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ARTICLE

Working Life, Industrial Loyalty, and Environmental Degradation in Small-Town Finland, 1950s–1980s

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Abstract

This article analyses industrial working-class life narratives of the 1950s to 1980s, during a time of increasing air and water pollution in Imatra, a Finnish industrial pulp and paper mill town. Many residents worked for either Enso-Gutzeit, not only the largest local employer but also Europe's largest pulp and paper mill, or the hydropower plant, in a variety of maintenance and production roles. Using oral histories concerning working life, the article considers the sensory experiences of pollution that individuals and communities witnessed and committed. In order to protect their community, silence was used as a form of nonverbal communication for much of the post-war period to convey tolerance of environmental degradation and ecological collapse. The impacts of pollution are invisible today, which creates a unique oral history that blends past and present environmental knowledge. Informants use silences, sentences lacking subjects, laughter to communicate nonverbal embarrassment, and repetitions to share thoughts they find uncomfortable or those they consider shameful. As a microhistory of an industrial community, this study reveals how and why residents performed an acceptance of pollution by examining the at times contradictory relationship between sensory experiences of air and water pollution.

I

Tuomas, born in 1950, described his memories of life along the Vuoksi river in eastern Finland in visceral, personal terms. The Vuoksi was the lifeblood of Finland's largest pulp and paper mill, and it showed. 'There was a distinct smell … when you, for example, drove a motorboat close to Kaukopää [factory] … the back motor might get stuck because the water could not cool the engine.' Therefore, he recalls, it was best to avoid going too close to the factory, as 'Something might bubble up from the bottom, and in the worst times … the

smell was so awful.'[1] Tuomas's story, shared after an initial meeting at his farmstead in 2023, was punctuated with silences and discomfort as he recalled his memories of daily life in Imatra, an industrial river town, between the 1950s and 1980s. His narrative became a familiar one: more than ten of the seventeen people I interviewed in Imatra recalled similar experiences of life in their industrial river town. During these decades, life along industrial rivers in Finland was frequently characterized by growing private and state wealth, coupled with an escalating pollution problem that residents and the employees of large river-based manufacturing companies often ignored. The narratives which people constructed about working life in industrial pulp and paper towns in Finland between 1960 and 1984 embody the complex cultural and communal relationships of power and conquest over forests and rivers.

Oral history offers new ways of understanding and historicizing these relationships. By drawing primarily on oral history, I demonstrate its broader methodological value in environmental history, especially for Finnish environmental history and histories of pollution. Although the green-hued river water and rotten-egg-like smells from the pulp and paper mill were a part of residents' quotidian life in adjoining towns in this period, the relationships between the forestry industry, river ecology, and local communities' environmental knowledge has only recent been given scholarly attention in environmental history.[2] This article turns to oral histories collected in Imatra, the location of Finland's oldest hydropower plant and Europe's largest pulp and paper mill, Enso-Gutzeit (presently Stora Enso Oy), to explore the private negotiation of emotions – especially discomfort, denial, and shame – surrounding industrial environmental pollution at a time of economic growth and prosperity. In particular, I analyse the memories of working people who constructed their environmental knowledge around the silent acceptance of industrial air and water pollution in return for livelihoods.

The development of the pulp and paper industries in Finland, Sweden, and Norway played an important role in late nineteenth-century industrialization. Finnish industrial and business histories trace how forests, energy, and labour were abundant and cheap, providing Finland with economic growth throughout the twentieth century, as well as the means to build a welfare state.[3] Finnish forest resources were already partially depleted by the 1850s: in eastern Finland, imported wood had to be used to build new houses by this time.

[1] Tuomas, August 2023, interview with author.

[2] Stephen Mosley, 'Common ground: integrating social and environmental history', *Journal of Social History*, 39, no. 3 (2006), pp. 915–33, at pp. 921–2; Ruth Lane, 'Oral histories and scientific knowledge in understanding environmental change: a case study in the Tumut region, NSW', *Australian Geographical Studies*, 35, no. 2 (1997), pp. 195–205; Ronnie Johnston and Arthur McIvor, 'Oral history, subjectivity, and environmental reality: occupational health histories in twentieth-century Scotland', *Osiris*, 19 (2004), pp. 234–49; Stephen Mosley, 'Environmental history of air pollution and protection', in Mauro Agnoletti and Simone Neri Serneri, eds., *The basic environmental history* (Cham, 2014), pp. 143–69.

[3] See further in Juhani Koponen and Sakari Saaritsa, eds., *Nälkämaasta hyvinvointivaltioksi. Suomi kehityksen kiinniottajana* (*From a starving state to a welfare state: Finland catching up in development*) (Helsinki, 2019).

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Although the Senate passed legislation to prevent further damage to forests, rebellion against that legislation meant a loosening of restrictions during the 1870s.[4] As the world economy grew, Finnish exports of paper products increased from 13,000 tonnes to almost 170,000 tonnes by 1913.[5] Until the 1950s, forestry products generated 80 per cent of Finnish export revenue, declining to 50 per cent by 1970. Forested regions adjacent to rivers were transformed into pulp and paper industrial towns whenever it was economically and geographically feasible, using rivers with high flow rates to generate hydroelectricity for the mills, as well as for timber floating and sewage.[6]

The rapid industrialization of Imatra, a small town in south-eastern Finland, is typical of how many Finnish river towns, with abundant forest resources of Norwegian spruce (*Picae abies*) and Scots pine (*Pinus sylvestris*), became urbanized and industrialized over the second half of the twentieth century (Figure 1).[7] After the Second World War, the price of commodities such as pulp and paper significantly increased throughout Europe. Industrial growth in Imatra accelerated in tandem with European paper consumption, which grew by over 6 per cent each year from 1950 to the 1960s; this rapid expansion resulted in paper mills releasing ever larger quantities of chemical waste into rivers from the 1960s onwards.[8] In 1972, for example, the pulp and paper sector's biochemical oxygen demand discharges accounted for 90 per cent of Finland's total industrial discharges and 50 per cent of industrial phosphorus and nitrogen discharges.[9] In other words, the then established paper industry released more contaminants into the town's river. This provoked a depletion of oxygen, which in turn caused the delicate river ecosystem to collapse.

In recent years, social and environmental historians have argued for a greater integration of quotidian lives and stories into environmental histories.[10] The damage to the Finnish river ecosystem is well documented by scholars who have drawn on governmental sources to write histories of the forestry

[4] Karl-Erik Michelsen, *Viides sääty. Insinöörit suomalaisessa yhteiskunnassa* (*The fifth estate: engineers in Finnish society*) (Helsinki, 1999), pp. 121–2.

[5] Joonas Järvinen, Jari Ojala, Anders Melander, and Juha-Antti Lamberg, 'The evolution of pulp and paper industries in Finland, Sweden, and Norway, 1800–2005', in Juha-Antti Lamberg, Jari Ojala, Mirva Peltoniemi, and Timo Särkkä, eds., *The evolution of global paper industry 1800–2050: a comparative analysis* (Dordrecht, 2012), pp. 20–1.

[6] Ibid., pp. 19–47.

[7] Jaana Laine, 'Knowledge on trees and forests: Finnish forest research from the nineteenth to the twentieth century', in Viktor Pál, Tuomas Räsänen, and Mikko Saikku, eds., *Green development or greenwashing? Environmental histories of Finland* (Huntingdon, 2023), p. 11; Maritta Jokiniemi-Talvisto, 'Yhteiskunnan muuttuminen' ('Change in society'), in Anu Talka, ed., *Imatran kirja* (*Imatra's book*) (Imatra, 1997), p. 78.

[8] Niklas Jensen-Eriksen, *Läpimurto. Metsäteollisuus kasvun, integraation ja kylmän sodan Euroopassa 1950–1973* (*Breakthrough: forestry industry growth, integration, and the Cold War in Europe, 1950–1973*) (Helsinki, 2007), pp. 13–14; Eva Jakobsson, 'Industrialization of rivers: a water system approach to hydropower development', *Knowledge, Technology and Policy*, 14, no. 4 (2002), pp. 41–56.

[9] National Board of Waters, *Vesiensuojelu periaatteet vuoteen 1985* (*The premise of water regulation until 1985*) (Helsinki, 1974), pp. 16–17, 31.

