THE SAFETY HERITAGE OF SHIPBUILDERS

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One of the essential questions in oral history, as defined by Jorma Kalela and Alessandro Portelli, is 'what do the narrators consider worth remembering and explaining, and why?'¹ This article seeks to demonstrate that occupational safety is an important issue worthy of remembrance for shipbuilders and to examine why this is the case. Safety was among the most widely discussed issues in the oral history interviews conducted with shipbuilders who have worked in the shipyards of Rauma. The subject frequently arose when they talked about their shared history. Safety and the considerable improvements made to safety procedures, seem to be among the most significant experiences of their working lives. Consequently, occupational safety is an essential element of the cultural heritage of shipbuilders in Rauma. For the purposes of this article, 'occupational safety' is understood as physical safety, the prevention of accidents and work-related health hazards. 'Safety culture' is defined as safety regulations and practices in the shipyards, both official and unofficial, and institutional as well as individual attitudes toward them.

This article is based on oral history interviews conducted by the Rauma Maritime Museum and the Rauma Shipbuilding Tradition Association² as well as other material produced by the ongoing co-operation between the museum and the shipbuilders' community from September 2013 onwards. The shipbuilders have, together with the museum, produced shipbuilding heritage and collected intangible and tangible evidence of this legacy. This co-operation has resulted in, among other things, a cocreative museum exhibition3, approximately 80 hours of recorded interviews and discussions, and the addition of thousands of objects and pictures to the museum's collection. All the collected materials are stored in the Museum's collections. The Museum acts as an expert on collections management and a facilitator for the shipbuilders' heritage process. For their part, the shipbuilders themselves decide on the schedule and content of heritage activities, for example, the themes discussed in meetings.

Rauma is a small town of about 40.000^4 inhabitants in Southwestern Finland. Founded in the 15th century, it is one of the few medieval towns in Finland and is known for its UNESCO World Heritage -listed historical centre.⁵ Shipbuilding has a long tradition in Rauma: a Crown's shipyard was established in late 16th century by the King of Sweden, whose dominion at the time included present-day Finland. Cargo vessels trading in timber and other goods had almost certainly been built even earlier.⁶ In September 2013, STX Finland, then owner of Rauma shipyard, announced the closure of the vard and the termination of over 600 jobs. At the time it seemed as if shipbuilding in Rauma might have come to an end.⁷

This was not only an economic crisis but a crisis of local identity as well. Particularly after the Second World War, the shipbuilding industry had been vitally important to Rauma's economy. In the 1960s and 70s, the Hollming and Rauma-Repola shipyards were among the largest and most prestigious employers in the town.⁸ In the mid-1970s, about 10% of all of Rauma's residents were employed at the shipyards.9 After the merger of the two companies in 1992, the fortunes of the shipyard had been mixed. While the closure announcement was a bitter disappointment to many, few considered it particularly surprising. However, the break in shipbuilding was only brief as a new operator, Rauma Marine Constructions (RMC), begun work in March 2017 on its first newbuilding, a ferry for a Danish customer.¹⁰ Nevertheless, the shipbuilder community may still irreversibly change or even disappear altogether in the foreseeable future. RMC operates with a different business model than the previous companies and employs a network of subcontractors while employing only a few of its own workers, whereas Rauma-Repola, Hollming and their successor companies did almost everything in-house. Many of those who currently work for a subcontractor company at Rauma shipyards may only be there for a short time and might later be assigned to work elsewhere.¹¹ It remains to be seen if future generations of workers will identify as shipbuilders as strongly as the previous ones.

IS OCCUPATIONAL SAFETY HERITAGE?

The interviews this article is based on were conducted between 2009 and 2017. There were individual interviews and small-group interviews with between two and thirteen interviewees. Most interviews were conducted by volunteer shipbuilders, but some were also conducted by museum staff.¹² The museum and Shipbuilders' Association arrange regular group discussion meetings, so-called 'themed evenings', roughly four times a year. There have been between 20 and 50 participants in each meeting. A previously agreed theme is discussed in every meeting. Notably, at the time of this article's writing, no meeting has been arranged to specifically discuss occupational safety. The museum staff is always present in large-group meetings, but the chairperson is invariably a shipbuilder and the themes are always selected by the shipbuilders. In addition, four video interviews were conducted by the museum staff for the purposes of a museum exhibition. All told, 117 individual shipbuilders have been interviewed or participated in the meetings. Most of them, though not all, had already retired at the time of the interviews and had already had long careers in shipbuilding.¹³ All interviews and discussions have been recorded and transcribed, except for a few meetings arranged to catalogue objects in Rauma Maritime Museum's collections: the information recorded in those meetings is stored in the objects' collection data. All audio and video files and transcriptions are stored in the Museum's collections.

