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Knowledge, Formats, and Fish

The Society for the Promotion of the Norwegian Fisheries and its Journal

▼ **ONLINE FIRST ARTICLE**

▼ **ABSTRACT** The Society for the Promotion of Norwegian Fisheries (Selskabet for de norske fiskeriers fremme) was established in 1879 and started publishing the *Norwegian Fisheries' Journal* (*Norsk Fiskeritidende*). The article argues that this journal, with a total of about 22,500 pages, has been vital to establish "the Norwegian fisheries" as a field of activity and knowledge. It is not only a historical source of information on the fisheries and fish trade in Norway, but a historical agent in its own right representing specific knowledge-making practices. The article explores how the journal was a driving force in constituting the fisheries as an object of knowledge and politics, and established them as networks of connected elements, agents, and issues. The exploration draws on two key theoretical concepts that both serve to highlight the journal's own agency and performative dimensions: format and scale or scaling.

▼ **KEYWORDS** Knowledge formats, epistemic genres, scale, journals, Norwegian fisheries.

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BREPOLS

The Society for the Promotion of Norwegian Fisheries was established in 1879, in Bergen, the largest city in western Norway. It was not a fishers' union but represented a line of trade with strong ambitions for development and growth.[1] From its very inception, an impressive range of activities were undertaken, all designed to modernize the fisheries, the fish trade, and the fishing industries. Fish and oyster farming projects were started up from an early date, and dedicated test stations established along the Norwegian coast. Scholarships and prizes were awarded to persons who contributed to improvements in the fisheries and the fish trade by developing or implementing new technologies. Courses and training were offered to fishers and others who were willing to try new methods or develop new products.[2] The Society also lobbied for a law on bait farming and came to play a decisive role in the formation of a Norwegian fisheries administration by the turn of the century.

International networks were built up. The Society's members and representatives attended international fisheries exhibitions, and in 1898 the Society itself hosted the fisheries section of an international trade exhibition in Bergen, as well as a conference.[3] A large international fisheries exhibition had been arranged in the city as early as 1865, and an early task for the new Society was to open a permanent fisheries museum based partly on material from this exhibition. This new institution was not out to document the past but to shape the present and improve the future.[4] Its collection of models, samples, tools, and inventions were intended to teach, instruct, and inspire.[5] A specialized library served the same goal, containing literature on natural history, technology, and economy related to the trade and directed towards its development, in accordance with the Society's overall aims. In 1894, the library was reported to hold 1,420 volumes of specialized literature, of which a large part had been received as gifts.[6]

The need to modernize the Norwegian fisheries had been recognized for some time. The coastal fisheries were managed by the Ministry of the Interior. From the 1860s, systematic marine research was established. The small group of marine biologists resulting from the initiative was concentrated at Bergen Museum.[7] Thanks to rich fish resources, Norwegian fisheries in this period still largely took place in coastal waters. Contrary to British fishers, for example, Norwegian vessels did not seek the fishing banks out in the North Sea. For the same reasons, fishing mostly took place from small open boats and with simple equipment. During the nineteenth century, this increasingly came to be seen as primitive and backward. Modernizing and developing the fisheries would

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1 *Referat*, 3; Schjelderup, *Selskabet*, 2.
2 *Aarsberetning*; Schjelderup, *Selskabet*.
3 Wallem, *Den internationale*; Brunchorst, *Beretning*.
4 Eriksen, *Museum*.
5 *Katalog*; *Veiviser og katalog*.
6 *Aarsberetning 1894*, xxvi.
7 Schwach, *Havet*.

benefit the individual fishers, the argument went, as well as improve national competitiveness.[8] From the perspective of the national economy, it was also a problem that most fishers were also farmers, combining seasonal work on land and at sea. A national crew of modern, professional deep-sea fishers was the vision for the future.[9] When the value of the national fisheries of both cod and herring dramatically declined from the early 1870s, these issues became urgent.

This was also the background for the creation of the Society. The "promotion" that it advocated was very much in line with the modernization projects already being discussed. Starting as a private initiative, drawing mostly on scientific expertise and commercial interests in the Bergen area, the Society soon achieved public funding for its work. For several decades, it came to fulfill a double role, acting both as a private association and as a representative of national authorities.[10] The double position resulted in several conflicts, among others between the main organization in Bergen and the local divisions in other cities, but it also means that the Society had a unique position in the management and modernization of the fisheries in Norway during the late nineteenth and early twentieth centuries.

