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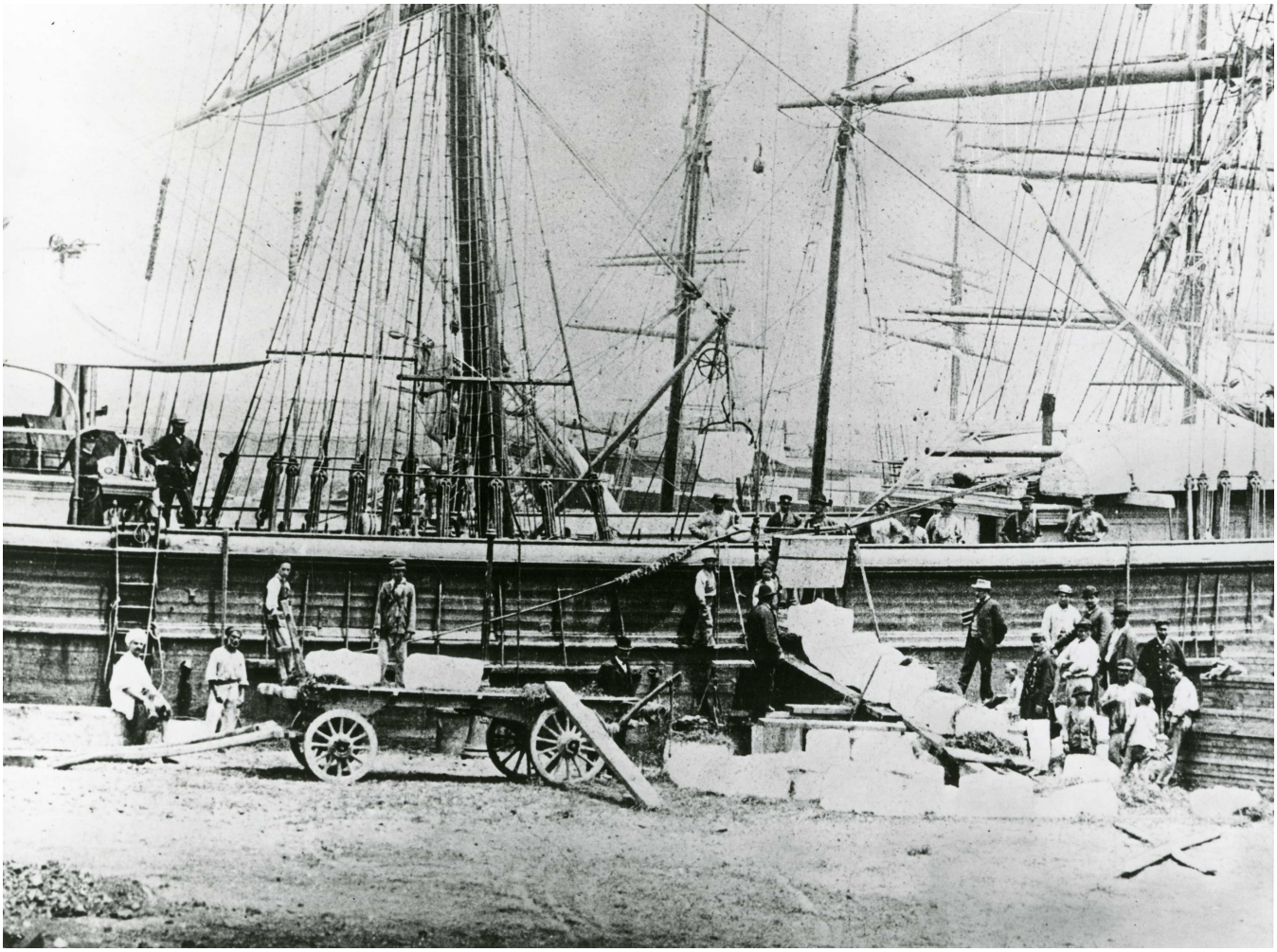
Ice as an agent of change in a colonisation project: Norwegian ice to Algeria in the 19th century



The barque Tenax Propositi *unloading Norwegian block ice in Algeria in 1886. Norwegian Maritime Museum, catalogue no. NSM.3000-033.*

Even before I started working properly on this master project, Per Norseng at Norwegian Maritime Museum, head of the research project The Last Ice Age, was kind enough to open the door for me into the project. I am for ever grateful for this warm welcome into an equally inspiring and professional international group of researchers with one common passion: ice that melted away more than a hundred years ago. Per have encouraged a culture of sharing at the project and has always himself been available to share his unique knowledge and experience.

Besides Per, I would like to especially thank Eyvind Bagle at the University of South-Eastern Norway, who likewise has been available as an invaluable source of historical knowledge and inspiration, and who pointed me in the direction of the barque Commerce's pioneer ice voyage to Algiers in 1839. Among the other participants of the research project I would like to thank Effie Dorovitsa at the University of Hull and Knut Michael Nygaard at the University of South-Eastern Norway, for skilled advice on the 19th century hygiene discourse and Norwegian ice exports tonnage, respectively. I also want to thank my supervisor at the University of Oslo, Finn Erhard Johannesen, for his valuable advice at strategic points during my project, and to Kirsten Alsaker Kjerland for helping me placing Norwegian ice traders in Algeria in their colonial context. Also, I want to thank Svein Erling Loråas who helped me get started on the subject of ice consumption in 19th century Algeria, enthusiastically sharing sources and contacts. Last but not least, I wish to thank my husband Tore and my daughter Kaia Jin Ling for their patience and understanding during the whole year I was lost in the ice.

The research that underpins this thesis has been carried out as part of the research project The Last Ice Age funded by the Research Council of Norway and managed by the Norwegian Maritime Museum in cooperation with the University of South-Eastern Norway, the University of Hull and Old Dominion University, Norfolk VA. The Last Ice Age project investigates the trade in natural ice as an agent of modernisation and economic integration in the 19th and early 20th century. My participation in the project has been supported by a scholarship from Stiftelsen Norsk Folkemuseum.

In October 1891, a short notice appeared in several Norwegian newspapers:

> **Ice and Fire.** Just as the Stavanger steamer "Flid" had sailed off with a shipload of ice for Algiers, a telegram arrived from the owner of the cargo, urging to hasten the voyage, as the ice house in Algiers had burnt down, destroying the ice. Later on, a telegram reported that "Flid" too was burnt and sunk with the ice[1]

In the shorthand style of the newspapers of the time, this notice effectively sums up the conditions of the 19th century Norway-Algeria ice trade: Ice was a precarious commodity, and the ice trade a risky venture. Because ice was extremely time sensitive, the ice trade was very much about providing a reliable supply and hitting the right timing. Keeping the cold chain running between south east Norway and north Algeria required both entrepreneur spirit and seamanship, with bravery on top of that.[2]

Introduction

From the later half of the 18th century until the outbreak of World War I, natural ice was one of Norway's major export articles. The ice was mainly harvested from ponds and lakes near the coast of south-east Norway between the capital Kristiania and the village Kragerø. Great Britain was by far the largest import market, followed by other countries bordering the North Sea, but ice was also shipped to exotic waters, some of it went as far as Rangoon. This thesis will look at the Norwegian ice trade to southern Europe and the Mediterranean, specifically the French colony Algiers, which was the most important market in this region.

Wherever Europeans established colonies during the modern period, they carried with them not only their beliefs, ways of government and material culture such as systems for infrastructure and styles of architecture. They also strove to uphold their metropolis lifestyle in the colony, not least the social practices of eating and drinking.

This thesis will look at one specific commodity craved by the colonists, ice. It will examine the role played by natural ice from Norway in the Algerian context, within the time span from the French colonisation in 1830 until refrigeration technology made imported natural

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[1] "**Is og Ild.** Netop som Dampskib "Flid" af Stavanger var afgaaen med en Ladning Is for Algier kom der Telegram fra Lastens Eier om mest mulig at paaskynde Reisen, da Ishuset i Algier var brændt og dermed Isen ødelagt. Senere meldte Telegram, at ogsaa "Flid" var brændt og gaaen tilbunds med Isen" *Fædrelandsvennen*, 21.10.1891.

[2] For the record, the "Flid" crew was rescued by an English steamer and brought ashore in Penzance, Cornwall.
Le Matin, 7.10.1891.

ice redundant around the turn of the century. For a period, Norway was one of the main ice suppliers in Algeria, and totally dominating in the natural ice market.

Still, the ice going from Norway to Algeria was not even the tip of an iceberg compared to the whole Norwegian ice export. So why study the Algerian case? There are several reasons. Mediterranean and Southern Europe as a whole was an ice market of some importance, and within that region, Algeria stood out. Algeria was the largest southern market for Norwegian ice, and the only colonial market where Norwegian ice export went on continuously over some time and had some significance.

These are some questions I will ask: Which role did ice as a commodity play in the French colonisation project in Algeria? How did Norwegian ice fit the needs of the colonists? What made the Algerian market sufficiently attractive for some Norwegian ice merchants to risk the long voyage to the Mediterranean, bypassing other, much larger ice markets and choosing Algeria before Moroccan, Tunisian, Spanish and other Mediterranean ports?

Looking at my subject matter, I will approach if from two slightly different theoretical perspectives. One approach is the “thing power” of ice, i.e. the agency of ice as a commodity. Wherever it came, ice changed tastes and practices of eating, drinking and sociability, changes which stimulated the development of new and different cold chains and opened new niches for food and beverages, How did these dynamics unfold in Algeria?

The other approach is how the “thing power” of ice worked in a colonisation project. The French endeavoured to make Algeria into a French province. To what extent did Norwegian ice give a helping hand in this project, or did it perhaps give its own twist to it?

1 Perspectives on ice

1.1 Neo-materialist perspective

The historian Timothy J. LeCain has suggested neo-materialist theory as a fruitful approach for historians. It is built on actor-network theory (ANT) formulated by Bruno Latour and others, and informed by recent research in sciences as diverse as cognitive linguistics and neuroscience, cultural anthropology and archaeology. Neo-materialism is resting on two fundamental ideas.[3] The first idea is that all "things", whether they are so-called dead matter or living things, posses something the philosopher Jane Bennet has coined "thing-power", meaning that they have agency, independent nature and creative powers.[4] The other idea is that any human beings' thoughts and culture are deeply embedded both in the human body and the material environment. Body and mind are porous and cannot be set apart neither from each other nor from the environment. Following this line of thought and the extended mind thesis put forward by Andy Clark and others, a notebook, a map or a mobile phone can very well be seen as an extension of our memory and our brain.[5]

ANT sees history as moved by both human and material actors (ANT prefers the term "actant"), and these actors operate in networks. In the history of ice in Algeria, I see ice as the main actor, or agent, as I prefer to call it to emphasise its agency. I see the cold chain as the network. The cold chain is the logistic path followed by the ice or chilled food and drink from the point of production to the point of consumption.[6] Along that route, a serious of operations are performed by various actors at different stages. The cold chain is often linear, but sometimes spread out in branches going in different directions. The actors operating along that cold chain may be human, animal or material: Ice entrepreneurs and ice harvesters, ice tools and horses and ships, ship owners, ship masters and crew, ice houses and ice men, brewers and beer, cafés and ice cream, housewives, beer drinkers and ice cream eaters. Just to mention some.

ANT emphasises working sites as places where reality is constructed.[7] In the case of ice, reality was constructed at crucial links along the cold chain where people were working: on board ships, in ice houses, at cafés. ANT has a bottom up approach.[8] "Follow the actor" should be the working method for the historian. That is precisely what I intend to do: Follow the ice along the cold chain and observe all the practices of handling, describing and consuming ice.

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[3] LeCain, *The Matter of History*, 16.

[4] LeCain, *The Matter of History*, 128.

[5] LeCain, *The Matter of History,* 113-114.

[6] Rees, *Before the Refrigerator,* viii.

[7] See for example Lien, "Mot en postkolonial hjemmeantropologi", 309.

[8] Lien, "Mot en postkolonial hjemmeantropologi", 303.

1.1.1 Ice as an agent

Ice is indisputably a mighty agent of nature. It breaks down mountains and cuts and moulds them into peaks and valleys. It traps enough water to keep the sea from drowning the coastlines of the world. It has spurred the evolution of the polar bear and the ivory gull and numerous other creatures. Ice definitely holds both creative and destructive powers.

In this thesis I will focus on natural ice as an agent with the power to convey cold, a desired physical attribute for a number of purposes and situations. As a conveyor of cold, ice held the astonishing power to erase time and distance in the 19th century world. Butter made in England would reach tropical India still in solid state. Meat from cattle who had been grazing in the Chicago district would reach the consumer market in New York. Fresh fish caught in Norwegian waters would reach markets abroad. In each case, the product arrived in an amazing state, fresh as if it had been produced, butchered or caught the day before. Ice was an agent of modernity, and not only in its capacity of erasing time and distance. As longer food mileage became the norm, different food items ended up on people's tables and more specialised, less varied crops grew on the farmers' fields. And, more importantly for our case, ice was spreading modern practices of comfort and luxury, as opposed to traditional practices which were increasingly seen as backward.

What did this simple mineral, H_2O in its natural, solid state, shipped by sea from Norway, bring about in Algeria of the 1800s? Did Norwegian ice as a commodity have the thing-power to change Algerian practices or perceptions? To approach some answer, I find the neo-materialist concept tools of *niche-construction* and *domestication* useful.

1.1.2 Niche construction and domestication

At some point during their evolution, beavers constructed their own ecological niche, the dam, to which they themselves adapted perfectly. The beaver dam is a prime illustration of niche construction theory, which holds that organisms adapt to niches as they themselves create them. An outstanding example of human niche-construction is the agricultural revolution of the Neolithic, when humans, together with grazing animals, changed the landscape and adapted to a sedentary life style, involving much toil and a different diet, but giving subsistence to a vastly larger population.[9] In my understanding, any technological or cultural leap is a marker of ongoing niche-constructing. Niches are constructed for sustenance, and within the niche there are a whole set of actors with a whole set of practices, adapting to the niche while at the same time modifying it. LeCain uses the example of American cattle farming."The cows constructed the cowboy",[10] as he eloquently puts it. The cowboy's hat, chaps and boots, his way of walking and way of talking, even his values - all were shaped from and adapted to handling cattle from the horseback. As the cowboy shaped the cows and horses through breeding, feeding and training, the cows and horses shaped the cowboy too.

Whenever humans take a "thing" - a living "thing" or "dead" matter - into use, they enter into a process which LeCain calls domestication. Humans took cows into use. In the

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[9] LeCain, *The Matter of History*, 99.

[10] LeCain, *The Matter of History*, 165.

process, the humans were forced by the needs of the cows to cater for them. Examples like this, which abound in the history of human-animal relationship, lead to the fundamental realisation that domestication is a two-way street.[11] Perhaps it is particularly evident in the domestication of horses: The horse is a physiologically very specialised, hence ecologically vulnerable animal that would probably have been extinct by now if humans had not for many centuries helped this species breed and survive.

But domestication does not stop at living beings. LeCain tells the history of copper. Humans domesticated copper by making it into wires which they used for electricity and telegraph lines. But copper domesticated humans in reverse, by making humans dependent on the ability to convey power and information instantly across vast distances. Factories, homes and offices became dependent on electric light, electric heating and an infinite number of electric devices. Businesses became dependent on the ability to send quick messages across the world. Human lifestyles and ideas of time, space and self changed in profound ways, towards what we call modernisation. Copper was an agent with a "material pull" that swung nations as diverse as Japan and the U.S. into similar "orbits".[12]

The possible downside of domestication is entrapment. Thing-power can entrap humans.[13] Copper mining in the U.S. and Japan led to construction of new niches for sustenance, while at the same time, poison from the copper mines destroyed both the niches sustaining the American Longhorn cows and those sustaining Japanase silkworms and their human owners. Entrapped by copper, neither the Americans nor the Japanese were capable of stopping these ecological and cultural disasters.

The French domesticated ice some time during the Renaissance. How did the domestication work in Algeria? Did the thing-power of ice work as an entrapment? Which niches were being constructed around the domestication of ice in Algeria? How did the cold chain carrying ice to the consumers work?

I find an ecological perspective especially useful for dealing with material history. Thinking of ice as an agent, and of the cold chain as a niche, is a reminder that human beings are not the single masters of their own cultures and societies, and that in any economical niche there are other actors than humans at work. The protagonist of the story in this thesis is the ice created by nature in a string of ponds and lakes scattered along the Oslo Fjord and the Skagerrak.

Historians should learn from archeologists, LeCain advices, to read the material evidence.[14] I will try to do that by looking at the material culture of Algeria in the 1800s. By material culture, I understand not just the material objects themselves - in this case, mainly ice, food and drink - but also the social practices of eating and drinking and their social meaning in Bourdieu's sense. Algerian ice consumption practices mimicked the Parisian ice consumption practices during *La Belle Époque*, although Parisians were relying on totally different cold chains. The cold chain was not running in isolation. At every link of the chain there were interactions and input from the outside, shaping and modifying it.

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[11] LeCain, *The Matter of History*, 85.

[12] LeCain, *The Matter of History*, 274.

[13] LeCain, *The Matter of History*, 85.

[14] LeCain, *The Matter of History*, 136.

1.2 Colonial perspectives

For a broader understanding of Norwegian ice in Algeria, I find a colonisation perspective fruitful. Which role did Norwegian ice play in the Algerian colonial context? Historians and other scholars have offered some colonial perspectives that might enlighten the history of Norwegian ice in Algeria.

One perspective is the perceived malign effects of hot climate on European bodies and minds, where ice was seen as a remedy. The historian Rebecca Woods has looked into the cryopolitics - politics of cold - in the British empire in the nineteenth century. The British colonial elite, suffering in the tropical Indian heat, were craving cold. They did not function in the heat. Listen to the frustrating note of shortcoming in this quote:

> If beverages can be cooled by means of ice; if meat and other articles of food can be preserved in good condition for some time by its agency ... if these things be so, then some, at least, of the miseries that press upon the white man in a hot climate might be alleviated, and we might then really see what northern muscles can effect in southern regions.[15]

Cold was the solution. Cold held almost magical powers. Not only did it provide heat relief. By bringing a piece of Britain everywhere in the form of familiar food and drinks, cold was uniting west and east, north and south within the British Empire. In India, ice was an agent for restoring British order. Did it play a similar role in Algeria?

Another perspective is the perceived equation between Frenchification and modernisation. The Lebanese-American architect and historian Shirine Hamadeh has shown how the French, after the occupation of Algeria in 1830, constantly were working towards Frenchification of Algiers through city-planning projects. The asymmetry of power between coloniser and colonised, the Self and the Other, characteristic of the Orientalist perspective, was evident everywhere in this French effort.[16] The French saw their own ways as the cultural norm, reducing the indigenous Algerian ways at best to something exotic, as at the Exposition Universelle in Paris in 1889, when a *café maure* (the French name for an indigenous coffee house) was exhibited in the Algerian pavilion, complete with live indigenous patrons.[17]

Hamadeh makes the point that in the Orientalist/colonial simplistic perspective of superiority, indigenous came to equal traditional, cementing a notion that indigenous culture was frozen in time, backward and increasingly irrelevant. Thus, the westernised districts of Algiers came to represent the future, while the indigenous districts represented the past. The French administration, Hamadeh says, fostered the idea of “an exotic, static and disorderly people in contrast to advanced and normalized European society”.[18] She

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[15] Anon, “Ice-culture” in *Chambers’s Journal of Popular Literature, Science and Arts*,1864, 101, cited in Woods, “Nature and the Refrigerating Machine”, 107.

[16] Hamadeh, “Creating the Traditional City”, 243.

[17] Hamadeh, “Creating the Traditional City”, 248.

[18] Hamadeh, “Creating the Traditional City”, 242.

argues that the traditional North African city was nothing but a colonialist creation, an ideological construct.[19]

In order to understand ice as a modernising agent in the colony, one must ask what modernity is. Applying Hamadeh's perspective on the "modern" West versus the "traditional" Orient, my question is this: where did Norwegian ice place itself in the colonial landscape of modernisation?

A third perspective is seeing Norwegian actors in the colonies as "noncolonial colonials". Unlike France, in the 19th century, Norway was not a colonial power. However, towards the end of the century, Norway was a great seafaring nation, holding the third largest merchant fleet in the world. A major motor in the Norwegian shipping was the worldwide European colonisation. As commercial actors, Norwegian merchants took part in colonisation projects all over the world, taking on a role which the social anthropologist Bjørn Enge Bertelsen has dubbed "noncolonial colonials".[20] These actors invested heavily in colonisation by supplying the colonial powers with raw materials, building materials and other commodities needed for the colonial project of building a Western civilisation on conquered ground. These actors became part of the colonial elite, making themselves fortunes by serving the colonial order as auxiliary colonials. The question I will ask, is whether or how Norwegian actors in the ice trade acted as noncolonial colonials in Algeria.

[19] Hamadeh, "Creating the Traditional City", 241.

[20] Bertelsen, "Introduction", 8-14.

2 Sources, methods and definitions

This thesis tells the story of ice in 19th century Algeria, with emphasis on the rise and fall of Norwegian ice within this context. I aim at creating a narrative underpinned by empirical data and the occasional miniature “thick description” offering glimpses into the life along the cold chains. Going about this task, I have used certain methods and met certain challenges which are described in the following.

2.1 Sources

My main sources are threefold: First, to establish an empirical fundament, I have consulted Norwegian 19th century shipping and commerce statistics and consular reports, looking for ice export volumes to different ports, and for consular assessments of the prospects and conditions for import of Norwegian ice in Algeria. These findings are mainly used in chapter 7 through 9.

Secondly, I have searched Norwegian 19th century newspapers (up to and including 1901, in some instances further) for information about the ice export to Algeria. The search was geographically limited to newspapers from coastal regions from around Bergen along the coast to the Swedish border. In these newspapers, shipping news and traffic lists abounded, reflecting the huge importance of shipping in Norway in this period. Apart from a few articles on the ice trade to Algeria and on some of the Norwegian actors in this trade, the main findings have been traffic lists from ports of call, which have enabled me to identify many individual ice transports to Algeria and the ships involved. These findings are mainly used in chapter 6.

Thirdly, to expand the empirical evidence within Algeria and to create a narrative, I have searched 19th century francophone press (up to and including 1901, in some instances further) for evidence on import, trade and consumption of natural ice from Norway. The main sources have been Algerian newspapers. An impressive number of Algerian francophone newspapers and journals were published in the period. I have identified more than a hundred titles, although many of these publications were issued only over some months or a few years. The titles often reflect various political views and interests within the French section of the Algerian society. Reading a francophone Algerian newspaper from this period gives the distinct impression of being in France among the French. The indigenous majority are not represented, indeed, they are almost invisible. For the purpose of my subject, the most useful type of material I have come across are advertisements by Algerian actors near the consumer end of the cold chain, notably cafés, hotels, restaurants and ice depots. But there are also editorial articles on uses and sources for ice, and shipping lists at the ports of Algiers and Oran. These findings are the base for chapter 8 through 10.

2.2 Methodological problems

All of the above mentioned sources have been digitalised, which has made it possible to scan a vast amount of publications for relevant keywords. For Norwegian newspapers, I have used the National Library of Norway's online platform nb.no. For francophone newspapers, I have used the Bibliotèque Nationale de France's online platforms gallica.bnf.fr and retronews.fr. Although I have made abundant findings, the transcription at work on all these platforms is unfortunately far from perfect, and a keyword search is likely to miss out on several newspaper texts containing that keyword. Also, the search algorithms are not working perfectly as intended, especially in combined searches with more than one keyword. The effect is like fishing with a coarse-mesh net, many fish are caught, but many also escape. To outweigh these faults and hit more data I have made searches with alternative combinations of keywords, but there are no doubt potential findings that have escaped my searches.

Shipping and commerce statistics and consular reports are retrieved from historical statistics at Statistics Norway's website ssb.no. Shipping and commerce statistics have been issued since 1835, from 1850 onwards annually. Consular reports were issued annually since 1871. These sources also rise some methodological issues. For many years, the ice export figures are neither complete nor specific enough. Especially during the first years of our period, Algeria was lumped together with other areas as "Africa" or "North Africa", or "North Africa except Egypt". Such highly ambiguous figures could not be included in my statistics for Algeria. Also, small quantities such as single ice loads might not have been registered at all or just lumped together with other commodities under the "miscellaneous" category.

2.3 Naming, spelling and translation

The use of the name Algiers poses some ambiguities, especially in Norwegian. The French name Alger designated both the city and the surrounding province and *département*, but the meaning is often clear from the context. The 19th century Norwegian name Algier (today spelt Alger) could designate both the city, the province, the *département*, the colony (whose official Norwegian name was Algeriet or Algerien), or the whole area covered by the consulate encompassing both Algeria and Tunisia. Consequently, ice loads shipped to Oran or some other Algerian port might erroneously have been categorised under Algiers in my statistics. For this reason I have chosen not to break down the figures on individual ports.

For the name of the Algerian cities, I have chosen to use the contemporary French names used in my francophone sources: Bougie (Béjaïa), Djijdelli (Jijel), Philippeville (Skikda) and Bône (Annaba). For the capital of Norway, today's Oslo, I use the contemporary modern form Kristiania rather than the more old-fashioned Christiania.

For the name of the depot for Norwegian ice in Algiers, the spelling vary in the newspaper advertisements. I have chosen to use the modern spelling *Glacière Norvégienne*.

All translations from French and Norwegian into English are done by myself.

2.4 Tonnage

When the ice was loaded on board the ship, the quantity was measured in registered tons based on the volume of the ship's hold. At unloading, if the ice was weighed on the quay, the quantity would be measured in weight as metric tons. For sailing ships, 1 net register ton (loading) was commonly calculated as equal to 1,5 metric tons (unloading), not taking melting loss into consideration.[21] I have chosen to use this calculation irrespective of the type of the carrier, bearing in mind that the sailer/steamer ratio of the ice merchant fleet in the Algerian trade is unknown.

Before the metric system was introduced, *kommerselest* was used as a measure of volume of the cargo. Definitions of *kommerselest* may vary, but I use the one from the Statistics Norway, which equals 2,1 net register tons.[22] After the metric system was introduced, from 1876 onwards, Norwegian trade and shipping statistics operated with register tons.

In some cases, weight was given in *centner*, defined as 49,8 kg.[23] The consular reports were often imprecise; using tons without any definition, or not quoting tonnage at all, only number of shiploads. In order to produce graphic charts for the trade, I had to make best guesses. These guesses are conservative, and if anything, the figures used are generally on the low side.

[21] Information from ongoing research by Knut Michael Nygaard.

[22] *Historisk statistikk 1968,* 357.

[23] *Tabeller vedkommende Norges Handel og Skibsfart 1868,* 3.

3 Algerian geography and 19th century history

Geographically, Algeria is the central part of the Maghreb, between Morocco in the west and Tunisia in the east. The Atlas mountain range runs across Algeria in west-east direction between the northern coastline and the Sahara desert in the south. The northern part of Algeria has Mediterranean climate, with snowfall in winter in the high mountains, even more than today during The Little Ice Age of the 17th-19th century.

Politically, until 1830 Algeria was a distant part of the Ottoman empire and to a large extent self-governed under a governor (*dey*). The Turks exercised their power mainly along the coastline, to a large extent leaving Algerian inland to the indigenous people. In mountainous areas, village-dwelling tribes controlled different parts, often fighting between themselves. Oran was a Spanish enclave until 1792. The majority of the population lived and still live along the coast or in mountainous areas near the coast.

When France occupied parts of Algeria in 1830, that marked the end of Ottoman rule and also the extensive piracy off the Algerian coast that had been haunting merchant ships entering the Strait of Gibraltar. The indigenous leader Abd el-Kader lead the liberation war against the French, and bouts of fighting continued until 1847, when he was captured. Later resurrections were knocked down by the French military forces.

The French introduced a strong Frenchification policy which involved settling a vast number of French people, cultivating land and founding new cities, at the expense of indigenous people who lost civil rights and had their land confiscated, many losing their means of subsistence.[24] French immigrants flooded in together with numerous immigrants from other parts of Europe, notably Spaniards, Italians and Maltese. There was also a substantial Jewish population, and the large cities developed into cosmopolitan hubs.

