Steamboat accidents and the rules of the seas in 19th century Finland

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I Introduction

Steam power was a remarkable invention in the eighteenth century. It gave a remarkable impetus for the industrial revolution and transformed the economy. One significant application of this new invention was the steamboat, invented in the late eighteenth century. Regular steamer traffic was established during the quarter of a century following the invention of the steamboat. This enabled far more efficient water transportation than before. Once steamers rolled the seas and the rivers, navigation was no longer dependent on winds and currents. Furthermore, steamboats provided faster transportation of a higher magnitude of both goods and people than what was previously possible.[1]

This paper examines the legal challenges that came along the rise of the steamboat regarding maritime accidents, the main focus being on collisions. Since steam enabled faster navigation in various kinds of waterways regardless of the weather, it also increased the accident proclivity of the ships. Thus, it also forced the law to keep in touch with these new problems. Of course, nineteenth-century marked a considerable increase in shipping, which also contributed to the rise in accident rates. It is, therefore, difficult to single out the consequences of steam, although it seems that steam played an important role in the change in the law, particularly regarding the inland waters. Furthermore, the arrival of the steamboat caused completely new problems, such as the explosions of the steam engine and fires caused by the sparks of the engine.

I will point out that because of steamers, the rules of navigation were specified and clarified, and they became more important in preventing maritime collisions. Steamers also affected the rise of more professionalized and specific control over maritime transportation. Despite these changes, the rules of navigation did not change remarkably. In general, the rules preventing maritime collision stayed the same as they were before the advent of steam. Since seafaring is a trade with over two thousand years of history, the rules for solving its problems already

[1] See in general Thomas Crump, A Brief History of the Age of Steam: The Power that Drove the Industrial Revolution (New York: Carroll & Graf Publishers 2007); Gavin Weightman, The Industrial Revolutionaries: The Making of the Modern World, 1776–1914 (New York: Grove Press 2007); William Rosen, The Most Powerful Idea in the World (New York: Random House 2010).

existed at the nineteenth century. Therefore, steamers rather modified the already existing law than changed it considerably. The history of the steamboats and the law thus illuminates a situation in which an innovation changes the nature of an old trade and causes considerable economic and social changes, but which does not however necessitate remarkable changes in the law. The more precise and clear regulation, as well as the specification on some particular branches of the trade, such as passenger transportation, are thus the most important legacy of the age of steam for law.

II History of steamboats in Finland

The history of steamboats in Finland can be divided into three periods. The first period, ranging from 1833, when the first Finnish steamer, *Ilmarinen*, began to navigate the inland waters of Saimaa, to the mid-1850s, when the Crimean War halted the nascent development, witnessed the emergence of steamers and steamer companies. The second period ranges from the 1860s to the beginning of the First World War in 1914. During these decades, Finnish shipping shifted from sail to steam, although sailing vessels maintained their majority in the Finnish fleet. This period can further be divided into two sub-periods, the first being from the 1860s to the 1880s, and marking a slow rise of steam, whereas the second period, from the 1890s to the mid-1910s, meant rapid growth. The third period marks the eventual demise of steam. This period covers the years from the 1920s to the beginning of the 1980s, and can also be divided into two sub-periods. First, from the 1920s to the late 1950s, steamers dethroned sailing vessels as the most important ships in Finnish shipping. Second, steamers were superseded by motor ships. This slow transformation began already after the Second World War, and intensified from the 1950s onwards. The history of steamers in Finland thus covers about a century and a half, witnessing a slow rise and a rapid decline.

The idea of a boat running on steam power is centuries-old, but the first efforts to put the idea in practice were made in the eighteenth century, and it came to revolutionize seafaring in the nineteenth century. Before James Watt developed an efficiently working steam engine in the late eighteenth-century, steam-power was unreliable and quite low in force.[2] Once there was a functional engine, steamboat was about to become a reality. In 1787, the American inventor John Fitch made the first successful trial with a steamboat on the Delaware River, and received a patent in 1791 over a battle against James Rumsey who also had made the

[2] B.E.G. Clark, Steamboat Evolution: A Short History (Lulu 2007), 11–50; Weightman 2007, 49–55; Crump 2007, 50–63.

same invention. However, it was not until 1807 and Robert Fulton that the first commercially successful steamboat navigated the American rivers. Only five years later, a regular steamer line was established.[3] Steamboat technology developed considerably during the first decades of the nineteenth century, and steamers made their breakthrough in the United States as well as in Europe, transforming the maritime transportation.[4]

With respect to steamboat evolution, Finland was somewhat behind the larger nations. In the nineteenth century, Finland was a backward country, or a Grand Duchy of the Russian Empire conquered from Sweden in 1809. The first Finnish experience with steamboats occurred in 1821 when a Swedish steamboat, a paddle-wheeler named *Stockholm,* first visited the port of Turku.[5] The Swedish then operated a steamer line between Turku and Stockholm for some time. There were plans of initiating a Finnish steamer line in the 1820s, which, however, failed.[6] In 1833, the age of steam began. Frustrated with the difficulties of transporting lumber with sailing vessels, the sawmill owner Nils Ludwig Arppe made a petition to the senate to build a steamboat for log driving at the Saimaa waterways in 1832. A year later, the first Finnish steamboat *Ilmarinen* began to navigate. The hull of the boat was made in Finland while the engine was made in St. Petersburg, from where also the English John Reed came to supervise the installation of the engine and to educate the crew.[7]

