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Résumé de l'article

La pandémie de COVID-19 a provoqué une crise en série dans le secteur des transports et a entraîné une reconfiguration complète des chaînes d'approvisionnement mondiales. En étudiant les chaînes d'approvisionnement, la recherche anthropologique a eu tendance à se concentrer sur le suivi de marchandises spécifiques lors de leur acheminement du producteur au consommateur. Les sites centraux de circulation qui permettent ce même transfert de marchandises restent toutefois sous-étudiés. Les ports de containers, en particulier, sont des lieux centraux où le réseau des chaînes mondiales d'approvisionnement se rassemble. Une analyse ethnographique comparative des ports de containers est proposée afin d'ancrer les chaînes d'approvisionnement et la logistique dans des histoires socio-culturelles particulières, des infrastructures matérielles, des écologies politiques et des politiques du travail. Nous nous rendons de Singapour à Hambourg, en passant par Alger, Rotterdam et Pirée, pour proposer des voies d'analyse potentielles du réseau complexe d'interconnexions que nous connaissons comme la chaîne d'approvisionnement mondiale, avec une attention particulière sur le monde du travail et les zones critiques, en relation avec des perturbations multi-situées à grande échelle.



The Crisis of Movement

Making and Remaking Global Supply Chains in Container Ports

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Abstract: The COVID-19 Pandemic issued a cascading crisis in the transport sector and has signified a wholesale reconfiguration of global supply chains. In studying supply chains, anthropological scholarship has tended to focus on tracking particular commodities as they move from producer to consumer. The central sites of circulation that enable this very movement of goods, however, remain understudied. Container ports in particular are key nodes where the thread of global supply chains gathers. A comparative ethnographic analysis of container ports is put forward in order to ground supply chains and logistics in particular socio-cultural histories, material infrastructures, political ecologies, and the politics of labour. We move from Singapore to Hamburg, through Algieras up to Rotterdam and back down to Pireaus in order to show potential pathways to study the complex web of interconnections we refer to as the global supply chain, with a specific focus on labour and chokepoints in relation to multi-sited and scaled disruptions.

Keywords: crisis; labour; ports; supply chains

Résumé: La pandémie de COVID-19 a provoqué une crise en série dans le secteur des transports et a entraîné une reconfiguration complète des chaînes d'approvisionnement mondiales. En étudiant les chaînes d'approvisionnement, la recherche anthropologique a eu tendance à se concentrer sur le suivi de marchandises spécifiques lors de leur acheminement du producteur au consommateur. Les sites centraux de circulation qui permettent ce même transfert de marchandises restent toutefois sous-étudiés. Les ports de

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Mots-clés : crise ; travail ; ports ; chaînes d'approvisionnement

Introduction

In the early months of the COVID pandemic, the United Nations Conference on Trade and Development (UNCTAD) expressed uncertainty about how deep and far-reaching the supply chain disruptions would be, but that no matter the time span, the pandemic would underscore global interdependency and set in motion trends that would reshape the global transport sector in the future. This would potentially lead to a reassessment of the supply chain design, challenging the just-in-time model (UNCTAD 2020). In this article, we will shed light on this reconfiguration of supply chains by focusing ethnographically on some of the most central nodes in the global transport sector: container ports. With over 80% of goods passing through them, container ports are key sites that enable and facilitate global supply chains. Ports also run the risk of becoming bottlenecks, slowing down and exposing the fragility of global commodity flows. It is this context that demands closer comparative anthropological attention to ports in times of multiple and overlapping crises.

We understand global supply chains first and foremost as strategic constellations of geographic coordinates that span the world's oceans, subterranean spaces, coastal and inland landscapes, and atmospheric pathways that accommodate thousands of satellites. In aggregate, this global infrastructure is built to facilitate movement, but at any point has the power to interrupt or hinder flows of commodities, people, and ideas. The potential for interruptions is as complex as the geography of the supply chain itself and poses methodological challenges in relation to how to study the power arrangements

that disrupt, or facilitate, variegated forms of movement. In this article, we therefore ask: Where does a supply chain begin or end? How do conceptual boundaries inform material ones? Where can anthropologists spatially and conceptually “pin down” supply chains? And what stories do these places reveal about how diverse livelihoods are supported by the supply chains themselves?

Most anthropological work dealing with the mobility of goods has taken a “follow-the-thing” approach, prioritizing production, and end-consumer perspectives (Appadurai 1986; Binsbergen and Geschiere 2005; Hume 2016). These foci offer a concrete entrance for ethnographers tracking the material and conceptual transformations of objects as they pass from producer to distributor to consumer. However, the circulation of commodities is engendered through a wide range of interconnected technologies, infrastructural systems, and labour regimes. In this article, we therefore put forward a study of the key spatial, social, financial, and political arrangements that make up the port as a node within the global supply chain itself. Our work thus draws attention to the form and structure of commodity movement through supply chains. We understand that this movement is characterized by interruptions, accelerations and decelerations, or full stoppages, and we therefore highlight the necessity to centre the container port, as a critical node of global supply chains, in anthropological analysis.

