

SEAMEN IN THE INDUSTRIAL REVOLUTION :
MARITIME WAGES IN ANTWERP
DURING THE SHIPPING TRANSITION, 1863-1900

BY

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The second half of the nineteenth century was characterized in important ways by economic contours sharply different from those that had prevailed prior to 1850. One of the most significant transformations was the creation of what economists refer to as the international economy. The international economy was (and is) more than simply an aggregation of all the various national economies ; instead, it is more properly thought of as the movements of factors of production across national boundaries. International factor movements were of course not new phenomena in 1850 ; they had not only existed but also grown significantly over the preceding five decades. But what was different in the second half of the century was the pace : international trade, for example, grew approximately seven times faster after mid-century than before ¹. And it was international trade that came to be the most visible symbol of the new-world economic order. To put this burgeoning commercial activity into some kind of perspective, between 1850 and the onset of World War I, total world output per capita grew in real terms by about 180%, while the volume of foreign trade per head increased by an astounding twenty-five times ². In other words, trade expanded relative to output in constant terms about fourteen-fold. While the bulk of this trade (perhaps as much as two-thirds by value in 1900) was intra-continental, by far the most rapidly growing segment of transnational commerce occurred between continents. Given the technology available in the nineteenth century, this trade required merchant shipping to link buyers and sellers in different parts of the globe. Shipowners in the years after 1850 responded to the new demands of international commerce by increasing their investment in shipping. In 1850, the world's merchant

¹ W. S. and E. S. WOYTINSKY, *World Commerce and Governments*, New York, 1955, pp. 66-71.

² For a discussion of the expansion of international commerce in this period, see SIMON KUZNETS, *Quantitative Aspects of the Economic Growth of Nations : X-Levels and Structure of Foreign Trade, Long-Term Trends*, in : *Economic Development and Cultural Change*, Part II, 1967. We have deflated world trade values by the Rousseaux index. See PAUL ROUSSEAU, *Les mouvements de fond de l'économie anglaise, 1800-1913*, Brussels, 1938, pp. 266-267.

fleets contained approximately 9.1 million net tons of carrying capacity ; by 1910 this figure had almost quadrupled to about 34.5 million net tons³.

All this new tonnage created yet another demand : for an increasing supply of seamen to man the vessels. These "working men who got wet"⁴ formed without question the largest international labour pool of the late nineteenth century. But despite its obvious importance, we know relatively little about this group of workers. This is especially true when it comes to information about the levels of remuneration that they earned in return for months of boredom interspersed with periods of unrelenting toil and danger⁵.

The literature on nineteenth-century maritime history reflects no shortage of assertions about wage. Unfortunately, almost none is supported by solid substantive evidence beyond the occasional reference to some qualitative source. But while historians may not have been terribly successful in specifying precise wage rates, their failure is not worse than that of contemporaries. Although a number of nineteenth-century maritime policy-makers in nations which depended on shipping were interested in the question, they too were largely unsuccessful at amassing reliable wage data⁶. As a result of the failure of both contemporaries and historians to provide satisfactory studies of seamen's earnings, until recently we have had only a vague idea of what maritime wages were really like prior to World War I⁷.

Fortunately, however, it is possible to be extremely precise about maritime wages during the "golden age of sail". Ironically, the reason that we can determine very exact wage levels is related to the concern that many governments had about collecting accurate information on labour in the maritime sector. While they have thus provided

³ The expansion of the world's merchant marine between 1850 and 1914 is summarized in Lewis R. FISCHER & Helge W. NORDVIK, *Maritime Transport and the Integration of the North Atlantic Economy, 1850-1914*, in : Wolfram FISCHER, R. Marvin McINNIS & Jürgen SCHNEIDER (eds.), *The Emergence of a World Economy 1600-1914*, Wiesbaden, 1986, pp. 519-544. This essay contains a variety of new standardized time series on international maritime investment.

⁴ We borrow this term from David ALEXANDER, *Literacy among Canadian and Foreign Seamen, 1863-1899*, in : Rosemary OMMER and Gerald PANTING (eds.), *Working Men who Got Wet*, St. John's, 1980, pp. 1-33.

