Misericórdia, a symbol of conquered urbanity.

Naval construction in the Cávado River, which investigation is only now beginning to unfold, has been well documented since the end of the 17th century (1692), a period that particularly interests us.

Some documents assembled under the designation of *Nota Esposende* in the District Archive of Braga (Vol. 204-A, fols. 297v. et seq.) have brought together a group of contracts for construction of boats, contracts between the master carpenter Domingos Manuel of Vila do Conde and the ship owner António Rois Lara resident of Esposende (locality of Góios).

These contracts contain notable information such as “*building a ship that has a keel of eight braças and three palmos, measured by the Rule of Master Manuel Gomes*”. It includes the prices at the time that, besides the quantities in money, required the ship owner to bear the expense of the “*customary wine that is given on the riverside and house, bed and lamp for the said Master and his officials, as well as also the water necessary to drink*”. This means that during the entire time for the construction of the ship, the master carpenter Domingos Manuel would live with his officials in Esposende. The master Manuel Gomes was born in Esposende and was a resident in Góios, at the time a growing place next to the Town of Esposende, a place where there is cur-

rently a chapel to São Roque, patron saint of carpenters and caulkers. His rule would have been followed in this requisition and he was a witness to this contract and signed the document along with Domingos Manuel and António Rois Lara. The contract also clarified the type of ship “... which said ship will have a beam of twenty-five palmos and ten and a half deep measured by the same Rule and the curves of the laths on the deck will be waled”. We did the calculations, considering the *palmo craveiro* as a reference (22 cm) and considering it only but in a mandatory manner for the keel (from *esquadria* to *esquadria*) and for the stem post and sternpost the *palmo de goa* (1 *palmo craveiro* plus 1 *polegada*, 24,5 cm). He gave us a large ship. It comes close to a *patacho* (two-masted pinnace) of 100 tons from the book *Traçado e Construção das naus portuguesas dos Séculos XVI and XVII* by Estanislau de Barros (1933) commenting on the *Livro da Fábrica das Naus* by Padre Fernando Oliveira (1580).

We confirmed that in another document (fols. 189 of the same volume), another contract between the same parties included the Rule of Master Manuel Gomes for the *patacho Sacramento and Nossa Senhora do Pilar*, with “a bare keel of eight braças and ten palmos, a depth of twelve palmos, a beam of twenty seven and a hold depth of twelve, with a castle and a skiff”, constructed in the shipyards of Esposende in 1693.

We found a common identifying element for the Rule of the naval carpenter of Esposende, Manuel Gomes: the indication of the measurement of the bottom. It was a rule of measurements that caused the master-frame to move forward or backward and with this the narrow parts. It would have been known when the ship was to have a larger or smaller tonnage starting only from this indication that does not appear in any contract of another master.

We were looking for a ship of 100 tons with the same characteristics in the following centuries: we found the *patacho*. Yachts, *Palhabotes* and Schooners, ships used in the coastal trade of lime, stone, iron and salt and finally the Luggers, ships used for fishing for cod in the North Atlantic. In fact, at the beginning of our century the pinnaces and the luggers were doing the greatest routine work for the national maritime exploits, the fishing for cod, thus being one of the reasons for which its form has come down to us today so well preserved. However slowly, the ships of the line were being equipped with the lateral dragnet, some changes in the form being introduced into them, and finally they were replaced by modern fishing boats constructed entirely of iron that operated with a stern dragnet: the trawlers. In 1974, the last sailing ship of the white, cod fleet returned from St. John's. Today the long-distance fishing fleet is only a shadow of the glorious past of fishermen and mariners and, in the ports of the geographic area under consideration, only in Viana do Castelo do large-tonnage ships for maritime traffic enter.

In a daily life where the populations are turning their backs more and more on the traditional economic activities and whose ecological relationship with the sea guaranteed the continuation of certain ship models, the changes have been fixed in ships of high tonnage. The small ships, coming from the fishing or river transport activity are, thus, the ones that have maintained the centuries-old characteristics of their purpose as a consequence of being work boats: almost always symmetric in their active work, making it possible for their movement on the water to meet the least resistance, at the speeds that the oar or sail produce. They have a beam to hold depth relationship that provides the greatest stability without ballast and a hull section that reduces the tendency to fall to leeward. This is strengthened by the sternpost rudder, that compensates somewhat for the unbalancing of the canvas, made up of the bastard sail and yardarm crossed on a mast placed slightly forward and slanted toward the stern, lowering the centre of the canvas in favour of the stability of the ship. Small *panas* section the ship into work wells for cargo or for the craft of fishing and their catch. In the last analysis, they are composite boats presenting the best that could be taken from each ancestral model and used in the construction of each new boat.