The contributions here emerge from research conducted under the “Ports” project, based in the University of Oslo’s Department of Social Anthropology. What follows is a collective endeavour that draws on our conceptual and methodological engagement with globally significant container ports. Ports and their related networks of maritime trade have long been at the centre of the development of colonial power and racial capitalism (Khalili 2020; Mawani 2018). We focus on ports and port-cities to understand emerging east-west interconnections, labour issues, energy challenges, and urban development questions particular to city-versus-port-versus-other port-city contexts. The individual vignettes feature five different ports and draw attention to a new form and scale of global circulation and the unintended consequences and imagined futures of port expansion. We move from Singapore (Elizabeth Sibilia) to Hamburg (Elisabeth Schober), through Algeciras (Hege Høyer Leivestad) to Rotterdam (Vinzenc Bäumers Escobar) and back down to Piraeus (Giorgos Poulimenakos).

We want to stress that these interventions are works in progress. The preliminary nature and patchiness of our interventions are characterized by the dynamism and complexity that makes up ports and port-cities. At the time

of writing, most of us are still in the midst of fieldwork. Nevertheless, we do want to share some early insights that will contribute to future social science research on the study of supply chains and logistics in anthropology (Aung 2021; Leivestad and Markkula 2021; Schober 2022; Schouten et al. 2019; Tsing 2009). Our interventions are constructed as ethnographic snapshots from five very different port cities: from mega terminals in Singapore to smaller yet no less important Mediterranean hubs, to two Northern European ports. Each ethnographic intervention is guided by a concept that represents a central characteristic of the port, but that also speaks to the wider potentialities, fragilities and (dis)connections that arise from the making of global and regional supply chains.

Singapore's transshipment hub strategies mitigating supply chain crises in relation to new geographies of work are presented in the *Gamechanger* (Sibilia); the struggle between port development and environmental degradation is tackled in Hamburg as a case of *Fighting the Tide* (Schober); the complicated articulation between illicit and licit trade and movement is addressed through the Port of Algeciras as a *Hotspot* (Leivestad); the constitution of labour vis-à-vis the science of logistics is shown in Rotterdam through an examination of the *Weakest Link* in the supply chain (Bäumer Escobar); and the relation between port development and community is highlighted in Piraeus where the port produces both *Heroes and Monsters* (Poulimenakos).

Gamechanger

In the early months of COVID, the transport sector, the backbone of global supply chains, experienced what UNCTAD referred to as a “cascading crisis” (UNCTAD 2022). Tanker freight rates soared, as record amounts were used for floating storage, 15 percent of container and bulk vessels had been laid up in critical port anchorages around the world—levels not seen since in the wake of the 2007 global financial crisis, hundreds of scheduled sailings had been cancelled for the second quarter, and extensive re-routing was enacted (UNCTAD 2020; *Maritime Executive* 2020). Some countries were aggressive in handling these supply chain stresses and sought to “turn the crisis into a catalyst for change” (Singapore Maritime Week 2022). Singapore was one of these places.

In 2021, Singapore hosted the largest transshipment port in the world. It moved 37.5 million TEUs (twenty-foot equivalent units), handled 599 million total tonnes of cargo transported and serviced 130,000 vessels (Meng 2022).

Singapore's ministries have built a maritime infrastructure on land and at sea that facilitates global trade and includes an extensive range of anchorages, all-inclusive marine and logistics services, and nine free trade zones. Most of these infrastructures are built on large-scale land reclamation projects that satisfy the city-states' spatial limitations and maritime ambitions. These projects are put in motion by a variegated workforce ranging from highly skilled workers to a low-skilled, predominantly South Asian, migrant labour workforce that builds the substructure on which it all exists. In aggregate, maritime services make this location one of the most important nodes in global supply chains. It is no wonder Singapore committed to being the catch-up port for supply chain bottlenecks during COVID, enacting a far-reaching set of strategies with short and long-term visions.

As global trade started to accelerate by the third quarter of 2020, in the short term, the Port Authority of Singapore (PSA) hired 2,500 workers; opened terminals to accommodate 65,000 additional TEUs, relieving the flow of goods in emerging bottlenecks; and provided shipping data for alternative route plans to shipowners and shippers. By year's end, the TEUs handled in Singapore were back to pre-COVID numbers. Singapore also signed a Declaration with 49 members of the Port Authorities Roundtable in 2021 that committed to keeping ports open. Crew changes that were prohibited in other ports and exacerbating supply chain bottlenecks inspired collective efforts between the Maritime Port Authority of Singapore (MPA), local labour unions, and other stakeholders to compile the Singapore Crew Change Guidebook, detailing how to safely change vessel crews.

