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Final Thesis

The outbreak of Cholera in Venice in 1835, its effects, and the strategies implemented to contain the disease.

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ABSTRACT

Lo studio della storia delle malattie offre uno spunto di riflessione cruciale attraverso il quale è possibile comprendere l'interazione dinamica tra le società umane e i patogeni. Venezia è una città portuale da sempre protagonista nelle vicende storiche, socio-politiche ed economiche del Mediterraneo. Grazie alle sue vaste reti commerciali e all'afflusso di popolazioni e merci che hanno accompagnato la sua storia, la città si presta come caso studio unico per l'analisi della storia delle malattie che si vuole proporre in questa tesi di laurea.

Fino al XVIII secolo Venezia era considerata una delle città più potenti ed influenti del Mediterraneo sia dal punto di vista commerciale che politico. Tuttavia, dall'inizio dello stesso secolo, l'esito che si riscontrò da parte della Repubblica di Venezia, dopo alcune sconfitte nelle battaglie contro l'Impero Ottomano, fu l'inizio del declino del suo status di "potenza marittima". Questa condizione, venne poi aggravata dall'arrivo di Napoleone Bonaparte nel 1797, che segnò la fine dell'indipendenza e della prosperità economica della Repubblica di Venezia, avviandola verso un periodo di progressivo declino, determinando così la perdita dello status di potenza navale nel Mediterraneo. A privarla ulteriormente della sua autonomia trascinandola verso la decadenza ed una profonda instabilità politica, fu il continuo contendersi della ex repubblica marinara tra la potenza francese e quella asburgica. In particolar modo, sotto quest'ultima Venezia dovette far fronte a numerose difficoltà economiche e sociali. Ad aggravare la situazione fu il progressivo dilagarsi del colera, che colpì la città tra il 1835 e il 1837. La pandemia non solo mieté numerose vittime ma ebbe profonde ripercussioni dal punto di vista socioeconomico.

A tal proposito, il presente elaborato, ha l'obiettivo di individuare le modalità con cui la città di Venezia abbia fatto fronte alla rapida espansione della malattia. Approfondendo le diverse misure e

strategie messe in atto dalle autorità per contrastare la prima ondata di colera. Questo è stato affrontato attraverso un'analisi del contesto storico e socio-culturale dell'epoca.

La scelta di trattare questo argomento deriva dalla curiosità ed interesse di comprendere in che modo le comunità del passato abbiano reagito alle emergenze sanitarie ed essendo Venezia una realtà vicina e familiare, ho deciso di farne l'oggetto della mia tesi. Inoltre, è interessante notare come i meccanismi e le dinamiche alla base della gestione dell'epidemia di colera nel diciannovesimo secolo inducano inevitabilmente a confronti con l'attualità, in particolare con la recente pandemia COVID-19, offrendo spunti interessanti per future ricerche in ambito storico-sociale e medico.

In particolare, si intende analizzare quali misure preventive furono adottate dal governo veneziano, allora sotto dominazione asburgica, in risposta all'insorgenza della malattia. Inoltre, verranno esaminati gli effetti sociali ed economici che ne seguirono. Un'altra questione riguarda la capacità di un singolo stato di fronteggiare una malattia globalizzata e la necessità, o meno, di un'azione concertata a livello internazionale per rispondere efficacemente all'emergenza.

La ricerca è stata condotta utilizzando una combinazione di libri antichi, moderni e fonti online. Le fonti primarie, quali i libri di stampo antico, saranno utilizzate nel capitolo II per comprendere le reazioni dei medici all'emergere di una nuova malattia, le loro ipotesi e come le autorità attuano misure preventive. Inoltre, gli stessi libri di stampo antico, saranno anche la base per il capitolo III, in quanto esso si concentrerà sulle procedure di conservazione consigliate dalle autorità, che hanno generato risposte sociali e hanno avuto implicazioni economiche. Le fonti secondarie saranno utilizzate per migliorare la comprensione di concetti come la globalizzazione delle malattie, la prospettiva teologica sulle malattie, e l'istituzione di una collaborazione internazionale per la sanità pubblica.

Il primo capitolo offre una panoramica della Venezia ottocentesca, delineando ed approfondendo il concetto di "globalizzazione delle malattie" attraverso una lente storica, politica e sociale. In particolare, vengono fornite al lettore informazioni di base sulla città veneziana, illustrando

come il ruolo della città come potenza marittima, ma anche come la sua influenza in ambito sanitario, abbiano contribuito ad una progressiva intensificazione degli scambi economico-commerciali a livello internazionale e ad un conseguente aumento della circolazione di merci e persone. Questo fenomeno, parallelo alla diffusione globale di malattie infettive come il colera, dimostra come la comparsa e la propagazione di queste ultime siano strettamente connesse alla globalizzazione. Oltre a ciò, verrà poi esaminato il cambiamento politico ed istituzionale delle istituzioni veneziane a seguito del Congresso di Vienna del 1815, evento che delineò l'inizio della dominazione Asburgica nel territorio veneziano, terminato nel 1866 con l'annessione di Venezia al Regno d'Italia. Nell'ultima parte del capitolo, verrà presentato un excursus sulla diffusione dell'epidemia di colera, fino al suo arrivo nella città di Venezia nel 1835.

Il secondo capitolo si concentra principalmente sull'aspetto sanitario, individuando i fondamenti delle conoscenze mediche dell'epoca rintracciandone le origini e analizzando l'impatto dell'epidemia di colera in ambito medico e le misure preventive messe in atto per contenere la diffusione della malattia. Alla luce dell'analisi condotta, si può affermare che la maggior parte delle nozioni mediche del tempo derivasse dagli insegnamenti di Ippocrate e Galeno. Il medico greco, infatti, concepì la dottrina umorale, secondo cui lo stato di salute di una persona sia direttamente influenzato da un eccesso o una carenza di uno qualsiasi dei quattro fluidi corporei (sangue, flegma, bile nera e bile gialla), anche chiamati umori. Fondamentale fu il contributo di Galeno, medico romano che ampliò la teoria umorale sostenendo che l'aria fosse il principio fondamentale della vita e che, in quanto tale, ricoprisse un ruolo fondamentale nel determinare la salute di un individuo. Con l'arrivo del colera, il modus operandi adottato dai medici dell'epoca prevedeva una prima fase di attenta osservazione del fenomeno, seguita da un'accurata registrazione dei sintomi della malattia. Successivamente, tali dati venivano sottoposti ad un'analisi approfondita, confrontandoli con le teorie e osservazioni di altri medici, tra cui Giacinto Namias, Michelangelo Asson, Giacomandrea Giacomini, Federigo Gaspare, Francesco Maria Marcolini. Questo approccio metodico permise di

individuare alcune costanti: il colera sembrava diffondersi in particolare tra la popolazione povera, manifestando distinti stadi di sviluppo che includevano i prodomi o sintomi precursori, l'invasione, lo stato algido, la reazione e lo stato di calore. Tuttavia, si verificarono divergenze di opinioni tra i medici dell'epoca riguardo alle cause e alla natura stessa del colera. Mentre alcuni attribuivano la malattia a cause miasmatiche, seguendo le teorie di Ippocrate e Galen, altri la consideravano di natura contagiosa, mentre altri ancora ipotizzavano un collegamento con i fenomeni atmosferici e geofisici. Ulteriori punti di disaccordo riguardavano le possibili variazioni del colera e le modalità di trattamento da adottare. A tal proposito, molti dottori invitavano la popolazione a seguire uno stile di vita sano, incoraggiando ad una moderata assunzione di alcol ed evitare qualsiasi tipo di eccesso che potesse affaticare il fisico. Inoltre, si ritenevano fondamentali qualità come la pazienza e l'assistenza dei malati, nonché la costante pulizia del paziente e dell'ambiente circostante. Se da un lato queste erano le precauzioni adottate dai medici per contrastare l'espandersi dell'epidemia, dall'altro le autorità ricorsero a misure già utilizzate per altre malattie, come per esempio la peste. Esse includevano il confinamento nei lazzaretti, lunghe quarantene e la creazione di cordoni sanitari per controllare i movimenti delle persone. In più, si ricorreva ai rapimenti silenziosi, una pratica che consisteva nel sequestro silenzioso delle persone infette o sospette di essere malate per evitare di creare qualsiasi tipo scompiglio e panico.

Il terzo capitolo si focalizza sulle implicazioni socio-economiche che comportò l'arrivo dell'epidemia di colera nella città di Venezia. A livello sociale, il progressivo espandersi della pandemia instillò negli animi della gente panico, paura e isteria, sentimenti, questi ultimi, derivanti dall'incertezza sulla natura della malattia. Ad aggravare la situazione di panico e caos generale, furono le divergenze tra i medici riguardo alle cause del colera e le possibili cure e la presenza di medici ciarlatani che vendevano rimedi all'apparenza miracolosi. Ciò generò diffidenza nei confronti della professione medica, portando alcuni a rifiutare l'assistenza di un dottore e a ricorrere a cure casalinghe, a volte con esiti fatali. Inoltre, ad incrementare l'ansia sociale e lo scetticismo nei

confronti delle autorità governative fu una maggiore consapevolezza, soprattutto tra i membri della classe povera, del fatto che il colera colpisse principalmente la loro comunità, concentrata in quartieri densamente popolati come il ghetto ebraico e le zone di mercato. Questo fenomeno venne accentuato dalla rivoluzione industriale e dal conseguente spostamento di massa dalle campagne alla città. Tale presa di coscienza, generò una sensazione di vulnerabilità tra gli strati più poveri della società, i quali risultavano più facilmente influenzabili. Un esempio significativo di questa fragilità sociale si manifestò nel regno delle Due Sicilie, dove si diffuse l'accusa infondata che il governo stesse avvelenando la classe povera con il colera per poi disfarsene. La circolazione di false notizie portò inizialmente a una forte opposizione alle misure precauzionali, e in seguito, a vere e proprie rivolte. Seppure questo caso specifico non riguardi direttamente la realtà veneziana poiché non vi sono fonti che testimonino queste tipologie di episodi, potrebbe comunque fornire uno spunto di riflessione considerando la natura globale dell'epidemia di colera. Nel corso del capitolo, si è inoltre approfondito come dal punto di vista economico, il colera comportò un rallentamento generale dell'economia, basata fondamentalmente sul commercio e sul turismo. La crisi nel settore economico fu principalmente causata dalle misure precauzionali implementate dal governo come le quarantene e i cordoni sanitari. Inoltre, per far fronte alle necessità mediche si investì nel settore sanitario, il che contribuì ulteriormente a stagnare l'economia.