The neighbouring Maghreb countries, Morocco and Tunisia, were colonised later and had fewer European immigrants, thus becoming less Frenchified. Whereas Morocco and Tunisia held status as colonies, Algeria was officially annexed to France, but nevertheless remained rather independent. It was divided into three *départements*, Oran, Algiers and Constantine, with capitals of the same names. South of these were the Sahara desert.

The number of European settlers, known as *colons*, increased sharply during the 19th century. In 1850, there were 130.000 *colons* in Algeria; in 1886, 578.000.[25] By 1874, the ratio between the ethnic groups were 245.000 *colons* compared to 2.400.000 muslims and 35.000 Jews.[26] By 1901, in Algiers, 100.000 out of 133.000 inhabitants were *colons*, and in Oran, 70.000 out of 85.000.[27] As the typical ice consumer was an urban *colon,* the steep rise in their number opened up a fast expanding ice market.

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[24] *Store norske leksikon*, s.v. “Algeries nyere historie” av Dag Leraand. 21.5.2021. https://snl.no/Algeries_nyere_historie

[25] *Store norske leksikon*, s.v. “Algeries nyere historie” av Dag Leraand. 21.5.2021. https://snl.no/Algeries_nyere_historie

[26] *Uddrag af Consulatberetninger 1874*, 83.

[27] *Konsulatberetninger 1901,* 4.

4 The French domestication of ice

4.1 The French craving for ice

To understand the Algerian domestication of ice, it is useful first to have a look at how the French was domesticated by it. In 1866, Professor Leone Levi reported to the British about the summer consumption of ice among the Parisians:

> The use of ice is general in Paris during the summer months; it is supplied in almost every café and restaurant, and scarcely a greengrocer or a milkshop in the better portions of the town is without an ice-chest for the supply of its customers (…) Besides the sale of rough and pure ice, there is a large trade done in what are called carafes frappés, that is to say, water decanters or bottles, in which nearly the whole contents are frozen by rapid revolution in a freezing mixture. These carafes are supplied to the cafés and also to private families each morning, and being constantly kept filled up with water serve throughout the whole day under ordinary temperatures. Another application of these carafes is to fill them up with champagne or other wine, and thus to obtain cool and diluted drinks for evening parties in hot weather.[28]

Evidently, already by 1866, ice was considered an everyday necessity in Paris. But the use of ice among the common public goes much longer back in the Western Euro-Mediterranean domain. Ice consumption had increasingly been democratised all along the 1600s through the 1800s. That went hand in hand with population growth and urbanisation to spread ice consumption practices to ever more people. The demand for ice seemed endless.

4.1.1. Two types of ice

We owe a lot of understanding about practices and perspectives on ice in Mediterranean France to the French archaeologist and anthropologist Ada Acovitsióti-Hameau. She makes the point that first of all, ice was not just ice. Snow and ice were classified as two distinct “substances” or “tastes”.[29]

Snow, meaning packed and stored snow from local mountains, was white (in theory at least), opaque, grainy and delicate in texture, and easily turned into a slush. It was perfect for use at the table. On a symbolic level, its whiteness associated it with Our Lady of the Snows, the immaculate Virgin who were said to appear at various mountain sites in the Mediterranean. Ice, on the other hand, transported from far-away lakes, was transparent, hard and durable, an excellent keeper of cold, perfect for wholesale, the image of quality and know-how.[30]

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[28] Levi, *The Journal of the Society of Arts*, 32.3.1866, 335.

[29] Acovitsióti-Hameau, ”La glace dans la vie quotidienne”, 134.

[30] Acovitsióti-Hameau, “Le commerce de l’eau gelée et les montagnards”, 71.

The word snow was sometimes used for ice or vice versa, depending on the preferred taste of the speaker.[31] For practical reasons, snow and ice could be mixed and sold together, or they could be kept separate and sold at different prices.[32] Because snow was a local commodity and easily accessible, it was widely used and for a long time the preferred choice in the Mediterranean. That changed as lake ice became more and more accessible during the 19th century, helped by publicities praising its qualities.[33]

4.1.2 French cold chains

During the Renaissance, in Mediterranean France (as well as Mediterranean Spain and Italy) ice provision became a public service that was regulated by acts, regulations and contracts.[34] During *l'ancien régime,* the title *fermier* designated a holder of certain official functions. In the case of ice, it was appointed *fermiers* who held the privilege - and duty - of providing snow-ice from a specific mountain area to specific cities.[35] In southern France, the *fermiers* were appointed and granted ice privileges through bid auctions, and retailers in the cities would sell the snow-ice provided by them.[36]

The degree of domestication between ice and humans in France were evident in the *fermier* contracts: If the *fermier* failed his contract obligations, he would face hefty sanctions, as in 1699 in Toulon, where fines were prescribed "for every meal served without ice" at hospitals.[37] To safeguard the ice provisions and avoid such penalties, the *fermier* would go to such as extremes as to store ice in the gutter, which normally was the place for dung. That happened in Draguignan in Provence In 1726.[38]

Legal documents from Provence show cases of ice fraud, where snow was being mixed with sand, and ice was being weighed with the help of scales lacking perforation.[39] During a "snow famine" that struck Marseille and Toulon, the *fermiers* had ice shipped by sea from Nice and down the Rhône, but there was never enough of it to contain the public outrage, and the family of a *fermier* were physically assaulted. The witnesses in the subsequent trial drew up a dire picture of infinite ice queues, fighting, failing wine sale and a person dying in fever.[40]

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[31] Acovitsióti-Hameau, "Le commerce de l'eau gelée et les montagnards", 70.

[32] Acovitsióti-Hameau, "Pratiques, prescriptions et mises en garde", 412.

[33] Acovitsióti-Hameau, "Le commerce de l'eau gelée et les montagnards", 70-71.

[34] Acovitsióti-Hameau, "La glace dans la vie quotidienne", 134.

[35] Acovitsióti-Hameau, "Pratiques, prescriptions et mises en garde", 412.

[36] Durand, "Exploitation et commercialisation de la glace naturelle du Mont Ventoux", 168.

[37] Acovitsióti-Hameau, "La glace dans la vie quotidienne", 139.

[38] Acovitsióti-Hameau, "Pratiques, prescriptions et mises en garde", 413.

[39] Acovitsióti-Hameau, "La glace dans la vie quotidienne", 138.

[40] Acovitsióti-Hameau, "La glace dans la vie quotidienne", 149-150.

Apart from a few exceptional cities, the concession system was abandoned after the Revolution. The ice supply was now privatised.[41] As we shall see, in Algeria towards the middle of the 19th century, the old system was still at work (see 5.2).

4.1.3 Three uses of ice

The French employed ice for three main uses: Refreshment, medicine and cool storage. The snow-ice being used was more comparable to crushed ice than to ice cubes, and was perfect for icy (*frappé*) wine or other drinks, or to make sorbet, sprinkle over food and envelope desserts.[42]

But in official documents from the 17th, 18th and 19th century, medicine is mentioned more often than pleasure in connection with ice.[43] More than anything else, it was the public "hygiene" that justified the concern for a steady ice supplys. Both hospitals and almshouses were prioritised.[44]

People in the countryside had used wells, springs and streams for cool storage since ancient times. They used ice for maintaining a fresh water supply and for conservation of butter, cream and game.[45] During the 1700s, wine coolers and other containers for cool storage were taken into use in well-off city households,[46] a testimony that countryside practices, with the help of ice, had been transferred to the city in modified form. The general city public did not rely on or need cool storage, but ice was used for conservation at places where food was sold, such as markets and food courts (*halles*), and during transport.[47]

The order of priority between the three uses in the city was reverse to that of the countryside. Practical exigencies dictated the priorities in the countryside: Food conservation came first, pleasure last. In well-off city homes, refreshment came first because it was connected to important social status markers such as comfort and hospitability.[48]

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[41] Acovitsióti-Hameau, "La glace dans la vie quotidienne", 143.

[42] Acovitsióti-Hameau, "La glace dans la vie quotidienne", 146.

[43] Acovitsióti-Hameau, "La glace dans la vie quotidienne", 135.

[44] Acovitsióti-Hameau, "Pratiques, prescriptions et mises en garde", 411.

[45] Acovitsióti-Hameau, "Le commerce de l'eau gelée et les montagnards", 71.

[46] Acovitsióti-Hameau, "La glace dans la vie quotidienne", 148-149.

[47] Acovitsióti-Hameau, "Le commerce de l'eau gelée et les montagnards", 72.

[48] Acovitsióti-Hameau, "Le commerce de l'eau gelée et les montagnards", 71-72.

4.1.4 La Belle Époque

The years around the turn of the century, from around 1880 to World War I, marked the heyday of a French city culture of a well-off class that had grown steadily during the 19th century. This was the period which later was to be named *La Belle Époque* on account of its merry city life. Scientific innovations and an optimistic view on the future also marked the period. Paris, with its cafés and cabarets, its absinth drinkers and cancan dancers, its painters such as Manet and Toulouse-Lautrec, was the vibrant epicentre both of intellectual life, entertainment, art and fashion. For the café and restaurant guests who were quenching their thirst with a chilled drink or enjoying a frozen dessert, ice was an essential prerequisite.

The Parisian lifestyle resonated far outside Europe, and contemporary Algerian newspapers testify to the fact that the admiration for Paris reached well into Algerian cities. Both editorial articles and advertisement sections abounded in references to Paris. The general message was clear: For the latest *chic*, look to Paris. That was an attitude that was valid also for practices related to ice consumption.

4.2 French frigoriphobia

The French engineer and inventor Ferdinand Carré was one of the pioneers of the refrigeration technology of the 19th century. However, the idea of cooling fresh food did not hold much appeal to the general public in 19th century France. In her book *Fresh,* the geographer and ecologist Susanne Freidberg brings up two main reasons for their scepticism.

First, the everyday shopping and eating habits of the French did not require cool storage of food. Unlike Americans, who often had to walk the distance to a shopping mall to purchase food, French city housewives did not have to go far to do the shopping. Often, they only needed to go downstairs to find food stores on the ground floor of the building they were living in. This easy availability allowed them to do the shopping twice a day. During the growth season, they expected fresh fruit and vegetables to be readily available at the greengrocer's next door. At the butcher's, they expected to find meat from animals butchered in the morning, which they would then cook the same day, and anyway, in the hot season they would eat less meat. Thus, the French eating habits were strongly seasonal, a pattern which is present to this day in Mediterranean Europe. Outside the season, they relied on dried, salted, pickled, and from the late 19th century, house-canned food, in addition to stored produce with great longevity, such as apples and pears. As for milk, they did not consume very much uncultured milk. To sum it up, ice boxes "didn't fit the budgets and eating habits of ordinary people."[49]

Second, the French held a virtual frigoriphobia, an aversion against cool storage of food. And not without reason: Iceboxes could easily turn into nasty, foul-smelling places, just like today's fridges if the food is left inside long enough to go bad. It did not help, either, that the refrigeration industry of the time recommended keeping fish and fruit in the fridge

[49] Freidberg, *Fresh*, 27-29.

for weeks. At best, these foodstuffs must have lost much of their taste.[50] And then not all food stored well in the icebox. Warm-climate fruit, for example, might decay on the inside while keeping a fresh and inviting look on the outside. The French, being used to enjoying the full taste of fresh products in season, were more sensitive than most to any reduction in quality.

But the French frigoriphobia was also caused by another consideration: Merchants could, and some would, manipulate the market by hoarding, which would cause scarcity and drive prices up. Merchants with an ice box at their disposal no longer needed to sell out their products at a bargain at the end of the day. Come next day, the customers could not tell the difference between yesterday's and today's produce before they got to eat it. If the taste was not always lost, the suspicion would always be there. The situation lead to public outcry, police inspections and in the wholesale market *Les Halles* in Paris, strict regulations were imposed: Storage chambers were to be inventoried, cooled products to be sold separately from fresh products, and overnight storage was banned altogether.[51]

The power of the French friogoriphobia is evidenced in a story that Freidberg tells about a major fruit wholesaler, Omer Decugis, who regularly shipped fruit by railway from southern France to Paris. He was the first French merchant to own an artificially cooled storage chamber, which enabled him to sell stored fruit labeled as fresh. When the public discovered that his "fresh" fruit came from a cooling chamber, their outrage was such that Decugis chose to publicly destroy his refrigerator. No less would it take to restore his public reputation.[52]

4.3 The question of hygiene

Regardless of their provenance, ice and snow had been regarded by the French as an antidote and a remedy to disease and a necessity in hospitals. Refreshingly cool and pure in appearance, how could it carry diseases? During severe winters of The Little Ice Age between the 17th through the 19th century, the public trusted the salubrity of ice to such an extent that it was even harvested from low-lying frozen wetland fields or polluted rivers such as the lower reaches of the Rhône.[53]

However, in the course of the 1800s, questions of hygiene came up with full force. France was a hotspot for the revived focus on public hygiene and sanitation that was sweeping over the Western world. Councils for public hygiene and health were established in local administrations all over France. In the middle of the century, Louis Pasteur proved the germ theory of disease and followed up by developing the method of pasteurisation as an effective way of killing germs. His discoveries sparked an even more intense scientific and public interest in hygiene as a means of containing diseases. This focus on hygiene and microorganisms had repercussions for the Norwegian ice trade.

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[50] Freidberg, *Fresh*, 30.

[51] Freidberg, *Fresh*, 29.

[52] Freidberg, *Fresh*, 30.

[53] Acovitsióti-Hameau, Ada. "Boire frais", 212.

From a hygiene point of view, Norwegian ice stood its ground for a long time. In a Paris daily in 1885, Dr V. du Claux wrote that the “magnificent blocks cut in the Scandinavian fjords” were of “indisputable purity”.[54] Transparency was still mistaken for purity, as it had been for centuries.[55]

But this was about to change. In 1894, an article in the Parisian daily *Le Temps* discussed the microbiological hazards of both natural ice and artificial ice made from non-distilled water. It referred to an analysis of Norwegian ice, published by the medical journal *The Lancet*, which had revealed “disastrous” levels of bacteria. The writer concluded that a certificate of origin was no guarantee for the quality of the ice.[56] Meanwhile, in Paris, ice harvested from ponds at the outskirts of the city had also been examined under the microscope, and myriads of microorganisms had come to light.[57]

Such alarming notices took a while to sink in. The most ardent rivals to natural ice suppliers, the artificial ice industry, did not miss any occasion to lobby against import of Norwegian ice, but they were gaining ground only slowly. In Normandy, the fishing industry met them with serious resistance. One of the ports which received the most Norwegian ice was Boulogne-sur-Mer. The town’s fishing harbour, so essential to this coastal community, relied on a steady supply of ice at an economic price. Only Norwegian ice could meet their needs. The refrigeration industry demanded that natural ice must have a certificate of origin, an impossible requirement for Norwegian ice traders. But the need of the fishing industry trumped the lobbying and in 1908, the dispute ended in a hygiene compromise: An official decree allowed the use of Norwegian natural ice for industrial purposes including conservation of fish.[58]

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[54] “les blocs magnifiques qu’on coupe à notre intention dans les fjords de Scandinavie ou sur les névés du mont Blanc sont d’une indiscutable pureté”
Le XIX Siécle, 4.6.1885.

[55] Acovitsióti-Hameau, “Pratiques, prescriptions et mises en garde”, 414.

[56] “l’examen bactériologique a été désastreux (…) le certificat d’origine ne suffit pas à garantir la bonne qualité de la glace”
Le Temps, 29.4.1894.

[57] Dorovitsa, “Controlling Norwegian natural ice imports into the fishing port of Boulogne-sur-Mer”, 493-494.

[58] Dorovitsa, “Controlling Norwegian natural ice imports into the fishing port of Boulogne-sur-Mer”, 495-497.

5 Cold chains to Algeria

“Cold chain”, the way I think of it, is a term that encompasses several meanings in parallel. First, it is the logistic path that cold - either in the shape of ice or cooled items, mainly food and beverages - takes from the point of production to the point of consumption. Along this logistic path a series of operations take place, such as cutting, lifting, transporting, storing, sales and consumption. Secondly, it designates the physical route that the cold travels. It could, for instance, run seaways from Boston to Calcutta, or along the road from Mediterranean mountains down to a city, or through the streets from an ice factory into a kitchen, or it could have zero length, as in the case of a fridge. Finally, during the period of the natural ice trade, a cold chain constituted an economical-ecological niche constructed by humans and ice together. Cold chain niches provided sustenance for many professions at different locations along the chain. The logistics of the cold chain required tools for ice harvesting such as ice ploughs, saws and tongs, infrastructure such as slides, roads and railways, means of transport such as ships and carriages, storage facilities such as ice houses and ice boxes, and finally manpower, mules and horses. The cold chains went through mutations and shifted geographically as the technology progressed from harvesting of snow and ice to production of artificial ice to refrigerating and freezing of food directly.

Despite its dwindling nature, ice was a transnational commodity, linking different continents together via maritime trade routes. In Algeria, cold chains from the domestic Atlas Mountains converged with overseas cold chains starting in Spain, France, Sweden and Norway, and maybe other places as well. In this part of the thesis we will look at how the dynamics of geographical, political, cultural and economic factors constructed and mutated Algerian cold chains, through four main stages. In parts 6, 8, 9 and 10 we will look into how the Norwegian-Algerian cold chain worked as a niche.

5.1 Stage 1: Snow-ice from the Djurdjura

According to the French geographer Xavier de Planhol, in Maghreb, despite the snowy terrain of the Atlas mountains, there was hardly any tradition at all for ice consumption or ice trade before the European colonisation. Xavier attributes this to the acclimatisation to desert climate characteristic of the peoples of Arabia and North Africa. They had not domesticated ice, nor were they domesticated by it. The Arabs, originating from Arabia and accustomed to intense heat, simply felt no need for it.[59] For the desert Bedouin of the Middle East and North Africa, craving for ice was even a sign of decadence.[60] The same independence of cold characterised the nomadic tribes that had crossed the Sahara into Algeria, holding on to their traditional life style all along.[61]

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[59] Planhol, *L’Eau de Neige*, 321.

[60] Planhol, *L’Eau de Neige*, 321.

[61] Planhol, *L’Eau de Neige*, 322.

The only known ice consumers in Algiers were the Turkish elite: the *dey* (Ottoman governor) and his circle.[62] The Turks had domesticated ice, and had carried their taste for ice all the way from Turkey across North Africa into the Maghreb.[63] During the Ottoman regency, the Beni Koufi tribe in the Kabylia region held the privilege to provide ice to the elite in Algiers.[64] The Beni Koufi inhabited mountaintop villages, their territory stretching up to the summits of the Djurdjura, a mountain range within the Atlas.[65] The indigenous harvesting technique was simply to let snow amass naturally in deep snow-pits, at an altitude where the ground remained snow-covered until midsummer. These snow-pits were natural karst caves. Donkeys would carry the hard-packed snow down to the villages and markets.[66]

The city of Oran, which was a Spanish colony during 1509–1708 and 1732–1792, was a special case. The Spanish residents of this enclave were surrounded by adversaries and blocked from access to the snow in the local mountains. The ice-addicted Spaniards had to resort to ice shipped by sea from the metropolis. As early as 1627, the Spanish colonial administration charged brigantines with ice from Sierra Nevada for shipment to Oran.[67]

5.2 Stage 2: Snow-ice from the Atlas of Blida

As described above, the French had domesticated ice and vice versa centuries ago. They were hooked on it, and in the wake of the colonisation of Algeria, the *colons* started looking for new sources of snow. Kabylia, were the snow to the *dey* had come from, was not yet conquered land, and the Djurdjura mountains were in any event very far away from Algiers. One possibility was to import ice by sea. The Spanish had longstanding ice trade relations with Oran, and in 1836 and 1837, Spanish ships from Altea, Villajoyosa and Alicante called at the port of Algiers to unload ice.[68] In February 1839, the Norwegian barque *Commerce* unloaded a cargo of ice in Algiers.[69]

At the occasion of the French conquest of Kabylia in 1857, the Kabylian tribe chiefs presented blocks of snow as a sign of submission.[70] But the French *colons* had already long ago established their first cold chains, from the Atlas of Blida.[71] This mountain area

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[62] Planhol, *L'Eau de Neige*, 318.

[63] Planhol, *L'Eau de Neige*, 321.

[64] Planhol, "Références sur le commerce de la neige en Afrique du Nord"*,* 321.

[65] *Le Constitutionnel,* 30.11.1851.

[66] Bugeja, M. "Le Djurdjura". In *Bulletin de la Société de Géographie d'Alger et de l'Afrique du Nord,* XXVIII, 94, 1923, 279, cited in Planhol, "Références sur le commerce de la neige en Afrique du Nord", 321-322.

[67] Planhol, "Références sur le commerce de la neige en Afrique du Nord"*,* 321.

[68] *Moniteur Algérien,* 22.7.1836, 29.7.1836, 20.8.1836, 28.7.1837.

[69] National Archives of Norway, RA S-1094/D/Da/L0005.

[70] Planhol, *L'eau de neige,* 315.

[71] Planhol, "Références sur le commerce de la neige en Afrique du Nord", 321.

was much closer to Algiers than the Djurdjura, less to 40 km in airline distance compared to the 90 km to Djurdjura. This terrain was lower and consequently less cold, but Delavigne, Valentin and Laval, three French *colons*, established *glacières* of a new type above Blida. These were excavated snow pits furnished with roofs. The first was located at the station of Tala-Izid established in 1843, the second, near the telegraph d'Inzazen established in 1855. The vicinity to colonial military installations testifies to the close links between the ice harvesting industry and the French colonisation project. These *glacières,* a technological innovation of North Mediterranean origin, were situated at an altitude of around 1000 m, much lower than the snowpits of the Djurdjura.[72]

The *glacières* made such an imprint on the landscape that a whole mountain area was named after them, in the vicinity of what later was to become the ski station of Chréa. Scenic views from "Les Glacières" figured on postcards from the beginning of the 1900s.

The colonialist entrepreneur spirit of Alexandre Laval was evident. Already in 1837 he furnished Mr Valentin, *limonadier* in Algiers, with snow-ice, and continued the deliveries in 1838 until Valentin's own *glacières* were being replenished with new snow.[73] By 1859, he had reached an agreement with an ice trader in Algiers, Mr Diégo, to provide Diégo with the equivalent of 50 daily mule loads of ice all year round.[74] Besides constructing *glacières* and being *limonadier* (lemonade-maker) at Blida,[75] he also created a forest plantation around the *glacières*,[76] which he defended against "indigenous invasion", and this plantation earned him a gold medal at the exposition of Algiers in 1876.[77]

In line with the ancient organisation of ice provisions in the French metropolis, an exclusive privilege was conceded to Parmeggiani & Co. for the period between 1844 and 1849. The Parmeggianis were granted the concession for all-year ice provision of Algiers and other districts in the province. The concession gave them access to terrain at Medea and Blida in order to establish *glacières*. The Parmeggianis were to provide ice at fixed prices to the province's hospitals and the inhabitants of the cities Medea and Blida.[78]

Their privilege was never renewed. Instead, in 1849, the ice industry was liberalised. But this disruption of the cold chain did not happen without friction. In 1850, The French newspaper *La République* published a heated criticism, stating that the ice industry employed 2-300 workers for a season of 40-50 days, engaging 20-30 mules to carry ice from the mountains down to Blida, where it would be loaded on to wagons for Algiers. Additional workers were employed in the ice trade in towns, at ice stores (*dépôts*), ice cellars (*caves*) and ice shops (*boutiques*). The cold chain employed hundreds of Maltese,

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[72] Planhol, *L'eau de neige,* 192.

[73] *L'Algérie Nouvelle,* 26.6.1859.

[74] *L'Algérie Nouvelle,* 26.6.1859.

[75] *Le Tell,* 17.7.1897.

[76] *L'Exposition d'Alger 1876*, 51.

[77] *L'Exposition d'Alger 1876*, 221.

[78] *Moniteur Algérien* 10.11.1843.

"ice suppliers, coalmen and hunters",[79] who produced and sold ice along the streets of Alger and Blida, or distributed ice in the vicinity.[80]

The commentator also argued fiercely against the import of ice, putting forward a series of arguments: In Algiers, there existed no ice house, and if it did, it would monopolise the market. Shipments by sea were speculative and unreliable, bringing ice during summer, the season of excessive consumption, but fail to bring it in during autumn, the sickness season. The current fixed prices guaranteed a maximum price lower than that of Marseille. If two ice ships arrived simultaneously, price collapse would follow, and if one single ship arrived, prices would rise sky high. The commentator concluded that the so-called freedom of the market meant the freedom to starve for workers.[81]

This comment highlights that the existing snow chain offered a significant way of sustenance for the mountain dwellers, and also how vital ice provisions were for the citizens of Algiers. It shows some of the challenges the Norwegian ice traders had to overcome, notably the need for an ice house and the difficulties of a reliable supply by sea. In any event, the outcome was the liberalisation of the industry, and a generation of French ice entrepreneurs paved the way for Norwegian actors who appeared later on the stage.

Another one among these entrepreneurs was Paul Delavigne, who seized the business opportunity that opened up by the liberalisation of the ice trade. Before the summer season of 1850, Delavigne & Co. advertised for an entrepreneur who would take on the ice transport from Blida to Algiers.[82] By 1855, Delavigne owned an ice house in rue Bab-Azoun in Algiers in addition to a *glacière* near Blida.[83]

The ice entrepreneurs' closeness to the colonisation project was highlighted in a document from 1854, where Delavigne, together with four business partners, applied for the concession to construct and operate Algier's first railway. The line was to run in the Tell mountains between Bône and Oran, with sidelines to Algiers, Philippeville and Bougie. A telegraph line would be constructed along the railway, and quays for charging and discharging of goods would be built at coastal terminal points of the railway line. The extent of the authority that the colonisers could exercise over the colonised is evident in the prospect. For public works like this, Delavigne and his partners envisaged that they could employ indigenous manpower at will. The prospect foresaw that indigenous tribes were to do compulsory work of terracing and transport of materials, under surveillance of the military. The workers would be paid in shares of the railway company.[84]

Paul Delavigne did not obtain the concession, but if he had, he would have had the means to efficiently transport mountain ice to the major coastline cities. He would have created an entirely new, efficient cold chain which potentially would have made stage 3 of the Algerian cold chains look differently.

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[79] Fromentin, *Une Année dans le Sahel,* 342.

[80] *La République* 12.5.1850.

[81] *La République* 12.5.1850.

[82] *Petites Affiches Algériennes,* 15.3.1850.

[83] Planhol, *L'eau de neige,* 191.

[84] Delavigne, "Chemin de fer de l'Algérie", 9-11.

5.3 Stage 3: Lake ice from overseas

Located in the Jura mountains at the French-Swiss border, Lake Sylans became a major ice source for France including Algeria after 1882, when the lake was connected to the railway. Lake ice from Sylans was shipped in specially designed train wagons to Paris, Lyon, Toulon, Geneva, Marseille, and by sea from Marseille across the Mediterranean to Algeria.[85] The Algerian market was important, and a substantial part of the the ice went there.[86]

The railway revolutionised the ice trade. Drastically cutting the transport time and increasing the transport capacity, it allowed for much longer cold chains along new routes from different starting points. Both in France and Algeria, these new cold chains represented the beginning of the end of many local snow-ice cold chains connecting mountains and cities. Grainy snow-ice harvested in local mountains was no match to durable crystal ice from a distant lake. The blocks of lake ice endured the heat much better than the snow-ice, and was perceived as superior in purity. The brewery *Brasserie Toulousaine* in Oran, which sold beer in barrels and bottles, also sold lake ice from lake Sylans as early as 1880. In an advertisement, the brasserie praised the quality and purity of this ice:

> The ice from Lake Sylans is as pure as the finest rock crystal; like the wave on the lake which has formed it, it is completely devoid of indigestible and poisonous detritus, - which means that it can be mixed with drinks and food without altering or contaminating them with foreign matter, detrimental to the health by harmful molecules, such as those generally found in natural ice harvested in various regions, and especially in artificially manufactured ice.[87]

Then there was the other type of long cold chain: ice shipped by sea. Lake ice shipped long distance by sea was a fast growing trade in the 1880. In 1886, an Algerian newspaper reported that a Swedish three-masted sailing vessel had just landed 600 tons of ice in Bône, and commented that the import of natural ice had reached a certain volume. The newspaper quoted the price to “only 10 centimes a kilo”, thus indicating some of the attraction of Scandinavian ice.[88] However, Swedish ice was an exception. As Xavier de Planhol has noted, ice shipped by sea to the Mediterranean was predominantly Norwegian.[89]

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[85] Acovitsióti-Hameau, “Le commerce de l’eau gelée et les montagnards”, 76.

