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**Two Hegemonies - Two Technological Regimes:  
American and Norwegian Whaling in the 19<sup>th</sup> and 20<sup>th</sup> Century<sup>1</sup>**

“... no other nation in the world, can show any thing to compare with her whale-catchers. Success attend them! In this business, which pre-eminently requires all the great qualities requisite to make up a true man, she stands out alone, far above all competition.”

*The Boston Journal*, according to *The Scientific American*,  
Dec.3, 1859 (Vol. 1- No.23).

Introduction

The 19<sup>th</sup> century was the American (U.S.) century of whaling. The 20<sup>th</sup> century was the Norwegian century - to put it simple at this point. Both nations dominated at different times world-wide industries in search of whale oil. Aside from that, there were few similarities between the two. While the American 19<sup>th</sup> century whaling very much was carried out the way whaling had been undertaken for centuries (a whaling vessel with tryworks, small chasing boats, hand held harpoons and lances...), the Norwegians modernized and industrialized whaling (powerful steam chaser boats, explosive grenade harpoon cannon, the

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<sup>1</sup> Paper presented at the XIV International Economic History Congress, Helsinki, August 2006 (Session 88: A Global Industry in Transition: Technological, Economic and Hegemonic Changes in 19<sup>th</sup> Century Whaling). The initial research underlying this paper was done at the Kendall Institute, New Bedford Whaling Museum, and I am grateful for hospitality and assistance there.

floating factory...). The American whaling industry on a global scale, had its heydays in the early and mid 19<sup>th</sup> century, declined gradually in the 1860s, and was completely gone in the early 1920s. The Norwegian “modern” whaling started gradually in the 1860s (Svend Foyn’s first experiments in Finmark), expanded in Norway and the Northern Hemisphere from the 1880s, and became a world-wide industry - with the Antarctic and Southern Ocean as the main catching-grounds - from the first decade of the 20<sup>th</sup> century.

The focus of the following analysis, is to try to explore more explicitly into the relationship between the two so-called hegemonic whaling nations. The linkages may be analyzed in many ways. Specifically, we are looking for *encounters* between the two industries that in one way or another may explain (1) why the Norwegians did not enter into traditional pelagic whaling, and (2) why the Americans did not enter “modern” whaling. So, on the one hand we will look for Norwegian contact with the American industry in the 19<sup>th</sup> century. To what extent did the Norwegians take part in whaling in “the American century”, as crew-members or masters on board U.S. vessels, or with Norwegian vessels on the traditional whaling grounds in North and South Atlantic, the Pacific and Indian Ocean and Arctic waters?

On the other hand, we will look for how the Americans faced the development of the emerging Norwegian industry in the latter part of the century. We will investigate the actual encounters between American “traditional” and Norwegian “modern” whalers later in the 19<sup>th</sup> century and the early 20<sup>th</sup> century. The two whaling “regimes” obviously co-existed for more than fifty years (from the 1860s and into the first two decades of the 20<sup>th</sup> century). They operated around the globe, to some extent on the same whaling grounds.

Both issues relate the question on how the transition from one hegemony to the other took place. How did they relate, and to what extent is it possible to see *continuities* and linkages between the two technological regimes?

There is an extensive literature both on American and Norwegian whaling history. Some of this literature also explicitly deals with the decline of American 19<sup>th</sup> century whaling and the following transition period.<sup>2</sup> We will discuss this literature, but also investigate contemporary

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<sup>2</sup> The literature on American 19th century whaling spans from the contemporary classic accounts like A. Starbuck, *History of the American Whale Fishery from its earliest Inception to the year 1876*, Waltham 1878, W.S. Tower, *A History of the American Whale Fishery*, Philadelphia (Publications of the University of

sources (newspapers) and sources not utilized so far that shed light on Norwegian participation in 19<sup>th</sup> century pelagic whaling.

### Norwegian participation in 19<sup>th</sup> century pelagic whaling

We will first turn to the question about Norwegian participation in the pelagic whaling in “the American Century”. From the literature on Norwegian whaling- and maritime history we know that the Norwegian participation in the 19<sup>th</sup> century traditional whaling was almost non-existent. It was, in the words of Risting, “helt ubetydelig” (quite in-significant).<sup>3</sup> However, neither he nor any other historians have tried to find out how small the numbers really were. How in-significant was the Norwegian participation? How many men, masters and vessels were there? It may be impossible to find out, but some systematic research *may* reveal if the numbers were close to zero - or more.

The literature on Norwegian maritime history mention *one* vessel; the bark *17de Mai* that sailed from Arendal in Southern Norway on December 21. 1843 on a whaling voyage into the Pacific Ocean, as far as to the whaling grounds off Kamtsjatka. It was going to last for two years and seven months.<sup>4</sup> The principal owner of the vessel was Christian Stephansen from Arendal. So, why did he and his fellow shareholders risk their capital in such an adventure? There was at the time a general knowledge, especially within the Norwegian maritime community, about the profitable whaling business that went on in the Pacific. A more specific reason for Mr. Stephansen to consider entering the business, was the knowledge of two successful Danish voyages of the bark *Concordia* (Captain T.J. Sødning).<sup>5</sup> Leaving for the

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Pennsylvania) 1907, E.P. Hohman, *The American Whaleman. A Study of Life and Labor in the Whaling Industry*, New York (Longmans, Green & Co) 1928 to the recent L.E. Davis, R.E. Gallman and K. Gleiter, *In Pursuit of Leviatan. Productivity, Institutions, and Profits in American Whaling, 1816-1906*, Chicago and London (The University of Chicago Press) 1997. The standard account of the history of modern whaling is A.O. Johnsen and J.N. Tønnessen, *Den moderne hvalfangsts historie. Opprinnelse og utvikling*, (I-IV), Oslo (Aschehoug) 1959 - 1970. Especially, Johnsen's introduction in vol. I (p. 45ff.) and Tønnessen in vol. II (p. 135ff) deal with the relation between the Norwegian and the American industries.

<sup>3</sup> S. Risting, *Den norske Sjøfarts historie* (ed. by J. Worm-Müller), vol. 3.2., p. 332, and *Av Hvalfangstens Historie*, Kristiania 1922, p. 95.

<sup>4</sup> The voyage of *17de Mai* is mentioned in several accounts of Norwegian maritime and whaling history, see f.ex. Risting, *op.cit.*, p. 333, and B. Dannevig, *Grimstads Sjøfarts historie*, Grimstad 1971, p. 97 ff. The logbook has been edited and published; T. Hauge, *Captain Crawford's dagbog. En norsk hvalfangerferd 1843-1846 og andre europeiske lands deltagelse i Stillehavsfangsten 1800 - 1860*, Oslo (Cappelen) 1953.

<sup>5</sup> Hauge, *op.cit.*, p. 205. *Concordia* also had a Norwegian crew member on board during her first voyage (a Mr. Martens from Bergen). Accounts of her voyage were published already in 1841; see K. M. Rio, *Oceania*

second voyage in 1841, they called on Arendal for repairs, and Stephansen met with Captain Sødning. After the return to Copenhagen in 1843, they corresponded, and Mr. Stephansen received valuable advices. At about the same time, the announcement was published to buy shares in Stephansen's enterprise. A vessel was bought. A captain was hired, the 28 year old Frederik Crawford, son of a Scottish immigrant. The whaling expertise was in the hands of a French expedition leader (fangstleder), who had worked with Sødning on the two Danish voyages. Six mates and harpooners with former experience in the trade were recruited in Le Havre (a French whaling center), indicating that the Norwegians at the time were not trained in the trade.

The whaling voyage of *17de Mai* did not turn out to be a success. It visited several of the well known Pacific whaling grounds, and encountered plenty of whales, but their actual catching was by-and-large very disappointing. One reason could be the inexperience of the expedition as such. According to captain Crawford's logbook, the main problem was the French expedition leader, who was drinking, behaved bad and did not pursue the whaling the way he ought to.

