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# *LONG MEMORIES AND FORGOTTEN DESIGNERS:*

Wooden boat building and the contribution of the craftsperson's tradition to design for sustainability

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## Introduction

Traditional boat building is a craft which has evolved over generations. From the perspective of slow knowledge[1] and its necessity for a strong connection to community and place, and a way of work that requires a considerable investment of time and effort, this paper will explore the potential contribution of the skills and practice of the traditional craftsperson to the design process and to design thinking. It will consider whether the cultural limitations imposed by tradition inform the movement towards establishing a design methodology with self imposed ecological limitations.

## Background

As a recent product design graduate who has also studied boat building, I am intrigued by the dichotomy between the two methods of learning.

I spent two years in Norway at Fosen Folk School, which teaches courses in traditional skills, including wooden boat building. They specialise in the local boat type - the Åfjords boat. In terms of modern wooden boats, it is quite basic; a bit of a coelacanth, it could be said. It has a square sail, a very similar type of rig to that which was used on Viking ships. In fact, because of this, it is also not too dissimilar in hull shape to Viking ships, except that it lacks the high swept ends. A square sail is centred in a following wind, unlike a triangular sail, which sits out to the side – so when a gale came from the west, it was the most stable, safe rig to get you home. It also meant that the boat could be built with low freeboard, giving a lighter hull, an advantage when rowing up a narrow fjord against the wind, or hauling the boat up onto land.

This is, of course, a single boat type of a single region of a single country. Each region, each community, over generations of craftspeople, developed its own unique design suited to the local sea conditions, the local fishing and sailing style, and the materials available. The knowledge acquired by a wooden boat-building tradition in this way can be characterised as 'slow knowledge' (Orr 2002: 35).

Slow knowledge relies on a balance of skill and technology. When I was at the boat workshop in the village of Stadsbygd in Norway, it occurred to me that there were two ways of cutting down a plank. You could spend thirty years becoming incredibly proficient with an axe, to the extent that it could be turned to almost any task – or instead you could spend two years becoming moderately proficient with the array of technologically advanced power tools designed for almost every individual task.

[1] This term is debated more fully later in the paper

## *Craftsmanship and tradition*

Sociologist Richard Sennet defines craftsmanship as learning and becoming more skilful through repetition and routine. The craftsperson's minute knowledge of the making process means that there is a close relationship between 'problem finding and problem solving', so mistakes can often be turned into opportunities (Sennet 2008: 26).

I remember when building a Lestabåt, a thirty-four foot Åfjords boat, one of my fellow students made a mistake when putting on the most crucial, difficult plank and it cracked. To avoid having to re-do the entire plank, our teacher Einar Borgfjord, took an axe and rapidly cut down both sides of the bow to the level of the crack. Although this would make the boat slightly less stable by narrowing the bow section, it would also make the boat faster. It is easy to see how such a mistake might become incorporated as an incremental improvement. However, I would venture to wager that if the keel of the Lestabåt had been accidentally sawn in two, Einar Borgfjord would not have repaired it with glass-reinforced plastic - that would have been 'going against the tradition'.

The proponents of 'fast knowledge' would consider 'going against the tradition' as a very backward concept. Fast knowledge encompasses ideals that are the opposite of slow knowledge, as defined by Orr (2002: 36), what Wendell Berry incidentally has called 'modern superstition' (Berry 2001). Fast knowledge is characterised as 'progress'; the driver of rapid technological change; it is very focussed on solving discrete problems, and any subsequent side effects are seen to be equally solvable (Orr, ibid). The balance of skill and technology has been upset, and it seems that as technology has prevailed, general skill has diminished – at least practical skill, the skill of craftsmanship.

As mechanisation encourages profit from greater efficiency, human labour has come to be viewed as a mere cost on the balance sheets. 'From the point of view of the workman, it is a "disutility"; to work is to make a sacrifice of one's leisure and comfort, and wages are a kind of compensation for this sacrifice' (Schumacher 1973: 50).