[10] Timothy Cooper and Anna Green, 'The *Torrey Canyon* disaster, everyday life, and the "greening" of Britain', *Environmental History*, 22, no. 1 (2017), pp. 101–26, at p. 104; Brian Williams and Mark

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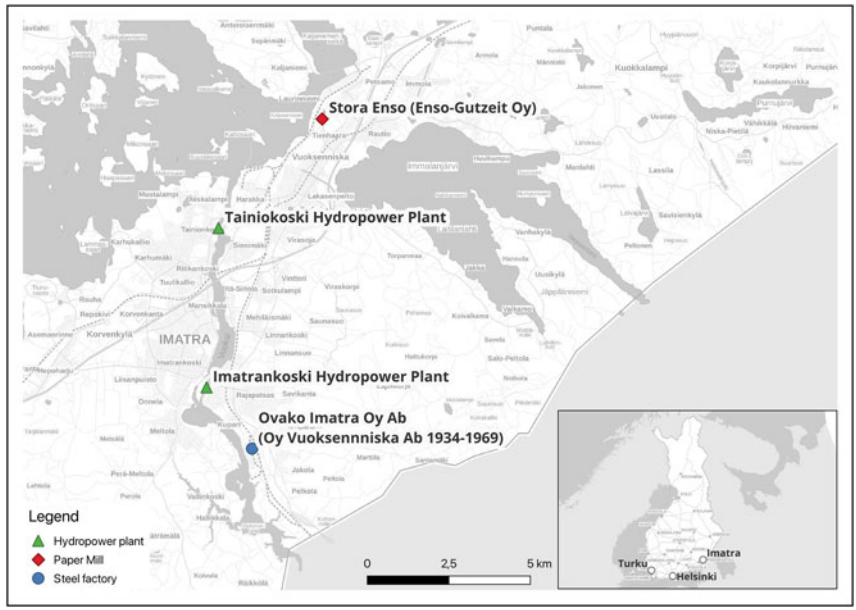

Figure 1. Detailed map of the study area, with major industrial infrastructure.

industry.[11] Building on their work, this article applies an oral history methodology to environmental history to explore the emotional landscapes of working people's experiences of day-to-day life in industrial towns. Imatra's natural landscape includes a river and forests, allowing us to tap into the rich environmental histories of forests, rivers, water, and artificial dams, and the work around them.[12] However, many of these histories draw on sources such as

Riley, 'The challenge of oral history to environmental history', *Environment and History*, 26, no. 2 (2020), pp. 207–31.

[11] Ossi Seppovaara, *Vuoksi. Luonto ja ihminen vesistön muovaajina* (*Vuoksi: nature and humans as shapers of the waterbed*) (Helsinki, 1984), pp. 129–40; Paula Schönach, 'Tuhansien vesien maa' ('Land of a thousand lakes'), in Esa Ruuskanen, Paula Schönach, and Kari Väyrynen, eds., *Suomen ympäristöhistoria 1700-luvulta nykyaikaan* (*Finnish environmental history, 1700s to the present*) (Tampere, 2021), pp. 134–5; Markku Kuisma, *Metsäteollisuuden maa. Suomi, metsät ja kansainvälinen järjestelmä, 1620–1920* (*The land of the forestry industry: Finland, forests, and international order, 1620–1920*) (Helsinki, 1993), pp. 454–8.

[12] Richard White, '"Are you an environmentalist or do you work for a living?": Work and nature', in William Cronon, ed., *Uncommon ground: rethinking the human place in nature* (London, 1995), pp. 171–85; Paula Schönach, 'River histories: a thematic review', *Water History*, 9, no. 3 (September 2017), pp. 233–57; Laine, 'Knowledge on trees and forests', pp. 11–30; Greg Bankoff, 'Of time and timing: internal drainage boards and water level management in the River Hull valley', *Environmental History*, 27, no. 1 (2022), pp. 86–112; Verena Winiwarter et al., 'Environmental history in Europe from 1994 to 2004: enthusiasm and consolidation', *Environment and History*, 10, no. 4 (2004), pp. 501–30; Ari Aukusti Lehtinen, 'Russian taiga: regional fabrication of the federal forest regime', in Ari Aukusti Lehtinen, Jakob Donner-Amnell, and Bjørnar Sæther, eds., *Politics of forests: northern forest-industrial regimes in the age of globalization* (Aldershot, 2004), pp. 87–131; Juha

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company and state archives – records kept by privileged, highly educated men.[13] These have traditionally emphasized the influence and interests of large industries such as forestry and energy.

Newer works have turned to historicizing rivers, forests, air pollution, energy, the environmental movement, and waste within a Finnish context.[14] Yet, few of these works take full advantage of the methodological potential of oral history – even within environmental history outside Finland. Joy Parr's *Sensing changes*, which provides a twentieth-century sensory history of the environmental effects of Canadian infrastructural megaprojects using oral history, neither analyses nor extensively quotes her respondents' narratives.[15] Simo Laakkonen and Timo Vuorisalo in *Vaurastumisen vuodet* (*The years of growth*) argue that, although the Finnish working-class bore the greatest burden from environmental pollution, they developed a passive attitude on the issue due to the lack of alternatives, unlike the middle class.[16] However, the current study shows that by using oral history evidence we can establish that the working class was not passive, but actively catalogued, silenced, and witnessed environmental contamination. Further, oral history provides a potent methodology with which to incorporate the voices and environmental knowledge of women and of people from less privileged backgrounds.[17] This article therefore extends this historiography by analysing the voices of industrial townspeople to investigate the construction of silence and self-representations as people narrate memories decades later. Additionally, it provides new insights into the little-researched environmental histories of the post-war industrial Finnish towns by placing respondents' narratives in the broader context of twentieth-century industrial life.[18]

Kotilainen, 'Shifting between the East and the West, switching between scales: forest-industrial regimes in northwest Russian borderlands', in Lehtinen et al., eds., *Politics of forests*, pp. 133–56.

[13] Franz Krause, 'River management: technological challenge or conceptual illusion? Salmon weirs and hydroelectric dams on the Kemi river in northern Finland', in Michael Schmidt, Vincent Onyango, and Dmytro Palekhov, eds., *Implementing environmental and resource management* (Berlin, 2011), pp. 229–48; Markku Kuisma, Sakari Silta, and Teemu Keskisarja, *Paperin painajainen. Metsäliitto, metsät ja miljardit Suomen kohtalosta, 1984–2014* (*Nightmares of paper: the Forestry Union, forests, and the billions doomed in Finland, 1980–2014*) (Helsinki, 2014).

[14] See further, Esa Ruuskanen, Paula Schönach, and Kari Väyrynen, eds., *Suomen ympäristöhistoria 1700-luvulta nykyaikaan* (*Finish environmental history, 1700s to the present*) (Tampere, 2021).

[15] Joy Parr, *Sensing changes: technologies, environments, and the everyday, 1953–2003* (Seattle, WA, 2010), p. x.

[16] Simo Laakkonen and Timo Vuorisalo, 'Ympäristökysymys' ('The environmental question'), in J. Laine et al., eds., *Vaurastumisen vuodet* (Helsinki, 2019), pp. 288–90; see also Nikhil Anand, 'A public matter: water, hydraulics, biopolitics', in Nikhil Anand, Akhil Gupta, and Hannah Appel, eds., *The promise of infrastructure* (Durham, NC, 2018), pp. 155–72.

[17] See also Kristiina Korjonen-Kuusipuro and Anneli Meriläinen-Hyvärinen, 'Living with the loss: emotional ties to place in the Vuoksi and Talvivaara regions in Finland', *Emotion, Space and Society*, 20 (2016), pp. 27–34; Simo Laakkonen and Alla Bolotova, 'Ristiaallokossa: Laatokan pilaantumisen ja suojelun ympäristöhistoriaa' ('In cross waves: an environmental history of the ecological degradation of Laatokka and its protection'), in Maria Lähteenmäki, ed., *Laatokka. Suurjärven kiehtova rantahistoria* (*Laatokka: an exciting beach history of a large lake*) (Helsinki, 2021), pp. 131–61.

