**Literature review: how the evolution of ports has been shaped by global missions – Jonathon Huggett**

**Overview**

The Hindsight Research project at Lloyd’s Register Foundation aims to connect contemporary developments within the maritime world to its history, using the LR archives in order to understand and contextualise the present-day opportunities and challenges which LR is involved in. The chosen contemporary issue was ‘green corridors’, an initiative which was conceived by the LR decarbonisation centre and eventually implemented on a global scale by the Clydebank Declaration at COP26 in Glasgow. The concept of ‘green corridors’ (zero-emission maritime routes between ports which committed to the initiative) lent itself to a plethora of potential avenues of historical exploration; ultimately the investigation settled upon was to examine how ports had seen changes as a consequence of ‘global missions’.

Just as the international effort against climate change was prompting ports to invest in zero-emission technology and infrastructure, forming relationships with other ports embarking on similar projects in order to create ‘green corridors’, so throughout history multilateral initiatives such as the Crusades, the spice trade, the slave trade, the African blockade, western-led globalisation, and pan-Arab assertion have all impacted ports in terms of their maritime traffic, the investment and infrastructure which they required, and their relative significance to global shipping. The LR archives, and – where appropriate – external resources were used to unveil these missions of the past and to investigate how they had affected the status and nature of various ports in the same way as the ‘green corridors’ initiative sought to do so.

In terms of the LR archives, in particular the parts of it which had been made available to access online (given the internship project took place remotely), the resources were most bountiful concerning the past seventy years – accordingly this period became the focus of research. Notably, the archive of *100A1* magazines which were formerly published by LR several times a year were an invaluable resource: each edition ordinarily included an in-depth case study relating to LR’s activities in a specific country or region which would expertly weave a historical/cultural summary with a description of the state of the maritime industry as well as interviews with key players. Some of the best examples of this were ‘Kingdom of Allah and Oil’ in the April 1983 edition of *100A1*, and ‘Montreal: Gateway to the Seaway’ in the second publication of 1958. Excerpts from the ‘Around the World’ section of LR’s Annual Reports were also useful, providing a concise summary of maritime and LR activity within a country for the given year.

External resources used were primarily websites relating to ‘green corridors’ in terms of their substance and their implementation; these provided examples of the ports involved, such as Montreal, for which the archive was then used to assess if they had a history of similar innovations and transformations. In addition, chapters from the book*The Routledge Handbook of Maritime Trade Around Europe 1300-1600* edited by W. Blockmans, M. Krom, and J. Wubs-Mrozewicz gave fascinating insight into the early history of some of the ports being investigated.

The below review separates the sources used into topics – in this way, it is easier to find information on a particular area of interest. Each source is accompanied by a note concerning its usefulness to the project, as well as several bullet points detailing its contents; there is also a summary of the resources used and their combined relevance to the investigation at the end of each topic.

**Green corridors**

**External online sources:**

**COP26 Clydebank Declaration for green shipping corridors (Nov. 2021),**<https://www.gov.uk/government/publications/cop-26-clydebank-declaration-for-green-shipping-corridors/cop-26-clydebank-declaration-for-green-shipping-corridors> [accessed 5th Dec. 2022]

***This source formed the basis for the investigation, and was as such of significant importance. It defined the nature of green corridors and emphasised the broad changes which would need to take place at ports in accordance with this.***

* Signed by 24 nations aiming to limit emissions from international shipping, in line with Paris Agreement target of 1.5-2°C limit in temperature increase from pre-industrial levels. Risk of international shipping emissions reaching 130% of 2008 levels by 2050. Clean shipping requires clean fuels, zero-emission vessels which may have alternative propulsion systems, and appropriate landside infrastructure available on a global scale
* Green shipping corridors defined as ‘zero-emission maritime routes between 2 (or more) ports’; target of ‘at least 6’ by 2025 (‘middle of this decade’) with ‘many more’ by 2030. The corridors will involve extensive partnerships (e.g. between ports, governments, operators, manufacturers) working to decarbonise the sector, promote the corridors, and overcome barriers to them such as regulation or lack of incentive
* Plea for ‘voluntary participation by operators’ and acknowledgement that vessels on relevant routes ‘would not be required’ to be participatory or zero emissions

**Fourth International Maritime Organisation Greenhouse Gas study (2020),**

<https://www.imo.org/en/OurWork/Environment/Pages/Fourth-IMO-Greenhouse-Gas-Study-2020.aspx> [accessed 5th Dec. 2022]

***This source contained a wealth of data which underlined the environmental motivations behind the concept of green corridors.***

* In 2018 shipping emissions were 2.89% of global anthropogenic emissions
* 5.6% increase in international shipping’s CO2 emissions from 2012-18, totalling 740 million tonnes

**Green Shipping Corridors: Routes to a zero emissions future (Sept. 2021),** <https://caminocop26.com/green-shipping-corridors> [accessed 5th Dec. 2022]

***This source was less useful; there was little to distinguish it from the Clydebank Declaration, although this was because the source was derived from the conference which culminated in that Declaration.***

* Aims of proving possibility and safety of decarbonised shipping whilst improving/developing technology and infrastructure
* Green corridors are a ‘high-level political declaration’ not signed by ‘industry partners’
* The ‘rate of change’ is determined by ‘individual partnerships’ rather than any binding agreement; there is no oversight – intention for ‘concept to spread’ and governments ‘own together’ the corridors
* Schemes which are ‘bilateral/plurinational’ are preferred to domestic ones