Designers have a share of responsibility for our predicament. As the facilitators of product sales, designers perpetuate the consumer's desire for more. Driven by the bottom line approach of corporate clients, employers and shareholders, there is a disproportionate emphasis within design on standards of aesthetics, with only a slowly increasing regard to design for real need, ethics, and environmental impact. A shift in philosophy within design is required urgently.

The main part of this paper (*Words of Wisdom*) investigates whether the craftsman's philosophy, in this case regarding the building of traditional boats, embodies a way of designing, making and use which is fundamentally different to that of the modern designer.

## *Methodology*

The information in this paper comes from primary research. The narrative is constructed from the most striking words and insights from eight traditional boat builders from England, Denmark, USA and Canada, and two Alaskan Inuit. Data was gathered using semi-structured interviews. The themes explored were: the ideas of slow and fast knowledge, craftsmanship, tradition and work.

Audio recordings were taken of the interviews, which lasted from ten minutes to one hour. Over four hours of recordings overall were made and transcribed. This, at times, required the translation of a passage spoken in Danish, and, although I speak Norwegian, Danish is sufficiently different as to pose some problems.

The information was gathered when I spent the summer of 2008 sailing from Dublin to Denmark on the longest replica Viking ship built to date, Havhingsten (The Sea Stallion). Built at the Viking Ship Museum in Roskilde in Denmark, the voyage was a unique chance to converse with builders of other wooden vessels. Apart from **Qaiyaan** and **Jana Harcharek**, the Inupiat Inuit from Alaska – whom I met by chance in the Isle of Skye – all of the interviewees were boat builders who I met on the Viking voyage.

Four of these were in fact members of the sixty strong crew: **Tom Jackson**, editor at the American Wooden Boat magazine; **Søren Nielsen**, chief boat builder at the Roskilde Museum boatyard; **Tom Nicolajsen**, builder at the same yard; **Lars Aaby Jensen**, retired shipwright of carvel-built yachts. I met the other four at the various ports where the Sea Stallion anchored: **Nat Wilson**, director at the International Boatbuilding Training College in Lowestoft; **Peter Graham**, self employed shipwright, also in Lowestoft; **Paul DeNoble**, Canadian volunteer boat builder at a shipyard in Den Helder in the Netherlands where they are hoping to launch a sail powered merchant shipping company; after the Sea Stallion's arrival, I also met **Ture Miller**, a shipwright at Roskilde.

Six weeks spent under sail and waiting in ports for the right wind was an incredible escape from the demands of a fast paced modern existence. A hundred-foot replica Viking ship – apart from providing a focus for discussion point and sometimes a room for the interviews – was an ideal location to reflect on the shipwrights' philosophies.

## *Words of Wisdom*

The results reported here take the form of a narrative which begins with the acquisition of skills, both over the lifetime of a single shipwright, and the longer lifetime of a boat design. It looks at the change in dynamics between user and designer-maker, and the barriers of tradition and the current culture to change. It goes on to look at the continuing wisdom of the tradition, the real enjoyment of and pride in the work, and finally the traditional boat as more than just a boat.

## *A Long Education*

The pursuit of knowledge is the champion of our times. In a knowledge economy, furthered by science and research and development, we seem to know more than ever. The interviews with these craftspeople however uncover a breadth and depth of knowledge that is mostly forgotten today and often disregarded. Søren Nielsen voiced his opinion on today's perception of the detailed understanding essential to building good boats, good houses; blacksmithing:

> To be a good craftsman, you have to be a knowledge-man. It's not just about putting nails in a hole. And people think that: "Craftsman – oh well, yeah, OK. But *I* have been at *University*, and I have been there for eight years". I mean, here we are talking about building boats for ten years before you can build a proper boat.

This long process of learning how not only to build boats, but to build good ones, could be described as an accumulation of manual or craft knowledge. It seems that as a shipwright, you never stop learning – 'That's why the job is so good' says Peter Graham. There is a consensus amongst those interviewed that it takes time to acquire the skill needed to build a good boat, because it is a very complex thing to do - the longest period named being fifteen years.