[86] “Extrait des procès-verbaux des séances”, XLVIII.

[87] “La glace du Lac de Sylans est aussi pure que le plus beau cristal de roche; comme l’onde du lac dont elle est formée, elle est complétement dépourvue de détritus indigestes et vénéneux, - c’est dire qu’elle s’allie aux boissons, aux aliments sans les altérer ni les corrompre par des matières étrangères, nuisibles à la santé par des molécules pernicieuses, semblables à celles qui se rencontrent généralement dans les Glaces naturelles récoltées dans diverses contrées, et surtout dans les Glaces fabriqués par des procédés artificiels”
Gouillon, *Annuaire Général de l’Algérie,* 285.

[88] *Le Petit Colon Algérien,* 26.5.1886

[89] Planhol, *L’eau de neige,* 113.

We will see in part 9.4. that the ice imported by sea to Algeria only had an impact within a limited radius around the major ports and close to the inland railway lines.[90] In less accessible inland districts, the traditional snow trade continued. In remote regions in Djurdjura, the harvesting of snow-ice continued past World War II.[91]

How stage 3 unfolded in Algeria will be treated in detail in Part 9.

5.4 Stage 4: Artificial ice

The time window in which ice importers could find a market in Algeria would eventually be closed by the refrigerating industry. But that took its time. Refrigeration technology needed time to develop and mature, and the shift towards artificial ice dragged out over half a century. In the course of the 1890s, manufactured ice gained ever stronger foothold in Algeria, and some time near the turn of the century, the industry dealt the deathblow to the ice import.

Illustrative to the development through stage 2-4 is the French word *glacière*, whose meaning mutated over time. The name was the same, but the function changed. At the time of Delavigne and the other early French-Algerian ice entrepreneurs, a *glacière* was a mountainside snow pit covered by a roof. When Delavigne at a certain point constructed a *glacière* in downtown Algiers, *glacière* took on the meaning of ice depot, a well insulated storage for ice, from which customers such as hotels, cafés and large households could get their daily supplies. With the introduction of ice factories, *glacière* came to signify yet another thing: the whole plant comprising ice factory and ice storage. Under the heading *Glacières*, an 1880 business listing of Algiers showed ice factories ("*usine pour la fabrication de la glace*") as well as other establishments with ice machines which offered ice for sale, notably ice cream makers, wine merchants or breweries.[92]

As late as the turn of the century, there are indications that the businesses producing artificial ice in Algiers were still immature. There seemed to be much room for expansion of the production capacity. This is suggested by a legal document from 1899 written by C. Gignoux, who operated a conglomerate of ice companies in Lyon and Algiers, and was now in the process of opening a large ice factory in Algiers. In this document, Gignoux quoted another person who judged the existing ice factories in Algerie to be rather insignificant and no match for more professional, modern ice factories.[93] Gignoux also claimed that ice prices in Algiers were well above the French prices and allowed for a considerable margin of profit.[94]

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[90] Planhol is thus mistaken in the case of Algeria when he writes: "The radius of influence of the Norwegian ice remained however within the immediate vicinity of the large ports." ("Le rayon d'influence de la glace norvégienne resait cependant circonscrit au voisinage immédiat des grands ports.")
Planhol, *L'eau de neige,* 114.

[91] Planhol, "Références sur le commerce de la neige en Afrique du Nord", 322.

[92] Gouillon, *Annuaire Général de l'Algérie,* 1880.

[93] *"*Compagnie Lyonnaise de Glace Hygiénique", 13.

[94] *"Compagnie Lyonnaise de Glace Hygiénique"*, 1899.

In part 9 we will look in detail at how the actors of the Norwegian cold chain manoeuvred through the transitions from natural to artificial ice.

6 The Norwegian end of the cold chain

A short notice in an Oran newspaper in October 1895 offers a glimpse into some of the challenges facing the actors of the Norwegian-Algerian ice trade:

> Oran, deprived of natural ice for several weeks, will finally be provided. A sailing ship coming from Kragero, loaded with ice ordered by Glacière Oranaise, arrived in our port yesterday. This boat has been anticipated in Oran for more than a month. Its delay is due to the influence of contrary winds.[95]

At the consumer end, reliability of delivery was paramount.[96] That was precisely what the actors operating the Norwegian-Algerian cold chain struggled to guarantee. It was not just the sheer length of the voyage or the warm climate of the destination that posed difficulties. Any ship sailing around the European continent would pass through a series of different wind patterns and would have to negotiate variable, often contrary winds. These geographical and environmental factors combined into a set of logistical challenges. We will start by looking at how the main material actors along this cold chain, the ships, were designed to face these challenges.

6.1 Sail versus steam

From harbour traffic lists compiled from Norwegian, Algerian and Marseille newspapers, I have identified 18 voyages with known approximate dates of departure and arrival. In all cases, the ice was loaded between Kristiania and Risør and the destination was either Algiers or Oran.

The average length of the voyage for sailing ships was 37 days, for steamers 19 days or less. Although data is scarce and partly inaccurate, the tendency is very clear: the steamers, even if they stopped *en route* for coaling, were twice as fast as the sailers. The winds along the European coasts were also very variable, as shown by the two voyages of *Eda* in 1894 and 1895, which took 52 and 29 days, respectively. No doubt, the steamers' ability to go against the wind was a great advantage during the long voyage in shifting winds from Norway to Algeria.

But speed was not the only consideration an ice trader needed to make in the choice of a carrier for Mediterranean ice trade. The construction material also had certain implications. In his history of 19th century Norwegian shipping, the historian Jacob S. Worm-Müller pointed out that for carrying an ice cargo, wood had its advantages over steel. A wooden hull insulated better than a metal one. Also, rust would build up on the inside of the steel

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[95] "Oran privé de glace naturelle, depuis plusieurs semaimaines [sic!], va enfin en être pourvu. Un voilier chargé de glace pour le compte de la Glacière Oranaise et venant de Kragero (Norvège) est en effet entré hier dans notre port. Ce bateau était attendu à Oran, depuis plus d'un mois. Son retard est dû à l'influence de vents contraires."
L'Impartial Oranais, 7.10.1895.

[96] Worm-Müller, *Fra klipperen til motorskibet,* 704.

hull, and picking rust was a particularly tedious job in an ice carrier, as the planking insulating the hold needed to be taken off.[97]

date of departure	name of vessel	days of voyage
18840126	Bravo	50
18890831	Wimburn	30
18890905	Fjeldgutten	25
18900716	Wimburn	36
18921117	Vega	35
18930518	Vinland	37
18940523	Eda	52
18950202	Vanadis	31
18950502	Eda	29
18950607	Nornen	52

Fig. 1. Known length of voyages of Norwegian ice shipped by sail to Algeria.

date of departure	name of vessel	days of voyage
18840913	Norden	16
18841011	Ludvig Holberg	<20
18850205	Krystal	20
18890807	Terje Viken	14
18911104	Meta	19
18920621	Primus	32
18920801	Balto	<22
18960828	Sjøgutten	14

Fig. 2. Known length of voyages for Norwegian ice shipped by steam to Algeria.

[97] Worm-Müller, *Fra klipperen til motorskibet,* 698.

Although exceptions to the rule did exist, in general, wood was the material used for sailing ships, and steel for steamers in the ice trade. In 1885, T.M. Wiborg in Kragerø, one of the major actors of the Norwegian ice trade, launched a 303 r.t. steel steamer which was specially constructed for ice transport. Captain Hans Børresen was the trusted master of the ship, and made several ice voyages with *Krystal* to the Mediterranean. *Krystal* was made with a view to sailing in the Mediterranean, and had certain features specially designed for that purpose: It was clad with planking inside to insulate the cargo from heat. The kettle was placed separate from the ship's hold. A bulkhead divided the hold into two compartments, allowing for access into one while keeping the other sealed off. The ship was painted in a reflecting grey that warded off the rays of the sun.[98] Wiborg shipped "a considerable number" of ice loads to Algeria with his two steamers *Krystal* and *Klar*.[99]

In my sources,[100] among the 32 identified Norwegian vessels transporting ice to Algeria from 1884 onwards, there were 15 sailers, 16 steamers and 1 of unknown type. Among the 62 recorded ice shipments to Algeria during the period, in 35 cases the carrier was a sailer, in 26 cases a steamer and in 1 case unknown. Although the known data is relatively sparse, it emerges that both sailing ships and steamers were used extensively in the Algerian ice trade.

The general shipping trend was a move towards steamers as the preferred carriers. As early as the end of the 1870s, the ship owner and ice trader Johan Dahll in Kragerø declared that from now on, only steamers made by iron and steel were to be built. But the steady increase in the ice export rescued the situation for the sailing ships.[101] In the ice trade, a relatively large number of small sailing ships were employed. According to Worm-Müller, small ships were the preferred choice, as they had the advantage of quick loading and unloading.[102] The historian Per Norseng points out that relatively low ice freights likely incited ice traders to charter small, technologically outdated ships, which would be the economic choice as these ship owners could not choose and pick their freights.[103]

In any event, ice freights favoured steamers over sailers, reflecting their advantage of reducing melting loss. For the short voyage to England, while ice freights for sailing ships were calculated by unloaded tonnage, for steamers they would be calculated by loaded tonnage.[104] Steamers obtained better freights than sailers in the Mediterranean too. For the years 1891-1894, average ice freight rates to Algeria was 19,50 francs per ton for sailers and 25,38 for steamers.[105]

But it seems that it took time for the market potential for steamers in Algeria to be fully exploited. The consular report from Algiers for 1873 stated: "One Swedish and one

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[98] *Vestmar*, 27.1.1885.

[99] *Norges Sjøfartstidende,* 10.5.1890.

[100] Sources for this are mainly consular reports, Norwegian newspapers and DigitaltMuseum/Malmstein registry of sailing ships.

[101] Pedersen, *Kragerø Sjøfartshistorie fra 1850,* 37.

[102] Worm-Müller, *Fra klipperen til motorskibet,* 699.

[103] Norseng, "Naturiseksporten i norsk sjøfartshistorie", 169.

[104] Worm-Müller, *Fra klipperen til motorskibet,* 698.

[105] Data from Norwegian consular reports for the years 1891-1894.

Norwegian steamer has visited Algiers for loading this year. Hopefully, there will be more steamers in the union's merchant fleet, as they no doubt can obtain good freights in the Mediterranean."[106] In any event, I have found no evidence of Norwegian ice shipments to Algeria in this period. As we shall see, there were other criteria to be met besides good freights.

Increasingly, owners of sailing ships found themselves at the losing end of the competition. In 1897, the consul somewhat imprecisely reported from Algiers that the number of sailing ships had decreased sharply, as "ice transports from Norway, earlier carried out by sailers only [sic!] and constituting their main traffic to the district, now increasingly is carried out by steamers. Sailers are ever more excluded from timber freights from the Baltic as well as Black Sea ports."[107]

6.2 Melting losses

Ice trade to the Mediterranean was doubtlessly an even more speculative venture than the trade to markets closer to home. Limiting the ice-melting was paramount. According to Worm-Müller, when the first Norwegian shipment of ice arrived in Marseille in 1872, 25% of the load had melted away.[108] Improved American technology provided part of the answer, and Norwegian ice harvesters picked up the tools of the trade from the American pioneers.[109] Thus, during the 1860s, the manual ice saw was introduced in the Kristiania fjord area, and during the 1870s, the horse-drawn ice plough followed suit.[110] Together, these two innovations made it possible to cut lake ice into uniformly regular blocks. Neat and tidy blocks required less storage space and reduced the melting, two crucial success factors in the ice trade by sea. A regular ice block shape could reduce melting losses over the summer from a devastating 65% to a modest 8%.[111]

But there were other reasons for heavy melting. Waiting time in port was one possible impediment. In 1885, the consul found it prudent to warn ice exporters to Algeria against binding themselves to sell ice weighed on the quay or at the buyer's ice cellar, as docking at the quay would normally be denied by the harbour authorities or by bad weather. In such cases, the ice would have to be taken onshore in prams, and possibly be transported on land in open wagons. The result would be substantial losses for the traders.[112]

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[106] "Et svensk og et norsk Dampskib har iaar besøgt Algier, for der at indtage Ladning. Det er at haabe, at de forenede Rigers Handelsflaader maatte forøge sine Dampskibes Antal, da de uden Tvivl vilde finde god Anledning til Fragtfortjeneste paa Middelhavet."
Uddrag af Consulatberetninger 1873, 85.

[107] "[…] Istransporterne fra Norge, der før udelukkende besørgedes af seilskibe og udgjorde disses fornemste Virksomhed paa dette Distrikt nu stedse mere sker ved Dampskibe. Stedse mere udelukkes Sejlskibe fra refragtning af Træ saavel fra Østersøen som det sorte Havs Havne."
Beretninger om Handel og Skibsfart 1896, 806.

[108] Worm-Müller, *Fra klipperen til motorskibet,* 693.

[109] Norseng, "Naturiseksporten i norsk sjøfartshistorie", 156.

[110] Rogan, *Mellom tradisjon og modernisering,* 296-298.

[111] Anderson, *Refrigeration in America,* 13.

[112] *Morgenbladet*, 13.3.1885.

7 Southern Europe and Mediterranean ice markets

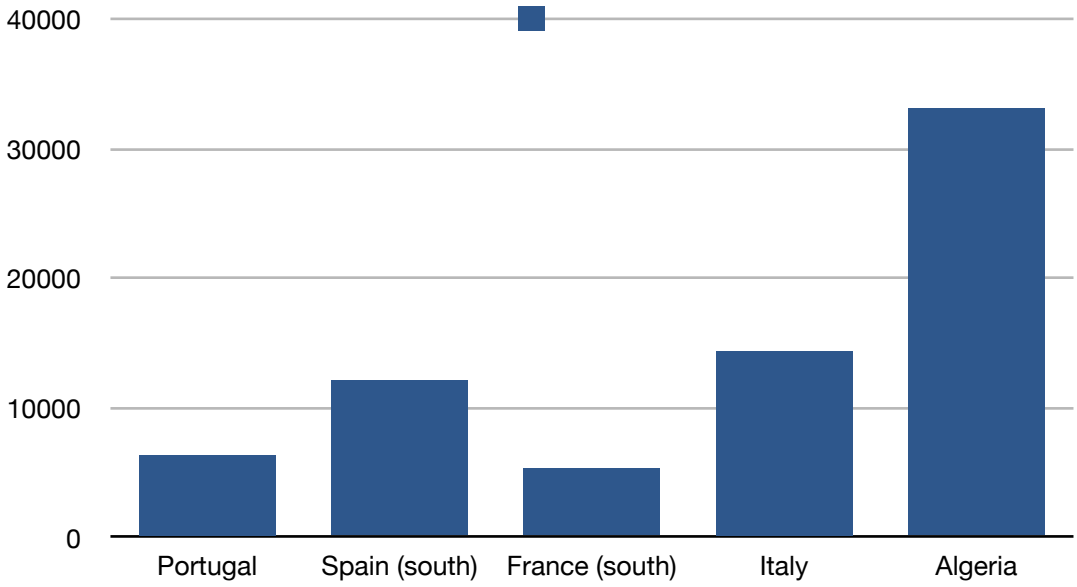

Fig. 3. Total known Norwegian ice export 1830-1910 in r.t. to main southern European and Mediterranean markets. General destination categories in the statistics such as Africa, Spain and France are excluded from the data, hence Algerian and, in particular, Spanish and French figures are too small. Sources: Norwegian export statistics and consular reports, Worm-Müller, National Archives of Norway.

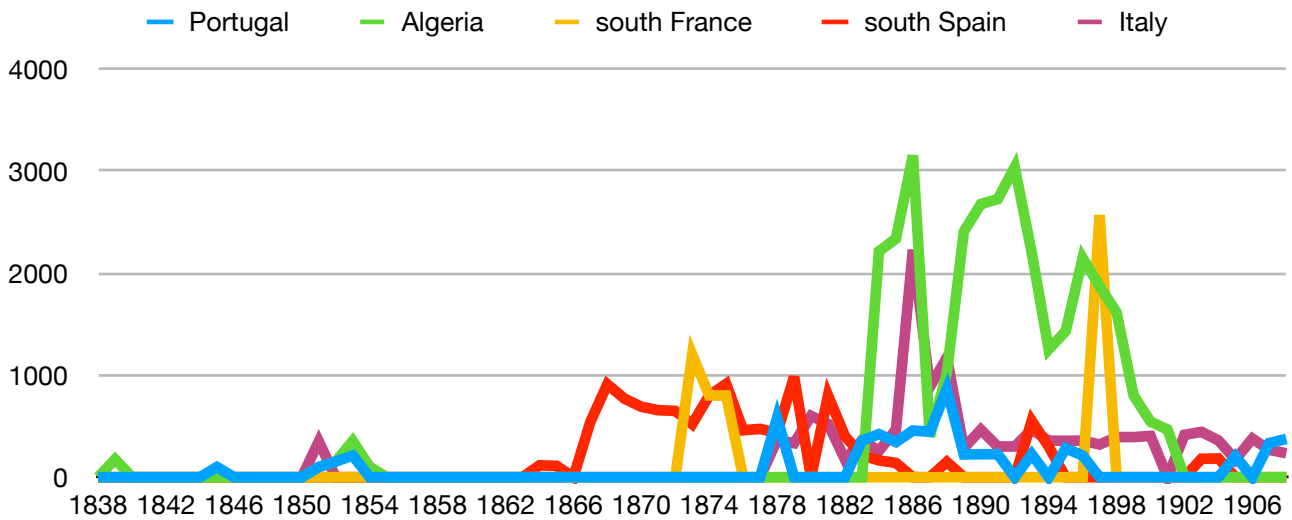

Fig. 4. Development of Norwegian ice export 1830-1910 to main southern European and Mediterranean markets. Sources: Norwegian export statistics and consular reports, Worm-Müller, National Archives of Norway.

Compared to to the main market for Norwegian ice, Great Britain, Norwegian export to Algeria amounted to a tiny fraction over a much shorter period of time. During 1893-1901, which was the peak period for ice export to Great Britain, the annual export *averaged* more than 300.000 r.t.[113] During 1884-1898, peak years of the export to Algeria, the annual export *peaked* at around 3.000 r.t.[114]

Other markets existed that were even more faraway than Algeria. In the Mediterranean, occasional shipments of ice went to Constantinople. In a few exceptional years of "ice famine" in America, ice was shipped to the U.S. in quantities as impressive as 11.500 r.t. (1880) and 14.200 r.t. (1890). There was also the odd shipload going to Rangoon (1880), Batavia (1881-1882, with Dutch vessels) and Havana (1868). None of these latter enterprises proved a commercial success.[115] Compared to these exotic and faraway markets, ice was shipped to southern Europe and the western Mediterranean on a far more regular basis. In this region, Algeria stood out.

According to known data, Norwegian ice export to Algeria alone was larger than the total exports to southern Spain, Mediterranean France and the combined Italian areas of Sardinia, Sicily and Naples put together (fig. 3). While the export to southern Spain, Italian areas and Portugal was distributed over many years, Norwegian ice flowed into Algeria in three distinct waves, with no known export in between. The first "wave" was no more than a ripple, a single shipload to Algiers with the barque *Commerce* in 1839.[116] The second wave was a modest yearly amount over the years 1851-1854. The third and main wave lasted 18 years, starting abruptly in 1884 with 2212 r.t. and ending in 1901 after a steep decline (fig. 4).

The early Norwegian ice trade was tentative and speculative in general, to southern waters even more so. Worm-Müller points out the high risk of this trade: The market potential and success of the enterprise all rested on last winter's climate in the import region. As the mail service of the day was slow and the telegraph was not yet operative, any news of an opening in a faraway market might not reach Norwegian ice traders in time for them to prepare a shipment of ice.[117]

During the first decades of Norwegian ice export, ice shipments to southern waters might be organised from foreign side just as well as from Norwegian side. If an "ice famine" hit during the hot season, local ice traders would look elsewhere for supplies. To them, Norway must have stood out as a land of endless promise. As early as 1825, Dutch vessels were shipping ice from the Risør area to Paris. But it seems that to the Parisians, obtaining their ice from Norway was a last resort, because several years passed before the Dutch came back for more.[118]

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[113] Ouren, "The Norwegian Ice Trade", 36.

[114] Data from Norwegian official statistics and consular reports.

[115] Worm-Müller, *Fra klipperen til motorskibet*, 695-696.

[116] National Archives of Norway, RA S-1094/D/Da/L0005

[117] Worm-Müller, *Fra klipperen til motorskibet*, 688.

[118] Worm-Müller, *Fra klipperen til motorskibet*, 688.

Another example of foreign initiative for import of Norwegian ice to southern markets, was a letter from the French Minister for Agriculture and Commerce to the Chamber of Commerce in Marseille in December 1846. The minister pointed out that last summer, France had resorted to importing much ice from abroad, notably America. Although France produced much ice of her own, the minister recommended to make provisions for all possible contingencies. Around February 1st, it would be possible to predict the ice situation for the coming season, he advised. The French consul in Norway had made investigations, and had advised the minister on how to best organise such ventures from France. He recommended sailing off for Norway in February, in time to load ice in the Kristiania fjord in February-March. The fjord, although partly blocked by ice until the end of April, offered safe moorings for ice loading. Most Norwegian seaports, such as Moss and Drøbak, were situated at the mouth of rivers with sawmills nearby. Here one could easily obtain sawdust to insulate the ice, employing the American method. The ice trade offered investment opportunities for French shipping, the minister concluded, and ice provision for Mediterranean countries ought to have a great potential. He recommended French shipping merchants to make trade liaisons in countries like Norway and Sweden.[119]

In January, the minister followed up with another letter which informed that English ships had loaded ice in the Drammen river at a favourable cost.[120] A Marseille newspaper published the contents of the two letters, adding the information that the number of English ships going to Norway was six, and brought forward the wish that ship owners would consider sending ships on “expedition” to Norway and bring “this element” on the return voyage.[121] Whether this envisaged French shipping investment in Scandinavian-Mediterranean ice trade ever materialised remains uncertain.

In 1866, the Norwegian newspaper *Morgenbladet* speculated why the Norwegian ice trade to southern countries never seemed to work out properly, despite tempting prospects in those markets. Even though some shiploads had indeed been sent to Spain, Portugal and even Algiers, these shipments never seemed to be followed up by others. Perhaps, the newspaper mused, the people down there do not appreciate this commodity so much? “The freights do not appear to be a problem, as North America has success in sending her ice all the way to the East Indies. Perhaps one just needs a serious initiative to open new profitable markets to this trade,” the article concluded.[122]

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[119] Letter from the French Minister of Agriculture and Commerce to the Marseille Chamber of Commerce, 21.12.1846.

[120] Letter from the French Minister of Agriculture and Commerce to the Marseille Chamber of Commerce, 9.1.1847.

[121] “Que les armateurs fassent donc leur compte; il peut entrer dans leur convenance de diriger des expéditions sur la Norwége et d’exploiter cet élément de retour. “
Sémaphore de Marseille, 21.1.1847

[122] “det [synes] meget naturligt, at de sydligere Lande maatte være et godt Marked for den norske Is. Der har ogsaa enkelte Aar været sendt nogle Ladninger til Spanien, […] til Portugal, ja ligetil Algier; men der har ikke vist sig nogen Tendens til at fortsætte, hvad enten nu dette hidrører fra, at Folket dernede muligens ikke sætter saamegen Pris paa denne Vare, - eller har andre Grunde. Fragten synes nu ikke at kunne gjøre saameget, naar Nordamerika med Held kan sende sin Is ligetil Ostindien. Muligens mangler der blot et alvorligt Tiltag for at aabne denne Handel flere lønnende Markeder.”
Morgenbladet, 22.2.1866.

Finding the answer to *Morgenbladet's* question would probably go a long way towards understanding the dynamics of the Norwegian-Algerian ice trade. One fruitful approach might be to make a comparison between the different cold chains connecting Norway and south European/Mediterranean seaports. Among those, three were visited regularly over many years: Lisbon during 1883-1896 and again 1905-1908, Cadiz during 1864-1879 and Cagliari during 1878-1908. What was it with those three ports that made them more available to Norwegian ice traders? Lisbon and, to a lesser degree, Cadiz, had the obvious advantage of lying closer to the domestic waters, and both were located outside the Strait of Gibraltar, which would limit warm weather transport and hence reduce melting losses. Cagliari, on the other hand, was halfway into the Mediterranean. Could there be some common denominators to these markets during the periods of ice import? Also, making a comparison between other, less frequented seaports may provide keys to understand which preconditions were necessary for a viable and longstanding ice trade.

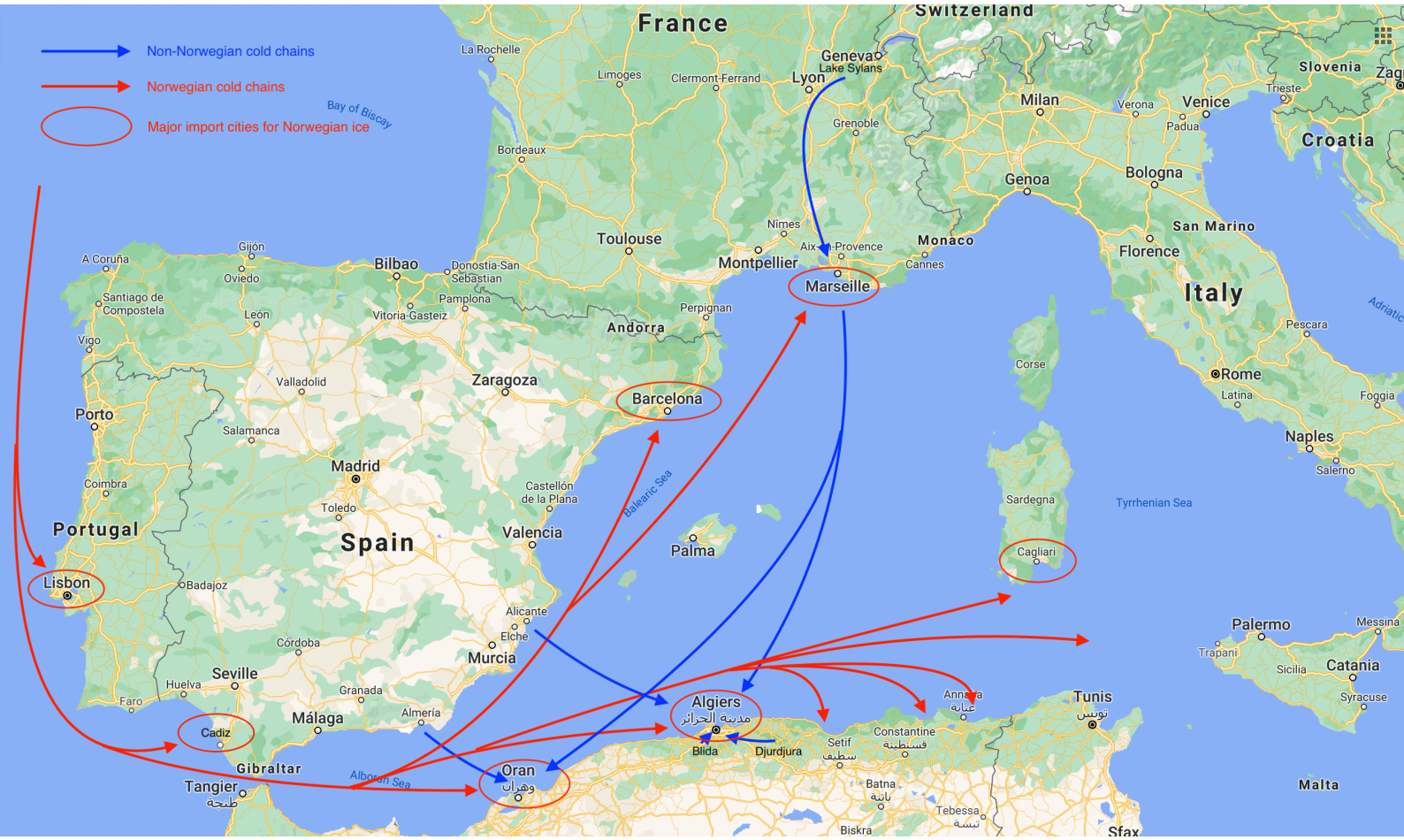

Fig. 5. Cold chains from Norway supplying southern Europe and the Mediterranean (red arrows), and Non-Norwegian cold chains supplying Algeria (blue arrows). In this region, Norwegian ice was shipped to Portugal, Spain, France, Italy, Algeria, Turkey and Egypt, possibly also elsewhere. The main seaports receiving Norwegian ice were Lisbon in Portugal, Cadiz and Barcelona in Spain, Marseille in France, Oran and Algiers in Algeria and Cagliari in Italy/Sardinia. Sources: Norwegian official statistics and consular reports (red arrows), francophone press (blue arrows).