**Clear to proceed – green shipping corridors in the Nordic Region (May 2022),** <https://www.norden.org/en/news/clear-proceed-green-shipping-corridors-nordic-region> [accessed 5th Dec. 2022]

***This source gave a useful example of green corridors set to be implemented in Scandinavia. It prompted investigation into Norway’s maritime history, green corridors surely being only the latest instalment of a series of transformations and innovations***

* Nordic environment ministers agreed to establish regional green shipping corridors
* Norway Climate and Environment Minister Espen Barth Eide: “There is currently a significant volume of marine traffic between the Nordic countries. Together we have the resources and technology to really lead the way with a project that can showcase the potential for green shipping to the whole world”
* Secretary General of the Nordic Council of Ministers Paula Lehtomäki: “the Nordic countries pioneering efforts that are also in line with the Nordic Council of Ministers’ vision to be the world’s most sustainable region and promote the green transition and CO2 neutrality”
* In 2020 Nordic ministers signed a declaration for ‘Cleaner Cruises through More Shore Power: Nordic Leadership in Making the Nordic and Greater Baltic Sea Area Sustainable Cruise Destinations’; green corridors will complement existing efforts to reduce pollution from cruise ships

**First-ever North Atlantic Green Shipping Corridor prioritised by Montreal and Antwerp ports (April 2022),** <https://www.marinedelivers.com/2022/04/first-ever-north-atlantic-green-shipping-corridor-prioritized-by-montreal-and-antwerp-ports/> [accessed 5th Dec. 2022]

***This source gave a useful example of a green corridors set to be implemented between Antwerp and Montreal, as well as the latter’s general sustainability efforts – it provoked research into the history of Montreal’s port and its past developments***

* Montreal and Antwerp Port Authorities ‘actively pursuing’ a green corridor. The Port of Antwerp is ‘the largest trading partner’ of the Port of Montreal – 15% of containerised tonnage at Montreal is to/from Antwerp, which is ‘the gateway of choice for European markets’ Montreal and Antwerp have collaborated on sustainability and innovation projects since 2013 and are committed to official collaboration until at least 2026
* Martin Imbleau, President of MPA: “The St. Lawrence port and marine ecosystem is well positioned to use, distribute and export renewable fuels such as hydrogen and methanol produced using Quebec hydropower ... This agreement makes it possible for us to build on our respective strengths to decarbonize not only our industry, but also our respective economies”.
* Montreal has led innovations in berth-side hydroelectricity and in June 2021 signed a development agreement with biofuel firm Greenfield Global. Initiatives by Montreal including a fully hybrid service vehicle fleet and new low emission railway locomotives mean that the port’s greenhouse gas emissions relating to its own activities have fallen by 25% from 2007-22

**A big first step towards green shipping corridors (Feb. 2022),** <https://www.climateworks.org/blog/green-shipping-corridors/> [accessed 5th Dec. 2022]

***A further example of a green corridor which is planned to be implemented – interestingly China was not a signatory to the Clydebank Declaration. Since the LR archive tended to focus away from America and China, this source did not initiate further research.***

* Partnership for a green shipping corridor between ports and cities of Los Angeles and Shanghai intended to be implemented by 2030; this is ‘one of the busiest maritime trade routes in the world’
* In 2021, ‘private-sector actors’ made a “call for action” to decarbonise the maritime sector by 2050 and make zero emission vessels the status quo by 2030; global retailers in the coZEV group which includes Amazon and Ikea committed to exclusively using zero emission vessels by 2040 and also called for maritime shipping to be decarbonised by 2050
* Green corridors aim to combine ‘technical aspects’ like vessels, fuel, and infrastructure with ‘operational aspects’ like contracts, pricing, and communities
* If ‘full decarbonisation’ is to be achieved by 2050, it is estimated that zero carbon fuels must form ‘5% of all maritime fuels by 2030’ and ‘first movers’ will need to use these fuels on a ‘disproportionately higher share’ of their vessels
* Green corridors and zero emission shipping will enable ‘the improved health and economic well-being of those communities that today shoulder the externalities of the shipping industry’

**Summary**

The resources above served as a useful basis from which to understand green corridors, and how they could be used as a springboard from which to explore and investigate the LR archives. The emphasis on the need for ports to take action in making agreements such as the Montreal-Antwerp one, and to upgrade their own infrastructure in line with environmental demands, set out a focus for the project upon how ports have changed in nature as a consequence of externally imposed criteria. In terms of the article, green corridors provide a contemporary purpose to link the historical research back to through the global mission of combatting climate change – aspects of this research will certainly be incorporated in the finished article.

**Norway’s maritime history**

**LR archive sources:**

**‘Around the World’ in *Annual Report for the Year 1968* (1968), p.74-5**

***This source was included as an interesting aside, in case Norway’s history came to form a prominent part of the investigation.***

* ‘Norway's once traditional interest in whaling has vanished and no Norwegian expedition left for the Antarctic last year’

**‘Around the World’ in *Annual Report for the Year 1969* (1969), p.67, p.79**

***Same as above.***

* ‘Norway has re-entered the whaling trade, sending out a new whale factory ship’

**‘Around the World’ in *Annual Report for the Year 1984* (1984), p.22-4**

***This source highlights the vulnerability of the maritime industry to economic fluctuations, and the deep consequences it could have for firms, supply chains, and livelihoods***

* For Norway, ‘the shipbuilding and allied industries were in a very serious position, with many yards lacking orders and another main Bergen shipyard closing. The position generally was reflected in LR's activities, with the order book for classed vessel quickly running down, and new orders scarce’