Although the age of steam shipping in Finland began in sawmills industry, the big coastal towns were the pioneers in developing the trade. The first Finnish steamboat company, *Åbo Ångfartygsbolag*, was founded in 1835 in Turku. It first operated with two steamboats, one built in Turku and another in England, on the routes between Turku and Stockholm, and between Turku, Helsinki, Tallinn, and St. Petersburg.[8] In the late 1830s, businessmen in Helsinki, the capital of Finland, realized the potential of steamers to support the growing

[3] Andrea Sutcliffe, Steam: The Untold Story of America's First Great Invention (New York: Palgrave Macmillan 2004), 101–118, 179–207.
[4] Louis C. Hunter, Steamboats on the Western Rivers: An Economic and Technological History (New York: Dover 1993), 27–52, 59–65.
[5] Yrjö Kaukiainen, A History of Finnish Shipping (London: Routledge 1993), 86; Erkki Riimala (ed.), Suomalaisia höyrylaivoja 150 vuotta maailman merillä ja kotivesillä (Suomen Höyrypursiseura ry 1983), 27.
[6] Ernst Lindberg, Åbo sjöfarts historia III: Ångbåtssjöfart i Åbo, 1836–1928 (Åbo: Åbo tryckeri och tidnings aktiebolag 1928), 4–8; Erkki Riimala (ed.), Suomen merenkulun historia 2: Höyryveneistä uiviin loistohotelleihin (Porvoo: Werner Söderström Osakeyhtiö 1994), 29.
[7] Olof Mustelin, Nils Ludwig Arppe: Karjalan teollisuuden perustaja (Porvoo: Werner Söderström Osakeyhtiö 1973), 47–50; Erkki Riimala (ed.), Ilmarinen kautta aikojen (Helsinki: Eläkevakuutusyhtiö Ilmarinen 1981), 4–6; Helsingfors Tidningar 31.8.1833, p. 2.
[8] Per Schybergson, Aktiebolagsformens genombrott i Finland: Utvecklingen före 1895 års lag (Helsinki 1964), 21, 116; Lindberg 1928, 12–23; Jorma Pohjanpalo, Suomen kauppamerenkulku ja erityisesti linjaliikenteen osuus siinä (Porvoo: Werner Söderström Osakeyhtiö 1949), 49; Riimala 1994, 34–35; Kari Jokinen, Suomen rannikoiden höyrylaivaliikenteen varhaiset vuodet 1837–1854 (Unpublished Master's Thesis: Helsingin yliopisto 1994), 1–2, 58.

tourism in the city. Thus, passenger transportation in regular lines in Helsinki was established in the late 1830s.[9]

The latter half of the nineteenth century proved to be a significant time for the development of steamboat traffic. From the 1860s onwards, the number of steamboats began to grow at an accelerating speed, in part because of the state support to steam shipping,[10] and in part because of the liberalization of sawmill regulation in 1861.[11] The 1870s and 1880s were still a time of slow development, but the late nineteenth and the early twentieth centuries marked a more rapid development, and thus also the transformation from sail to steam,[12] even if steam did not dethrone sailing vessels as the most common ships in the Finnish fleet until the inter-war years.[13]

By the early twentieth century, competition in the steamer business had increased considerably.[14] However, the development of railways had somewhat reduced the importance of steamboats at the late nineteenth century.[15] Coastal steamer lines began to decline from the 1880s onwards,[16] and "[d]uring the nineteenth century, the development of railways and the introduction of steam shipping in many cases created a new division of labor between sea and land transport."[17] Long distance passenger carrying was hurt the most in inland traffic.[18] The First World War and the Finnish Civil War in 1918 crippled Finnish shipping which had to re-emerge during the 1920s.[19] Steam shipping did relatively well in the 1930s,[20] but after the Second World War, Finland had to surrender a significant number of steamers to Russia as war reparations.[21] Already by the beginning of the war, transportation by railways and cars had driven steamers out of business in the inland waters, and after the war motor ships became more common.[22] By the 1980s, the century and a half long life cycle of steamers had come to its demise.

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[9] Erkki Riimala, Höyryä Helsingin vesillä: Pääkaupungin paikallisliikenteen höyryveneitä ja saaristoreittien matkustajahöyrylaivoja (Helsinki: Art-Print/Suomen laivahistoriallinen yhdistys r.y. 1987), 31.
[10] Kaukiainen 1993, 86–88, 110–111.
[11] Riimala (ed.) 1983, 289.
[12] Yrjö Kaukiainen, Sailing into Twilight: Finnish Shipping in an Age of Transport Revolution, 1860–1914 (Helsinki: SHS 1991), 60–68, 201–206.
[13] Kaukiainen 1993, 110, 123, 139; Riimala (ed.) 1994, 158.
[14] Riimala 1983, 295–305, 316–319; K.I. Karttunen, Saimaan vesistön höyrylaivaliikenteen 100-vuotishistoria (Helsinki: Suomen Kirja 1945), 559–565; Kaukiainen 1993, 111–115.
[15] Riimala 1994, 60–61.
[16] Riimala 1983, 180.
[17] Kaukiainen 1993, 3.
[18] Karttunen 1945, 199.
[19] Pohjanpalo 1949, 149–150.
[20] Kaukiainen 1993, 137–143.
[21] Riimala 1983, 103–104; Riimala 1987, 173–177; Pohjanpalo 1949, 250–251.
[22] Riimala 1983, 14, 44–45; Yrjö Kaukiainen & Pirkko Leino-Kaukiainen, Navigare necesse: Merenkulkulaitos 1917–1992 (Helsinki: Merenkulkuhallituksen julkaisu 1992), 174.