A key element of the Society's work, tying its numerous activities and projects together, was the journal *Norsk Fiskeritidende* (*The Norwegian Fisheries' Journal*), which is the focus of this article. The journal was among the Society's earliest and most long-lasting projects, being launched in 1882 and remaining at the core of the organization until its discontinuation in 1930.[11] Its task was to report on the Society's own initiatives and work, as well as on matters of interest and relevance to fisheries more generally, both nationally and internationally.[12] Performing this task, the journal obviously served the "promotion of the Norwegian fisheries," communicating news and information and being an arena for instruction and debate. This also made it a very composite type of publication, combining science, technology, trade, economy, and law with local and vernacular information and general news relevant to anybody engaged in the fisheries.

The argument that I want to make here, however, is that the journal did far more than just report. It was also a highly influential tool of knowledge and as such vital to *creating* "the Norwegian fisheries"—i.e. to establish them

8 Johansen, *Stagnasjon*, 28.

9 Schwach, *Havet*, 23; Johansen, *Stagnasjon*, 28–30.

10 Nordstrand, *Fiskeridirektøren*, 27

11 When the Directorate for the Fisheries was established in Bergen in 1900, to be followed by the Institute of Marine Research a decade later, the Society had reached its goal of establishing a national fisheries administration. At the same time, much of the public funding was transferred to the new institutions. For this reason, the Society gradually had to reduce its own activities.

12 The series of annual reports (*Aarsberetning*) that was published between 1882 and 1958 presented some similar information but had more restricted coverage and was not aimed at an external public. Appearing only once a year and always with a distinctly retrospective perspective, it lacked many of the features that were characteristic of the journal and that will be examined here.

as a coherent and interconnected field of activity. The journal was an active driving force, not only in sharing news about the fisheries but in calling them into being as an object of knowledge and politics, and as a network of connected elements, agents, and issues. It worked as a meeting place or interface between different types of knowledge—vernacular, scientific, economic, and technological, to name the most obvious. By the means of this function, it also became a tool to amalgamate different types of knowledge, agents, and interests, producing a field that could rightly be termed "the Norwegian fisheries." From a historical perspective, these active and performative dimensions make the journal more than an information source; it can be studied as a historical agent. The journal was an agent of innovation and knowledge formation in its own right and capacity.

Historian Anders Haaland has described the journal as covering all aspects of the Norwegian and international fishing trade. The massive number of issues and pages gives unique insights into the variegated activities of the Society and thereby also into the modern history of the fisheries. The journal represents invaluable historical source material for anyone interested in the development of the fisheries in the late nineteenth century, Haaland concludes.[13] While this is obviously correct, the present article takes a different approach. The journal will be explored from a less representational perspective and regarded as an active working device or instrument of knowledge production.[14] My basic tenet is that the journal worked as a tool that served actively to achieve things, not only to describe or report them. The article will focus on this agency, seeking to elucidate how the tool worked, and how the Norwegian fisheries were made an object of knowledge.

Theoretically, the discussion will be situated in the field of periodical studies. As pointed out by Sean Latham and Robert Scholes, large-scale digitalization of periodicals has made it possible to adopt new and different approaches to these huge masses of texts. While researchers have long mined periodicals for texts on specific subjects or written by specific authors, Latham and Scholes argue that they have "been too quick to see magazines as merely containers of discrete bits of information rather than autonomous objects of study."[15] New perspectives have inspired a wealth of research on periodicals as "a medium-specific material object based upon seriality, materiality, multimodality and translation."[16] Recent approaches also insist on the agency of periodicals, seeing them as actively "participating in relational and dynamic webs" of socioeconomic conditions, legal and ideological frameworks, institutional organizations, action networks, and communicative environments."[17] Gustav Frank and Madleen Podewski anchor periodical studies within the history of

13 Haaland, "Norges fiskerimuseum," 6.
14 Krefting et al., *Eighteenth-century Periodicals*.
15 Latham and Scholes, "The Rise," 517–18.
16 Ernst and Scheiding, "Periodical Studies," 2.
17 Ibid., 1.

knowledge, emphasizing that "periodicals promote a distinct mode of compiling, blending, and negotiating knowledge from different places, people, and sources."[18] Despite their interdisciplinary ambitions, periodical studies were long dominated by investigations of magazines and journal related to literature and arts. More recently, even scientific journals have been approached from similar perspectives.[19]