These small boats, nowadays with sterns cut for outboard motors, still reflect the native construction materials, such as wood coming from the trees in the surrounding area, specifically the Scotch pine, the oak, the cork oak, the chestnut, the walnut and the willow, or the oakum for caulking coming from the flax in the fields of the neighbouring villages, evidence of the close relationship with the countryside. The seamen's knowledge itself, transmitted orally and tried out, makes up an integral part of each new generation of fishermen, seamen, ship owners or builders, that incorporated it in a combination of local traditions of undeniable vital force. The traditional boats can only be interpreted in this portrayal, marked by the characteristics of the type of port, by the circumstances of the fishing effort, by the constructed and written heritage of each village or place and, above all, by the aggregate of knowledge of an essentially practical construction tradition.

Currently the workboats of these communities are small vessels for local transport and fishing. The vessels of high tonnage of the recent past have not survived. On the shores near the mouth of the still navigable river are shipyards that continue the production of these boats, building and repairing them, but only photographs remain of the large vessels and even the small vessels are being replaced by new fishing boats of marine plywood, aluminium or fibreglass.

With the encouragement of the Portuguese authorities and the European Union, more than 10% of the national fishing fleet, made of small vessels, has been demolished or destroyed by fire in the last 10 years, irreversibly changing the maritime cultural scene. Known as the abatement law, it was applied to all vessels smaller than 25 tons. This helped to disassemble unique examples of our very rich maritime heritage limited to the small vessels, which time and gradual abandonment had made obsolete, but still intact. Evidence of this richness is the survival, despite the abatement law, of several models that continue to exist in the fishing communities along the coast under consideration, as a result of their still being used for fishing. These forms, Atlantic and river, have not yet exhausted the information they provide.

Knowing how fragmented, contradictory or simply non-existent the written information about the traditional boats used for fishing in the same region is, the importance of oral information was recognised, originating from those that know these boats, that worked as naval carpenters and caulkers, or lived on board, such as fishermen or seamen, but mainly, from the importance and necessity of the exhaustive survey of the surviving maritime forms and their shipyards before their announced disappearance.

The diversity of ship models with lengths not greater than 6 metres that still exist on the beaches and in the ports and rivers of this small coastal strip is impressive, confirming the belief that each human community improved on its own models, having technical solutions at hand as far as the functional capability of each boat and the resources that the ship owner had available.

Starting from the principle that the traditional boats can be assembled in a group made up of these small boats with models produced by geographic, social and economic, but principally cultural characteristics, we favour the observation of the present-day survivors of these models, not seeking the areas of origin or influence, but only their existence as a type of inventory.

In total there are only twelve boats from the Minho to the Cávado: *carôcho de popa cortada*, from Seixas, the small boat of the river Minho and the *caïque* of Caminha, the *masseira* of Vila Praia de Âncora, the upriver boat of Darque, the *caíco* from Castelo de Neiva, the *fundo-de-prato* boat of the Esposende coast between Apúlia and Sedovém (also called boat of Fonteboa), the *canoite* of Fão (also called a small *batel*), the *caíco* of Sedovém, the *catraia piladeira* of Apúlia, and the seagoing reproductions of the *carôcho* of the Minho, from Lanhelas, and the *catraia* of Esposende, that we include in the same inventory. They are material evidence capable of bridging the gap between the memory of the boat master and boatmen and the maritime heritage that we want to recover and, if possible, reconstruct.

2. The *Catraia* of Esposende, a small seagoing replica

The bibliography about the small fishing and transport boats does not extend back beyond the 18th century and the best information comes to us from neighbouring Galicia. However, not considering maritime forms, many seem to preserve up till the present the same lines as their ancestors from the 16th century that we find scattered throughout the bibliographic iconography as if, since then, all the maritime and nautical solutions confronting the practicality of the ships had attained their ideal level at this time, the areas of influence and local innovations being fixed starting from that point.