As Portelli and Leena Rossi recommend¹⁴, I have chosen to refer to the participants as 'narrators' as this title covers their role both as relaters and interpreters of their own past. Other distinctions, such as 'informant', would, in my opinion, fall short in describing their contribution to the material produced. The interview process did not follow the guidelines recommended, for example, by Portelli and Rossi. Portelli insists that researchers themselves should conduct the interviews, but as explained above, this was not the case. Rossi suggests using a questionnaire, based on a research plan, to keep the interviews mutually comparable. At the request of the interviewers, a questionnaire was provided by the museum staff, but as there was no research plan at the time when most of the interviews were conducted, it was not based on any specific outline. Some interviewers chose not to use the questionnaire at all. For her part, Rossi also defines the questionnaire

as an aid for the interviewer's memory that need not be followed strictly. Rossi and Portelli recommend that the transcriptions of recorded interviews should be made by the interviewers, however, the volunteer shipbuilders were not inclined to do so, and the transcriptions have been made by several employees from the Rauma Maritime Museum.¹⁵

The resulting material poses some challenges for researchers. For example, interviews conducted by different interviewers vary in length and structure. However, the process in which the material was created also yielded many benefits. Rossi has defined the mission of an oral history interviewer as helping the narrators to produce their memories in a form that is suitable to be used as sources in research¹⁶, and I believe this is, in reality, the case. The shipbuilders have produced their own oral history, with minimal outside intervention. They have themselves chosen the themes they have deemed most important to discuss in the interviews. The shipbuilder community has been able to recruit a much larger base of narrators than, for example, the museum would have been capable of doing.

Kalela has noted that reminiscing and the sharing of experiences is meaningful for the narrators, regardless of the goals of the researchers.¹⁷ I am convinced that this community-building has been essential in the process, even if the stated purpose of the interviews and discussions has been to preserve the shipbuilders' history for posterity. Because the interviewers were often already known to the narrators, most interviews became relaxed, informal affairs. As many interviews evolve towards informal discussion involving two or more participants, I have at times, treated the nominal interviewers as narrators in the same sense as the interviewees. However, the interviews conducted by the museum staff, and some by the shipbuilders, are more traditional in structure, with the interviewer's and narrator's voices clearly separated. As Portelli has noted¹⁸, the same stories are related in a different way in a formal interview with a researcher than to a friend in a non-formal discussion. Some narrators probably would not have told about everything they had done if the interviewer had been for example a museum worker. A significant amount of information and stories have been recorded thanks to shipbuilders who knew to ask other shipbuilders questions that would never have occurred to a museum curator, for example, to ask.

Laurajane Smith has suggested that heritage is essentially a process consisting of acts of communication and meaning making, rather than tangible places or objects. She argues that heritage is produced by communities in a process of attaching meanings and values to symbols, which can be tangible, like buildings; or intangible, such as songs. Smith sees all heritage as essentially intangible, as even the tangible only becomes heritage through the intangible meanings and values attached to it by a community.¹⁹ This article aims to demonstrate that the intangible concept of occupational safety is one such symbol for the shipbuilders.

Anna Sivula has further analysed heritage processes and argues that a heritage group, a community connected by a common history and identity, chooses what traces of the past it accepts as evidence worth preserving, not necessarily unanimously but on some level of mutual understanding. The process does not need to be conscious and the participants may feel that they are, for example, recording accurate historical information. Sivula has described three levels of identity work that are present in a heritage process. Monumentalizing identity work chooses symbols of the shared history and justifies their importance. Adoptive identity work creates experiences of belonging to the heritage group and strengthens the feeling of ownership of its symbols. Historizing identity work generates awareness and consciousness of the shared history of the community.²⁰ As demonstrated in this article, the shipbuilders are involved in all three levels of identity work when they discuss occupational safety and safety culture.

As recommended by the Finnish Advisory Board on Research Integrity, the names of the narrators are withheld in quotes and references and identifying information on the narrators is provided only to the extent it is deemed relevant for the purposes of this article.²¹ Every person who has been interviewed or participated in discussions has explicitly given permission to use the material for research. I have translated the direct quotes from the interviews myself. It is impossible to translate nuances of the shipbuilders' distinctive use of the Finnish language, sprinkled with regional dialect and professional slang, although I have, however, attempted to communicate the informal and often humorous style of their expression. The original Finnish quotes are presented in the endnotes.