A key term in the theory developed by Frank and Podewski is "medium-specific orders," by which they mean the organizational forms that are distinctive to periodicals and that are "responsible for how knowledge is arranged, given shape, processed, and transformed."[20] According to them, a main "task" of periodicals "consists of establishing *low-threshold contact zones* that facilitate a variety of different relations between its elements and units, mainly on a nonverbal, visual-material tier."[21] Building on these perspectives, the following discussion will make use of two analytical tools. The medium-specific order of *Norsk Fiskeritidende* will be investigated as a format, and the periodical's arrangement of knowledge as formatting work. To examine how the journal worked to establish low-threshold contact zones within its format, the notions of scale and scaling will be applied.

The following section of the article will supply some background information about the journal's contents and structure. This is followed by a discussion of formats and their implications for the history of knowledge, before moving on to the journal format more specifically. The subsequent section will explore scale and scaling as key elements in the agency of the journal format. The conclusion returns to the initial argument concerning the journal's active role in the creation of the Norwegian fisheries as an object of knowledge and a coherent field of activity.

The Journal and the Society

Norsk Fiskeritidende was published quarterly from 1882 and then monthly between 1902 and 1930. Originally distributed for free, the issues were sent to members of the Society, to affiliated associations, and to relevant firms along the Norwegian coast. Reprints of selected articles that were thought to be of special interest to fishers were produced for distribution in fishing villages and at local markets and fairs. From the mid-1890s, the journal started offering regular subscriptions. During the same period, the number of pages increased from 300–400 per year to a steady 500–600 per year. At the turn of the century, the annual print run was 4,500 copies.[22] The number of pages after

18 Frank and Podewski, "The Object," 29.
19 Baldwin, *Making "Nature"*; Csiszar, *The Scientific Journal*; Dawson et al., *Science Periodicals*.
20 Frank and Podewski, "The Object," 32.
21 Ibid., 40, italics in original.
22 Schjelderup, *Selskabet*, 115–17.

nearly fifty years of publication totaled about 22,550.[23] Today, the entire series has been digitized and is available through the Norwegian National Library.[24] The following discussion is based on a loosely adapted distant reading of the corpus, combined with closer investigation of the annual tables of contents and select volumes.

The journal was edited by a committee appointed by the Society, usually with the Society's own secretary as editor-in-chief. This structure emphasized the journal's role as an organ of the Society. The editorial in the very first issue presented the journal as a tool for the Society to reach its goals by the means of information exchange, debate, and network-building.[25] The journal's contents likewise reflected the Society's organization into three "classes," and the issues regularly included news from each of them: reproduction, catch and tools, and processing. Its role as a mirror of the Society's activities grew even more prominent from 1884, when Sophus A. Buch became the secretary and editor-in-chief while simultaneously holding a number of other offices and undertaking other tasks for the Society. Buch, who was originally a pharmacist, worked as the Society's traveling inspector, its delegate at exhibitions, and the curator of the Fisheries Museum. He moreover took an active part in the practical development work at the test stations and was especially interested in new curing methods. Buch was deeply missed when he unexpectedly died in 1894.[26] During the following period of shifting secretaries and editors, the structure and profile that Buch had established for the journal never fundamentally changed. The journal remained very much the same until it closed down in 1930. A major reason for the stability appears to have been the close connections between the journal and the Society. Not only did the journal systematically report on the Society's various fields of work, but its structure also mirrored the Society's organizational structure.

Much of the material that was published in the journal was unattributed. This applies to the substantial number of statistics, tables, and reports, as well as to the numerous shorter news items and the regular renditions of relevant laws and regulation for fisheries and whaling. The Society's archive still holds large amounts of the correspondence that was required to collect and compose the material for these notes, articles, and overviews, also showing the secretary-editor as the instigator of most of it and often also as the author or compiler. The material reflects dedicated and long-lasting efforts to develop and maintain an extensive information network.[27] Articles on specific topics of natural history were more likely to be attributed, reflecting the importance of scientific expertise, and demonstrating that the Society's network included

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23 Haaland, "Norges fiskerimuseum," 6.

24 *Norsk Fiskeritidende* digital version via the Norwegian National Library, https://www.nb.no/search?mediatype=tidsskrift&sort=dateasc&seriestitle=%22Norsk%20fiskeritidende%22&viewability=ALL.

25 "Fra Redaktionen," 2.

26 "Sophus Andreas Buch," 1–6.