⁵ An outstanding exception to this generalization is Jon PRESS, *Wages in the Merchant Navy, 1815-54*, in : *Journal of Transport History*, Third series, II, 1981, pp. 37-52. Press successfully combines both qualitative and quantitative materials to sketch a convincing portrait of wages prior to mid-century, but by terminating his study when he did, he misses the development of wage patterns in the modern international economy. For quantitative studies that begin to address this problem, see Lewis R. FISCHER, *Seamen in a Space Economy : International Regional Patterns of Maritime Wages on Sailing Vessels, 1863-1900*, in : Stephen FISHER (ed.), *Lisbon as a Port Town, the British Seamen and Other Maritime Themes*, Exeter, 1988, pp. 57-92 ; Lewis R. FISCHER, *International Maritime Labour, 1863-1900 : World Wages and Trends*, in : *The Great Circle*, X, no. 1, April 1988, pp. 1-21 ; and Lewis R. FISCHER & Helge W. NORDVIK, *Regional Wages in the Age of Sail : the Price of Sailing Ship Labour in Towns along the Oslofjord, 1899-1914*, in : *Norsk Sjøfartsmuseum Årsberetning 1987*, Oslo, 1988, pp. 159-186.

⁶ For a particularly illustrative example of this difficulty, see United States, Department of Commerce, Commissioner of Shipping, *Report, 1899*, Washington D.C., 1899, which uses inadequate wage data in the formulation of equally inadequate policy recommendations.

⁷ See PRESS, *Wages in the Merchant Navy*, *cit. supra*, for the sole exception.

the raw material, prior to the advent of computers, it was virtually impossible for government statisticians (or for historians) to collate or analyze the sources that were generated. In the second half of the last century many nations, including Norway, Sweden, and the United States, put into place fairly sophisticated programmes to collect information on merchant seamen, including indications of their wages⁸. But no nation was as assiduous in its efforts to monitor the state of maritime labour as Britain, which rightly recognized that the future prospects for her economic well-being were inextricably linked to the health of her merchant navy. This concern with monitoring the seaborne labour force led to the introduction after 1860 of some remarkable documents with the deceptively prosaic title of "Agreements and Accounts of Crew"⁹.

These "crew lists", as they were most often called, were designed to serve a number of purposes. But central to our concern here is the fact that they recorded information on a number of characteristics of individual crew members, including precise data on the rate of pay. For each voyage undertaken by all vessels registered in the United Kingdom, and for all deep-sea voyages made by craft registered elsewhere in the British Empire, British maritime law required that a host of questions about crew members be answered; one of these queries concerned the wage rate paid. This material was entered onto the agreement, and at the end of the voyage the document was transmitted to the Registrar-General of Shipping and Seamen at the Board of Trade¹⁰. The stated intention was that these documents would provide policy-makers with the data essential to effective decision-making. In the event, however, the sheer volume of the material overwhelmed all good intentions, and few serious attempts were ever made to collate material from the crew lists¹¹. But since the documents recorded precise wages — and did so regardless of the port at which the seamen joined the vessel and irrespective of his nationality — they provide the historians willing to utilize computers and quantitative methods with the data

⁸ For a discussion of these systems, see Lewis R. FISCHER, *Sources for the Study of Canadian Maritime History, 1850-1914: the International Dimension*, in: Lewis R. FISCHER & Helge W. NORDVIK (eds.), *Across the Broad Atlantic: Essays in Comparative Canadian-Norwegian Maritime History, 1850-1914*, Bergen, 1989, forthcoming; Lewis R. FISCHER & Helge W. NORDVIK, *From Namsos to Halden: Myths and Realities in the History of Norwegian Seamen's Wages, 1850-1914*, in: *Scandinavian Economic History Review*, XXXV, no. 1, 1987, pp. 41-66.

⁹ On the crew lists, see Keith MATTHEWS, *Crew Lists, Agreements and Official Logs of the British Empire, 1863-1913*, in: *Business History*, XVI, January 1974, pp. 78-80; FISCHER, *Sources for the Study of Canadian Maritime History*, *cit. supra*.