This lifetime of learning is characterised by the way in which knowledge is acquired. Lars Jensen compares it to a composer who gets better and better; boat building makes no sound, no music, but the relationship to 'your tools and the way you do the job' is that of a musician to his music. It is the routine, the 'working with it every day' which leads to a greater level of skill. Jensen stresses that putting one plank on is not the same as putting a thousand planks on, because in doing the latter 'you get it in your backbone'; you learn 'all these little tricks' that go with the job.

Some of these 'little tricks' can be learnt from trial and error: 'every step is a new set of problems that need to be solved' says Paul DeNoble. However, if you can earn the trust of a more experienced builder – someone else who has already solved the problems, who will impart the secrets of the trade – you have a place in the university of manual knowledge!

The amount of knowledge which accumulated over centuries was vast and minutely detailed. Søren Nielsen recalls the traditional boat builders of the past, and of Norwegian Harald Dalland, one of the few who still has this type of specialist knowledge:

> They knew exactly which tree in the forest to pick out; they knew where the knots were sitting in the tree, how long in you can go and how much sapwood a tree had – by just looking at the top of the tree, or looking at the bark. I know that because I have been walking with this Harald Dalland.

The depth and range of knowledge of different crafts was once vast. Nielsen, having visited pine-tar makers in Finland, relates how they knew 'just as many details as we do about making boats, but about making tar: they could tell just by tasting the tar how much longer it would be until it was ready'. He maintains that much of this is lost, and that once every trade would have had this level of detail.

The way in which the knowledge is passed on has changed, as Ture Miller explains:

> In the old days, when boat builders were doing only one type, it was perhaps more common to learn just by looking. And if you're starting very, very early […] it's perhaps more just looking at your master. But it's a little slow way to learn. You can simply learn faster if you are asking and read some theory and things like that.

Miller mentions that it takes a long time to learn just by looking. This is perhaps an indication of how the tradition has changed. Earlier, when boat building would have been interwoven into the culture, interested children would have been immersed in it from a young age; somewhat like learning a language. This certainly was the case with a group of Inuit women elders from Anaktuvuk Pass in Alaska, who were involved in building a replica traditional kayak:

> It was quite special: that from the memories of the ladies who were now elders – having watched it as children – they were able to take care of the

> caribou hides, and sew them together and put the cover on the frame […]. Being able to do it from their memories – that's really quite something.

## *Forgotten Designers*

With a traditional design such as a wooden or skin boat, there has not been any single designer. A succession of master craftspeople plus a wider circle of users have been adding continual refinements through generations. Often the circle of users will have been a village society where everyone has some degree of craft skills. The Iñupiat are an example of a traditional society which still follows this way of life.

The Iñupiat society has always relied on the whale for subsistence, and in spring, whaling parties go out on the ice, and sit there waiting for the whales to come past. They sit there for days, sometimes weeks, (silently, without talking, so as not to alert the whales), waiting till they can drag their wood-framed skin boats – the Umiak – onto the ice and paddle out after the great bowhead whale, which at 50 feet weighs 50 tons. Qaiyaan Harcharek, in his middle twenties, has the honour of being a harpooner on his whaling crew. When asked whether people were still willing to sit on the ice and wait; whether they ever got fed up, he replied:

> No, we are a whaling people. In 1977, the International Whaling Commission imposed a ban on us, and we were not allowed to whale for that year. It was like we didn't have any need to exist any more, it was like the walking dead. No purpose in life – whaling is who we are.

It is clear they are a tight-knit, caring community:

> Yeah we catch to survive, but being able to help other people, other folks that can't hunt for themselves or weren't successful, I mean that's where we get our passion from.

When a new Umiak boat is to be built, it is a year-round process involving the hard work of many people. A boat builder is in charge of building the wooden frame, historically made from collected driftwood. The skin covering is made of seal skin, sewn using caribou sinew by the women of the village. What is compelling is that there is an understanding of the hull design not just by the builders, but by the users of the craft. Every summer there is an Umiak race of about forty boats, where there will be people who 'know and understand boats, and can look at a boat and [say]: "That's a fast boat!"', says Qaiyaan Harcharek

This understanding by the sailors of their boats still existed until recently in parts of Norway. Ture Miller has worked with Harald Dalland, the Norwegian boat builder: 'Harald talked a lot about the old days, when the fishermen were using his boats professionally. They were skilled sailors, and the feedback they gave him was very valuable'. Today's customer knows little about the hull of the wooden boat he orders, something Ture Miller expounds on, by no means mincing his words:

> […] that's a culture that is almost non-existent with the mass-production glass fibre boats, because there's nothing to discuss. I mean that's how it f***ing is and that's the way the next one also is, so there's nothing to discuss!