These efforts toward supply chain efficiency did not come without a social cost. Seamen, viewed as high risk by the government, had increasingly restricted movements and were housed in floating accommodations. When I was invited to view worker housing in 2016, a high concentration of migrant workers lived in cramped collective apartments in Little India. When the media reported that 70 percent of COVID infections had emerged from cramped migrant worker living quarters in April 2020, it sped up the government's plans to consolidate foreign workers into employer-owned purpose-built dormitories as well as factory-converted dormitories. Many of these dorms are embedded in industrial landscapes and remain out of sight from most Singaporeans. Mandatory housing restrictions had also been implemented, effectively transforming these dorms into highly restricted areas.

Walking around the industrial and port areas at dusk workers can be observed hand washing clothes, bathing, and hunched over stoves cooking and eating. These social reproductive activities take place behind fences and corporate boundaries. One evening a friend and I sought out the Tuas View Dormitory on foot. It is the first and largest purpose-built foreign worker dormitory located at the western edge of the island. As we approached the entrance gate, we noticed dozens of men dressed in blue jumpsuits being dropped off by lorries. The lorries make up the migrant worker transportation infrastructure that shuffles workers between their work sites and their temporary homes. Later, a Singaporean-trained engineer explained to us that the men we saw were all employees of Shell and travel over an hour daily from lorry to ferry to work on Jurong Island, the partially reclaimed island at the heart of Singapore's chemical and energy industries. This landscape makes explicit how geographies of labour are being stretched and transformed, exacerbating social differentiation and deepening the context for social crises to emerge, implications from state-led efforts to alleviate supply chain crises.

Conceived in the long wake of the 2007 global financial crisis, PSA development plans will consolidate the entirety of port operations and supply chain services onto the mostly automated Tuas Port, located on an area of reclaimed land jutting out from the historic Tuas village into Singapore's territorial waters. I had an opportunity to tour Tuas Port recently. On the tour the PSA employee and guide shared that the \$20 billion USD port will add 66 new terminals and cover an area equivalent in size to 3,000 football fields, doubling the port's current capacity to 65 million TEUs. The PSA official also noted that only Singaporean nationals will be employed at the new terminals, while construction jobs will be supplied by low-skilled migrant workers.

UNCTAD's announcement of large-scale transport transformation can be understood through the ways in which the Tuas Port is becoming embedded in the wider Tuas Ecosystem. At a recent supply chain conference, the CEO of PSA International, Tan Chong Meng, highlighted the anticipated energy challenges and shared how Singapore is being designed to become more sustainable and resilient to supply chain stresses, noting to an audience of stakeholders: "We will either fall behind or become a gamechanger" (Meng 2022). The game-changer attitude is altering the scale of the port within Singapore, embedding it in an ecosystem that includes a land-based innovation hub and new industrial, energy, and private housing districts. Meng also noted PSA's framing of the

port-as-hub in a green corridor framework. Ecosystem connectivity is being established through new green shipping corridors intended to accelerate the decarbonization of the global supply chain (Haskell 2022). These nodal supply chain developments have implications for the social reproduction of workers in Singapore, and elsewhere, and thus will need to be tracked locally, as well as through Singapore's emerging and self-identified port-to-corridor geography.

Every port-city characterized by transshipment offers a researcher a complex port-scape of multi-scaled interconnections, dynamic variables, and spatial challenges. The complexity and speed at which Singapore is transforming, partnered with the access challenges to terminals, piers, industrial sites, shipyards, and even the seas, make it a particularly challenging place to research. I have embraced *derive* as a method to learn this port and port-city, but I also incorporate a range of ethnographic methods to understand how this place is actively being made and who and what forces are making it. In Singapore, I am learning that port developments are part of a larger scaled maritime context and, taken as such, are transforming my understanding of what a twenty-first-century port will be, how it will operate, and who will carry its benefits and burdens.

Fighting the Tide

"It's not always an act of liberation if chains break. That's particularly the case when we are talking about supply chains."¹ This opening statement of a podcast by Hamburg's largest terminal operator, HHLA, sums up a lot of the current anxiety around supply chains in the ports-related industries of Northern Germany (HHLA 2022). During an event I attended in November 2022 on supply chain disruptions brought on by the war on Ukraine, I listened to many statements being made about how the recent waves of crises have drastically shown the need for "resilience" when it comes to the movement of goods worldwide (Port of Hamburg 2022). The gist of several talks I attended was that in light of greater uncertainties brought on by the pandemic, regional economic rivalries, and military escalations, the logistics sector seeks new pathways now to move from "supply chains" to "supply networks." In pleading for a "responsible co-existence" with "difficult" partners, some argued that industry needed to develop more acceptance of other cultural and religious contexts. All the while, logistics actors, too, would need to define their own "red lines," such as the one crossed by Russia on 24 February 2022. To turn away from some partners would also mean strengthening ties with others—one piece of a

puzzle called “multi-sourcing”; that is, a diversification of suppliers, rather than an overreliance on single trading partners.