[18] Sara Ahmed, 'Collective feelings: or, the impressions left by others', *Theory, Culture and Society*, 21, no. 2 (2004), pp. 25–42; Monique Scheer, 'Are emotions a kind of practice (and is that what

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The article historicizes the experiences of people who are seldom represented in the historiography on Finnish landscapes. It also fills archival silences with the voices of working people who did not leave more typical archival traces, such as keeping diaries or writing memoirs. I conducted forty-nine interviews across southern, eastern, central, and northern Finland for the Finnish Technological Sublime research project, which is the first study in Finland to capture ordinary people's life narratives and memories regarding large-scale energy infrastructure. The seventeen respondents from Imatra represent a mixture of working and middle classes, genders, and family backgrounds. The interviewees, born between 1935 and 1975, witnessed and participated to different degrees in the extremes of industrial change that characterized much of post-war Europe: an economic growth spurt during the 1950s and 1960s and a slow decline, affecting working-class industrial towns, as manufacturing automation increased in the 1970s. This cohort of industrial workers, colloquially labelled *duunarit* in Finnish, generally became prosperous homeowners by retirement age.[19]

Although class is not the main focus of this study, it plays a role in how individuals frame their working selves with regard to pollution.[20] Finland rapidly transformed from an agrarian society into a service-based economy in the 1950s and 1960s; unlike in other western European countries, industry and the service economy developed simultaneously.[21] This uneven, fast development led to the birth of a new suburbanized working class who were the first generation of service-sector workers, but with agricultural roots. As in Britain, where Selina Todd interviewed those born between 1960 and 1970, many of the younger respondents did not readily identify class distinctions when asked about perceptions of class in Imatra.[22] Workers in the town – especially those born prior to the 1960s – drew class divisions based on relationships, factory community, workplace, and occupation. Increasing access to education and the ability to rise within the company meant that the importance of class structures eased over the course of the post-war period, but a visible division continued between workers and management.[23] Indeed, identifying oneself as working class was more common among the oldest

makes them have a history)? A Bourdieuian approach to understanding emotion', *History and Theory*, 51, no. 2 (2012), pp. 193–220.

[19] Jussi Lahtinen, 'Kun työläinen vaurastui: kertomuksia toisen maailmansodan jälkeisestä kehityksestä' ('When the worker prospered: narratives of development after the Second World War'), in Heikki Mikkonen and Jussi Lahtinen, eds., *Työväki ja vauraus* (*Workers and prosperity*) (Helsinki, 2023), pp. 148–69.

[20] Nina Trige Andersen et al., 'Longer, broader, deeper, and more personal: the renewal of labour history in the Nordic countries', *Scandinavian Economic History Review*, 72, no. 2 (2024), pp. 109–25.

[21] Ilkka Nummela, 'Muuttuva Suomi' ('Changing Finland'), in Jorma Tiainen and Ilkka Nummela, eds., *Historiaa tutkimaan* (*Studying history*) (Jyväskylä, 1996), pp. 143–4.

[22] Selina Todd, 'Class, experience and Britain's twentieth century', *Social History*, 39, no. 4 (2014), pp. 489–508, at p. 501.

[23] Edward Dutton, 'Latent social class terms and consumer culture in Finland: "Porvari", "Amis", and "Pummi"', *Arctic Anthropology*, 47, no. 1 (2010), pp. 94–108.

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respondents, as also evidenced by Sutcliffe-Braithwaite.[24] Over the course of the latter half of the twentieth century, class identity began to align with education and job title. It may be inferred that class differences and class mattered to some degree to those in positions of power, but for working people class divisions eased after the 1960s.

Participants were mainly recruited using a snowballing methodology, as this proved an effective method for building up trust with a group of interviewees over a significant period.[25] Throughout the interview process, it became increasingly clear that some people would not disclose all their experiences relating to air and water pollution as they did not trust me. The greatest concern expressed by potential participants, generally through informal communication, was the possibility of identification and community retaliation for speaking with an outsider. Even when every effort was made to anonymize participants by not directly stating their job titles, by using seudonyms, and by providing broad brackets for their year of birth, interviewees were still concerned as to whether other residents would be able to identify their narratives. After about three interviews, I began noticing that people would repeatedly use the phrase 'money stinks' (*raha haisee*) to brush aside my enquiries about pollution levels. This deflection over time became part of a pattern of self-censorship and silencing about water pollution and olfactory experiences surrounding river contamination.

I conducted an additional focus group interview discussion to facilitate collective exploration of emotions and memories surrounding pollution among participants who were friends.[26] This group of ten participants, who were first individually contacted through the snowball method, had, in several cases, known one another for over forty years, sharing hobbies, sports clubs, or workplaces. The focus group met in the home of one of my main contacts, which was a familiar space for many, allowing them to approach more uncomfortable topics than might have been possible in one-on-one interviews – including the collective denial of environmental harm – and to explore collective memories, while also offering greater emotional support in this process of recollection and reconciliation with the past. Usually, a focus group interview takes about an hour, and is carried out as a first point of contact with a study cohort. However, instead of talking for the planned hour, the participants shared stories and memories for almost two and a half hours, creating together around 19,000 words of oral testimony. The richness of this form of oral history is especially apparent in environmental history, which typically concerns events whose effects are distinctively collective – concerning, as they do, shared spaces such as forests and rivers.

[24] Florence Sutcliffe-Braithwaite, *Class, politics, and the decline of deference in England, 1968–2000* (Oxford, 2018), pp. 34–55.

[25] Chaim Noy, 'Sampling knowledge: the hermeneutics of snowball sampling in qualitative research', *International Journal of Social Research Methodology*, 11, no. 4 (2008), pp. 327–44.

[26] Julius Sim and Jackie Waterfield, 'Focus group methodology: some ethical challenges', *Quality and Quantity*, 53, no. 6 (2019), pp. 3003–22.

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While I provided themes to discuss, the participants were free to decide the direction of the discussion. They shared some of the same stories they had shared privately, but others provided new memories or probed their emotional experiences further than in the initial interviews.[27] Through focusing on specific themes of river pollution, the group revealed what had, in one-on-one interviews, become silences. They discussed air and water pollution, workplace accidents, near-death experiences at the pulp and paper mill, stories of local environmental knowledge about tree and forest growth, locations of waste dumping they had participated in, emotions, and sustainable transitions.

Oral history cannot claim to draw on a 'statistically representative sample of any population in the past', but this can be its greatest strength.[28] As James Hinton argues in a study of nine wartime Britons, 'individual subjectivity is always more complex than generalizations about the life of the group'. [29] The more in-depth detail one has about an individual, the less their experience may be generalized. Paul Thompson reminds us that, in oral history, interviewees report 'facts and events ... in a way which gives them social meaning'; informants' interpretations of when something occurred or the reasons for it can inform historians of the 'expectations and norms' of that specific person or their wider social group.[30] Like all historical sources, oral history has its limitations. Informants provide a rich historical account of their lives within the context of their lived environment, but this yields an alternative perspective to national, macro-level environmental histories. In environmental history, these rich pictures of local, lived experience are especially crucial in enabling historians to challenge and interrogate grand narratives and the epistemic privileging of scientific government reports.

This article illustrates how an oral history methodology, especially where it includes a focus group interview, may be used to fill gaps in archives surrounding quotidian experiences of air and water pollution in industrial regions. It begins with a brief historical account of the Vuoksi river, the setting for almost all the interviewees' earliest memories of Imatra. It then turns to explore the concepts of silence, shame, and loyalty surrounding memories of pollution. Interviewees, especially those in the focus group, talked reflexively about silences surrounding pollution and its effects on their personal and working lives. Throughout their oral testimony, working people expressed the ways in which they negotiated with pollution and its impacts, illustrating their private and communal negotiation between economic benefits from industrial development and living with the environmental impact of air and water pollution.

[27] Angela Bartie and Arthur McIvor, 'Oral history in Scotland', *Scottish Historical Review*, 92, supplement (2013), pp. 108–36.

[28] Penny Summerfield, 'Oral history as an autobiographical practice', *Miranda*, no. 12 (2016), pp. 1–14, at p. 3, https://doi.org/10.4000/miranda.8714.

[29] James Hinton, *Nine wartime lives: Mass-Observation and the making of the modern self* (Oxford, 2010), p. 17.

[30] Paul Thompson, *The voice of the past: oral history* (Oxford, 2000), p. 100.