27 E-mail to the author from Bjørn Djupevåg, curator at the Fisheries Museum, November 22, 2024.

men with this kind of competence. Published letters to the editor usually included full names and often also titles. This also applies to contributions to ongoing debates, which are the only texts that appear to come from persons outside of the Society's own circle and in some cases living closer to the actual fisheries and expressing the experiences of fishers.

Formats of Knowledge

As a historical information source, the journal has its value in referring to events, persons, and institutions "out there" in the real world, beyond the journal's own pages, supplying information about what was going on. This reporting function also was the main task of the journal in its own time. The non-representational approach that is to be developed here, on the other hand, moves beyond this "what" of the journal in order to look at the "how": *How* was the reporting done? What kind of object of knowledge and field of activity emerged from this activity? What was the medium-specific order of this journal? These questions imply looking at the journal as productive rather than merely mediating.

Historians Ellen Krefting and Gard Paulsen, PIs of the research project "Maritime Modernities," argue that formats can be understood as *epistemic genres*.[28] This concept was originally developed by historian of medicine Gianna Pomata, who writes that "when I speak of epistemic genres, I mean specifically those kinds of texts that are linked, in the eyes of their authors, to the practice of knowledge-making (however culturally defined)."[29] She argues that epistemic genres should be distinguished from literary ones by being not primarily esthetic or expressive, but cognitive. Epistemic genres are specific kinds of texts "whose primary goal is not the production of meaning but the production of knowledge."[30] Such genres, then, can also be spoken of as knowledge formats, according to Krefting and Paulsen. Focusing on their material and physical aspects, they refer to literary scholar Cliff Siskin when describing formats as "knowledge arrangements that work physically in the world to mediate our effort to know and use it."[31] As such, they conclude, formats can be understood as "powerful, performative and robust in the way they not only condition specific kinds of knowledge over time, but even constitute realities and delineate alternatives for action and governance."[32] This is also what I will argue that the fisheries journal was doing. It conditioned knowledge about fish, fisheries, markets, and production in specific ways, thus constituting a distinct field of knowledge and action. In the journal, this object of knowledge was

28 Krefting and Paulsen, *Maritime Modernities*.
29 Pomata, "Medical Case Narrative," 2.
30 Ibid., 3.
31 Siskin, *System*.
32 Krefting and Paulsen, *Maritime Modernities*; see also Krefting and Paulsen, "Mellom terreng."

actively performed, not just reported on. By the means of this performance, the object or field that was produced also worked physically in the world, in its turn creating possibilities for action and politics. The effect of the journal's formatting work was bidirectional: From large amounts of diverse information, it let the fisheries emerge as an object of knowledge. Once established, this entity then created new possibilities for action and practices.

Paying attention to what the format *does*—not only how it mediates—can offer new understandings of the effect and significance of the medium-specific order of *Norsk Fiskeritidende*. A general key feature of periodicals is that new issues are published at more or less regular intervals. They played a vital role in the emergence of a new public sphere during the eighteenth century. In the lifetime of the Society, journals consolidated into an established and well-known commodity, serving goals from pure entertainment to politics and piety, and working effectively as sites for the exchange of information and opinions on a wide variety of subjects.[33] The periodicity of *Norsk Fiskeritidende* went from quarterly to monthly (in 1902), which meant both a higher frequency and an annual increase in the number of pages.

The periodicity of the format also provides journals with a temporal aspect: They last, and they represent continuity or at least the promise of it. In actual fact, many journals prove to be rather short lived, but endurance is nonetheless a defining element for the journal as a format. In the present case, it lasted for nearly fifty years. The durability also enables a specific kind of coherence and connections between the journals' issues and their contents, or between the format and the formatted material. On a practical level, this is about the possibility of publishing long texts in installments, thus preventing one single, long text from filling an entire issue at the expense of others, and making room for the variety of material that is also distinctive of periodicals. Durability furthermore makes it possible for debates to go on for some time, with room for a variety of voices to be heard. It likewise allows letters to the editor and an interchange of questions and answers.