SHIPBUILDERS EXPERIENCE SAFETY

Practically all interviews and group discussions contain some discussion about safety and working conditions, nearly always involving descriptions of improvement. While most interviews involve questions on safety, the subject is often spontaneously brought up by the narrator before any questions about safety are explicitly asked. Predictably, workers such as platers or welders have more to say about safety than, for example, naval architects who primarily worked indoors in an office environment. Several narrators have acted as occupational safety representatives²², and unsurprisingly, they discuss the issue at length. No discernible differences in safety-related narrations are found that could be traced to the age or gender of the narrators or whether the narrators worked for Hollming or Rauma-Repola shipyard. An obvious exception is the narrators' relationship to some historical changes: for example, those who became shipbuilders after the introduction of an occupational safety representative system in the 1970s²³, do not discuss the effect it had on safety culture. However, many of those who experienced the introduction of the system first hand, do so.

Portelli has noted that references to time are often very vague in oral history interviews²⁴ and Rauma shipbuilders are no exception. Few events are dated precisely or even to the year. The unit of time most often used is the decade. While most interviewees give the date when they first started working in the shipyard and when they retired - some can indeed tell the exact dates²⁵ – most events in between are dated very vaguely or not at all, with expressions like T remember $[\ldots]$ when a permit was required for those safety shoes, you had to buy them in the beginning, when they came. Now, you can get them for free 26 or That era was like that, the 60s and 70s, it was a much over politicized time'.²⁷ This is consistent with Portelli's notion that oral history is more about meaning than events.²⁸ For the shipbuilders, it is meaningful that their work became safer, they received better equipment and the conditions they worked in improved. The exact timing of these changes or, for example, the precise contents of the regulations that brought the changes about, are considered details of secondary importance.

When the narrators describe the state of occupational safety at the shipyards in the beginning of their careers, regardless of when their employment had begun, they almost invariably paint a bleak picture of dangerous conditions and indifferent attituRepairing the steamship Pankakoski, February 1948. Preparing to replace a propeller blade. The shipbuilder appears to be wearing military surplus clothes, probably his own, and no protective equipment. Rauma Maritime Museum RMM6248.

des from both management and employees. A narrator reminisced about his very first assignment in 1957, rust removal in confined spaces below the engine room of a ship that was under repair. The respirator protectors made of paper were found badly insufficient and the narrator remembers coughing up rusty dust from his lungs after each workday. Eventually, the narrator's father was so concerned that he persuaded the narrator to resign and he only returned to work in the shipyard several years later.²⁹ Another narrator, who began his career as a shipbuilder in 1946, received neither any safety training nor any kind of protective equipment from the employer.³⁰ Others have described the state of affairs with expressions such as 'it [occupational safety] didn't actually exist" and 'Risks at the time were such that it's a wonder that there were only few accidents³² Practically all narrators agree that the situation improved considerably over time. Generally, they do not attribute the improvement in safety to any one single thing. They may mention several changes, and some may consider one more important than the other, but as a rule, the narrators seem to think that many separate factors played a role in the positive development of safety standards. New safety equipment was introduced, the employees were given safety training and occupational safety representatives, authorized by legislation and nominated by trade unions, were introduced.33

There is some variety in the opinions on who should be credited for the improvements in safety or criticized for the deficiencies. Some narrators consider the



employer's efforts as insufficient.34 One worker, who had acted as an occupational safety representative, states that he believes that the employer was reluctant to invest in safety and the actions undertaken by management were only initiated after pressure from customers and authorities.35 In contrast, others have praised the co-operation of the employer, the employees and the trade unions.³⁶ A different narrator, an occupational safety representative as well, stated that the employer's attitude improved and the company begun monitoring the adherence to safety regulations more actively around the year 2000. She attributes this development to co-operation with the nearby Mäntyluoto shipyard in Pori. Mäntyluoto primarily built offshore equipment, and in the narrator's opinion, the strict safety regulations involved improved the safety culture in the shipyard.³⁷ Another narrator, who had acted as a Chief Shop Steward, accuses the previous generations of trade union representatives of indifference. He stated that he very easily achieved improvements in negotiations with the employer, for example, he secured the provision of safety shoes for employees. His predecessor hadn't considered them necessary and had simply not brought the issue up in negotiations.³⁸ Sometimes, *who* made the effort to advance safety may have made a difference. In one narrator's opinion, the trade union's firm stand against drinking at work was more effective than the employers' control and sanctions as the workers may have been more willing to adjust their attitudes when they felt that the initiative came from their own ranks.39