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II

The Vuoksi river runs 150 kilometres through the Karelian isthmus to Lake Ladoga in Russia and forms part of both Finland's largest water system and the Saimaa canal system (see Figure 1). This river is mythologized in people's memories of Imatra. Often, informants' recollections about life along the river would begin with the collective memory of the river's rapids as a famous European tourist attraction.[31] Interviewees eagerly recounted that the region's striking geography made it increasingly popular in the aristocratic circles of nineteenth-century St Petersburg, where it was identified as an untamed wilderness, bewitching its visitors.[32] A few interviewees described the rapids using the language from the Finnish-Swedish poet Zacharias Topelius's book *Maamme* (*Our land*), which aimed to build a Finnish nationalist conscience, while a few remembered that the Finnish national epic *Kalevala* (1835; expanded edition 1849) has a lyrical tale of the rapids' wild beauty and their 'mighty torrent, whose deafening roar can be heard for miles'.[33] The height of the falls prompted comparisons with Niagara Falls and concomitant tragi-romantic tales of desperation and suicide.[34] For many people, the river rapids and the surrounding landscape formed a defining aspect of the imagined community, but most notably sparked feelings of national pride in this landscape – even in its current form as a high-flow-rate river which generates hydroelectricity.[35]

Residents would not eagerly recount the story of industrialization and post-war growth, as many had lived through the large changes themselves, and they found it difficult to articulate this broader narrative within the contexts of their lives. Once the government-owned firm Enso-Gutzeit, at the time Finland's largest employer, began operating in Imatra in 1906 because of its hydroelectricity potential, its proximity to large swaths of South Karelian forest, and its cost-efficient access to foreign markets, the landscape, along with its people, began to change.[36] Until the beginning of the twentieth century, fisheries had played a crucial role in Imatra's economy, alongside the tourist industry. The Imatra Hydropower Plant, located in the city centre, was one of the largest of the city's industrialization projects, in part built to provide electricity for the pulp and paper mills and the new nation.[37] The plant was first conceived in the early 1920s and resulted in the damming of the famous river rapids in 1929, with no fishways – which in the long term meant that fish

[31] Mrs Alec Tweedie, *Through Finland in carts* (London, 1897), p. 150.

[32] Sven Hirn, *Imatra som natursevärdhet till och med 1870* (*Imatra as a natural attraction until 1870*) (Helsinki, 1958), pp. 135, 140.

[33] Zacharias Topelius, *Finland framställdt i teckningar* (*Finland presented in drawings*) (Helsinki, 1845); M. Pearson Thomson, *Finland: with twelve full-page illustrations in colour* (London, 1909), p. 39.

[34] 'Toivo ja Esteri: Imatran viimeiset uhrit' ('Toivo and Esteri: the last victims of Imatra'), in Werner Bergström, ed., *Suru- ja murhelauluja* (*Songs of sorrow and grief*) (Helsinki, 1929), pp. 7–8.

[35] Järvinen et al., 'The evolution of pulp and paper industries', pp. 19–47.

[36] Jensen-Eriksen, *Läpimurto*, pp. 223–4, 233–4; see also Jorma Ahvenainen, *Enso-Gutzeit Oy, 1872–1992*, vol. II (Jyväskylä, 1992).

[37] Stéphane Castonguay and Matthew D. Evenden, eds., *Urban rivers: remaking rivers, cities, and space in Europe and North America* (Pittsburgh, PA, 2012), p. 3.

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could no longer migrate with their life cycle.[38] The end of the Second World War led to the cession of half of this river territory to the Soviet Union, transforming Imatra further into a trans-boundary dam and river system.[39] Most respondents blurred the power plant and pulp and paper mill infrastructure together, due to their proximity to the river, as this crucial infrastructure transformed the town throughout the twentieth century.

The role of the river as a part of a person's subjectivity is most visible through childhood stories, which interweave narratives of childhood innocence, labour, and play. Both men and women discuss work that used or required the Vuoksi river through gendered performances, indicating how memories of water and air pollution are also gendered life narratives.[40] Although both men and women have memories relating to fishing, male interviewees in particular recall the dismal state of fishing on the river and the need to acquire a permit as fish stocks were so low, or even to travel elsewhere to fish. Although throughout the first decades of the twentieth century fishermen complained vigorously to Enso-Gutzeit, to the regional magistrate, and later to Imatran Voima (Imatra Power Company, also partially government-owned) concerning the impact of water pollution from the Tainiokoski hydropower plant (the original factory located there was owned by Tornator Company) and the Kaukopää pulp and paper factories on fish stocks, their complaints and lawsuits were often ignored or brushed aside by both companies and by the regional magistrate.[41] Living in Neitsyniemi estate next to the river, the factory investor Edvard von Nottbeck did not find the new factory endearing. He was an avid fisherman and vigorously filed cases against local factories, as court records indicate.[42] Another court case was filed in 1900 by Lauri Salomoninpoika, Juha Laihia, Katri Wainikan, Lauri Marinpoika, and Antti and Matti Laiha concerning Tornator Company ruining the water for fishing. The two first defendants owned half of the lot, while the others owned the second half; after a two-year legal process, the Laiha family won the case and the company had to pay compensation.[43] Respondents to my study also brought up the poor state of the

[38] Timo Myllyntaus, *Electrifying Finland: the transfer of a new technology into a late industrialising economy* (Helsinki, 1991), p. 121; Timo Myllyntaus, 'Hydro- and thermal power in Finnish industry in the nineteenth and twentieth centuries', *Scandinavian Journal of History*, 8 (1983), pp. 109–18, at p. 112; Jokiniemi-Talvisto, 'Yhteiskunnan muuttuminen', pp. 71ff.

[39] Kristiina Korjonen-Kuusipuro, 'Critical water: negotiating the Vuoksi river in 1940', *Water History*, 3, no. 3 (2011), pp. 169–86; Elena Kochetkova, 'Between water pollution and protection in the Soviet Union, mid-1950s–1960s: Lake Baikal and River Vuoksi', *Water History*, 10, no. 2 (2018), pp. 223–41; Juho Haapala and Marko Keskinen, 'Exploring 100 years of Finnish transboundary water interactions with Russia: an historical analysis of diplomacy and cooperation', *Water Alternatives*, 15, no. 1 (2022), pp. 93–128.

[40] See, for example, Meg Parsons and Karen Fisher, 'Hegemonic masculinity and femininity in the "backblocks" of the Waikato and King Country 1860s–1930s', *International Review of Environmental History*, 7, no. 1 (2021), pp. 37–61.

[41] Seppovaara, *Vuoksi*, pp. 113, 119; F.O.V., 'Linnakosken kuolema' ('The death of Linnakoski'), *Helsingin Sanomat*, 2 Mar. 1929, p. 30.

[42] Seppovaara, *Vuoksi*, pp. 113–14.

[43] Ibid., pp. 115–16.

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river's fish, as many of the men enjoyed recreational fishing, illustrating how historical court cases filed by upper-class fishermen could slow down industrial growth but could not wholly prevent the decline in water quality.

During the 1950s and 1960s, when many of the respondents were children or adolescents, the pulp and paper industry was as its height. The chemical wood industry would have pumped bleached kraft mill effluents into the water daily. These effluents contained numerous harmful compounds, such as wood sterols, resin acids, polycyclic aromatic hydrocarbons, and alkyl derivatives; the substances eventually sank into the sediment at the bottom of the river, where they were consumed by benthic organisms and bottom-feeders.[44] The downstream watercourse contained a heavy nutrient load and compounds that caused oxygen depletion and a decline in species diversity over the 1960s and 1970s.[45] But for young boys, the river offered opportunities for performances of boyhood through play, exploration, and risk-taking. Lari (born c. 1935), for example, moved to Imatra in the early post-war period with his family. Young Lari's mother forbade him from playing by the river, but he and his friends found ways to circumvent the rules. He spent time either swimming in the summer months or jumping on moving icefloes in the winter, much to his mother's vexation whenever he was caught. Lari made no mention of the polluted waters during his interview, his tone and gaze suggesting a deep nostalgia for his childhood.[46] The river offered a place of refuge for boys from the adult world of household chores, even though its green colour and smell perhaps meant something else to adults.

The two respondents before Daavid (born c. 1945) had not directly mentioned the river pollution nor fishing, beyond a few curious sentences in passing. Daavid came from a family of paper mill workers. His grandfather had been a bricklayer for Enso-Gutzeit. Yet he was outspoken about class and work safety, recounting complex kinships of factory relationships and his near-death experiences. He was also an ardent fisherman, who grew up fishing from the Vuoksi river for additional income for his family, drawing attention to the state of the river and bodily harm from work which had befallen him over his lifetime. He recounted a wage negotiation with his manager at the pulp and paper mill:

> My line manager said, the factory manager said, that we are all equal. But I said to him, 'Are you completely serious about being equal?'
>
> 'How so?'