Despite the meagre profit of the expedition, Mr. Stephansen and the shareholders decided to send *17de Mai* on a second whaling voyage in 1847. However, they wanted to do some improvements, probably according to advises from Captain Crawford who, during the first voyage entered in his logbook:

“If this expedition succeeds, so that more people in Norway would be interested in similar expeditions, the cheapest way would be to engage a trustworthy man to travel over to New Bedford or a place close by, and buy a vessel and equip the vessel from there and hire American officers”.<sup>6</sup>

With the former First Mate as her new captain, *17de Mai* sailed for New York late May 1848 with 20 Norwegian emigrants as passengers. The plan was then to buy whaling gear and hire officers and whalers on the U.S. east coast. However, arriving in New York, several sailors left the ship and equipment and hires turned out to be much more expensive than expected. When the captain was offered a wheat freight to Europe at favourable rates, he accepted.

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*gjenoppdaget i Bergen. Reiser i Bergen Museums samlinger fra Stillehavet*, (Bergen Museums skrifter , Kultur 3), Universitetet i Bergen 1999, s. 19.

<sup>6</sup> Logbook entry, August 9. 1844 (author's translation), Hauge, *op.cit.*, p. 86.

*17de Mai* never again went whaling. She may have been the first of its kind leaving a Norwegian port for a whaling voyage into the Pacific. The question is then, was she the only one? Was she both the beginning and the end of the 19<sup>th</sup> century Norwegian pelagic whaling adventure? It is difficult to find out. As we have seen, the general literature does not mention other vessels.<sup>7</sup>

The faith of the *17de Mai* obviously became known in the Norwegian maritime community, and did probably not encourage further initiatives. Captain Crawford himself, was most likely not an advocate among his colleagues. During the voyage, he also entered in his logbook: “As several captains have said to me, whaling is a trade (levebrød) no one should choose unless they are forced to”.<sup>8</sup> He never went whaling again. He was not “forced to”, and the same was the case for other Norwegian captains and sailors that from the 1840s were in high demand due to very favourable business conditions in merchant shipping – conditions that were to last into the 1880s. This also involved the Pacific Ocean trade, that in many ways became a Norwegian specialty. Vessels were away for years sailing between Australia, the Pacific islands, North and South America.

Norwegian sources have so far not revealed other examples of 19<sup>th</sup> century pelagic whaling than the one expedition that we have described.<sup>9</sup> Another way to get a grip on the possible Norwegian involvement, is to look into American sources. Since this was very much an American dominated industry, it is very likely that there were encounters of several kinds between the Americans and the foreign whalers. Norwegian vessels might call at North American whaling ports, especially New Bedford to hire crew or supply whaling equipment (as we have seen, this is what *17de Mai* planned for on her second voyage). They might even have gone there to sell their products, the oil and whale-bone – although this is not very likely.

A more likely encounter would have been on the whaling grounds, or on the way to and from the whaling grounds. A useful source of information (and probably the only one) is the vessels’ logbooks that normally would contain information about vessels that were seen; what

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<sup>7</sup> Dannevig, *op.cit.*, Risting, *op.cit.*

<sup>8</sup> Logbook entry, August 8. 1844 (author’s translation), Hauge, *op.cit.*, p. 85.

<sup>9</sup> Histories of the major local maritime communities in the 19<sup>th</sup> century (Kristiansand, Lillesand, Risør, Tønsberg, Larvik, Bergen) may reveal more examples. Other Norwegian sources would of course be sailing lists from the various ports, but to go through an entire century for dozens of ports would be an almost impossible task.

was termed *ships spoken*. An index of ships spoken is available at the Kendall Institute (New Bedford Whaling Museum), based on reviews of their collection of around 450 logbooks, covering the most important era of American whaling (1804-1880).<sup>10</sup> This, of course, does not cover all voyages, and obviously not all encounters that took place. However, the logbooks cover many seasons, and it is quite likely that *if* there were Norwegian vessels on the grounds, they were there for some time and would probably operate in areas where there were other whalers. Consequently, they might turn up in the index of ships spoken, although it is incomplete in coverage.

So, what does the index reveal? The result of the search is listed in the Appendix I. Not one single whaling vessel of Norwegian origin was spoken. As we have emphasized, this does not prove that there were none. The logs were incomplete, so are probably also the indexing. The fact the *17de Mai* is not in the index, is a clear indication of the flaws connected to it. However, the index contains approximately 10.000 encounters, and the lack of Norwegian vessels should be a clear indication of the insignificance.

We have also traced vessels spoken from the other Scandinavian countries, Denmark and Sweden. We have done this because the countries of origin may have been mixed up, in fact, one such vessel was located in the index.<sup>11</sup> It would also be of some interest to map the entire Scandinavian activities in terms of shipping and whaling encounters. Altogether 22 vessels of Scandinavian origin have been identified; 6 Norwegian vessels, 7 Swedish vessels and 9 Danish vessels (Appendix I). Only one whaling vessel is among them; the Danish ship (or bark) *Neptune* was spoken by two different American whalers in 1844 and 1845. The 18<sup>th</sup> of June 1845 she was seen on the whaling grounds off Kamtskatha searching for right whales. This whaling ship was, as a matter of fact, captained by the previous mentioned Sødning who had replaced *Concordia* with a newer vessel. *Neptun* also met with *17de Mai* twice on her journey.<sup>12</sup>

One other vessel had a connection to the whaling trade; the Swedish brig *Bull* loaded whalebones from a New Bedford whaler in Mauoi in the Pacific on the 1<sup>st</sup> of November 1845

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<sup>10</sup> The combined Kendall and New Bedford Whaling Museum collections amount about 2200 logbooks and journals.

<sup>11</sup> The famous New Bedford bark *Charles W. Morgan* entered in her logbook on 27<sup>th</sup> October 1911 that she spoke “the Norwegian bark *Skien* – from Stockholm”. The index listed *Skien* as a Swedish ship.

<sup>12</sup> Hauge, *op.cit.*, p. 246.

to bring it back to New Bedford. Other than that, the Scandinavian vessels spoken were employed in general trade and mostly encountered the American whalers on their way along their sailing routes across or up and down the Atlantic, or along the Pacific South American coast. Typically, they were just passing. If they had a closer encounter, the whalers might buy food, send mail, or they exchanged longitude positions.

What about Norwegian participation on American whaling voyages? Was that one type of encounter between the two nations that in one way or another made information flowing between the two countries about the development of the industry? The sources investigated reveal that such employment must have been very limited. A database on New Bedford whalers covering approximately 60,000 names, revealed two (sic.) that had a certain Norwegian connection:<sup>13</sup>

*Crewman:* John Andrew  
*Residence:* Fairhaven  
*Vessel:* Ship *Hercules* of New Bedford  
*Departure Date:* 8/10/1827  
*Return Date:* 7/15/1828  
*Whaling Ground:* S. Atlantic  
*Remarks:* Foreigner, born Norway

*Crewman:* Frederick Hudermark  
*Residence:* Norway  
*Vessel:* Ship *Balaena* of New Bedford  
*Departure Date:* 10/29/1825  
*Return Date:* 12/3/1827  
*Whaling Ground:* Pacific  
*Remarks:* Discharged at Payta 04/1826

There may, of course, have been more. John Andrew (who obviously had changed his name) was resident of Fairhaven, and for some reason stated his place of birth. Such information was once in a while included, but probably not always.

A comprehensive source of information about late 18<sup>th</sup> and early / mid 19<sup>th</sup> century whaling in the Southern Hemisphere and the Pacific, is A.G.E. Jones, based on Lloyd's Register, the Register of Shipping of the Society of Merchants and other sources.<sup>14</sup> A list of more than 3000 names of "harpooners, boat steerers, line coilers and others" employed in South Sea

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<sup>13</sup> New Bedford Free Public Library.

<sup>14</sup> A.G.E. Jones, *Ships Employed in the South Seas Trade 1775-1859*, Vol. 2, (Roebuck Society Publication No. 46), Burwood, Victoria 1991 (Brown Prior Anderson Pty Ltd).

whaling between 1775 and 1859 reveals a few names with a Norwegian / Scandinavian origin or “flavour”, like Henry Hagen, Hans Petter Hansen and Carl E. Nordgren. However, their nationality is not stated.