The severe consequences of safety deficiencies were well understood and often discussed. A notable and emotional example of this is a collective reminiscing that took place in a group meeting held in November 2014, in which several accidents that resulted in the deaths of co-workers in the 1960s and 70s were recalled. In the discussion, several shipbuilders opined that these accidents could have been avoided if the safety measures introduced later had already been in place and attitudes would have already changed the way they later did.⁴⁰ In individual interviews, several narrators have attributed the respiratory diseases that many shipbuilders suffered from and some died of, to non-existent or insufficient respirator protection when handling asbestos and other hazardous materials.41 Many narrators had themselves suffered accidents and mishaps that sometimes resulted in serious injury. One narrator once had spent six months on sick leave after breaking his ankle in an accident involving a defective crane that failed to support a heavy load that was consequently lowered onto his leg.42 Another became stuck in a cramped space inside a ship that was being constructed, which led to an immediate

change of policy, as shipbuilders would thereafter be instructed to only work in pairs in such hazardous confined spaces, never alone.⁴³ Others also remember that severe accidents, especially those that resulted in death, prompted changes in safety policies.⁴⁴

SHIPBUILDERS REFLECT ON SAFETY

It may seem surprising that improvements to safety were often met with resistance and reluctance when they were introduced. Many narrators remember themselves opposing new safety measures. Why did so many shipbuilders not understand the benefits they now seemed to see so clearly? Many attributed this attitude to laziness and impatience. For example, setting up ventilators to remove welding fumes was timeconsuming and may have felt bothersome. Helmets, hearing protectors and other protective equipment may have felt cumbersome and seemed to hamper working.45 A narrator describes, and rejects, this attitude: 'sometimes it felt like the safety regulations protected so well from the work, that one couldn't work anymore but that was only prejudice'.⁴⁶

Many shipbuilders are very critical of their own past actions and attitudes. A narrator remembers wearing clothes made of flammable synthetic fabric when welding: 'And I remember too, I worked as a welder, too, wearing terylene trousers and a nylon shirt. [...] So, there can't be any more dangerous combination'.47 Another remembers suffering from constant ear infections as a young shipbuilder. Only later did he understand that this was because of using dirty cotton wool buds in his ears instead of proper hearing protection.⁴⁸ The same narrator attributes his knee problems to his neglecting to have protection from the cold when working outdoors as a young welder.⁴⁹ Portelli and Rossi have noted that this is common

in oral history narratives, as the narrators frequently describe how their world views have evolved from the naïve ideas of youth to the mature views of the present⁵⁰. Coworkers are criticized, too, but vaguely. It is almost never done by name but by referring to, for example, *'old geezers*'.⁵¹ Sometimes blame is assigned to a collective 'we', sometimes to reckless young shipbuilders, while sometimes blame is laid on older generations who were stuck in their indifferent ways.⁵²

Co-workers are frequently praised for having ensured that safety regulations were observed. A narrator remembers that as a young welder he hadn't bothered to use a ventilator to remove welding gases. When an older welder working nearby noticed this, he told the 'boy', in no uncertain terms, highlighting his message with obscenities, to immediately set up the ventilator and turn it on. The older welder didn't want to breathe hazardous and smelly welding fumes and wouldn't tolerate laziness that put others in peril. The narrator learned his lesson.⁵³ Experienced shipbuilders may also have guided the younger workers because of more altruistic motivations and by softer means. A narrator reminisces about working on a ship deck in winter, outdoors, exposed to

the freezing cold. It was necessary to kneel on the deck when welding, and an older colleague recommended that the narrator put something under their knees, as insulation from the frozen

Safety education: first aid training in Rauma-Repola shipyard's vocational school, probably in the 1960s. Rauma Maritime Museum RMM35769. deck to avoid knee problems in the future. The narrator didn't heed the advice, and lived to regret it: 'And one truly, really knows it now. When, say, going to the forest, picking berries or mushrooms, it's so very difficult to get up'.⁵⁴

One narrator recounts that some may have been mocked as 'wimpy boys' for using hearing protection.⁵⁵ However, attributing resistance to safety measures to what Jussi Turtiainen describes as the 'hard masculinity' behind the culture of industrial workers⁵⁶, seems to prove an exception rather than the norm. Turtiainen notes that it has been common for metal industry workers to take pride in their ability to endure physically demanding work in adverse conditions.⁵⁷ The shipbuilders certainly also share that same pride, too: a very common theme in the narratives relates to the cold that the shipbuilders were exposed to during winters, as are their descriptions about carrying heavy tools and materials.58 The references to the narrators' and their co-workers' youthful immaturity may perhaps be interpreted as the influence of 'hard masculinity', which may include a need to display one's ability to withstand demanding conditions. Caution and the wearing of protective equipment that may have felt cumbersome and looked unbecoming, probably



does not sit well with this kind of mentality. However, with very few exceptions, such as the one mentioned above, the narrators do not explicitly make this connection.