[44] Päivi Meriläinen and Aimo Oikari, 'Exposure assessment of fishes to a modern pulp and paper mill effluents after a black liquor spill', *Environmental Monitoring and Assessment*, 144 (2008), pp. 419–35; Päivi Meriläinen et al., 'Dissolution of resin acids, retene and wood sterols from contaminated lake sediments', *Chemosphere*, 65, no. 5 (2006), pp. 840–6; Heli Ratia, Kari-Matti Vuori, and Aimo Oikari, 'Caddis larvae (*Trichoptera*, *Hydropsychidae*) indicate delaying recovery of a watercourse polluted by pulp and paper industry', *Ecological Indicators*, 15, no. 1 (2012), pp. 217–26; S. J. Taipale et al., 'Lake eutrophication and brownification downgrade availability and transfer of essential fatty acids for human consumption', *Environment International*, 96 (2016), pp. 156–66.

[45] Seppovaara, *Vuoksi*, p. 136.

[46] Interviews with author: Lari, July 2022; see also Daavid, Mar. 2022; Joonas, July 2022; Benjamin, Nov. 2021; Eemil, Mar. 2023.

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So I said, 'Well, you cannot still fish up the river as you have to be an engineer or at least a technician, and have had a long service.'
'That is not true.'
'Yes, this is the case, I need a fishing licence.'
'Well, you can get one!'[47]

He illustrates the power relationships within the factory, directly questioning his manager about privilege in relation to fishing rights. Fishing in the Enso-Gutzeit upper river catchment area was limited to permit holders in the 1960s and 1970s, as there were too few fish making their way down the river. Factories did not want to implicate their involvement in this ecological issue, and thus tried to limit permits based on a variety of personal reasons. Prior to the 1980s, fishing permits were an important distinction marker between workers and management, as the awareness of the lack of fish could be seen in how upper management barred working people from accessing the upper part of the river. For Ilmari (born 1950), who began a recreational fishing business in the region in the late 1980s after retiring from his public sector job, the waterways were an especially important aspect of his self-identity, as the river provided him with his livelihood. Ilmari's memory of when the degradation of the river began is connected to his son's birth in 1970 – illustrating how familial milestones may be used as memory markers to recall when environmental change has occurred. 'The Vuoksi was a sewer. It just existed like this in the 1970s. There was nothing to fish.'[48]

Women's early memories of the industrial river generally focused on memories of helping their mothers with laundry. Isla (born 1948) grew up next to the riverbank and remembers joining her mother by the riverside to wash laundry, trying to do so at a time when the Kaukopää factory was not releasing chemical waste.[49] Once her family bought a washing machine, they no longer needed to check the effluent levels of the water. When mothers washed sheets in the river, a popular joke went, the laundry was getting a double bleaching from the paper mill residue.[50]

During Helena's interview, I was shown family photographs (see Figure 2) depicting a riverside swimming area with a beach remoulded into a small catchment to shield it from drifting pollution. Helena's private indignation towards water and air pollution could be traced to her father's role as an upper manager for the hydropower plant, her non-technical job at Enso-Gutzeit, and her husband's managerial role in Enso-Gutzeit. In her account, Helena denied that the extensive pollution of the river was a genuine issue, as her father kept fishing, as illustrated in the photographs she displayed.[51]

Daily life by the river changed as a result of washing machines offering a technological fix that allowed families to avoid washing laundry in

[47] Daavid, interview with author, Mar. 2022.
[48] Ilmari, interview with author, July 2022.
[49] Schönach, 'Tuhansien vesien maa', p. 114.
[50] Helena, interview with author, Mar. 2023.
[51] Interviews with author: Helena, Mar. 2023; Eemil, Mar. 2023. See also Cody Ferguson, *This is our land: grassroots environmentalism in the late twentieth century* (New Brunswick, NJ, 2015), pp. 142–63.

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Figure 2. Helena's father's fishing adventures in the Vuoksi river c. 1950. As visible from the photos, Helena's father was an engineer with a licence to fish on the river, unlike Daavid, who was not given a licence due to his lesser job title. From Helena's family album, reproduced with her permission.

contaminated water, and of the use of fishing permits alleviating pressures on industry to clean their waste water. Generally, these women respondents worked in nontechnical support roles rather than in upper management technical or engineering roles, but they upheld the silence surrounding pollution topics – even more tightly than men, in some instances.[52] Through such actions, working women performed agency towards local pollution and protected their family's prosperity.

Witnessing the release of chemical waste was a daily sensory occurrence for respondents, but it quickly became a mundane enough experience that most cannot even date precisely when the releases began, when they were at their peak, and when, precisely, they ended. Nobody directly recalled environmental policies or remembered landmark water legislation such as the new Finnish Water Act (264/1961) (*Vesilaki*) of 1962, which mandated that certain industrial sites had to build water sanitation equipment within five years.[53] This law made no mention of the forestry industry, which was thus able to carry on in Imatra as

[52] Isla (born 1948), Helena (born 1948), Johanna (born 1975), and Sylvia (born 1948).

[53] Pauli Kleemola et al., 'Vesiensuojelun modernin perustan synty' ('The birth of modern water regulation'), in Eeva-Liisa Hallanaro, Erkki Santala, and Sanna Vienonen, eds., *Vesien vuoksi. Suomalaisen vesiensuojelun vaiheita* (*For the waters: stages of Finnish water conservation*) (Helsinki, 2017), pp. 33–51.

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before until industry-specific legislation was passed in the late 1970s and early 1980s, with the main emphasis being end-of-pipe abatement technology retrofits.[54] This is reflected in how respondents recalled the sensory details of their environment throughout the 1970s. As one resident stated: 'You just could not go swim in that water. It was difficult to get off skin, it just smelt so pungent. It was always that way once the factories came.'[55] The daily release of effluents, which were large foam balls that often smelled of pine soap (*mäntysuopa*), turned the river green, respondents confided. The green colour was probably the result of small amounts of black liquor being released and the foam was possibly the by-product of chemical effluents from Kaukopää factory (see Figure 3). Black liquor is a by-product of the sulphate process which removes lignin and other extractions from wood during the making of pulp; the by-product is also used in recovery boilers in pulp mills as a fuel source.

The daily release of effluents throughout the 1950s until the 1970s, visible as foam balls, was unremarkable to the majority. The Mellonlahti recreation park, for example, financed by the Ministry of Water (*Vesihallitus*), was built in the late 1970s as a clean swimming spot for locals, just south of the hydropower plant. The city was able to fund this project with monetary 'reparations for created deficiencies', as phrased by the *Helsingin Sanomat* newspaper. This hints at the pollution levels without openly stating the dire ecological disaster taking place – a stark illustration of the larger national collective silence on water pollution and the slow pace of rural wastewater treatment.[56] This mundanity of pollution is a communal experience, reflected in how Joonas (born c. 1960) remembers the river pollution. '[It] had been incredibly dirty that even in my childhood you could never even catch a fish and eat it and ... it was just so impossibly dirty. There was this black tar that was on the beaches and crooked pieces of birchbark (*tuohenkäppyrä*) were covered in this filth', he recalled, pausing. 'And then, when there was a flow rate exception, these balls of foam rolled under the bridge. It foamed because there was a ginormous amount of lye – that was really shocking.'[57] Joonas's narration illustrates the fallacy of human memory in terms of long-term pollution but the ability to remember a significant incident – as in the case of the 1983 black liquor release accident.

In 1983, the city was forced to begin cleaning wastewater from the Halikka river, which connects to the Vuoksi river, after locals filed a criminal report with the police as 'sewage' covered city and private river beachfronts.[58] The newspaper coverage of this incident does not explain the damage that caused the release of the wastewater but implies that it was a pipe from a specific community. The city archives reinforce this narrative through loud silences,

[54] Jukka Similä, 'Pollution regulation and its effects on technological innovations', *Journal of Environmental Law*, 14 (2002), pp. 143–60, at p. 143.

[55] FG, interview with author, Mar. 2023.

[56] 'Vuoksen likavedet padon taakse: Imatran Mellonlahti puhtaaksi' ('Moving Vuoksi's waste waters behind the dam: Imatra's Mellonlahti to be cleaned up'), *Helsingin Sanomat*, 28 July 1978, p. 10.

[57] Joonas, interview with author, July 2022.

[58] 'Imatra alkaa puhudistaa Halikkaanjoen vesiä' ('Imatra begins purifying the waters of the Halikka river'), *Helsingin Sanomat*, 9 Sept. 1983.