**‘Celebrating 125 years in Norway’ in *100A1*, 116, vol.2 (1997), p.28-9**

***A useful summary quote which merits inclusion in the article, and an example of the problems created by the oil crisis – but also the opportunity which it ultimately provided for Norway***

* ‘Looking back at the history of Norwegian shipping, its winners are those which have been able to adapt their operations to meet changing circumstances’
* As a consequence of the 1973 oil crisis, when ‘oil prices jumped, virtually overnight, from US$3 to US$30 a barrel’, a lower demand for tankers meant that ‘in order to survive, many Norwegian shipbuilders had to switch from shipbuilding to off-shore work, this led to the growth of the petro-chemical industry – which was to be an economic bonanza for Norway’

**External print sources**

**G. Ersland, ‘Bergen 1300-1600: A trading hub between the North and the Baltic Sea’ in W. Blockmans, M. Krom, J. Wubs-Mrozewicz, *The Routledge Handbook of Maritime Trade Around Europe 1300-1600* (Abingdon, 2017)**

***This was a fascinating read, chosen to connect a port’s evolution throughout its medieval history into the present-day changes of the maritime industry. It only scratched the surface of topics like the medieval Norwegian kingdom and the Hanseatic League.***

* Bergen ‘had sailing access to both the North Sea and eastwards into the Baltic’ and from the fourteenth century ‘became a major hub for trade in Northern Europe’, also home to a Hanseatic Kontor (trading post). ‘Most of the Norwegian foreign trade revenues during the late medieval period came from the export of fish from Bergen’s harbour’ (p.428)
* Bergen was used by the King as his chosen location to meet representatives from island communities which he sought to control, including Shetland, the Faroe Islands, Orkney, and the Hebrides – it was a royal seat and important political centre (p.429)
* From the 1270s, ‘the subjects of the king, the Norwegians, held the exclusive right to trade in Bergen during the whole year. Foreigners could only trade as guests during the summer season’. Whilst Bergen remained the dominant centre of western Norway, it began to lose influence to Oslo, although Bergen’s continued trading importance was underlined by its status as Norway’s connection to the Hanseatic League (p.430-2)
* Restrictions imposed upon trade heavily favoured Bergen: Norwegians could not trade in the countryside, only at the Bergen marketplace, while foreigners were banned from sailing and trading further north than Bergen (p.432-4)
* The Hansards were dominant in maritime trade and centred around the Bryggen Quarter, which became known as *Die Teutschen Brugk* (the German Wharf), to which they were eventually confined and forbidden from owning property elsewhere (p.437)
* ‘The long-lasting legacy of the Hanse in Bergen is a crucial part of the town’s connections with sailing routes in the North and Baltic Sea regions, but so was the fact that most of the local visitors arrived by boats or smaller ships. In terms of communications the town was, for all practical purposes, totally dependent on its harbour for more than 800 years. This was challenged only as late as the twentieth century, when railways, cars and aviation were introduced’

**Summary:**

Although ultimately Norway and its maritime history did not form a significant part of the final article, the content above would certainly have been incorporated into a more extensive study. Norway’s maritime history, or at least that of it which has been collated above, includes medieval empires and trading networks, the evolution of traditional industries, the impact of the oil crisis, and a move into offshore oil; all of this is fascinating and relevant to a series of global missions and the evolution of ports as a consequence of this.

**Montreal’s maritime history**

**LR archive sources:**

**‘Montreal: Gateway to the Seaway’ in *100A1*, 2, vol.2 (1958), p.28-32**

***This article was a follow-up to the above item on Montreal starting a green corridor with Antwerp. It gave a good summary of Montreal’s history as a port, and the opening of the St Lawrence Seaway which it describes can be perceived as a transforming event for Montreal’s port, just as the green corridor might come to be.***

* *100A1* ran a piece on Montreal with a view to the opening of the St Lawrence Seaway scheduled for April 1959. The city had at the time a population of 1.5 million and was the world’s second-largest francophone urban community. Discovered to the west by Jacques Cartier in 1535, he at first thought the St Lawrence River part of a route to China and the Orient. The city was founded in 1642, ‘an island with unparalleled water connections – the St. Lawrence to the sea, the St. Lawrence to the Great Lakes, the Ottawa River to the Hudson Bay territory and the Richelieu River to the south’
* Montreal’s first ship was launched in 1806; the first LR Surveyor was appointed to Quebec and the St. Lawrence in 1852 – at this time Quebec had eight floating docks and 25 shipbuilding berths
* ‘With the advent of steel the building of wooden ships naturally declined, to be temporarily revived only in periods of heavy demand for merchant shipping. One such period was the 1914-1918 War, during the last year of which no fewer than 140 wooden ships were launched from Canadian yards’
* Montreal, ‘as a terminus for Atlantic Ocean traffic on the one hand and for inland transport from the Great Lakes on the other’, has ‘the best of all possible worlds’ with ‘great grain elevators along the dockside’ symbolising its importance to Canadian trade. Maritime transport has been ‘the key to development and attempts to improve upon its main artery, the St. Lawrence River, of which the new Seaway is the present culmination’
* Before the $900 million seaway opened, a network of canals built from 1700 helped transport grain from Great Lake ports to Montreal on smaller ships; from Montreal the grain would be shipped around the world
* The area to be served by the seaway ‘contains some sixty-eight million people and what is probably the greatest industrial concentration in the world’; it was expected to accompany an 80% increase in Canada’s GNP in the twelve years to 1970
* There were fears that Montreal would be ‘neglected’ if the seaway enabled it to be bypassed or came to favour alternative ports like Seven Islands; on the other hand, the government approved a $57 million infrastructure investment programme to increase loading/unloading capacity by 80%, believing the port’s importance will grow ‘in proportion to the increased traffic’

**Summary:**

Much like the investigation into Norway above, the research on the Port of Montreal was intriguing and would merit inclusion in a larger project. However, the defining event in Montreal’s recent history as far as the LR archives were concerned was the opening of the St Lawrence Seaway, and this had little relation to any political themes or ‘global mission’; it was therefore Montreal’s contemporary developments, rather than its history, which were of most use to the enquiry.