Living and researching in Hamburg in late 2022, the energy crisis brought on by an overreliance on Russia is the constant background music to many conversations. The dire repercussions of this dependency have also thrown a new light on relations with China, the Port of Hamburg’s biggest trading partner. Hamburg, Europe’s third largest port, had a movement of 8.7 million TEU in 2021, and 2,6 million of these were due to seaborne container handling with China only (Port of Hamburg 2021). In the autumn of 2022, Hamburg ended up at the centre of much unwanted attention, when a deal with Chinese shipping company COSCO drew much ire among political elites elsewhere. In the context of the current war, a deal allowing China access to German critical infrastructure, many argued, was not the way forward. The COSCO deal, however, should also be read against the backdrop of Hamburg increasingly fighting against a tide made up of both economic *and* environmental challenges. Felix Willeke (2022) argues in a recent article:

Hamburg’s port is the third largest container port in Europe, but it is also the one where ships need the longest time from the open sea to the first terminal. (...) Ships with a capacity of more than 20,000 TEU have in the meantime become ordinary—across the world, there are about 100 of those traversing the seas. That’s why ports like Rotterdam, Valencia or Piraeus have a decided advantage: they are directly by the sea and can easily be accessed by these large ships.

The Elbe, in contrast, flows into the Northern Sea at Cuxhaven, a seaside town famous for its long sandy beaches, some 90 kilometres away from Hamburg. From Cuxhaven, one also has a spectacular view of a slow-moving row of sea-going vessels lining up to enter the estuary. It will take them another four hours to make their way down the river. The journey is undertaken with the help of an interchanging set of river pilots, and in the case of ultra-large vessels, also with the assistance of tugboats, which guide the ships to their allocated spot at the container terminals in the final stretch. Having watched their manoeuvres several times, one can only be in awe by the breath-taking precision work, when these small, powerful vessels turn a ship of 400 metres in length at a point in the river where the space available is only 480 metres, to then move the large vessels stern-first into the terminal channel.

The estuary of the Elbe, however, is not only the entry for much maritime trade. It is also a passageway for natural forces to flood towards the city: The rise and fall of water washing in and receding again towards the sea create ever-changing patterns of currents, (non-)depths, and sediments that need to be managed to keep the Elbe navigable. Hence, despite the fear of human error that the above-mentioned turning manoeuvres may incite, the biggest threat in terms of a Suez Canal-style obstruction of the Hamburg port is probably the seemingly inconspicuous sediments that the river constantly creates. Depending on the water levels, only ships under a certain depth are allowed into the Elbe during low tide; a natural fact of Elbe life that has traditionally been a thorn in the side of the port authority, who want to attract ultra-large vessels independent of the tide (which ties them into a global phenomenon of ports competing for large ships via the technique of dredging, see Carse and Lewis 2020). The answer to this problem then was one of the largest, and most contested, projects in recent German history (for example, Hein and Thomsen 2022)—a dredging project that cost approximately 800 million Euros and was declared finished in early 2022.

Since the autumn of 2022, however, a veritable row has started again over whether the project has not failed in the meantime. With the tonnage of sediment in need of dredging steeply on the rise since the project's conclusion, environmental groups argue that the dredging work has led to the destabilization of several of the river's embankments, which in turn stirred up additional sediments, resulting in an Elbe that is more unpredictable, faster moving, and less easily manoeuvrable. In October 2022, a documentary showed that container ships are nowadays guided down the Elbe in what can only be described as a slow slalom towards its destination.² Hamburg may have to keep dredging at much more intense levels from now until the foreseeable future to keep the river navigable to the kinds of vessels the city wants to attract.

The Hotspot

In February 2018, during my early days of fieldwork, my arranged meeting with representatives from the Spanish Port of Algeciras Bay turned out to be a lesson in maps. I found myself facing the port in the form of a map and a set of numbers that seemed to speculate on the future of maritime traffic through the Strait of Gibraltar. Luis, an employee with the Algeciras Bay Port Authority, had joined forces with Carla, one of the managers at the Korean-run cargo terminal, in order to discuss with me the current status of the port. We were sitting in a

windowless meeting room in the Port Authority's building located close to the Algeciras city centre and in between the town's two container terminals. Carla was talking rapidly, eager to show me why the Strait of Gibraltar was such an important maritime route for international shipping, and why the ports on each side of the Strait held such "strategic locations." I would reflect on this initial meeting with Luis and Carla many times in the years to come, as I was confronted with similar cartographic visualizations of the Port of Algeciras Bay as a strategic "hotspot" for global maritime trade.