¹⁰ Nicholas COX, *The Records of the Registrar-General of Shipping and Seamen*, in: *Maritime History*, II, no. 2, September 1972, pp. 168-188; V. C. BURTON, *Counting Seafarers: the Published Records of the Registry of Merchant Seamen, 1849-1913*, in: *Mariner's Mirror*, LXXI, no. 3, August 1985, pp. 305-320.

¹¹ The crew lists were used, however, to provide some data. The British *Parliamentary Papers* are full of references to wage rates; most often the sources for these contentions were the crew agreements. But they were always used unsystematically, and the figures reported in Parliamentary reports often diverged significantly from reality.

necessary to specify with a good deal of confidence the levels and trends of wages in the nineteenth-century maritime world¹².

Information on more than a third of a million seamen was collected from these crew agreements as part of the Atlantic Canada Shipping Project (ACSP) at Memorial University of Newfoundland and placed into computer files for analysis. Thus far the collected material has been used to pursue a wide range of topics, yet we who work with it recognize that its potential remains less than fully tapped¹³. This is true in particular in the area of wage history, which remains in its infancy¹⁴.

This modest paper is part of a systematic attempt to make available and to analyze part of the wage data that we possess ; in this case I want to enquire into the levels and patterns of maritime wages in Antwerp during a particularly important period of time. The last four decades of the nineteenth century represented a shipping transition. Steam and steel came increasingly to challenge wood and sail ; indeed, by 1868 more than half the tonnage plying the North Atlantic trade routes between Europe and America lay in the holds of steamers. This transition created additional problems for shipowners, who had to make the often difficult decision about the type of technology in which to invest. But as steam supplanted sail, the industrial revolution, in the truest sense of the word, came to the maritime sector.

For the most part the data presented comes from the ACSP files, but I have had to supplement this with additional material in order to ensure sufficient cases for analysis. In some cases, indeed, I have used Norwegian data that I have collected in the last few years. This is possible because I have been able to ascertain that wages paid by Norwegian masters in this period are almost identical to wages paid by British captains¹⁵.

But because of the breadth of the topic and the complexity of the files, it is impossible to deal with all the relevant data in the present paper. For this reason, in

¹² The procedure by which most of this data was collected is explained in Lewis R. FISCHER & Eric W. SAGER, *An Approach to the Quantitative Analysis of British Shipping Records*, in : *Business History*, XXIII, no. 2, July 1980, pp. 135-151. The supplementary wage files are described in FISCHER, *The Price of Labour : Canadian and Norwegian Seamen's Wages in Comparative Perspective, 1863-1900*, in : FISCHER & NORDVIK, *Across the Broad Atlantic*, cit. supra.

¹³ For some idea of the diversity of concerns dealt with as part of the project, see Keith MATTHEWS & Gerald PANTING (eds.), *Ships and Shipbuilding in the North Atlantic Region*, St. John's, 1978 ; Lewis R. FISCHER & Eric W. SAGER (eds.), *The Enterprising Canadians : Entrepreneurs and Economic Development in Atlantic Canada, 1820-1914*, St. John's, 1979 ; David ALEXANDER & Rosemary OMMER (eds.), *Volumes not Values : Canadian Sailing Ships and World Trades*, St. John's, 1979 ; Rosemary OMMER & Gerald PANTING (eds.), *Working Men who Got Wet*, St. John's, 1980 ; Lewis R. FISCHER & Eric W. SAGER (eds.), *Merchant Shipping and Economic Development in Atlantic Canada*, St. John's, 1982 ; Lewis R. FISCHER & Gerald E. PANTING (eds.), *Change and Adaptation in Maritime History : the North Atlantic Fleets in the Nineteenth Century*, St. John's, 1985 ; Eric W. SAGER & Lewis R. FISCHER, *Shipping and Shipbuilding in Atlantic Canada, 1820-1914*, Ottawa, 1986.

¹⁴ For some exceptions, see Eric W. SAGER, *The Maritime History Group and the History of Seafaring Labour*, in : *Labour/Le Travail*, XV, Spring 1985, pp. 162-172 ; Lewis R. FISCHER, *International Maritime Labour*, cit. supra ; ID., *Seamen in a Space Economy*, cit. supra ; ID., *The Price of Labour*, cit. supra.

