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TEMPORALITIES OF THE PORT, WATERFRONT AND PORT CITY

INTRODUCTION

Ports are the pulse of port cities.[1] Looking outward, ports and port cities together give rhythm to the constant daily flows of goods and people around the globe. With repetition, these flows and times write themselves into the urban environment. But within these flows, economic time and citizen time compete. First, in the daily and seasonal rhythm of the port, humans and of machines work at different speeds while also interacting; and that relationship changed dramatically in the 20th century. During the many the centuries that ports and cities were integrated, shipping depended both on the availability of manpower and good climatic conditions. With the increased use of technology since the 19th century, and especially since the containerization that started in 1960s, ports and cities started to move apart, machines took over more jobs, and weather mattered less. Even though ports and cities are no longer spatially intertwined, ports now reach into their neighboring cities and hinterlands, competing daily and seasonally for space and infrastructure and interfering with the slower rhythms of cities, where human time still plays a role. And the local actors who run ports — from port authorities to shipping companies — have different daily and seasonal temporal interests than workers in the port, people living next to it, local municipalities, regional or other authorities, or citizens more generally. Second, the port - city relationship also has a long-term dimension: a port interacts with and transforms the structure and form of its related city as the spatial and functional needs of the port changes, as it expands, shrinks, or integrates new technologies, as it develops new infrastructural needs, and adapts to changing work patterns. Buildings and built form can even enable or restrict port developments. And local actors involved in keeping a port working have long-term rhythms that differ from those of the groups who recuperate and adapt historic waterfronts (with remnants of port infrastructure and historic buildings) into heritage attractions, sites for everyday life and work, or places for leisure activities geared to citizens and tourists as well as rhythms very different from the original working port.

These diverse actors and their diverging interests render planning, decision-making, and urban transformation in port cities for daily rhythms and long-term adaptation very complex. That port, waterfront, and city work and change in different time regimes only complicates planning further. Whereas networks of actors in shipping can change rapidly and require quick physical and social adaptations of port infrastructure, physical structures change at a slower pace, and the social, economic and particular physical structures of associated port cities take even more time to transform. Each city has its own rhythms of change, as Dietrich Henckel with Susanne Thomaier have argued.[2] Some port cities actors can change the built environment faster than others and grow; others react more slowly to external demands and lose a working port or fail to revive a waterfront. Whether or not a port and a port city adapts quickly, depends largely on the relation between the different groups of people within the city and how they negotiate the times of the port. The various players are in constant dialogue (or struggle) over spaces in and around the port, dialogues that often continue over decades or centuries and that are written into local institutions and processes as well as built form. In many cases, these long-term histories and experiences allow port cities to adjust to changing maritime times and the needs of the city as they prioritize, distribute, and organize their businesses. Port cities, part of global networks and commodity flows, are an ideal site for studying the intersection between economic times and citizen times and their changing relationship over time. Following a brief overview of temporalities in historic port cities, the article explores the temporalities of ports, waterfronts and cruise ships before ending with a call for a renewed integration in view of sea-level rise and other collective changes that coastlines face despite their different times.

Urban planning can play a major role in linking and balancing the different speeds of port and city redevelopment as conflicts occur both between public and private actors as well as citizens on the organization, use and transformation of the built environment. *Citizens often protest top-down changes to the port and city*, that make the port faster. Changes like expanding and (re)developing the port, constructing new infrastructure, and dredging waterways (to name just a few examples) raise questions among all stakeholders about the appropriate balance between economic and citizen time and about how new times will be written into physical form. To answer such questions about temporalities in space, we can examine the respective lengths that goods and people must travel within cities and how long it takes to change the built environment in response to changing port needs. A better understanding of these evolving interactions and the role of planning within them can promote citizen understanding of the relationship between port and city over time and facilitate cities' integration of buildings and the heritage of the past into the present. Urban planning can also help promote integrated ways of planning in view of climate change and raising sea-water levels. A rapid implementation of planning for the port in response to these new challenges risks leaving citizens out. But slow change risks delaying economic development. If all stakeholders could acknowledge the role that temporalities

play in cities, in historical analysis, and in planning, we can improve the local climate and port culture, and therewith the actual functioning of the port in relation to its surroundings and competitors.[3]