During fieldwork in shipping agencies and logistics companies, with port authority representatives and waterfront workers, I would in fact repeatedly hear the Spanish Port of Algeciras Bay being referred to as a "*punto caliente*" (a "hotspot"). This hotspot, I was told, was created by the port's strategic location for both the licit and illicit transnational mobility of people and goods. At the gateway between Europe and Africa, the Strait of Gibraltar is one of the world's busiest and most crowded maritime waterways, connecting the Atlantic Ocean to the west with the Mediterranean Sea in the east. Around 100,000 ships travel through the Strait on an annual basis, in addition to the 40,000 freight trucks and five million passengers that are transported in ferries across the Strait. When referring to the port and its location by the Strait as a "hotspot" Algeciras residents would usually give a reluctant nod to the other forms of trade and transit taking place across the Strait and along its shores: of drugs and illegally traded goods, and of migrant mobilities in the African-European borderlands.

What kind of methodological possibilities and challenges emerge when doing ethnographic research in a hotspot port, characterized by crossing—and conflicting—flows of people and goods? The "hotspot" is a condensed mobility assemblage made up of a vast and intensified mobility of materials through contested geospatial terrain. Cartographic representations, charts and numbers form central parts of this mobility assemblage. The "hotspot" captures how cargo mobilities, channelled through different forms of supply chains, appear as particularly intensified and controversial in certain locations. As "chokepoints" (Carse et. al 2020) and crucial nodes in global supply chains, all ports share some hotspot characteristics. Whereas the "chokepoint" conceptually helps us to understand the constraining potential of location, "the hotspot" reveals the fiery, the flaming and the urgent. What makes Algeciras a particularly interesting case in question is its geopolitical and sociocultural location in Europe's south-western borderlands where European political remoteness meets global flows. And where a town of only 120,000 inhabitants hosts one

of Europe's major cargo ports, which handled 107.30 million tons of goods and 5.1 million TEUs in 2020.

What does a *punto caliente* entail for different actors inside and outside the port? As I made my way through port networks, I soon discovered that “hotspot” was a far more complex category than what the mapped vision seemed to reveal. In contrast to Luis and Carla's visualizations of the maritime logistics hotspots described above, was the ever-present discourse of illicit trade, portrayed as an unavoidable side-effect of hotspot geography. For Alberto, a local Algecirense in his forties, who took me along in his boat working with pilotage in the port, “the hotspot” entailed everyday circulation in congested waters. For Alberto, who manoeuvred his boat alongside mega-containerships, ferries, recreational vessels, high-speed police boats, and inflatable speedboats used for drug traffic, “the hotspot” was a double-edged sword, providing the area with both potential for economic growth and employment, but at the same time adjacent illicit trade. As Alberto was well aware of, it was mainly these latter forms of cargo mobilities that had shaped the national mediatic image of Algeciras and its neighbouring communities as toxic hotspots.

The hotspot then, reminds us that supply chains are channelled—and facilitated—through locations of crossing, conflicting and controversial forms of mobilities. These crossing and fiery mobilities—and their representations—are the core of the hotspot. A “*punto caliente*” is a place where trade and transit are intensified, and that always carries the risk of getting burned. Hotspot ethnography opens up inquiries into the burning encounters—and pressing issues—of critical sites in global supply chain networks.

The Weakest Link?

In a competitive field where the interests of global shipping companies are becoming increasingly prevalent in determining the makeup of port infrastructure, terminal operators in the port of Rotterdam have looked to automation as a way to increase efficiency and handling capacity. Consequently, the Port of Rotterdam is now known worldwide as a highly automated, efficient, and de-peopled “ghost” port that in 2021 moved 15.3 million TEUs and 593.2 million total tonnes of cargo (Port of Rotterdam 2021). The majority of containers passing through Rotterdam are handled in specialized terminals located on two swaths of reclaimed land from the North Sea—Maasvlakte I and II—about 40 kilometres away from Rotterdam's urban centre. Yet this constant stream of containers up and down the supply chain would not be possible

without a crucial but often overlooked technology and a related relatively simple task that has proven difficult to automate.

When boarded onto ships, containers are stacked on the deck and locked in place with twist locks. These are securing devices weighing about five to eight kilograms that are inserted into steel, hollow, cube-shaped constructions known as corner castings which are attached to all four corners of any given container. With regard to the expansion of global maritime trade, the twist lock is, arguably, in the words of Marc Levinson (2006, 56), “the most critical invention of all.” That is, without twist locks, container vessels could not sail the high seas with nowadays up to 24.000 TEUs stacked tall on their decks and deep in their cargo holds. In other words: no twist locks, no global container supply chain of this magnitude. The gift of the twist lock, however, comes with a catch.