Jones also compiled lists of vessels, merchants (owners) and masters employed in the trade - but no traces are found of Norwegian participation.<sup>15</sup> This is also the result after searching various compilations on American whaling vessels and their masters, from Starbuck, revisions to his list, to J.N. Lund’s recent work.<sup>16</sup> Occasionally, names that may have a Scandinavian origin turn up (Carl Hansen and C.T. Pedersen are obvious candidates), but again the nationality are not stated.

A fair conclusion at this point is that the Norwegian participation in 19<sup>th</sup> century pelagic whaling (vessels, crew, masters) indeed must have been in-significant. There may be several reasons for such limited involvement. We have already mentioned the favourable business conditions for Norwegian merchant shipping from the 1840s. A look at the general Norwegian emigration pattern from Norway to the U.S. may also explain why so few ended up in whaling. The Norwegian immigration to the U.S. before the Civil War was limited. The first wave of mass-migration did occur in the late 1860s and early 1870s, when the American whaling industry already had reached its peak. These immigrants obviously sought other opportunities. Most of them were farmers and ended up within this industry or in other land based trades. Immigrants with a maritime background were fishermen and sailors, and could find employment there if they wanted.

Gjerset, in his history of Norwegian sailors employed in the U.S., wrote about whaling: “Some were employed in the whale fisheries, though their number was never great, since the immigrants had had little experience in whale fishing in their own country and the fisheries with which they were familiar were more attractive to them”.<sup>17</sup> In the latter part of the 19<sup>th</sup> century, American whaling was not an attractive place to seek employment. The pay and

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<sup>15</sup> Five vessels are listed as Danish in the indexes; *Ann, Flying Fish, Hannah, Lady Hamilton and Susanna*.

<sup>16</sup> A. Starbuck, *op.cit.* (1878), *Returns of Whaling Vessels sailing from American Ports. A Continuation of Alexander Starbuck’s “History of the American Whale Fishery” 1876-1928* (compiled by R. B. Hegarty), New Bedford (The Old Dartmouth Historical Society) 1959, *Addendum to “Starbuck” and “Whaling Masters”* (compiled by R. B. Hegarty), New Bedford (New Bedford Free Public Library) 1964, J. N. Lund, *Whaling Masters and Whaling Voyages Sailing from American Ports*, Sharon / New Bedford ( New Bedford Whaling Museum / The Kendall Whaling Museum) 2001.

<sup>17</sup> K. Gjerset, *Norwegian Sailors in American Waters. A Study in History of Maritime Activities on the Eastern Seaboard*, (Norwegian-American Historical Association), Northfield, Min. 1933, p. 120.

working conditions were bad, the voyages were extremely long. The industry found it increasingly difficult to hire Americans and relied increasingly on crew from Cape Verde and the Azores. Norwegian sailors from the mid 19<sup>th</sup> century had better alternatives. As we have seen, Norwegian shipping as such was growing in these years of increased international trade and liberalization, so employment could be found on Norwegian ships. Payment was bad there, too. But if Norwegian sailors wanted to jump ship, whaling was not the option. This seems to have been the case also from the 1880s, when Norwegian shipping faced a severe crisis and mass migration from Norway reached a second peak.

A distinction should, of course, be made between crew and masters. The great majority of the American whaling masters had climbed the ranks within the New England whaling community. The barriers of entry for foreigners were high - in many ways similar to the later Norwegian domination of the gunner profession of the modern whaling industry.

#### American decline - Norwegian expansion

In the second half of the 19<sup>th</sup> century, the United States went through a significant process of industrialization that implied growth in new industries and major technological changes relating both products and processes. Well known terms like *The Second Industrial Revolution* and *The American System of Manufactures* both encompass this period. Industries were transformed, mechanized and rationalized.<sup>18</sup> American whaling had been undertaken very much the same way for a long time. It was labour intensive, not very mechanized, little machinery was employed. The expansion throughout the 19<sup>th</sup> century had very much been by way of capital widening rather than capital deepening. The productivity growth had been moderate.<sup>19</sup> So, one would assume that the whaling industry was a very likely candidate to become transformed from a rather primitive “pre-industrial” industry, into a more modern, mechanized industry of the Second Industrial Revolution era. As A.O. Johnsen put it in the introduction to his volume on the history of modern whaling; one could assume that this stage of the development of the whaling industry would be initiated by the Americans almost with

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<sup>18</sup> A recent review of this extensive topic; S. L. Engerman and K. L. Sokoloff, “Technology and Industrialization, 1790-1914”, in S. L. Engerman and R. E. Gallman, *The Cambridge Economic History of the United States*, Volume II, Cambridge (Cambridge University Press) 2000p. 367 ff.

<sup>19</sup> L.E. Davis, R.E. Gallman and K. Gleiter, *op.cit.*, p. 297ff.

“the necessity of the order of nature”.<sup>20</sup> That did *not* happen - in the United States. Instead it was left to a small nation in the European periphery that at the time hardly had experienced an industrial breakthrough, and hardly had any whaling operations at all, to bring this industry forward into the “modern” industrialized world of the late 19<sup>th</sup> century. Why did it happen this way? Why did not the Americans themselves lead the way into the next phase of development of this industry? Finally, how was it possible for the small and peripheral Norway to mobilize the initiative, resources and entrepreneurial vitality that was needed to create a new industry and develop it into a global enterprise?

A clear indication of the transition from one regime to another is the development in output in the two industries; the U.S. pelagic whaling and “modern” whaling (Figure 1). The U.S. whaling industry displayed a clear lifecycle over a century, with a peak in output, measured as the number of barrels of oil, in the 1840s and 50s.<sup>21</sup> When the Norwegians started whaling in Northern Norway in the late 1860s, the American industry had already been decimated. In the following years, the output of the two industries converged, and the Norwegian whaling surpassed the American in the early 1890s. At that point, the Norwegian industry had started its regional expansion to Iceland and other North Atlantic grounds (from the turn of the century). A dramatic change then occurred between 1905 and 1910 when the real world wide expansion started (Canada, Africa, Australia, Antarctica).

In 1911 “modern” whaling for the first time surpassed the annual record output of the American industry from the 1840s and 50s. “Modern” whaling at this point was very much a Norwegian lead industrial expansion, although companies registered in other nations had entered the business.<sup>22</sup>

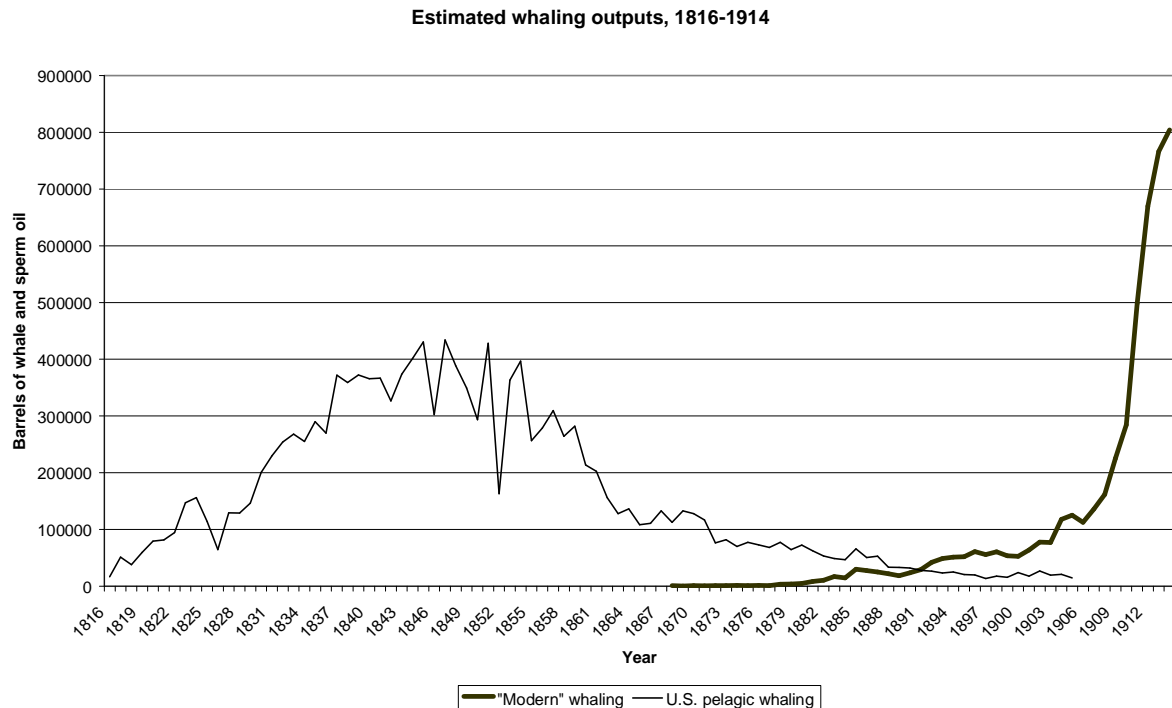
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<sup>20</sup> A.O. Johnsen, *op.cit.*, p. 45 (Author’s translation).