It was in this context that, starting from the small universe of twelve traditional boats that made up our survey, accounts of the origin of the construction tradition were sought, finding influences of the technology from the North of Europe relative to the shell first construction and a clinker hull in three of the models: in the *carochos* from the Minho (Fig. 2), in the upriver boats from the Lima river (*barco de riba-acima*) (Fig. 3) and in the *fundo-de-prato* boats of Fonteboa (Fig. 4) on the Esposende coast between Apúlia and Sedovém.

The origin of the *masseiras* of Vila Praia de Âncora (Fig. 5) seems to be more complex, also shell first construction, but with a smooth hull and almost rectangular boats, cut in transoms at the bow and stern (*testeiras*), in the form of a kneading trough (a common element in the fishing and rural universe, the trough seems to be earlier than the introduction of corn into this region), with the bottom flat but rounded, and whose model comes from the Guardan coast (Guarda, Galicia).

Coexisting with these models are other boats where the active construction principle does not go through the attachment and lining of the hull, but rather through the frame: the model of the Iberian-Atlantic tradition (skeleton first). This is the most successful and most popular, used for the fishing boats that sailed the Atlantic.

Known as the Poveiro model, because it is in the fishing complex of Póvoa de Varzim that we find the highest concentration of boats and the greatest variety of forms (the *lancha do alto*, the small *lancha*, the *batel*, the large *catraia*, the small *catraia* and the *caíco*) (Fig. 6), it is also a model coming from neighbouring Galicia starting in the 18th century, the original model being found there in the present day *lancha xeiteira* (Fig. 7), wisely modified and adapted to the local Atlantic conditions of the coastline between Apúlia and Caminha, in summary all the sea of these communities.

We chose the replica of the typical fishing boat of the port of Esposende from the end of the 19th century in order to emphasise some persistence of the Iberian-Atlantic tradition of naval construction for the traditional boats in the north of Portugal (Fig. 8).

Associated with the Poveiro model type, the *catraia* survived until the middle of this century, the last *catraia* of Esposende, named *Santa Maria dos Anjos*, having been destroyed fishing on October 23, 1959. We find *catraias* carrying the Esposende bar pilot in various documents from the 18th and 19th centuries.

Its replica was built in the last shipyard on the riverbank in Esposende in 1993 and was also called *Santa Maria dos Anjos*. It is a small *catraia*, 7 metres from end to end with a slightly pointed round hull that is equipped with 6 oars, sternpost rudder, mast, yardarm and bastard sail, cut on the top of the forepart. It fished on the shoreline along the coast with going after, net craft, such as *peças da sardinha* (derivative nets), the *rascas da pedra* (stone-weighted dragnets trawlers) for spiny lobster, *arola* (spider crab), lobster, *carramilos* (small spiny lobster), *buzinas* and an oyster rake (scallops) and the *rascas do alto* (surrounding nets) for the catching of skate and grouper.

Constructed in order move in the depths, they were boats that penetrated more than a metre and a half into the water, with a round carina and a projecting keel. They could also travel on the sandbank, literally, when the bad weather did not permit them to go past the sandbar and