Nel quarto invece, si sposta il focus, non più al singolo stato, ma si cerca di osservare le dinamiche da una prospettiva più globale. La comparsa del colera nel 1835, fu solo uno dei primi focolai che caratterizzarono Venezia, ma anche il resto del globo per tutto il 1800. Con l'arrivo della seconda pandemia di colera, avvenuta circa nel 1848-1849, si iniziò a prendere coscienza da parte di alcuni stati, che essi, singolarmente, non erano in grado di contenere una simile malattia, senza considerare i regolamenti e le misure preventive presi dagli altri stati. In altre parole, il concetto di richiedere la collaborazione e regole uniformi in varie regioni del continente ha cominciato a guadagnare forza. Tuttavia, l'identificazione dell'origine della malattia e la sua successiva

eradicazione dovranno aspettare fino alla fine del XIX secolo. Pertanto, questa sezione della tesi esaminerà la progressione di importanti avvenimenti che hanno svolto un ruolo cruciale nell'eliminazione del colera nel continente Europeo. Personaggi importanti come Filippo Pacini, John Snow, Max Joseph von Pettenkofer, Louis Pasteur e Robert Koch saranno illustrati per comprendere meglio l'avanzamento medico-scientifico nel trovare una risposta alla causa e natura del colera. La seconda parte del capitolo si concentrerà sullo sviluppo di iniziative internazionali di sanità pubblica tra i paesi, in risposta ai focolai di colera. L'importanza di questa sezione è rappresentata dall'evidenza di come la continua collaborazione sanitaria abbia portato allo sviluppo di organizzazioni internazionali che, ancora e soprattutto nell'epoca attuale, coordinano e rispondono alle eventuali crisi sanitarie, come ad esempio l'Organizzazione Mondiale della Sanità.

INTRODUCTION

The main goal of this thesis is to investigate how the city of Venice handled the cholera outbreak in 1836-1837, explaining the consequences and difficulties that the city encountered in the process, both in social and economic fields. The choose of this topic laid down on my personal interest in this subject due to the most recent pandemic that occurred during the later years of the COVID-19 outbreak, as well as my participation in a Global History class during my last year of university. I became intrigued with expanding my knowledge of the disease called cholera after observing the medical, social, and economic consequences caused by the recent COVID-19 pandemic. Specifically, I was interested in investigating if there are any connections between contemporary diseases and historical diseases, with a focus on cholera. Furthermore, I acquired knowledge that illnesses have perpetually persisted throughout the entirety of human history. I was particularly interested in the city of Venice because of its proximity to me and my existing familiarity with the city. Moreover, Venice's strategic position as an important port, facilitated not only economic prosperity but also vulnerability to infectious diseases. The city's prominence in Mediterranean trade meant that it was a nexus for the movement of people and commodities, including pathogens

Therefore, I found myself fascinated by the consequences of the introduction of a novel disease, cholera, into the territory of Venice, considering its medical, social, and economic repercussions. To be more specific, what actions did the government and medical professionals in Venice take in response to the onset of the disease? Due to the fact that Venice was under Habsburg authority at the time when cholera came, this question was posed for two reasons: first, to try to discover and comprehend how the medical professionals responded to the advent of the new disease, and second, to investigate and comprehend how the authorities attempted to handle the sickness. With regard to the social and economic aspect, I wanted to gain a better understanding of what exactly

happens when a new disease emerges in a society, particularly in situations where one is unsure of the factors that contribute to its development. As a result, preventative measures are taken, which may not be effective and may, in fact, increase the level of social tensions that already exist in a society. There was a final question that was presented to me after I had learned the fundamentals for the answers to the first two questions. The question was whether or not the acts of a single state, understood in both the medical and socio-economic domains, could be sufficient to deal with an illness that had spread all over the world. This is due to throughout history, illnesses have continuously existed, but they were mostly confined to certain groups since people lived in isolation. Nevertheless, because to the heightened interdependence among communities, resulting in the interchange of ideas, individuals, and goods, these communities have also started to spread diseases. Put simply, as global interconnectedness increases, the number of diseases also increases. Nevertheless, there existed a focal point of illness, which consequently led to its global dissemination. Hence, there were no further solitary occurrences. Following the process of globalisation, there has been a rise in the transmission of diseases, making it difficult for individual countries to effectively respond to emerging illnesses. Therefore, states began to recognise the necessity of international collaboration.

To address my research questions and write my Master's thesis, I utilised printed books, as primary sources, which consisted of texts written by physicians during the cholera crisis, and online sources, as secondary sources._After carefully reviewing the primary sources, they formed the foundation for most of the research questions outlined earlier. Additionally, these findings will be utilised in Chapter II to comprehend how physicians react to the emergence of a novel sickness, whether their hypotheses are innovative or derived from previous study, and subsequently, how authorities implement preventive measures. The main materials employed in chapter III were also the foundation for the preservation procedures advised by authorities. These approaches generated a societal response and had economic implications. Secondary sources were utilised to enhance comprehension and articulate the remaining chapters, aiming to achieve a comprehensive

understanding of various concepts, including the globalisation of diseases, the theological perspective on diseases, and the establishment of international collaboration for public health.

My Master thesis has been divided into four chapters and is organised as follows. The objective of chapter I of the dissertation is to provide contextual information, with the purpose of enhancing comprehension of the chapters that follow. In order to understand the entrance of cholera in Venice, it is essential to know the complex interconnections that link the formation of illnesses, their transmission patterns, the resulting effects, and their eventual presence in urban areas. Port cities were very vulnerable to illnesses as a result of the large number of people from varied roots and the constant movement of products, which often led to the transmission of diseases. Venice, like to several other places, had substantial effects as a result of its position as a port city and its respected reputation for prosperous trade. As a result, the city implemented incremental hygiene steps to reduce the spread of illnesses. The first subsection of the chapter, labelled 1.1, will include a comprehensive introduction to the essential elements of Venice, including its health and trade. Next, there will be a detailed explanation of how illnesses travel globally, specifically focusing on section 1.2. This will help develop a thorough comprehension of the circumstances that caused Venice to be hit by cholera. Section 1.3 of the chapter will present an overview of the institutional situation in Venice during the early years of the nineteenth century. This period was characterised by several changes in politics in the region. In section 1.4, the discussion will mostly centre on the cholera epidemic in Venice, with a brief mention of its occurrence in other regions. As mentioned in section 1.2, cholera is a disease that has spread globally, affecting several nations worldwide.

Chapter II will examine the sanitary measures implemented during the initial cholera outbreak. The focus will not be on the medical aspects, as this is not a medical publication, but rather on the strategies employed by physicians to treat those affected by the disease. This will be done by analysing all the patients they encountered, studied, or cured. The objective of this thesis section is to highlight the difficulties that arise when an illness first impacts a specific area, leading to uncertainties

among the general population, who are uninformed about the causes and treatments, as well as medical professionals, who, despite their expertise, face challenges in finding a solution for the new disease. Multiple physicians recorded their observations and memories, based on the cases of cholera they came across or the patients they effectively cured. However, prior to discussing the observation, section 2.1 will offer a brief discussion on the historical origins of the observations and resolves made by physicians and authorities. Within the several compilations of recollections, certain memories are collectively experienced, as detailed in part 2.2. Conversely, other recollections vary based on the unique viewpoints of each medical professional about cholera, its origins, and subsequently, its treatments, as exemplified in section 2.3. In section 2.4, several techniques of preserving will be presented to address the cholera epidemic.

The purpose of Chapter III is to offer an explanation on what occurred when a new sickness invaded a city, with Venice serving as the case study for this investigation. Beginning another time considering the past, in section 3.1, the chapter will start with some theories that originate from ancient times, such as Hippocrates's "divine and demoniac theories of diseases." The chapter will then proceed with section 3.2, which will explain the effective social reflections of the illness in the venetian society, as well as the economic considerations that developed in the city, which will be discussed in section 3.3.

At last, we will reach the final with chapter IV. Although the main focus of this dissertation is on the city of Venice, this particular section of the thesis intends to offer a more comprehensive viewpoint. Its purpose is to assist readers in recognising the need of international cooperation in addressing the cholera outbreak. Hence, this component of the dissertation will delineate, in section 4.1, the sequence of significant developments that have been pivotal in eradicating cholera. Illustrations will be provided for notable figures such as Filippo Pacini, John Snow, Max Joseph von Pettenkofer, Louis Pasteur, and Robert Koch. Section 4.2 will specifically address the establishment of global public health efforts between nations in response to cholera epidemics. This chapter is

crucial since it elucidates the basis for the continuous global sanitary cooperation, which is the World Health Organisation.