¹⁵ For a full discussion of this point, see FISCHER & NORDVIK, *From Namsos to Halden*, cit. supra.

this particular study of maritime labour I have had to place some constraints upon the questions posed. Here I intend to ask only a limited range of questions. I want to focus on only one type of maritime labour – the able-bodied seamen (AB). In a sense this may seem an unfortunate choice, since the AB, while the principal type of worker on sailing vessels, was hardly a prototype of the new maritime industrial worker. But on the other, our files contain more data on ABs than on any other type of worker, a generalization true not only for sailing vessels but also for steamers. This enables us to place more confidence in the results by boosting the number of cases analyzed. Further, by examining ABs we avoid the difficulty of trying to define working tasks. ABs may have been more valuable on sailing vessels (at least in some regards), but their job descriptions remain unaltered regardless of the type of propulsion used.

My principal concern here is to set out the pattern of wages earned by these men who joined British Empire vessels in the port of Antwerp and to place the wage levels in both a regional and a world perspective. I also intend to examine the question of pay rates on steam versus sailing vessels. The literature suggests that labour was paid more to work on steam vessels, but as the analysis that follows will show, the pattern is far more complex than this generalization would lead us to believe.

The portrait that emerges of maritime wages in Antwerp from the analysis to follow is rather complex. Nonetheless, it is possible to highlight a series of general arguments at the outset. First, the data shows clearly that in most ways the patterns (if not the levels) of wages paid in Antwerp paralleled larger world trends. For example, Antwerp maritime wages in the late nineteenth century moved in “waves”; that is, they were highly variable, seldom either rising or falling for protracted periods in a more or less linear fashion¹⁶. This is also true of the rest of the maritime world; while the amplitudes of these waves varied from region to region, wages in all parts of the globe exhibited this phenomenon to a greater or lesser degree. If the waves in Antwerp were never as variable as in the “new overseas territories of settlement” (the United States, Canada and Australia), they were nonetheless noticeable features of the pattern of remuneration.

Second, the overall *trend* of maritime wages in Antwerp prior to 1900 was relatively flat, just as it was elsewhere. If we aggregate all the various regional wage data into a mythical “world wage”, the compound growth rate as measured by a log-linear regression equation would be less than 0.1% per year between 1863 and the turn of the century. For Antwerp, the growth rate would be just under 0.2% per annum. While the Antwerp growth rate is low, the higher growth rate of wages in the port is significant, as we shall see: throughout most of the period, seamen who joined

¹⁶ This finding should not be surprising to economic historians, since a number of studies of nominal wages in the nineteenth century have made the same point. And using different sources, historians of maritime wages have demonstrated the persistence of this pattern. See, for example, FISCHER & NORDVIK, *From Namsos to Halden*, cit. *supra*, esp. pp. 49-55; FISCHER & NORDVIK, *Salaries of the Sea: Maritime Wages in Stavanger, 1892-1914*, in: *Stavanger Museum Årbok 1987*, Stavanger, 1988, pp. 103-132.

vessels in Antwerp were underpaid compared with the groups that we will examine later in the paper, but the differentials in general narrowed over time. Because of general price deflation around the world in the last third of the century, we have estimated elsewhere that real wages actually grew much more rapidly than did nominal wages¹⁷. Without a good price deflator, we can make no serious attempt to determine whether this generalization holds true for Antwerp. But nothing with which we are familiar in the current literature leads us to believe that conditions were radically different in the Belgian port.

Third, based on what we know about conditions elsewhere, the patterns described in this paper indicate that wages at sea diverged sharply from industrial salaries paid on land. Reliable time series on industrial wages are almost as scarce as those for seamen, but from what we know of industrial earnings, they tended to rise considerably in the late nineteenth century. Take the Belgian case, for example. ABs' wages in Antwerp rose from about £2.60 in the 1860s to just over £3 in 1900. Yet wages in an average of five Belgian industries grew by almost 54% over the same period¹⁸. The growth of maritime wages lagged behind industrial earnings in the last third of the century.