Water transportation is an important foundation for economic development and globalization. It connects distant places and facilitates the movement of goods and people within countries and around the world. Ports provide the necessary facilities to connect sea and land and impose their time on sea-land connectors, such as wharfs or quays, piers or jetties, docks and numerous specialized structures that allow for the transfer of goods and people. Port and city activity occurs in a specific locality and requires infrastructure. These have their own daily and long-term temporalities; they change slowly and often have been built at different times, for other speeds and purposes and with different preferences. Port cities also serve as site for trading headquarters and the place for living and leisure spaces for traders and other people associated with shipping. These functions are part of the daily speeds of the city. Increasing daily speed for the port has been a major feature in (re) designing the relationship between port and city over time and for long-term urban transformation.

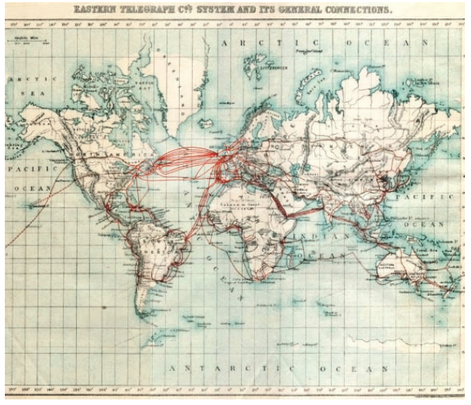
EVOLVING TEMPORALITIES IN THE BUILT ENVIRONMENT OF HISTORIC PORT CITIES

Ports and their adjacent cities have long facilitated the speedy transfer, storage and retail of goods, but in the era of sailing ships, or until the mid-19th century, the travel time between ports was difficult to control. The form and size of a ship could influence its speed, and weather, the seasons, and the movements of the tides were all factors as well. Speed in shipping included not only the movement of ships, but also the speed of storing goods and administrating them. Ship owners, charters, traders, and dock workers did not know the whereabouts of ships and could not easily prepare their arrival. Shipping crews might spend weeks on shore waiting for ships to be unloaded and reloaded, and entire districts catered to these temporary workers. In many medieval European cities, smaller ships brought the goods into the city center to integrated warehouse/office/housing buildings in the core of the city. The times of the port were inscribed both in every day rhythms and the built environment.

Even in the era of sailing ships, global shipping transmitted temporal changes to ports. Between 1400 and 1750, as European nation-states built their colonial empires, they also imposed their specific objectives and colonial times on far away places, while also speeding up the development of some places and lifting them out of their respective local contexts.[4] The Caribbean was at the forefront of such development; Havana, for example, served as the metropolis of the new world. The city that would imprint its times on large part of an empire is London, the paradigm of a great port city that "ruled the waves." Trading companies worked with the British government to accumulate wealth, build networks, and influence the form of port cities around the world. British ships linked the port and city of London with seaports from the Pacific to the Indian Ocean up to the earliest twentieth century, bringing colonial ports into the times of the capital, and often separating waterfronts from the rest of the city

1. Historic Amsterdam with multifunctional buildings and ships entering the city
source: Woodcut admitted to Guicciardini, 1567 after woodcut of Cornelius Anthonisz, 1544 | Project of the Historic Cities Center | http://historic-cities.huji.ac.il/netherlands/amsterdam/amsterdam.html

2. The Tokyo Ginza, a Western style boulevard in Tokyo highlighting the Japanese attempt to catch up with the West
source: https://www.library.metro.tokyo.jp/Portals/0/edo/tokyo_library/english/database/index.html?page=6&ky=&ca=



3. The telegraph connected multiple parts of the globe and allowed shippers to plan for the arrival of their goods. Eastern Telegraph Company system with chart of submarine cable routes at the beginning of the 20th century
source: https://upload.wikimedia.org/wikipedia/commons/a/a5/1901_Eastern_Telegraph_cables.png, Public Domain

and the hinterland. The temporal development of the empire, its growth (and decay) similarly registered in the built environment throughout the colonies.