CHAPTER I

THE OUTBREAK OF CHOLERA IN VENICE IN 1835

When trying to comprehend the introduction of cholera in Venice, it is crucial to understand the intricate relationships that connect the emergence of diseases, how they move, the consequences they entail, and their subsequent arrival in urban regions. Port cities were very susceptible to diseases due to the influx of people from diverse backgrounds and the frequent transportation of goods, which often included the spread of diseases. Venice, like many other locations, was significantly impacted due to its status as a port city and its renowned reputation for thriving commerce. Consequently, the city gradually established hygienic measures to mitigate the transmission of diseases. The initial section of the chapter will provide an overview of the fundamental aspects of Venice, encompassing health and commerce. This will be followed by a comprehensive elucidation of the global spread of diseases, thereby establishing a comprehensive understanding of the factors that led to Venice being affected by cholera. The last section of the chapter will provide an overview of the institutional circumstances in Venice throughout the initial decades of the nineteenth century, marked by various political disturbances in the area. Ultimately, the focus will shift to the outbreak of cholera in Venice.

1.1 Trade and public health

Venice during times was able to establish dominance in the Mediterranean Sea, primarily through trade with the Levant and its colonies, which went as far as Cyprus. The city successfully expanded its commercial reach to the beaches of Levante, encompassing modern-day Syria, Lebanon, Egypt, Anatolia, and Israel, as depicted in the map below[1].

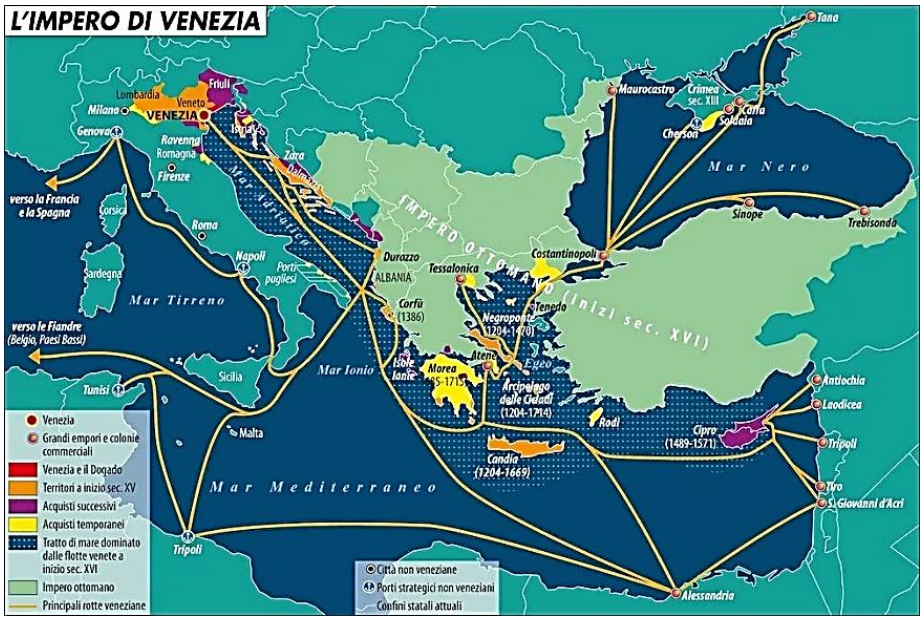

Figure 1. Venice as a sovereign state and maritime republic. The image shows the territorial possessions and trade routes of the Venetians from the 13th to the 16th centuries.

Initially, Venetian merchants chose to act as intermediates, meaning that they transported goods from Levante to Venice and then distributed them to the rest of Northern Italy using rivers[2]. Later, "between the Middle Ages and the early modern age, the Republic of Venice was a commercial centre of primary importance, the fundamental hub between the East, often called the Levant at that

[1] Canali, Laura. *L'Impero di Venezia*. 02 Dicember 2020. Limes, Rivista Italiana di Geopolitica. Last access: 15 April 2024, available at: https://www.limesonline.com/carte/l-impero-di-venezia-14708558/ .
[2] Calimani, Riccardo. *Storia della Repubblica di Venezia: La Serenissima dalle Origini Alla Caduta*. Milano, Italia: Mondadori, 2019.

time, and the West. [3]". By doing so, the city successfully expanded its economic relations with other Mediterranean nations, particularly for commodities originating from those regions, like as spices. Some of the most sought-after products included pepper, ginger, cinnamon, silk, slaves, and various types of wood. Due to their strong market demand, merchants who traded these goods were able to achieve significant profits. Additionally, valuable commodities originating from the Occitan region, such as metals like silver and copper, as well as textiles, were also traded. In addition, as Lane highlighted, the Venetians' desire for "domination of the sea" essentially involved the ability to protect their trade convoys and support their colonies, while also inflicting harm on the enemy's commerce or conducting raids on its colonies or coastlines[4]. As a result of their elevated status, the Venetians were able to engage in the exchange of items that were now referred to as global goods. This term emerged because these goods were no longer confined to a certain region, but were traded in many locations across the world. Examples of such goods were coffee, tea, and sugar. These commodities were also integral to the Columbian Exchange, a phenomenon that will be discussed in section 1.4.

The proliferation of diverse business interactions also facilitated the growth of trading hubs in Venice, where travellers might convene and engage in the exchange of goods. Therefore, in order to accommodate and facilitate trade for German individuals, the *Fondaco dei Tedeschi* was established in the Rialto area. Another instance could be the *Fondaco dei Turchi*, but it was not strategically positioned as a hub of commerce due to ethnic concerns[5]. It is important to note that initially, the interactions with the Ottomans were intricate and marked by a combination of collaboration and discord, mostly because of their mutual interests in commerce and dominance over crucial regions in

[3] Delogu, Giulia. *Inventing Public Health in the Early Modern Age: Venice and the Northern Adriatic*. Pavia, Italia: Ibis, 2022: 13.
[4] Lane, Frederic C. *Storia di Venezia*. Quarta edizione. Torino, Italia: Giulio Enaudi Editore, 1978:80.
[5] Calabi, Donatella. *Magazzini, fondaci, dogane.* In: Tenenti, Alberto and Tucci Ugo. *Storia di Venezia. Vol. XII. Il Mare*. Roma, Italia: Istituto della Enciclopedia Italiana fondata da Giovanni Treccani, 1991: 789-814. And Calimani, Riccardo. *Storia della Repubblica di Venezia: La Serenissima dalle Origini Alla Caduta*. Milano, Italia: Mondadori, 2019.

the Mediterranean. Undoubtedly, Venice and the Ottoman Empire held significant power and influence in the Mediterranean region. Both nations were dominant naval forces involved in expansive commercial networks that spanned Europe, Asia, and Africa. They signed treaties and accords, referred to as *Capitolazioni*, to promote trade and navigation in areas where their interests aligned[6]. During times of peace, Venetian merchants engaged in commerce with the Ottoman Empire, resulting in mutual economic benefits for both states.

Another significant development in Venice's trading history was the establishment of the free port. The initial free port was established in Genoa and Livorno during the late 16th century, and then, during the 17th and 18th centuries, the number of free ports in the Mediterranean region, including Venice, increased[7]. The historical trajectory of the free port in Venice was characterised by several challenges and difficulties. According to Costantini, despite efforts made in the 18th century to create a free port, it ultimately failed to materialise due to the Venetian governing elite shifting their investments towards the mainland instead of maritime trade[8]. This occurred because the latter had become "unsafe" as a result of the transition of global trade from the Mediterranean to the Atlantic. However, in 1806, the Napoleonic government created a free port on the island of San Giorgio in order to address the economic requirements of the Italic Kingdom and the French Republic; and in 1830, the Austrians designated Venice as a free port, which led to a widespread decrease in Venetian trade and subsequently, economic deterioration. Efforts to address the decrease included the establishment of the Milan-Venice railway and the construction of a bridge across the lagoon[9]. However, these initiatives had limited success due to their delayed progress, resulting in their completion towards the end of the century.

[6] Costantini, Vera. *Dialogue between Cultures*. Venice and its lagoons: Trade treaties and diplomatic relations with the Ottoman Empire. Accessed May 10, 2024. https://www.venicethefuture.com/schede/uk/312-aliusid=312.htm .
[7] Delogu, Giulia. *Inventing Public Health in the Early Modern Age: Venice and the Northern Adriatic*. Pavia, Italia: Ibis, 2022.
[8] Costantini, Massimo. *Dal porto franco al porto industriale*. In: Tenenti, Alberto and Tucci, Ugo. *Storia di Venezia. Vol. XII. Il Mare*. Roma, Italia: Istituto della Enciclopedia Italiana fondata da Giovanni Treccani. 1991.
[9] *Ibidem.*

An essential aspect in the history of Venice, and also relevant to this dissertation, was the domain of healthcare and public health.

A considerable development was the establishment of the *Lazzaretto* in Venice, which took place during the mediaeval and Renaissance eras, specifically in response to the spread of contagious diseases like the bubonic plague. Lazarettos were designated facilities constructed to segregate and medically attend to individuals suspected of harbouring infectious diseases, with the objective of impeding the transmission of illness within the urban area and its surrounding regions. In order to preserve its dominance in trade, Venice had to ensure that it maintained positive relations with neighbouring regions. Hence, the city implemented quarantine measures to showcase its dedication to public health and safety, so safeguarding its reputation as a dependable trading ally. The effectiveness of the Lazzaretto prompted other seaside cities and trading centres throughout Europe to implement comparable quarantine measures in order to protect public health and preserve trade links. These ports encompassed several locations, including Naples, Cagliari, Trieste, and Genoa in Italy, Niece in France, Valencia in Spain, and colonies under Venice's control, such as Corfu, Novi, and Split[10].

Another significant development was in 1486, with the establishment of the *Magistrato di Sanità* (Health Magistrate) in Venice, prompted by the recurring occurrence of diseases, such as the Black Death. "The Health Magistrate was chaired by three *provveditori* and two *sopra-provveditori*: these five members were not doctors but were politically appointed. […] The health officials had to prevent epidemics, by implementing control on the mobility of people and goods[11]".