Fourth, the analysis conclusively demonstrates the existence of wage differentials even in northern Europe. The existence of such "wage gaps" is hardly a new discovery, but what this analysis does is to make clear what the levels were and how they changed over time. Further, the data used here has an important advantage for scholars interested in spatial differentials: because the occupation under scrutiny was as close to a universal commodity as possible, we can avoid the difficulty of having to try to define the nature of work precisely. To put this point more concretely, the meaning of farm labour varied from country to country, in part because of cultural differences about the meaning of work. But maritime labour was virtually interchangeable, and the ethnic composition of crews demonstrates this to have been the case¹⁹.

¹⁷ For a fuller discussion of real wages, see FISCHER, *The Price of Labour*, *cit. supra*; FISCHER, *How Heavy was Jack's Purse: Canadian and Norwegian Seamen's Wages in Comparative Perspective, 1863-1913*, paper presented to the annual meeting of the Canadian Historical Association, University of Manitoba, June 1986; FISCHER & NORDVIK, *From Namsos to Halden*, *cit. supra*, esp. pp. 49-53; FISCHER & NORDVIK, *Wages in the Norwegian Maritime Sector, 1850-1914: A Reinterpretation*, in: Lewis R. FISCHER, Helge W. NORDVIK & Walter E. MINCHINTON (eds.), *Shipping and Trade in the Northern Seas, 1600-1939*, Bergen, 1988, pp. 14-35.

¹⁸ Belgian industrial wages are taken from B. R. MITCHELL, *European Historical Statistics, 1750-1970*, London, 1975, Table C-4.

¹⁹ For quantitative evidence on the nationalities of crews, see Rosemary OMMER, *Composed of All Nationalities: the Crews of Windsor Vessels, 1862-1899*, in: OMMER & PANTING (eds.), *Working Men who Got Wet*, pp. 191-227; Gerry PANTING & Eric SAGER, *Labour and Productivity in Canadian Shipping, 1863-1900*, in: Sarah PALMER & Glyndwr WILLIAMS (eds.), *Chartered and Uncharted Waters*, London, 1983, pp. 181-194; Knut WEIBUST, *Deep Sea Sailors: A Study in Maritime Ethnology*, Stockholm, 1969; Harald HAMRE, *Manning the Norwegian Fleet in the Nineteenth Century*, in: FISCHER & NORDVIK (eds.), *Across the Broad Atlantic*, forthcoming; Lewis R. FISCHER & Helge W. NORDVIK, *A Crucial Six Percent: Norwegian Sailors in the Canadian Merchant Marine, 1863-1913*, in: *Sjøfartshis-*

Finally, as is the case elsewhere, the Antwerp wage data presented below raises significant questions about the existence of national or supra-national labour markets in the nineteenth century. Recent literature tends to suggest that by the latter part of the century there was a variety of fairly well integrated markets for various commodities, including shipping²⁰. And similar arguments have been raised at least for national maritime labour markets²¹. Whether or not an international shipping market had yet been created remains open to question, but the existence of national (let alone international) maritime labour markets seems doubtful. The only serious studies of this question focus on Norway; clearly, in that country, there were at best ill-defined regional markets by 1900²². The evidence in this paper reinforces this argument. Antwerp wages do not correlate well with those in Rotterdam, Hamburg or ports on the other side of the English Channel.

In the analysis to follow we will examine the wages of 24,168 seamen recruited in Antwerp between 1863 and 1900. It is to this analysis that we may now turn, beginning with those who served on sailing vessels. The average able-bodied seamen (AB) recruited to serve on a sailing vessel in 1863 in Antwerp received £2.60 per month in remuneration (see Table 1)²³. By the turn of the century average wages had risen to £3.00, an increase of but 15% over a third of a century. The long-term secular trend is therefore slightly upward. But identifying the long-term trend in this case obscures more than it reveals. At the very least, though, it shows that rather than moving in something resembling a straight line, Antwerp maritime wages in this period moved in a wave-like fashion.