III Steamboats and the rules preventing maritime collisions

1 International development till the 1850s

In this section, I shall take a brief look on the historical development of the law relating to maritime accidents. Since such disasters as boiler explosions and fires caused by the sparks of the engine came into being only after the invention of the steamboat, I will only deal with maritime collisions. The development of the regulation regarding the steam engine in Finland will be discussed in the next section in its context.

Although steam technology was unexampled and caused much confusion, the invention did not cause a legal revolution. After all, the law of the seas is thousands of years old. Already the ancient Greece produced a "well developed system of maritime courts and law,"[23] on which the later Roman maritime law was based.[24] Around 600 and 800 AD, a well-known Rhodian sea law came into being, which formed the basis to later development.[25] From the twelfth century onwards, various maritime codes were enacted around Europe.[26] The economic expansion of the nineteenth century encouraged clearer and more specified regulation, as well as international cooperation.[27]

Shipwrecks have been part of seafaring from the beginning. Whenever an industry involves more than just one interest, deviations in the planned course of events will cause conflicts that must be resolved. With respect to maritime navigation, averages and collisions at seas have always caused trouble. Whereas averages have been a problem since the beginning, the significance of collisions has increased in the course of time along the development of technology and the growth of the traffic. The problem of collision is one of the most obvious examples in which the rise of the steamboat caused notable change. This change was, however, adapted to the existing rules, thus causing only moderate changes in the law.

The law of collisions at sea is a troubling puzzle, involving problematic questions of fact and law. "Although the law of collision has existed for thousands of years, it still continues to

[23] David R. Owen, The Origins and Development of Marine Collision Law, 51 Tulane Law Review 759, 759 (1977).
[24] Ibid. 759–760.
[25] Walter Ashburner, The Rhodian Sea-Law (Oxford: Clarendon Press 1909).
[26] Gordon W. Paulsen, An Historical Overview of the Development of Uniformity in International Maritime Law, 57 Tulane Law Review 1065, 1069–1073 (1983).
[27] R.P. Anand, Origin and Development of the Law of the Sea: History of International Law Revisited (The Hague: Martinus Nijhoff 1982), 127–137.

be updated, applied, and refined."[28] As we saw, the law of the seas existed already in ancient Greece and in the Roman Empire, both of which systems included the rules of collision. The Roman law was based on the general civil law rules of liability. Thus, the one who caused the collision was liable to pay the damage, and if both parties were responsible for the collision, they had to bear their own damage.[29] The general outlines for the liability in ship collision were thus laid in the ancient times, and the accident was basically dealt with like any other accident.

The millennium from the "Roman-Rhodian" sea-law to the maritime codes of the early modern period was a time of slow but steady development of the law of collisions. The industrial revolution and the expansion of the economy in the early nineteenth century, however, changed the nature of shipping and seafaring. The advent of steam and the generally increased maritime traffic made collisions more frequent, thus encouraging the British to develop rules to prevent collisions in the 1840s and 1850s.[30] At the first part of the century the rules were created in practice. Later they were confirmed in statutes and court practice of various countries.[31] British Steam Navigation Act of 1846 prescribed white masthead light and red and green side lights for steamers, and in 1858 the rules were extended to sailing vessels, along with the stipulations on fog signals.[32] These rules became internationally accepted from the 1860s onwards,[33]being accepted in the United States, for example, in 1871.[34]

Once the rules to prevent collisions were laid, the remaining question was, as it had been since the time immemorial, which ship was to blame for the collision.[35] The question of fault

[28] Robert P. McCleskey, Jr. & Jeremy A. Herschaft, Unique Features of Maritime Collision Law, 79 Tulane Law Review 1403, 1420 (2005).
[29] Harald Hellström, Om skada genom fartygs sammanstötning enligt sjölagen den 9 juni 1873 och lagen den 17 februari 1923, JFT 1925, 294. There was also the old Germanic law according to which the owner of the ship had to bear the damage of his ship despite subjective fault. There were thus two sets of rules of ship collision, one used in the Northern Europe and the other in the Mediterranean area. These two sets of rules somewhat merged during the Early Modern Period. (Ibid. 295–296). Despite the uniformity of systems, there was no universal or supra-national sea law, but the laws of the various towns and countries differed. (Edda Frankot, Medieval Maritime Law from Oléron to Wisby: Jurisdictions in the Law of the Sea, in Communities in European History: Representations, Jurisdictions, Conflicts (Pisa: Edizioni Plus 2007), 151–172). Compare with William Tetley, The General Maritime Law – The Lex Maritima, 20 Syracuse Journal of International Law & Commerce 105–145 (1994). "The *lex maritima* (the *ius commune* of maritime law) was quite uniform throughout Western Europe, until about the sixteenth century." (Ibid. 109, italics original).
[30] Owen 1977, 783–784.
[31] R.G. Marsden, Collisions at Sea (London: Stevens & Sons 1923), 51–52.
[32] A.N. Cockcroft & J.N.F. Lameijer, A Guide to the Collision Avoidance Rules (Oxford: Elsevier Butteworth-Heinemann 2004), xiv; Allington and Greenhill 1997, 135.
[33] Owen 1977, 784.
[34] The Scotia, 81 U.S. 170, 171–172 (1871).
[35] A. Hindenburg, The Fault in Cases of Collisions at Sea and the Responsibility of Shipowners, 64 The Law Quarterly Review 355, 355 (1900).