One potentially very dangerous practice, working while under the influence of alcohol, was often tolerated by co-workers. While it was well understood that drunken shipbuilders present a danger to themselves and all others, and sometimes it was necessary to remove an intoxicated co-worker from the workplace, the culprits were, however, often protected from any consequences. The misdemeanours of others, alcohol-related or otherwise, were almost never reported to the employer. Many of those who drank were experienced and respected colleagues and it was extremely difficult for the younger workers to intervene. Until the 1970s, most of the older generation shipbuilders were war veterans, which commanded a certain prestige among the colleagues. Some narrators have suggested that traumatic war experiences may have contributed to the drinking problems.⁵⁹

Nonetheless, strong measures against drinking at work were taken from the 1980s onwards and the problem was vanquished relatively quickly. By the year 2000, instances of working under the influence had become extremely rare.⁶⁰ Not a single narrator confessed to ever drinking at work him- or herself, and most very carefully avoided naming any co-workers who did. There are no references to the intentional use of any intoxicating substances other than alcohol, although one narrator remembers paint thinner fumes in an unventilated oil tanker tank accidentally causing an intoxicationlike state when the tanks were cleaned in the late stages of building.⁶¹

SHIPBUILDERS UNDERSTAND SAFETY

The shipbuilders seem to understand occupational safety strictly as physical safety, protection from work-related hazards, in a clearly defined way. The very expression 'occupational safety'62 is frequently used. The shipbuilders also talk, often at great length, about things that contributed to their psychological well-being, for instance common free time activities such as fishing, or improvements in dressing rooms and cafeterias; or things that were detrimental to their well-being, like industrial actions and strikes.63 However, psychological well-being as a concept is seldom mentioned. It seems that occupational safety in the physical sense is understood as a coherent concept in a different, more clearly defined way than psychological well-being.

In the narratives, safety often appears as an objective, quantifiable concept. The narrators do not often provide detailed analysis on how or why the general attitude to safety as well as their own approach changed: they merely state that it did. This is done in a very matter-of-fact way, stating quantifiable benefits. One narrator, for example, notes that before the introduction of protective shoes, shipbuilders frequently suffered broken toes. He opines that the safety shoes, while expensive, were an economically profitable investment for the employer as they significantly reduced the number of work days lost due to toe injuries.⁶⁴ Another narrator argues that the occupational safety representative system resulted in dramatic improvement. He claims that before the system was introduced, on average, nearly one shipbuilder a year died in a workrelated accident. Afterwards, according to the narrator, the average number of deaths decreased to one a decade.65

Most narrators agree that improving safety was a slow and gradual process. Both short-term and long-term processes are dis-



cussed. Changes in equipment or practices may have been practically instantaneous but adapting to these adjustments and amending personal attitudes took time. A narrator describes the introduction of mandatory safety headgear use and its slow acceptance: 'there was strong opposition to the helmet. $\lceil ... \rceil$ It's heavy and it's difficult and it has been this and it has been that. Nowadays, no one would to work on a ship hull without a helmet. And the same goes for safety shoes'.66 The introduction of hard hats happened at a specific time and could be dated precisely, even though the narrator does not do so here. In contrast, it is almost impossible to define precisely how long complaining continued until the overall attitudes changed. Accepting the helmet took time but It had become completely accepted 'nowadays', by the time the narrator retired in 2010.

Generally, the shipbuilders' experience with safety does not seem to significantly

In 1987, the welder is wearing a helmet, protective mask, a dark glass in front of her eyes and safety shoes. She is equipped with hearing protection but has not deemed it necessary to wear any and appears to be wearing earplugs instead. In addition, there appears to be no ventilation from the welding fumes, which would have been employed when working in a more confined space. Rauma Maritime Museum RMM34383.