Wages declined to a low of £2.49 by 1866. They then moved upward irregularly to a peak of £3.48 by 1874, and again declined to a trough of £2.81 by 1879. They

torisk Årbok, 1984, Bergen, 1985, pp. 139-149; FISCHER & NORDVIK, *Fish and Ships: the Social Structure of the Maritime Labour Force in Haugesund, Norway, in the 1870s*, in: *Sjøfartshistorisk Årbok* 1986, Bergen, 1987, pp. 139-170, FISCHER & NORDVIK, *Finländare i den Kanadensiska Handelsflottan, 1863-1913*, in: *Historisk Tidsskrift för Finnland*, LXXIII, 1988, pp. 373-394.

²⁰ On the integration of shipping markets, see for example C. Anick HARLEY, *Aspects of the Economics of Shipping, 1850-1913*, in: FISCHER & PANTING (eds.), *Change and Adaptation in Maritime History*, *cit. supra*, pp. 167-186; and FISCHER & NORDVIK, *Maritime Transport and the Integration of the North Atlantic Economy*, *cit. supra*. For an overview that puts shipping into its larger international context, see Peter MATHIAS, *The Emergence of a World Economy, 1500-1914*, in: *Vierteljahrsschrift für Sozial- und Wirtschaftsgeschichte*, LXXIV, no. 1, 1987, pp. 1-17.

²¹ The clearest such arguments concerns Norway. See Fritz HODNE & Ole GJØLBERG, *Market Integration during the Period of Industrialization in Norway*, in: Paul BAIROCH & Maurice LEVY-LEBOYER (eds.), *Disparities in Economic Development since the Industrial Revolution*, London, 1981, pp. 216-225.

²² The evidence for this conclusion is laid out in detail in Lewis R. FISCHER & Helge W. NORDVIK, *Norwegian 'Matrosen': the Development of a National Labour Market for Seafaring Labour, 1850-1914*, in: *Scandinavian-Canadian Studies*, IV, 1989, forthcoming. But see also the discussion in FISCHER & NORDVIK, *From Namsos to Halden*, *cit. supra*, especially the correlation matrices in Table 6, and FISCHER & NORDVIK, *From Coast to Coast: A Comparative Study of Maritime Wages in Norway, 1850-1914*, in: FISCHER (ed.), *Wage and Price History: the View from the Nordic Countries*, Bergen, 1989, forthcoming.

²³ The means in this paper are in all instances reasonable descriptions of the central tendencies of the wage distribution.

Table 1. — Mean wages paid to able-bodied seamen recruited in Antwerp for sailing vessels, 1863-1900 (Sterling/Month).

Year	"Mean wages"	Year	"Mean wages"
1863	2.60	1882	2.96
1864	2.56	1883	2.95
1865	2.50	1884	2.95
1866	2.49	1885	2.95
1867	2.64	1886	2.80
1868	2.68	1887	2.72
1869	2.49	1888	2.87
1870	2.54	1889	3.33
1871	2.67	1890	3.25
1872	2.69	1891	3.18
1873	3.13	1892	3.06
1874	3.48	1893	2.73
1875	3.39	1894	3.00
1876	3.25	1895	2.75
1877	3.33	1896	2.85
1878	3.10	1897	3.04
1879	2.81	1898	2.89
1880	2.86	1899	2.79
1881	2.87	1900	3.00

Notes: The table includes 14,323 able-bodied seamen (ABs) described in the text. All wages are expressed in sterling, converted at the appropriate exchange rates. All means are significant at the 95% confidence level, with low standard deviations.

Source: Memorial University of Newfoundland, Atlantic Canada Shipping Project Computer files and supplementary wage files derived from British Empire Agreements and Accounts of Crew, 1863-1900; and Norwegian School of Economics, Wedervang Archive, WA 244, *bemandingsliste*, for Antwerp (hereafter referred to as Antwerp Crew List Data Set).

fluctuated narrowly at slightly higher rates through 1885, declined for a few years, and then rose again to a peak of £3.33 in 1889. In the 1890s wages were highly variable.

This evidence calls into question the present-minded assumption that wages have historically moved in a linear fashion. Instead, as the data shows, wages moved far more irregularly. The waves that are evident in the Antwerp data are neither as regular nor as pronounced as they were in some parts of the world and they do not subdivide neatly into periods. Nonetheless, they most certainly do not lend much support to a simple (and all too often advanced) argument of linearity. And they certainly do not look like the wage patterns with which we are familiar in the latter part of the twentieth century.