was not, however, easy to point out, and the cases of collision involved several difficulties.[36] Another problem arose along the rise of steamers, concerning the division of liability between steamers and sailing vessels in cases of collision. This problem was resolved in the 1830s by laying down that should a threat of a collision occur between a steamer and a sailing vessel, the former had to give way to the latter. The presumption of fault thus was on the steamboat, but this presumption could be overturned if there was evidence to prove the windjammer being in fault.[37] Furthermore, the distribution of damages was a further problem, and by the late nineteenth century, four different kinds of systems existed. The most common system, however, was to apportion the loss according to the level of guilt of the ships in question.[38]

The international rules preventing ship collisions were established in the mid-nineteenth century. They did not change the general rules, but specified them. The general question was still to found out which ship was in fault. However, because of the increased accident frequency, specific statutory rules were established to prevent collisions. These rules included special types of lights at the sides of the vessels as well as warning sounds. The technologic and economic development thus forced the maritime nations to specify their rules of navigation as well as unify them. Moreover, because steamers were a more recent invention representing more hazardous technology, and because they were easier to navigate, it was quite natural to place stricter standards of care to them.

2 *Development in Finland in the mid-nineteenth century*

The emergence of the new technology and the problems that came along were early noted in Finland. However, the government greeted warmly the invention, and did not intervene in the efforts to bring the new technology in use. The dangers of steamers were apparent, the most obvious problem being the safety of the engine. Newspapers reported actively on the steamers accidents abroad,[39] the accident of a Swedish steamer in 1836, for instance, being reported in *Åbo Tidningar*.[40] In 1837, an unsigned newspaper article warned about the dangers of the new

[36] See, e.g., Hindenburg 1900; Graydon S. Staring, Contribution and Division of Damages in Admiralty and Maritime Cases, 45 California Law Review 304–345 (1957).
[37] Marsden 1923, 35, 41; Owen 1977, 768, 775; The Pennsylvania, 86 U.S. 125 (1873).
[38] Louis Franck, Collisions at Sea in Relation to International Maritime Law, 42 The Law Quarterly Review 260, 260 (1896). The proportional rule was in force, for example, in France, Scandinavia, Belgium, Greece, and Portugal. The other types of systems were the division of loss, leaving the loss where it falls, and general average contribution. (Ibid.). In this regard, the liability of the shipowner has also been a pressing problem with various solutions. (Helge Klæstad, Rederansvaret (Kristiania og København: J.W. Cappelens forlag 1920), 1–31.)
[39] Jokinen 1994, 45.
[40] Åbo Tidningar 25.6.1836, p. 1.

vessel, referring to the explosions of steam engines in England and Northern America. Thus, the article declared, the regulation and maintenance of the steam engine must be strict to get the best out of the benefits of this new invention.[41] The benefits of the steamship were realized from the beginning,[42] and since steamers were considered to be safe despite their potential dangers, the interest in maximizing their benefits was high once the traffic had begun.[43]

Safety of the waterways was an obvious concern. The increased water transportation as well as its changing character thus required new rules to prevent accidents. Although steamer traffic was rather rare in Finland in the 1840s, the Russian Empire took care that the law in Finland was in touch with the international development. Since Russia participated in international cooperation for creating the basis for mutual principles in international seafaring and trade,[44] it is very likely that she also followed the development of rules regarding steamers. The first Finnish rules on steamer navigation in dark-time were handed out in a proclamation of 1849.[45] These rules conformed to the British rules of 1846, thus making the Finnish law international in this regard. The proclamation laid out the general rules for steamers during dark time navigation. They stated that there must be three lights on a ship; a white light on the foremast or above the ship, red light on the port side, and green light on the starboard. These lights were to be shielded so that they would be visible to ships that approach from the sides of the lights. Once the steamers carried similar lights, it was simple to regulate how the boats should pass each other.