7.1 Lisbon, Cadiz and Cagliari

1883 marked the beginning of an annual Norwegian ice export to Lisbon, with the possible exception of two years. In Lisbon, there was a single ice importer, a brewery, annually importing about two shiploads, and this brewery held the only ice depot in town.[123] Apart from the brewery, there existed no need for natural ice, as inland ice factories made supplies in sufficient quantities for the whole of Portugal.[124] This state of affairs continued until 1896, when a heavy customs tariff was levied on ice, effectively blocking the ice import.[125]

Then in 1905, Norwegian ice reappeared in the import statistics for the port of Lisbon. The consul in Lisbon outlined the situation: Ice consumption in Portugal was generally low, as ice was practically not used at all in private households, only in establishments such as hotels, restaurants and confectionery shops. This modest consumption was covered by two ice factories in Oporto and Lisbon. However, a new market had recently opened up: A fleet of a dozen steam trawlers were now in operation off the Portuguese coast, and these boats needed supplies of 10-12 tons of ice twice monthly. Whenever several trawlers happened to dock for ice provisions simultaneously, the ice factories could not provide the needed quantity, so the trawlers were held in waiting for days. The fishing industry preferred natural over artificial ice, as it was considered more durable and better suited for conservation onboard, and would make fish export into Spain possible. The consul estimated a demand for ice amounting to around 360 tons a month or 4320 tons a year.[126]

But this Norwegian-Portuguese ice adventure did not last: The last year of Norwegian ice export to Portugal was 1908. In 1911, the consul reported that the ice import had ceased, as the three operating ice factories in Portugal now produced sufficient ice to cover the demand. Prices were low, and in any event, there was a lack of appropriate ice depots.[127]

From Cadiz, the Swedish-Norwegian consul wrote in his report for the year 1880 that the usual import, amounting to two shiploads annually, had ceased. That was owing to the artificial ice production which now covered the market demand.[128] An 1885 ice report printed in the Norwegian daily *Morgenbladet* outlined the history of ice trade in Cadiz: Snow-ice from nearby mountains had been the only source of ice until ice import from America began in 1848. At a certain point,[129] Norwegian ice traders replaced the Americans. The Norwegian export was limited to two shiploads annually, covering Cadiz, Sevilla, Huelva, Gibraltar and even Tanger in Morocco. Due to heavy melting, the price of import ice was high. Considering the new ice factories in Cadiz, Sevilla and Gibraltar, increased demand for import ice was not anticipated. The Norwegian ice was only being

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[123] *Morgenbladet,* 6.7.1885.

[124] *Beretninger om Handel og Skibsfart 1893,* 633.

[125] *Konsulatberetninger 1906,* 113.

[126] *Konsulatberetninger 1906,* 113-114.

[127] *Konsulatberetninger 1911*, 27.

[128] *Uddrag af Aarsberetninger 1880,* 12.

[129] This apparently happened in 1864.
Tabeller vedkommende Norges Handel og Skibsfart 1864, 122-123.

used for refreshments in the summer (presumably drinks), and for food conservation onboard steamers bound for Cuba.[130]

An 1890 compilation of American consular reports looked into the prospects for selling American “refrigerators”, the term designating both ice boxes and refrigerators, in European countries. This book portrays very well the challenges for large-scale sales of ice in the Mediterranean. The consul in Cadiz summed up the sorry state of affairs in his city. It is easy to picture the consul shaking his head as he was writing: “

> The abundance of prosperous years is wasted for lack of methods of preservation. The distress following partial or total failure of crops is always doubly great because the excess of fruitful years has not been preserved. (…) The high prices of food supplies surprise all.”[131]

In the nearby city of Jerez, the consul reported that ice boxes were unknown and simply not needed, as everyone, “high and low”, made their purchases daily and ate it all up in the course of the day. Ice was only used in the summer, for the purpose of making ice cream and similar.[132]

To Cagliari, Sardinia, 1878 marked the beginning of a 30-year trade relationship between the Norwegian ice trader Thomas J. Wiborg and a single ice importer, Josias Pernis. The latter was founder of a large merchant firm in the city, and acted as a natural ice supplier for several local customers such as hotels and cafés.[133]

Three cities, three different background stories concerning their need for ice. For Lisbon and Cagliari, there is a common denominator: A long-term trade liaison between a Norwegian ice trader and a local ice importer. As for Cadiz, its unique geographical position seems to have been the key. Not only was the city situated at a crossroads between Europe and Africa, the Atlantic and the Mediterranean, it was also easy accessible from the Atlantic side, as ships would not need to negotiate the Strait of Gibraltar.

7.2 Less frequented Mediterranean ports

Let us now look at some less frequented Mediterranean ports by Norwegian ice ships than the three mentioned above. Why did the ice export to these cities not succeed? Could there be some negative common denominator?

Again, the American consuls provide some answers. From Barcelona, the consul reported that private households did not use ice. Hotels, restaurants and cafés had abundant access to snow-ice from nearby mountains, receiving supplies daily which they kept in their cellars. The consul was not impressed by the quality of the snow-ice: “This sort of

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[130] *Morgenbladet,* 6.7.1885.

[131] *Refrigerators and food preservation in foreign countries,* 155.

[132] *Refrigerators and food preservation in foreign countries*, 155-156.

[133] Information based on resent research by Knut Michael Nygaard.

ice is cheap, often dirty, but suits all their purposes."[134] The Kristiania daily *Morgenbladet* reported that during a few years of mild local winters in the beginning of the 1880s, several attempts had been made of exporting Norwegian block ice to Barcelona, only resulting in tangible losses to the importers. This was due to a lack of a suitable ice storage and also a lack of appreciation for the quality of the ice. Buyers were almost exclusively transatlantic steamers.[135]

Norwegian ice was shipped to Marseille for the first time in 1873. The ice was delivered on consignment to breweries. The Norwegian consul reported that the quality of the ice was far above the Swiss ice that the inhabitants were accustomed to. The only impediment to the trade was the lack of ice depots, as the ice buyers habitually received frequent deliveries from Switzerland. Still, the affair paid off well, despite a melting loss of 25% *en route* from Norway. The consul envisaged a potential for increased export in the future.[136]

But the outlooks soon darkened. Already in 1876, the import of Norwegian ice came to a dead halt. Artificial ice was now being produced in sufficient quantities.[137] The one exceptional year was 1897, due to an extraordinarily warm winter. That year, seven Norwegian steamers arrived with ice. The consular report quoted the Norwegian ice export to 3850 tons,[138] which would be an all time high for the Norwegian-Mediterranean ice trade.

In Messina, Sicily, local ice-factories were anticipating the arrival of Norwegian ice. In 1885, they joined forces and bought modern machinery which enabled them to expand their production and lower their prices. The consul advised Norwegian ice exporters to prepare themselves for scant profit in the establishing phase. On a positive note, he reported that an ice cellar was under construction, from which the interior could be supplied.[139] Next year, 1800 tons of ice were imported from Norway. The quality was excellent, but melting losses had been heavy, and the importers suffered substantial losses as the ice factories lowered their prices. Moreover, the consul reported, the ice manufacturers were now lobbying for import customs on ice.[140] After unsuccessful attempts for another couple of seasons, the importer finally gave up.[141]

As late as 1885, a lack of appreciation of high quality ice was still prevalent in certain areas of the Mediterranean. *Morgenbladet* reported from Naples that not only did the inhabitants prefer "snow" above ice, they even claimed that snow was much colder than ice. In Naples, snow-ice from local mountains was abundant, and so cheap that competition was impossible. The supply was monopolized through a system of

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[134] *Refrigerators and food preservation in foreign countries*, 153.

[135] *Morgenbladet*, 6.7.1885.

[136] *Uddrag af Consulatberetninger 1873,* 45.

[137] *Indberetninger om Handel og Söfart 1877,* 7.

[138] The figure is uncertain, as the same import quantity was also quoted as 2.614 metric tons. *Beretninger om Handel og Skibsfart 1897,* 624.

[139] *Uddrag af Aarsberetninger 1885,* 152-153.

[140] *Uddrag af Aarsberetninger 1886,* 94.

[141] *Uddrag af Aarsberetninger 1888,* 40.

concessions, just as in *l'ancien régime* in France.[142] Preference of ice above snow and a liberal ice trade were markers of modernity, without which Norwegian ice traders could get no foothold in the market.

7.3 Characteristics of the southern markets

In conclusion, we have identified some keys to success and some reasons for failure of ice export to the Mediterranean. A stable trade liaison and an apposite ice depot in the seaport were essential prerequisites, without which no ice trade could be viable. Also, there had to exist a market, of course. Too strong competition from artificial ice manufacturers would doom any attempts at ice export. Taste also mattered. If the local people were used to ice in the form of snow-ice, then snow-ice was what they wanted and that practice would be difficult to change.

In the western Euro-Mediterranean market, ice was used for refreshment and heat relief, to chill drinks and make frozen desserts. Those who were domesticated by ice, would see as one of life's necessities in summer, while many others, not yet domesticated, would deem it a luxury. In many cities, people were still not used to cool drinks in summer. Compared to the Americans, they were hardly domesticated by ice, except for medicinal use. The practice of cooling food for preservation was largely missing in the the region. Even in Paris in 1890, people still bought fresh food daily.[143]

The Mediterranean staple diet consisted of bread, vegetables and fresh fish from the sea. Perhaps the American consul in Malaga summed it up best: "In Malaga the fish is the very best, and it can be bought at any hour of the day, passing your door, fresh from the Mediterranean, at a very small cost, and is never purchased until required for cooking."[144] The main exception to this rule was the fisheries. Increasingly, fishermen would take their boats to distant waters to catch fish on an industrial scale. They needed cold for conservation during the long transport, and ice provided the solution.

Everywhere, not only in the Mediterranean, the ice market was markedly fluctuating. The price of ice might rise steeply or plummet, depending on last winter's temperature and precipitation in the domestic mountains. In mild winters, the local mountains might not produce sufficient snow. Come the hot season, the demand for ice might rise to the point of an "ice famine" which could trump all impediments, as was sometimes the case in Marseille. As for impromptu sale of ice *en route* without a pre-made agreement, that left all too much to the captain's ingenuity or luck, as illustrated by captain Børresen's Constantinople adventure (see 8.1).

The need for a stable trade liaison was not unique to the trade on southern countries, it was common for the Norwegian ice trade in general. Large Norwegian ice traders established reliable and longstanding trade liaisons abroad.[145] This liaison might be a

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[142] *Morgenbladet*, 6.7.1885.

[143] *Refrigerators and food preservation in foreign countries,* 107.

[144] *Refrigerators and food preservation in foreign countries,* 157.

[145] Gøthesen, *Med is og plank i Nordsjøfart*, 124.

reliable importer who had an established customer base and an ice depot at disposal. Such was the case in Cagliari. Alternatively, the liaison might be a single large customer with its own storage facilities. Such was the case with the brewery in Lisbon. We will see in Part 9 that both types of liaisons were present in Algeria and were a precondition for the relative success for Norwegian ice there.

8 Early Norwegian-Algerian ice trade: until 1854

In the ice trade to Algeria in particular and south Europe and the Mediterranean in general, Henrich Biørn Jr's barque *Commerce* and its 1839 voyage stands out in my sources as a precursor. Although it was not his original plan, the same ship owner followed up at some point during the 1840s with an ice load to Lisbon onboard the brig *Ursus Minor* (see 8.1).

Transnational ice trade to the Algerian market had been blocked or at least hampered by the French policy between 1844 and 1849, which had monopolised the ice supply for Algiers to concession holders (see 5.2). Liberalisation of the ice trade was a necessary precondition for import, at least to Algiers. In other ports such as Oran, it may be that foreign ships could unload ice.

In any event, in 1851, Norwegian ice traders again organised voyages to southern waters. A north France inland newspaper reported in April from a correspondent in Brevik that seven sailing ships bound for various ports in Italy and Sicily had sailed off from Kragerø. Never before had Norwegian ice export reached such a scale as this year, the correspondent commented, a fact he attributed to an extremely mild winter in the "southern countries". The correspondent was probably the ice trader and ship owner T.J. Wiborg, who ran ice trade out of Brevik in southeast Norway.[146] He described the types of ice in these shipments of the early ice trade: 'We ship three types of ice: mountain ice, lake ice and fjord ice. The latter is of enormous dimensions. All shiploads are a mix of the three types."[147]

In the Norwegian official shipping and commerce records, the above mentioned shiploads have disappeared into a void. The 1851 statistics do not show any trace of ice export either to Italy or Sicily. A possible explanation may be that export below a certain value was not recorded. An alternative explanation is that the ship masters may have sold their cargo before arrival in Italy or Sicily. In these pre-telegraph days, ship masters in tramp trade were granted considerable powers to close trade deals *en route*. One plausible port of call *en route* would be somewhere along the Algerian coast. And indeed, that same year Algeria reappeared in the ice export statistics of Norway. 98 r.t. of ice to Algeria is recorded in the export statistics for 1851. Such a modest amount of ice, however, even in those days of heavy onboard melting, can hardly account for more than a single shipload out of seven. The rest of the ice might have been sold *en route* to the Mediterranean.

In those days, shipments of ice to foreign markets might be organised in an impromptu fashion, as in Worm-Müller's account of the emigrant schooner *Ebenezer.* In 1851, *Ebenezer* loaded ice from the Bredevannet lake (today Breiavatnet) in the town Stavanger at the southwest coast of Norway, with the intent of selling the ice in England. *Ebenezer*

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[146] Information from ongoing research by Eyvind Bagle.

[147] "La glace que nous expédions est de trois espèces, savoir: glace de montagnes, glace de lac et glace de mer. Cette dernière consiste en des blocs d'énorme dimension. Toutes les cargaisons sont assorties des trois espèces."
Journal de la ville de Saint-Quentin et de l'arrondissement, 9.4.1851

sailed across the North Sea, but finding no buyer in England, it continued to Lisbon, were the cargo was sold.[148]

In the wake of that year of exceptional demand for ice in the southern waters, other southbound Norwegian ice shipments followed suit. There are records of ice exports to Algeria over the next three and to Lisbon over the next two years. The successful voyages in 1851 might have encouraged ice traders to try again. It might also be that a series of mild winters occurred in southern Europe and the Mediterranean. In any event, the ice traders appear to have given up the southern markets after a few years. In the official records of ice exports to southern Europe and the Mediterranean, there is a break between 1855 and 1867.

The impression emerging from these early attempts at ice trade to warmer waters, is of a haphazard business to uncertain destinations with a cargo that was rapidly dwindling in volume and value. The choice of ice sites and ice types, and the harvesting and stowing methods were still at an experimental stage, leaving considerable room for improvement. Nevertheless, after mild winters in hot regions, when “ice famine” set in, there must have been a view to profit tempting enough to make it worthwhile the effort of trying and retrying over and over again.

8.1 Tramp trade

The Boston “ice king” Frederic Tudor created a long-lasting success story out of regular two-way shipments between Boston in America and Calcutta, Madras and Bombay in India. In contrast with these oceanic crossings, the Norwegian-Mediterranean ice trade routes did not stray far away from European and Mediterranean coasts, with their multitude of seaports into widely differentiated markets. This opened up another formula for combining freights, different from Tudor’s mode of operation: the tramp trade. Once the ship had unloaded its ice cargo, it might proceed further into the Mediterranean to do trade with other commodities. The voyage of *Commerce* in 1839 is an example of tramp trade. This 176 r.t. sailing ship, owned by consul Henrich Biørn Jr in Kragerø, landed in Algiers in February to unload ice. From here, its route is traceable in the Swedish-Norwegian consulates’ shipping records. In Odessa in April, it was logged that *Commerce* loaded potash, wool bales and wheat. These commodities were destined for ports in western Europe.[149] In tramp trade, the captain acted as a travelling salesman, aiming to make the voyage into a successful business venture by negotiating trade deals in every port of call.

The account of Biørn Jr’s brig *Ursus Minor,* which sailed from Kragerø bound for Lisbon with ice some time during the 1840s, is an illustration of the conditions of the early ice trade, before the epoch of the telegraph. For three months, there were no news of the brig. Then one day out of the blue, it turned up in Kragerø loaded with salt, leather, wine and fruits.[150]

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[148] Worm-Müller, *Fra klipperen til motorskibet*, 688.

[149] National Archives of Norway, RA S-1094/D/Da/L0005.

[150] Worm-Müller, *Fra klipperen til motorskibet,* 688.

Captain Hans Børresen, who made a voyage with the steamer *Krystal* to Constantinople in 1885, has given an account of how the Mediterranean tramp trade worked. From the astonished reception at the quay in Constantinople, it was clear that ice was not a familiar commodity in this port. Local people who had made their way barefoot down into the hold, kept lifting their legs, exclaiming that they were "burning" their feet. To get rid of his dwindling cargo, Børresen had to devise a quick plan. He worked a couple of ice blocks into paperweights (decoratively cut, smooth objects normally made from glass), which he then presented at the royal palace. The ice cargo was sold on the spot.[151]

But it was not always easy to find a return freight. The consul in Algiers reported in 1896 that Algerian exports were vulnerable to business cycles and had suffered heavily from the international economic crisis.[152] The wine export in particular was vulnerable, heavily depending on the grape harvests both in Algeria and within its European markets.[153] The consul recommended Bône as the best Algerian port for export freights. as 12/13 of the important Algerian phosphate export was shipped out of this harbour. Freights were generally low, he reported, but recommended to try to obtain a return freight, even low, rather than go in ballast back home or to some other remote destination.[154] This report portrays a rather precarious trade in strikingly contrast with Tudor's highly profitable return freights from Calcutta.

Next year, the consul reported that although no Norwegian or Swedish ships had obtained direct return freights from Algeria, many had sailed off fully loaded bound for other destinations.[155] During the 1890s, steamers increasingly used the port of Algiers for coaling and other provisions, encouraged by convenient anchorage facilities and speedy quarantine formalities.[156]

8.2 Trade restrictions, tariffs, unrest and quarantine

Even after telegraph and steamers made it possible for Norwegian ice traders to act quickly on an opening in the market, ice export to the southern countries was no easy undertaking. Even during the peak season, the ice trade might be hampered by a number of reasons other than just a lengthy voyage under a hot blazing sun.

During the 19th century, protectionist trade restrictions and tariffs came and went in the Mediterranean states, causing difficulties of finding return freights and generally working as an impediment to the trade. For example, in 1893, a French decree banned freights under foreign flag between Algeria and France, inflicting a reduction in foreign shipping to

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[151] Worm-Müller, *Fra klipperen til motorskibet,* 694.

[152] *Beretninger om Handel og Skibsfart 1895,* 876.

[153] *Beretninger om Handel og Skibsfart 1895,* 874.

[154] *Beretninger om Handel og Skibsfart 1895,* 876.

[155] *Beretninger om Handel og Skibsfart 1896,* 806.

[156] *Beretninger om Handel og Skibsfart 1893,* 821.

Algeria.[157] Another example was a port fee per ship's tonnage introduced in Algiers in 1896.[158] It hampered the exports out of Algeria so much that it was repealed after a year.[159]

The Mediterranean was a region which was haunted by epidemics of cholera and plague, and outbursts of typhoid fever. Death tolls were high, and the diseases periodically paralysed the trade. In Algiers in 1850, a cholera epidemic blocked the trade for months, preventing Norwegian ships from bringing timber to Algerian ports.[160] To combat the spread of disease, quarantine was frequently imposed on the shipping. Calling ships, if they were to avoid observation quarantine, were required to present a health certificate validated by the consul in the port of departure. That was the case for example in Algiers in 1839[161] and 1873[162].

Unrest, whether in the colony itself or in the metropolis, affected the trade on Algeria from time to time. When the French government decided to send colonists to Algeria in 1849, the prices of timber rose instantly. But when news of unrest in the metropolis reached Algeria, the market responded by collapsing.[163] A major tribal uprising in 1871 hampered the trade and shipping for a while. However, the after effect was the opposite, because much rebuilding materials were required due to the material destructions.[164] In the long run, however, the trade profited from stability. As the consul wrote from Algiers in 1849: "There is no doubt that if the situation is calm in France, then Algeria will become a good market for our products next year."[165]

8.3 The financial pull of the Algerian market

Bearing in mind all these difficulties, how did Norwegian ice at all come to be imported to Algiers? Any Norwegian ice vessel *en route* to the Mediterranean would pass by flourishing ice markets around the North Sea, such as Grimsby, Oostende and Boulogne-sur-Mer. An obvious question is why a Norwegian ice merchant would undertake a three times longer freight into southern waters where the cargo would melt away at record speed. For the trade to be viable, the higher freight costs and greater loss by melting would somehow need to be outweighed. To approach an answer, we will take a closer look

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[157] *Beretninger om Handel og Skibsfart 1893,* 819.

[158] *Beretninger om Handel og Skibsfart 1896,* 807.

[159] *Beretninger om Handel og Skibsfart 1897,* 765.

[160] *Christiania-Posten,* 21.3.1851.

[161] *Den Constitutionelle,* 21.3.1839.

[162] *Uddrag af Consulatberetninger 1873,* 85.

[163] *Morgenbladet*, 26.6.1849.

[164] *Uddrag af Consulatberetninger 1871,* 53.

[165] "der er ingen Tvivl om, at, hvis Rolighed kommer til at herske i Frankrig, Algerien kommer til at byde rigelig Afsætning for vore Produkter i næste Aar"
Morgenbladet, 14.1.1849

at the financial pull of the Algerian ice market and the opening it held for the Norwegian actors, the ice and its handlers.

First, we need to establish how the Norwegian ice could compete on a southern market. The hardness and durability of Norwegian block ice was such that it earned the label “steel ice”. The transparency of it was such that one could allegedly read a letter through the ice block.[166] It may not have been completely true, but it was a great sales argument. The sales price was also reasonable. If we are to believe *Le Monde Illustrée,* the illustrated weekly of the Paris newspaper *Le Monde*, in 1895, Norwegian ice was sold cheaper in Algiers than in Paris. The explanation offered was that maritime freights were very low compared to railway tariffs. According to the feature in the illustrated weekly, a ton of Norwegian ice, “unloaded and deposited in one of the ice vaults of Bab-Azoun”, was sold for 15 francs, compared to a price of more than 40 francs if “consigned to the homes of Paris”.[167] To prove its point, *Le Monde Illustrée* had committed the error of comparing Algerian wholesale prices to Parisian detail prices, although the differences in transport prices were likely real enough.

Secondly, there was a fast growing market in Algeria. One precondition for that was the steady Frenchification of the colony. Looking at the indigenous people in 1850, the Norwegian consul in Algiers was optimistic. He had noticed a tendency towards “civilisation” among them: “In several places, they have abandoned their nomadic lifestyle and replaced tents with houses (…) Little by little, they are beginning to feel the need for foreign products.”[168] In his view, this was a development that held promises for the Norwegian exports.

Still, more important for the ice trade was the steeply increasing population of *colons*, settlers of French and other European origin, who held expectations of a lifestyle reminiscent of their European past. Urban *colons* were entrapped by ice and demanded it for comfort in the hot season. In addition to the perceived necessity or luxury of refreshments in the heat, Algeria was in dire need of ice for medicinal use. This was a land haunted by cholera and typhoid fever, and if anything, fever maladies could only intensify the craving for cold relief.

A key question was of course how to make the freight costs as low as possible. Frederic Tudor’s Indo-American ice trade between the middle 1830s and 1880 negotiated even hotter climates and even longer transports, and yet, he was able to ship ice at low freights. One explanation was that the ships would sail anyway, even in ballast, to a

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166 “at man med lethet kunde læse et brev tvers igjennom blokken.” This particular quote, one of several similar claims, was about ice from the Oppegårdstjernet pond, which Søren Angell Parr started trading with in 1855.
Worm-Müller, *Fra klipperen til motorskibet,* 689.

167 “C’est ainsi qu’à Alger une tonne de glace norwégienne débarquée et remisée dans une des voûtes de Bab-Azoun revient à quinze francs, alors que la même quantité rendue à domicile à Paris, revient à plus de quarante francs.”
Le Monde Illustrée, 17.8.1895.

168 “De Indfödtes af og til visende Tendents til at tilegne sig, hvad de kunne af Civilisationens Fordele og Opfindelser” “Paa flere steder have de ophört med sit nomadiske Liv og ombytte Teltene med Huse” “De begynde altsaa efterhaanden at föle Trang til et för hos dem ukjendt Behov af fremmede Produkter” “de forende Rigers Export til denne Koloni (…) maaske den ogsaa lidt efter lidt, eftersom Civilisationen griber om sig blandt de Indfödte, vil udvide sig.”
Morgenbladet, 24.3.1850.

destination such as Calcutta, which abounded in commodities craved by the Western world. Another explanation was the presence of commercial hubs at both ends of the cold chain. Boston harbour, from which Tudor's ships sailed off, grew steadily thanks to the ice trade.[169]

Algeria was hardly comparable to Calcutta, nor was Kragerø comparable to Boston. Still, similar considerations of combining freights of different commodities helped opening up the new niche of Norwegian-Algerian ice trade. A combination freight was possible from the outset of the voyage. Out of the 62 recorded ice voyages to Algeria in my data, at least 7 are known to have carried wood in addition to ice, and from the consular reports it emerges that there were many more, but exact data are missing. Wood was convenient, not only for sale at the destination, but also for transport purposes: Timber stowed on deck would insulate the cargo below against the heat, aided by sailors throwing water on the timber to keep it humid. Below deck, sawdust insulated the ice blocks, and pieces of wood would keep the blocks in place even as they were shrinking due to melting.[170] These logistics were facilitated when the ice was loaded near the mouth of a river with a sawmill, which was often the case. Norwegian actors in the ice export industry were also often owners of sawmills and timber exporters.[171]

At the Algerian end of the cold chain, there was a demand for Nordic timber linked to the French colonisation project. In 1874, the consul noted: "The demand will grow substantially if the colonisation makes the progress we have reason to expect."[172] In 1893, the consul reported of major harbour works and expansion of the city, extensive house construction and even wooden paving of the streets, which would increase the demand for Nordic timber.[173]

To sum it up, Norwegian ice entrepreneurs wanting a foothold in Algeria had to navigate shifting tides on several levels. First, the political level of French military conquest and colonisation of Algeria and surrounding Maghreb. Second, the economic level of a shift away from mercantilism in the style of *l'ancien régime* towards liberalism. Third, the technological level in the wake of industrialisation: new infrastructure of telegraph, railway and steam, and above all, an emerging refrigeration industry. Fourth, the cultural level of Frenchification and modernisation: a growing Algerian bourgeoise, new consumer practices and growing preoccupation with hygiene, all linked to the *colons*' understanding of themselves.

The two first shifts created the necessary preconditions for Norwegian-Algerian ice trade on a noteworthy scale. The third and fourth shifts defined the niche that constituted the Norwegian-Algerian cold chain, which the actors of the ice trade needed to adapt themselves to. The technological shift at first changed the niche to the better for its actors, but eventually led to its demise. In Part 9, we will zoom in on the 1880s and

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169 *Report of the Committee Appointed by the Stockholders of the Charlestown Wharf Company,* 1839, cited in Dickason, "The Nineteenth-Century Indo-American Ice Trade", 64.

170 Norseng, "Naturiseksporten i norsk sjøfartshistorie", 167-168.

171 Norseng, "Naturiseksporten i norsk sjøfartshistorie", 176.

172 "Behovet vil tiltage meget betydeligt, hvis Kolonisationen gjør de Fremskridt, som man har Grund til at vente."
Uddrag af Consulatberetninger 1873, 84.