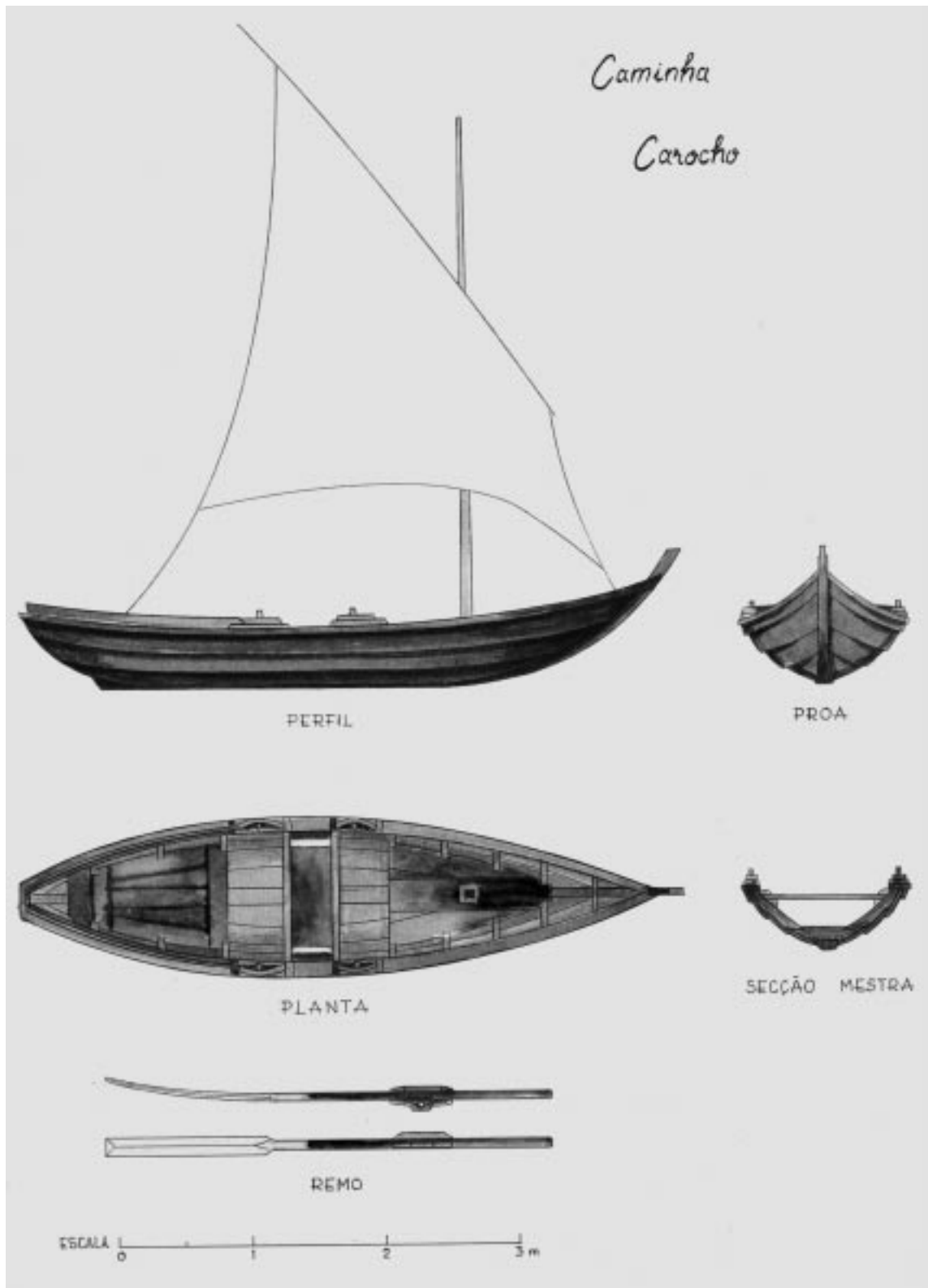


FIG. 2 – The *carochio* from the Minho river.