Besides the rules preventing collisions in dark, the 1850s witnessed several other rules which improved the waterways. For instance, the new law on the institution of maritime pilots and lighthouses of 1857 obligated improvements on marking the waterways.[46] These rules were, of course, obviously given for the general navigation, not simply for steamers. Nonetheless, the legislator was aware of the dangers of the sea. In 1858, the rules preventing maritime collisions were reformed, including now both steamers and sailing vessels.[47] Following international example, sailing vessels were required to have only the green light on

[41] Helsingfors Tidningar, 26.7.1837, pp. 1–3.
[42] Finlands Almänna Tidning, 5.7.1833, p. 1; Åbo Underrättelser, 4.2.1835, pp. 2–3, 7.2.1835, pp. 2–3; Åbo Tidningar 24.5.1837, pp. 1–3, 27.5.1837, pp. 1–3; Helsingfors Tidningar, 17.6.1837, p. 1.
[43] Helsingfors Tidningar, 17.3.1838, pp. 1–3, 5–8.
[44] J.N. Lang, Finlands sjörätt: Föreläsningar II (Helsingfors: Weiling & Göös 1910), 33.
[45] Hans Kejserliga Majestäts Nådiga Kungörelse om hwad iakttagas bör, till förekommande af ångbåtars sammanstötande under färdandet i mörker, 28.3.1849.
[46] Hans Kejserliga Majestäts Nådiga Förordning, angående Lots och Båkinrättningen i Finland, 30.3.1857.
[47] Hans Kejserliga Majestäts Nådiga Kungörelse, angående hwad iakttagas bör, till förekommande af fartygs sammanstötande under färdandet i mörker och wid inträffande tjocka, 27.8.1858.

the right side and red light on the left side of the ship, not white light above, and the lights were to be seen only two miles as compared to the five miles that the steamer's lights had to be seen.[48] In addition, a thorough regulation of passenger steamers was enacted in 1859, including rules on engine maintenance and crew requirements.[49]

The rules on collision were revised again in 1863, on the basis of English and French regulation, as was declared in the preface of the decree.[50] The general willingness of keeping pace with the international development was obvious also in the fact that the changes made on the rules preventing ship collisions in Sweden were published in a newspaper 1864.[51] In any event, the rules themselves did not deviate much from the earlier regulation, but they specified the standards to an extent. One noteworthy change was that the new decree required steamers to swerve sailing vessels should they be on a colliding course.[52] Since this rule had been approved as the law in Britain in the previous decade, this was another expression of how internationally known rules were stipulated in the law of Finland. In addition to the fact that steamers were under stricter rules as to the warning lights, they also had to take more responsibility for preventing collisions.

The Finnish maritime code was revised in 1873.[53] It confirmed the position of international rules regarding collision by referring to the collision rules of 1863, as well as laid definite rules for average. The code stated that the one in fault on collision had to pay the damages, but if both parties were to blame, the loss was to be apportioned according to the level of guilt,[54] thus confirming the proportionality rule in Finland. Since these rules were based on international law, they were to be interpreted in accordance with the rules of the other maritime nations.[55] No difference was made between steamers and windjammers regarding the reliability in collisions or average.[56] These rules had already somewhat matured in the Swedish-Finnish decree on average and maritime insurance of 1750, and the maritime code of 1873 did not mark a considerable deviation from them.[57]

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[48] Ibid. I–II.
[49] Hans Kejserliga Majestäts Nådiga Förordning om hwad wid utredningen af finska ångfartyg och deras begagnande till att fortskaffa resande bör iakttagas, 18.4.1859.
[50] Keisarillisen Majesteetin Armollinen Julistus siitä mitä waarin-otettawaa on laiwain yhteen-sattumisen estämiseksi merellä, 6.5.1863. See also Helsingfors Dagblad 26.5.1863, p. 1; 29.8. p. 1.
[51] Suomen Julkisia Sanomia 3.3.1864, pp. 1–2.
[52] Julistus 6.5.1863, 15.
[53] The previous maritime code was from 1667, and it was hopelessly outdated by the mid-nineteenth century. See in general, Kjell Å Modéer (ed.), 1667 års sjölag i ett 300-årigt perspektiv (Stockholm: A.-B. Nordiska bokhandeln 1984).
[54] Merilaki Suomen Suuriruhtinanmaalle, 9.6.1873, 154–155 §.
[55] Lang 1910, 122–126.
[56] Merilaki 9.6.1873, 133–153 §.
[57] Lang 1910, 9–10; Hellström 1923, 297.

In general, then, steamers and sailing vessels were treated alike, although, as we saw, the law obligated the steamers to dodge sailing vessels if possible. This practice was established internationally already in the 1830s, and later enacted as a statutory rule in 1863.[58] Moreover, on the basis of the lectures on maritime law of Joel Napoleon Lang, held in the late nineteenth century but published in 1910, in a collision between a steamer and a windjammer, the presumption of fault was in the former unless otherwise proven.[59] It was clear that steamers had to be more careful because of their mobility and speed. Besides this primary responsibility, however, there was no particular difference in the legal treatment of these two types of ships.

Although the rules on the collisions at sea were clarified, and although steamer accidents raised public interest, the fact as to whether the law changed because of steamers is not as simply as it may seem. It seems obvious that steamers were collision prone and formed a vast majority of the ship collisions by the beginning of the twentieth century.[60] However, if we look at the statistics from 1870s, steamers formed minority of the global fleet,[61] and, furthermore, collisions between sailing vessels were in fact more frequent than collisions between steamers.[62] It seems, then, that the increased level of accidents and collisions followed the growth of the ship size and the level of the traffic as much as it did follow the rise of steamers.[63] Moreover, it was noted in the United States in the 1830s that steamers were no more dangerous than any other vehicle and that they in fact were safer than sailing vessels.[64] The mid-nineteenth century marked changes in navigation, and it is difficult to say which reasons were decisive for the legal changes. However, since steam power was new in navigation, the accidents that occurred to steamboats caused more concern among the general public. Thus, even if the need for better rules navigation followed the general changes in seafaring, they were often argued and validated by referring to steamers.