**Reinvention of European ports**

**LR archive sources:**

**‘The Rise of Post-War Germany’ in *100A1*, 1, vol.1 (1958), p.11-14**

***This source summarised Germany’s postwar maritime recovery and would be useful to any study of the ‘economic miracle’. It encapsulates the investment and integrationist approach taken by the Western Allies, as well as explaining the enormous progress which was made to return Germany to its position as an industrial power from its ruined postwar state.***

* At the war’s end in 1945 Germany had just 120,000 tons of shipping remaining – in 1939 there had been 4,000,000 tons. 70% of harbour infrastructure had been ‘rendered useless’. Shipbuilding’s eventual recovery was dramatic: the tonnage launched in Germany rose form 318,339 in 1951 to 1,231,152 in 1957 – equivalent to 418 ships
* Economy recovery helped by Marshall Aid and currency reforms which introduced the Deutsche Mark meant that ‘the wheels of industry were beginning to turn again’ – steel exports restarted and LR expanded its number of surveyors to act in Dusseldorf and Augsburg in addition to Hamburg, Kiel, and Bremerhaven
* The September 1950 conference of the Western Powers led to a ‘far-reaching alleviation of economic limitations’ including ‘the lifting of shipping and shipbuilding restrictions with effect from 6th March 1951’. The Allied occupation regime in West Germany was terminated by the Bonn Convention of 1953
* Yards which had been ‘totally destroyed or dismantled’ built new welding halls which were ‘fitted with modern profile burning machines and welding equipment, suitable cranes and other handling facilities’, allowing parts to be moved ‘easily and rapidly’. The new facilities were also able to be used in the winter as low temperatures no longer posed a problem.
* ‘Most works nowadays have well equipped schools with excellent machine shops, welding plant, small forges, lecture rooms and a restaurant’
* ‘During the war many of the precautions normally exercised had been relaxed and the new management, often heroically trying to get a works going again in nigh-impossible conditions, were frequently unaware of the standards which had to be attained’
* ‘In such conditions the highest qualities were called for in Surveyors, and to the burden they carried in the post-war years was added that of training sufficient new staff to meet the growing needs of German industry’

**‘Around the World’ in *Annual Report for the Year 1960* (1960), p.50, p.61**

***This source is crucial as it lays out the impact predicted for Europe as a consequence of its integration. Belgium and the Netherlands, both smaller countries with world-leading ports, were poised to benefit enormously by the liberalisation of trade within Europe.***

* ‘In the expectation of increased trading, arising from the European Common Market, Belgium is pursuing vast development programmes on railways, roads, internal waterways and, in particular, in the port of Antwerp, where the fifth harbour dock is already in service. Work is rapidly proceeding on the sixth dock and another is projected’
* ‘Dockside loading facilities and hangars are being modernised and the river approach improved to permit entry of ships up to 50,000 tons deadweight’
* ‘Western Europe is heading towards economic and perhaps also political integration, and there are a number who think the latter is nearer than is generally believed. Seen in this perspective the Netherlands show great possibilities’

**‘States of independence’ in *100A1*, 111, vol.3 (1995), p.12-21**

***This source marks out a later stage in European integration – the dissolution of the Soviet Union and the incorporation of the newly-independent Baltic States into the European economic sphere. It describes high levels of collaboration between the maritime industries of the Baltic States and the European Union, with a mutual willingness for their close relations to bring success.***

* The Baltic States – Estonia, Latvia, Lithuania – became independent from the Soviet Union in 1991; ‘within days’ LR officials had returned after a 53-year absence and opened a Riga office in 1992 to serve the Baltic States
* LR Baltic surveyor, Rudolf Neumann: “we have seen many companies in the Baltic States build up their business, and we want to make sure that we continue to support them as much as we can”
* Lithuania aimed to privatise the economy “as fast as possible” and the Lithuanian Shipping Company, based in Klaipeda, had a policy, affirmed by its technical director Arturas Gedgaudas, to “maintain more vessels and employ more people”
* Lithuania’s markets shifted after independence. Aleksandr Zhvalikovsky, technical director of Baltija Shipyard: “we used to make castings for other factories in Byelorussia and Moscow, but now these connections have disappeared”. New customers had been from the Netherlands and Iceland
* Rimantas Juska, technical director of Western Shiprepair Yard: “our aim is to make our shiprepair yard a business not only for repairing Lithuanian vessels, but also to make it an example of Lithuanian entrepreneurship”. An agreement with German firm MWB aims to integrate “our cheaper labour and our materials with German precision, good management and good practice. Mutual co-operation will help us to live through these hard times”. “Our steps are small, but we are trying to stride out to reach Europe’s standards”.
* Ventspils Port, Latvia, is the largest cargo port in the region, handling 27.7 million tonnes in 1994, expected to rise above 30 million in 1995. The port aimed to invest $80 million in four years and approached the European Bank for Reconstruction and Development rather than the Latvian government.
* Oleg Kolosov, managing director of the Riga Transport Fleet: “after independence the fishing industry was destroyed ... today, most of the fishing companies in the Baltic States have almost disappeared”
* The fleet instead ‘switched trade to carrying frozen chicken from the Mexican Gulf to Russia, Riga and Poland’
* Imant Vikmanis, vice president of Latvian Shipping Company: “It costs around US$ 23-30 million to acquire a ship now, and our government cannot afford this kind of money. But the foreign banks like to see first class management and classification societies, so with good management and foreign registers, the foreign banks are helping us”
* The Estonian Shipping Company was awarded the European Market Research Centre Euromarket Award in 1993 for its contribution to international relations in commerce
* The yard of Baltic Ship Repairers ‘was formerly used to repair firstly the Russian naval fleet and secondly the Russian fishing fleet’. Yard director Fiodor Berman: “the new history of our yard began in the 1990s ... Our first foreign vessel was a Finnish one in 1990, and we repaired a passenger vessel to LR Class for the first time in 1993”
* The yard’s turnover ‘increased from 9 million EEK in 1991 to 320 million EEK in 1994’. Berman: “we hope to be able to privatise the rest of our assets and, by this means, to attract a serious investor from Germany”