[10] Delogu, Giulia. *Inventing Public Health in the Early Modern Age: Venice and the Northern Adriatic*. Pavia, Italia: Ibis, 2022: 33.
[11] *Ibidem*: 25.

The magistrate of the *Provveditori sopra Ospedali e Luoghi Pii*[12] was responsible for overseeing the operations of hospitals and charitable institutions that provided assistance to the poor and needy. In the upcoming chapter, we will thoroughly analyse and provide a clearer explanation of the health argument. To enhance understanding, we will also present examples of specific locations within the city that were utilised to assist both homeless individuals and the sick. Prominent among these establishments were the *Ospedale dei Santi Pietro e Paolo* (Hospital of Saints Peter and Paul), the Ospedale della Pietà (Hospital of Mercy), and the *Ospedale degli Innocenti* (Hospital of Innocents)[13]. The establishment, during centuries of these places and health cords were necessitated by the fact that Venice served as a hub for the transportation of both goods and people, hence facilitating the transmission of infectious diseases among individuals. It is important to note that there were individuals who travelled for leisure purposes. Venice offered various forms of entertainment, such as theatres (the *Fenice* being the prominent theatre in Venice, relatively new at the time), clubs, and cafes. In addition, numerous pilgrims travelled to Venice in order to embark on routes leading to Constantinople, Mecca, Santiago de Compostela, and other destinations. Several, considerable, achievements for the health organisation of the city were made over time.

The extensive impact that Venice acquired over the centuries can be attributed to various elements, such as its formidable nautical and economic prowess, as well as its pioneering measures to curb the transmission of diseases within the city. Furthermore, the city functioned as a hub for the interchange of ideas, creativity, and cultural diversity, attracting people from many backgrounds. However, this impact began to decline in the 18th century.

[12] Marcolini, Giulia. *Serenissima Pietas dopo la Serenissima*. In: Calabi, Donatella and Bonaccorso, Giuseppe. *Dopo la Serenissima. Società, Amministrazione e Cultura nell'Ottocento Veneto*. Venezia, Italia: Istituto Veneto di Scienze, Lettere ed Arti. 2001:181.
[13] *Ibidemi*:180.

1.2 The Globalisation of Diseases

When contemplating Venice during the 19th century, people must imagine a city where diverse individuals from various locations and with varied motivations would arrive on a daily basis. Currently, Venice attracts a substantial influx of tourists who come to explore the city's historical heritage. Historically, the bulk of foreigners who came to this distinctive city were merchants seeking for trading their commodities, which could include spices, metals, food, and textiles, in exchange for other items required in their home nations. Thanks to Venice's unique characteristic of serving as an intermediary between the East and West, this was made possible. However, the establishment of these pathways was only feasible through the exploration and identification of previously unknown locations. Throughout history, two significant discoveries that revolutionised the world's understanding and the associated trade channels were the discovery of a direct channel for India and the discovery of America.

The first one refers to the significant historical event in which European explorers found a direct channel for India. The new exploration facilitated the entrance of several things, notably animals, textiles, and other valuable commodities, into the realm of commerce. Furthermore, the following creation of trade channels had a significant influence on the world economy, resulting in the ascendance of European colonial powers in the Indian subcontinent and other regions. For example, numerous territories came under the control of the British monarchy, Portugal, the Netherlands, and France. Regarding the Venetians, although they did not possess colonies in the regions, they played a significant role in facilitating trade between the Indian subcontinent and Europe, particularly in the exchange of spices, precious stones, and textiles

Another significant exploration was the momentous discovery of America by Cristoforo Colombo in 1492. The primary objective of the expedition was to explore new trade routes to Asia. However, the explorer ultimately arrived on a previously unknown continent, first believing it to be India. It was

eventually realised that this was a new landmass, leading to its designation as America. The discovery of this new world brought about profound transformations in various aspects of the world, including as the economy, culture, and commerce. The interconnection between the New World, America, and the Old World, Europe, Africa, and Asia, led to a new era of exploration and colonisation. The European powers engaged in a race to conquer these territories, resulting in the division of the continent primarily between Spain, Portugal, England, and France. This division led to a significant migration of people to the Americas and later forced the migration of millions of Africans for labour in agricultural production. Furthermore, the migration of a significant portion of the European population to the new continents, along with the increasing need for land for livestock, housing, and agriculture, as well as the introduction of illnesses by the Europeans, resulted in the devastating decline of the indigenous populations in the New World.

The discovery of America had profound cultural, economic, and ecological consequences, as it enabled the interchange of commodities, concepts, and illnesses among Europe, Africa, Asia, and the Americas. This era is commonly referred to as the Columbian Exchange. The event in question is thoroughly documented in Alfred W. Crosby's book, *The Columbian Exchange: Biological and Cultural Consequences of 1492.* In this work, Crosby explores the ramifications of the link between the Old and New World. The Columbian Exchange involved the flow of foodstuffs between the Americas and Europe, Africa, and Asia, which was a significant component of this historical event. European crops such as wheat, barley, rice, and grapes were introduced to the Americas, while American crops such as maize (corn), potatoes, tomatoes, chilli peppers, cocoa, and tobacco were exported to Europe, Asia, and Africa[14]. This interchange of crops resulted in substantial alterations in diets, agricultural methodologies, and culinary customs across the globe. Furthermore, the Columbian Exchange encompassed the movement of animals between the Old World and the New World. European livestock, including horses, cattle, pigs, sheep, and chickens, were imported to the

[14] Crosby, Alfred W. *The Columbian Exchange. Biological and Cultural Consequences of 1492.* London, England: Praeger. 2003.

Americas. Conversely, previously unseen American animals such as llamas, alpacas, turkeys, and guinea pigs were introduced to Europe, Africa, and Asia[15]. The interchange of animals had significant ramifications on agriculture, transportation, and cultural customs in both hemispheres. Cultural exchange enables the interchange of ideas, technologies, languages, and cultural practices among various regions of the world. The cultural interchange had a profound impact on various aspects of society, including art, literature, religion, philosophy, and scientific knowledge, in both the Eastern and Western hemispheres. This trade played a significant role in the development of a more interconnected and globalised world. In addition, the Columbian Exchange enabled the dissemination of diseases. One of the most catastrophic consequences of the Columbian Exchange was the transfer of diseases between the Old World and the New World. The introduction of European illnesses, including smallpox, measles, influenza, and typhus, had a devastating impact on the indigenous inhabitants in the Americas due to their lack of immunity. In contrast, syphilis, a sexually transmitted infection, is thought to have been brought to Europe from the Americas. The proliferation of diseases had devastating demographic ramifications, resulting in the fatalities of many indigenous populations and fundamentally altering the social and political topography of both Americas and Europe. Therefore, it may be stated that the Exchange had beneficial consequences. Regarding the positive aspects, the introduction of new types of foods from the new world had a beneficial impact on the population. These foods were incorporated into people's diets, resulting in improved nourishment and the potential for population growth[16]. Conversely, the adverse consequence was the proliferation of diseases resulting from the migration of people and animals, which, as previously said, led to the significant reduction of the native population in the Americas.

Other significant authors on this topic are Noble David Cook, who wrote the chapter *The Columbian Exchange,* and James Webb, who wrote the chapter *Globalisation of disease, 1300 to*

[15]*Ibidem*.
[16] Cook, David N. *The Columbian Exchange*. In: Bentely JH, Subrahmanyam S, Wiesner-Hanks ME, eds. The Cambridge World History. *The Cambridge World History.* Cambridge University Press, 2015: 103-134.

1900, both of which are found in the book *The Cambridge World History*. The latter author categorises and delineates the three primary phases or waves, as he refers to these transitions, through which the globe has assimilated over time and the various worldwide repercussions, with a specific emphasis on diseases.

The initial phase of global integration, which began with European arrival in the New World until 1650[17], saw the spread of diseases such as gonorrhoea and the common cold. The indigenous population faced significant risks due to their lack of immunity, while Europeans were afflicted with French pox, a novel illness that was transmitted by pilgrims and caravanserai throughout Africa and Asia[18]. The Black Death, a lethal pandemic, originated in Central Asia and spread through trade routes to Europe, the Middle East, and North Africa.

The second phase of global integration from 1650 to 1850 was marked by the transmission of malaria and yellow fever through mosquitoes[19]. Enslaved African individuals who were transferred to South America and Latin America, particularly Brazil, were primarily facilitated by these diseases. The local populations experienced a significant reduction in population, while most Africans contracted the disease at a young age and developed immunity. Cholera, a bacterial infection, spread during this wave through faecal matter contamination and oral ingestion.

The third wave of global integration from 1850 to 1900 was marked by the transmission of mumps, rubella, and measles from Europe to Africa and the rest of the world[20]. All three diseases were highly contagious, and individuals lacked the necessary defences to counteract them. During the previous two waves, there was a concurrent advancement in the fields of science and health. As a result, even when a new disease emerged and affected a population, the time taken to find a solution was significantly shorter compared to previous centuries. For example, during the time of the plague,

[17] Webb, James LA. *Globalization of disease, 1300 to 1900*. In: Bentley JH, Subrahmanyam S, Wiesner-Hanks ME, eds. The Cambridge World History. *The Cambridge World History.* Cambridge University Press, 2015:54-75.
[18] *Ibidem.*.
[19] *Ibidem*.
[20] *Ibidem.*

when people had limited knowledge and understanding, the process of finding a remedy was much slower.