Private companies imposed their times on treaty ports in China and Japan, raising their flags above the waterfront that was the icon, the business card of their foreign presence. The port cities of the East became the entrance gates for companies such as Jardine Matheson, which brought their daily routines, work and life habits, and other practices. Colonization also interfered with the spaces of cities, transforming them at different speeds. In the case of Tokyo, we can observe how a new time regime altered the traditional city step by step. As the Japanese government decided after the Meiji Restauration in 1868 to catch up with the West and even overtake it, factories and infrastructures, public buildings, and rich people's residences changed first; housing for ordinary citizens maintained its Japanese character for many more decades, with only a few foreign objects trickling in. Shifts in every day practices, symbolic meanings, and power relationships registered in the Tokyo Ginza street in the clothes of the people, modes of transportation, and the forms of the buildings. The street's model character, as a high-end shopping area, continues to be visible today in luxury department stores, restaurants, and coffee shops.

The industrial revolution, the expansion of European colonialism, and new technologies required profound changes in the organisation of ports and their technical equipment as well as in changes in the times of port and city. By the mid-19th century the telegraph made possible the rapid exchange of information. It connected the various parts of the British Empire and was deployed across the US, giving shipping companies advance knowledge on the locations of their ships and thus facilitating preparation on shore. These changes also brought an enormous increase in trade and cargo transfer. Shipping companies even reshaped global geographies to improve their business. The new Suez and Panama canals shortened global shipping times from Europe to Asia and from Europe to the American West coast, generating the creation of new cities alongs the shores and leading to the abandonment of others. The desire for speed similarly

led to the construction of the Nieuwe Waterweg in 1872 from Rotterdam to the sea; it was essential in promoting the growth of Rotterdam.

The introduction of steam ships in the early 19th century made travel times easier to calculate. The growing number of steamships triggered yet another round of urban construction: By 1830, the new Brunswick Wharf in London provided a berth where steam ships could cast off at will, no longer having to wait for the tide to enter the dock. Shipping companies built more new docks: Victoria Dock (1855) was directly connected to train lines, and the Royal Albert Dock (1880) served steamboat lines trading in the Southern hemisphere. Docks and wharves became the heart of economic development in London. The newly fused East & West India Dock Company built a dock in Tilbury, at the mouth of the Thames River (1882), the first move in a new trend of detaching the harbor from the city. As the turnover of goods sped up, shipping lines directly connected to railways to speed things up even further; administrative offices claimed large areas of the urban center, while workers housing had to move away according to the needs of the port.

Harbor improvement was a major theme in many port cities, with time a key target. In Hamburg, for example, planners made several proposals after 1836 for a dock harbor on the English model to protect the city against floods and allow for easier transshipment.[5] But docks would have strangled harbor traffic and Hamburg's administrators instead proposed a tidal harbor. This led to the creation of the Sandtorkai (1866), a quay adequate for larger ships with walls high enough for unloading, equipped with cranes and railway connections. These decisions became the foundation for port development in Hamburg in the long term. The city also adapted the port for other temporalities: Next to this harbor, the city built a warehouse district, the Speicherstadt, opened in 1888, to speed up shipping and unloading and storing. (It privileged the times of the port over the rhythms of everyday life, its construction displacing almost 24000 inhabitants, both rich and poor.) Built with the newest technology - electrical lighting and hydraulically powered winches - it improved and sped up the chain of shipping, storing, and connection to the hinterland and established port temporalities in the urban space of the city for decades to come.

Innovation for port and shipping was not limited to the port; port cities were also often a leader in introducing new architectural typologies or urban forms. Following the construction of mono-functional docks throughout the 19th century, administration and housing also separated. The construction of shipping company headquarters also established Hamburg as an innovative place. The Dovenhof office building built by Heinrich Ohlendorff, who made his fortune with guano shipping, was the first on the continent to feature a paternoster/elevator and the first to offer office spaces for rent. It had a light court that gave access to the rooms, and it also contained a post office. Overall it set the standard for the next generation of office buildings in Hamburg and beyond, establishing the city beyond the port as a leader in innovation. More largely, the administrative district (Kontorhaus area) showcased the success of Hamburg companies. Located next to the warehouse district and the Elbe River, it includes buildings acknowledged world-wide, such as the Chilehaus commissioned by the shipping magnate Henry B. Sloman and finished in 1924. The new office district located in the heart of the city displaced working class housing. Workers traditionally lived close to their jobs as they had to walk to work, often renting beds in working class districts. As the office district replaced traditional housing with horrible living conditions,

4.Yangshan Container Terminal
source: Panorama Yangshan | By Bigg(g)er | GFDL or CC BY-SA 3.0, via Wikimedia Commons

and workers still needed to get to the port, Hamburg built new worker housing and new railway lines for public transportation to connect ports and workers. The first ran to from the town hall and central station to new housing in Barmbek and Rothenburgsort between 1912 and 1915.[6] Workers thus had to travel further to the center, while decision-makers had moved closer to their jobs.