**Summary:**

These sources on maritime developments in postwar Europe were fascinating and bore close relations to their contemporary political events. They emphasise Europe’s tendency towards operating as an economic collective – a consequence of the European mission for peace and prosperity after the turmoil of the war. The way in which ports adapted in line with these changes will form a core part of the final article.

**The Suez Canal**

**LR archive sources:**

**‘Around the World’ in *Annual Report for the Year 1968* (1968), p.74-5**

***This source notes the impact of the closure of the Suez Canal on South African ports, demonstrating the interconnected nature of the maritime world and the ‘domino’ effect which events in one place can have on a global scale.***

* ‘With the Suez Canal remaining closed, South African ports handled an unprecedented number of ships and the Society's Durban and Cape Town staff dealt with a record number of surveys’

**‘Around the World’ in *Annual Report for the Year 1969* (1969), p.67, p.79**

***See above***

* ‘With the Suez Canal still closed, ports were handling even more ships than previously and are now geared to cope with this extra traffic. The Cape Town and Durban offices again dealt with a record number of surveys’

**‘Around the World’ in *Annual Report for the Year 1973* (1973), p.71**

***This source notes the impact of the closure of the Suez Canal on the nearby port of Alexandria, a port with a long history that once more evolved owing to events at Suez***

* ‘The Suez Canal Authority's Port Said shipyard continued work at their temporary site in Alexandria. They delivered the *Al Amria*, 3250 tons gross, to the Egyptian Navigation Co, and by December were near completing a sister ship for the same owners and a 550 litres bucket dredger’

**‘All Clear at Suez?’ in *100A1*, Jun. 1974 (1974), p.9-15**

***This was an important source which summarised the factors causing the Canal’s closure and the consequences of this (although it ceases to mention the 1973 Yom Kippur War), as well as the efforts being made to both revive the canal and mitigate against its temporary closure.***

* The closure of ‘the world’s most important waterway’, the Suez Canal, in 1967 after the Six Day War was ‘perhaps the most important event in the shipping industry since the Second World War’, prompting a tanker shortage and a shipbuilding boom, among other consequences
* For the canal, ‘its future viability will depend largely on its ability to win back a considerable share of the oil trade’
* ‘There is no doubt that many owners purposely limited the size of their vessels so that they could pass through the canal ... Once the canal was shut, not only was there an immediate boom in the demand for tankers because the voyage round Africa added thousands of miles to the journey from the Gulf to Northern Europe, but the size restriction no longer applied’
* ‘There was only one ship in the world of over 200 000 dwt in early 1967’; by the end of 1972 there were 288. ‘The canal would have to be enlarged if it was to continue to prosper’ and improvements which had been underway at the outbreak of war in 1967 would no longer be sufficient
* A reconstruction and development plan intends that ‘cities such as Port Said and Ismailia will be turned into huge industrial centres and commercial free zones’
* ‘For the major oil shipping and consuming nations there is little doubt that the canal was becoming less and less important in the years prior to the closure and that they were less affected than they had been by the other closure in the 1950s. Great Britain, the major user of the canal throughout most of its history, shipped 60 per cent of her oil through Suez in 1956, but only 25 per cent 10 years later’
* ‘The simple facts of geography will always make the Suez route attractive, particularly at a time when fuel costs are soaring’ – fuel costs had risen by up to 250 percent
* Aden ‘virtually owes its existence as a port to the Suez Canal’; its bunker sales fell from $60m in 1966 to £6m in 1968. On the other hand, ‘ship visits to South Africa increased by 55 per cent between 1966 and 1968 and bunker sales by 44 per cent in the same period’

**‘Around the World’ in *Annual Report for the Year 1974* (1974), p.42**

***Like the annual reports above, this source demonstrates the interconnected nature of global shipping – there is a strong relationship between South Africa’s maritime fortunes and the situation at Suez.***

* ‘Shipbuilding activity in Southern Africa continues to expand and the order books are full. Ship repairing activity at all the ports has continued at a high level, but it is expected that there will be some decline when the Suez Canal is re-opened’

**‘Around the World’ in *Annual Report for the Year 1975* (1975), p.42**

***See above***

* ‘The re-opening of the Suez Canal, and the depressed world economic climate, resulted in a reduced level of marine activity. However, the new harbours at Saldanha and Richards Bay made good progress, and the latter was scheduled to become operational during 1976. The extensions to Cape Town, Port Elizabeth, and Durban harbours - necessary for the introduction of containerization - were also well advanced’