173 *Beretninger om Handel og Skibsfart 1892,* 609-610.

1890s, the heyday of the Norwegian-Algerian ice trade. We will analyse how the traders in Norwegian ice in this period adapted to the shifts in technology and consumer practices.

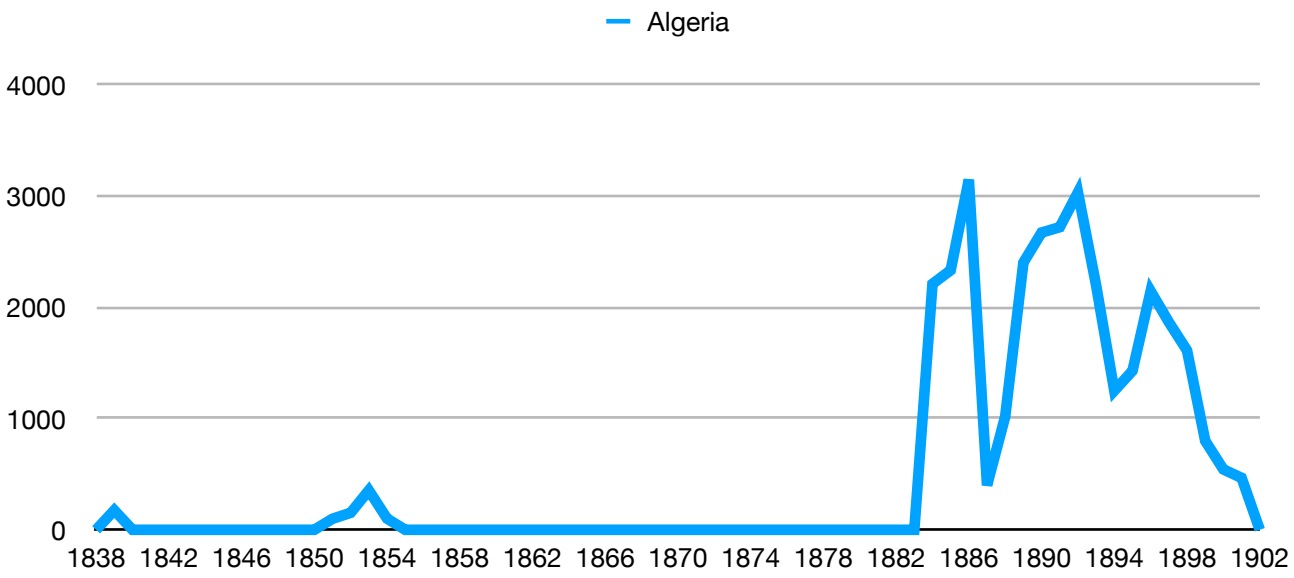

Fig. 6. Known Norwegian ice export to Algeria. The two main peaks correlates with the establishment of Brasserie Malterie Algérienne and Glacière Norvégienne. Sources: Norwegian export statistics and consular reports, National Archives of Norway.

9 The main wave to Algeria: 1884-1901

In this main part of the thesis, I use 19th century francophone Algerian press, in particular during the peak years of Norwegian ice trade to Algeria, the 1880s and 1890s, to portray how two main importers of Norwegian ice positioned themselves in the Algerian market. Through newspaper ads, editorial articles and commercial listings, it is possible to trace how these actors worked both to construct and adapt to a niche for Norwegian ice, which catered for the tastes of European immigrants and pushed them towards developing their food and beverages industry and practices along a French colonial pattern.

Some infrastructure at the port of call was needed. As we have seen above (7.3), most important was an ice house. The Swedish-Norwegian consul in Algiers reported in 1879 that the consulate received many inquiries from Norway regarding the possibility of ice import to Algeria. "(…) unfortunately, the consulate must answer discouragingly, as all its measures have proved in vain due to lack of proper ice cellars, which is an absolute necessity here".[174]

By 1884, there was still no ice house in Algiers. But the Norwegian consul had at least made some efforts, "through a suitable person", towards the construction of one. And the plans went further: From the ice house, ice would be shipped in special railway wagons to other cities in the inland and along the coast. Ice factories were already doing that on a small scale. In the consul's view, this plan would have better chances of success if some major Norwegian ice exporter would take an interest in it, as the local merchants were lacking in experience.[175]

In 1886, the plan began to materialise. The consul reported that there were ongoing negotiations, but again recommended that a Norwegian export merchant undertake the enterprise. He mentioned that the new railway between Oran and Tunis was due to open next year, offering new prospects for shipping ice from the main depot in Algiers all along the coast and inland via the many sidelines.[176]

But the first depot for Norwegian ice in Algiers took on a different look from what the consul had envisaged. It was to be found on the premises of a large brewery.

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[174] "men måste konsulatet beklagligt nog härå lemna afböjande svar, sedan alla dess vidtagna åtgärder visat sig fruktlösa i brist på ordentliga iskällare, som här äro alldeles nödvändiga" *Indberetninger om Handel og Söfart 1879,* 349.

[175] *Uddrag af Aarsberetninger 1884,* 341.

[176] *Dagbladet*, 1.6.1886.

9.1 Brasserie-Malterie Algérienne

In March 1884, a notice in the newspaper *Le Petit Colon Algérien* reported of an unusual event at the port of Algiers:

> **A small sea of ice.** -The *Bravo*, a Norwegian brig, arrived in Algiers on Monday, with a load of 650 tons (65,000 kg) of *natural* ice collected in Norway. The ice is intended to maintain freshness in the cellars of the "Brasserie-Malterie algérienne" ["Algerian Brewery and Maltery"], soon to be inaugurated at Mustapha.
> This large plant, with remarkable dimensions and function, is built according to the latest scientific knowledge and is certainly among the most interesting newcomers of the gradually emerging industry in Algeria (…)
> The arrival of natural ice at this time, when the sun is already very hot, arouses the curiosity of the Algerians, and a crowd of spectators block the surroundings of the quay and hamper the operation of unloading.[177]

650 tons of ice landing at the docks was evidently something totally out of the daily order in Algiers. How did they do away with all the ice before it melted under the hot Algerian sun? The answer came half a year later in a lengthy newspaper reportage about the brewery that had bought the ice. It told that on three different occasions, ships had been coming in from Norway to unload huge quantities of ice. The enormous cargo had caused ice convoys to run from the port to the nearby suburb Mustapha for days on end.[178]

Although the brewery had its own ice machine at disposal, it evidently needed an enormous amount of ice as a startup help and backup during the first few months. Cold was needed during the five weeks long fermentation process of the beer, when the ideal temperature was 4°C. The newspaper reportage described the cellars of the brewery, which were nine meters deep and had triple floors, walls and roofs with insulating spaces between the layers. In the middle of it all, there was a giant ice depot (*glacière*) which could hold 7-800 tons of ice. The brewery was not relying on regular ice supplies from the outside for its daily operation. It had its own integrated ice factory, employing the latest technology on the field. The ice machine was running day and night, yielding 6-7 tons of ice in 24 hours through the recycling of melt water. In the hot season, even that was barely sufficient.[179]

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[177] "**Une petite mer de glace.** -Le *Bravo*, un brick norwégien, est arrivé lundi à Alger, avec un chargement de 650 tonnes (65,000 k.) de glace *naturelle* recueillie en Norwège. Cette glace est destinée à maintenir la fraicheur dans les caves de la "Brasserie-Malterie algérienne", dont l'inauguration aura lieu prochainement à Mustapha.
Cette grande usine installée dans des conditions remarquables de dimensions et de fonctionnement, d'après les dernières données de la science, constituera certainement une des plus hautes curiosités de l'industrie qui s'organise peu à peu en Algérie.(…)
Au sujet du débarquement de cette glace, on nous fait remarquer l'absence *absolue* d'agents de police sur les quais. Cette arrivée de glace naturelle à cette époque où le soleil est déjà très chaud, excite la curiosité des Algeriens, et une foule de curieux encombrent les abords du quai et gênent l'opération du débarquement."
Le Petit Colon Algérien, 22.3.1884.

[178] *Le Petit Colon Algérien*, 8.10.1884.

[179] *Le Petit Colon Algérien*, 8.10.1884.

The journalist, obviously impressed by the technology and dimensions of this modern plant, did not leave the readers in doubt as to where this avant-garde of modernity came from. The machinery was similar to the ice factories of Paris. He then set off rambling about the wonders of the product it made, the beer. "(…) this magnificent product, clear and transparent, tasty, creamy, both light and nourishing, with an amber colour and a warm, golden tone which delights its lovers".[180] The journalist was actively promoting an essentially European product to his colonial readers. And not just a product, but a whole lifestyle, because beer-drinking was a Western way of making the intense heat of the colony bearable. In the colonial narrative, the wonders of modernity were achieved by bringing Paris, the epicentre of Western civilisation, to the colony. In this narrative, Norwegian ice was a requisite that fitted in nicely.

But ice was a prerequisite not only in the production of the beer, but also at the *café brasseries* where the beer was sold and drunk. The same journalist advised *brasserie* owners to arrange a cellar and provide it with daily ice supplies, so as to store the beer the way it deserved. Or else, the article warned, one would have to slip ice into the beer, which would render the drink mediocre.[181] In a similar vein, the consul reported that the consumption of beer was on the increase, but people often complained of the quality of the beverage.[182]

Catering for French colonial tastes was the *raison d'être* of *Brasserie-Malterie Algérienne*, and it must have managed the task with great success, because five years later it had been awarded medals for its *Absinthe algérienne.*[183] Absinth, an increasingly popular part of French and European drink culture, was best served with ice. Without ice, the colony could hardly become French.

From time to time, additional shiploads of ice were consigned to the brewery. *Brasserie-Malterie Algérienne* bought altogether 2212 tons of ice from Norway during its startup year 1884.[184] Under the headline "500.000 kg ice", a newspaper notice reported in October 1884 of the steamer *Norden* from Stavanger, which had just landed at the quay with a cargo of "enormous blocks" of ice destined for the brewery. The notice recommended going down to the quays to watch the ship, which was an intriguing sight and worth visiting.[185] Whether this was the last shipload of ice to the brewery remains in darkness.

What we do know, is that in spring 1885, the company ran a three months advertising campaign for bock and ordinary beer in bottles and barrels, and retail sale of ice.[186] At this point, the brewery perhaps produced ice in surplus during the early part of the hot season. It was envisaged in the foundation documents of the company that retail sale of

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[180] "ce magnifique produit, limpide et transparent, savoureux, crémeux, à la fois léger et nourrissant, d'une couleur d'ambre, d'un ton chaud et doré qui fait les délices des amateurs"
Le Petit Colon Algérien, 8.10.1884.

[181] *Le Petit Colon Algérien*, 8.10.1884.

[182] *Uddrag af Aarsberetninger 1880,* 339.

[183] *Le Petit Marseillais*, 3.11.1889.

[184] *Uddrag af Aarsberetninger 1884*, 341.

[185] *Le Radical Algérien*, 1.10.1884.

[186] *Le Petit Colon Algérien*, 12.5.1885.

ice were to be one of its business areas.[187] In any event, the consular report for 1884 mentioned that *Brasserie-Malterie Algérienne* partly utilised the purchased ice from Norway for retail sale of ice.[188]

From the astonished reactions at the quay of Algiers to the unloading of the Norwegian ice cargos, we can infer that *Brasserie-Malterie Algérienne* was a pioneer actor within ice import on a large scale to Algiers. In effect, it worked as a door-opener for Norwegian ice to this market. I have found no later mention of natural ice in connection with the brewery, a likely indication that the brewery itself became self-sufficient after a period of startup help from Norwegian ice. After all, the brewery was itself a major ice producer. From an Algerian business listing from 1880 it emerges that breweries commonly combined production of beer and ice. Under the column Breweries, ice factories are listed,[189] and under Ice factories ("*Glacières*") we find breweries.[190] In the district of Hamma, one of these establishments is called Kling, a name later to appear in connection with Norwegian ice (see 11.1).

We could maybe expect to find similar traits of the ice markets in other regions with a beer-drinking culture. And indeed we do. In an ice trade report printed in the Norwegian newspaper *Dagbladet* in January 1886, Northern Germany, Belgium and Denmark are described as markets without production of neither natural nor artificial ice, with only one exception: breweries.[191]

To sum it up, *Brasserie-Malterie Algérienne* constructed a niche for Norwegian ice, only to destroy it a little later. The Norwegian ice export to Algeria might have ended there. But another actor soon stepped in and reconstructed the niche.

9.2 Glacière Norvégienne

For some time, as mentioned above, the Swedish-Norwegian consulate had taken an interest in setting up an ice house in Algiers. The consul assured that for the hot season, it would be easy to obtain delivery contracts to cafés, hotels and other customers of some significance. Ice was now often served with meals even in modest restaurants and households, he wrote, and for this purpose, natural ice was the preferred choice. The retail price he quoted, 25-30 centimes per kg, were the same for both natural and artificial ice.[192]

In his report for the year 1887, the consul finally could announce that an ice depot indeed had been realised. Viticulturists were beginning to apply ice in the wine production, and moreover, ice had already been shipped by railway all the way to Mostaganem and

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[187] *Le Messager de Paris,* 3.9.1882.

[188] *Uddrag af Aarsberetninger 1884*, 341.

[189] Gouillon, *Annuaire Général de l'Algérie,* 138.

[190] Gouillon, *Annuaire Général de l'Algérie,* 157.

[191] *Dagbladet*, 4.1.1886.

[192] *Uddrag af Aarsberetninger 1885*, 315.

Biskra.[193] That was substantial distances. The coastal city of Mostaganem was located roughly 350 km from Algiers, and the inland city of Biskra roughly 600 km away by railway. The ice depot was profiting from the railway infrastructure that connected Mostaganem in 1879 and Biskra in 1886-1888 to the Algierian railway network.[194]

Algerian newspaper ads for natural ice identified the name of the Norwegian ice depot as *Glacière Norvégienne*. They used the word "vault" to refer to the ice depot located at the quay of Algiers, indicating perhaps a masoned structure, possibly a cellar with a wooden superstructure.[195] A local newspaper gave a brief description of the design of the ice house when it caught fire in in 1891. It had double wooden walls insulated with sawdust, wood shavings and charcoal,[196] a construction similar to the ice houses Frederic Tudor had designed for tropical markets like India.[197]

The consular report from 1888 told that the new Norwegian ice business in Algiers and Sfax, Tunisia[198], now was extended to Oran. The new enterprise was felt as a threat by the local ice manufacturers, who had responded by lowering their prices below that of natural ice. They had also started lobbying against natural ice, putting forward the argument that it might carry microbes and spread disease. In spite of these efforts, the demand for Norwegian ice was not affected, the consul concluded.[199]

It emerges from a newspaper publicity campaign launched by *Glacière Norvégienne* in 1890 why customers preferred natural over manufactured ice. The campaign was rather intensive, publishing the same advertisement up to several times weekly over a period from June to November 1890 and then again from May to June 1891. The advertisement ran as follows:

HEALTHY - FAVOURABLE - CLEAN
GLACIÈRE NORVÉGIENNE
Depository: South Quay, Cave no. 115
Recommends its natural ice from mountain lakes in Norway
Delivers to the main quarters of the city
Quick inland expedition[200]

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[193] *Uddrag af Aarsberetninger 1887,* 441.

[194] Belkacemi, *French Railways in Algeria*, 141-142.

[195] *Le Petit Colon Algérien,* 28.6.1890.

[196] *Le Petit Colon Algérien,* 20.9.1891.

[197] Dickason, "The Nineteenth-Century Indo-American Ice Trade", 61.

[198] In my sources, I have found no evidence that Norwegian ice export to Tunisia actually took place, see 11.1.

[199] *Uddrag af Aarsberetninger 1888,* 467.

[200] SAIN - AVANTAGEUX - PROPRE
GLACIÈRE NORVÈGIENNE
Entrepôt: Quai Sud, Voûte no 115
Recommande sa glace naturelle, provenant des lacs de montagnes de Norwège.
Dépôts dans les principaux quartiers de la ville
Promptes expéditions dans l'intérieur
Le Petit Colon Algérien, e.g. 23.6.1890

The main sales argument for Norwegian ice was the freshness and purity of it. The clean transparency of the ice made it look delicious and healthy. To drive the point home, *Glacière Norvégienne* even stretched the truth a little regarding the provenance of the ice. It was not exactly harvested from mountain lakes, but rather from lowland ponds near the coast of southeast Norway. There was also a second sales argument evident in the ad, that of availability within an ample radius from the ice depot.

In 1891, newspaper ads show a hardening competition between Norwegian imported natural ice and artificial, locally manufactured ice. One day, directly below the familiar ad for *Glacière Norvégienne*, another ad appeared:

GLACIÈRE DU HAMMA (…)
DEPOTS in all quarters of the city (…)
RECOMMENDED FOR ITS PURITY
and the transparency of its ice as well as moderate prices
Inland expedition[201]

Glacière du Hamma was a newly opened ice factory in the Hamma quarter of the suburb Mustapha, near the port of Algiers. Its daily production was estimated to 10.000 kilos, and it promised regular supplies of transparent ice at moderate prices to cafés and restaurants.[202] The emphasis on transparency was set already in the choice of name for the parent company, *Société Algérienne de fabrication de glace transparente.* One of the major merits of the Norwegian steel ice was its attractive transparency. However, by now, the quality of artificial ice had apparently reached such a level that the ice factory dared challenge the position of Norwegian ice in a market which valued transparency highly, notably cafés, brasseries, hotels and restaurants which used the ice to put into drinks.

During the summer of 1891, the competition between the two ice suppliers turned into a veritable publicity war. *Glacière Norvégienne* took up the challenge and responded by announcing that they had extended their storage space with another cellar at the south quay, and had just received a supply of the most beautiful, “excessively clear” ice from Norwegian “mountain lakes”. “These lakes, meticulously kept clean during summer and winter, yields an ice which is sought after and recommended all over Europe and even America, as the most hygienic.”[203]

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[201] “GLACIÈRE DU HAMMA (…)
DÉPOTS dans tous les quartiers de la ville (…)
SE RECOMMANDE POUR LA PURETÉ
Et la transparence de sa glace ainsi que pour ses prix modérés
Expéditions dans l’intérieur”
Le Petit Colon Algérien, e.g. 12.6.1891.

[202] *Le Petit Colon Algérien,* 25.5.1891

[203] “La GLACIÈRE NORWÉGIENNE (…)
A l’honneur d’informer sa nombreuse clientèle qu’âprès avoir agrandi ses magasins, elle
vient de recevoir un approvisionnement de la plus belle glace naturelle excessivement limpide, venant de Lacs des montagnes de Norwège.
Ces lacs soignés d’une façon minutieuse soit en été, soit en hiver, donnent une glace
demandée et recommandée dans toutes les contrées d'Europe et même en Amérique
comme la plus hygiénique.”
Le Petit Colon Algérien, 15.6.1891

This new focus on hygiene echoed the vivid French hygiene discourse, although the alarming scientific findings of microbes in natural ice were yet to come (see 4.3). The consul in Algers reported that although the ice trade from Norway continued, it did not gain market due to the local ice factories who waged war on natural ice. In addition to improving their fabrication methods, the consul wrote, they used every occasion to devaluate natural ice and deem it harmful.[204]

But *Glacière Norvégienne* struck back. In March 1892, the ice company declared in an announcement that "contrary to certain rumours spread by vested interests" it did not intend to give up the trade in natural ice. On the contrary, it intended to extend its business. *Glacière Norvégienne* guaranteed a reliable delivery of "immaculately pure and healthy" ice at any time and in any quantity.[205]

Another newspaper advertisement reveals how the *glacière* now made a point of distancing itself from "inferior" types of ice: *Glacière Norvégienne* announced that its previous distributor, Mr Jardin, "no longer belong to the house (…) and that the ice that this gentleman from now on can offer, will not be natural ice".[206]

Keywords in the ice marketing, evidently, were transparency and quality on one hand, hygiene and reliability on the other. The two first qualities were the strong points of the Norwegian ice, the two latter the strong points of manufactured ice. In May, *Glacière Norvégienne* announced that 525 tons of ice had just arrived in port with the ship *Aker* from Kristiania. The public were invited to come and buy ice.[207] *Glacière Norvégienne* now had a surplus of ice which they needed to get rid of, but the announcement also served to underpin the claim of a reliable and abundant supply. Other deliveries followed suit, and were duly announced to the public. In August, the *glacière* advertised the expected arrival of the steamer *Balto* with ice.[208] A week later, it announced that 420 tons of ice were

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[204] *Beretninger om Handel og Skibsfart 1890,* 539.

[205] AVIS
La Glacière Norwégienne a l'honneur d'informer le public, que contrairement â certains bruits intéressés, non seulement elle n'a jamais eu l'intention de renoncer à son commerce de glace naturelle, mais encore, grace à de nouvelles dispositions, elle donne à cette affaire, une extension plus considérable. La Glacière Norwégienne est en mesure d'offrir au public toutes les garanties désirables' pour livrer en tout temps et quelle quantité que ce soit, une glace irréprochable comme pureté et salubrité.
Le Petit Colon Algérien, 21.3.1892

[206] "AVIS La Glacière Norvégienne, porte à la connaissance du public, que l'engagement qui liait son distributeur **M. Jardin** étant expiré, ce dernier ne fait plus partie de la maison (…) et que la glace qu'il pourrait offrir, ne sera pas de la Glace naturelle."
Le Petit Colon Algérien, 2.5.1892

[207] "Le navire "ACKER" de Christiana à débarqué 525,000 KILOS GLACE NATURELLE
Pour les demandes s'adresser à la GLACIERE NORWEGIENNE, quai Sud, voûtes 115 et 116, ALGER."
Le Petit Colon Algérien, 1.5.1892.

[208] "GLACIÈRE NORWÉGIENNE
Le vapeur "BALTO" parti le 1er Août de Christiania est attendu incessamment à Alger avec un chargement de Glace Naturelle."
Le Petit Colon Algérien, 14.8.1892.

being unloaded in port, and that another shipload was due in the course of the first days of September.[209]

With this abundance of ice, *Glacière Norvégienne* needed to find new markets. With the harvest season for grapes just around the corner, it now directed its marketing towards wine producers: "*Glacière Norwègienne* can offer viticulturists wanting to obtain a good fermentation NATURAL ICE in blocks of 150-200 kg."[210]

From all these publicity efforts, it appears that inherent to the trade with natural ice, there was a fine balance of timing and volume. It was crucial to have sufficient ice in store to cater for regular customers in the hot season, while expanding to new customers in times of surplus. In terms of logistics, both ice importers and ice factories had their undeniable advantages. For a steady supply, ice factories were the safest bet. For short-term peaks in the demand, shiploads of ice was better.

In an effort to solve this logistic dilemma, it may be that at this point, the owners of *Glacière Norvégienne* started to turn their attention towards industrial ice. They certainly had their contacts in the industry. A newspaper ad by *Glacière Norvégienne* from August 1892 puts out for sale an ice machine of system Pictet.[211]

After a publicity pause during the cold season, the ads for natural ice recurred in February 1893 and continued to appear throughout the spring.[212] Then, May 1 marks the turn of the tide. A merger was announced between *Glacière Norvégienne* and *Glacière du Hamma.* The name of the joint venture was to be *Glacières Réunies d'Alger* ("*United* Glacières *of Alger*").[213]

If you cannot beat them, join them, seemed to be the new strategy. But there still existed two markets for ice, and in another announcement a few weeks later, the united *glacières* assured the public that they would continue to supply both natural and artificial ice "with superior purity and transparence" in "considerable quantities". The office and general store for both were to be found at the old quarters of *Glacière Norvégienne* at the south

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[209] "GLACIÈRE NORWÈGIENNE
Le vapeur "BALTO" débarque actuellement 420.000 Kos GLACE NATURELLE
Un autre vapeur actuellement en charge, arrivera à Alger vers les premiers jours de septembre"
Le Petit Colon Algérien, 23.8.1892.

[210] "La Glacière Norwègienne tient à la disposition de MM. LES **VITICULTEURS** qui veulent obtenir une bonne fermentation de la GLACE NATURELLE en blocs de 150 à 200 kilos."
Le Petit Colon Algérien, e.g. 21.8.1892.

[211] "A VENDRE MACHINES A GLACE Système Raoul Pictet ACIDE SULFUREUX S'adresser: à la Glacière Norwégienne Voûte 116. Quai Sud. - ALGER"
Le Petit Colon Algérien, e.g. 7.8.1892.

[212] *L'Afrique militaire*, e.g. 19.2.1893.

[213] "La Glacière Norvégienne et la Glacière du Hamma ont l'honneur d'informer le public qu'à partir du 1er mai prochain leurs services de vente et de distribution seront fusionnés sous le nom de
GLACIÈRES RÉUNIES D'ALGER
Bureaux et Entrepôt Général, Quai Sud, voûte 116. - TÈLÉPHONE."
Le Petit Colon Algérien, 23.4.1893.

quay, cave 116, under “Household Cool Storage” - an indication of the main use of the ice.[214]

After the merger, traces of Norwegian ice in Algiers become more scarce in the newspapers, even though the import continued and *Glacière Norvégienne* seemed to be a viable business. From this point in time, more traces of Norwegian ice are found in other cities at the end of extended cold chains.

The last trace of *Glaciere Norvégienne* in my sources is an 1899 announcement by *Glacières Réunies d’Alger.* The company obviously aimed at meeting every conceivable wish from the customers, maybe even contradictory wishes. It distinguished clearly between the two types of ice: *Glaciere du Hamma* made ice from distilled and filtered water, the same “absolutely pure water which has never given rise to any complaints when used by hospitals and pharmacies”. *Glacière Norvégienne* took its ice from Norwegian lakes, “fed by glaciers” and “not contaminated by any vegetation or detritus”. Moreover, “Norwegian natural ice is authorised and recommended by the Health Commissions in all European countries”. *Glacières Réunies* promised that it had the capacity to meet whatever urgent demand that might arise.[215]

The ad portrayed an import trade in a landscape of looming restrictions, struggling to defend its product against accusations of poor hygiene and a potential threat from larger actors who were entering the market. Once again we meet the familiar sales arguments of reliable delivery, hygiene and purity. Quality was not mentioned, possibly a sign that artificial ice by now was close to lake ice in hardness and durability. Artificial ice was portrayed as hygienic, meaning aseptic, natural ice as pure, meaning clear. But the two qualities blurred into one another, each lending meaning to the other.

The uniqueness of and ultimate sales argument for Norwegian ice lay in the Nordic dream, which the ad invoked by the word glaciers. To say that lowland lakes in southeast Norway were fed by glaciers was a white lie at best, as they were separated from the glaciers by the watershed. But the important thing was not the telling of facts, but the invoking of a phantasy.

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[214] “LES GLACIÈRES RÉUNIES D’ALGER
(Glacière du Hamma)
(et Glacière Norwégienne)
rappellent au public qu’elle sont toujours approvisionnées de glaces naturelles et artificielles en quantité considérable et de qualité supérieure comme pureté et transparence.
Administration quai sud Voute 116 Alger:
GARDE-MANGER GLACIÈRES POUR MÉNAGES”
Le Petit Colon Algérien, 25.6.1893.

[215] La **Glacière du Hamma** a toujours employé depuis son installation, qui remonte à neuf années déjà, l**’eau distillée et filtrée**, pour la production de sa glace. (C’est cette mème eau absolument pure, qui employée par les Hôpitaux et les Pharmacies, n’a jamais donné lieu à aucun reproche.)
La **Glacière Norwégienne** tire sa glace des lacs de Norwège. Ces lacs, alimentés par les glaciers, ne contiennent que de l’eau pure, et ne sont contaminés par aucune végétation, ni aucun détritus. La **glace naturelle de Norwège** est autorisée et conseillée par les Commissions d’hygiène de tous les pays d’Europe.
Les **Glacières Réunies** depuis leur constitution qui date de sept années, ont toujours assuré le service de la livraison de la glace avec une stricte régularité. Les promesses faites avec la plus grande discrétion ont toujours été tenues.”
La Croix de l’Algérie et de la Tunisie, 25.6.1899.