Twist locks need to be manually fastened or removed before containers are loaded onto a ship or sent off for further distribution to the hinterland. Manual twist lock handling therefore entails a planned stoppage in the movement of containers to and from the ship. While some technologies for automating twist lock handling already exist, adaption of these techniques has been practically non-existent due to a number of different barriers, including financial (expensive and unsure returns on investment), technical (too great of a variety of twist locks to automate), and social (union pushback to automation) (Chellappa 2011; Kugler et al. 2021). The science of port logistics therefore regards manual twist lock handling as an impediment to the efficiency of supply chains and considers this practice to be “the weakest link for port automation and the most difficult automation part in the whole port automation field” (Ma et al. 2014, 2,729).

From a different point of view, however, manual twist lock handlers actually have considerable potential strength due to the position they occupy in the port. Scholars working with the notion of “choke points” have shown that strategically positioned workers can potentially cause disruptions in supply chains and leverage this position to improve their livelihoods (Alimahomed-Wilson and Ness 2018). I argue, however, that the specific way in which manual twist lock handling is configured indeed makes it a “weak link,” albeit not in the technical sense as espoused by the grammar of port logistics, but rather in a social sense.

Removing and fastening twist locks is considered part of the more general task of securing containers known as lashing. In Rotterdam, however, manual twist lock handling has largely been outsourced to temp agencies that employ a specialized, flexible workforce known as *stackerdraaiers* (twist lock handlers).

As part of my research in the Port of Rotterdam, I took on a job as a twist lock handler and for a period of three months I worked in eight-hour shifts during the day, evening, and sometimes at night alongside a group of around 300 *stackerdraaiers*.

Manual twist lock handling is, as my instructor told me during training: “not physically hard, but mentally hard.” Each shift, one of my co-workers and I would stand on opposite ends of a platform that was part of a gantry crane. Nearly 30 metres above us, a crane machinist operated a spreader to lift and then lower containers onto the platform. About every two minutes we were presented with a container that was suspended in midair at shoulder height, waiting for us to either remove or twist in the twist locks before it was then hoisted away onto the ship’s deck or onto an unmanned Automated Guided Vehicle (AGV) that traversed the terminal grounds. The work is highly repetitive, and my coworkers would often say that they would “turn off their brain” and just do their job, trying to find ways to pass the time as they waited out in the cold for the next container to arrive.

The repetitive and mentally taxing job of manual twist lock handling is made even more arduous due to the specific way the labour force is organized. Most lashers in the Port of Rotterdam have fixed contracts, fixed schedules and work in the same teams with the same colleagues, sometimes for over 30 years. In contrast, *stackerdraaiers* are employed on temporary contracts with no outlook toward fixed employment, put up their availability in an online platform and are notified whether and where they must work only a few hours in advance. When talking about this difference with one of my co-workers, he told me: “This is the lowest of the lowest in the port ... We’re the scum of the port, and we’re treated that way as well.” In even more forceful terms, another co-worker told me: “Here you’re not treated like a human being.”

When studying central nodes in the supply chain, it is important to remain attentive to the specific configuration of labour relations and how these relate to the overall constellation of global commodity flows. In the case of Rotterdam, a race to the bottom among lashing companies, container terminals, and shipping companies has resulted in the creation of a poorly mobilized workforce that carries out mind-numbing work under precarious conditions. Ethnographically informed analyses of supply chains, then, need to pay attention to the processes through which particular links in particular locations are constituted as either “weak” or “strong” and, consequently, what kind of social transformations these links enable or upend.

Heroes and Monsters

Sprawled across four distinct but connected neighbourhoods, the Port of Piraeus has since its onset developed organically in relation to planned and impromptu communities that sprout in its outskirts. Piraeus was originally conceived as a “seafront industrial zone” that would directly link manufacturing with maritime transportation routes in the absence of any serious land-based infrastructures (roads, railroad) in the nineteenth century (Belavilas 2021, 19).³ The plethora of industrial units around the port generated waves of internal migration of ex-farmers from all over Greece, who in 1922 would be followed by thousands of Christian war refugees from Asia Minor with no shelter or income (Kyramargiou 2019). The formation of this proto-working class was materially imprinted in a semi-anarchic urban development orbiting around the port that would blur the boundaries between the factory, the sea, and residential areas. Dockworkers, industry workers, seafarers, and lumpen proletariats, often in interchangeable roles, constantly pushed the official urban planning and resorted to self-housing and land occupation tactics, even within the boundaries of the port, in order to survive.

Containerization largely redesigned port infrastructures in the second half of the twentieth century, moving port activity from vivid city centres to remote, sterilized, and enclosed spaces on the outskirts of urbanized environments. Piraeus, however, stands as an exception. Surrounded by long-standing residential communities, the particular history of urban development of Piraeus meant that the newly developed container terminals could not be so easily separated from peoples' lives.