These data, while they tell us *something*, can only have meaning if placed in some type of context. This is what I attempt to do in Table 2, which expresses Antwerp wages as a proportion of wages paid elsewhere in northern Europe. The figure for "Britain" includes all wages paid in England only, while the column headed "Northern Europe" is an amalgam of all wages paid elsewhere north of the French Channel ports. The designations "Rotterdam" and "Hamburg" are, I would hope, self-explanatory.

Table 2. — Index of Antwerp wages compared with wages in Northern Europe and Britain, 1863-1900 (sailing vessels only ; Britain = 100 each year).

Year	Antwerp	Northern Europe	Rotterdam	Hamburg
1863	85	91	94	96
1865	84	89	93	96
1870	90	94	100	99
1875	99	96	103	103
1880	109	109	114	107
1885	101	98	107	104
1890	97	90	98	100
1895	94	91	100	102
1900	99	107	108	119

Source : Antwerp Crew List Data Set.

The table shows some interesting patterns. To begin with, it demonstrates that seamen in Antwerp were dramatically underpaid relative to wages elsewhere in nearby ports in 1863 and 1865. Antwerp ABs on sailing vessels were paid only 85% of average British wages in 1863 and only 84% in 1865. This was considerably less than the Northern European average (91% and 89% respectively) and even further behind wages paid in the competing ports of Rotterdam and Hamburg. But by 1870 Antwerp wages were moving up *relatively*, and they were doing so more rapidly than the average for Northern Europe and Hamburg, although less quickly than in Rotterdam. By 1875 Antwerp wages were almost on a par with remuneration in England and for the first time exceeded the Northern European average. By 1880 Antwerp wages not only exceeded the rates paid in England, they also matched the Northern European average and for the only time in the period exceeded wages in a comparable port (Hamburg). Wages remained relatively high in 1885, but declined thereafter in terms of all of the comparisons presented in the table.

What all of this shows, of course, are a number of the points we made in the introduction. It would be nice to explain these phenomena, but none of the obvious explanations work. The most obvious explanation would begin with a simple supply and demand model which suggests a strong relationship between wages and demand for seamen. Lacking a surrogate for the latter, I attempted to test the relationship between incoming tonnage, as calculated by Karel Veraghtert²⁴, and wage rates, both absolute and relative. The results were disappointing. The overall correlation between absolute wage levels and tonnage entering the port (+.38) suggests only a weak relationship ; indeed, the relationship is positive only because of the underlying secular positive rate for wages. The correlation coefficient tells us something else as well : if tonnage is a reasonable surrogate for demand for seamen, then demand can explain at best about 14% of the variance in wages. Quite clearly, any explanation is

²⁴ See F. SUYKENS, G. ASAERT, A. DE VOS, A. THUIS & K. VERAGHTERT, *Antwerp : A Port for All Seasons*, Antwerp, 1986, p. 359. The data were taken from Veraghtert's evidence on tonnage entering the port.

going to have to require the assistance of scholars far more familiar with the Belgian economy than I am.

As part of the process of describing wage rates, we can now turn to the question of steam. Since in many respects the patterns of steam wages paralleled those for sail, I will not reproduce the entire analysis. Instead, in Table 3, I examine the relationship between pay rates on the two types of vessels. The literature suggests that seamen serving on steamers were generally paid more than those who served on sail. Unfortunately, Table 3 does not confirm this accepted wisdom.

Table 3. — Pay rates of ABs on steamers compared with sail, 1863-1900
(sail pay = 100 in each year).

Year	Steam	Year	Steam	Year	Steam
1863	108	1876	104	1889	95
1864	107	1877	103	1890	96
1865	103	1878	103	1891	102
1866	106	1879	104	1892	101
1867	106	1880	102	1893	97
1868	110	1881	101	1894	99
1869	107	1882	103	1895	95
1870	104	1883	102	1896	100
1871	104	1884	107	1897	97
1872	105	1885	103	1898	101
1873	109	1886	100	1899	95
1874	105	1887	97	1900	98
1875	106	1888	93		

Note: The table includes the seamen described in Table 1 plus 9,845 ABs who served on steam vessels.