A certain tone of defence against attacks was also discernible in the ad. The alleged authorization and recommendation by Health Commissions in “all European countries” was a direct response to the hygiene debate and the increasing attempts by the ice manufacturing industry to defame Norwegian ice as a potential carrier of diseases. (see 4.3).

Lastly, *Glacières Réunies* made a major point of its reliability to deliver. This was maybe a hint at large French national actors which were now entering the Algerian ice market. This same year, 1899, Mr Gignoux, a Lyon ice industrialist introduced himself at the Algerian market (see 5.4).

Meanwhile, the artificial ice lobby prepared to deal the death blow to the Norwegian ice. In 1899, an Oranian newspaper went to great lengths to demonise natural ice. In an article which was in reality a publicity for a local ice manufacturer, the Parisian suburban lakes from which ice was harvested was called “microbe parks” (“*parcs à microbes*”), and the water from them was “a bouillabaisse of germs that would put off even a person from Marseille itself”.[216]

The demonisation continued after the turn of the century. An 1900 article printed in a couple of Algerian newspapers was nothing but a lightly disguised publicity for artificial ice: “Who knows where they come from, from what impure sources, (…) the 'ice cubes' that we cry out loud for and the waiter brings us, as casually as if it were the most harmless of drugs, while in fact they are the most dangerous poison!”[217] The article then went on to say that most of the ice came from Norway, and that typhoid fever was seen most often in Switzerland and Norway, two ice exporting countries. One of the articles ended in a recommendation of ice fabricated by “*Glacières de Maison-Carrée”.*[218]

Artificial ice was now being branded as “hygienic ice”, implying safe for the health, as opposed to “natural ice”. The ice factories now challenged natural ice in quality, in all senses of the word: “CONSUMERS! If you care about your health, demand the HYGIENIC ALGERIAN ICE (…) *The hygienic Algerian ice* resists melting three times longer than opaque ices or those who pretend to be transparent. The distillation and pasteurisation of the water used for its manufacturing and the freezing obtained at a very low temperature destroys every single illness-carrying germ contained in ordinary, not purified water, rendering it *superior even to natural ice*.”[219]

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[216] “le consommateur croit acheter un réfrigérant d’une pareté virginale, alors qu’en réalité il s’offre, neuf fois sur dix, une bouillabaisse de bacilles qui ferait reculer même un Marseillais!”
L’Éveil, 1.8.1899.

[217] “Qui sait d’où nous viennent, de quelles sources impures, lacs souillés de détritus organiques, bassins et réservoirs pollués de résidus industriels, nous arrivent les “glaçons” qu’à grands cris nous réclamons au garçon, avec autant de désinvolture que s’il s’agissait de la plus inoffensive des drogues, alors qu’au contraire ils constituent le plus dangereux des poisons!”
Le Tell, 30.6.1900.

[218] *Le Tell,* 30.6.1900.

[219] “CONSOMMATEURS! Si vous tenez à votre santé, exigez LA GLACE HYGIÉNIQUE ALGÉRIENNE (…) *La glace hygiénique algérienne* résiste à la fonte trois fois plus que les glaces opaques ou soi-disant transparentes. La distillation et la pasteurisation de l’eau servant à sa fabrication, sa congélation obtenue par une température très basse, détruisent absolument tous les germes morbides véhiculés par les eaux ordinaires non épurées et la rendent *supérieure même aux glaces naturelles*.”
La Démocratie Algérienne, 22.9.1900.

These words from a 1900 Algerian newspaper ad marked the condemnation of Norwegian natural ice in Algeria to the history-book of a century that already belonged to the past. By 1900, Algeria herself exported manufactured transparent ice to Tunisia.[220] By 1901, the Swedish-Norwegian consul in Algiers reported that Norwegian ice was being imported only to Oran. In Algiers, it had been completely displaced by artificial ice, which was delivered at 25-30 francs per ton, more or less equaling the freight for Norwegian ice.

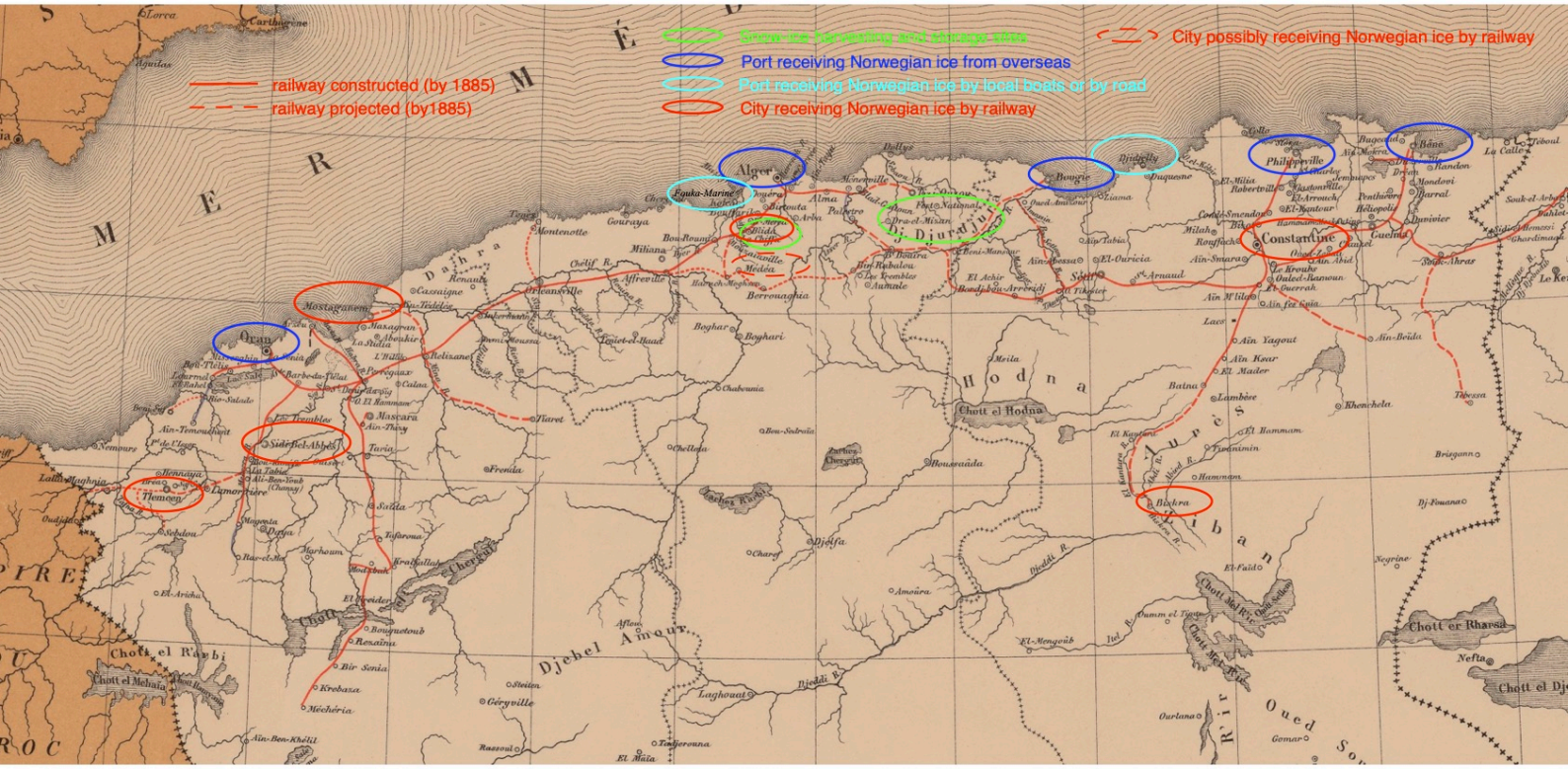

Fig. 7. Algerian cold chains. Locations of depots for Norwegian ice are plotted onto a 1885 railway map. Wherever possible, the Algerian cold chains followed the railway network. The depots are identified from Algerian newspaper advertisements and Norwegian consular reports. Railway map: Chemins de fer Algériens: Situation au 31 Décembre 1885, Bibliothèque nationale de France, https://gallica.bnf.fr/ark:/12148/bpt6k29129j?rk=21459;2.

[220] *Konsulatberetninger 1900*, 891.

9.3 Separate cities, separate cold chains

The Norwegian-Algerian cold chains did not end in the port cities. From the port, they stretched out both inland and along the coast. We will now follow the ice until the end of the cold chains, to see the routes it took and what consumption practices it was made to serve.

9.3.1 Cold chains out of Algiers

As mentioned above, Norwegian ice was shipped in railway wagons from Glacière Norvégienne to Mostaganem and Biskra in 1887. Nine years later, Biskra was still being supplied with Norwegian ice from *Glacières réunies d'Alger*. A newspaper announcement provides some details about this cold chain. The ice was sent in blocks of 150 or 200 kg, in wagons with a capacity of 5 or 10 tons. A July ice shipment had fought a violent *sirocco* (a strong wind from the Sahara) for three days, but had arrived after 4 days with a loss of only 1/6. This announcement was obviously published to assure the public of the *Glacières* unfaltering ability to deliver. The *Glacières* were also looking for an interested ice buyer and depot holder in Constantine. Interested persons were to call at vault 116, South Quay, Algiers, which we recognise as the ice cellar of *Glacière Norvégienne*.[221]

Another cold chain ran from Algiers to the old colonial centre for snow-ice trade, the city of Blida at the foot of the Tell Atlas mountain range. In the summer of 1895, *Café de l'Union* in Blida an a series of publicites for ice, both "natural and from Hamma", delivered by the *Glacières Réunies d'Alger*. The quoted price, 0,25 francs per kilo, was the same for both types of ice. The café offered ice cream and sorbet, Loire beer and mineral waters, all items that required ice for production, storage or serving. Interestingly, it also offered sawdust for sale.[222] Obviously, *Café de l'Union* profited from the double provenance of ice from the united *glacières*,. The most peculiar part of the ad is the last line about the sawdust. The ice ship's captain was probably happy to rid himself of the sawdust which had insulated the cold cargo during the voyage, and perhaps the café had obtained it for free.

Except for the sawdust, a similar arrangement was likely at *Grand Café Barraux* in the city of Medea from June to December 1896.[223] Medea was an inland city some 70 km south of Algiers, on the far side of the mountains where the first French *glacières* had been constructed. The ice must have been shipped by the railway line connecting Medea with

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[221] *Le Républicain de Constantine,* 31.7.1896.

[222] "DÉPOT DES GLACIÈRES RÉUNIES D'ALGER
CAFÉ DE L'UNION (…)
GLACE NATURELLE ET DU HAMMA
Vente au détail: 0,25 le kilo
GLACES ET SORBETS TOUS LES JOURS (…)
DÉPOT DE LA BIÈRE DE LA LOIRE
ET DES EAUX MINÉRALES D'HAMMAM-R'HIRA
VENTE DE SCIURE DE BOIS"
Le Tell, e.g. 15.6.1895.

[223] *Courrier de Medea,* e.g. 21.6.1896.

Algiers. *Grand Café Barraux*, which boasted of premises suitable for balls and concerts, held a depot for ice from the *Glacières réunies d'Alger.* There is no mention in the ad of what type of ice it used or offered, but here again we see the connection between ice and luxury. Besides its own use, the café also made retail sale of ice.

9.3.2 Bougie

In 1886, the Norwegian shipping and commerce statistics recorded two Norwegian ships calling at Bougie.[224] At least one of the ships must have carried ice, as the city was not yet connected to the railway network,[225] but nevertheless could offer Norwegian ice. A local ice vendor named Pourtauborde made a publicity which ran like this:

> NATURAL ICE AND MANUFACTURED ICE
> Natural ice from the lakes of Norway is as pure as the finest rock crystal, like the wave of the lake which has formed it; it is completely devoid of indigestible and poisonous detritus, which means that it can be mixed with drinks and food without altering or contaminating them with foreign matter, detrimental to the health by harmful molecules, such as those generally found in natural ice harvested in various regions, and especially *in artificially manufactured ice*.
> The trade in this natural and hygienic ice, established on a large scale all over the world, fears no competition in sales price, and above all in refreshing excellence, as its degree is three times stronger than that of artificial ice.[226]

We recognise the text in the first paragraph. It is taken from the 1880 Algerian business listing *Annuaire Général de l'Algérie* (see 5.4), and is a word-for-word copy of the publicity printed under the entry *Brasserie Toulousaine* in Oran, except that "Sylans" is replaced by "Norway". Norwegian lake ice was evidently a par with alpine Sylans lake ice, and both were vastly superior to artificial ice. The Bougie ice merchant, Pourtauborde, had made sure to emphasise the words in the text about potential harmful effects of artificial ice, which allegedly was more hazardous than natural ice of any provenance whatsoever. The ice merchant lent some scientific credence to this allegation by deeming the Norwegian ice "three times stronger" than artificial ice. Perhaps he was referring to the melting time of the two different ices, undeniably a crucial feature of ice in a hot country.

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[224] *Uddrag af Aarsberetninger 1886*, 457.

[225] Bougie was linked to the railways in 1888-1889.
Belkacemi, *French Railways in Algeria,* 142.

[226] GLACE NATURELLE ET GLACE FABRIQUÉE
La *glace naturelle* des lacs de Norwège est aussi pure que le plus beau cristal de roche, comme l'onde du lac dont elle et formée; elle est complètement dépourvue de détritus indigestes et vénéneux, c'est-à-dire qu'elles s'allie aux boissons, aux aliments sans les altérer, ni les corompre par des matières étrangères, nuisibles à la santè par des molécules pernicieuses, semblables à celles qui se rencontrent généralement dans les glaces naturelles récoltées dans diverses contrées, et surtout *dans les glaces fabriquées par des procédés artificiels*.
Le commerce de cette Glace naturelle et hygiènique, établi sur une grande échelle dans toutes les parties du monde, n'a point de concurrence à redouter comme prix de vente, et surtout comme supériosité raffraichissante, puisque son degré est trois fois plus fort que celui de la fabrication artificielle.
S'adresser à M. POURTAUBORDE représentant de commerce, rue de la marine, maison Troncy.
L'Avenir de Bougie, 9.6.1886.

During the ten years from 1886 to 1896, we find an ongoing ice discourse in Bougie much along the same lines as in Algiers, and an ice trade largely developing along a similar trajectory. From the publicity above, the contours of the well-known debate about Norwegian natural versus local artificial ice is easily discernible. Steel ice from lakes was still perceived, by many people at least, as superior not just in taste, limpidness and durability, but also in purity and hygiene. While scientific findings were becoming an increasingly decisive reference, at the end of the day, selling was all about emotions, attraction and trust. In Algeria in the 1880s, to sell steel ice from Sylans or Norway involved the invoking of an image of an alpine or Nordic paradise of crystal brilliance, the epitome of purity. One might say that selling Norwegian ice was to sell a southern idea of "Norwegianness", a northern land of purity compressed into a block of ice.

Such a connotation to Norwegian ice was echoed in a lengthy article in the Parisian newspaper *Le Temps* from 1894, which discussed the discovery that microbes survive in ice. In "utter faraway places" such as Sweden, Norway, Spitsbergen, the writer went, microbes seemed to be "a rarity, a myth, something out of reason".[227] But that was all wrong, he countered. The most brilliant ice might contain vast colonies of microbes. In a more uplifting vein, he concluded that this disturbing fact did not represent much of a problem to the Parisians, "since we consume very little Norwegian ice, although the literature of that country is unbelievingly fashionable."[228] The writer makes it almost sound as if Henrik Ibsen unwittingly worked to promote Norwegian ice.

Although *Annuaire Général de l'Algérie* printed the publicity of lake ice back in 1880, even back then it was a well-known fact that ice might be harmful to the health. Consequently, the ad put forward allegations against artificial ice that it was detrimental to the health. The superb "purity" of Norwegian ice was a somewhat ambiguous quality which suggested that transparency and fresh taste equated "hygiene". At this point, it is worth pausing at the significance of the word hygiene. In the 19th century discourse, "hygienic" equalled "healthy". For example, an 1886 newspaper article gave advice on how to serve fine wine and liqueur at dinner: The different beverages should be served in the "hygienic" order, because they were thought to influence the digestion in different ways.[229]

In August through November 1892, another ice vendor, Mr Chaulet, ran a series of advertisements for his ice depots in Bougie, one located at the city's roofed market and the other at La Plaine. At both places, he sold "mountain lake ice" from "Norwegian ice houses" (*glacières*), which was "unrivalled for its purity, hardness and transparency".[230]

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[227] glace de bien loin, tout là-bas, en Suède, en Norvège, au Spitzberg, là où le microbe semble devoir être une rareté, un mythe, une invraisemblance"
Le Temps, 29.4.1894.

[228] "car nous consommons à Paris très peu de glace norvégienne, bien que la littérature de ce pays y soit incroyablement à la mode."
Le Temps, 29.4.1894.

[229] "il faut offrir les vins fins dans l'ordre hygiénique"
L'Indépendant de Mascara, 18.4.1886.

[230] "GLACE NATURELLE DES GLACIÈRES NORWÉGIENNES
Dépots: chez M. CHAULET, au Marché couvert No 11, et à La Plaine. Cette glace provenant des lacs des montagnes de Norwège se recommande pour sa pureté, sa dureté et sa limpidité sans rivale. GROS ET DÉTAIL"
L'Oued-Sahel, e.g. 25.8.1892.

The sale season at the market for natural ice started April 30.[231] That year, the Norwegian consul reported of one Norwegian ship calling at Bougie, but by now, the city was also connected to the railway network. Mr Chaulet might have received a shipload of ice from the port near his depot in La Plaine, or had ice delivered by train from, say, *Glacière Norvégienne* in Algiers.

At the end of July, a Mr Joseph Debono opened a *glacière* in an old brewery in rue des Vieillards, offering "hygienic ice" (signifying artificial ice) for retail and wholesale. Debono sold the ice in quantities of 1 kg, 5 kg and 100 kg.[232]

Still, Chaulet's ice business was carried over until 1893, when he even set up another depot in the same street as Debono's ice factory.[233] After that, my sources tell no more of Chaulet. The next season, the Debono brothers had apparently taken over his business. They informed their clientele that they now were *sole agents in Bougie* (these words were underlined) for natural ice from Norway with a depot in La Plaine, at a grocer's (*épicier*).[234] The grocery shop might make use of the ice for cool storage of its wine and liquor bottles.

It appears that the brothers had taken over both Chaulet's new depot in rue des Vieillards to use as a site for their ice factory, and his old depot in La Plaine for sales of Norwegian ice. Their proud announcement of being *sole agents* for Norwegian ice is perhaps a testimony that selling natural ice in Bougie held some prestige. The Debono brothers now served both segments of the ice market, and they were in the position to deliver whatever product their clientele preferred. At this stage, the hygiene debate seemed to have come to a draw in Bougie.

In December 1895, Joseph Debono announced in the local newspaper *L'Oued-Sahel* that he had taken over as sole proprietor of the artificial ice factory. He was also running a business of frozen ("*congelé*") fish for export out of rue des Vieillards.[235] Keeping a highly perishable alimentary such as fish fresh required abundant and reliable supplies of cold, and for this purpose the ice did not need to be esthetically pleasing. This was precisely the kind of cold an ice factory could provide.

There was also another piece of info in the announcement, to the effect that the eldest brother Jean Debono, who had conceded his part of the ice business in Bougie, was ice

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[231] "GLACE NATURELLE Dépot au Marché A partir de Samedi 30 Avril GROS ET DÉTAIL"
L'Oued-Sahel, 29.5.1892.

[232] *L'Oued-Sahel,* 31.7.1892.

[233] *L'Oued-Sahel,* e.g. 16.7.1893.

[234] "AVIS
Messieurs DEBONO frères, fabricants de glace, rue des Vieillards, ont l'honneur de porter à la connaissance de leur clientèle qu'ils sont les *seuls Dépositaires à Bougie* de la glace naturelle de Norwège.
On trouvera également chez eux la glace artificielle de leur fabrication.
DEPOT à la Plaine chez M. MAZZUCA Raphaël, épicier.
Expédtitions à l'Intérieur"
L'Oued-Sahel, 10.6.1894.

[235] "M. Joseph DEBONO, fabricant de glace artificielle à Bougie, a l'honneur de porter à la connaissance du public que par suite de la vente que M. Jean DEBONO, fils aîné, son frère, fabricant de glace à Philippeville, lui a consentie de la moitié qui lui appartenait, il est demeuré seul propriétaire du fonds de fabrique de glace artificielle et d'exploitation du poisson congelé pour l'exportation, qui existe à Bougie, rue des Vieillards."
L'Oued-Sahel, e.g. 2.1.1896.

manufacturer in Philippeville. The two brothers' ice businesses seems to have been flourishing. There was no mention of natural ice, but the following summer, Mr Debono again marketed natural ice from Norway.[236] He had probably just received a shipload or a railway carriage of ice. The ice might have arrived onboard the single Norwegian ship reported by the Swedish-Norwegian consul to have called at Bougie that year, 1896.[237]

Again in July the same year, Mr Debono informed the public that he had Norwegian ice for sale.[238] There was also an ad to the same effect by a Mr Briols, who ran the *Café des Amis* at Camp-Inférieur,[239] probably located somewhere outside Bougie.

9.3.3 From Philippeville to Constantine

Constantine was a major inland city and capital of the Constantine *département*. In June 1886, the brothers Spiteri made a newspaper publicity for Norwegian ice in the city. The brothers branded their ice LIMPIDO-CRISTAL, an Italian-French hybrid name reflecting their Italian origin. They explained why their ice was superior: It was absolutely hygienic and clean, and it held a "cooling temperature of -28° instead of -6°" which rendered it economic in use. The quoted temperatures might have been, respectively, the normal winter temperature around the ponds of southeast Norway from which ice was harvested, and the temperature obtained by ice factories. The brothers were selling both retail and wholesale, and assured both the "main establishments" and the general public that they had ample provisions and could provide deliveries during the whole season. For inland delivery, they were using special boxes.[240]

Most likely, the brothers Spiteri's ice was delivered from the nearest port, Philippeville, some 80 km away. The distance to Bône is nearly the double, and there was no direct railway connection to Algiers before August 1886.[241] In any event, both Bône and Philippeville received 300 tons of Norwegian ice that year.[242]

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[236] "M. Debono à l'honneur de prévenir le public qu'on trouvera chez lui de la *Glace naturelle de Norvège*." *L'Oued-Sahel,* e.g. 5.7.1896.

[237] *Beretninger om Handel og Skibsfart 1896*, 806.

[238] *L'Oued-Sahel,* 23.7.1896.

[239] *L'Oued-Sahel,* 12.7.1896.

[240] "Degré rafraîchissant de 28° au-dessous, de zéro, au lieu de 6°, ce qui permet l'économie dans la consommation (…) On donne exactement le poids qui est demandé. La provision reçue est largement supérieure à la consommation qui se fait dans la saison. MM. les propriétaires des principaux établissements, ainsi que le public, peuvent être rassurés pour toute la saison. Vente en gros & détail Expédition à l'intérieur en caisses spéciples {sic!}"
Le Républicain de Constantine, 8.6.1886.

[241] Belkacemi, *French Railways in Algeria,* 162.

[242] *Uddrag af Aarsberetninger 1886*, 460.

In 1891, another depot of natural ice appeared in the city. It belonged to a Mr Salibat and was installed at a wine merchant's.[243] The wine merchant would profit from the ice for his white wines and liquors. After that, nothing more is heard of natural ice in Constantine.

9.3.4 Bône

Also for Bône, the import of Norwegian ice seems to have been modest. The consul reported for 1885 that Norwegian ice import recently had started up in this city.[244] In May 1886, a newspaper in Algiers wrote from Bône that a three-masted Swedish ship had just brought 600 tons of ice into the port. "Thick, transparent, clean blocks" were being directed quickly to specially prepared depots. The quoted price was an economic 10 cents per kilo.[245]

Word about promising prospects for ice trade in Bône seems to have reached Norway, as a ship charged with natural ice from Norway attempted the same voyage in August, though it never reached its destination. After passing the Strait of Gibraltar, it was wrecked off the coast of Spain. Luckily, the crew was saved.[246] For that year, the consul reported of a modest 300 tons of Norwegian ice imported to Bône.[247]

9.3.5 From Oran to Tlemcen and Sidi Bel Abbes

As early as in 1880, there existed a depot in Oran for natural ice from lake Sylans in France. Not surprisingly, it belonged to a brewery, *the Brasserie Toulousaine*. During the hot season, ice was also produced by an ice factory held by the owner of a large café.[248]

By 1895, an ice house existed in the city which was named *Glacière Oranaise* and received ice from Norway.[249] From Oran, Norwegian ice was shipped to the inland cities Sidi Bel Abbes and Tlemcen, in 1898 and 1897, respectively. It must have been shipped by railway, as Sidi Bel Abbes was situated some 90 km from Oran along the railway line and Tlemcen about the same distance further along the line.

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[243] *Le Républicain de Constantine,* 28.5.1891.

[244] *Uddrag af Aarsberetninger 1885*, 315.

[245] "L'importation de la glace naturelle prend une certaine extension en Algérie. Nous apprenons qu'un trois mats Suédois vient d'apporter à Bône 600 tonneaux de glace. On en débarque de gros blocs transparents, propres, qui sont dirigés à mesure sur des réservoirs aménagés tout exprès pour les recevoir et les conserver. On nous affirme que cette glace ne sera vendue que 10 centimes le kilo."
Le Petit Colon Algérien, 26.5.1886.

[246] "Sinistre maritime. - Un navire chargé de glace naturelle, parti de Norvège à l'adresse de M. Roussin, de Bône, a naufragé sur les côtes d'Espagne après avoir dépassé le détroit de Gibraltar. L'équipage est sauvé."
Le Petit Colon Algérien, 1.9.1886.

[247] *Uddrag af Aarsberetninger 1886*, 460.

[248] Gouillon, *Annuaire Général de l'Algérie.* 293.

[249] *L'Impartial Oranais,* 7.10.1895.

The natural ice depot in Sidi Bel Abbes was held by Charles Guillaume, a liqueur and sparkling water manufacturer who could make good use of the ice himself, but also sold ice retail and wholesale. In the summer of 1898, Guillaume ran an ad campaign for Norwegian ice in a local newspaper, where he made the claim that this ice held a great advantage over artificial ice because it contained "no harmful substances".[250]

In Tlemcen, the first ice factory was established in 1893 by Mr Gastambide, concession holder for the electric lightning. "Lovers of iced drinks will be satisfied", the local newspaper commented.[251] Obviously, not everyone was satisfied, for *Brasserie Eugène* started selling Norwegian ice for drinks, retail and wholesale, in the summer season of 1897.[252] Next year, the brasserie advertised ice in minimum quantities of 500 g.[253] A competitor, *Glacière de Mansourah,* evidently an artificial ice manufacturer, responded by offering ice in any quantity at 0,25 fr/kg.[254]

From all this empirical evidence, we may sketch out a typical trajectory of the natural ice trade at the tail end of the cold chain: First, a branch of the cold chain stretched out geographically, expanding the trade both in distance and volume. Gradually, the natural ice encountered heightened competition from ice factories. In response to the competition, the natural ice and artificial ice businesses in a city would often merge. Sooner or later, the natural ice would disappear from the market.

There is also another typical trait emerging from these sources: In the smaller cities, the ice depot was often held by establishments who made use of the ice themselves for their beverages, either beer, wine, liqueur or mineral waters. These establishments likely had a cool cellar at disposal with ample space both for their own products and the ice.

9.3.6 Cold chains along the coast and within the city

Within Algeria, the cold chains that the Norwegian ice was travelling along was evidently relying heavily on the railway, and, of course, on ice depots in both ends of the railway line. The only exceptions from the railway transport in my sources seem to have been the cold chains to the coastal city of Djidjelli[255] in 1894 and the seaside resort Fouka-Marine[256] near Algiers in 1896. Neither was connected to the railway network. Although transport by horse and carriage was feasible, at least in theory, the likely choice of

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[250] "Cette glace provenant des grands lacs de la Norwége est absolument pure et a le grand avantage sur les glaces artificielles de ne contenir aucune matière nuisible à la santé."
L'Éveil, e.g. 2.8.1898.

[251] *L'Avenir de Tlemcen,* 28.4.1893.

[252] *L'Avenir de Tlemcen,* 18.6.1897.

[253] *L'Avenir de Tlemcen,* 10.6.1898.