differ from that of other industrial workers in Finland.⁶⁷ The perception seems to have switched over time, from safety as the individual responsibility of each shipbuilder, to a common concern of the employer and all employees collectively. Particularly those narrators who have acted as occupational safety representatives, have shared experiences with increasing and improving co-operation between employers and employees.68 Similar trends can be observed in Finnish industry and society in general, as well as globally.⁶⁹ Of course, the Rauma shipyards are no vacuum, and shipbuilders are aware of this. One narrator, for example, compares the occupational safety development to improvements in traffic safety. He notes that after the introduction of the national speed limit in 1972, the number of traffic deaths in Finland has plummeted even though the amount of traffic has increased many times over. This, in his opinion, is an example of how attitudes to safe conduct and the reduction of hazards changed, around the same time, not only at the shipyard but throughout society.⁷⁰ Tightening restrictions on smoking are another example of paralleling trends within and without the shipyard's gates. An occupational safety representative initiated a smoking ban in break rooms in the 1980s before law mandated any ban. According to the representative himself, this proved a very unpopular move at the time.⁷¹

OCCUPATIONAL SAFETY IS HERITAGE

Portelli points out that the attitudes of the narrators may be different at the time of the interview from what they were at the time of the events described therein. They may, for example, now consider unacceptable some actions that they have in the past seen as legitimate, routine everyday practices.⁷² The shipbuilders' discussions of safety are an excellent example of this. Past attitudes, often including the narrators' own views, are not forgotten or explained away but well remembered, often with an emphatic sense of self-criticism. This suggests that the reluctance to accept newly introduced safety measures was, at least at times, indeed strong and prevalent among shipbuilders. At least in this case, the 'lens' of the present does not hide the past from the shipbuilders though it may make it seem different than it did at the time.

Portelli discusses narratives that he calls 'uchronic' speculation of what could have happened if some things had been different than they were. He notes that they are often dismissed by narrators in favour of the tendency to see actual events as the best or the only possible outcomes and to allow alternatives little or no consideration.⁷³ The shipbuilders do sometimes consider 'what ifs'. For example, they discuss what the company could have done differently in the last few years before the closure of STX Finland to ensure the continuation of the Rauma shipyard.74 However, this is absent when they talk about safety, except in the aforementioned discussion of fatal accidents and how they could have been avoided.

As demonstrated, developments in safety culture are very important experiences for the shipbuilders. Occupational safety is one of the things they monumentalize in the discussions and interviews. When they come together to remember, particularly in group discussions, they also create experiences of belonging connected to this monument, and to others who share similar experiences. Therefore, discussing safety is both monumentalizing and adoptive identity work in the sense that they are defined by Sivula. It is also historizing identity work: it aims to increase awareness of the shared history within the community. It may also aim at publicity, as was the case, for example, in discussions connected to the planning of the museum exhibition.

It is not difficult to see why occupational safety plays such a big role in the shipbuilders' experience and heritage. For them, it sometimes was very literally a matter of life or death. Safety, in whatever way it is defined, is an intangible concept. It may, however, be symbolized by tangible monuments such as the protective equipment in the Rauma Maritime Museum's collections. For the shipbuilders, the tangible monuments also carry the intangible values and meanings of safety culture, changing attitudes and increasing understanding of hazards. It is, however, debatable to what extent these meanings can be communicated to outsiders, for example to museum visitors viewing welding masks and helmets in a museum exhibition, if they have no personal experience in working in a heavy industry such as shipbuilding.

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VERTAISARVIOITU KOLLEGIALT GRANSKAD PEER-REVIEWED www.tsv.fi/tunnus ² The full Finnish name of the association is '*Rauman laivanrakennuksen perinne ry*'.

³ In the context of this article, 'Co-creative exhibition', as defined by Nina Simon, means an exhibition in which the people who are the subject of the exhibition, in this case the shipbuilders of Rauma, are involved in all stages of planning and decision making with the museum staff. Simon 2010, 263–279.

⁴ The official population calculated by Statistics Finland on December 31, 2016, was 39,614. Official Statistics of Finland 2018.

⁵ Heino 2002, 469-480.

⁶ Lähteenoja 1946, 115–116, 188, 247.

⁷ Rantanen 2017.

⁸ Rantanen 2017; Uola 1996, 12–48, 50–69, 130–211, 236–265, 456–516; Uola 2001, 29–196, 243–287, 323–358.

⁹ For example, in 1975, the population of Rauma was 29,079, Hollming had 791 employees and Rauma-Repola had 1999, hence 9,6 per cent of the population of Rauma were shipbuilders. Uola 1996, 271; Uola 2001, 231; Heino 2002, 463.

¹⁰ Laine 2017; Rantanen 2017; Uola 2001, 354-358.

¹¹ Rantanen 2017; Uola 1996, 93-95, 212-215, 268-277, 517-526; Uola 2001, 56-59, 87-88, 93-105, 117-119, 129-132, 168-176, 199-214, 229-242, 278-282, 352-358.

¹² Seven of the 69 individual and small group interviews were conducted by museum staff and the remaining 62 by the shipbuilders.