**‘The canal zone’ in *100A1*, vol.1 (1993), p.10-11**

***This source highlights that it wasn’t just local political events (e.g. Arab-Israeli conflicts) that affected the Suez Canal’s fortunes – the lasting effects of the dissolution of the Soviet Union are here shown to be impacting the Canal’s business.***

* ‘Political, as well as economic, changes have an impact on Canal traffic’. The fact that ex-Eastern Bloc countries were buying oil on the free market after severing ties to Russia brought more business to the Suez Canal; on the other hand Russia selling oil to Europe for the first time and Iraq resuming, after the Gulf War, to use an oil pipeline through Turkey, will take business off the canal

**External print sources:**

**G. Christ, ‘Collapse and Continuity: Alexandria as a declining city with a thriving port’ in W. Blockmans, M. Krom, J. Wubs-Mrozewicz, *The Routledge Handbook of Maritime Trade Around Europe 1300-1600* (Abingdon, 2017)**

***This illuminating source explored the history of the port of Alexandria in the medieval and early modern worlds. Several ‘global missions’ defined Alexandria’s fortunes – the Christian mission of the Crusades brought trade, whilst the Europeans’ mission of searching for new trade routes meant Alexandria was eventually bypassed. Although less relevant for the project, the source also gave insights into Alexandria as a diverse and cosmopolitan centre of trade.***

* Alexandria was eclipsed by Cairo as the ‘political, administrative, ... cultural, religious, and economic centre of Egypt’ but could survive by ‘hanging on to its superior port’ (p.121)
* It had a central role for Fatimid Egypt and Latin Crusaders, and was the ‘dominant ... southern Mediterranean hub’ until a new route discovered by the Portuguese meant it ‘lost its monopolistic position in the spice trade’
* By 1600 Alexandria was merely ‘a port with a settlement attached serving the city of Cairo’ (p.122)
* At the border between the Islamic and non-Islamic worlds, Alexandria was a frontier port (*thagr)* and was thus heavily fortified
* By the fifteenth century Alexandria was above all a transit port – ‘Alexandria’s importance as a port had steadily increased in an inverse relationship to its urban decline’ (p.124)
* Alexandria was for centuries a primary hub for regional trade in the Mediterranean, a north-south route from Europe to India and the Far East via the Red Sea, and an east-west route linking the Islamic world through North Africa-Egypt-Syria. Rival nearby ports like Rosetta competed, especially as Alexandria’s canal link to the Nile was neglected and allowed to deteriorate, but Rosetta ‘never fully eclipsed Alexandria as a transit port because of the latter’s superior harbour for bigger ships’ (p.124-7)
* Alexandria ‘was not a cosmopolitan diasporic community in the orbit of a thriving capital (antiquity) or an economic hub (nineteenth century). It was a city of diasporas without resident populations; diasporas in the shadows of ruins, in an empty city, dominated (economically and politically) by an absentee or rather transient elite’ (p.133)

**Summary:**

The sources on Suez, as well as providing useful context to the tensions which were the precursor to the 1973 Oil Crisis, are helpful as they demonstrate the integrity of the waterway to global shipping networks and, consequently, also the way in which maritime developments in one location can have significant impacts all around the world. A focus on the Suez Canal and its closure in the late 1960s and early 1970s will therefore form a key element of the final article.

**The 1973 Oil Crisis and after**

**LR archive sources:**

**‘Building the Future – Before the Oil Runs Out’ in *100A1*, Jun. 1974 (1974), p.2-8**

***This source notes the immensity of the impact of the 1973 crisis, both in the immediate sense of increased revenues and thus resources for the Arab nations, and in the more profound sense of a bouleversement of relations between the western powers and the Arab nations – in particular in the maritime world.***

* The 1973 oil crisis ‘altered the monetary balance of power overnight’; oil revenues for the Arab nations increased tenfold in three years. Marine developments led by the Middle East nations ‘could very well be one of the biggest challenges to the traditional maritime nations since the Second World War’
* In 1973, the governments of Abu Dhabi, Algeria, Bahrain, Kuwait, Qatar, Iraq, Libya, and Saudi Arabia formed the Arab Maritime Petroleum Transportation Company; ‘it has been stated that within 10 years their fleet could have grown to 60 ships’. To accommodate these ships and boost overall trade, ‘port facilities are being enlarged in many countries’

**‘A Helping Hand for Destiny’ in *100A1*, Apr. 1983 (1983), p.2-5**

***This source explains how the 1973 crisis, whilst having a crippling effect upon large portions of the developed western world, enabled the Arab nations to seize control of their paths and use their enormous newfound wealth in conjunction with one another through pan-Arab initiatives and to bolster their own infrastructure.***

* ‘The United States, Europe and Japan all suffered when oil production in the Middle East was cut to 70 per cent of normal output. Petrol rationing stared them in the face. It appeared to be a splendid victory for Arab economic self-determination’
* The Arabs deposited the enormous amounts of money they made in Western banks, and this increased fourfold from 1973. But Western economic problems including inflation devalued their profits – ‘the more cash they invested, the more they had to rely on the success of the West's economy’
* It was therefore decided that ‘instead of the money being used to finance Western developments it would be used by the Arabs to build an industrial infrastructure’
* ‘On March 22, 1945, the Arab League pact was signed in Cairo by Iraq, Syria, Lebanon, TransJordan and Saudi Arabia. The Yemen, Libya, Sudan, Morocco, Tunisia, Kuwait and Algeria joined later’
* The Arab League’s focus ‘was always on presenting a united Arab front in international politics and diplomacy’
* ‘In 1968 there were only two wholly or partially owned Arab banks in Paris; now there are over 35. There are now more than 50 Arab banks operating in London’
* The Arab Federation of Shipping ‘will achieve maximum benefits for Arab fleets and set up an integrated shipping network linking the Arab region. An initial feasibility study has pointed to a need for another pan-Arab shipping line to provide regular services between Arab ports. A capital of $100 million was agreed for a company to be called the Arab Shipping Lines Company, operating three 6000-dwt general cargo ships’