[254] *L'Avenir de Tlemcen,* 1.7.1898.

[255] *L'Impartial,* 3.6.1894.

[256] *Le Tell*, 27.6.1896.

transport was local boats. The Algerian historian Boualem Belkacemi has emphasised the importance of sea transport along the Algerian coast. Even after substantial development of the roads, boats were still the preferred means of transport for goods and passengers.[257]

Although Djidjelli was a port city, it is very unlikely that it had the capacity to receive a whole shipload of ice. A likely route for the ice would be onboard local boat from Bougie, cutting across the bay and shortening the distance significantly compared to the road, which was around 75 km long.[258]

Fouka-Marine was situated some 35 km along the road from Algiers,[259] and had no railway connection.[260] The ice might have travelled from Algiers in one of three ways: Either climbing roughly 250 meters of altitude in horse-drawn carriages, or sailing in boats which would negotiate the promontory protecting Algiers, or go by railway to the station nearest Fouka and from there by road down to the sea.

For the final stretch of the cold chain which brought the ice into hotels, restaurants, cafés and households, horse-drawn carriages were employed. The proprietor of *Glacière Norvégienne* owned such a carriage, which the iceman conducted himself on his delivery rounds.[261] But there were also an example of a handcart (see 10.2), and an ice factory in Mostaganem had constructed a beautiful wooden house on wheels ("*chalet roulant"*) for household deliveries of ice and *carafes frappés*.[262]

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[257] Belkacemi, *French railways in Algeria*, 46.

[258] Chappuis, *Carte des chemins de fer de l' Algérie et de la Tunisie.*

[259] *Carte de Ténès À Bougie.*

[260] Belkacemi, *French Railways in Algeria,* 140.

[261] *Le Petit Colon Algérien,* 1.7.1891.

[262] *L'Indépendant de Mostaganem,* 1.7.1893.

10 Consumer end of the cold chain

There is a wealth of historical clues hidden in the etymology of ice-related words. The changing meanings of such words reflect how practices mutated along the cold chain in the course of the 19th century. The term *glacière* could mean a mountainside ice house, an ice-cooled cellar, an ice box or an ice factory with ice depot. *Glacier* is another ambiguous term, signifying both "ice trader"[263] or "ice cream maker/confectioner". The term *brasserie,* which the English language has borrowed as a designation for a French style restaurant, has in French a different, double meaning as both "brewery" and "beer-serving café". Because these establishments both needed cold, ice was tightly linked to the concept of *brasserie.* Even the term "*brasserie glacière*" was used, as they typically manufactured and sold their own ice.[264]

In Part 9.3 we saw a typical pattern of natural ice depots and ice factories established in connection with cafés, brasseries, groceries and other businesses needing ice for "refreshments". This pattern gives us an indication of the uses of ice in Algeria: Ice was, among the *colons*, an increasingly democratised luxury product.

In 1904, an Algerian business journal portrayed how far the democratisation of ice had come in Algiers, through a brief sketch of the last twenty years of ice provisioning and consumption: The city's two only ice factories had produced 7-8 tons a day between themselves, at a price of 30-50 centimes per kg, which was affordable only for the well-off. When the Norwegians started their ice business, the ice prices sunk, setting off a spiral of rising demand. This incited a Lyon company to establish a large ice factory with a production capacity of 100 tons a day, causing the price to sink to 10 centimes per kg. By 1904, Algerians consumed almost 50 tons a day. "Once a luxury commodity, ice had become an everyday necessity".[265]

How far the Algerian democratisation of ice had come was eloquently demonstrated in a summer reportage in a Bougie newspaper in August 1901. A patron at *Café Pons,* an old worker, was sipping his absinth and complaining about the heat:

> 'Look around you, and see what's happening. Everyone is taking a rest: proprietors, industrialists, shop keepers, civil servants, schoolchildren. Some leave the city for a few days of rest in the woods and greenery of the countryside. Others leave Algeria behind and cross the Mediterranean to inhale the air of their childhood. The rest of us have to suffer the hardships of the season with the tool in our hand and sweat on our brow.' (…) The waiter refreshed the drinks by stirring ice in them.[266]

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[263] Acovitsióti-Hameau, "Pratiques, prescriptions et mises en garde", 414.

[264] Gouillon, *Annuaire Général de l'Algérie*, 138.

[265] "(…) ce qui était autrefois un extra, est devenue aujourd'hui une matière de première nécessité." *Journal général de l'Algérie et de la Tunisie,* 28.8.1904.

[266] "Voyez ce qui se passe autour de nous: Propriétaires, industriels, commerçants, fonctionnaires, écoliers, tous se reposent. Les uns désertent la ville et s'en vont demander à la campagne, à la verdure et aux bois quelques jours de repos. Les autres quittent l'Algérie pour aller de l'autre coté de la Méditerranée se retremper dans l'air natal. Nous autres, nous sommes forcés d'affronter les rigueurs de la saison nos outils à la main et la sueur au front." (…) Le garçon du café rafraichissait les boissons en faisant circuler des morceaux de glace."
L'Oued-Sahel, 4.8.1901.

A Marseille newspaper gave in 1899 an overview of the use of local ice from the mountain Saine-Baume, where ice by now was harvested from specially designed terraces, flooded by artificially conducted water, which in cold winters would freeze to 16 cm thick ice sheets. At this time, natural ice was taxed as a luxury product, which restrained its use. Still, it was employed by restaurants, *café-concerts* (cafés with music entertainment), and even for conservation of meat and fish, and for chilled drinks to the poor in the hot season. In the winter, the consumption was less, but it was still used in bars, cafés, confectionary shops and above all hospitals.[267] These are the uses for natural ice that we should expect to find in Algeria, but, as we shall see in the following, with certain exceptions.

As for food conservation, ice was viewed with scepticism, although in the 1880s it was used extensively in the fisheries. Even as late as 1900, ice boxes in private homes were still such a novelty in Blida, the old centre of the French snow-ice trade, that an article in a local newspaper was raving about the merits of ice boxes, explaining their construction in detail, recommending their use for conservation of fish, meat, butter, egg, fruits and drinking water. The writer, who had been using an ice box since the beginning of summer, described the ice box as an elegant, indispensable piece of furniture.[268]

10.1 Cafés glaciers and cafés maures

In France as well as Algeria, c*afé glacier* was the term for a café specialised in making frozen deserts, such as ice cream and sorbet. Some *glaciers* (ice cream makers/ confectioners) operated a delivery service: Camille Gaudet, *glacier* in rue Bab-Azoun, offered the latest Paris novelties for balls and soirées and boasted of having the French governor among his clients.[269] Another, J. Messaut, provided ices and sorbets to go along with fine wines for weddings, dinners, balls and soirées. He also delivered baskets and boxes, and made a point of keeping himself updated with “haute fantaisie” from Paris, the hottest Parisian craze.[270] For fashionable elegance and style, the French settlers in Algeria looked to Paris. The heavy French influence behind the European cafés are evident in an 1880 listing of Algerian businesses. The cafés had adopted names from the metropolis: *Café d’Europe, De Bordeaux, Grand Café Glacier, Café de Paris, Café Marseillais, Brasserie Lyonnaise.*

At least two hundred years before the French occupation, coffee was a well established drink in Algeria.[271] After 1830, coffee continued to be just as much part of Muslim as of French culture, and cafés were important social venues both for the colonisers and the colonised. Although coffee was a common denominator, they were very different kinds of establishments. The Muslim coffee houses, called *café maures* by the *colons*, neither

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[267] *Le Petit Marseillais,* 18.12.1899.

[268] *Le Tell,* 3.7.1900.

[269] Gouillon, *Annuaire Général de l’Algérie*, 147.

[270] *Alger-saison*, 7.1.1888.

[271] Carlier, “Le café maure”, 978.

served food nor alcohol. They were all-male[272] establishments were men would go to drink coffee, smoke, talk, play games or just sit and keep quiet.

The *colons* wanted to carry over both their social and eating and drinking practices from the metropolis, and established a host of Parisian-style cafés and *brasseries.* In this flora of new establishments, ice for refreshments played a key role. *Cafés glaciers* would be serving frozen desserts, and *brasseries* would be serving chilled beer. There were other chilled drinks to be had as well. At the Muslim coffee houses, ice had no place. Numerous contemporary postcards show these coffee houses as quite simple establishments, the patrons seated on mats or benches, often outdoors in the shadow of a tree, and they might well sit for a long period without consuming anything. Even the poor man could afford a visit to a coffee house.

Starting with the very first French ice entrepreneurs, we have seen many examples of tight connections between natural ice supply and establishments for luxury consumption of ice. These establishments made a part of the cold chain niche. An 1848 French travel guide to Algeria listed for example *Café de l'Algérie* in Algiers, which sold ices and was owned by Mr Valentin, ex-*glacier* at *la Régence*,[273] one of the better hotels in Blida.[274] Blida was a French cold chain hub where a certain Valentin operated as ice entrepreneur (see 5.2). Whether the ice cream maker Valentin was the same person or a relative of the ice entrepreneur Valentin remains uncertain, but the Blida connection does make it likely. In 1851, Mr Valentin, *glacier-limonadier,* maker of frozen desserts and lemonades, opened a new establishment in rue Bab-Azoun in Algiers. Here, he offered refreshments and all sorts of ices from midday until 11 p.m. Among the icy refreshments were punches and syrups, and *meringues à la glace, fromages glacés, bombes à l'américaine*, all various types of ice cream desserts.[275]

A mix of curiosity and disdain was displayed in the same travel guide book concerning the Muslim coffee houses, the *cafés maures*: Moors and Arabs were sitting on benches smoking, drinking coffee without sugar, playing games, enveloped by loud music which was "very unpleasant to delicate ears".[276] The contrast to the elegant French-style cafés was striking. Picture for instance *Café Perreau* in 1851, which prided itself of beverages from the best suppliers in France and its comfort-loving clientele of good taste. It had recently been redecorated in Renaissance style:

> The owner of this splendid establishment has spared no effort to give his salons the most brilliant shine. The panels are decorated with mirrors and surmounted by damask draperies cut into arabesques. The back doors open into a delightful garden on the waterside terrace, where the

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[272] Carlier, "Le café maure", 975.

[273] Quétin, *Guide du voyageur en Algérie*, 144.

[274] Quétin, *Guide du voyageur en Algérie*, 216.

[275] *L'Atlas,* 8.6.1851.

[276] "Dans les cafés maures, dont les principaux sont dans la rue de Chartres et rue de la Kasbah, on voit les Maures et les Arabes étendus sur des bancs, fumant, buvant du café sans sucre, et jouant à des jeux qui ont assez d'analogie avec nos jeux d'échecs et de dames, le tout au son d'une musique fort peu agréable pour des oreilles délicates".
Quétin, *Guide du voyageur en Algérie*, 144.

ladies will find all the comforts of Paris: ice creams and sorbets, premium drinks, all served with ice.[277]

These two very different categories of cafés put the differences between colonists and colonised into relief. The French view on what went on in the indigenous cafés was summed up by the French colonial doctor Adolphe Armand in 1844, when he described how "the idle Moor" "passes 4/5 of his dreamy existence" drinking coffee and smoking.[278] To the French, cafés were places where their perceived moral, estethical and intellectual superiority was evidenced. The historian Nina Studer has shown how coffee was thought by the French in Algeria to have totally different effects on Western and non-Western people (as well as on men and women). In this narrative, coffee drunk by European men was the drink of reason, industrialisation and civilisation; drunk by indigenous men, it was a signal of idleness. Instead of working productively in factories, farms and households of the French, they spent their time chatting, drinking coffee and smoking. "Descriptions of traditional Muslim coffeehouses were a distillation of Orientalist fantasies, racial prejudice and economic anxieties", Studer sums it up.[279]

Omar Carlier, a historian on Maghreb, has pointed to another eurocentric stereotype: the "mystical" café of the Orient, be it in Istanbul or in Algiers, was held up as the antithesis to the "rationalist" café of the West.[280] The many similarities between Western and Oriental cafés were systematically overlooked: Both types of cafés were places to spend leisure time, in company or by oneself, to play chess or smoke, comment on the latest news, scheme, discuss and make conspiracies.[281] Carlier also shows that the narrative of the *café maure* (he elects to use the *colon* name for it) as a place for idleness could not have been further away from the truth. When Algeria was hit by the disaster of colonisation, far from clinging to tradition and dreamy timelessness, the *café maure* was capable of transforming and modernising itself, albeit a different modernity, the modernity of the colonised. At the heart of the café, there was still coffee. But around the coffee-serving and coffee-drinking, numerous social practices and functions revolved. The café served as hotel, shop, news agency, letterbox and labour recruiting agent.[282] During the French

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[277] "Le propriétaire de ce splendide étalissement [sic!] n'à rien négligé pour donner à ses salons le plus brillant éclat. Les panneaux sont ornés de glaces et surmontés de lambrequins en damas découpés en arabesques. Les portes du fond s'òuvrent [sic!] dans un délicieux jardin sur la terrasse du bord de l'eau, où les dames trouveront tout le confortable parisien: glaces et sorbets, consommations de premier choix, tout est servi à la glace.
M. Perreau vient de traiter avec les meilleurs fournisseurs de France pour se procurer des consommations de premiére qualité. […] Le zèle et l'habilité que M. Perreau a déployés dans la direction de son établissement lui assurent la clientèle de tous les amateurs du bon goût et du confortable."
L'Atlas, 8.6.1851.

[278] " Le Maure oisif, et il l'est souvent, passe ainsi les quatre cinquièmes de sa rêveuse existence" Armand, *L'Algérie Médicale,* 476.

[279] Studer, "The Colour of Coffee".

[280] Carlier, "Le café maure", 978.

[281] Carlier, "Le café maure", 978.

[282] Carlier, "Le café maure", 989.

regime, the *café maure* evolved into a popular political venue.[283] The *café maure* offered a refuge for mental survival and eventually for overcoming the French occupation.[284]

10.2 Chilled drinks

In May 1892, *Grand Hotel D'Orient* in Bougie advertised for the summer season. The hotel boasted of a magnificent terrace, bathing and shower facilities, free omnibus to the train station, and it offered a monthly pension which included "ice at all meals".[285] The ice was called *glace à rafraîchir* *("ice for refreshment") meaning ice for chilled drinks. The drinks could be chilled with pieces of ice (*glaçons*) or diluted with icy water from *carafes frappés*,[286] carafes filled with a large chunk of frozen water. *Carafes frappés* could be ordered for delivery at households before or during lunchtime and dinner time.[287] But *carafes frappés* are not mentioned very often in newspapers, probably too much a matter of course to be worth mentioning, and anyway not belonging to any advertising brand. The newspapers abounded in publicities for more or less famous beverage brands.

Newspaper articles and advertisements open glimpses into the café life in the hot season, when the *colons* desperately needed heat relief. We see lemonade[288] and mineral and sparkling water[289], all served *à la glace* ("with ice"). And we see chilled white wine and liqueurs to go with the meals. There is also ice coffee (*café frappé*[290] or *café glacé*[291]). One ad published by *Brasserie du Petit Gambrinus* in Bône, boasted of *Meuse*, "the queen of beers", always fresh, of apéritifs, and of ice and *carafes frappés* "at will".[292]

Among the chilled drinks, two stand out, both in the ads and the editorial columns: Beer and absinth.

Beer seems to have been the preferred drink to quench the thirst, among men at least. The cold chain often encompassed beer and *cafés brasseries*. In 1856, the *glacier* Valentin in Algiers announced the opening of a beer store for bock bier imported from France. This beer, Valentin claimed, was served in main Parisian cafés as well as at "the

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[283] Carlier, "Le café maure", 994.

[284] Carlier, "Le café maure", 997.

[285] *L'Oued-Sahel,* 29.5.1892.

[286] *Le Petit Colon Algérien,* 11.6.1883.

[287] *L'Indépendant de Mostaganem*, 1.7.1893.

[288] *La Gazette Algérienne,* 9.7.1892.

[289] Gouillon, *Indicateur Commercial des Trois Départements de l'Algérie*, 263.

[290] *La Démocratie Algérienne,* 21.7.1897.

[291] *La Démocratie Algérienne,* 5.10.1900.

[292] "GLACE ET CARAFES PRAPPÈES [sic!] A VOLONTÉ"
La Démocratie Algérienne, 29.8.1901.

best bourgeois tables" of the capital.[293] Ice entrepreneurs were in a good position to take up beer trade: Both production and consumption of beer needed ice. For example, in 1880, as mentioned already, *Brasserie Toulousaine* in Oran held an ice depot for ice from lake Sylans in the Jura mountains in France.[294] And in 1882, Mr Gaudry, a Provence concession holder of ice from the Sylans, became sole distributor of the beer Stein to the south of France, Corsica and Algeria.[295]

Judging from the advertisements and the newspapers in general, the most popular aperitif was absinth, which was generally thought to help digestion and frequently drunk under the pretext of health. An 1894 publicity by a celebrated distiller went like this: "ABSINTHINE Appetizing and hygienic, based on wormwood (…) ABSINTHINE is recommended specially by gastronomes as an aperitif and a digestive".[296] The word "hygiene" was of course used in its 19th century sense of "healthy". By now, drinking absinth before meals had become such a habit that people spoke of "the hour of absinth" from 5 until 630. A French metropolis newspaper described the "peculiar aspect" that took place in Oran during this hour, when absinth drinkers "invade the terraces and pavements".[297]

As early as 1845, a French newspaper quoted an Algerian newspaper making the claim that "absinth to the French soldiers in Algiers is like opium to the Chinese".[298] A colonial journal explained that the beverage held 70% alcohol, and the practice of habitual drinkers was to drink it twice a day, before a meal, diluted in a glass of water.[299] No mention of ice here, at this early stage in the history of ice consumption in Algeria. By 1881, that was changed. "To think that I have drunk absinth with ice, in the desert, at a temperature of 54 degrees in the shadow!" a *colon* exclaimed in a letter to a newspaper after a mission of reconnaissance with three generals from the inland city Saïda. The ice had been shipped, by railway obviously, from Oran the previous night and was consumed at lunchtime.[300] Certainly, the generals were distinguished guests, but the anecdote shows that by now, the practice of absinth drinking included ice. That was confirmed in

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[293] "Cette bière excellente est non-seulement dans les principaux cafés de Paris, mais elle a acquis le droit de cité sur les meilleures tables de la bourgeoisie."
Akhbar, cited in *Le Tintamare*, 16.11.1856.

[294] Gouillon, *Annuaire Général de l'Algérie*, 293.

[295] *Le Petit Provençal,* 4.4.1882.

[296] "ABSINTHINE Apéritive, hygiénique à base d'Absinthe (…) L'ABSINTHINE est spécialement recommandée aux Gourmets comme apéritif et digestif"
Absinth or wormwood was the essential herb in the drink with the same name.
Le Tirailleur, 29.4.1894.

[297] "De 5 heures à 6 heures et demi, l'heure de l'absinthe, les cafés oranais offrent une physionomie étonnante. Les salles sont trop petites, les consommateurs envahissent les terrasses, les trottoirs."
L'Avenir de Bayonne, cited in *Journal Géneral de l'Algérie et de la Tunisie,* 7.5.1899.

[298] "…l'absynthe est pour les soldats ce qu'est l'opium pour les Chinois."
Gazette du Bas-Languedoc, 9.1.1845.

[299] *L'Afrique,* 12.8.1845.

[300] "Songez donc! j'ai bu, dans le désert, de l'absinthe à la glace par une température de 54 degrés à l'ombre."
Le Gaulois, 2.8.1881.

1882 by a columnist in another inland city, Sétif, who was celebrating plans for a new gas plant that would open possibilities for local manufacturing of ice. The columnist dreamingly envisaged future "gastronomes" softly seated under the arcades or in the shadowy freshness of the arbours, sipping an absinth or a vermouth with ice.[301]

A newspaper warned in 1897 against excessive stimulation of the appetite in the heat with glasses of absinth before meals. One had better abstain from drinking between meals, and "beware of iced drinks, both sweet or alcoholic".[302] But the *colons* turned the deaf ear to such warnings. The consumptions of absinth was such that the *colons* earned a reputation of absinth drunkards in the metropolis. A French newspaper held that the consumption of absinth in Oran only was equal to that of entire France. The writer attributed the abuse of absinth to the lack of taxation on alcohol, resulting in astonishingly low prices "even for an iced drink" ("*même frappée*") at a large café. The newspaper wrote with disdain that from the moment you set foot on the ground in the port, the smell of a popular, cheap Pernod counterfeit coming from the row of "drinking holes", "rises up your throat".[303]

When it came to fine dining, the *colon* drinking practices would be familiar to us, belonging to a French culinary culture adopted by the whole Western world and practiced to this day. Fish required white wines, and they should be served very cold.[304] Liqueurs were often served chilled. Then there were *champagne frappé*, champagne with crushed ice, which might accompany certain dishes, or go with a buffet.[305]

In remote inland cities, ice was less available and consequently, practices differed. One such city was Souk-Ahras, where the local newspaper in 1893 reported that the citizens now had access to ice, thanks to the new ice manufacturer who distributed ice to clients in a handcart. The question now was, how to best employ the ice to chill the wine. The newspaper offered its readers a simple method in case they considered it "a crime to mix ice and wine". The method consisted in putting the wine bottle upside down for five minutes in a narrow container (to economise with the ice) with a mix of water and ice.[306]

All these luxury uses of ice were modern city phenomena. In the countryside, cold were still found in springs and wells, and freshness in cool cellars. Freshness was even portable: Land labourers might bring with them a bottle or a jar wrapped in a piece of wet cloth to leave in the shadow of a tree while they were working.[307] But also city dwellers

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[301] *Le Courrier de Sétif,* 13.8.1882.

[302] "Ne pas trop chercher à stimuler l'appétit et la digestion par des verrées d'absinthe avant le repas (…) entre les repas résister à la soif, se méfier des boissons à la glace, aussi bien des sucrées que des alcooliques;"
L'Impartial, 25.7.1897.

[303]"On n'a pas plutôt mis le pied dans le port, que cette odeur monte à la gorge (…) Les unes contre les autres les buvettes s'alignent."
L'Avenir de Bayonne, cited in *Journal Géneral de l'Algérie et de la Tunisie,* 7.5.1899.

[304] *Le Nouveau progrès de l'Algérie,* 25.10.1890.

[305] *Patriote Algérien,* 31.7.1892.

[306] "S'il vous semble un crime de mélanger la glace à votre vin, voici un moyen très simple."
Le Reveil de Souk-Ahras, 21.6.1893.

[307] *Le Gouraya,* 20.8.1892.

were advised by newspapers and journals on how to preserve cold: A bottle of cold liqueur, a jar with icy water or a lump of ice could be wrapped in old newspapers, which would provide excellent insulation.[308]

10.3 Viticulture

Viticulture was another very French use for ice in Algeria. Due to the Islamic ban on alcohol, the *colons* were left with one option: to start an Algerian wine industry from scratch. Wine could be imported from France, but it could also be cultivated in Algeria, and increasingly, wine was also exported from Algeria to France. From 1885, the developing wine industry had reached such a volume that it stimulated the maritime trade with France considerably.[309] The consul reported in 1889 of improved quality of Algerian wines, and he anticipated increased export volumes, as the Algerian soil was very favourable for wine grapes.[310]

The winemakers needed cold to obtain the desired temperature for the fermentation process. The procedure was to add a block of ice crushed to pieces into the must tank, so that the melting water would blend with the grape juice.[311] Various experiments were performed to establish the perfect timing of the mixing and the optimal amount of ice.

As we saw in Part 9.2*,* Norwegian natural ice was sold for this purpose in 1892, but had dubious success. The method introduced another problem, that of lowered alcohol ratio of the wine, and not all winemakers agreed that adding ice enhanced the product. A winemaker warned in 1899 that the ice might not be pure enough, and that it was better not to add anything at all to the wine, and instead try to put put the grape into the tank at a time of low temperature.[312]

10.4 Fisheries

The fisheries were increasingly important consumers of ice. As early as 1879, a year without any known Norwegian ice export to Algeria, “not unsuccessful” attempts had been made of shipping fresh fish in ice from Algiers to the fish market in Paris.[313] In the 1880s, strong population growth in France in combination with the new railway network expanded the market for Algerian fish in Marseille. The fish arrived from Algeria in boxes lined with

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[308] *Le Réveil de Souk-Ahras,* 11.11.1891.

[309] Belkacemi, *French railways in Algeria*, 47.

[310] *Uddrag af Aarsberetninger 1888,* 468.

[311] Dugast, “Emploi de la glace pour la réfrigération des mouts de fermentation”, 177-178.

[312] *L’Indépendant de Mostaganem,* 30.7.1899.

[313] *Bergenske Tidende*, 10.3.1879.

kelp and ice sheets, the fish itself held in racks,[314] and was then shipped inland by railway from Marseille. In 1890, these fisheries were carried out industrially off Algiers, Oran, Philippeville, Bône and Bougie. Steamers were trawling in pairs, and a shuttle steamer would pick up their catch in open sea and deliver it on board fast steamers bound for Marseille. This traffic called for a lot of ice.

According to the Norwegian consul in Algiers, 3,4 tons of fresh fish packed in ice was shipped to the south of France in 1890.[315] The quantity multiplied[316] next year and the trade went on during the 1890s. However, the consular reports did not make any mention of Norwegian ice used for this end, which leaves us with the assumption that ice factories were the suppliers for this market. In my sources, I have found no direct mention of natural ice in connection with fisheries. Artificial ice, on the other hand, is mentioned. In Philippeville, the exporters of fish themselves fabricated the ice needed for the transport.[317]

It was not just the transport that required vast amounts of ice. In 1891, a letter from a reader to a local newspaper stated that so much fish was being shipped from Bône to France that it drove up the fish prices and limited the ice sales in the city to 3-400 kg a day, compared to the normal ice consumption of 1.800-2.000 kg. According to the letter-writer, ice was sold at outrageous prices, and cafés and hotels, needing 20-30 kg a day, would have to make do with the 5-10 kg they were able to procure from the two local ice factories. To add insult to injury, in the atrocious heat it was impossible to have a chilled drink. “Only in Bône such a scandal is possible.”[318]

Another article In the same newspaper issue complained of miserable conditions at the city’s fish market (*poissonnerie*). The ice allegedly did not hold a sufficiently low temperature.[319] The article discussed the possibility of authorizing night labour at the ice factories (*glacières*), but concluded that it would only lead to even less fish on the market.[320]

Given this great ice void, it is entirely possible that Norwegian ice was delivered in Bône, but I have found now evidence of it before 1899, when a newspaper ad announced the “imminent arrival” of Norwegian ice to a price that would “beat all competition”. “Another announcement will indicate the agent for Norwegian ice in Bône”, the ad promised.[321] However, no follow-up announcement has appeared in my sources. The Norwegian consul

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[314] *Le Petit Colon Algérien,* 27.7.1887.

[315] *Beretninger om Handel og Skibsfart 1890,* 540.

[316] *Le Petit Marseillais,* 21.10.1891.

[317] *Le Petit Marseillais,* 6.10.1890.

[318] “Il n’y a qu’à Bône, la ville par excellence où il se passe de tels scandales”
La Liberté de Bône, 10.9.1891.

[319] “une glace congelée à un degrè insuffisant”
La Liberté de Bône, 10.9.1891.

[320] *La Liberté de Bône,* 10.9.1891.

[321] “INCESSAMMENT arrivage DIRECT de GLACE NATURELLE DE NORWÈGE Prix défiant toute concurrence - Un avis ultérieur indiquera le dépositaire de la glace naturelle de Norwège à Bône.”
Le Réveil Bônois, 1.7.1899.

also seems to have missed out on the promising ice market in Bône. It is also likely that there existed no ice depot in town large enough for the quantities in question.