¹³ Not all narrators have stated their birth year or career length. The average birth year of those who have taken part is 1947 and the average length of their shipbuilding careers in Rauma is just under 30 years. The oldest narrator was born in 1921, the youngest in 1984.

¹⁴ Rossi 2005, 87; Portelli 1991, 48–50.

¹⁵ Rossi 2012, 68–74; Portelli 1991, 46–53.

¹⁶ Rossi 2005, 84

¹⁷ Kalela 2006 69, 84.

¹⁸ Portelli 1991, 62.

¹⁹ Smith 2006, 44-84.

²⁰ Sivula 2015, 64-67.

²¹ National Advisory Board on Research Ethics 2009, 13.

²² In Finnish '*työsuojeluvaltuutettu*', is a representative of the employees in occupational safety matters. Finnish law prescribes an occupational safety representative to be nominated in all workplaces with at least 10 employees. Laki työsuojelun valvonnasta ja työpaikan työsuojeluyhteistoiminnasta. http://www.finlex.fi/fi/laki/ajantasa/2006/20060044 accessed September 2,1 2017. ²³ The Act mandating the nomination of occupational safety representatives was first passed in 1973. Laki työsuojelun valvonnasta 131/1973 http:// www.finlex.fi/fi/laki/alkup/1973/19730131 accessed September 21, 2017.

²⁴ Portelli 1991, 67–68.

²⁵ For example: RMMV 44:24, individual interview, August 2, 2010; RMMV 44:48, group interview with three shipbuilders, March 6, 2014.

²⁶ 'Sen mää muistan [...] ku nää turvakengät oli jo luvan varasia, oston varasia, sillon alkuun, ku ne tulivat. Nythä niit saa ilmatteks' RMMV 44:24, individual interview, August 2, 2010.

²⁷ 'Mut se aikakausi oli sitä, 60-luku ja 70-luku, se oli hyvin ylipolitisoitunutta aikaa' RMMV 44:6, individual interview, October 13, 2009.

²⁸ Portelli 1991, 50-51.

²⁹ RMMV 44:6, individual interview, October 13, 2009.

³⁰ RMMV 40:2, individual interview, May 3, 2012.

³¹ 'Eihän sitä [työsuojelua] oikeestaa ollukkaa', RMMV 44:49, individual interview, February 22, 2014.

³² 'Riskit oli silloin sellasii, et ihme vähän tuli mitään, tapaturmia', RMMV 44:47, group interview with three shipbuilders, February 22, 2014.

³³ For example: RMMV 44:26, individual interview, August 3, 2010; RMMV 44:47, group interview with three shipbuilders, February 22, 2014; RMMV 44:68, individual interview, April 24, 2017.

³⁴ RMMV 44:7, individual interview, September 30, 2009; RMMV 44:47, group interview with three shipbuilders, February 22, 2014.

³⁵ RMMV 44:7, individual interview, September 30, 2009.

³⁶ RMMV 44:53, individual interview, March 6, 2014; RMMV 44:55, a group discussion meeting on ship hull building, November 12, 2014; RMMV 44:68, individual interview, April 24, 2017.

³⁷ RMMV 44:53, individual interview, March 6, 2014.

³⁸ RMMV 44:47, group interview with three shipbuilders, February 22, 2014.

³⁹ RMMV 44:24, individual interview, August 2, 2010.

⁴⁰ RMMV 44:55, a group discussion meeting on ship hull building, November 12, 2014.

⁴¹ For example: RMMV 44:39, individual interview, August 9, 2011; RMMV 44:66, group interview with five shipbuilders, November 17, 2014, RMMV 44:68, individual interview, April 24, 2017.

⁴² RMMV 44:30, individual interview, October 22, 2010.

⁴³ RMMV 44:37, individual interview, August 10, 2011.

⁴⁴ For example: A group meeting for cataloguing objects in the Rauma Maritime Museum's collections, unrecorded, notes kept by the author, September 29, 2017; RMMV 44:39, individual interview,

¹ Portelli 1991, 50–51; Kalela 2000, 29; Kalela 2006, 75, 83.

August 9, 2011; RMMV 44:55, a group discussion meeting on ship hull building, November 12, 2014.

⁴⁵ For example: RMMV 44:30, individual interview, October 22, 2010; RMMV 44:39, individual interview, August 9 2011; RMMV 44:48, group interview with three shipbuilders, March 6 2014.

⁴⁶ 'välillä tuntu, et kyl se työsuojelu suojelee niin hyvin siltä työltä, et ei sitä pysty enää tekemään, mut se oli vaan tämmöst ennakkoluuloo' RMMF 242, individual video interview, December 15 2014.