## *Inherent Wisdom*

As participants in an economic system that favours innovation and the continuous development of new products, it is easy to understand that it is important to have a living tradition, to have a boat that evolves to meet the users' needs. What is less intuitive is the importance of knowing what not to change. In what seems like blind loyalty, is there an inherent wisdom; are there cultural limiters which inform and guide the designer-maker? To what extent is the shipwright willing to change the design, and why?

The least 'modernised' of the craft investigated is the Umiak (skin boat) of the Iñupiat people. The whalers see no reason to change the design, suggests Qaiyaan Harcharek,

> It's old technology, but […] our ancestors were ingenious at coming up with these tools to catch these massive whales. They must have done something right, so why change what has worked for thousands of years?

It seems as though there is a certain benefit from simple technology. There is less to go wrong, and if it does, it can be repaired with simple tools and materials, says Lars Jensen. Sailor and editor of the magazine Wooden Boat, Tom Jackson, observes 'the more equipment […] that you have, the harder it is to go sailing – a lot of those boats just sit at the dock, so the people who have nice wooden boats, generally speaking, are pretty good sailors.'

Most interviewees expressed a reluctance to use many modern materials. Behind this reluctance was an automatic consideration for the long term life of the boats built. In a discussion about the use of fibreglass instead of traditional materials, Inuit Qaiyaan Harcharek said initially that in his opinion it should not be allowed. After further discussion, his mother said:

> Some people would draw the line with even using metal nails. For example, Uncle Percy, he did his boat frame using the traditional pegs, the dowels, for holding it together and it was his feeling that using the metal nails and nuts and bolts was straying from tradition.

Though not voiced in so many words, there is an obvious wisdom in using materials found locally, rather than relying on outside mining, smelting and manufacturing industries to hold your boat together. Ture Miller, a modern wooden boat builder by comparison, is very much more conscious of this:

> […] for example using some of this plastic sealant thing, I won't do that because, well, it wouldn't give anybody any problems the first ten years, or fifteen years – but the boat will last for a hundred years, perhaps. And then if I have based my design on some sealant that doesn't hold for 50 years, it's not acceptable. So I'm using materials that are very long-lasting. Again it's about respecting the customer, and the offer he gave.

## *Joy In Work*

Whether the wooden boat tradition embodies inherent wisdom or not does not explain why people still want to build ancient outmoded wooden vessels. Surely an obstinate desire to stick to tradition is not enough of a motivation? It became clear that to build a boat was not just a mere manufacturing process to be followed. To build a wooden boat is perceived as a joy, and it is seen less as employment than as a modus vivendi. According to Søren Nielsen:

> It is a part of my life, as almost as I have a family and I have a life. For me it's not an 8 to 4 job. […] Are you doing this for the money, or are you doing it for the actual doing it? If you're doing it for money then don't build boats!

There is a simple joy in using hand tools and in continuously learning new skills: when you can 'build the perfect boat, it's not any fun any longer' says Tom Nicolajsen. But the shipwright also takes pleasure in being a skilled artisan. There is a strong element of pride in the words of those interviewed, a pride in creating a complex vessel from scratch. The words of these time-served craftsmen, Lars Jensen and Peter Graham, speak for themselves:

> I have a good friend who said, 'Well Lars, you've built boats enough – you don't have to build any more boats', and I said to him: 'When has an artist painted his last painting?'

> Academically, I am absolutely useless. I am zero when it comes to university, like degrees and stuff from school. But I was really, really good from an early age with my hands. And I went into boatbuilding and it's made, made my life very – my career very enjoyable. I just get a lot of self esteem from boat building. Because they're beautiful things, you know – when you finish a job, you stand back and think – yes, that's why I'm here, that's why I'm doing it. […] You get a lot of satisfaction with it. And when people ask you what you do for a living, I'm proud to say I'm a shipwright.