Source: Antwerp Crew List Data Set.

Instead, the evidence in Table 3 demonstrates that through 1885 the accepted wisdom holds. ABs on steam were consistently paid more than their colleagues on sailing vessels. The premium for serving on steamers was as high as 10% (in 1868) and averaged just under 5% per year. But in 1886 wages for steam and sail were identical, and in the last fourteen years of the century steam wages exceeded sail in only three years, never by more than 2%. In all other years save one, the reverse was true, and the differentials *in favour of sail* reached as high as 7%.

This evidence suggests not only that we need to revise the accepted wisdom but also that any talk of an integrated maritime labour market is premature. Steam and sail wages correlate only moderately (+.51 over the entire period) and the relationships are not noticeably stronger if the full period is subdivided. This strongly suggests that within the port we are dealing with two labour markets — related, to be sure, but more importantly distinct in significant ways. It would be ideal to be able to describe and explain these markets, but at this point it is not possible. Instead, we must content ourselves with the observation that they appear to be distinct.

Once again, the explanation for these findings can only be tentative. I have seen similar (although not identical) patterns in Britain, Canada and Norway, which suggests that the Antwerp experience is not unique. It is possible that the steam rates were high at the outset because many of the steamers were in fact only auxiliaries, operating under both steam and sail. Without a lot of laborious searching through records it is impossible to tell. But if this were true, it might have been that masters were paying more for additional work. But given the low standard deviations around the mean for steam wages, I doubt this strongly. Certainly some of the vessels clearing Antwerp before 1885 *must* have been fully steam-powered. And if this is the case, the low standard deviation makes this explanation highly doubtful.

Another explanation — and one I think worth exploring — is that masters in the early years of steam were paying premiums in an attempt to acquire the best (and likely the most conscientious) workers to help protect their expensive investments. Steam tonnage on average cost between three and four times the value of sail tonnage in the late nineteenth century. Thus, any prudent owner would have been acting rationally to structure a series of premiums in this way. On the other hand, as owners and masters came to recognize that the premiums were unnecessary to attract competent labour, they would also have been prudent to try to beat down the rates. Indeed, since it is possible to argue that ABs on sailing vessels were skilled workers, while ABs on steamers for the most part did not have to possess the same types of abilities, the pattern after 1886 also appears explicable. The only problem is that thus far I possess no evidence either to support or to refute this hypothesis.

Conclusions

As we have seen, Antwerp maritime wages conformed to the generalisations that I set out in the introduction to this paper. Nominal wages did indeed move in irregular waves ; the trend was in fact relatively flat ; wage differentials unfavourable to Antwerp did exist ; and there is no evidence of a national labour market in seamen.

In short, maritime wages in Antwerp in the late nineteenth century displayed features that were both similar and unique when compared with those in other parts of the world. In saying this, I am saying something which is at once both evident and significant. In a world only loosely integrated by twentieth-century standards, there is of course little reason to expect that any two places on the face of the earth should have had experiences which were precisely the same. Yet the question of how much divergence should be expected remains open, especially given the developments of the last third of the century that acted to bring even far-flung locales closer together. This question, while not addressed directly in the paper, is nonetheless implicit. The weight of the evidence suggests that experiences in Antwerp might have been expected to conform even more closely to patterns elsewhere, especially if variables exogenous to the port were important in determining wage rates.

The fact that what occurred in Antwerp does not correspond to what might have been inferred from the literature on the international economy suggests an important

lesson : that in comprehending phenomena like wages maritime historians need to work in close collaboration with economic historians interested in similar developments in the landward economy. Some of what we have described above was doubtless the result of factors exogenous to the domestic economy. But it is equally clear that an adequate explanation of the patterns observed requires far more expertise in Belgian economic history than I possess – or am likely to gain in the foreseeable future. I hope that the material presented here will challenge a specialist in Belgian economic history to explore with me the riddles posed by the wage experiences in the port of Antwerp.