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Figure 3. Kaukopää factory, 1955. The photograph depicts the timber floating area, through which logs would be floated into the plant for processing. This water was also pumped into the mill, but by the early 1970s it was fully contaminated with chemicals such as chlorine (used to bleach cellulose), leading Enso-Gutzeit to try to find a solution to pump clean river water into the plant and to send the dirty water downstream to the hydropower plant. See Erkki Vaalama, *Enso-Gutzeit oy Kaukopään tehtaat, 1935–1985* (Imatra, 1985), p. 203. Photograph by Pentti Roiha.
Source: Etelä-Karjalan museo, KUVKVV1499:13. Creative Commons (CC BY 4.0).

indicating that the city wanted to ensure quality of life for its citizens as much as possible without drawing the ire of local factories.[59] Based on oral history evidence during the focus group discussion, this burst pipe was originally from the Kaukopää factory and leaked large quantities of black liquor into the Vuoksi river and onto its banks.[60] Benjamin snidely chuckled, 'The employee representative (*pääluottamusmies*) of Kaukopää sat on the city council board at that time', and Daavid supplemented, '[The head of] Enso-Gutzeit also sat on the board. From that you can find your own potato field.'[61] This

[59] City archive documents dating after 1983 are the first to discuss air pollution, fish stock, and wastewater levels: Imatra City Council, Kaupungin Valtuusto (KV) 14.2.1983 § 278; KV 28.2.1983/§665; see also Appendix 17, KV 28.11.1983/§283.

[60] Interviews with author, FG, Mar. 2023; Joonas, July 2022.

[61] FG, interview with author, Mar. 2023.

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large-scale accidental release illustrates how visible pollution gets pushed to the back of a person's memory.

I met Maria (born 1945) for the first time at my main contact's kitchen table, drinking bitter Finnish coffee and eating *pulla*-pastry, just after the final large wave of COVID-19. In our interview a month later, I decided to probe whether Daavid's memories about environmental damage, shared at his first interview, were a collective experience. Maria and her husband moved to the region for work in the early 1960s, from central Finland, when the city was flourishing with work. Her responses were my first touches on the collective silence surrounding the industrial river:

> Interviewer: Was it much talked about among locals or did children discuss—
>
> Maria: Well, [*pause*] no, no, no it was [*pause, hesitates*], for locals, it just was this way. It was a familiar and natural thing, not much discussed.
>
> I: Even though, in the waters, fish were dying—
>
> Maria: Yes, well, everyone knew about it – that the Vuoksi fish were not eaten much, but now the factories are renovated and cleaned up, now it is completely fine, everything has changed.[62]

Such conversations became a common occurrence as the interviews progressed in the region. The deteriorating river ecology, rancid smells from the pulp and paper mill, and poison dumping had become common knowledge over the decades. They were rarely discussed in public or among friends or family but were instead 'silently witnessed' by residents who worked in the surrounding factories. This sentiment is evinced in Martha's memory (born c. 1950). She was born into a working-class family who worked at the copper factory; as an adult, she worked her entire career as a biologist for Enso-Gutzeit. When asked about pollution in Imatra, she recounted her memory in the following way:

> Pollution? Um, no, we did not have pollution at all. We were allowed to swim in [the Vuoksi river] and we did not talk about pollution. No, no, we used to go swimming in the copper industrial complex's area, and it was a lovely time. We just knew we couldn't swim if we didn't have the skill. … It had a clay, muddy bottom, but it didn't bother us. … We washed our rugs in it, and nobody talked about pollution.[63]

Her response startled me, and I stated that I possibly misremembered there ever being pollution – even though I had heard the opposite story from almost all other interviewees. She smiled, and we moved on to other questions. Her response, however, shows that by sharing only a positive story ('it was a lovely time') and not evaluating or elaborating further, she practised silence.[64] The

[62] Interviews with author: Maria, May 2022; Helena, Mar. 2023.

[63] Martha, interview with author, Sept. 2023.

[64] Teresa Puvimanasinghe, Linley A. Denson, Martha Augoustinos, and Daya Somasundaram, 'Narrative and silence: how former refugees talk about loss and past trauma', *Journal of Refugee Studies*, 28, no. 1 (2015), pp. 69–92, at pp. 70, 78.

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highly valued forestry industry provided the means to produce a silence among members of local communities, as the balance between monetary benefits to daily life and the necessity to support industry had to be kept.[65] However, probing this silence, by asking respondents why they collaborated with it, became imperative to understanding how working people navigated working life, lack of work safety, and factory infrastructure as a part of their lived experience.

Peter Burke reminds us that 'keeping silent is itself an act of communication', and this insight proved crucial to the analysis of the silences presented by respondents.[66] This social condition has 'structural features' that allows a society to 'limit access to relevant information, creating a system of strong disincentives to speak'.[67] When sharing a story that negatively impacts the narrator's subjectivity and self-worth, there is a higher tendency to repress or avoid the memory.[68] In such situations, people may not want to evaluate or elaborate on their memories – a practice which some respondents expressed. By choosing to remain silent and practising a collective amnesia about the existence of environmental change that is 'covert, unmarked and unacknowledged', feelings of unease over the state of the river and forests become easier to forget than to remember.[69]

Although in the 1930s some scientists acknowledged that Imatra's highly polluting forestry industry was harming its trees, there was little public discussion of the pollution produced by factories.[70] This dichotomy is noticeable through the Finnish Public Health Act (1927) and the Neighbourhood Act (1923), both of which permitted any amount of pollution as long as it was not considered harmful to one's neighbours. Neither act was changed significantly before the late 1970s because the economic value of the pulp and paper industry was seen as too great to make environmental concessions.[71] When asked about unique olfactory memories of Imatra in the 1960s and 1970s, many respondents glossed over the subject of the level of air pollution in their narratives by using the phrase 'money stinks' (*raha haisee*), or, as Joy Parr notes for Canadian industrial regions, 'money smells'.[72] Finnish has two words for smell: *haista* and *tuoksua*. *Haista* refers to bad smells, while *tuoksua* implies a pleasant aroma. The use of *haisee* is therefore an admittance or acknowledgement of money's putrid smell – while simultaneously silencing further discussion.

In the individual interviews, air pollution questions were met with a sense of embarrassment, as in Maria's case, or a desire to justify their existence by reference to the monetary value, as in Kim's explanation. Maria recalled: 'This place felt picturesque, [*pause*] the only minus was, when I first came here,

[65] Jokiniemi-Talvisto, 'Yhteiskunnan muuttuminen', pp. 71ff.

[66] Peter Burke, *The art of conversation* (Hoboken, NJ, 2013), pp. 123–4.

[67] Lilia Topouzova, 'On silence and history', *American Historical Review*, 126, no. 2 (2021), pp. 685–99, at p. 698.

[68] Puvimanasinghe et al., 'Narrative and silence', pp. 69–70.

[69] Paul Connerton, 'Seven types of forgetting', *Memory Studies*, 1, no. 1 (2008), pp. 59–71, at p. 67.

[70] Esko Kangas, *Tutkimuksia kaasutuhoista Imatran valtionpuistossa* (*Research on gaseous destruction in the Imatra national park*) (Helsinki, 1932).

[71] Marko Joas, 'Finland: from local to global politics', in Mikael Skou Andersen and Duncan Liefferink, eds., *European environmental policy: the pioneers* (Manchester, 1997), pp. 119–60.

[72] Parr, *Sensing changes*, pp. 147–8.

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that is, there was a specific scent [*laughter*], yes, stink, that is no longer around.'[73] During the interview, we both began to smile with her use of the word 'scent' (*tuoksu*), which then erupted into brief, barking laughter. She then corrected herself with the word 'stink' (*haiju*). This exchange illustrated the sensitivity of the topic, using laughter to convey shame and discomfort. Similarly, Kim (born 1960) recalls, 'There were of course those chimneys belching a never-ending stream of all sorts of things and [*pause*] and [*pause*] there was a terrible stink. My school was directly next to the Kaukopää factory and of course many parents worked there – so that meant that money stank there.'[74] Kim's description of the landscape with its 'never-ending stream' of pollution suggests an attempt to articulate what the factories were producing and to weave a story of acceptance surrounding the smell. He implies that his friends' families were dependent upon the 'stink', indicating that there was little incentive to politicize or problematize the factories' disregard for the continued pollution.

The distinctive employment of the phrase 'money stinks' was intriguing, as its usage in historical newspapers was quite limited. Both state and private media presented corporations as providing employment and ensuring the well-being of communities, and fostered a 'good neighbour' image, which became difficult to challenge – even though local fisheries and communities saw dead and dying fish in their rivers daily, avoided swimming in contaminated water, or suffered personally from the health effects of air pollution.[75] During the focus group interview, I enquired further about the usage and meaning of the term in its contextual usage in the region. Johanna (born c. 1975), who moved to the area in her early twenties, articulated,

> It does smell here, but in my opinion, this comment is tinged with jealousy and the way that I have used it myself, when someone has said [it smells] to me, I have then responded that it is money, and that, yes, that you can get used to the stink of money.