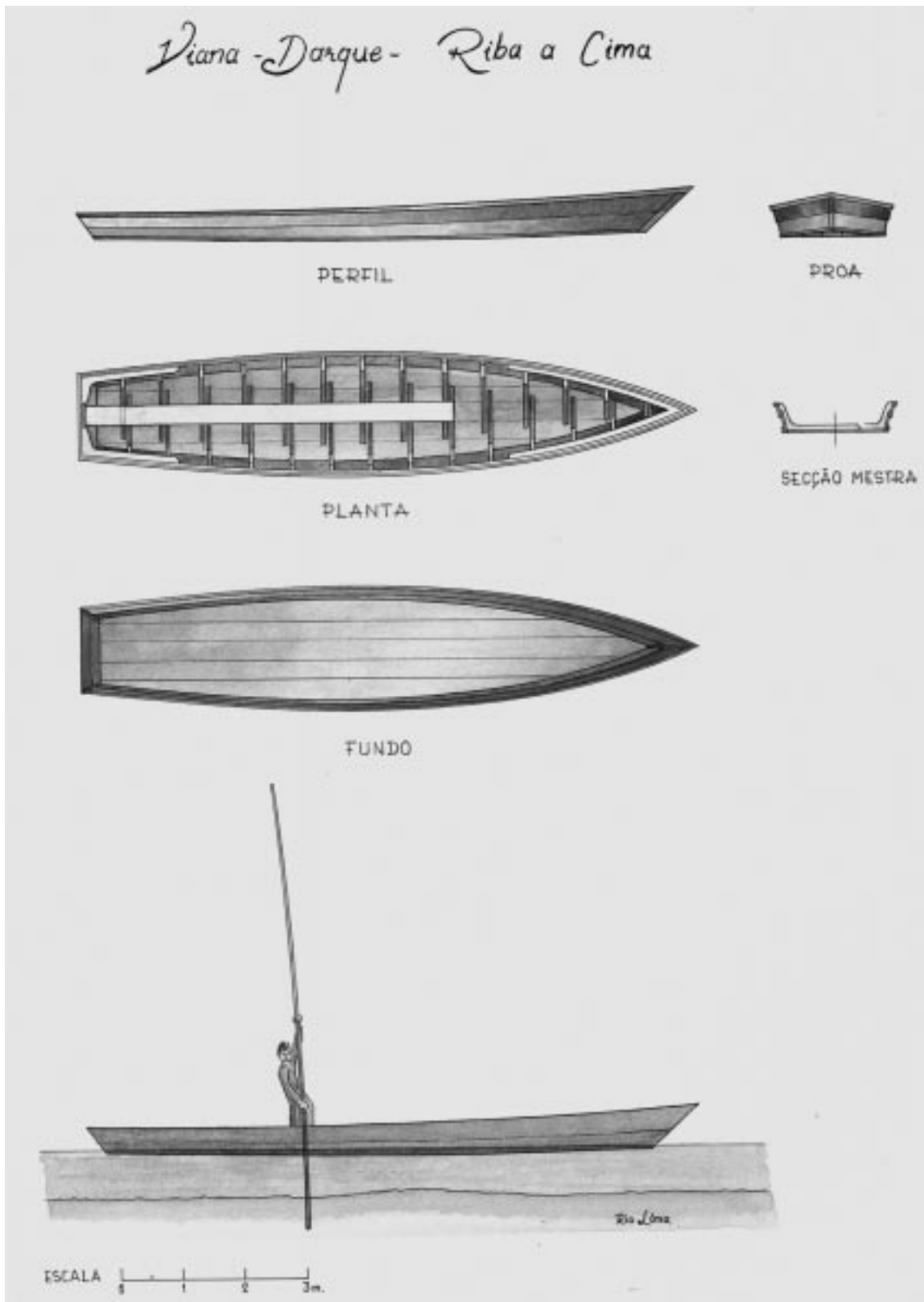


FIG. 3 – The upriver boat from the Lima river, Darque (*barco de riba-acima*).



FIG. 4 – The *fundo-de-prato* boat of Fonteboa on the Esposende coast between Apúlia and Sedovém.

they were taken in the evening to the opposite shore of the river across from Esposende. They were then dragged to remain staked on the height of the *fieiro*, the high, wide dune of the small sandbank of the Cabedelo on the south shore, then pulled through the sand on the *acejo* (at dawn, considered the best time for fishing). They were going across the shallows into the sea, which means going into the sea from the beach, taking advantage of the channel and the protection of the shelf of the Cavalos de Fão, rocky outcroppings that were visible even at high tide and that ran in the South-North direction from the land toward the sea.

In addition, the conditions on the river regulated the size of the *catraias*, never very large, between 7 and 8 metres and rarely more than 9 metres. On returning from fishing it was com-