What is happening to those diachronic entanglements now that the Port of Piraeus is becoming a global transit hub? Since the port concession agreement with the Chinese terminal operator COSCO, Piraeus has taken its place in the management of a globally interconnected chain of supplies. From a low-intensity container terminal satisfying local needs and minimum exports, it has transformed into a state-of-the-art port functioning as a major gateway for the circulation of Chinese goods westwards (Hatzopoulos et al. 2014). With over five million TEUs being processed by its three terminals in 2021, the Port of Piraeus ranked as the second busiest port in the Mediterranean and the fourth largest in Europe. Moreover, the feverish activity inside this global hub is somehow independent of the surrounding socio-economic context. For example, during the unfolding of the sovereign debt crisis in Greece, the signs of recession were evident everywhere, except in the port, which continued to

scale up its container handling capacity. During those years the growth of the port skyrocketed, hitting new profitability margins with each passing year.

How do we ethnographically study the new dynamics between the global and the local in the context of Piraeus? Whose lives outside the strict boundaries of the port terminals are “moving” along with the commodities, whose lives remain undisturbed?

I met Mr. Nikos through one of the many Facebook neighbourhood groups that function as a space for open discussions among its residents about its problems. Mr. Nikos lives right across from the container terminal run by COSCO, at the boundary between Keratsini and Perama. He posted in the group complaining about how a million-lumen strong beacon brightens the terminal at night, but also his living room, as the light reaches his house, making it impossible to darken the room. When we met in person he told me:

I do not understand why you need to do research at a doctorate level to understand if COSCO is affecting us. Of course it does. By fucking us up. Period. What else is there to say? I can't relax in my living room. There is always light. My little girl is constantly afraid because the lights create shapes and shadows in her room moving her imagination and turning them into monsters.

Mr. Nikos was not raised in Perama. He lived most of his life in the middle-class southern suburbs of Athens and only bought a house in Perama because his wife and parents-in-law are from there. For him being close to the sea meant a nice view and time for relaxation. He is a mathematician with no labour connections to the sea whatsoever.

Just a few metres away, in the same neighbourhood, Mrs. Maria talked to me about her connection to the sea: “My children are trying to find a job with COSCO. It is hard and you have to know the right people, but the wages they give are far above today's reality in Greece.” For her and her family, the sea was always an economic resource. She has always lived in Perama and had no complaints about light or noise pollution.

These short ethnographic stories reveal theoretical and methodological challenges arising from the port-community dynamics in the post-concession era. Particular social, class and geographical angles within the very same community may reveal “heroes” or “monsters” rising from the enclosed, ostensibly de-territorialized Chinese container terminals. For Mr. Nikos, whose senses were not attuned to the noise, lights, and smells that emanate from the

port, the connection with the port is experienced as a blinding gaze. Whereas for Mrs. Maria and her son, raised in the industrialized Perama, the ports' sensorial stimuli were an index of economic prosperity and held the promise of a better future. For them, the spatial connections to the "Chinese" port involve "finding" the right people, and navigating through local and sometimes hidden geographies of dependencies in Piraeus. Mapping those different socio-geographical connections may ultimately result not only in the revelation of different connections between the port and a community, but also of different communities within a community.

Conclusion

The spatial arrangements that undergird the orchestration of global supply chains and logistics are often obscured from public view. Recently however, container and dry bulk cargo terminals, logistics companies, and distribution centres have come into focus in light of the disruptions caused by COVID-19, the Russo-Ukrainian War, zero COVID policies in China that periodically halt port movement, as well as the temporary blockages such as the grounding of the *Ever Given*. These events have highlighted new sets of challenges in maintaining the continuous flows of commodities, altering our collective imagination about the "smooth flows" of goods around the world, and making the infrastructural and logistical systems through which these goods are moved more visible. In this concluding section, we will draw from our interventions from five different container ports and point towards potential pathways to study the complex web of interconnections we refer to as global supply chains, with a specific focus on multi-sited and scaled disruptions. By directing ethnographic attention to ports, we aim to ground supply chains in a place-based approach, where place is understood not as a shorthand for "the local," but rather, as Aletta Biersack (2006, 16) writes, "the grounded site of local-global articulation and interaction." Here our discussion will focus on two pillars that support our analytical work aimed at grounding supply chains: first, we will focus on labour and, secondly, on the extent to which ports can be considered chokepoints.

In making sense of transformations within global capitalism, Baglioni and colleagues (2022, 3) write that labour is "a useful mediating category between day-to-day labour processes ... and the more abstract general forms of domination under capitalism." Indeed, our ethnographic material echoes scholarship in the anthropology of infrastructure that shows how logistical operations central to global processes of capital accumulation are facilitated

through different kinds of often unseen labour (Appel et al. 20198; Dua 2019; Larkin 2013). It is important to emphasize that these forms of labour vary tremendously from port to port: from de-valued migrant workers in Singapore to highly specialized pilots guiding ships along the Elbe, and from port officials trying to attract increased volumes of trade in Algeciras to residents navigating access to the labour market in Piraeus. In making sense of these diverse forms of work and how they relate relationally to the constitution of global supply chains, we draw on insights from the anthropology of labour that point toward “the continual making, unmaking, and remaking of labour forces and working classes – politically, culturally, and structurally” (Carbonella and Kasmir 2014, 4).