<sup>21</sup> The actual size and scale of the whaling trade may be measured in several ways; the number of whales killed, the number of vessels and manpower employed, the value of the output etc. The output also consisted of other products than oil. In U.S. 19<sup>th</sup> century pelagic whaling the whale bones (baleens) was the most important, while so called whale meal became important in “modern” 20<sup>th</sup> century whaling. The number of barrels is used here because it allows for easy comparison between the two periods. Other measures also display the same overall trends and show the same transition pattern.

<sup>22</sup> Focussing on the transition period, we have not extended the output series on “modern” whaling beyond World War I. From after the war the industry went into its all time expansion on the Antarctic whaling grounds, culminating in the 1930/31 season with a world output of more than 3.6 million barrels. See *International Whaling Statistics*, 1933 (IV), Table i.

Figure 1:



Sources: U.S. pelagic whaling: L.E. Davis, R.E. Gallman and K. Gleiter, *In the Pursuit of Leviatan. Productivity, Institutions, and Profits in American Whaling, 1816-1906*, Chicago and London (The University of Chicago Press) 1997, Table 9B.1. “Modern” whaling: *International Whaling Statistics*, Oslo 1931 (II), S. Risting, *Av hvalfangstens historie*, Kristiania (Cappelen) 1922, J.N. Tønnessen, *Den moderne hvalfangsts historie*, Vol. II, Sandefjord 1967, p. 549ff.

Note: The statistics on modern whaling include whaling on all grounds world wide. Some reports list the number of whales while other list number of barrels. A re-calculation was therefore necessary in some years, hence the figure is titled *Estimated whaling outputs*. See Appendix II for the full list of data, sources and calculation procedures.

Explaining the American decline, the Norwegian expansion, and the relationship between the two phenomena, has been an issue in the historical writing on these industries for a long time. Both American and Norwegian historians of whaling have over the years been intrigued by the puzzle, and attempted to give answers. The decline of the American whaling industry was also addressed by contemporary scholars. Starbuck, in his influential study published in 1878, summarized his observations in the following way:

“Whaling as a business has declined; 1<sup>st</sup>, from the scarcity and shyness of whales, requiring longer and more expensive voyages; 2<sup>nd</sup>, extravagances in fitting out and refitting; 3<sup>rd</sup>, the character of the men engaged; 4<sup>th</sup>, the introduction of coal-oils”.<sup>23</sup>

May be the most systematic contemporary analysis of the decline of the industry was written by W.S. Tower in 1907. He puts forward seven factors - some of them identical to Starbuck - that more or less have been reflected by later writers:<sup>24</sup>

- The nature of the business (high uncertainty)
- Increasing risks of losses (longer voyages, less whales)
- The California gold rush (sailors and officers left the ships)
- The rise of the cotton textile industry
- The introduction of mineral oil
- The Civil War
- The Arctic disaster of 1871

His final remarks in the book was written about half a century after The Boston Globe's optimistic outlook (see pre-script), and it had now turned into the gravest pessimism:

“...the future seems to hold nothing. Whaling no longer ranks as an important commercial interest even in the localities from which it is carried on. The most optimistic view of the future reveals no prospect of any chance for permanent growth or development. The economic conditions under which whaling prospered have ceased to exist, never to be revived. The chief influences which induced the decline of whaling have not been abated in the slightest degree. The death knell of whaling was sounded fifty years ago. It may almost be said that whaling is already dead.”<sup>25</sup>

It is interesting to note that Tower made no reference to the emerging Norwegian industry. His pessimistic remarks were written just when the Norwegians transferred the industry to Antarctic waters, and brought it into a new phase.

E.P. Hohman wrote a history of the American whaling industry published in 1928, thus enabling him to follow the industry into its “Derelict”, “Disintegration and Decay”.<sup>26</sup> Not even Hohman mentioned the Antarctic whaling industry, that at his point was in the mid of an immense expansion. However, in 1935 he published a paper where he explicitly compared the two whaling nations, the United States and Norway.<sup>27</sup> He started out by observing the fact that while Svend Foyn initiated a new industry in the 1860s, the American whaling declined from the same time. He then asked; Why did it happen: “What were the forces which thus

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<sup>23</sup> A. Starbuck, *op.cit.*, p. 113.

<sup>24</sup> W.S. Tower, *op.cit.*, p. 72ff..

<sup>25</sup> *Ibid.*, p. 115.

<sup>26</sup> E.P. Hohman, *op.cit.*, Part III and chapter XIV.

<sup>27</sup> E.P. Hohman, “American and Norwegian Whaling: A Comparative Study of Labour and Industrial Organization”, *The Journal of Political Economy*, Vol. 43, No. 5 (October) 1935, pp. 628-652.

enabled Old World whaling to rise phoenix-like out of the ashes of the New World industry? Why did New England surrender so casually to Norway her position of supremacy among the world's blubber hunters?"<sup>28</sup> Hohman's paper deals mainly with a comparison of labour conditions and organization of the two industries, but in his introduction he suggests an answer to why the Americans surrendered: "Chiefly, it must be said, because she did not choose to fight, because her economic interests and activities were shifting into other and more profitable channels." He mentioned the petroleum as the main challenge that reduced the demand for whale oil for traditional uses (illuminants and lubricants). At the same time, the old whaling grounds were exhausted. A response could be

"a thorough technological reorganisation of the industry. New England, however, was not disposed to provide the necessary capital for such a reorganization, because the prospects for profit were far greater in textiles, shoes, and other industries at home and in the magnificent natural resources of the West. New England man-power, too, was being weaned away from the sea by the siren call of the prairie".<sup>29</sup>

So, instead it was left to the Norwegians to undertake the technological reorganization. They had, according to Hohman, "a less promising hinterland and a stronger economic pull toward the sea...".<sup>30</sup>

Hohman's main explanation of the decline and raise of the two whaling hegemonies has never really been challenged. Davis and Gallman who analyzed the development of the American industry by rigorous statistical and econometric methods, focusing on general economic factors like demand, supply, technology, labour and capital, also offer a multi-faceted picture of explanations.<sup>31</sup> They emphasise changes in demand (the development of new lubricants and illuminants) as well as changes in supply (competition for labour and capital ashore). They explicitly reject, however, the common notion that the decline in part was caused by the depletion of the whale-stocks. When it comes to the question of why the Americans left to the Norwegians to bring the industry into its new stage, Davis and Gallman writes in the last sentences of their book:

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<sup>28</sup> *Ibid.*, p. 628.

<sup>29</sup> *Ibid.*

<sup>30</sup> *Ibid.*, p. 629.

<sup>31</sup> Davis et.al., *op.cit.*,p. 513ff.