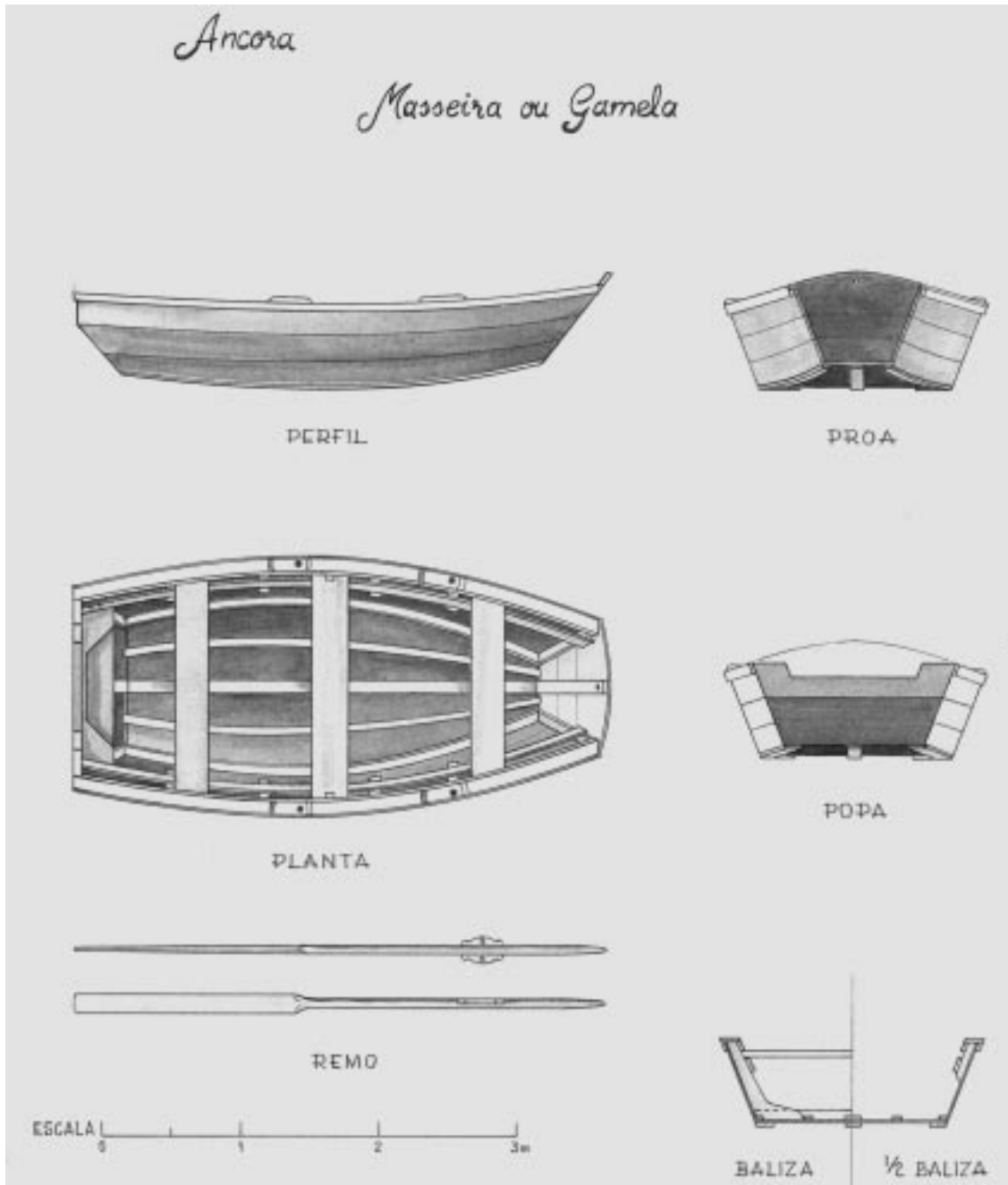


FIG. 5 – The *masseira* boat of Vila Praia de Ancora.

mon for the *catraia* not to be able to go up the river, not even the force of the oars of 18 *palmos* or of the sail could overcome the outgoing tide. It had to go up the river *à cirga* (pulled by a rope from the banks of the river) almost 1 000 metres against the current, loaded with fish and wet nets. Because of this, it became very specialised, bringing together in the design of the hull its main characteristic: tapered on the stem post, slightly convex next to the master-frame and also with a tapered sternpost, permitting an easy exit from the water, the *catraia* was improved in order to be light and strong, capable of overcoming the river or the beach.

The *catraia* was constructed starting from a smooth keel (without considering the *rodas*) then outlining the stem post and the sternpost and the framing of the floor-timbers. Starting from the master-frame, at one-third from the prow, the other floor timbers were outlined, placed with distances between them starting from the knowledge of the end-to-end length (smooth keel) of the boat that was to be constructed: on the average 15 to 16 floor-timbers for a boat 8 metres long (not considering the *rodas*, that are not disregarded). It is a boat of skilful appearance, constructed according to rules of naval carpenters.

The keel, the stem post and sternpost have rabbets on the two sides to join the top of the hull planking on the heel into the stem and the sternposts. The stern ends at the sternpost (stem post is almost symmetrical with the stern post, but with ends tapered into it). The skeleton of the *catraia* is made of the following pieces in the longitudinal direction: the keel, sternpost and stem post. In the transverse direction are the frames, the first-futtocks and riders that make up the floor timbers, the riders ending in *alcatrata* (gunwale) — in which 3 *chumaceiras* (leather straps) are set on each side for the oar locks — ending on the exterior in a *bordugo* (*verdugo* — a thin, rounded wale board that goes from the *capelo* (canopy) of the prow to that of the stern that ends above the seam between the gunwale and the first plank of the exterior covering) and on the inside by a *sicórdia* or *sarreta* that bound the boat on the inside below the seats (benches).