**‘Kingdom of Allah and Oil’ in *100A1*, Apr. 1983 (1983), p.6-10**

***This source focuses on Saudi Arabia specifically, and reveals the critical role played by oil in the nation’s development, as well as providing details on both past and planned developments – the former at Dammam, the latter at Jubail. The quote from John Milne was especially revealing as it highlighted the immensely important role played by Lloyd’s Register as a form of soft power for the United Kingdom.***

* ‘The depression of the early 1930s completely upset lbn Saud's pilgrim-based economy. In the 1920s the Kingdom received over 100,000 pilgrims each year, but by 1932 the figure was down to 40,000. It's hard to imagine now, but the Kingdom was going broke’
* ‘King Abdul Aziz Port at Dammam is the main gateway through which cargoes reach the eastern and central Saudi provinces. Port congestion in 1975-76 led to the establishment of the Saudi Ports Authority, which immediately put in hand improvements that increased Dammam's nine berths to 39’. The number of vessels dealt with at the port rose from 840 in 1975 to 2525 in 1981
* In Jubail, ‘it is planned to establish there an industrial area of 900 km2 which will house some 16 primary industries, chiefly petrochemical and metal producers, but also many more secondary industries and support facilities. North of this industrial area eight modern towns will house 350,000 people; the workers living there will produce wealth from the abundant oil and gas’
* ‘The commercial port is already in operation but, such is the scale of the development in hand, that it has been necessary to build an industrial port to service the needs of the petrochemical plants and other heavy industries’
* Abdul Taher, PR manager of Petromin in Riyadh: “the oil will be with us for some time to come, but let us realize that it is a finite resource. We must spend God's gift wisely so that when the time comes, we shall be ready to adjust to the reality”
* John Milne, the First Secretary of the Saudi-British Economic Co-operation Office: “There is a very wide spread of British exports to Saudi Arabia and while generally we don't have any very large contracts here, we seem to be spreading the risk very well over a great number of industries. Even a service arrangement, like yours at Lloyd's Register, is a most useful addition, because of the goodwill and the contacts generated”

**‘Celebrating 125 years in Norway’ in *100A1*, 116, vol.2 (1997), p.28-9**

***This source notes one example of the consequences of the 1973 Oil Crisis for the European shipping industry.***

* As a consequence of the 1973 oil crisis, when ‘oil prices jumped, virtually overnight, from US$3 to US$30 a barrel’, a lower demand for tankers meant that ‘in order to survive, many Norwegian shipbuilders had to switch from shipbuilding to off-shore work, this led to the growth of the petro-chemical industry – which was to be an economic bonanza for Norway’

**‘A port aiming starward’ in *100A1*, 120, vol.3 (1998), p.6-7**

***This source focuses on Dubai in the United Arab Emirates, and recognises Dubai’s desire to place itself at the centre of the global maritime and shipping industry through initiatives like free zones. There is also a nod to its past as a historic centre of trade by the port’s managing director.***

* The Dubai Ports Authority, created from a 1991 merger of Port Rashid and Jebel Ali Port, is ‘the biggest man-made port in the world’ and located on a gateway to the Gulf, NE Africa and the Asian Subcontinent – it has become a distribution hub for these regions. From 1996-7 tonnage rose by 16%
* The Jebel Ali Free Zone, introduced in 1985, is a special economic zone built to ‘provide a base for multi-national companies to warehouse and distribute their products in the Gulf’ with significant financial incentives. By April 1998, ‘there were over 1,270 companies from 80 different countries’ including Hewlett-Packard, Adidas, and Nestlé
* Sultan Bin Sulayem, managing director of Dubai Ports: “The Free Zone is a continuation of Dubai’s history. There was once the silk route, the spice trade, the timber trade, pearls, gold – Dubai has always been a centre of trade, and as the trade developed, Dubai had to develop. We have always believed that the more freedom we could provide, the more trade was going to come”

**Summary:**

These sources illustrate the transformative impact of the 1973 Oil Crisis for both the world of shipping and for the global balance of power. Whilst severely affecting the economies of the west, the greatly enlarged revenues of the Arab nations enabled them to invest in enormous infrastructural upgrades which placed them at the heart of the global maritime network. Close collaboration between most of the Arab nations ensured that they did not work against each other, meaning rivalries would not inhibit their seemingly inexorable march towards wealth and development.