Yet another aspect of the endurance that is intrinsic to journals as a format is that it creates expectations of reiteration and recurrence. A journal will often contain the same sections (of different types of texts) throughout a number of issues. Book historian James Wald has defined periodicals as publications that present varied, fragmentary, and open-ended material collected under a stable title.[34] It can be added to this that the internal structure of sections, genres, and types of text adopted by a specific journal, the way it establishes its "contact zones,"[35] will organize this variegated material in relatively predictable ways that are as stable and distinctive as its name. The actual contents will of course vary, but the internal structure will remain more or less the same for long

33 See, for instance, Cantor et al., "Science."
34 Wald, "Periodicals and Periodicity," 419; see also Nøding, "Hva er."
35 Frank and Podewski, "The Object," 40.

periods of time. For *Norsk Fiskeritidende*, such a structure was established with the first issues, and even if changed over time, remained relatively stable and recognizable. Readers of the journal consequently knew fairly well what to expect when a fresh issue arrived.

Reporting and Creating

The stability and internal structure of *Norsk Fiskeritidende* are most easily unearthed through a study of the table of contents intended to be bound with the issues and creating annual volumes. They start with a section called "descriptions," most often presenting some specific type of fishery in a specific place in the world. In 1883, the first year of regular publication after launch, this section contained articles on fisheries in Canada, Iceland, and Labrador. The page numbers indicate that these texts had been published in different issues, but by means of the table of contents they were presented as a thematic unity belonging to a recurring category. As the number of pages grew, the descriptions section came to present a larger number of texts each year. As early as 1884, it had already increased to nine, most of them reporting on foreign fisheries and thus demonstrating the networks of information and contacts that were evoked to produce the journal.

For the first eight years, the descriptions section was followed by one called "fishers' economy." It contained articles on insurance, loans, and social security associations, mostly reporting on how these were arranged in other countries. From the early 1890s, this section was moved down the list, making room for those that more directly represented the three classes of the Society: reproduction, catch and tools, and processing. These last two categories tended to merge, because the tools and technologies that were presented in some cases concerned fishing vessels and catching methods, but sometimes also the processing of the catches and the development of new fish products such as smoked, cured, and tinned fish. As in the descriptions and fishers' economy sections, the texts on catches, tools, and products were very international in their perspectives and approach. Articles on "reproduction" for their part tended to concentrate more particularly on the activities and projects conducted in the test stations along the Norwegian coast, in part initiated and operated by the Society itself. These concerned trials of hatching cod eggs and farming oysters. Experiments with lobster farming were also reported.

Other recurring sections are "practical science" and "practical natural history." They are both focused on different species of fish, investigating, for instance, age and growth, migrating patterns, and spawning seasons. Some of them are written by traveling representatives of the Society: the secretary, its inspectors, or persons who had been given grants to conduct specific investigations. Others were authored by the researchers at Bergen Museum or, from 1900, with the Institute of Marine Research (above). The section on "commerce" was stable and extensive. At its core was information on fisheries and fish trade and commerce culled from the annual reports produced by Norwegian consulates in various parts of the world, making even this section truly international. To this were sometimes added reports written by the Society's own emissaries or grant holders.

From the very beginning, an extensive section was also dedicated to laws and regulations concerning fisheries in various parts of Norway. This might concern rules for weights and measures relevant for fish, fish products, or packaging, as well as conservation regulations (seasonal or more permanent) and regulations concerning the catch of certain species (salmon, whale). Finally, statistical sections were also a very important and consistent part of *Norsk Fiskeritidende*. The statistics concerned partly the export of fish and fish products, partly the fisheries and catches as such. The first category was submitted by Statistics Norway (Det statistiske Centralbureau), while the second is reported to have been drawn from newspapers' annual reports and "the official telegrams."[36] In addition to the sections presented so far, more varied and mixed materials, often categorized as "miscellanea," or "information for homes and households," likewise were regularly found in the journal. Regularly recurring information also concerned the work of the Society itself, its museum and library, as well as reports from national and international fisheries exhibitions.

The same flexible but durable and recognizable pattern can be traced in downscaled versions within single issues, even if each issue did not contain texts from all the sections that have been presented here. Focusing on issues rather than volumes also makes it more obvious that some themes and debates stood out as important and recurred over longer periods of time. They can be followed between issues and over years. Among these long-lasting topics we find the Society's own experimental work with cod and oyster farming, which was regularly reported on. The production of bait, mostly by shellfish farming, likewise was a recurring topic. Some of the texts about bait concerned practical work to start shell farming, while others were part of the Society's long-time lobbying for a law to regulate bait production for the fisheries. Moreover, some of them are sober, descriptive natural history texts—for instance, concerning the growth of shells—while others are arguments and opinions. Despite such differences in both type and length, texts relating to the same topic over time nonetheless contributed to substantiate the topic, to keep it alive and vital as an issue and as part of the Society's work.