In the same way that there is a general reluctance to use many new materials, there is a limit to the extent to which the interviewees would mechanise the building process. If it is over-mechanised, it becomes like factory work, 'cutting the same bulkhead out all the time on the CNC-run machine'; repetitive, boring. 'And I can't see any joy with that' says Lars Jensen.

There is another reason to use hand tools, and it concerns the basis of the boat builder's slow philosophy. As with Harald Dalland and the trees, with the Finnish tar-burners who could taste if the tar was ready, it seems that the acquisition of a craftsman's knowledge, and the passing on of it, depends on careful observation. Søren Nielsen says that in contrast to using an electric planer, when you can rapidly remove wood regardless of its quality, working with hand tools requires you to work carefully, following the grain, leading you to choose better grade material with fewer knots:

> Therefore you learn the tree very much more if you use hand tools. But it's too romantic to say that you are *only* going to use hand tools. But I think – and I'm pretty sure of this – that if you have never used hand tools, you are not getting your feeling with the tree so much.

## *Storytelling*

With a trade that has been evolving since time immemorial, there is a sense of history running through the boats built; they have a story to tell. The builders themselves have a strong sense of this, and a drive to preserve the heritage and the culture. Using the same tools, struggling with the same difficult angle, solving the same problems: 'you can take heart from this, and you can feel history in front of you as you work', says Paul DeNoble.

It is also of great importance to the customer, who is buying not only the boat, but all that comes with it: they are buying an experience, says Ture Miller.

> They want an aesthetic experience by building a boat. It's very important for them: during the building process, they are coming here all the time, looking at how things are happening. […] They are getting a very unique thing, made just for them, by another man. And it's a very simple process, in fact: they are a customer and a boat builder, and some material, and some very simple tools.

The customer's often frequent visits to the boatyard during the building – a process likened to gestation, at the end of which the boat is born – is a critical time. He or she is almost living the experience of building through the shipwright. We are in an age when people are encouraged to buy into a lifestyle, and to follow the values laid down by a particular brand. Søren Nielsen from the Roskilde Viking Ship Museum agrees:

> I think that's very modern as well: it's not only the product - you have to sell a story with the product as well. And we just happen to have the story.

This is the key to why traditional boats continue to be attractive. They provide a story that has depth. They provide a story that is more meaningful than consumer products to which value has been tacked on by pervasive advertising. 'There's a limit to how much gloss and flashiness and plastic people appreciate – because it is shallow and plastic and throwaway. I think it's people's value systems [that are changing]', says Nat Wilson.

The following is an example of a boat which has more than just a history, and where the story is interwoven with the culture. It is a traditional story, passed down from the ancestors, recounted here by Jana Harcharek,

> There's a story about a man having been given the gift of imagination, and the gift of wisdom. He is instructed by a prophet to travel to look at a new place for his people, because there's going to be a series of disasters that were going to occur. They're travelling along and he sees a leaf floating in the stream, and with his gift of imagination, he says 'There's got to be some way that we can use that concept' – and that's when the boat design is conceived of. So he and his friend devise - I don't know what model it was back at that time - but they discover that they can make the concept work. That's the origin of it.

A traditional boat has had many associated uses, such as transport, a means to subsistence, and as a weapon of war. When it has evolved in this way over such long period of time, especially as setting out on the sea is so dangerous and unpredictable, it begins to transcend its more prosaic uses. It is no longer seen as an inanimate object, it becomes the focus of rituals and blessings - even today a boat is ceremonially named. Likewise there is a perception of a spirit within a boat among the shipwrights interviewed. Both Tom Jackson and Paul DeNoble recall:

> […] some people have said that building a boat is the closest thing you can do to building a living thing.

> […] it's got a soul at that point: it's been given a name, it's in the water, it's going to do what it was designed to do.