CONTAINERIZATION AND THE TIMES OF THE MODERN PORT

For many centuries, shipping relied heavily on human labor and depended on the natural rhythms of day and night. In the port, men carried the bulk goods on wagons into and out of the ships. Turnaround times were extremely long, but the workers were often only called in when ships arrived, as weather and seasons permitted, and some worked as day workers. Their longterm presence created entire port landscapes within cities. The invention of the container in the 1960s sped up shipping traffic dramatically and making a similarly dramatic effect on port cities. Changes in vessels had shaped shipping at various moments - the shift to bulk tankers from barrels for oil is just one example – but nothing rivaled the scale of the changes wrought by containerization. Indeed, in the effects of containerization we can see just how much ports had shaped the time and space patterns of port cities. Bigger ships could carry more containers, but required deeper harbors, so companies and governments came together to build new ports away from cities. At the same time, containerization threw most port workers out of jobs: machines could load and unload standardized containers without opening them, and transfer them between ships and rail or road. So ships and workers left the old port areas, which stilled. The few remaining port workers had to work shifts on a 24-hour schedule; the new port had conquered the night.

Time plays an important role in port design and functioning and has done so for a long time. Turn Around Time is one of the important factors in port assessment and it is intimately linked to the number of ships that can be served in a port. Avoiding waiting times and streamlining ship handling is a key issue for leading ports.[7] The recent prominence of Chinese ports on port city rankings is closely related to time, as César Ducruet has demonstrated. The profile of Chinese cities has completely changed:

By 2011, the country had a high rank for the number of vessels, and a quick turnaround of 0.96 days compared with 5.8 days in both 2006 and 1996. Hong Kong is faster (0.72 days), Taiwan (0.71 days), and South Korea (0.68 days), but it has outpaced Singapore (1.16 days) and the United States (1.02 days).[8] Today the location of each container is known and shipping speed is controlled. Information is available instantly and even for bystanders through tracking sites online.

The speed of transshipment in working ports is an important effect of the new technologies, but just as important is the availability of hinterland connections: road and rail lines that are not cluttered by local transport of people and goods, speedy access to administration and decision-making, and to consumer centers and cities. The Rotterdam train connection to Duisburg also illustrates the importance of fast and undisturbed inland rail transport to the hinterland.[9] The Betuwe route between Maasvlakte II and Duisburg established the Rotterdam port as the primary gateway to continental Europe (1998 construction started, 2007 completed). That it was a dedicated train line was a major factor in this development; the Netherlands are already densely used by passenger trains and there is little time available for cargo trains. The new route of 160 km traverses major population centers and uses tunnels to avoid competition on the tracks. This railway is an example of the unique European port structure, where much if not most inland transportation via rail or road. Shanghai and Singapore have now captured the number 1 and 2 ranking in terms of bulk shipping and container transfer, pushing aside the long-time leader Rotterdam. Hamburg, still Europe's number two, has fallen behind in world rankings. To improve speed and rankings, politicians and engineers also conceived of changing the waterways. New thoroughfares dramatically shortened trips. New cities became dominant; others lost their prominence. The creation of the Suez Canal, for example, went hand in hand with the development of three new planned port cities - Port Said, Ismailia on the Suez canal, and Suez - that would introduce new rhythms to Egypt.[10] Shipping continues to reshape global geographies, making transport times shorter; and transforming urban spaces to win more time continues as well. To benefit from economies of scale, traders keep ordering bigger ships, pushing the deepening of ports and waterways - even the Panama Canal - and the raising of bridges in Miami, New York, Seattle, and other cities around the world. With the Panama Canal expansion to be completed in 2016, even bigger ships, the so-called Super-Panamax ships, will require many cities to rework their ports; discussions about the changes required are already underway in port cities on the American East coast such as Savannah, Georgia.[11]