As we can see from all this, the structural continuity which defines journals as a format supplied *Norsk Fiskeritidende* with a firm basis for an assortment of texts, genres, and news of very different kinds. However, another aspect is equally important. The intrinsic continuity of the periodical format also endowed the journal's contents in itself with a corresponding apparent stability

36 "Fiskeriene i 1897," 193.

and durability. In the present case, this is of major significance for the understanding of the journal as an active working tool of knowledge. Most of the fisheries described in *Norsk Fiskeritidende* were seasonal, and some also highly local. They did not go on all the time, and they took place in various, often quite restricted, separate locations. Likewise, the regulations that were printed in the journal concerned specific conditions and localities, or limited periods of time during the year or season. The fishing tools and equipment that were presented, for their part, were often in the process of being tried out, with more or less success to follow. Some of them disappeared rapidly from the pages after having been presented once or followed during a succession of tests. Fish and oyster farming projects likewise might succeed or not and be adapted or even terminated. To sum up, large parts of the material presented in *Norsk Fiskeritidende* consisted of reports about single, brief time events, taking place in a variety of different places at different times. They did not hang together; they were not connected.

The connections between them were created by the journal. Subsuming great amounts of rather disparate information under steadily recurring headings such as commerce, catch and tools, or descriptions, created an impression of something that lasted, that kept going on, and that was stable. Moreover, when taken together, these recurring unities, and all the diverse information that was fed into them, would appear as making up a larger unity. The unity emerging from this was "the Norwegian Fisheries," in the definite form and in an international framing. The reports about catches, processing methods for different species of fish, news about exhibitions, local unions, insurance, or a specific kind of fishing vessels all became connected and coordinated, elements of the same field of activity and the same object of knowledge. This was formatting work. It did not happen because all these things took place in the external world. The coordinating and consequently creative work was done by and in the journal, by means of its formatting capacity.

Scaling and Knowledge

Within this formatting work, scaling stands forth as a key principle, vital to an understanding of the journal's mechanism and agency. In the present context, scaling will be seen as a key to how *Norsk Fiskeritidende* established its "low-threshold contact zones" between different types of texts and contents, and how this in turn made it possible to enroll a variety of different agents in "the Norwegian Fisheries."

Anthropologist Marilyn Strathern has defined scale as "the organisation of perspectives on objects of knowledge and enquiry."[37] This emphasizes that scale is not an inherent property of things or phenomena, but something that is

37 Strathern, *Partial Connections*, xvi.

being actively done. Scaling is a principle of knowledge production. Anthropologists E. Summerson Carr and Michael Lempert correspondingly emphasize that "scale is process before it is product," pointing to the fact that scale is the outcome of human action rather than a specific quality of objects. They consequently call for investigations of "how, why and to what ends people and institutions scale their world."[38] Geographer Erik Swyngedouw adds to these perspectives writing that "scalar configurations [are] the outcome of socio-spatial processes that regulate and organize social power relations."[39] The statement underscores that scale is not only about knowledge but also concerns power.

These scholars, then, all agree that scaling is a type of social action that organizes knowledge, relations, and power. Scale concerns size and measure, hierarchy, and comparison, but it is also about significance, value, and range. In the present context, the connections between scale and format are worth noting. Scaling is an integral part of the formatting work that has been discussed so far, while also being made possible by it. Most obviously, a single issue of a journal will normally contain material of diverse kinds. Long articles occur side by side with brief notes, serious texts are mixed with more entertaining ones, and general information with particulars. Nearly as much as periodicity, this mix or variety is an aspect that defines the medium-specific character of journals. Considered separately, the different types of text can easily also be said to represent phenomena that belong to different scales. Not only are the texts formally different, so are also their contents. In the present case, texts will vary from brief news or bits of practical information to long theses on matters of technology or natural history, or from anecdotes about "strange fish" to quantitative information about worldwide fisheries and economics. They are different in size and range as well as in significance and impact.

While the journal as a format is more or less defined by the ability to hold this wide range of differently scaled information, it can also be said to work as a scalar intervention in the sense that it does not only present but also processes this material: By being included in the journal, all the diverse texts, genres, and elements are somehow placed on the same scale. They are brought into contact with each other. The actual texts and the phenomena to which they refer remain small and large, general and particular, serious and amusing, wide-ranging or local, but in the journal, they nonetheless come out as differently sized elements of the same scale and as elements of the same unity.