In the past, the spread of diseases was mostly facilitated by factors such as human movement, trade, and warfare. During this period, disease dispersion was primarily facilitated by trade routes such as the Silk Road in Asia, and the maritime trade routes in the Indian Ocean, Mediterranean and Atlantic. These routes played a crucial role in the transmission of infectious diseases. Merchants, travellers, and merchandise transported infections along these routes, resulting in the spread of diseases over long distances. Another crucial factor was the exploration and colonisation periods, when European explorers embarked on voyages to uncharted territories in pursuit of trade routes and resources. This led to the transmission of diseases to communities that were previously isolated. The process of European colonisation in the Americas, Africa, and Asia led to the introduction of illnesses from the Old World to the native inhabitants, resulting in severe epidemics and a significant decline in population. Furthermore, fighting and military campaigns also exerted a substantial influence on the dissemination of diseases. Conquests, invasions, and sieges frequently resulted in the dissemination of diseases among soldiers, which subsequently affected civilian populations. The congested and unhygienic conditions prevalent in military encampments and besieged urban areas created optimal circumstances for the spread of contagious illnesses like as typhus, dysentery, plague, and cholera[21]. In addition, migration encompassed population movements, encompassing both voluntary actions, such as migration for economic prospects, and involuntary actions, such as forced displacement resulting from conflict or enslavement. They facilitated the transmission of illnesses across different regions and continents. Furthermore, urbanisation has been a significant factor, especially during periods of swift industrialization, resulting in densely populated and unhygienic urban environments that promote the spread of infectious diseases. An example of the unsanitary conditions, was marked by the neglectful disposal of garbage and various types of waste on the streets

[21] Cook, David N. *The Columbian Exchange*. In: Bentely JH, Subrahmanyam S, Wiesner-Hanks ME, eds. The Cambridge World History. *The Cambridge World History.* Cambridge University Press, 2015: 103-134.

of the city, as well as the dumping of excrement and organic waste into canals and rivers, facilitated the transmission of the disease[22]. In addition, according to Snowden, the "transport revolution involving railroads, steamships, and the Suez Canal[23]" facilitated the rapid spread of Cholera. Undoubtedly, the expansion of international trade networks and the interchange of goods and commodities across various locations helped the dissemination of diseases. In general, face-to-face interactions among people, such as during social events, religious journeys, and population movements, created chances for the spread of contagious illnesses. The close closeness, common living areas, and absence of hygiene procedures heightened the likelihood of disease transmission among populations.

The dissemination of illness has perpetually evoked apprehension and ambiguity among societies over time, resulting in significant societal, psychological, and financial ramifications. This part will be further examined in Chapter III. However, a concise introduction will be given in this section to enhance comprehension of the significance of understanding the societal repercussions of diseases.

The fear of disease, spanning from ancient plagues to modern pandemics, stems from multiple elements such as the imperceptible nature of viruses, the unpredictable occurrence of epidemics, and the potential for grave illness and mortality. This essay will examine the factors contributing to the apprehension of illness and its impact on individuals and societies. The dread of sickness arises from the innate human desire for self-preservation. Microorganisms, including bacteria, viruses, and parasites, cannot be seen without the aid of a microscope, which makes them a hidden and uncertain danger. In contrast to other conspicuous or palpable hazards, such as predators or natural calamities, diseases might unexpectedly afflict persons, resulting in a feeling of susceptibility and powerlessness.

[22] Pellizari, Giovanni. *Effetti sociali delle epidemie di colera. Il caso di studio di un capoluogo*. In: *Memorie dell'Ateneo di Salò*, Nuova Serie, 2015-2018: 6.
[23] Snowden, Frank M. *Epidemics and Society. From the Black Death to the Present*. New Haven and London: Yale University Press, 2019: 250.

Moreover, the swift dissemination of contagious illnesses intensifies apprehension and unease among populations. Pathogens can rapidly propagate by direct human contact, consumption of contaminated food and drink, or transmission by vectors such as mosquitoes and rats. The rapid spread of diseases, particularly in highly populated regions, increases worries over personal safety and the welfare of loved ones. The apprehension about illness is further intensified by the ambiguity surrounding outbreaks. During the initial phases of an epidemic or pandemic, there is typically a scarcity of information regarding the characteristics of the disease, how it spreads, and its possible consequences. These uncertainties that would give rise to the "Divine Theory of Disease[24]" will be further elucidated in Chapter III. This ambiguity gives rise to conjecture, hearsay, and disinformation, intensifying apprehension and alarm among the populace. The fear of disease not only causes psychological misery in individuals, but also leads to societal disturbances and economic instability. As a response to the occurrence of outbreaks, governments may enforce stringent containment measures, including quarantine, travel restrictions, and lockdowns, in order to manage and limit the transmission of the disease. Although these actions are essential for safeguarding public health, they can also cause disruptions to everyday routines, supply chains, and economic activity. The apprehension of illness can also result in social seclusion and retreat from communal areas. During epidemics, individuals may choose to refrain from visiting densely populated places, attending social events, and using public transit due to concerns about potential exposure to the disease. The practice of social separation can have detrimental effects on mental well-being, intensifying sensations of solitude, unease, and melancholy. Moreover, the apprehension of illness might undermine confidence in public institutions and authority[25]. In the event that governments are unable to adequately address epidemics or disseminate accurate information to the public, it might result in cynicism, the emergence of conspiracy theories, and a lack of faith in official sources of information. The breakdown of trust can

[24] Snowden, Frank M. *Epidemics and Society. From the Black Death to the Present*. New Haven and London: Yale University Press, 2019:27.
[25] *Ibidem:*270.

impede endeavours to manage the dissemination of disease and impair measures in public health. Aside from its psychological and social ramifications, the apprehension of illness can have significant economic implications. During outbreaks, consumer behaviour may be altered as individuals engage in hoarding, refrain from making non-essential purchases, or curtail their spending due to worry regarding the future. The decline in consumer confidence can result in a deceleration in economic activity, unemployment, and financial instability. The apprehension towards illness also has enduring ramifications for healthcare systems and the architecture of public health. Lack of readiness for pandemics, such as insufficient healthcare capacity, shortages of medical supplies, and gaps in surveillance and response systems, can worsen the effects of epidemics and prolong their duration. The significance of allocating resources towards strong public health infrastructure, research, and preparedness is highlighted by the fear of disease, in order to minimise the potential dangers of future pandemics.

1.3 The turning point: Venice from crisis to external domination

Following the conclusion of the final conflicts with the Ottoman Empire in 1718, Venice achieved victory, but at the cost of significant territorial and financial setbacks. Following the Peace of Passarowitz, the Venetians were compelled to relinquish several holdings, including Morea[26], and the islands of Tine and Egina. However, they retained sovereignty over Imoschi, Dalmazia, and some coastal territories in Epiro. Consequently, venetians lost the opportunity to engage in direct trade with the Turks. However, they managed to sustain their trading activities by employing intermediaries[27]. Furthermore, it is possible to argue that Venice's prestige began declining as a result of the war's previous losses and the challenges in regaining more human and economic resources for future engagements. Hence it sought to maintain a state of neutrality with the other developing powerhouse of that era. Due to this, Venice abstained from participating in the restoration of the Bourbons (1701-1714) and Habsburgs (1740-1748), to prevent a worsening of the situation. Nevertheless, neutrality may be perceived as an indication of vulnerability and a manifestation of astute diplomacy[28]. For instance, foreign vessels were able to navigate the Adriatic Sea, whereas in the past, Venetian ships would escort boats from other countries during their journey through the sea or canals. Furthermore, the Austrians began to believe that the Venetian provinces should be absorbed into their rule[29]. Another example of neutrality was Venice's refusal to accept the army even after Napoleon's campaign in Italy. Therefore, upon the commander's arrival and subsequent occupation of Milan and Lombardy, he compelled the Habsburg troops to withdraw from Venice's possessions as well. The commander's incompetence following Napoleon's initial conquest of the mainland regions led to the emperor's arrival on the island, which had been seized in 1797. Following the treaty of

[26] Del Negro, Piero e Preto, Paolo. *Storia di Venezia. Dalle Origini alla caduta della Serenissima. Libro VIII. L'ultima fase della Serenissima.* Roma, Italia: Treccani. 1998.
[27] Lane, Frederic C. *Storia di Venezia*. Quarta edizione. Torino, Italia: Giulio Einaudi editore, 1978.
[28] Laven, David. *Venice and Venetia under the Habsburgs: 1815-1835*. First ed. Oxford, New York: Oxford Univ. Press, 2002.
[29] Lane, Frederic C. *Storia di Venezia*. Quarta edizione. Torino, Italia: Giulio Einaudi editore, 1978.

Campoformido in 1797[30], Venice, Istria, and Dalmatia were ceded to the Austrians, while the Ionian islands were given to the French. However, prior to this concession, the French looted the city and its cultural treasures, many of which were taken to Paris and housed in the Louvre. This included valuable works of art and the renowned horses from St. Mark's Basilica. Fortunately, these items were eventually returned to Venice around 1815, thanks to the efforts of the Austrians[31]. Subsequently, in 1806, Napoleon recaptured Venice, and subsequently, through the Congress of Vienna in 1815, ensured Austrian control over the Venetian provinces until 1866, when Venice became part of the Kingdom of Italy. The alterations that resulted in this foreign rule were pivotal in the existence of the Venetians and their lands. The primary factor contributing to Venice's collapse was the loss of numerous colonies, resulting in a decrease in trade revenue and a diminishing of Venetia's control over the Mediterranean. Consequently, Venice's authority and influence waned in the international sphere. Another modification occurred in response to the imposition of external authority.

Upon the entrance of the Austrians, Venice's institutions experienced significant strain and instability, likely due to the comparison of the Venetian nobles with their Austrian counterparts[32]. The inability of the previous rules to persist necessitates the development of a new form of governing elite. The individuals selected for these positions were mostly in frequent communication with the Austrian authorities, or at the very least, were considered reliable. Hence, they did not actively encourage any sentiments of insurrection against the Austrians.