FIG. 6 — The caíque of Pedrinhas beech, Apúlia.



FIG. 7 – The *lancha xeiteira* of Galiza, on the Cavado river.



FIG. 8 – The *catraia* replica *Santa Maria dos Anjos* of Esposende.

It shows two techniques for ending the frames, one on the keel itself where the floor-timbers entered at the top and the other on the end where the floor-timbers insert in the rabbets of the stem and the sternpost heels, the frames (*almogamas*) creating the same effect for the *cambotas* on the end posts.

It has two *panas* (bulkheads) that divide the boat into three compartments: that of the stern for the nets and the water, that in the middle for the catch and that of the bow for the catch and for the *curvatões* (*galeotas*), a term that is a survivor from the language used in large-tonnage ships. The *curvatões* are parallel spars in the longitudinal direction, inserted between the two front seats with three notches, between two of which the mast is inserted and fastened with three wedges, fixed in the *cepo* or *pia* mast step mortise, a cut out piece seated over the keel and attached with pegs to three floor-timbers. The *curvatões* (*galeotas*) are the piece that is most distinctly related to the *catraia* of Esposende and other boats of the same type, such as the *catraia piladeira* from Apúlia, with the name *Adamastor*, probably built in Apúlia at the site of Pedrinhas or Sedovém (Fig. 9). There, in improvised shipyards in a hut on the beach or in a shed in the yard of a farmhouse and the farmer with skill in carpentry imitated the naval shapes that he knew, reducing their original complexity to practicality, the shape and the essential structures on the level of the framework remaining only through reproduction. Apúlia was one of the principal centres for producing these ships until 1940. Registered in Viana do Castelo in 1926, the *Adamastor* does not show the *galeotas* for the mast that is enclosed in an indentation in the stem seat and goes into a carved out *pia* of a *cepo* and also fixed to three floor-timbers over the keel with pegs and secured by an iron mooring ring (hook) that passes over the seat and inserting into the mast, securing it from behind and enclosing it between itself and the bench. It also has a wedge made of a piece of wood with three stepped notches, each one giving a different inclination to the mast.

The sail of the *catraia* was bastard, cut into *talhões* (parallel strips from 25 to 30 cm) and sewed to one another with *fio do Norte* (thread). It was cut on the top of the prow (the forepart) and had reefs taken in to take up part of the cloth. Joined at the yardarm by several pieces of cloth without eyelets that were sewn (around 20 cm per thread) and then tied with a *burro* knot. The device, made up of three pulley blocks in *teque* and a hemp rope, called an *ostaga* (halyard) in the *catraia*, and ending in the *caçoilos* that, encircling the mast, permit the yardarm with the sail already fastened to be pulled up into sailing position. In the *catraia piladeira* of Apúlia, the mast and yardarm are equipped in a manner similar to the *catraia*, but the language is not maritime, rather coming from the rural universe and wisely adapted to fishing tasks.

The building and repair of wooden boats as a traditional production system contributed historically to the creation of some population areas, attracting communities of farmers-seaweed gatherers and poor cottage dwellers to the coastal fringe and, with these, migrations and the establishment of fishing communities, many coming from distant areas such as the central coast of the country or from neighbouring Galicia.

From the carpentry shop on the riverbank to the modern shipyard was a step in progress. The hand tools, the traditional techniques and knowledge transmitted from father to son stayed behind, replaced on this part of the coast by the modern Naval Shipyards of Viana do Castelo, that currently have been transformed into one of the most modern companies for the construction of iron and steel ships. The shipyards of the riverside of the Cávado, that constructed the last wooden Luggers in the first quarter of this century for cod fishing, disappeared in the 1950's, their carpenters moving to Vila do Conde and Viana do Castelo.

In the area under study, along the around 60 km of coast, there now remain little more than ten craftsman shipyards that supply the local fishing fleet with wooden boats, condemned to a slow death because the trend is toward the break-up of the sector.