The development of the rules on collision and average in Finland points out two things at last; the Finnish rules followed international development, and there was no remarkable difference between the legal treatment of steamboats and sailing vessels. Of course, steamers

[58] Marsden 1923, 380.
[59] Lang 1910, 130.
[60] Møller 1914, 11–13.
[61] Hvarjehanda, Tidskrift i sjöväsendet, 1870, no 7, p. 227.
[62] Om nu gällande seglationsreglor till förekommande af sammansegling, Tidskrift i sjöväsendet, 1870, no 3, p. 69. The statistics include only collisions involving British vessels, but there is no need to assume that they would not describe the situation in general, since Britain was the biggest maritime nation at the time with the biggest steamer fleet.
[63] See also Lang 1910, 121.
[64] Hunter 1993, 250.

were considered more dangerous than windjammers, and they were placed under stricter rules, as well as under primary obligation to yield. Otherwise the difference was not considerable, and the rules on general average, for example, were the same for both ship types.

IV Steamer accidents and the law in Finland

In this section, I will briefly examine how the law responded to steamboat accidents in Finland in order to sort out the main lines of development. I shall focus on three types of accidents. First, I will deal with maritime collisions. Second, I will examine how the law dealt with the hazard that was caused by the sparks flying out of the chimney. The third focus concerns steam engine explosions.

1 Steamers and maritime collisions

The first problem we encounter is the problem of maritime collisions. Since steamboats revolutionized navigation, it would seem probable that they had a major impact on this part of the law. However, a closer look at the law points out that this was not the case. In fact, the rules for preventing maritime collisions remained basically the same as they were before the age of steam. Steamers were adapted to these rules, but they were placed under stricter standards of care to prevent collisions. In general, the rules preventing maritime collision were clarified and enacted as statutes during the early phase of the age of steam.

As we saw, the crucial question in dealing with maritime collisions is to find out which ship is to blame for the accident. A couple of examples from the waterways of Saimaa, where steamer accidents were especially frequent, illuminate the problem. In July 1889, for instance, two collisions occurred at approximately the same area. The first one was between steamers *Ainamo* and *Karjala*. The former hit the latter at night, tearing its side, and leaving the damaged ship on its own on the waters.[65] Later, both ships blamed the other for the incident. The captain of *Ainamo* claimed that the night was so dark that his ship could not see the other ship which, on the other hand, should have seen *Ainamo*. The captain of *Karjala* argued that they did everything they could to avoid the collision but were overran nonetheless.[66] This collision occurred at a wide and open waterway. The night was obviously dark, but this only

[65] Lappeenrannan uutiset, 23.7.1889, pp. 2–3; Uusi Suometar 21.7.1889, p. 2; Nya Pressen 22.7.1889, p. 2.
[66] Nya Pressen 31.7.1889, pp. 1–2; Nya Pressen 1.8.1889, p. 2.

raised the question as to whether neither of the ships carried the lights required by law. The reason for the accident seems to have been the laxity of the captains and the crew. As was often the case, the maritime declarations were very ambiguous.[67] The case went into trial but was eventually settled out of court.[68]

The other collision occurred between steamboats *Wellamo* and *Konkordia*. The ships had approached each other at a narrow waterway, and were unable to dodge each other. The former thus hit the latter with the consequence that *Konkordia* sank. The passengers were rescued, however.[69] In this case, too, the waterway was open, although narrow, and it was a bright day. According to the maritime declarations, the collision occurred because of the failure to comply with rules for dodging. The pilot of *Wellamo* was obviously to blame for, even though the captain claimed that the rudder was dysfunctional.[70]

In cases of collisions between steamers the problem was clear; the court had to simply find out which vessel was to blame.[71] Collisions concerning a steamer and a sailing vessel were bit more problematic. As we saw, the rules preventing maritime collisions stipulated that steamers should give way to sailing vessels should they be on a colliding course. This did not mean strict liability for steamers, however. Although steamers bore the primary responsibility, they could avoid their responsibility if it was proved that the sailing vessel was in fault. The United States Supreme Court clearly expressed this in 1871 in a case in which a sailing vessel and a steamer had collided, and the steamer was exempted from liability because the sailing vessel had failed to comply with the law on warning lights.[72] This rule was clear in Finland as well, as can be seen from the practice of the justice department of the senate. In 1903, in a case of collision between a sailing vessel and a steamer, the justice department considered the ship in fault to be the steamer despite the fact that the sailing vessel did not carry any lights. The decision was based on the conclusion that the steamer must have seen the sailing vessel and been able to dodge.[73]

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[67] Nya Pressen 1.8.1889, p. 2.

[68] Karjalatar 29.4.1890, p. 2; Nya Pressen 6.5.1890, p. 4. Steamer companies typically settled their issues out of court. This was they saved time and money and avoided an inconvenient sentence.