Prior to the collapse of the Venetian Republic, the political structure of Venice was organised into various magistratures, each with its own specific responsibilities[33]. The most significant political institutions were the *Maggior Consiglio* (Great Council), which served as the primary legislative

[30] *Ibidem.*
[31] Gullino, Giuseppe. *Storie Venete E Veneziane*. Brescia, Italia: Scholé, 2022.
[32] Isnenghi, Mario and Woolf Stuart. *Storia di Venezia. L'Ottocento e il Novecento*. Roma, Italia: Marchesi grafiche editoriali, 2002.
[33] Varagnolo, Claudio. *Storia delle Antiche Magistrature ed Istituzioni dello Stato della Repubblica di Venezia. Perché una Repubblica e rimasta consolidata per XI Secoli e la Venethia futura Venezia per tredici secoli, dal 697 (VII secolo d.C.) al 1797.* Italia: Papergraf. 2019.

body. Comprised of male members of the Venetian nobility, this council was responsible for electing the *Doge* and making decisions regarding the state's policies and laws. Additionally, the Great Council elected the *Consiglio Segreto* (Secret Council) to limit the Doge's authority. Only with the approval of this council were the Doge's decisions considered valid. The government of the Republic of Venice consisted in other several institutions, such as the *Senato* or *Consiglio dei Pregadi*. In particular, the latter was responsible for the daily administration and decision-making. It was composed of aristocratic families. *The Consiglio dei Dieci*, (Council of Ten), was appointed to handle matters of security, criminal justice, and espionage. The *Avogaria de Comun* was a group of magistrates who ensured the proper use of power by other institutions and protected the laws and rights of the state. Lastly, the *Quarantia Criminal*, or Council of Forty, oversaw civil and criminal justice in the republic[34]. Despite these occasional challenges, these institutions have diligently operated for centuries, ensuring the proper running, if with occasional challenges, of life in the Venetian Republic.

Until the coming of Napoleon in 1797, who not only brought about the downfall of the Serenissima, losing its independent status, but also dismantled the city's governmental system. After the Congress of Vienna (1815), Venice became just another region under the control of the Habsburg Empire, as Mazohl-Wallnig called "Länder of the Monarchy"[35]. The Habsburgs wanted to incorporate these territories into their own domains, so they established an administrative structure similar to what was already in place in other regions of the Empire. Furthermore, the city of Venice and its territories experienced the annexation to a newly established kingdom known as the Lombardy-Veneto Kingdom, in addition to the deprivation of self-governance. When comparing the institutions of Austria, Lombardy, and Veneto, it becomes evident that the political institutions in Veneto were inferior, poorly equipped, and lacked efficient management capabilities. An example of this can be

[34] To see more about the division of power in the Serenissima see Varagnolo, Claudio. *Storia delle Antiche Magistrature ed Istituzioni dello Stato della Repubblica di Venezia. Perché una Repubblica e rimasta consolidata per XI Secoli e la Venethia futura Venezia per tredici secoli, dal 697 (VII secolo d.C.) al 1797.* Italia: Papergraf. 2019.
[35] Mazohl-Walling, Brigitte. *L'Austria e Venezia*. In: Benzoni, Gino and Cozzi, Gaetano. *Venezia e l'Austria*. Venezia, Italia: Fondazione Giorgio Cin, 1999:10.

seen in the administration of the state offices, in which around forty-five positions were held, with only 24% being occupied by Venetians, while the remaining positions were distributed among Lombards (approximately 33%) and imperial subjects (approximately 43%)[36]. The city of Venice and its territories were included into the Habsburg dominion, allowing the Habsburgs to wield complete control over the newly acquired areas, according to the autocratic structure of the Empire. The Austrians established a new governmental organisation that was meticulously structured. Following the revocation of privileges from the Venetian nobles, Emperor Ferdinand II designated a Governor-General to oversee the administration of Venice on his behalf[37]. One Governor-General was stationed in Venice, while the other was stationed in Milan. He held authority over the executive power, meaning he carried out the imperial policies and exerted control over all aspects of city life, including education, trade, and the military. In addition to the General congregation, there were also provincial and community assemblies, which were responsible for the local administration and government. Consequently, the venetians were ousted from their positions of authority in the institutions, and officials were chosen based on their expertise and professional qualifications, rather than their hereditary status[38]. Although the population living under foreign rule were represented by two main administrative bodies, one based in Venice and the other in Milan, the ultimate authority and decision-making power still resided with the government in Vienna. The concentration of authority and sluggish industrial development under the Habsburg empire led to significant dissatisfaction in the Venetian provinces. The prevailing sentiment deteriorated with time, leading to the uprisings of 1820-21 and subsequently to those of 1848-49[39]. Consequently, Venice functioned as a satellite state of the

[36] Isnenghi, Mario and Woolf Stuart. *Storia di Venezia. L'Ottocento e il Novecento.* Roma, Italia: Marchesi grafiche editoriali, 2002.
[37] Tonetti, Eurigio. *Minima Burocratia. L'Organizzazione del lavoro negli uffici del governo Austraico nel Veneto.* In: In: Calabi, Donatella and Bonaccorso, Giuseppe. *Dopo la Serenissima. Società, Amministrazione e Cultura nell'Ottocento Veneto*. Venezia, Italia: Instituto Veneto di Scienze, Lettere ed Arti. 2001:272-284.
[38] Gottardi, Michele. *Stato e carriera tra Veneto Austriaco e Regno d'Italia*. In: Calabi, Donatella, and Bonaccorso, Giuseppe. Dopo *La Serenissima: Società, Amministrazione e Cultura nell'ottocento Veneto.* Venezia, Italia: Instituto Veneto di Scienze, Lettere ed Arti, 2001:107-121.
[39] The well-known revolutions took place across Europe, the first wave of which took place in places like Naples, Sicily, Portugal, Spain, and Greece between 1820 and 1821. After that, a second wave struck in 1848–1849 and spread across a larger portion of the continent. Economic instability, social injustice, and the spread of revolutionary philosophies that advocated liberty and equality were common factors influencing these events. There are differences between the scopes

Habsburg Empire, implying that it was politically and militarily dependent to Austria. The Austrian administration exercised authority over the governance, economy, and military affairs of Venice. Austrian officials were designated to crucial administrative roles, and the city's policies were harmonised with those of the Austrian Empire.

An advantageous aspect of external domination was the expansion of the educational system, which was implemented across all the territories under Habsburg rule. The education system was separated into two categories: minor elementary schools and major elementary schools. Salmini states

> The subdivision of primary schools into minors and majors reflected the different social realities: the former were mainly intended for children from modest or poor families, both in the countryside and in the minor centres of the cities. The major schools, on the other hand, catered for children of much higher social and economic status [...] opened in every provincial capital city with the intention of accommodating the children of the urban middle class. […] Primary education was free of charge; the direct burden on families was textbooks: public intervention, supported by municipal funds, was also provided for the poorest children.[40]

By providing children with the opportunity to attend school and receive an education, this approach not only fosters Austrian influence but also ensures political stability in the region.

of these two waves of unrest; the upheavals of 1820–1821 were primarily contained to particular countries, whilst the uprisings of 1848–1849 were more widely distributed across Europe. Additionally, the latter period saw a growing emphasis on political participation, nationalism, and aspirations for national unity and autonomy, leading to efforts towards unification and independence from external governance, whereas the former period primarily sought liberation from monarchies or colonial dominion.

[40] Salimi, Claudia. *L'istruzione primaria a Venezia e la nascita della scuola tecnica*. In: Calabi, Donatella and Bonaccorso, Giuseppe. *Dopo la Serenissima. Società, Amministrazione e Cultura nell'Ottocento Veneto*. Venezia, Italia: Istituto Veneto di Scienze, Lettere ed Arti, 2001: 214, 217.

1.4 The outbreak of Cholera in Venice

Cholera is a long-standing disease that has plagued humans for generations, causing widespread mortality and suffering. The cause of the outbreak can be attributed to the bacterium Vibrio cholerae, which most likely originated in the Indian subcontinent, namely in the Ganges Delta region. The global awareness of cholera began in the 19th century, specifically around 1817[41]. This occurred due to its global dissemination. The main mode of transmission for this disease is by contaminated water or food. Vibrio cholerae flourishes in water sources contaminated with human faeces, rendering regions with inadequate hygiene procedures especially susceptible. Cholera can be transmitted not just through contaminated water, but also through direct contact between individuals, particularly in densely populated regions where hygiene procedures are insufficient. Regarding the method of dissemination, the spread of cholera can be traced by following trade routes and migration trends. The expansion of maritime trade in the 19th century coincided with the proliferation of cholera. Individuals who were infected on ships spread the disease to new ports, causing outbreaks in coastal towns worldwide. Inland dissemination frequently occurred along prominent transportation corridors, such as rivers and railways, linking both urban centres and rural villages. Nevertheless, as previously explained, the world had already undergone a process of globalisation in the 19th century. This was evident when diseases, such as cholera, were able to spread to America and Canada, as was the case in 1832.

From India, the ailment then propagated to Russia and then extended to Western countries, including France, Spain, and Italy. The latter, characterised by its long coastline and busy ports, has experienced multiple cholera outbreaks in the past. The disease was introduced to Italy in the early 19th century, specifically in 1835[42], most likely by maritime trade lines that connected the

[41] Delaporte, François. *Disease and Civilization. The Cholera in Paris, 1832*. Translated by: Goldhammer, Arthur. London, England: The MIT Press, 1986.
[42] Cappello, Agostino. *Memorie istoriche di Agostino Cappello. Dal 1 maggio 1810 a tutto l'anno 1847.* Roma: Italia: Tipografia Prego-Salvioni. 1848.