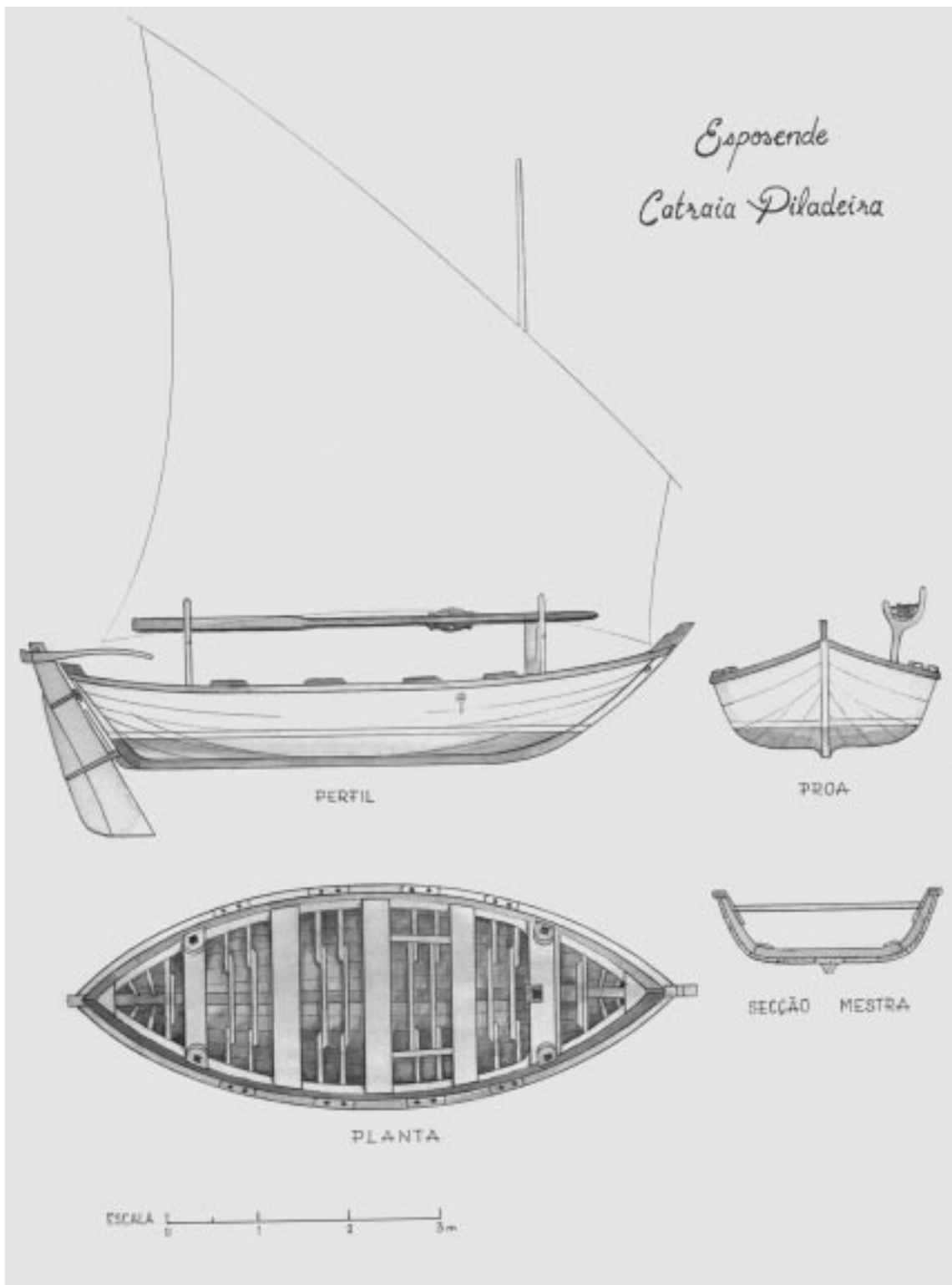


FIG. 9 – The *catraia piladeira* of Esposende.

Not more than a short contribution being intended, we remain with the certainty of a valuable maritime and ethnographic heritage associated with it. We are also convinced of how important the construction projects for sailing replicas were, such as the Póvoa de Varzim type *Lancha do Alto*, the *Carocho* of the Minho or the *Catraia* of Esposende, for the knowledge of the fishing traditions, for the technology of fishing and for navigation, but, mainly, for naval construction, and finally the principal generating mechanism for the cultural identity of each fishing community that considered its boats symbolically.

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