[69] Östra Finland 26.7.1889, p. 2; Savo 27.7.1889, p. 2; Nya Pressen 29.7.1889, p. 2. Apparently the reason for the collision was that *Wellamo*'s pilot turned the wheel into wrong direction accidentally and was then frozen, thus causing the ships to collide. (Uusi Suometar 19.7.1890, p. 2).

[70] Savo 30.7.1889, p. 2; Östra Finland 1.8.1889, p. 2; Finland 2.8.1889, p. 4; Sanomia Turusta 3.8.1889, p. 2.

[71] This has been proved by the practice of the justice department of the senate, which was the highest judicial organ in Finland in the nineteenth century. See, e.g., the decisions of the justice department (Oikeusosaston arkistot, tuomiot) 17.4.1901, 415; 5.2.1902, 99; 1.11.1904, 603.

[72] 81 U.S. 170 (1871).

[73] Senaatin oikeusosaston arkisto, tuomiot, 30.4.1903, 289. A difference between the American and the Finnish case was that in the former the sailing vessel carried wrongly a white masthead light, thus incorrectly signaling

As we can see, the rules on collision did not change because of the steamers. However, they were written down in clear and definite matter, and renewed frequently. Nevertheless, the basic principle remained the same; the question was to find out which ship was to blame for the collision, and the damages were distributed in proportion to the fault. Steamers held a primary responsibility, which could be ignored if the fault was proved to lie on the side of the sailing vessel. In regulating maritime collisions, the Finnish law followed the international rules used in Europe. However, a particular problem regarding steamboat traffic was general non-compliance to law.[74] Thus, even if the rules were clear, problems and accidents occurred frequently because the rules were not followed very often.

2 Steamers, fires, and damage

The steamboat engine was dangerous, since it operated with fire, heat, and extreme pressure. Two hazardous consequences were fires caused by the sparks flying out of the pipes of the ship, and boiler explosions. Although Finland witnessed nothing like the St. Louis fire in 1849, caused by a steamboat and leading to the destruction of various houses and steamboats,[75] the sparks flying out of the steam pipes did cause minor fires for buildings nearby rivers and harbors, such as bridges and boat houses.[76] Compared to the United States, however, the problem was rather small.[77] Here I will briefly examine the way the law responded to fires caused by steamers. It is difficult to delve deeply into the problem, because fires were rather rare, and only seldom did they end up in court. Thus, the following analysis is largely based on situations that are close to fires caused by steamers. The following sub-section will discuss the steam engine explosions.

The safety of the ship as well as the steam engine was a pressing problem, and as the number of steamers increased, newspapers continuously called for tighter regulation over the engine.[78] Devastating steamers accidents raised general concern, stimulating also the willingness to improve control. One such event was the fire in the steamer *Österbotten* in August 20th 1874. The ship was carrying flammable cargo, such as matches and bales of stuffing on deck, which

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that it was a steamer. In the latter case, the sailing vessel carried no lights, and the weather was also apparently clearer.

[74] Aulis J. Alanen, Höyrylaiva Päijänteellä: Päijänteen laivaliikenteen vaiheita (Jyväskylä: Jyväskylä-Päijänteen laivaosakeyhtiö 1948), 167–168; Suomalainen 29.9.1890, p. 3.

[75] Paul F. Paskoff, Troubled Waters : Steamboat Disasters, River Improvements, and American Public Policy, 1821-1860 (Baton Rouge: Louisiana State University Press 2007), 15–17.

[76] Riimala (ed.) 1983, 55.

[77] On steamboat fires in the United States, see, e.g., Hunter 1993, 277–282.

[78] Helsingfors Dagblad 27.5.1875, p. 2; Morgonbladet 27.5.1875, p.2.

caught fire. The whole cargo was lost and the ship was badly wrecked. In this case, however, the fire was started when a passenger had lighted a tobacco and tossed the match on board.[79] Although the accident as such was not related to steam technology, it raised lots of concern about steamer safety.[80] In the trial that followed, the captain of the ship was fined because he had neglected to make sure that the flammable cargo was protected. The passenger who had caused the fire was also fined but to a much lesser extent.[81]

In cases in which steamers caused damage to buildings, the responsibility was more difficult to locate. In 1897, speaking for a strict liability for railways companies, Finnish representative of the Nobility, V.M. von Born noted that the courts had interpreted extensively the liability of the steamboat companies in cases in which the sparks of a steamer had caused damages to bridges.[82] Although there is no reason to doubt this, it has been difficult to find any solid evidence for this argument since von Born himself makes no references to specific cases, and it has been difficult to find an example. There are at least two cases in which sparks coming out of a steamer burnt a bridge. One bridge was burnt because of a steamer in Porvoo in 1877. In the case, the ship owner was sentenced to pay three quarters of the damages because the ship had neglected to use a spark shield.[83] In another case, a steamer company was sentenced to compensation because one of its steamboats had crashed into a bridge at night.[84]

It can thus be concluded that steamers caused hazards to buildings nearby rivers and harbors, such as bridges and boathouses, and they had to pay extra care to avoid any damages that might occur. Nevertheless, the applicable legal principles were general rules of the law of torts. Their standards of care were somewhat stricter than the usual law of torts dictated, and sometimes even strict liability may have come into question. Steamers thus gave birth to a new are in maritime law, which did not however necessitate remarkable legal innovations.