It is in the more ancient culture of the Inupiat that spirit, and spirituality, is most striking:

> […] when you are successful that spring, tradition has been that you remove the skin from the boat and you fashion into the what is commonly called a blanket, […] and then it's suspended with cross pieces, and a pulley system so that it is up in the air, the people gather all around it, and do the blanket toss, I don't know if you know that? And then what's even more significant is then when that's all done, then the blanket is taken down, and it is placed in front of the drummers and the singers for really the finale - which is the honour of the successful crews, dancing on the blanket. And it comes from the boat…
> - Jana Harcharek

> So when you're using fibreglass materials, or these alternate materials, you can't just go and…you can't do all these other traditional spiritual things. So I don't agree with using other materials, I think it's taking away of our culture.
> - Qaiyaan Harcharek

This is an evocative example of a ritual which enshrines the Inupiat's deep sense of reverence for the whale. The whale is central to their culture; 'Whaling is who we are' said Qaiyaan Harcharek. It brings food; it sustains life. It is interesting that even as aluminium boats are now used to make sure the whale is brought in safely to shore, it is still with the traditional Umiak skin boat that the most important things is done – the harpooning of the whale, and the celebration of a successful catch. This example could be said to encapsulate an ethos, a slow philosophy of the traditional boat builder and sailor: a reverence for a design which is in time-tested harmony with the culture and ecology of a place.

## Conclusions

This original study set out to ask whether the practice of traditional craftspeople, specifically boat builders, could help to inform the growing global initiative for design for ecological sustainability. The answer is that there are some very compelling ideas and ideals which could form a mainstay of sustainable design practice, and some wider implications which merit deeper investigation:

- At the most prosaic level, the traditional wooden boat is environmentally sound because it uses a renewable resource, and often local materials and manufacturing. Its low impact on local ecology has been time tested for thousands of years; the boat itself, if sail-powered, has a very small ecological footprint. In the simple terms of materials, it is sustainable design practice.

- More importantly, there is less resource depletion and less waste, as there is no mass production of one-size-fits-all design. Single unit or batch production can allow iteration of the design as it is produced, tailoring it to local and individual needs. There is a respect for designs which work well, and a consideration for the long term impact of the design. If modern designers are able to step outside the vicious circle of profit-chasing, designing things in this way would be a huge step forward.

- The shipwright was traditionally a designer-maker who was central to a community of users, with whom he or she maintained a dialogue in order to meet the needs and suggestions of the customer. Competitions or races which put the boats' form and function to the test, kept the craftsman sharp, again improving quality. Is there any way that product design studios today can emulate the ideal of the craftsman as the hub community, with which there is a one-to-one relationship?

- The craftsperson considers work less of a chore than as a part of life, deriving joy and pride from the creation of objects of beauty, that are as the paintings of an artist. There is a satisfaction in a lifetime spent learning; of continuously honing one's skills, but never reaching perfection: when you 'build the perfect boat, it's not any fun any longer'.

- A long education in a craft skill gives a far greater depth of knowledge than can be measured in an exam, and an incredible subtlety of understanding which gains an almost alchemical aura to today's observers. There is a respect for and understanding of the complexity of nature. Instead of developing complicated digital sensor technology, should the product designer not first see if it is possible to tell if pine tar is ready by the taste?

- Time-honoured tradition and ritual give a greater meaning to a design, especially when it has specific cultural significance; so different to the superficiality of brand meaning. These 'cultural limiters' are not a barrier; they are a means of preserving a balance of people, culture and ecology.

- Finally, the real importance of the craftsperson's approach is a fundamental difference in philosophy. It is holistic; an embodiment of slow knowledge and ecology.

It is recognised that with our actions weighing ever more heavily on the delicate balance of the planet's ecosystems, the biosphere faces an uncertain future. I am not advocating a return to a predawn era free of industrialisation, but believe that product designers particularly should investigate and put into practice some of the ecology of the craftsman's philosophy without delay. In re-considering the work of the forgotten designers – who represent a dying art with a long evolution - could we make some steps towards averting the danger of becoming a forgotten species?

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## Acknowledgements

I would like to thank the ten people whose wisdom forms the central part of this dissertation: the boat builders and sailors who answered my questions so willingly and so well. I also express my gratitude to Professor Seaton Baxter for his encouragement to publish this study, and for his helpful editing of my original dissertation, his extensive library, astute suggestions and elucidatory flipchart diagrams.