Specifically, our research highlights the spatial dimension of the continual (re-)configuration of labour in central nodes in the supply chain. As Poulimenakos shows in the Port of Piraeus, the intertwinement of the port with surrounding residential communities fed into different processes of class formation over time, from the melding together of different groups of people in the early twentieth century to the creation of a highly differentiated group of workers with unequal access to resources generated through port activity after COSCO’s recent takeover. Meanwhile, in contexts where global competition in the maritime economy drives port expansion towards the fringes of urbanized environments, labour is mobilized in quite distinct ways in relation to the making and unmaking of supply chains. In Singapore, Sibia shows how in the wake of the COVID-19 pandemic, port workers are compartmentalized in residential and industrial enclaves. Whereas in the Port of Rotterdam, labour in container terminals is stripped down and devalued, and workers are increasingly isolated from each other. This stretching, dislocating, and compartmentalizing of the labour force as a result of a race to the bottom in the global maritime economy, in turn, puts constraints on the kinds of collective labour action that can emerge in these spaces. Indeed, as Martin Danyluk (2022) argues, the ability of workers positioned at critical nodes along the supply chains to exercise power and cause disruptions should not be assumed as a given. Rather, interruptions in supply chains are predicated on a number of contingent factors that are at once political, economic, cultural, and, as we show, also spatial.

This examination of ports and labour in relation to the constitution of global supply chains and the potential for disruption runs parallel to recent scholarship that, writing against the assumed speed of global commodity circulation, directs our attention to the diverse ways in which global flows

are blocked, halted, or otherwise constrained in key sites conceptualized as chokepoints (Alimohamed-Nelson and Ness 2018; Carse et al. 2020). Ports are always potential chokepoints in the sense that they are core geographical passages through which commodities, people, and knowledge pass in large volumes. At the same time, our research shows that a great deal of work goes into relieving potential blockages and creating the conditions that should ideally enable the efficient, fast, safe, and smooth transfer of ships, containers, and other commodities (compare Appel 2019). It is in this vein that, as Bäumer Esobar shows in the Port of Rotterdam, the science of ports logistics always looks to find and strengthen the weakest links in the chain. This strengthening of the supply chain often comes at a great environmental cost (Dewan 2020). Schober demonstrates this in the Port of Hamburg, where the dredging of riverbanks is a costly, destructive, and seemingly never-ending endeavour that is nevertheless seen as crucial to maintaining the port's position in the global maritime economy. And as Leivestad highlights, security officers and national and regional authorities spend enormous amounts of resources to combat and contain illicit trade in the Port of Algiers in order to present the port as a safe haven for the expansion of cargo handling.

It is important to emphasize that such efforts to smooth out potential chokepoints often create myriad frictions and unintended consequences. Leivestad argues that when considering the geopolitics and sociocultural position of Algiers, a chokepoint can also act as a hotspot and become a gathering point for urgent and fiery social, environmental, and political controversies and anxieties at global and regional scales. In Singapore, this becomes evident when port officials try to stay ahead of the curve and become game changers in the global maritime economy's push towards decarbonization. In Hamburg and Piraeus, on the other hand, both located near residential areas, port expansion and development are continual sources of public debate and spark processes of social contestation along socio-cultural, political, and environmental lines. Echoing Leivestad and Markkula's (2021) recent analysis of the global shipping economy, we contend that the making, unmaking, and remaking of supply chains in container ports is therefore always underpinned by social and cultural forces, including kinship, morality, and broader networks of social reproduction (compare Leivestad 2021).

Taken together, our contributions share a commitment to ground global supply chains in concrete socio-cultural histories, material infrastructures, political ecologies, and the politics of labour. Rather than focusing on how

particular commodities transform over time as they move up and down the supply chains, we put forth a decidedly comparative anthropological perspective that pays attention to how global supply chains are made and remade across key sites of circulation. With a global recession on the horizon, the urgency of this endeavour is, unfortunately, all the more evident as we enter a post-COVID landscape in which the “cascading crisis” (UNCTAD 2022) in the transport sector and supply chains is poised to reverberate across the globe.

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Notes

- 1 All translations from German to English in this text were done by Elisabeth Schober.
- 2 https://www.ndr.de/fernsehen/sendungen/45_min/Kampf-um-Riesenpoette-Wohin-steuert-Hamburgs-Hafen,sendung1286406.html.
- 3 According to Belavilas, the establishment of an industrial zone near the sea is probably a unique case, quite different than the classic nineteenth-century inland zones that we find in the UK or other industrialized cities.

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