This scaling ability is highly important for the case of *Norsk Fiskeritidende* and its role as not merely reporting about fish and fisheries but actually creating the fisheries as an object of knowledge and field of politics. Scaling makes it possible to connect things of very different kinds in ways that let

38 Carr and Lempert, "Introduction," 4.
39 Swyngedouw, "Neither Global Nor Local," 26.

them keep their diversity but still make them hang together—i.e. producing an extensive but interconnected field. An example will shed light on this effect of scaling as a tool for creating unity and comprehension. The fourth volume of the journal, from 1885, contains a brief note on waterproof boots. It is recommended to prepare a strong mix of water and soap, and place leather boots in this compound until they are fully impregnated with it. This will produce a kind of greasy acid in the leather, which leaves the boots completely waterproof.[40] In the volume's table of contents, this note is placed under the heading "Information for households," accompanied by notes on waterproof clothing, measures against mosquitoes, and a test to check if petrol is safe to burn. In the actual issue, the very practical note about boots is immediately *followed* by a report on the 1884 whaling season at the Kola peninsula and the Green Shark catch in Iceland, both said to have been fairly good, while the Icelandic cod fisheries were reported to have been poor that year. The note is *preceded* by the similarly useful petrol test, as well a news item about the recent installation of public barometers for fishers in Finnmark, Tromsø, and at three locations in Nordland counties. On the same page can also be found a short report stating that the hatching of lobster roe at the Arendal test station had failed. The hatching of cod and flatfish, on the other hand, had been more successful, and would perhaps yield even better results if the small fry could be kept in designated tanks.[41]

These notes and reports will have been interesting to different groups of readers and for different reasons. Waterproof boots were obviously vital to the individual fisher, perhaps also to his wife, who was responsible for the equipment, and for the family dependent on the income and the breadwinner's health. The public barometers also affected the fishers quite directly, though in a less sensory way than the boots and perhaps more as a group or a crew. The experiments with roe hatching and fry concerned the Society, which stood behind the project, but was also interesting to potential investors and trade developers. The size and economic success of annual, seasonal fisheries for their part were evidently important to those taking part in them, but also to a number of other stakeholders and investors: manufacturers, factory owners, and the national and international fish trade.

The texts, immediately following each other on the printed pages of the journal issue, concern matters of different size, range, and impact. Some represent the macro level of economy and politics, others the micro level of the household and everyday life. Some, likewise, are close to sensory and vernacular experience, while others represent a high level of abstraction and synthesized information. When using the journal as a historical source and regarding it as primarily reporting about the world beyond its pages, the macro level tends to attract the most interest. Large-scale developments in nature or

40 "Forskjellige Meddelelser," 101.
41 Ibid.

economy or startling technological innovations will often seem more conspicuous than boots and invite "larger" research questions.[42] Such information can make it easier to discern historical patterns and overall developments or discuss more general concepts related to economy, technology, or politics. Within such a framework, articles about waterproof boots and other vernacular items are at best ornamental and can serve as anecdotes to liven up the examination of large-scale or macro-level issues.

However, regarding the journal as a scalar intervention opens up other analytical possibilities. Scaling is vital as a mechanism for the journal as a tool that is actively processing information of very different kinds and on different levels. Resulting from this work is the creation of one, scaled but connected, field of knowledge and activity. Most probably, not all readers read all articles in an issue. Nonetheless, the variety of articles presented side by side facilitated easy contacts "between components of heterogeneous origins."[43] By not only addressing different reader groups but actually connecting them, the scaling served as a means to activate and enroll a large variety of agents as participants in the same project. As elements in this process, the waterproof boots and other bits of information concerning the individual fisher, his work, and household appeared as parts of something bigger and more significant, as integral to "the Norwegian fisheries." As such, the boots and other micro-level information gained meaning beyond itself. At the same time and equally important, the fisheries for their part achieved a grounding in the local, the vernacular, and the practical. It was no longer an abstract and remote entity, concerning only the mercantile elite in Bergen or the politicians in the capital. It expanded and grew, became more complex and intricate, more grounded, localized, and full of specific particulars. Moving up and down the scale, going from issues of boots to large-scale economics and technological innovation, turning back to practical matters of bait, then to laws and regulations, followed by new recipes for the domestic curing of herrings, *Norsk Fiskeritidende* created a large and interlacing field of knowledge, work, economy, and politics. From this perspective, the journal is highly performative. As a scalar intervention it did what it said; it had an effect in the real world of fisheries, fishers, merchants, scientists, investors, and even fish. It was productive, because it created the Norwegian fisheries and did not only share news about them.