TEMPORALITIES OF URBAN LIFE AND HERITAGE ON THE POST-INDUSTRIAL WATERFRONTS FOR LOCALS AND TOURISTS: TEMPORALITIES OF REMEMBRANCE

Over the last five decades, public and private decision-makers around the world responded to similar challenges and opportunities and specifically to changing ship sizes, new containers, and new commodity flows: they built new ports and facilities for the faster transshipment of goods and people, developed new ports, dredged waterways, and transformed storage. In short, they transformed water at an industrial scale. Meanwhile, the old waterfronts in New York, Hamburg, Amsterdam, Philadelphia or Sydney, lost their leadership function as global ports. They became ghost districts, challenges to urban development. Many cities had to develop new strategies for the large number of people who had lost their jobs in packaging, transportation and storage and for areas filled with industrial structures for once-daily rhythms and former urban temporalities.

While the new ports bustle with activity, cities have sought to reclaim abandoned waterfronts for new temporalities, as spaces for everyday rhythms of work, housing, and especially leisure. Waterfront revitalization around the world is trying to match the times of the contemporary city, its rhythms of work and leisure, to those of the landscapes left over by the port. It does so in part by constructing reminders of the past gone by and the temporalities of sail-time shipping. A large number of former seaports have redeveloped their inner-city waterfronts, including Baltimore, New York, Vancouver, Boston, Portland, Seattle, Miami, London, Hamburg, Barcelona, Genova, Lisbon, Sevilla, Helsinki, Bilbao, Liverpool, and Dublin. In Asia, the restored waterfronts of Shanghai, Sydney, Osaka, and Melbourne stand out. Examples also occur occasionally in port cities on other continents that faced similar challenges of revitalization. Entirely new waterfronts focused on upscale housing, tourism, culture and leisure activities, are being imagined and built on land reclaimed freshly for this purpose in Dubai, Abu Dhabi, Saudi Arabia, Quatar, and Manama (Fig. 5). The palm islands in Dubai, for example, continue the tradition of artificial islands, such as the ones in Kobe, where Port Island and Rokko Island have been built since the 1960s to host new port functions as well as housing, an amusement park, and sport facilities marketed to the modern urban populations who have extended leisure time.[12]

5. A new waterfront in Quatar
source: Steven Byles | CC BY-SA 2.0, via Wikimedia Commons

6. Cruise ships in Venice tower over the city. Their presence is highly contested.
source: Cunard in front of Venice | By June Cairns | © Airn | Dreamstime.com - Cruise Ship In Venice Photo

While the working port has moved further and further away of the city and disconnects from the actual lives of the citizens, its memory and temporality remains and is celebrated. The careful construction of heritage through films and books and tourist events, and branding and cultural promotion of historic places and times on the waterfront are key elements in attracting workers and citizens as well as tourists to the revived waterfronts. And this celebration of port culture is extremely important for gaining local backing for new ports even if they move away from the city. Projects like dredging the Elbe River require support from the local citizens and can't be handled just by the port authority. To engage the citizen and entice them to support port development, there appears to be a political desire to create the sense that a city like Hamburg cannot exist without a port. The cultures of the past are thus linked to those of the future.

WATERFRONT REVITALIZATION AND WATER AS LEISURE AND IDENTITY

The recent increase in cruise shipping has introduced a new temporal dimension to revitalized waterfronts, as they provide the necessary attractions for tourism. These ships bring the working port back to the formerly abandoned central city sites with all the environmental and social challenges that this reuse of historical water areas entails. Scholars have started to raise questions of gentrification and inequality due

to the change from working ports with diverse populations to housing, parks, leisure, travel for the relatively wealthy. Cruise shipping has its own temporality. It creates new artificial times both for people on and off the boat. Tourists escape their daily lives for short periods of vacation time, during which they are extracted from everyday rhythms on land and on sea. They eat and sleep on a ship that carries them from one destination to another. During the cruise, their time is carefully assigned to pleasure activities, allowing distinct periods for shopping and sight-seeing at each destination.