⁴⁷ 'Ja mäki muistan, mäki hitsarina olin ni, mul ol haalareitten alla terylenihousut ja nailonpaita. [...] Et eihän vaarallisempaa yhdistelmää voi olla'. RMMF 242, individual video interview, December 15, 2014.

⁴⁸ RMMV 44:55, a group discussion meeting on ship hull work, November 12, 2014.

⁴⁹ RMMV 44:30, individual interview, October 22, 2010.

⁵⁰ Rossi 2005, 92; Portelli 1991 51–53.

⁵¹ 'vanhat sedät', RMMV 44:47, group interview with four shipbuilders, February 22, 2014.

⁵² For example: RMMV 44:24, individual interview, August 2, 2010; RMMV 44:30, individual interview, October 22, 2010; RMMV 44:47, group interview with four shipbuilders, February 22, 2014.

⁵³ RMMV 44:48, group interview with three shipbuilders, March 6, 2014.

⁵⁴ 'Ja toden teolla kyl sen nyt sitte jo huomaaki. Et niinko metsässäki marjastamassa ja sienestämässä ko käy, ni ei millään meinaa päästä ylös'. RMMV 44:6, individual interview, October 13, 2009.

⁵⁵ 'lälläripoika', RMMV 44:32, group interview with four shipbuilders, April 14, 2011.

⁵⁶ Turtiainen 2014, 154–188.

⁵⁷ Turtiainen 2014, 178–179.

⁵⁸ For example: RMMV 44:49, individual interview, February 22, 2014; RMMV 44:61, a group discussion meeting on the beginning of one's shipbuilding career, October 22, 2014; RMMV 44:65, group interview with five shipbuilders, November 7, 2014.

⁵⁹ For example: RMMV 44:34, group interview with three shipbuilders, May 18, 2011; RMMV 44:61, a group discussion meeting on the beginning of one's shipbuilding career, October 22, 2014, RMMV 44:65, group interview with five shipbuilders, November 7, 2014; RMMV 44:68, individual interview, April 24, 2017.

⁶⁰ RMMV 44:24, individual interview, August 2, 2010; RMMV 44:47, group interview with four shipbuilders, February 22, 2014.

⁶¹ RMMV 44:10, group interview with nine shipbuilders, October 13, 2009.

⁶² In Finnish, '*Työturvallisuus*' or '*työsuojelu*'.

⁶³ For example: RMMV 44:14, group interview with two shipbuilders, February 10, 2010; RMMV 44:53, individual interview March 6, 2014; RMMV 44:54, individual interview April 14, 2014.

⁶⁴ RMMV 44:36, individual interview May 31, 2011.

⁶⁵ RMMV 44:26, individual interview, August 3, 2010.

⁶⁶ 'oli hirvee vastustus tätä kypärää vastaan. [vetää henkeä] Se on painava ja se o hankala ja se on ollu millon mitäki. Eihän sit tänä päivänä ni laivan runkohommiin kukaan ilman kypärää menis. Ja sama niinku turvakengät.' RMMF 242, individual video interview, December 15, 2014.

⁶⁷ For example, see Kalela 1981, 312-218 for experiences in the paper industry and Salmi 1995, 106–110 for a foundry worker's story.

⁶⁸ For example: RMMV 44:7, individual interview, September 30, 2009; RMMV 44:53, individual interview, March 6, 2014; RMMV 44:68, individual interview, April 24, 2017.

⁶⁹ For example, see Kalela 1981, 315–316 for parallels in the Finnish paper industry; Kivistö, Turtiainen & Väänänen 2014, 211-219, 224-226 for Finnish work safety regulation and legislation processes and public discussion thereof in the latter part of the 20th Century; Portelli 1991, 212-213, Portelli 2011 132-150 for a slow and gradual shift from individual towards collective thinking about safety in coal mining in the United States of America.

⁷⁰ RMMV 44:26, individual interview, August 3, 2010. The narrator is correct about traffic safety, the amount of traffic in Finland has more than doubled between 1972 to 2015, however, the annual number of traffic deaths decreased from over 1100 to under 300. See Mäntymaa 2016.

⁷¹ RMMV 44:68, individual interview, April 24, 2017.

- ⁷² Portelli 1991, 51-53
- ⁷³ Portelli 1991, 108, 110-113.

⁷⁴ For example: RMMV 44:49, individual interview, February 22, 2014; RMMV 44:54, individual interview, April 14, 2014, RMMV 44:69, individual interview, February 1, 2017.

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