“Thus, while the free availability of the ocean’s whales made it possible for the United States to achieve its midcentury leadership in whaling, in the long run that availability made it possible for the Norwegians to dislodge the Americans from that position. Lower wages, lower opportunity costs of capital, and a lack of entrepreneurial alternatives pushed the Norwegians into exploiting the whale stocks. Higher wages, higher opportunity costs of capital, and a plethora of entrepreneurial alternatives turned Americans - even those from New Bedford - towards the domestic economy”.<sup>32</sup>

Labour cost differences were evident. In New England, whalers were paid less than most comparable alternatives ashore. In Norway, the opposite was the case. Even the lower rank sailors aboard the new whaling vessels were better paid than average salaries ashore. More important; their wages were higher than the sailors’ wages aboard merchant ships - a very likely alternative employment in the coastal Vestfold communities of the late nineteenth century.<sup>33</sup>

The high opportunity cost of capital also seems to be quite evident in the American case, and has been emphasized (although in less academic terms) by most historians. The assumed comparably lower opportunity cost of capital and lack of entrepreneurial alternatives in Norway seem evident, too, but the assumption has to be modified. Norway was obviously late in industrialization, and what took place in the latter part of the 19<sup>th</sup> century, was not really concentrated in the Vestfold region. So, at least compared to the economic atmosphere of the New England area, there was a less visible inward “surge” that competed with whaling. The alternative business opportunities were mostly to be found in the maritime industries. In Vestfold in the mid 19<sup>th</sup> century, this meant Arctic sealing and merchant shipping world wide. Both were attractive commercial activities in the 1840s, 50s and 60s, and may, as we have seen, be one explanation why the Norwegians in this business environment did not consider pelagic traditional American style whaling at the time. Svend Foyn himself had made a fortune in sealing when he started his experiments that lead to the breakthrough of modern whaling. At that time (1860s) sealskin prices were decreasing due to a large expansion of the industry. That worried Foyn, and was one of the reasons why he sold out.<sup>34</sup> In his fifties (he was born in 1809) he could have retired as a wealthy man, so the explanation of his further work must be sought in his extraordinary entrepreneurial drive.

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<sup>32</sup> *Ibid.*, p. 521.

<sup>33</sup> Johnsen, *op.cit.*, p. 48ff.

<sup>34</sup> A.O. Johnsen, *Svend Foyn og hans dagbok*, Oslo (Fabritius) 1943.

Svend Foyn operated alone in the industry he was about to create until the 1880s due to his patents that created an effective barrier of entry. When expansion became possible in the 1880s and 90s, the local interest in Sandefjord and Tønsberg was strong. At the time the merchant shipping had begun to face hard times in this era of the Long Depression. Also Arctic sealing was definitely in a decline. So, the opportunity cost of capital as well as “lack of entrepreneurial alternatives” pointed in the direction of the new Finnmark whaling grounds.<sup>35</sup>

Davis and Gallman, in discussing the American decline, ask the question “Is whaling an example of American entrepreneurial failure?”<sup>36</sup> Their answer is no. In addition to the issues we have just mentioned, they also discuss one specific challenge the American whaling entrepreneurs had to face: The “new system of whaling made the entire American capital stock - both physical and human - completely obsolete.”<sup>37</sup> That is obviously a correct observation. Foyn’s concept was by all means technologically something different that required a complete replacement. In a comparative perspective, however, it should be noted that the same applied to the Norwegian entrepreneurs. Foyn and many entrepreneurs following him, had been engaged in sealing or bottlenose whaling with sailing vessels or steam-sailing vessels. They had no use for their old equipment in the new business. Davis and Gallman also mention the Americans’ comparative advantage in the design and manufacture of wooden sailing vessels compared to iron-hulled steamships. The same definitely applied to Norway of the late 19<sup>th</sup> century - a well known example of late transition from sail to steam.<sup>38</sup>

Davis and Gallman are probably correct in rejecting the entrepreneurial failure hypothesis. The New England businessmen failed in keeping up with the development of the whaling industry, but that should not be the sole criteria of success or failure in business. They sought other arenas. When it comes to the Norwegian entrance into the business, the entrepreneurial factor seems obvious. Svend Foyn was, as we have pointed out, in most respects a typical

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<sup>35</sup> For some local businessmen it also led into the bottlenose whaling in the North Sea. This became a transition period between sealing and modern whaling during the two last decades of the 19<sup>th</sup> century.

<sup>36</sup> Davis et.al., *op.cit.*, p. 520.

<sup>37</sup> *Ibid.*

<sup>38</sup> L.R. Fischer and H.W. Nordvik, “Maritime Transport and the Integration of the North Atlantic Economy, 1850-1914”, in W. Fischer et.al. (eds.), *The Emergence of a World Economy, 1500-1914*, Wiesbaden (Klett-Cotta Verlag) 1986.

entrepreneur who could have retired wealthy when he instead ventured into years of uncertainty that finally became the basis of a new industry.<sup>39</sup>

We will leave the discussion for now on the reasons for the American decline and the Norwegian growth. Instead we will focus on the related question on how the Americans viewed and experienced the new development when Norwegians entered the stage from the 1860s. This may also shed light on how the transition period should be understood.

### The Americans and the emerging modern Norwegian whaling

Sven Foyn's operations from the 1860s and onwards did not go on un-noticed to the outside world. News at the time went fast across the Atlantic, not least within the maritime communities. We may assume that rumours developed very soon in the New England whaling communities after Foyn had shot his first whales in Finnmark.

Probably the first American whaler to see Foyn and his new vessel *Spes & Fides*, was Thomas W. Roys. Their encounter in Iceland in the summer of 1866 is an interesting incident that illustrates the transition period of the industry. Both Foyn and Roys were experimenting with new methods and technology. Roys had a career in the American whaling trade when he started his experiments with the rocket harpoon at Iceland in 1859, employing steam vessels and a rudimentary shore station. He was "the first to apply methods of the machine age to the whaling trade".<sup>40</sup> So, at this point in time, it was Foyn who came to learn, taking a detour on his way from Tønsberg to Finnmark. He did indeed pick up ideas from Roys (most well known is the so-called accumulator), but time would soon show that while Foyn's concept proved successful, Roys never got beyond experimentation.<sup>41</sup> He went back to New York in 1867, and continued his work, unsuccessfully, in California and British Columbia until 1871.

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<sup>39</sup> Britain's reluctant transition from traditional to modern whaling will not be discussed here, but offers a parallel example when it comes to entrepreneurial response. G. Jackson initially emphasized the supply side failures, but has later modified his view; see his re-published *The British Whaling Trade*, Research in Maritime History No. 29, St. John's 2005, pp. ix and 137. See also a recent discussion in N. Watson, *The Dundee Whalers 1750-1914*, East Linton (Tuckwell Press) 2003, p. 145.

<sup>40</sup> F.P. Schmitt, C. de Jong and F. H. Winter, *Thomas Welcome Roys. America's Pioneer of Modern Whaling*, Charlottesville (The University Press of Virginia) 1980, p. ix.

<sup>41</sup> *Ibid.*, p. 140ff. See also A.O. Johnsen, *Svend Foyn og hans dagbok*, Oslo (Fabritius) 1943, p. 60 and 113ff, and J.N. Tønnessen and A.O. Johnsen, *The History of Modern Whaling*, London (C. Hurst & Co) p. 16ff.

To what extent he conveyed to the American whaling community what he had experienced during his encounter with Foyn in 1866, is not known.

A look at contemporary sources in the U.S. on the Norwegian emerging industry reveals, however, that it took some time before it appeared in writing. Starbuck (1878) – the classic starting point - had no mentioning of the Norwegian industry. A major newspaper in the American whaling community was the *Whalemen's Shipping List and Merchants Transcript* published in New Bedford. As far as we know, news about the emerging whaling industry in Norway was not printed before in 1882.<sup>42</sup> A small article titled “The Norway Whale-fishery”, was based on a report from the U.S. consul in Christiania, Norway, and begun as follows: “The whaling business in Norway increases and engages larger capital every year”. It also contained information that should be of interest to the American whaling community. Abundance of whales were reported, and a comparison of the Norwegian and the Scottish Dundee fleet, that was still operating in traditional style at the Greenland Coast, left no doubts about where the largest catches and profits were to be found. However, the paper made no reference to the American industry – then in decline - or anticipated a prosperous future for the Norwegian industry. To the contrary, it referred to the consul's worries about the limitations of the Finnmark grounds where the whales soon might disappear, protests of the fishermen in the north, and a general “prejudice” among the Swedes (sic.) in the south.

In G. Brown Good's book on the U.S. fishery industries published in the mid 1880s, one section, written by J.T. Brown and A.H. Clark, is devoted to the “Whale-Fishery”.<sup>43</sup> Brown, in his review of whaling methods as of the 1880s, limits himself to deal with “orthodox and customary methods” in the American industry, and there is no mentioning what-so-ever of the development in Norway. Clark, on the other hand, reviews the industry in other countries, among others the Norwegian development beginning with Foyn.<sup>44</sup> However, his account is no other than quotes from the consular report published in the 1882 *Whalemen's Shipping List*, which indicates that the focus was more on problems than on opportunities.