On land, new temporalities arise that are connected to the arrival and departure times of the big ships, from the celebration of their arrival that occasionally has drawn thousands of people to the port, to the time that tourists and the ship workers can spend on land. Cruise ships and their tourists are handled like other tightly time-controlled logistic flows, such as bulk goods or containers. Their ports must have access to sea and land, and in particular easy access to tourist sites. Cruise ship tourists only have a few hours, at most a day, in a single place (unless it is the starting or ending point) and prefer to be able to step off the ship and experience a city as they step of the ship. Carefully orchestrated itineraries and schedules make unscheduled urban explorations off the beaten paths impossible. Cruise tourists become part of land-side planning for waterfronts like the HafenCity where local interests in multifunctional development are combined with those of the tourists, who fill the large amounts of restaurants and coffee shops and buy luxury goods in expensive boutiques. But tourists go, while locals stay. These differing temporalities are a challenge for planners. Generally, the times of the port are disconnected from those of city residents, coinciding only in special events like festivals or harbor birthdays.

Cruise shipping goes beyond industrial shipping of commodities, as the quality of the site of arrival, its urban or rural aspects, are the reasons for shipping. The link between cruise shipping and water quality and the environment is evident, even though it has yet to fully enter into planning practice. Activists criticize the cruise-shipping industry's use of heavy oil and unfiltered sulphurous gasoline, both of them environmentally disastrous and dangerous to the health of urban inhabitants. Several bills have been brought before the US Senate to enact national standards, requiring that wastewater generated by cruise ships be treated, but none have actually been passed.[13] Catering to the cruise ship industry and ignoring ecological damage may backfire in the long run. For example, the loss of ice in Hudson Bay might curtail cruise shipping: many tourists are taking the ship to the bay to look for ice-based wildlife; if the ice retreats (because of climate change caused in part by the ships themselves) the wildlife may move further north and cruise ships may ignore the port.[14] Similarly, the impact of cruise ships on cities such as Venice is highly contested, though the exact impact of the cruise tourists and the facilities erected from them is yet to be fully studied.

Culture and nature are largely commodified as part of the cruising experience, but questions of social justice and ecology related to cruising have yet to be fully discussed in the literature.[15]

The creation of ports on waterways is a key element of globalization and economic growth, as it supports the international distribution of commodities and energy, and therewith closely linked to time. Global economies and consumption patterns also contribute to global climate change and rising water levels, thus creating a singular challenge to many if not all ports and their cities. So far, the planners

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for port authorities and municipalities have treated their water-related properties separately, respectively for industrial and shipping purposes and for urban leisure activities. A few scholars and organizations are honing in on the missing relationship between port and city planning.[16] The AIVP (Association Internationale Ville et Port) and The Asociación para la Colaboración entre Puertos y Ciudades/ Association for the Collaboration between Ports and Cities (RETE) promote the comprehensive planning of port and city through publications and conferences.[17] The need to respond to issues of rising water levels has also attracted interest from the Museum of Modern Art in New York, which examined it in regard to New York.[18] Nonetheless, a broad global investigation of economic, social, cultural, ecological, and environmental aspects as well as of temporal ones is missing.

CONCLUSION

A range of factors have historically affected the speed of transport and transshipment, including the time that the ship spends in port, the time it takes to unload, and the proximity of ship, shore, storage, and the hinterland. One by one, different time elements of the logistics chain bearing goods from the original factory to the consumer have changed in ports and port city flows - ship to shore movements, terminal operations, other port functions, and urban infrastructure. Natural cycles and human times have largely been lost. The port has created an on-time urbanism, with different times relevant to the translation of needs into spaces.

Port, waterfront, and city exist in different time regimes and are in a constant dialogue (or struggle) over spaces in and around the port. Time is a major site of competition: the relation between economic time and citizen time is explicitly shaping built form. Shipping elites have imposed their times on those parts of the cities that host them, while the times of shippers, workers, tourists, and citizens all exist next to each other and shape the city in different (not always democratic) ways and creating intersections between specialized and ordinary lives. Diverse political and economic structures are necessary to facilitate the adaptation of urban areas and places to the need of the port, even to select the areas in the port, city and metropolitan area that need to adapt. The rapid adaptation of port activities to new needs has a spatial dimension that transforms parts of the city at different speeds. Even as ports have disconnected from traditional cities, they still need the support of the larger metropolitan area and its citizens. Common respect of temporalities is a key in a healthy and just development and a condition for planned adapting to climate change.