**Other topics**

**LR archive sources:**

***Report of the Society’s Operations During the Year 1918-19* (1919), p.5-28**

***This source was chosen as an attempt to understand the impacts of the First World War on the shipping industry; unfortunately the source was fairly limited in its insight, and few other relevant sources were available on the online areas of the archive/catalogue in this area.***

* ‘It is safe to say that if our wonderful mercantile marine with its splendid officers and crews had failed us in our time of trial as the enemy hoped and expected they would, neither our invincible Navy nor our heroic Army could have saved the Empire from a humiliating and disastrous defeat. The nation does not even yet realize how much it owes to the enterprise and courage of the able men who built up, sometimes under much difficulty, the magnificent fleets of merchant ships which were destined to play so important and distinguished a part in the war’
* ‘At the end of June, 1919, there was being built under the inspection of Lloyd's Register of Shipping with a view to classification, a larger amount of shipping than has ever been recorded in the history of the Society, namely, 4,766,623 tons, of which 2,033,319 tons were being built in the United Kingdom’
* ‘In the early part of the present year, at the request of the Ministry of Shipping, arrangements were made for the Society’s Surveyors to undertake the survey of German Vessels taken over by the British Government under the Peace Terms with a view to ascertaining the condition of their hulls, machinery and boilers. Over 200 of these vessels have been surveyed by the Society's Surveyors at ports in the United Kingdom and Holland’

**‘Marine refrigerants: the future’ in *100A1*, 109, vol.1 (1995), p.12-14**

***This source explains a previous environmentally friendly initiative taken by the maritime industry. It was an early reading which bore little relevance to the direction which the research ultimately took.***

* EU regulations restricted production and importation of CFCs and HCFCs from New Year’s Day 1995
* In 1970, chlorodifluoromethane, a hydrochlorofluorocarbon (HCFC) known as R22 was used in 80% of new marine carbon installations
* By 1995, ‘all LR-certified refrigerated container and LPG vessels use R22’
* CFCs were seen as responsible for the ‘Antarctic hole’ in the ozone layer and the 1987 Montreal Protocol called for them to be phased out
* HCFCs like R22 were subjected to ‘a production cap from 1995 and a stepped phase-out starting from 2004’
* Owing to the prevalence of R22 use, there was an ‘urgent need’ for a replacement which was adequate from ‘performance, safety and environmental’ perspectives, but in 1995, ‘at present there are no fully developed man-made refrigerants available which have similar properties to R22 and are able to cover the wide range of applications in which R22 is used’

**‘Advancing with honours’ in *100A1*, 117, vol.3 (1997), p.24-5**

***This source demonstrates what is required for shipyards in higher income countries to survive: investment, modernisation, and restructuring. This article is less useful to the investigation as the investment is a consequence of a private enterprise’s action rather than any political or international movement.***

* Appledore shipyard was opened in 1855 on the River Torridge; in 1997 it was ‘North Devon’s largest employer’. A 1989 takeover transformed its fortunes, benefitting from a decision to diversify by ‘applying traditional skills to a broader section of the shipbuilding market’
* The range of vessels built from 1989-97 included ‘liquid gas carriers, dredgers, bulk carriers, product tankers, ro-ro vessels’ and a survey vessel for the Ministry of Defence
* These strategic decisions, and new investments like automated machines, resulted in the number of employees increasing by 40%
* The Appledore yard was ‘facing ferocious competition from Eastern Europe and the Far East’ and future expansion would require support from the government and the European Union

**‘New horizons on the Clyde’ in *100A1*, 117, vol.3 (1997), p.28-9**

***This source explains how globalisation has impacted traditional shipyards in the world’s more developed regions, by exposing these yards with typically higher labour costs to international competition. This competition has caused 96% of the Clyde’s yards to close.***

* ‘Thirty years ago there were over 83 shipyards situated along the River Clyde – today there are just three’
* Although it has a ‘versatile newbuilding capability’, the Kvaerner Govan yard on the Clyde faced ‘fierce competition from many yards worldwide and within Europe’; factors like the relative weakness of the pound are ‘adding further pressures on the yard to provide a high level service at a profitable level’ and restructuring meant the permanent workforce had to be reduced by 20%

**‘Reviving Rio’ in *100A1*, 122, vol.2 (1999), p.20**

***This source exemplifies how two important factors – resource availability (in this case oil and gas) and governmental impetus – can help drive the development of ports, Rio benefitting from both of these areas.***

* Wagner Granja Victer, Secretary of the State of Rio de Janeiro for Energy, Shipbuilding and Oil: “We have Brazil’s largest oil and gas reserves, the most advanced oil and gas production facilities and over 90% of the country’s shipyards ... Rio de Janeiro will be the next Houston, or the new Aberdeen”
* Aided by privatisation and an expected increase in foreign oil investment from $3.2 billion in 1999 to $5.4 billion in 2001, the Agencia Nacional do Petroleo plans to increase oil production ‘by more than 200%, from approximately 10,000 to 35,000 barrels per day’
* Victer: “In addition to internal funding, we are promoting the fiscal benefits of building in Brazil, working with customers to encourage them to put more jobs here”; this would underpin the modernisation programme intended for Rio

**Summary**

The collection of sources here do not fit into any of the above categories as they tended to be a piece of early research which was read before the overall direction of the project, especially the ‘global mission’ aspect, had been decided on, thus shifting the investigation’s focus in a direction where these sources became of limited relevance and usefulness. The Rio source, for example, is an interesting example of how a port has been energised, but the factors which prompted this energisation were standalone, with little connection to the concept of a global mission. Nevertheless, regardless of their lacking in direct usefulness, these sources were still insightful and helped to inform early decisions about the path which the investigation ought to take.

**Closing note**

This project was a fascinating and rewarding insight into the maritime world – its past, its present, and its future with Lloyd’s Register at the heart of it all. Many thanks to Alix Mortimer, Luca Rapisarda, Sarah Mott and Louise Sanger for their support and for the opportunity. Maritime history is an avenue well worth exploring, an incredible global intersection of boats, politics, economics, trade and engineering which is of such great importance to our modern world.