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<sup>42</sup> *Whalemen's Shipping List and Merchants Transcript*, March 21. 1882, p. 2, c. 5. (Microfilm, Kendall Institute, New Bedford Whaling Museum).

<sup>43</sup> G. Brown Good (ed.), *The Fisheries and Fishery Industries of the United States*, Washington 1884-87, Part XV, The Whale-Fishery; (1) “History and Present Conditions of the Fishery”, by A. Howard Clark, (2) “The Whalemen, Vessels, Apparatus and Methods of the Fishery”, by J.T. Brown.

<sup>44</sup> *Ibid.* p. 195 ff.

A third example of information about the Norwegian industry that was conveyed to the American public about the same time (1885), was a full page article (with two illustrations) in *Scientific American*.<sup>45</sup> The article was written by a Frenchman after a visit at Foyn's plant in Vadsø (Finnmark). It first appeared in *La Natura*, and was then translated. So, it was not directed specifically towards the American whaling community, and did not have any references to it. It was obviously written by a person with no relationship to the industry, and focused on the negative aspects of his experience. He concluded; "We had never seen anything so repulsive". On the other hand, he described equipment, methods and techniques that clearly shows how this was a different industry from the one the Americans were familiar with.

In 1898 the Cabot Steam Whaling Company (founded in 1896 as a joint Norwegian - Newfoundland venture) started whaling at the Newfoundland coast. In the years to follow, this industry expanded and in 1905 a similar development occurred in British Columbia.<sup>46</sup> Modern whaling had reached the North American shores, and the American attention to the new industry obviously increased. Even the general reader was now kept informed and reminded of the connection to the once so proud American industry. An extensive article in the *New York Times* in March 1900 titled "Whale Hunting of To-Day", reported on a visit to the Cabot station:

"Most persons think of whaling as an industry pursued with a buff-bowed old vessel beating her way round the world, manned by New England farmers and the refuse of crimps' lodging houses, and attacking the leviathans of the deep in frail boats with harpoons and lances. Nothing could be more at variance with the modern method of whale hunting, for science has enlisted in the pursuit the most efficient as well as most destructive of accessories, and the killing of the cetacea has been transformed from an adventurous pursuit, abounding in excitement and hairbreadth escapes, into a matter-of-fact, every-day business undertaken".<sup>47</sup>

We are not aware of encounters between American whalers and the whalers of the new industry at Newfoundland, although Newfoundland belonged to the traditional whaling grounds.<sup>48</sup> Such encounters may have taken place at various grounds after the turn of the century when modern whaling expanded world-wide, and American whalers, although in

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<sup>45</sup> *Scientific American*, Vol. LII, No. 20, May 16. 1885.

<sup>46</sup> A.B. Dickinson and C. W. Sanger, *Twentieth-Century Shore Station Whaling in Newfoundland and Labrador*, Montreal (McGill-Queen's University Press), p. 22ff., R. Lloyd Webb, *On the Northwest. Commercial Whaling in the Pacific Northwest 1790-1967*, Vancouver (British Columbia University Press) 1988, p. 142ff.

<sup>47</sup> *New York Times*, March 4., 1900, p. 6.

<sup>48</sup> Dickinson and Sanger, *op.cit.* p. 10.

declining numbers, still ploughed the world oceans. One such encounter, often quoted, occurred in South Georgia in 1912/13 when the New Bedford whaling and sealing brig *Daisy* entered the domain of the Grytviken whaling station, that at the time had operated for some nine seasons. The American whalers obviously felt that they had been caught up by a new era. In scientist Robert Murphy's words: "...our old Yankee whaling has long since passed its day of glory, and the few present participants represent anachronisms of the old calling".<sup>49</sup> Indeed, only a few New England whalers were still active.

The definite end of American old style pelagic whaling in the early / mid 1920s coincided with the dramatic expansion of modern pelagic whaling in Antarctica. The symbolic meaning of this was noted by several observers. American newspapers featured articles about the expanding, mostly Norwegian, industry or whaling factory ships that called on U.S. ports to deliver oil. In a 1928 New York Times article one may read; "Today it is no longer New Bedford that is the centre of the world's whaling interests. The scene has shifted to Southern Norway".<sup>50</sup> Two years later, the same newspaper ran an article focusing on the big profits of Antarctic whaling. It also gave a hint to the former U.S. industry: "While Once Active Cape Cod Lives on Memories - An Incentive to Exploration". In a rather rhetorical statement, we can read that "Profits are so exceptional that Yankees, having dropped out of business, must doubt - if they ever believed - their own reputation for smartness".<sup>51</sup> In this very year, 1930, the U.S. did enter into modern whaling when the floating factory ship *Frango*, owned by the new American Whaling Company, was sent to Antarctica. The company was a joint Norwegian - American enterprise, initiated by the Norwegian whaling company owner Lars Christensen (with 51 percent of the shares).<sup>52</sup>

The only other direct U.S. involvement in modern pelagic whaling was Western Operation Company, registered in 1936 with an office in New York. It had a minority of American shareholders (about one-sixth of the shares), and the dominant owner was Anders Jahre, another of the most active Norwegian whaling entrepreneurs at the time.<sup>53</sup> The floating factory *Ulysses* was manned with Norwegian whalers, and the catcher boats came from

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<sup>49</sup> R.C. Murphy, *Logbook for Grace. Whaling Brig Daisy, 1912-1913*, New York (MacMillan) 1947, p. 233.

<sup>50</sup> *New York Times*, November 4., 1928, p. 145.

<sup>51</sup> *New York Times*, February 2., 1930, p. 128.

<sup>52</sup> Tønnessen and Johnsen, *op.cit.* p. 381.

<sup>53</sup> *Ibid.*, p. 451.

Norway. Both *Frango* and *Ulysses* were lost during World War II, and no whaling ships were registered in the U.S. to participate in the following post-war Antarctic expansion.

These two whaling companies of the 1930s were not American initiatives. They were established to provide market access, tax advantages and expansion in a period where Norwegian and British authorities tried to pose restrictions on the industry. New York provided a convenient office address. This strategy was also pursued by the *enfant terrible* of the whaling industry in the 1950s; Aristoteles Onassis. His Olympic Whaling Co. was registered in Montevideo (Uruguay), the fleet flew several different flags of convenience - but the head office was in New York.<sup>54</sup> So, this company - and the two previously mentioned - had a rather weak linkage to the U.S. The linkage to the industry's old centre in New England was non-existent. Neither the whalers nor the capital originated there. New Bedford had been replaced by New York.

### Conclusions

In this paper we have explored into a transition period between two industries, the American whaling industry of the 19<sup>th</sup> century and the so called "modern" whaling of the 20<sup>th</sup> century that was initiated by the Norwegians. The main questions have related why Norway, a maritime nation throughout the 19<sup>th</sup> century, never took an active part in the American century of whaling, and why the Americans never took an active part in the new emerging "modern" whaling when their own industry went into a decline. We have looked for *encounters* between the nations and the industries that might shed light on the transition. A special focus has been on Norwegian contact with the American industry throughout the 19<sup>th</sup> century, an issue that has so far been less explored.

There were numerous encounters, and the maritime communities of the two countries were well aware of the development of the industries abroad. This applies to the Norwegians during the heydays of American whaling, as well as to the New England whalers during the period of the emerging Norwegian industry. Lack of information was not a reason why the Norwegians did not enter traditional whaling of the early and mid 19<sup>th</sup> century, or why the Americans did not enter "modern" whaling from the 1860s. Explanations must primarily be sought in

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<sup>54</sup> *Ibid.*, p. 534.

internal economic and industrial transition patterns of the two countries. So, “modern” whaling did not develop from traditional whaling. To the extent that the U.S. became involved in “modern” whaling, it had no relation to the old whaling communities of New England. The emerging Norwegian whaling industry had no links to the American industry, that was still a global industry when Svend Foyn shot his first whale from *Spes & Fides*. It is a conspicuous lack of continuity between the two technological regimes.