She continued, 'And then that kind of negative commentary stops there, when you respond back like that.'[76] I asked others if this was a typical response, and

[73] Maria, interview with author, May 2022.

[74] Kim, interview with author, May 2022.

[75] Tuomo Takala, 'The Finnish pulp and paper industry: a case study in media as stakeholder', *Corporate Communications: An International Journal*, 3, no. 3 (1998), pp. 99–105, at p. 100; Mikael Hildén et al., *Evaluation of environmental policy instruments: a case study of the Finnish pulp and paper and chemical industries* (Helsinki, 2002), pp. 39–40; Erkki Paananen, 'Valkeakoskea on turha parjata saasteista' ('It is unnecessary to clean Valkeakoski of pollution'), *Helsingin Sanomat*, 11 Mar. 1983, p. 18. See also Holger Harrivirta (dir.), *Ei ole Vuoksen voittanutta…* (*Nothing has conquered the Vuoksi*), IVO Oy (1956), https://finna.fi/Record/kavi.elonet_elokuva_111017?sid=3207355617 (accessed 19 Nov. 2024); 'Imatran nuori kauppala kehittynyt voimakkaasti' ('The new borough (*kauppala*) of Imatra has developed strongly'), *Helsingin Sanomat*, 24 Jan. 1958; Eino Mäkinen, Toivo Mansner, A. J. Salminen, and Allan Schmidt, *Imatra, Vuoksen kauppala* (*Imatra: the borough on the Vuoksi*) (Imatra, 1958); Anu Talka, ed., *Imatran kirja* (Imatra, 1997); Seppovaara, *Vuoksi*, p. 138; Nils Syörinki, 'Luonto ja Suomen kansa' ('Nature and the Finnish people'), *Suomen Kuvalehti*, 17 Mar. 1951, p. 2.

[76] FG, interview with author, March 2023.

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the focus group nodded or verbally agreed. This phrase had become a communal meta-narrative surrounding the pulp and paper mill which working people could use to acknowledge and produce knowledge about their local environment.

Throughout this conversation, and in the one-to-one interviews, there was an emphasis on eliciting shame in the one who breaks the silence to question the smell or, even more provocatively, discuss the dwindling state of forest resources.[77] Sara Ahmed, in writing about shame, argues that scholars ought to assess what 'shame does to the bodies whose surfaces burn with the intensity of its affect'.[78] She describes shame as a negation, of the body tingling as though burning. It is a painful feeling, which often causes the person to turn away and inward. By using shame as a tactic to silence protests, engagement, or elaboration on pollution, the community can protect its members' self-worth and subjectivity.[79] This tactic is noticeable in how Maria, Kim, and Johanna, for example, were quick to silence further discussion and refused to elaborate on the theme. Perhaps, some of the respondents tried to quench their shame at the situation, but they also used my enquiry to elicit shame in me for accidentally breaking the silence. Maria used uncomfortable laughter to express the painful feeling of shame inside her, while other interviewees, like Joonas, narrated a positive relationship to nature rather than focusing on his feelings surrounding environmental exploitation. This contestation between past pollution and a clean(er) present is, as Eviatar Zerubavel identified, a local 'conspiracy of silence, whereby a group of people tacitly agree to outwardly ignore' air and water pollution 'of which they are all personally aware' but are often reluctant to share in oral testimony.[80]

The sensory perception and memory of this air pollution is tied to specific spaces in South Karelia, which illustrates the expression of agency to avoid more polluted travelling and living in more polluted locations. All the participants spent their childhood and adulthood living with factory odours: their memories illustrate that residents were constantly aware of the wind direction, and bought or rented dwellings far enough away from the paper mill, but would not actively fight against the pollution levels in order to entice the heavily polluting industries to stay. As Eemil (born c. 1945) describes, in conjunction with Johanna's comments about stopping conversations about the smells, 'When living next to Kaukopää factory, all the changing rooms smelt, and after a while you could not smell anything, even when you came home from work. We only lived for six months by the factory, it was enough.'[81] Rather than complain, because that would threaten employment, people used their agency and moved – unlike in urban centres which hosted more active environmental movements and protests but also had fewer large-scale

[77] See also Tuomas Räsänen, 'Converging environmental knowledge: re-evaluating the birth of modern environmentalism in Finland', *Environment and History*, 18, no. 2 (2012), pp. 159–81.

[78] Sara Ahmed, *Cultural politics of emotion* (Edinburgh, 2014), p. 104.

[79] Ibid., pp. 104–5.

[80] Eviatar Zerubavel, *The elephant in the room: silence and denial in everyday life* (New York, NY, 2006), pp. 3–4.

[81] FG, interview with author, Mar. 2023.

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industrial complexes.[82] In the following extract, this communal expression of environmental knowledge and agency can be seen in how the three women participants in the focus group acknowledged the air pollution:

> Anne: I came from nearby Lappeenranta. So, I could smell how bad the factories smelled, and also the same smell was in Joutseno.
>
> Benjamin: Yes, well, it still makes a horrible smell.
>
> ...
>
> Helena: Yes, but, actually, when we left Lappeenranta, that far away, first it was said that the smell of sulphur gathered, and then Imatra's factories belched smoke, and then also smells from our neighbours [Russia]. I don't know about the Simpele factory, how much it stank, or what it was like with the wind. It felt like...
>
> Johanna: The smell just comes... When I moved to Imatra [in the 1990s], it smelled the same as in Lappeenranta. I don't think it gave me any breathing difficulties, but I know that this happened to many, and it gave them respiratory disorders. I did not really even pay it any attention, and the little it was talked about was to reiterate that we have work and well-being.... We do not know of anything else.[83]

The air pollution from the factories – with smells described as akin to rotting eggs or cooked cabbage – permeated most of the city's housing areas located near the factories and was a permanent fixture in everyone's lives. The malodorous compounds were mainly hydrogen sulphide, methyl mercaptans, and other sulphurous species that, even when released at legal levels, are highly poisonous aerosols and known carcinogens.[84] Maria displays a reluctance to explore what this air pollution meant for the local environment or her health, but her account also betrays a sense of shame relating to the stench and its spatiality: 'At the end of the 1970s and early 1980s, when Imatra residents would go on trips, and when they opened their suitcases, a familiar belch came from inside. So it permeated everything. That is how it was, but otherwise everything was good.'[85] With this non sequitur, Maria removes herself from the subject, distancing her subjectivity from the narrative. The smell that permeated the personal belongings, and indeed the person, of many inhabitants of Imatra also stigmatized them,

[82] Kristina Söderholm, Ann-Kristin Bergquist, and Patrik Söderholm, 'The transition to chlorine free pulp revisited: Nordic heterogeneity in environmental regulation and R&D collaboration', *Journal of Cleaner Production*, 165 (2017), pp. 1328–39, at p. 1338.

[83] FG, interview with author, Mar. 2023.

[84] T. Haahtela et al., 'The South Karelia air pollution study: acute health effects of malodorous sulfur air pollutants released by a pulp mill', *American Journal of Public Health*, 82, no. 4 (1992), pp. 603–5; see also Eva Andersson et al., 'Cohort mortality study of Swedish pulp and paper mill workers: nonmalignant diseases', *Scandinavian Journal of Work, Environment and Health*, 33, no. 6 (2007), pp. 470–8; Kjell Torén, Bodil Persson, and Gun Wingren, 'Health effects of working in pulp and paper mills: malignant diseases', *American Journal of Industrial Medicine*, 29, no. 2 (1996), pp. 123–30.

[85] Maria, interview with author, May 2022.

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indicating how populations living near heavy industry could be treated differently when travelling. The silence surrounding cancers and respiratory disorders in friends and acquaintances also shows the extent to which locals were willing to protect their paper industry.