The Promotion of Norwegian Fisheries—Summing up

The Society for the Promotion of Norwegian Fisheries carried out its work in different ways and by different means, all chosen to reach the goals expressed in the Society's own name. Producing the journal was one of these means, and

42 For example, Johansen et al., "Utvikling"; Møller and Haaland, "Lange linjer"; Solhaug, *De norske*.
43 Frank and Podewski, "The Object," 29.

a resource-intensive one at that. Its great significance was that it held other activities together, both those of the Society itself and those more generally relating to fish and fisheries. This article has argued that the journal did this in two different but closely connected ways: by reporting on relevant phenomena *and* by actively creating a field that all these phenomena belonged to, were part of, or—when taken together—constituted. As already pointed out, this was both a field of activity (from fishing through processing to commerce and trade) and an object of knowledge (practical, technological, and natural historical). The work of the Society and its journal moreover contributed to developing and coordinating a field of economy (local, national, and international) and to shaping a field of politics.

This article has sought to analyze the journal as an agent, not to measure the effect of that agency in the "real world." To ascertain whether readers really thought, felt, and acted in accordance with the journal would need other sources and methods. On an overall level, however, the work of the Society for the Promotion of Norwegian Fisheries can safely be regarded as overwhelmingly successful. The Norwegian fisheries did become an object of knowledge—scientific and practical—in this period. They were also established as a field of national politics and administration.[44] The creation of the Directorate of Fisheries in 1900 and the Institute of Marine Research some years later, both located in Bergen and springing from the active work of the Society, reflects the success. The journal stood at the heart of this.

As indicated by the title, the socio-spatial connections created by *Norsk Fiskeritidende* were national. The journal offered its readers a special version of the "imagined community" that a nation is, according to Benedict Anderson.[45] As such it worked as a common room to enter, welcoming its readers—be they fishers looking for better boots or investors interested in new methods for herring processing—into the same community. At the same time, this national community was clearly situated in a larger, international context. Reports on fisheries far away from Norwegian waters refer to international markets offering both possibilities and competition. Reports from Norwegian consulates all over the world had similar functions. Communities and networks were formed.

Finally, what happened to the fish in these processes of formatting and scaling? It is hardly surprising that in the context of the Society and its journal, fish were primarily treated as a resource, as the raw material for the trade that was being developed. Likewise, this was also the perspective of the corresponding and emerging field of politics. But again, it might be worth noticing how the journal not merely reported on this but actively contributed to transforming fish from natural species into a comparatively reliable, knowable, manageable, and sizable resource whose main "task" it was to form the basis of trade and

44 Schwach, *Havet*.
45 Anderson, *Imagined Communities*.

industry. A reader of *Norsk Fiskeritidende* would meet fish in different versions and guises, though with less variety than should perhaps be expected. In texts on natural history, fish usually appear as species. These texts elaborate on what is distinctive to this or that species, in particular concerning migration, spawning, lifespan, and growth—i.e. relating to the fish as a resource to harvest. Most of the time, however, both in the natural history section and in the journal more generally, the fish have already been caught and slaughtered. The articles are about methods for preserving and processing, and the issues that are addressed frequently concern the risks of loss through ruin of the catch, or the work to develop attractive, marketable, and competitive fish products. The fish, then, are scaled in two opposite but complementary ways in the journal, and together they serve to constitute the fisheries and the trade. The statistics and reports on catches and exports represent an upscaling. The fish are transformed into numbers and quantities that are not only large but also quite abstract. This quantification turns the fish into value or capital that can be compared with the results from any other branches of trade and commerce. The texts on preserving and processing, for their part, represent a downscaling. Here, the fish have already been caught and are on the way to being reduced to saleable products. They are dismantled. What is being discussed does not relate to fish as living beings (individuals or species), but rather reduced to organic material that is effectively and profitably processed. The fish are cured, salted, dried, smoked, tinned, or subjected to other methods of manufacture. The practical work took place in various sites along the coast, on board the fishing boats or in workshops and factories on land, but the transformation of the fish from nature to produce, merchandise, and politics was also done in and by the journal.

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