3 Steam engine explosions

The most dangerous part of a steamboat was obviously its engine. Thus, legal regulation of the engine to maintain safety on waters was necessary. In Finland, the construction, maintenance, and the inspection of the engine of a steamboat were first regulated in the

[79] Åbo Underrättelser, 24.8.1874, p. 1; Morgonbladet 22.8.1874, p. 2; Helsingfors Dagblad 22.8.1874, p. 2; Satakunta 22.8.1874, p. 2; Helsingfors Dagblad 26.8.1874, p. 1; Suomenlehti 8.9.1874, p. 3.
[80] Hufvudstadsbladet 3.9.1874, p. 7; Åbo Underrättelser 10.9.1874, p. 1.
[81] Merihöyryjen tulo 2011, 95.
[82] Estate of Nobility, session of March 5th 1897 (Ridderskapet och Adeln 1897), 291.
[83] Korsteeni 1995, 59.
[84] Västra Nyland, 13.12.1898, p. 3.

passenger steam act of 1858. However, it was not until the 1880s that special and detailed regulation on steam engines was enacted. This, however, occurred probably more because of the increased use of steam power in industry and railways than steamboats. Nonetheless, the regulation began with respect to steamers. The problem in this regard in Finland was nothing to that of the United States.[85] In fact, steam engine explosions were quite rare in Finland. One explosion occurred in 1888,[86] and two ten years later in 1898.[87] Since, there seems to be no steamer explosions until 1924.[88] In these cases, to put it simply, the courts had to find out the cause of the explosion and whether it could have been avoided.

The most notorious case of boiler explosion occurred in October 1898 as a consequence of a steamer race. The steamer *Jämsä* was presumed to be the fastest steamer on the waters of Päijänne in the late nineteenth century. A new steamboat, built in 1898 and called *Kaima*, claimed to be faster. Thus, during the summer of 1898, the controversy between these ships intensified, and heated arguments were thrown to bash the other ship. Then, on October 30th, the time was ripe for a competition. After a few minutes of racing, Jämsä was leading, but suddenly an explosion halted its flow and put an end to the race. Naturally, the incident led to an investigation and a trial.[89]

In the court hearings, the purpose was to find out what had caused the explosion and whether it could have been avoided. The task of the prosecutor was to find out, first, whether the boiler was in a bad condition and whether the captain was aware of it, and second, did the captain instigate the race and authorize the excess of pressure. Third, if the captain was not to blame for the race, the prosecutor had to find out if he was aware of any inappropriateness that was going on.[90] The problem in general, then, was to decide whether the owner of the ship and its captain had complied with the legal regulation. If there was not any obvious breach of boiler regulation, the question concerning a particular case was whether the captain had authorized the illicit actions that led to the failure of the boiler and hence causing the explosion.

As can be seen from the three sub-sections above, the emergence of the steamboat did cause various hazards, thus necessitating legal regulation and giving rise to litigation, but there was no remarkable need to change the law in this regard. In general, steamers fit neatly under the rules and principles of maritime law and the law of torts. In some occasions, such as the

[85] On steamboat explosions in the U.S., see, e.g., Hunter 1993, 282–289.
[86] Suomen wirallinen lehti, 14.8.1888, p. 2.
[87] Eero Puranen, Kohtalokas kilpa-ajo, Korsteeni 1992, 32.
[88] Höyrykattiloiden tarkastustoiminnan alku Suomessa, Tekniikan Waiheita 3/1994, p. 10.
[89] The case is explained in detail in Puranen 1992, 32–43.
[90] Ibid. 40.

maintenance of the boiler, new regulation was needed to secure safe navigation. Steamers had to comply with somewhat stricter rules than those applied to sailing vessels, but the difference was not remarkable.

V Conclusions

The steamboat was a remarkable invention, having significant economic and social effects, and it brought various new problems to seafaring. However, the legal control of these new problems seems not have been very problematic, and the general rules and principles of maritime law applied in most of the cases. For example, with respect to maritime collisions, the ancient rules prevailed, but they were put in written form. Moreover, steamers had to pay extra attention to prevent avoid collisions, and sailing vessels may have even get away with ignoring the rules in cases of collisions if the steamer was proved to be in fault.

The engine of steamers was also a potential cause of hazard. Sparks ignited buildings by the rivers and harbors, and boiler explosions were dangerous to everyone on board. In these cases, the legislator sought to create as strict standards of care for the captain and the ship owner as possible to prevent accidents. If a steamer caused damage to a building, it was liable to pay for the damages, but in most of the cases the reasons for the damage were investigated. In cases of explosion, the question concerned the inspection of the boiler and the captain's awareness about its condition. Moreover, the captain may have regarded as liable if he was find out to be guilty for the situation that lead to the explosion.

The most obvious impact of the rise of the steamboats was, therefore, the precise and definite rules that had to be laid to control maritime navigation. Since steamers began to navigate the Finnish waters, the rules on maritime collision, passenger carrying, and, of course, the regulation of steam engine were put to written form, and made more precise and clear. Although steamers were not as dangerous as the public opinion may have assumed, they nonetheless caused concerned and instigated the legislator to act. In a sense, then, steamboats did force the legislator to take stronger control over maritime affairs. The evolution of the rules of the waters thus seems to have been the most important and lasting legacy of the steamboat on law.