Respondents' sensory memories about the pollution levels in the 1970s and 1980s were further probed during the focus group discussion. Benjamin, who was a technical maintenance worker at the hydropower plant, represented himself as having a close relationship to water. For him, showing visitors the river rapids in the 1970s elicited an emotional response, exemplifying the complex emotional style of articulating past feelings of pollution:

> Sometimes when I was with guests, I took them to see the river rapids summer show, and it was foaming and smoking. [*stuttering*] Like, [*hesitates*] like, I was so ashamed about that, to show it to guests. They could also see that now it was foaming and that the smell was from Kaukopää.[86]

His confession that he had felt shame about the state of the river in the 1970s prompted several other participants during the focus group session to verbally 'deny, hide, and escape from [the] shame-inducing situation'.[87] This self-silencing action was most likely localized, as other large cities in Finland were protesting for cleaner air policies from the government by this time.[88] Two female respondents and one male one were motivated to speak once Benjamin had broken the silence:

> Helena: Yes, I remember from my childhood those foam lumps, they were this size [*uses hands to indicate size*] and they floated on the surface of the Vuoksi and we still went swimming.
>
> Isla: Yes, yes, and my brother got this skin condition from it. But I cannot remember that. The doctor did say do not swim in the Vuoksi.
>
> Daavid: Well – well, it is true [that] those foam lumps were there, but we cannot blame all industrial waste on Kaukopää. The whole Saimaa area is filled with factories.[89]

The women who supported Benjamin by recounting their personal and familial experiences of the pollution exhibited empathy with his feelings and a willingness to break the silence. Daavid, who had worked at the paper factory in question, suggests in his responses both a strained sense of shame-motivated corporate loyalty, an unspoken deference to his former employer, and participation in silence on this topic. Although often siding with Enso-Gutzeit in this discussion, Daavid shared critical stories of his near-death experiences of

[86] FG, interview with author, Mar. 2023.

[87] Herant Katchadourian, *Guilt: the bite of conscience* (Stanford, CA, 2010), p. 135.

[88] Janne Mäkiranta, 'Clarifying the air: Finnish air pollution experts and the international quest for safe air, 1940s–1970s' (PhD thesis, Turku, 2021), pp. 148–9.

[89] FG, interview with author, Mar. 2023.

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accidentally inhaling hydrogen sulphide, which initially creates a strong, stinging smell but within seconds is odourless and deadly.[90] Once in contact with the gas, Daavid collapsed on the floor, unconscious, but was luckily found by a colleague doing rounds, who administered first aid immediately. These accounts of having near-death experiences or witnessing pollution while nevertheless maintaining long-term loyalty towards the company elucidate working people's complex emotional ties to industry, wages, and the environment.

Respondents use silences, sentences lacking subjects, laughter to communicate nonverbal embarrassment, and repetition to hesitantly share thoughts they find uncomfortable, or those they consider to be against the grain. In our first interview, Eemil, employed for most of his adult life at the paper mill, stated he did not remember smelling any air pollution emitted from the mill. He would not meet my eyes, keeping his head down, and demonstrated through his body position myriad emotions. He defiantly stood by this view, blaming the Soviets for any air pollutant smells in the area, as I asked him to clarify his meaning. The focus group discussion held the following day, in which the 'conspiracy of silence' was broken by several of his fellow community members and trusted friends, provided Eemil with the safety and privacy to speak at length about some of the pollution activities he had committed. With chagrin in his shaking voice and a piercing gaze directed at me, he recalled the following:

> Eemil: I remember one time when I was ordered by forestry manager [name], who, expressionless, said, 'Simply fire anyone who does not take [the DDT]', so there was always something like that. This only happened for a few years, and then it was decided to let us stop this game.
>
> Benjamin: I know that man. I think this poison was awful for nature, wasn't it? …
>
> Eemil: [*chuckles*] Another time I was ordered to go dump [*clears throat*]. [*pause*] One time we were out in the forest and first fished a lot of perch out of the pond, and then an airplane came that dispensed poisons into the pond and then the next day [I] had to fish new perch from the lake [*laughter*].[91]

The group situation gave Eemil a safe space in which to explore his past fear that he would be fired for noncompliance if he refused to take part in these activities, and his present embarrassment surrounding his actions. The communal laughter at the end of his anecdote suggests a communicative silence born of embarrassment and shame, as most participants knew of or participated in similar poisoning efforts. Eemil also shifted between the singular 'I' and the communal 'we' in his account, as a means of displacing responsibility for his actions onto others. Similarly, his insistence that he was only following orders to dump waste into the lake indicates his acceptance and internalization

[90] P. Jäppinen and R. Tenhunen, 'Hydrogen sulphide poisoning: blood sulphide concentration and changes in haem metabolism', *British Journal of Industrial Medicine*, 47, no. 4 (1990), pp. 283–5.

[91] FG, interview with author, Mar. 2023.

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of the corporate hierarchy – which was a highly masculine working environment. This sense of company loyalty could allow individuals to commit acts in their capacity as employees that they might have deemed wrong if they had done them in their own name. Although people can change their values, or adopt new ones, it appears that, for these interviewees, denial was the easiest way to forget their role in the pollution of their local environment.[92] As a result of monetary and emotional dependency, many struggled to discuss this pollution and its negative impacts – as it was easier to create structural constructs of silence.

Working people expressed their sense of agency through narratives of well-being derived from factories and heavy industry, repeating the teleological phrase 'now it is completely fine', and silently, but actively, remembering the worst-polluted locations. Throughout the twentieth century, Finnish people continued to have a complex relationship with forests, as the interviews indicated how deeply the capitalist interest in harnessing and exploiting nature for monetary gain had become embedded in private and public subjectivities over the period from the 1950s to the 1980s.[93] Respondents would emphasize the more recent environmental policies from the late 1980s and the European Union, indicating how residents had taken control of their historical past to create a communal redemption narrative. The interviewees could performatively accept the damage and placed emphasis on their hopes for a visibly clean future for the river in their narratives, which may be indictive of how they attempted to offset their guilt, shame, or anxiety about their past actions.

III

Through oral history projects with working people, Finnish environmental historians may gain new insights into how those people navigated environmental degradation and created local environmental knowledge as a part of their quotidian lives in industrial areas. Environmental histories have yet to tell the lives of those working and living in polluting industrial environments; in particular, Finnish environmental histories rarely explore how working people navigated pollution within their communities. Utilizing oral history methodology as a source for environmental history therefore shifts attention towards industrial workers and communities who may not have otherwise left an imprint of their lives in traditional archives. Oral history, and the additional value provided by using focus groups, yields new insights into the intricate relationships among community members, employment, pollution, and forest resources. This article has offered a model for how environmental histories of Finland could better engage with advancing histories of pollution, contamination, and rivers in industrial towns.

As oral history is always as much about the past as about the present, contemporary conflicting relationships with the intense economic use of forests

[92] Eemil, interview with author, Mar.2023.

[93] Erkki Mäntymaa, *Kainuulaisten metsäasenteet 1997* (*The Kainuu people's attitude to forests, 1997*) (Kajaani, 1998).

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impact how memories and emotions about past actions or inaction can be expressed. It is easier to be silent about one's past actions, and about the uncomfortable interaction between corporate values and one's personal relationship with nature, than to attempt to work through feelings of discomfort, shame, and embarrassment in an intimate interview setting with a stranger. Therefore, the focus group methodology allows the researcher, the community outsider, a way to understand the existing silences and the emotions this silence evokes in respondents. Providing a situation where participants were friends or acquaintances eases tensions and builds rapport. Using a focus group approach in addition to individual oral history enriches environmental history, enriches local communities' understanding of their environment, and provides a personable space to discuss complex memories with familiar faces. Memories of pollution sparked a much wider discussion about how my interviewees' memories played a significant part in how they understood the present-day climate crisis.[94] The space thus created allowed the group to collectively deal with shame surrounding the actions – or inaction – of individual members in relation to what they saw as the region's major polluting industries.

Through close examination of Imatra, an industrial river community, from the 1950s to the 1980s, this article has illustrated why community members, who were often employed by polluting companies, performed acceptance of industrial pollution through phrases such as 'money stinks', while some respondents also expressed shame and embarrassment regarding their personal involvement many decades afterwards. Laakkonen and Vuorisalo portray the working class as passive regarding pollution, yet the oral history evidence indicates a more nuanced position.[95] Working people represent themselves as witnesses of pollution but conspired to keep the status quo to ensure their livelihoods. These difficulties are indicative of the strength of emotions concerning the impact of pollution to this day; a reluctance to discuss such issues suggests a desire to forget. Industrial communities participate in 'conspiracies of silence' surrounding air and water pollution, using collective shame that, while in one sense acknowledging the damage to nature and the local ecology, stops dissident opinions from forming.

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[94] Tim Jensen, *Ecologies of guilt in environmental rhetorics* (London, 2019), pp. 54–5.
[95] Laakkonen and Vuorisalo, 'Ympäristökysymys', pp. 288–90.

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