Mediterranean with countries where cholera was prevalent, such as the Indian subcontinent. Throughout the 19th and early 20th centuries, the country suffered from numerous cholera epidemics, with major outbreaks occurring in towns such as Milan, Naples, and Venice.

As previously mentioned, Venice served as a hub for people and trade, which made it susceptible to the rapid transmission of diseases. The city's distinctive topography, characterised by interconnecting rivers and highly populated metropolitan districts, facilitated the propagation of waterborne diseases such as cholera. The initial occurrence of this novel ailment in the city took place on the 9 of October, 1835[43]. During that period, the city was under external control and was also dealing with growing urbanisation and insufficient hygiene facilities, which worsened the spread of infectious diseases. The epidemic, which stemmed from polluted water supplies, rapidly overburdened regional healthcare services and caused extensive alarm among inhabitants. The containment of the outbreak in Venice was impeded by a lack of comprehension regarding the propagation of the disease and insufficient resources for cleanliness and healthcare. However, both the city of Venice and the Habsburgs made efforts to hinder the transmission of the disease using distinct strategies, which will be explained in the subsequent chapter. Ultimately, with a more comprehensive understanding of the disease's origins and effective strategies for its eradication, it became feasible to gain control over the impacts and repercussions of cholera. This was also achievable through the assistance of other nations.

[43] *Gazzetta Privilegiata di Venezia.* 9 ottobre 1835. N.227.

CHAPTER II

HISTORY REPEATS ITSELF, THE USE OF INFORMATION FROM THE PAST TO TREAT A MODERN DISEASE

This chapter will analyse the sanitary measures employed during the initial outbreak of cholera, focusing not on the strictly medical aspects, as this is not a medical publication, but rather on the strategies employed by doctors to treat those affected by the disease. The purpose of this section of the thesis is to emphasise the challenges that arise when an illness initially affects a region, causing uncertainties among both the general population, who are unaware of the causes and treatments, and the medical professionals, who, despite their expertise, struggle to find a remedy for the novel disease. Various physicians documented their findings and recollections, drawing from the instances of cholera they encountered or the individuals they successfully treated. Among the various collections of memories, some are shared, while others differ according to the individual perspectives of each medic regarding cholera, its causes, and consequently, its remedies. What were the typical findings and distinguishing factors that led to a delayed response in the spread of the contagious disease?

2.1 Knowledge from the ancient times

Hippocrates (born c. 460 BCE and died c. 375 BCE) and Galen (born 129 CE and died c. 216 CE) laid the foundations for medical treatments until the late 19th and the beginning of the 20th century. The former is commonly recognised as the "Father of Medicine" because he possessed a unique understanding of diseases that had a profound impact on the advancement of medical science. He subscribed to the humoral theory, which proposed that the human body harbours four humours: blood, phlegm, black bile, and yellow bile. The concept of health was perceived as the equilibrium among various bodily fluids, whereas disease arose from an imbalance. Hippocrates stressed the significance of environmental and lifestyle variables in determining one's health. He held the belief that diet, climate, and living conditions were pivotal factors in the causation of diseases. For example, he proposed that varying temperatures could result in distinct disease patterns, and an inadequate diet could disturb the equilibrium of bodily fluids, leading to an imbalance and subsequent illness. Hippocrates held the belief that the human body possessed an innate capacity to undergo self-healing. The physician's responsibility was to enhance this innate process by bolstering the body's own healing processes. The idea is expressed in the well-known Hippocratic term "vis medicatrix naturae" (the curative force of nature). Hippocrates is renowned for his notable contributions to medical ethics, most notably demonstrated by the Hippocratic Oath. This ethical framework prioritises concepts such as confidentiality, non-maleficence (avoiding harm), and the significance of ethical behaviour in medical practice.

Galen, a Greek physician and philosopher, was also a significant author. He elaborated on Hippocrates' notion of the four humours (blood, phlegm, black bile, and yellow bile) and emphasised their equilibrium as crucial for maintaining good health. He claimed that diseases were caused by imbalances in these bodily fluids and stressed the significance of diet, physical activity, and lifestyle in preserving well-being. Among the non-naturals, which he defined as external elements or lifestyle choices that might impact an individual's health and are crucial for maintaining the equilibrium of

bodily fluids and overall well-being, the air was included. He stressed the significance of air quality in preserving one's well-being. Galen posited that the air might be contaminated by environmental elements like as wetlands, marshes, and unhygienic circumstances. According to his perspective, being exposed to polluted air resulted in the disruption of bodily fluids, which he saw as the fundamental reason for illness. The observations and memories of the authors reported later will have identical elements. Galen's reliance on historical writings to comprehend current events led to the development of an ideology that viewed history as a valuable instrument for medical study. History, in this context, was seen as a form of knowledge derived from sensory perception and observation[44].

[44] Pomata, G. *Praxis Historialis: The Uses of 'Historia' in Early Modern Medicine*, in G.Pomata - N.G. Siraisi (edd), Historia: Empiricism and Erudition in Early Modern Europe, Cambridge MA, The MIT Press, 2005, pp. 111. Cited in: Delogu, Giulia. *Medicina e storia. L'uso del passato nella sanità pubblica tra Sette e Ottocento*. In Annali, Jahrbuch ISIG – 40, 2024/1:25.

2.2 Common observations made by medical professionals

Prior to proceeding to the main section of this chapter, there will be a presentation of the sources utilised. This dissertation presents original sources from the time of the cholera outbreak, in the city of Venice, to enhance our understanding of the phenomenon of cholera and the significant challenges it posed to doctors during that period. The sources utilised originate from Venetian authors or, alternatively, from individuals who conducted their observations within the city of Venice. The reason for this option is to emphasise and comprehend the circumstances, as well as the response of doctors, in the event of a new illness breakout in the city. Even if it may be stated that each book is unique and grounded in the author's individual findings, as a customary principle dictates that authors put out their own observations. Hence, it should be underline that, when composing the texts, authors cited others to support their arguments or two voice their opposing viewpoints. This was likely due to the fact that, being a newly discovered illness, the different clinicians were seeking validation or contradiction of their individual discoveries or observations. All the references mentioned in this section can be found in the books *Bibibliografia Veneziana* authored by Emanuele Antonio Cicogna and *Bibliografia veneziana in aggiunta e continuazione del saggio di E.A. Cicogna* written by Girolamo Soranzo[45].

For instance, the physician Giacinto Namias (1810-1874), was born in Venice in 1810 and following his studies at the University of Padua, he commenced his employment at the San Daniele hospital, where he initiated his investigations that he subsequently consistently submitted to the Ateneo Veneto (the preeminent scientific establishment in Venice). The thesis will study the text

[45] Cicogna, Emanuele Antonio. *Saggio di Bibliografia Veneziana*. Venezia, Italia: Tipografia di G.B Merlo, 1847. And Soranzo, Girolamo. *Bibliografia veneziana in aggiunta e continuazione del saggio di E.A. Cicogna*. Bologna, Italia: Forni, 1980. Both volumes comprise a bibliographic anthology, organised by subject, that includes the most significant publications pertaining to each subject. The sole distinction between the two is that Girolamo's version can be regarded as a subsequent edition, with the inclusion of more works and organised in alphabetical sequence.

Natural History and the Cure of Cholera by the author[46]. Another author is Francesco Maria Marcolini, a physician born in Aviano. Following his graduation from the University of Padua, he commenced his medical practice in many locations before ultimately establishing himself at the hospital in Udine. Amidst the cholera pandemic, he was designated as a member of the Cholera Commission in Venice. One of his works that is pertinent to the subject of this thesis is *Intorno al cholera cianico di Venezia*[47]. Also, Gaspare Federigo (1769-1840) made some observations, which are significant for this thesis. He was born in Venice and obtained his medical doctorate in 1788. He then commenced his medical practice in the city. He is renowned for his significant impact on the counter-stimulus idea, alongside Giovanni Rasosi, a prominent Italian physician, pathologist, and epidemiologist. Among Federigo several writings, the one pertinent to the thesis is *Il contagio del cholera-morbus proven by science and facts*[48]. Two further significant physicians were Michelangelo Asson (1802-1877) and Giacomandrea Giacomini (1796-1849). The former pursued a medical and surgical education in Pavia and Padua. He served as an assistant to Paolo Zannini, a prominent physician, literary scholar, and the founder of the Ateneo Veneto. Then, Asson also joined the Ateneo as a member. For this thesis, the work *Intorno alla prima invasione del cholera-morbus in Venezia* will be included among the author's works[49]. Collaborative observations including other physicians. Finally, Giacomini pursued his studies at the University of Padua. Subsequently, as one of the selected

[46] To see other information about the author and his works: Greco, Donato. *Namias, Giacinto* in Dizionario Biografico degli Italiani – Volume 77, 2012. Enciclopedia Treccani, Ultimo accesso: 1° giugno 2024, https://www.treccani.it/enciclopedia/giacinto-namias_(Dizionario-Biografico)/ .

[47] To see other information about the author and his works: Cargnelutti, Liliana. *Marcolini Francesco Maria. Medico, erudite, saggista*. In Dizionario Biografico dei Friulani. Ultimo accesso: 1° giugno 2024, https://www.dizionariobiograficodeifriulani.it/marcolini-francesco-maria/ .

[48] To see other information about the author and his works: Premuda, Loris. *Federigo, Gaspare* in Dizionario Biografico degli Italiani – Volume 45, 1995. Enciclopedia Treccani, Ultimo accesso 1° giugno 2024, https://www.treccani.it/enciclopedia/gaspare-federigo_(Dizionario-Biografico)/ .