## APPENDIX I:

### Scandinavian vessels spoken by American whalers

Source: *Index of Ships Spoken*, Kendall Institute, New Bedford Whaling Museum (Card catalogue).

#### (a) Norwegian vessels spoken:

<i>Ship spoken</i>	<i>Fix</i> , schooner of Christiansand
<i>From logbook</i>	Log # 102: <i>Hercules</i> , bark of New Bedford Aug. 23, 1871 - Aug. 2, 1875 (Complete v., Indian O.) Oct. 19, 1875 - Aug. 26, 1879 (Partial v., Indian O.)
<i>Entry</i>	p. 261, Cruising in Atlantic, Thursday, July 24, 1879: "Boarded the schooner <i>Fix</i> of Christiansand waterlogged mainmast standing. Got 2 bbls Pork and 2/3 bbls Petroleum oil." (lat. 34-40, long. 44-25)
<i>Comment</i>	

<i>Ship spoken</i>	<i>Niagara</i> , bark of Norway
<i>From logbook</i>	Log # 237: <i>Platina</i> , bark of Westport May 23, 1867 - June 13, 1871 (Complete v., N. and S. Pacific)
<i>Entry</i>	p. 4, Tuesday, June 4 (year?): "...spoke the Bark <i>Niagara</i> of Norway 24 days from <i>Stdeminga</i> bound to Norway."
<i>Comment</i>	<i>Stdeminga</i> is <i>St.Domingo</i> in the Caribbean.

<i>Ship spoken</i>	<i>John</i> , brig of Christiania
<i>From logbook</i>	Log # 126: <i>Lafayette</i> , bark of New Bedford May 29, 1861 - Dec. 4, 1861 (Complete v., N. Atlantic)
<i>Entry</i>	p. 24: Monday, August 5, 1861: "Exchanged signals with the Brig <i>John</i> of Christiania. Bound East" (lat. 44-00 N, long. 37-00 W)
<i>Comment</i>	

<i>Ship spoken</i>	<i>Peter Lund</i> , bark of Norway
<i>From logbook</i>	Log # 167: <i>Pedro Varela</i> of New Bedford April 5, 1881 - Oct 14, 1883 (Complete v., N. and S. Atlantic)
<i>Entry</i>	p. 174: June 30, 1883: "Have also seen a Merchant Bark. Daniel sent a boat to her with letters and I was glad enough to get one started for home to mother. The bark was Norwegian from .... bound for <i>Arendal</i> ....her name was <i>Peter Lund</i> ."
<i>Comment</i>	

<i>Ship spoken</i>	<i>Skien</i> , bark of Norway
<i>From logbook</i>	Log # 510-1: <i>Charles W. Morgan</i> , bark of New Bedford May 10, 1911 - Aug. 9, 1913 (Complete v., Indian O., S. Atlantic)
<i>Entry</i>	p. 80: Friday, Oct. 27, 1911: "Spoke the Norwegian Bark Skien - from Stockholm, bound to Sydney, Australia". (lat. 23-06, long. 22-48, sailing south from Fayal (Azores) to Cape Verde)
<i>Comment</i>	The entry is in-correct, Stockholm being the Swedish capital. The vessel's name, however, indicate that it is Norwegian; Skien being a port town on the south-east coast of Norway. The vessel's name is spelled "Skieir" on the index card, which also must be in-correct.

<i>Ship spoken</i>	Unidentified, brig of Norway
<i>From logbook</i>	Log # 407: <i>Virginia</i> , ship of New Bedford Nov. 7, 1843 - June 5, 1847 (Complete v., N.-S. Pacific)
<i>Entry</i>	p. 138: Saturday, April 3, 1847: "... saw and shared signals with a Norwegian Brig heading N East under short sail". (lat. 49-55, off Cape Horn)
<i>Comment</i>	

**(b) Swedish vessels spoken:**

<i>Ship spoken</i>	<i>Aerial</i> , bark of Gothenburg
<i>From logbook</i>	Log # 340: <i>Robert Edwards</i> , ship of New Bedford Sept. 6, 1853 - July 25, 1857 (Complete v., S. Pacific)
<i>Entry</i>	p. 9: Tuesday, September 27, 1853: "...spoke the Barque Aerial of Gothenburg". (lat. 38-17 N, long. 38-40 W)
<i>Comment</i>	

<i>Ship spoken</i>	<i>Andre</i> , brig of Stockholm
<i>From logbook</i>	Log # 723: <i>Gratitude</i> , bark of New Bedford September 6, 1854 - June 3, 1858 (Complete v.)
<i>Entry</i>	p. 19: Saturday, November 11, 1854: "Spoke Brig Andre (?) of Stockholm from Cadiz for Rio-Janeiro, and sent letters by her". (lat. 12.55 S, long. 31-39 W, Southbound for Cape Horn)
<i>Comment</i>	

<i>Ship spoken</i>	<i>Anna</i> , ship of Gluckstad, Sweden
<i>From logbook</i>	Log # 20: <i>Ariel</i> , ship of Hull March 14, 1827 - Sept. 14, 1827 (Complete v., Spitsbergen)
<i>Entry</i>	p. 10: Saturday, April 7, 1827: "Spoke the <i>Anna</i> of Gluckstad with three seals. Johan Mayan Bearing". (lat. 70-45)
<i>Comment</i>	

<i>Ship spoken</i>	<i>Aurora</i> , brig of Stockholm
<i>From logbook</i>	Log # 325: <i>Ontario</i> , ship of Nantucket Nov. 27, 1832 - Aug. 13, 1836 (Complete v., S. Pacific)
<i>Entry</i>	p. 9: Sunday, December 16, 1832: "Spoke the brig <i>Aurora</i> from Stockholm bound to New York and sent letters at 8 PM". (lat. 35-40, a few days out, on the way south)
<i>Comment</i>	

<i>Ship spoken</i>	<i>Bull</i> , brig of Sweden
<i>From logbook</i>	Log # 375: <i>Fortune</i> , bark of New Bedford Nov. 17, 1844 - March 17, 1847 (Part. of incomplete v., N. Pacific)
<i>Entry</i>	p. 89: Saturday, Nov. 1, 1845: "At Lahaina at ancor" "All hands employed in .... bones & conveying it on board the Swedish Brig <i>Bull</i> bound to New Bedford. 9.080 lbs".
<i>Comment</i>	Lahaina was a popular port for whaling vessels at Mauoi, Sandwich Islands.

<i>Ship spoken</i>	Unidentified, barkentine of Sweden
<i>From logbook</i>	Log # 620: <i>Sunbeam</i> , bark of New Bedford August 12, 1890 - June 19, 1893 (Complete v., N. and S. Atlantic)
<i>Entry</i>	p. 32: Wednesday, January 21, 1891: "Signalized a Swedish Barkentine and gave her our Long". (lat. 34-14, long. 48-09 (Day before))
<i>Comment</i>	

<i>Ship spoken</i>	<i>Therapiss</i> , bark of Gothenburg
<i>From logbook</i>	Log # 553: <i>Barnstable</i> , bark of New Bedford May 22, 1860 - April 26, 1864 (Complete v., India, N. and S. Pacific, W. Arctic)
<i>Entry</i>	p. 22: Thursday, October 4, 1860: ".... with a swedish barque <i>Therapiss</i> (?) from portsmouth bound to the cape of good hope. belong to gothenburg".
<i>Comment</i>	

(c) Danish vessels spoken

<i>Ship spoken</i>	<i>Anna</i> , ship of Denmark
<i>From logbook</i>	Log # 177: <i>Roscius</i> , bark of New Bedford Oct. 8, 1861 - March 8, 1863 (Three voyages, N. Atlantic)
<i>Entry</i>	p. 32: Monday, Jan. 21, 1862: “...proved to be the brig <i>Anna</i> of Sainberg (?) Danish. We sent some letters on board her.” (lat. 24-33, long. 39-21)
<i>Comment</i>	

<i>Ship spoken</i>	<i>Eric II</i> , steamship of Denmark
<i>From logbook</i>	Log # 196: <i>Valkyria</i> , Schooner of New Bedford July 2, 1914 - Sept. 22, 1916 (Complete v., N. and S. Atlantic)
<i>Entry</i>	p. 105: May 8, 1916: “Saw a Danish steamer the <i>Eric II</i> bound S”. (lat. 23-02 N, long. 63-55 W)
<i>Comment</i>	