Over the years, there was an ongoing discussion around fish in ice. Could the hygiene be guaranteed? In 1894, an article in the *Journal général de l'Algérie et de la Tunisie* criticized the fishing industry for abuse of conservation of fish. Whenever more fish was caught than could be sold at a reasonable price, the surplus would be magazined in ice depots (*glacières*) where it might rest up to ten days end enter a state of putrification, imperceptible to the eye but posing a grave threat to the public health.[322]

The other side of the coin was shown in an 1899 newspaper notice. It complained of certain people's attitudes in Algeria, which held that cooling of meat or fish with ice would cause deterioration. "(…) in London and Paris we see (…) that it is ice that keep alimentary products in good sales condition in the best stores as well as in poor neighborhoods."[323] This situation was reminiscent of that described by the American consul in Marseille in 1890. He found the prospects for selling ice boxes less than promising, due to the lack of "education" among the inhabitants of the city. "Practically no effort whatever is made to preserve foods and liquids (…) Marseille is one of the most backward cities in all Europe".[324]

Anyway, by 1899, conservation practices in Marseille had modernized. A Marseille newspaper advocated for the Algerian fish coming into Marseille, pointing out that it was not frozen inside a block of ice, just stored in a double zinc box with ice. "It is exactly the same as putting fish caught today in your ice box over night.[325]

But in Algeria, the freshness debate was still heated. In 1900, the editor of a Bône newspaper raged against Italian fishermen at the local fish market, who were selling their ice-conserved fish as fresh, to the detriment of local fishermen whose fish was freshly caught. This practice was both illegal and dangerous to the public health, the editor wrote.[326] Next year, another newspaper notice alerted the public that sellers of ice-conserved fish did not respect the directive which prescribed that their fish to be marked as such. The writer claimed that ice-conserved fish would sometimes be transported several times back and forth to the fish market, thus becoming unfit for eating or even dangerous.[327]

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[322] *Journal général de l'Algérie et de la Tunisie,* 4.10.1894.

[323] "On rencontre en Algérie des personnes qui prétendent que de rafraîchir à la glace la viande ou le poisson serait une cause de détérioration; on voit, parce qui précède, qu'à Londres comme à Paris c'est par la glace que les produits alimentaires se maintiennent en bon état de vente dans les meilleurs magasins comme dans les quartiers pauvres."
L'Oued-Sahel, 10.8.1899.

[324] *Refrigerators and Food Preservation in Foreign Countries,* 100-101.

[325] "C'est absolument comme si l'on mettait chez soi, dans une glacière, du poisson pêché aujourd'hui pour le manger demain."
Le Petit Marseillais, 6.10.1890.

[326] *Le Réveil Bônois,* 9.10.1900.

[327] *La Démocratie Algérienne,* 30.4.1901.

In my sources, Norwegian ice is mentioned only twice in connection with fish. In the coastal city Djidelli in 1894, Mr Durand was selling Norwegian and Swedish natural ice, beer and ice-cooled fish ("*poissons glacés*").[328] Possibly, he bought fish in ice directly from fishermen to put in his cool cellar, were he also kept the ice and the beer. There was also a seafood restaurant situated at the sea bathing resort Fouka-Marine, which on the occasion of its opening in July 1896, announced that it held a depot of natural ice from Norway. But the ice did not seem to be used for conservation of the lobsters, fish and shellfish on the menu, as they were kept live in sea water basins. Rather, natural ice must have been an indispensable part of the luxury at an establishment which boasted of fine seafood and liqueurs of premium quality.[329] Again, we see that Norwegian ice in Algeria was connected to luxury consumption and not to conservation.

10.5 Medical use

We have seen how much ice was craved by the *colons* in the Algerian summer heat. But there were doctors who warned against it. In 1874, in an Algerian medical journal, Dr A. Bertherand advised on "hygienic" drinking in hot countries. He told the readers what happened in in Paris and other big cities in France between 1822 and 1825. When the consumption of ice cream and sorbets had risen, the number of deceased had soared. Investigations had concluded that the killing agent was the cold itself.[330] Dr Bertherand's "hygienic" advice was to drink lukewarm beverages. "Ice only refreshes momentarily (…) Beer drinkers (…) end up covered in sweat!"[331] But he spoke in vain. The ice had domesticated the beer drinkers, and beer was popular as ever among the *colons.* If the beer was not chilled enough, they would put ice into it (see Part 9.1).

Ailments cause by ice consumption was treated as something different from those caused by contaminated water, although the symptoms were similar: "Ice and frozen drinks taken quickly during digestion or when the body is sweaty, may at any time cause an indisposition having some resemblance to the most serious ailments; It is therefore necessary to make very reserved use of it", a newspaper advised its readers.[332]

As we have seen (4.3 and 9.2), science pointed to ice as a suspect carrier of disease. In 1890, an Oran newspaper referred to experiments conducted by Pasteur and Von Frisch, proving that even freezing water down to -120˚C did not kill the bacteria. The newspaper concluded that one had better abstain from natural ice for refreshment, as it is an effective

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[328] *L'Impartial,* 3.6.1894.

[329] *Le Tell,* 27.6.1896.

[330] *Gazette Médicale de l'Algérie* 1.1.1874

[331] "La glace ne rafaîchit que momentanément (…) Les buveurs de bière ne peuvent s'en rassasier et n'aboutissent qu'à s'inonder de sueurs!"
Gazette Médicale de l'Algérie 1.1.1874

[332] "La glace et les boissons glacées prises rapidement au cours de la digestion ou le corps étant en sueur, peuvent déterminer en tout temps une indisposition ayant quelque ressemblance avec les maladies de la plus grand gravité; i ll faut donc en faire un usage très réservé"
Le Réveil de Souk-Ahras, 8.6.1892.

vessel for typhoid fever and tuberculosis.[333] But not everyone agreed to that conclusion. Another newspaper quoted a doctor at the academy of medicine, who instead advocated paying more attention to the provenance of the ice, to ensure that it came from absolutely pure water or that the water was boiled.[334]

Like other Mediterranean countries, Algeria was plagued by outbursts of cholera, a bacteria which is transferred through contaminated water. Cold, not ice was the suspected culprit. An 1884 article on hygienic and preventive measures against the disease warned against drinking beer and lemonade, especially served with ice or "too cold".[335] The knowledge that water was a medium for cholera germs was widespread, not only among physicians but also laymen and laywomen. An article signed "Aunt Rosalie" in 1895 cited the Paris Public Hygiene and Sanitation Council on how the disease was spread. She advocated hand-wash with soap and the use of boiled water for bread-baking and vegetable-washing. But the ice was not suspect. On the contrary, she advised administering pieces of ice to prevent vomiting.[336]

Towards the end of the century, ice was still widely used in the treatment of maladies. In Algerian hospitals, ice was a par with other essentials such as fruit and vegetables, coal and lightning, wool and straw. In accordance with the centuries-long French practice (see 4.1.2), hospital provisions were guaranteed through public bid auctions.[337]

A newspaper advised on how to preserve ice at home, so that, in the event of maladies, one would have ice at hand around the clock: The trick was to slip the lump of ice into a vase, cover the opening, place one feather cushion beneath the vase and another above it. Voilà![338]

A medical doctor advocated sipping champaign with ice or swallowing round ice cubes against seasickness, although he admitted that nothing could really prevent seasickness except staying on land.[339]

It took time for the truth to sink in, but eventually the *colons* arrived at a painful dilemma: On one hand, ice was a vital necessity, on the other, it was potentially a lethal threat. Such was the thing-power of ice, that there seemed to be no end to the ingenuity to solve the dilemma. A Parisian company profited from the anxiety and made a publicity in Algerian newspapers for their "*Hygienic Ice Carafe",* which was "recommended by medical authorities and the Superior Council of Hygiene". The carafe, which could be ordered from Paris, held a small inside glass container for the ice, which would keep it out of

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333 *L'Impartial,* 5.7.1891.

334 *La Gazette Algérienne,* 2.9.1891

335 *La Réforme Algérienne*, 20.7.1884.

336 *L'Écho du Sahara,* 25.7.1895.

337 *Le Petit Colon Algérien,* 6.11.1890.

338 *Le Progres de l'Algérie,* 5.8.1887.

339 *Le Tell,* 27.6.1896.

touch with the beverage. “No more germs of *Cholera*, *Dysentery*, *Typhoid Fever”*, the ad promised.[340]

The lengths that some were willing to go to still have ice, was shown in an 1897 newspaper article, whose intended audience obviously was modern housewives. It started by underlining the risks of using ice from dubious sources: “(…) letting in legions of microbes into the body, germs of all kinds running wild in our miserable frame, invade it, conquer it and finally kill it.” Then it presented the solution: Make your own safe ice at home, from clean, filtered water. The method to produce the needed cold was to mix some kind of salt with strong and highly dangerous sulphuric acid.[341] Desperate times, desperate measures.

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[340] “Carafes Glaces hygiéniques - **Plus de microbes** du *Choléra*, de la *Dyssenterie*, de la *Fièvre Typhoïde*, propagés par l’usage de la glace toujours impure. Se servir, pour boire frais, de la *Carafe glacière hygiénique* qui isole complètement de la glace le liquide qu’on absorbe. *Recommandée par les sommités médicales et par le Conseil Supérieur d’hygiène.* Envoi franco d’une carafe glacière hygiénique contre mandat-poste de **5** fr **50** Ecrire 2 *ter*, boulevard Saint-Martin, Paris”
La Gazette Algérienne, 7.10.1893.

[341] “faire glacer chez soi de l’eau propre, saine, filtrée, ne présentant pas le danger de la glace fabriquée avec des eaux plus ou moins pures, et qui (…) introduit dans l’organisme des légions de microbes, de bacilles de toutes sortes qui se démènent dans notre misérable guenille, l’envahissent en font la conquête et finalement la tuent.”
Le Tell, 22.9.1897.

11 Ice as an agent for two faces of colonisation

Norwegian ice worked as an agent for two faces of the colonisation of Algeria. One face was economic, where ice helped a Norwegian elite of noncolonial colonials to profit by taking part in the French colonisation project. The second face was sociocultural, where ice offered the *colons* a remedy against the harsh Algerian heat, helping them to uphold their European lifestyle and stand out as modern compared to the colonised.

11.1 Ice and noncolonial colonials

At this point, let us take a look at the human key actors involved in the Norwegian-Algerian ice trade. At the Norwegian end of the cold chain, Norwegian ice traders and shipowners were operating. By the 1880s and 1890s, to most of them, colonial markets such as Algeria were marginal. A possible exception was T.M. Wiborg in Kragerø, who invested in building *Krystal*, a steel steamer which was specially designed for ice trade to warm waters (see 6.1). At the Algerian end of the cold chain, both Norwegian and Algerian ice traders were operating. Unlike Wiborg, these merchants were acting in the colony as more than mere traders. They invested heavily, establishing both themselves and their businesses there. Among the commercial and diplomatic Scandinavian elite in Algiers who may be called noncolonial colonials, we find the ice merchants Olaf Henriksen and Hans Petter Krag.

An Algerian link to these Norwegian merchants was the brewer Louis Kling. The German-sounding name indicates that the Kling family might themselves have been noncolonial colonials. In the brewery sector of Algiers, Kling was a well-known name. The company *Kling et Ellul,* beer producers, existed in Mustapha until 1878.[342] Under Cafés in an 1880 business directory, the *Ancien Café-brasserie Kling* (*"The Old Café-brasserie Kling"*) was listed.[343] Under Brewers and Ice Manufacturers in the Hamma quarter of the suburb Mustapha, the Kling sons (*Kling fils)* were listed. They were exporting beverages and had won medals at expositions, and they were using machinery "modelled after the finest houses in France".[344] Louis Kling, who likely were one of the Kling sons, became the first director of *Brasserie-Malterie Algérienne* in Mustapha in 1882. Into the freshly started company he brought with him both brewery material and clients.[345] It was this brewery that inaugerated the brand new state-of-the-art machinery and imported several shiploads of Norwegian ice in 1884 (see 9.1). Five years later, the brewery was sold.[346] It seems that Kling had turned his attention in another direction.

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[342] *Archives Commerciales de la France,* 31.10.1878.

[343] Gouillon, *Annuaire Général de l'Algérie*, 140.

[344] "sur le modèle des premières maisons de France."
Gouillon, *Annuaire Général de l'Algérie*, 138-139.

[345] *Le Messager de Paris,* 3.9.1882.

[346] *Le Petit Colon Algérien*, 3.11.1889.

This other direction was towards the plans of setting up a large ice storage in Algiers (see 9.2). In 1887, Kling had joined forces with a Mr Henriksen from Kristiania to this end.[347] Olaf Henriksen became Swedish-Norwegian vice consul in Tunisia that year, and at the same time he established the company *Henriksen & Larsen,* whose business scope was import of Nordic commodities, notably timber and ice.[348] The vice consulate in Tunisia sorted under the consulate in Algiers, where there was another branch of his ice import business, obviously *Glacière Norvégienne*.[349]

Henriksen's Tunisian timber business flourished,[350] and as we know, *Glacière Norvégienne* was a major ice importer to Algiers. But when it came to ice import to Tunisia, his ambitions seem to have faltered. After nine years, in 1896, Norwegian ice had not yet been exported to Tunis, and although there was a planned ice load that was "in principle" sold for delivery next year,[351] that never seemed to materialise. I have not come across evidence of any Norwegian ice ever arriving in Tunisia.[352]

Married to Olaf Henriksen's sister was Severin Segelcke Houge, who ran an import company named *Severin Houge* in Algiers from 1889, and became Swedish-Norwegian consul in 1897. The consuls' mandate was to look for business opportunities for Norwegian and Swedish shipping and export. As common practice was that they held office without salary, they took a keen personal interest in export-import opportunities, earning a living from their own businesses. In the Algerian-Tunisian consular region, the consuls themselves became noncolonial colonials.

In 1902, a merger took place between *Algier Tunesiske Compani*, Kristiania, *Severin Houge*, Algier, and *Henriksen & Larsen*, Sfax. The new company name was *Algier Tunesiske Compani Ltd.*, and its directors were Georg Fredrik Henriksen, Louise Henriksen and Hans Peter Krag.[353] The solicitor Georg Fredrik Henriksen was the father of both Olaf Henriksen, Louise Henriksen and the wife of Severin Houge. In effect, he was the head of a family dynasty who invested heavily in businesses in African colonies.

Hans Peter Krag, brother of the famous author Vilhelm Krag, had been given an excellent opportunity to make himself a future in 1888-1889, when he obtained a commercial grant from the Norwegian parliament Stortinget to travel to North Africa and eastern Mediterranean.[354] Stortinget envisaged grantees like Krag to tie business liaisons abroad and establish export businesses themselves, and Krag did not miss the opportunity. In 1891, together with Georg Fredrik and Louise Henriksen, Krag established *Algier Tunesiske Compagnie* in Kristiania, whose business scope was trade in Algeria and

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[347] *Uddrag af Aarsberetninger 1887,* 441.

[348] *Uddrag af Aarsberetninger 1887,* 444.

[349] *Uddrag af Aarsberetninger* 1888, 467.

[350] *Morgenbladet*, 7.10.1927.

[351] *Beretninger om Handel og Skibsfart 1896,* 654.

[352] On this point, Worm-Müller seems to have been mistaken or at least imprecise: "…Tunis was a good market for a long time" ("…Tunis var i længere tid et godt marked").
Worm-Müller, *Fra klipperen til motorskibet,* 693.

[353] *Norsk Kundgjørelsestidende,* 14.5.1902.

[354] *Kristiania Intelligentssedler,* 28.9.1889.

Tunisia.[355] That year, a Norwegian MP quoted Krag saying that he was hoping to be able to ship substantial amounts of ice to Tunisia and Algiers the following summer.[356] By now, Krag must have gained access to the Henriksen family's ice storage *Glacière Norvégienne*. And indeed, next year was one of the peak years of Norwegian-Algerian ice trade.

Having gained a foothold in North Africa, Krag expanded south of Sahara and created an African business empire in coffee and cotton plantation and cattle farming.[357] He became a prime example of noncolonial colonials. His Norwegian-African trade sprang out from maritime timber trade, from which it expanded gradually into other markets, such as ice, and into the colonial inland. Both Krag and the Henriksen family belonged to the Norwegian so-called plank gentry of the 1800s. Their education and geographical position in coastal south-east Norway gave them access to all it took to run a Norwegian-African trade: commodities such as timber and ice, means of transport, ships, and business contacts abroad such as the brewer Kling in Algiers. The profited from expanding markets opened up by the colonial power France in North Africa, where the French were building extensively and needed timber for construction and consumer products such as ice.

In conclusion, although Norwegian ice was not a main actor in the story of noncolonial colonials in Algeria, it did play a part in their colonial business ventures as a culturally essential commodity for the colonisers.

11.2. Ice as an agent of cultural colonisation

We spot some of the noncolonial colonials belonging to the Scandinavian colony in Algiers at a soirée held by a Swedish sea rescue company onboard their steamer "Hermes" in 1901. A notice in the newspaper *Kysten* reported of Norwegian entrepreneurs and diplomats socialising with other colonial elite, notably French authorities and exotic celebrities. Among the invited, we recognise the name Henriksen, probably Olaf, as he was the one from the Henriksen family who were actually living in the region.

> Among the invited were ex queen Ranavalo of Madagaskar, the French Admiral, the President of the Chamber of Commerce, the Union's Consul Mr Severin Houge, the consular secretary Aubert, the Danish Consul Nielsen, the Norwegian merchants Henriksen, Lindseth, Johnsen, Brown and Shellin as well as Dr Nordlund. The party was very lively, and the dancing went on merrily into the wee hours.[358]

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[355] *Norsk Kundgjørelsestidende,* 20.3.1891.

[356] *Norges Sjøfartstidende*, 16.5.1891.

[357] *Østlands-Posten* 2.8.1938.

[358] "Blandt de Indbudne var Exdronning Ranavalo af Madagaskar, den franske Admiral, Handelskammerets Præsident, de forenede Rigers Konsul Hr. Severin Houge, Konsulatsekretær Aubert, dansk Konsul Nielsen, de norske Forretningsmænd Henriksen, Lindseth, Johnsen, Brown og Shellin samt Dr Nordlund. Festen var meget animeret, og Dansen gik lystig over Tilje til langt paa Nat."
Kysten, 7.10.1901.

These noncolonial colonials blended in with the rest of the colonial gentry, in stark contrast to the world outside the privileged enclave. A newspaper notice from 1893 offers a glimpse of the social reality surrounding the ice vault of *Glacière Norvégienne*. The notice reported of an attempted robbery of the day labourer Elis Monton of *Glacière Norvégienne*. The assailants, who were caught by the police, were identified as Edmond G…, bricklayer, Victor C…, painter and Mohamed bel Hacem, porter, all three without permanent residence.[359] This sketchily outlined story reveals some crucial social facts: One, that *Glacière Norvégienne* employed day labourers, flexible manpower and an extremely vulnerable class of workers. Two, that even craftsmen in Algiers might be without work or a place to live, and might resort to criminality. Three, that this precarious group comprised of both *colons* and Arab people. These social realities of the colony are useful to bear in mind when we visualise bourgeoise *colon* ladies delighting in their ice cream at a fashionable Paris-style *café glacier* or when we consider "idle" Muslim patrons at a cheap coffee house. These ladies were not necessarily representing typical *colons*. And the idleness of an indigenous man might well be a sign that he found himself out of work, in an economically precarious state.

Among the items supplied by noncolonial colonials and serving the colonial order, were cultural essentials, familiar from the metropolis but missing in their lives as expats. Ice was such an essential. Where Europeans went, ice followed. The geographer David G. Dickason has explored how British colonists in India employed ice to counteract malign effect of the hot climate. When the Boston "ice king" Frederic Tudor started regular shipments of ice to India in the 1830s, this new abundance of cold provided welcome relief for the heat-suffering white elite. Ice was applied to anything from medical use on feverish heads[360] to chilled beer,[361] from familiar foodstuffs such as butter and cheese shipped in ice[362] to a locally made luxury, ice cream[363].

Those were material changes brought about by the steady influx of ice. But ice had another, subtler impact. In Dickason's words, it became "part of the package of behaviors and mental constructs which progressively supported the cultivation of a distant arrogance of proper British society in colonial India toward not only Indians generally, but also toward lower class Britons and Anglo-Indians." These are words that give resonance in 19th century Algeria as well.

When Dickason reflects that it was "easy and à la mode to feed implicitly or explicitly upon the beastliness of India's climates and cultures over a chilled drink",[364] that sounds familiar. Listen to what an Algerian newspaper columnist wrote in 1892: "How do you, dear reader, endure the heat which has been lying heavily over us these days? (…) I suppose that you pass the day soaking up beer or bottles of lemonade with ice." Alas, the only efficient remedy, according to the columnist, was to go to France and spend two months in shady chestnut groves, in green woods or on fresh Atlantic beaches. That would

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[359] *Le Petit Colon Algérien,* 23.3.1893

[360] Dickason, "The Nineteenth-Century Indo-American Ice Trade", 72.

[361] Dickason, "The Nineteenth-Century Indo-American Ice Trade", 71.

[362] Dickason, "The Nineteenth-Century Indo-American Ice Trade", 77.

[363] Dickason, "The Nineteenth-Century Indo-American Ice Trade", 72.

[364] Dickason, "The Nineteenth-Century Indo-American Ice Trade", 86.

strengthen the morals too, because such voyages "enforce the patriotism of the Algerians, they strengthen the ties that unites the homeland and its colony."[365]

This homeland nostalgia seemed frequently to overcome the absinth drinkers, half-drunk from heat and alcohol:

> Here is the month of July again, with its procession of hot days, unnerving, as hard to endure at nine o'clock as at four in the afternoon. The privileged ones, the fortunate of this earth, have already made up their itinerary. (…) So long, happy holidays to those who can soon inhale the air of their childhood. The rest of us remain here, sweating and gasping, mopping ourselves vigorously. Instead of shadowy avenues, we have the blinding dust of the roads, the intense reflexion burning our eyes, the heat of the sun boiling our brain. We consider us lucky if, late at night, we find an ice cube for our absinth. Melancholically, we finish the green liquid, dreaming of those who greedily drink the clear water off the fountain.[366]

According to a well-known *colon* doctor, enlarging of the heart, excess of blood, and anaemia were but some of the malign effects of the Algerian summer heat.[367] A physiologist described detrimental effects on moral and intelligence: "It increases the lower faculties and diminishes the higher ones; horses, monkeys, men are more lewd; horses are more nervous, men more irritable; we read less, we think less, we are less intelligent and more talkative."[368] To the *colons*, ice offered a way to restore some of what they perceived as the normal, healthy and sensible order of things.

Ice helped the *colons* obtain a comfortable and reassuringly familiar life, not too different from the life they knew from the metropolis. At the same time, ice highlighted the asymmetric binary between the "modern" French and the "backward" indigenous culture, which manifested itself in social practices. Among the thousand different ways in which this Orientalist perspective was being reinforced, some were seen in the French cafés and brasseries that popped up in the French quarters of the cities. One common denominator to these establishments was their reliance on ice. The ice cream at the *café glacier* and

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[365] "Comment supportez-vous, ami lecteur, les lourdes chaleurs qu'il fait depuis quelques jours? (…) Je gage que vous passez votre journée à absorber des bocks ou des flacons de limonade à la glace. Hélas! c'est aggraver le malaise plutôt que le pallier. En buvant frais, en buvant souvent, on se procure quelques minutes de bien-être, mais on est lourd et veule pour le reste de la journée. Le seul remède efficace à la torpeur, à la lassitude qui nous envahissent, serait un bon voyage en France et un séjour de deux mois dans les chataigneraies du Limousin, sous les futaies du Poitou ou sur les bords de l'Océan. (…) La mode est d'aller en France; au point de vue moral, ces fréquents voyages sont excellents; ils fortifient le patriotisme des Algériens, ils resserrent les liens qui réunissent la patrie d'origine à sa colonie."
La Gazette Algérienne, 9.7.1892

[366] "Voici le mois de juillet, avec son cortège de journées chaudes, énervantes, si dures à supporter de neuf heures à quatre heures du soir. Les privilégiés, les heureux de ce monde, ont déjà établi leur itinéraire (…) Bon voyage, gaies vacances à ceux qui peuvent aller se retremper à l'air natal (…) Nous autres, nous resterons ici, suant et soufflant, nous épongeant à tour de bras. Au lieu des allées ombreuses, nous aurons l'aveuglante poussière des routes, la réflexion intense qui brûle les yeux. l'ardeur du soleil qui échauffe le cerveau, le met en ébullition. Heureux encore, si le soir, vers le tard, nous trouvons chez Azémar ou chez Réger, un glaçon pour notre absinthe. Nous ferons mélancoliquement notre verte, en rêvant de ceux qui boivent goulûment l'eau limpide des fontaines."
Le Progrès, 1.7.1896.

[367] *L'Indépendant de Mascara,* 25.7.1897.

[368] "Il accroît les facultés inférieures et diminue les supérieures; les chevaux, les singes, les hommes sont plus lubriques; les chevaux sont plus ombrageux, les hommes plus irritables; on lit moins, on pense moins, on est moins intelligent et plus bavard."
L'Impartial, 25.7.1897.

the cold beer at the *brasserie* told a subtle rhetoric of the modern and superior. As Omar Carlier has pointed out, the possibility that modernisation could take on different aspects in different sociocultural contexts was overlooked.

In 1901, the same year as the soirée onboard *Hermes* took place, the last known shipload of Norwegian ice arrived in Algeria. Artificial ice had taken over. The epoch of Norwegian natural ice to the Mediterranean had come to an end, but Norwegian noncolonial colonists continued to mark their presence and Norwegian colonial enterprises in Africa continued for many years to come.

12 Conclusion: Norwegian ice as a colonisation agent

45 years passed by from the pioneer ice shipment to Algeria with the barque *Commerce* in 1839 to the Norwegian-Algerian ice trade started for real, marked by the opening of a large brewery and followed by the establishment of the Norwegian ice house in Algiers. The main challenge for the trade was neither the long voyage nor the hot climate, it was the fulfilment of three criteria: A local trade liaison, an ice house in port, and a market. All these criteria were met in Algeria from 1884 until the turn of the century.

During these years, Norwegian ice faced competition with ice from other long distance suppliers and, increasingly, from the Algerian artificial ice industry. Other natural ice suppliers were no match for the Norwegian actors in the ice trade, who had easy access to both ice and the sea, and had the experience and knowledge of seamen belonging to the world's third-largest merchant fleet.

Compared to artificial ice, Norwegian natural ice stood out as a quality product on account of its hardness, longevity and transparence. It was perfect for making "refreshments", that is, chilled drinks and frozen deserts. It was also used for medicinal purposes. However, apart from the brewery in 1884 and some wine production, it does not seem to have been utilised for industrial purposes. In any event, cool conservation of perishables was not very widespread in Algeria, except in the fishing industry, where artificial ice was used.

In accordance with scientific findings that were avidly disseminated by ice manufacturers, artificial ice won credence due to its hygienic sterility, while natural ice became increasingly suspect of carrying germs. For a while, natural ice held the ground by playing on southern phantasies of a fresh and pure Nordic paradise, and Norwegian ice kept flooding in via the seaports, and was shipped far inland via railway. All the while, freezing technology made progress, producing ever harder and more transparent ice. The production capacity for artificial ice increased dramatically, eventually causing natural ice to be priced out of the market. As the new century dawned, the market for natural ice in Algeria collapsed.

Norwegian ice worked as an agent for the colonisation of Algeria on two levels, economically and culturally. On both levels, it worked to make Algeria more French. But Frenchness was not a static thing. It mutated over time, and these mutations were reflected in the *colons*' relationship to ice. Ice was not the same thing in 1830, 1850, 1880 and 1900, and ice traders needed to cater for the ever changing colonial tastes and preferences, from grainy snow-ice through steel block ice to hygienic artificial ice. Norwegian actors operating in the cold chains were closely linked to the colonisation project. As noncolonial colonists, they catered for the colonists who were busy making Algeria French through settling French people, suppressing indigenous unrest, building French-style cities and growing French crops.

Domestication is a two-way street. When the *colons* domesticated ice, through numerous devices from ice cellars to ice railway wagons, from newspaper wrappings to *carafes frappés*, ice at the same time domesticated them. The *colons* developed a deep dependency on ice as it became ever more widespread among more layers of the people.

The use of ice was democratised among the *colons*. Ice for refreshment, once a luxury, was increasingly seen as a necessity. Ice was helping the *colons* to cope with the hostile summer heat and, at the same time, brought a taste of their homeland to the colony. Ice made the colony more French. Paris was the vibrant cultural centre of the Western world, and by *colon* definition, modernity equalled what was *à la mode* in Paris. What was Paris famous for if not its café life? Norwegian ice helped bringing *La Belle Époque* to Algeria.

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