<i>Ship spoken</i>	<i>Galathea</i> , frigate of Denmark
<i>From logbook</i>	Log # 12 (pp. 104-105 and 154 (p. 125):
<i>Entry</i>	
<i>Comment</i>	Not seen logbook

<i>Ship spoken</i>	<i>Lydia</i> , bark of Denmark
<i>From logbook</i>	Log # 92: <i>Franklin</i> , schooner of New Bedford Oct. 9, 1883 - Aug. 23. 1885 (Complete v., N. Atlantic)
<i>Entry</i>	p. 79: Wednesday, June 10, 1885: “...took the longitude from a Danish Barque <i>Lydia</i> ”. (lat. 31-05, long. 77-20)
<i>Comment</i>	

<i>Ship spoken</i>	<i>Neptune</i> , bark of Copenhagen
<i>From logbook</i>	Log # 241: <i>Vernon</i> , ship of New Bedford Dec. 1, 1843 - May 21, 1846 (Complete v., S. and N. Pacific)
<i>Entry</i>	p. 134: Wednesday, June 18 <sup>th</sup> , 1845 “At 4 PM spoke the <i>Neptune</i> of Copenhagen 19 Months out 2800 bls.” (Cruising on the SE side of Kamtskatha for Right Whales)
<i>Comment</i>	This whaler is probably the same vessel as the one spoken by <i>Heroine</i> .

<i>Ship spoken</i>	<i>Neptune</i> , ship of Copenhagen
<i>From logbook</i>	Log # 726: <i>Heroine</i> , ship of Fairhaven June 15, 1843 - Sept. 14, 1847 (Two voyages, Pacific)
<i>Entry</i>	p. 75: Sunday, May 6, 1844: “Spoke ship Neptune of Copenhagen 150 days out clean”. (lat. 36-58, long. 176-00 E)
<i>Comment</i>	This whaler is probably the same vessel as the one spoken by <i>Vernon</i> .

<i>Ship spoken</i>	<i>Orscoe</i> , bark of Denmark
<i>From logbook</i>	Log # 68: <i>Desdemoda</i> , bark of New Bedford Sept. 5, 1865 - June 1, 1869 (Complete v., Indian O.)
<i>Entry</i>	p. 240: Febr. 25, 1868: “...spoke Bark Orscoe of Denmark from China bound to New York...”. (lat. 30-50 S, long 40...)
<i>Comment</i>	

<i>Ship spoken</i>	<i>Susana</i> , bark of Denmark
<i>From logbook</i>	Log # 472: <i>Sea Breeze</i> , bark of New Bedford Sept. 1, 1853 - June 30, 1856 (Complete v., S. Pacific)
<i>Entry</i>	p. 320: Wednesday, June 5, 1856: “...spoke the Brig Susana of Denmark steering WSW....exchanged longitudes...”. (lat. 06-15, long. 34-40, homeward bound)
<i>Comment</i>	

<i>Ship spoken</i>	Unidentified, bark of Denmark
<i>From logbook</i>	Log # 410: <i>Ocean Rover</i> , bark of Mattapoisett May 26, 1859 - Sept. 7, 1862 (Partial / incomplete v., N. and S. Atlantic, Indian O., sunk by C.S.S. Alabama)
<i>Entry</i>	p. 218: Tuesday, February 18, 1862: “Saw a Danish Bark Steering East”. (lat. 36-10 S, long. 46-41 W, Cruising on River Laplata).
<i>Comment</i>	

<i>Ship spoken</i>	Unidentified, ship of Denmark
<i>From logbook</i>	Log # 399: <i>Poenix</i> , ship of New Bedford August 3, 1847 - May 28, 1851 (Complete v., S. and N. Pacific)
<i>Entry</i>	p. 181: Friday, February 21, 1851: “...exchanged signals with a Danish ship”. (lat. 52-2, long. 83-30, homeward bound, S towards Cape Horn)
<i>Comment</i>	

**APPENDIX II:**

**Estimated whaling outputs, 1816-1914. Barrels of whale oil in American pelagic whaling (I) and “modern” whaling (II)**

Year	(I)	(II)
1816	16889	
1817	51121	
1818	37928	
1819	59555	
1820	79465	
1821	81623	
1822	94327	
1823	147168	
1824	156327	
1825	113991	
1826	64382	
1827	129445	
1828	129110	
1829	146243	
1830	200424	
1831	230048	
1832	254078	
1833	268029	
1834	255124	
1835	289899	
1836	269902	
1837	372036	
1838	358908	
1839	372119	
1840	365699	
1841	366652	
1842	326678	
1843	373712	
1844	401641	
1845	430647	
1846	302710	
1847	433903	
1848	388632	
1849	349436	
1850	293500	
1851	428074	
1852	163083	
1853	363191	
1854	396533	
1855	256664	
1856	278831	
1857	309381	
1858	264164	
1859	281819	
1860	213713	
1861	202649	

1862	156128	
1863	128029	
1864	136235	
1865	108480	
1866	110965	
1867	132722	
1868	112749	900
1869	132947	510
1870	127874	1080
1871	116691	600
1872	76276	1200
1873	82067	1080
1874	69985	1530
1875	77211	1170
1876	72821	1350
1877	68310	1080
1878	77268	3480
1879	64642	3900
1880	72390	4890
1881	62275	8490
1882	53255	10530
1883	48765	17070
1884	46769	14550
1885	65789	29880
1886	50561	27420
1887	53044	25196
1888	33450	22065
1889	32974	18372
1890	32045	23610
1891	27852	29420
1892	26326	42020
1893	23363	48660
1894	25053	51310
1895	20594	51844
1896	19924	60951
1897	13650	55890
1898	17815	60708
1899	15730	53846
1900	24035	52752
1901	17840	63624
1902	26695	77644
1903	19369	77041
1904	20800	117850
1905	14740	125187
1906		112597
1907		136103
1908		161670
1909		225286
1910		284320
1911		498498
1912		669743
1913		766237
1914		804118

### Note on sources and compilation:

A comparison of whaling output in different time periods and whaling regimes could be done in several ways. Different methods are all associated with a variety of problems which affect the reliability of the comparisons.

For our purposes, a comparison of the output of American pelagic whaling and “modern” whaling could be based on the number of whales killed or the amount of whale and sperm oil that was processed from the catches. Either type of data may illustrate the development in scale of the industries and especially the gradual decline and increase of the two in the transition period of the latter half of the 19<sup>th</sup> century. For U.S. whaling we have not been able to compile information on number of whales killed, only on barrels and tons. We have therefore relied on such data, and base our U.S. data in the period 1816 to 1905 (Column I) on L.E. Davis, R.E. Gallman and K. Gleiter, *In the Pursuit of Leviatan. Productivity, Institutions, and Profits in American Whaling, 1816-1906*, Chicago and London (The University of Chicago Press) 1997, Table 9B.1.

Data on “modern” whaling, beginning in 1868 is available in *International Whaling Statistics*, Oslo 1931 (II). It lists whaling results on all whaling grounds world wide (excluding Japan before 1910). However, in some years on some grounds only the number of whales are reported; Finnmark (1868-1904), Iceland (1883-1890), Murmansk (1886-1887), Shetland and Hebridies (1904-1909) and Newfoundland (1904-1909). For some years additional and revised data are found in S. Risting, *Av hvalfangstens historie*, Kristiania (Cappelen) 1922 and J.N. Tønnessen, *Den moderne hvalfangsts historie*, Vol. II, Sandefjord 1967, p. 549ff. For those years we had to calculate the number of barrels, thus we have preferred to label our list of data *Estimated* whaling output. Since the annual composition of the catches varies a lot from a majority of large Blue whales in some years on some grounds, to mostly small Sei whales at other times, we could have used the concept of “Blue Whale Unites” (BWU) to create comparable figures. However, also Sperm whales and Right whales were included in the catches - species that are not included in the BWU concept. We have therefore instead relied on a rather un-precise calculated annual average number of barrels per whale in the actual period. Based on accessible data we have used an average of 30 in our re-calculation listed in Column II .