[49] To see other information about the author and his works: Premuda, Loris. *Asson, Michelangelo* in Dizionario Biografico degli Italiani – Volume 4., 1962. Enciclopedia Treccani, Ultimo accesso 1° giugno 2024, https://www.treccani.it/enciclopedia/michelangelo-asson_(Dizionario-Biografico)/ .

graduates, he gained the opportunity to train at the surgical school in Vienna. The thesis takes into consideration the work *Sulla condizione essenziale del cholera morbus*[50] .

Upon examining various accounts, it is evident that the primary shared elements are the methods employed to prevent contracting the illness, the underlying causes of its transmission, the varying manifestations of cholera, and the different stages of the disease. These parallels might result from the fact that in the early 19th century, when the origins of diseases were still unknown, we mainly depended on remnants from previous times. When faced with uncertainty about a contagious disease, people turned to historical knowledge and the advice of ancient scholars to address medical, social, and economic challenges[51].

While not all authors provide an exhaustive description, some offer more detailed accounts while others provide less. Nevertheless, the symptoms reported by different individuals were largely consistent or very similar. Furthermore, there were also shared characteristics between the meals recommended for treating the sickness and the various precautions to be taken throughout the treatment of the affected individuals.

In general, individuals should prioritise preventive measures by adopting a lifestyle characterised by calmness of mind and moderation in various aspects, including diet, alcohol consumption, hygiene and other indulgences[52]. In other words, excessive behaviour and unhealthy habits might potentially result in an individual's misfortune or make them more susceptible to developing bodily ailments. In addition, individuals had to prioritise hygiene, both of their clothing and as well as ensuring the cleanliness of their living quarters. It is justifiable to note that in previous times, individuals lacked the level of concern for cleanliness that we possess in the present day.

[50] To see other information about the author and his works: Carpi De Resmini, Amilcare. *Giacomini, Giacomandrea* Dizionario Biografico degli Italiani – Volume 54, 2000. Enciclopedia Treccani, Ultimo accesso 1° giugno 2024, https://www.treccani.it/enciclopedia/giacomandrea-giacomini_(Dizionario-Biografico)/ .
[51] Delogu, Giulia. *Medicina e storia. L'uso del passato nella sanità pubblica tra Sette e Ottocento*. In Annali, Jahrbuch ISIG – 40, 2024/1.
[52] Namias, Giacinto. *Cura del còlera.* Firenze, Italia: Per gli editori della scienza del popolo, 1867.

Therefore, some useful recommendations could be to wash the body, change the clothes, clean and remove the rubbish from the living places or in the streets near the households, and ventilate the rooms. In this way the spread of miasma could be prevent. These precautions were implemented proactively to assist the public in avoiding the transmission of the disease, both prior to its arrival in different regions and during its spread. For instance, the authors believed that experiencing pain and terror could contribute to the development of the disorder, as they considered these qualities to be detrimental to one's peacefulness of mind. Consequently, the more the effort made by an individual to evade it, the higher the likelihood of encountering it. Simultaneously, inner tranquilly could aid in the recovery of the afflicted individuals.

Many authors share a same perspective on the factors that contribute to the spread of the sickness. According to Giacinto Namias, "these infirmities (referring to cholera), on the other hand, are observed, quite special, in the inhabitants of marshy places or near marshes.[53]". After considering this line, it becomes evident that marches possess a diverse range of living organisms, including viruses and other microorganisms that pose a threat to humans. The miasma emanates from these locations move and spread, primarily affecting individuals with poor cleanliness practices, who are typically from the lower socioeconomic classes.

These particular living conditions, experienced by the writers, make people susceptible to sickness, but this aspect can also be interpreted more broadly. Individuals residing in unsanitary and unclean settings are more susceptible to contracting diseases due to many factors. Primarily, such places tend to host a higher concentration of pathogens, including bacteria, viruses, and parasites. Inadequate hygiene practices can diminish the effectiveness of the immune system, while malnutrition, prevalent under such conditions, can further undermine the body's capacity to combat diseases. Additionally, unsanitary surroundings frequently contain water and food sources that are

[53] Namias, Giacinto. *Storia naturale del còlera pel Prof. Giacinto Namias. Lettura fatta all'Ospedale civile di Venezia*. Firenze, Italia, 1867: 9,10. Original text: Queste infermità (si riferisce al cholera) invece che si osservano, affatto speciali, negli abitatori dei luoghi paludosi o vicini a paludi.

contaminated, and consuming these tainted food items can result in the contraction of diseases. Unsanitary and densely populated living situations promote the rapid transmission of contagious diseases through close proximity, whether through direct or indirect contact. Namias, in addition believed that an individual's predisposition played a significant role in contracting an illness. Furthermore, this inclination is closely connected to a person's lifestyle[54]. If we examine an individual who is originally in a state of bad health but endeavours to adopt a healthy lifestyle, including proper nutrition, abstaining from excessive alcohol use, and maintaining physical, mental, and environmental cleanliness, it is plausible that this person could enhance their overall health. In contrast, an individual with a somewhat typical state of health, but who leads a lifestyle characterised by indulgence and uncleanliness, will likewise have adverse effects on their health.

All the authors of the consulted memoirs included details about the many stages in which cholera presented itself. They observed that cholera could manifest itself in different phases: prodromes, where the initial symptoms appeared; invasion, when cholera started spreading through the body; algid state, the most critical phase; reaction, when the patient began to recover; and, if recovery did not happen, the heat state, which was considered an alteration or complication. In general, the description of these phases or states was consistent among all individuals.

During the "prelude phase," the typical signs were

> a heavy pain in the head, ringing and hissing in the ears, ineptitude at work, wakefulness, restlessness, a general malaise [...] twinges in the various parts of the body, [...] prostration of strength, some delirium, nausea, anorexia or morbid hunger, borborygmus, belching, bitter mouth [...] slight difficulty in emanating.[55]

[54] Namias, Giacinto. *Cura del còlera.* Firenze, Italia: Per gli editori della scienza del popolo, 1867.
[55] Asson, Michelangelo. *Intorno alla prima invasione del cholera-morbus in Venezia. Osservazioni.* Milano: Italia, tipografia Lampato, 1836: 4,5. Original text: dolore gravativo al capo, tintinnìo e sufolamento delle orecchie, inettitudine al lavoro, veglia, inquietudine, un mal essere generale, [...] fitte vaganti per le varie parti del corpo, [...] prostrazione delle forze, qualche delirio, nausea, anoressia o fame morbosa, borborigmi, eruttazioni, bocca amara [...] lieve difficoltà ad evacuare le orine, [...] diarrea e vomito.

During this period, it was mostly overlooked by the general population for two plausible reasons. Firstly, common people were unaware of the causes of cholera, leading them to believe that the symptoms were caused by a transient illness. Transitioning into the subsequent phase of the sickness, known as the "invasion phase," the symptoms manifested were

> characterized by vomiting and diarrhoea, with severe irritation and disruption of the actions and functions of the nervous system. Diarrhoea appeared; that is, if it existed before, it changed nature and character, assuming the appearance (typical) of a whitish liquid, resembling rice decoctions [...] the thick times then it was accompanied by noisy borborygmi [...]. The diarrhoea was soon joined by vomiting, before the ingested substances and drinks, after which a liquid similar to that of diarrhoea [...]. During the morbid evacuations, he often accused the sick of a sense of epigastric harassment, or an acute pain in the umbilical region [...]. The straight (abdominal) muscles, that is, tense, swollen and ringing. [...] The disturbance of the nervous system in this period was caused, beyond the described, by other symptoms, and were headache, with a sense of weight and oppression to the head, the pale face [...] the cloudy eye, [...] breathing anxiety (or panting), [...] choleric voice (which was a very light and hoarse voice, barely came out).[56]

Typically, when people reached this stage, they recognised that something was wrong and sought medical advice for treatment. However, if this condition was not promptly treated, there were numerous risks associated with progressing to the following stage. The "algid stage" refers to the phase of the disease when the patient is at their most critically ill. If the medicines are not effective

[56]*Ibidem*:6,9. Original text: caratterizzato dal vomito e dalla diarrea, con grave irritazione e perturbamento delle azioni e funzioni spettanti al nervoso sistema. Appariva la diarrea; ovvero, se prima esisteva, mutava natura e caratteri, assumendo l'aspetto di un liquido biancastro, sembiante a decozioni di riso [...] le spesse volte poi era accompagnata da borborigmi sonori [...]. Alla diarrea ben presto si univasi il vomito, prima delle materie inghiottite e delle bevande somministrate, poscia di un liquido simile a quello della diarrea [...]. Durante le anzidette morbose evacuazioni, accusava le più delle volte l'infermo un senso di molestissimo di ardore all'epigastrio, o un acuto dolore alla regione ombelicale [...]. I muscoli (del ventre) retti, ovvero teso, rigonfio e sonante. [...] Il turbamento grave del sistema nervoso in tale periodo si appalesava, oltre i descritti, per altri sintomi, ed erano cefalea, con senso di peso e oppressione al capo, la faccia pallida [...] l'occhio torbido, [...] la respirazione ansia (ovvero ansimante), [...] voce cholerica (ossia una voce molto lieve e rauca, usciva appena).

or administered correctly, there is a high likelihood of mortality. The hallmark symptoms of this particular period were

> the eye was open and motionless, with the pupil dilated [...], the sclerotia, which had become transparent by detachment, let one see the colour of the underlying choroid. The voice dim and sepulchral [...]. The tongue [...] cold and wet or dry. [...] of the wrists there is no trace of it, [...] (the body of the sick person is) of a marble coldness. [...] the palm of the hand and the soles of the feet were wrinkled and puckered [...]. The colour was also altered, since it was spread by more or less extensive livid spots: this constituted the phenomenon of cyanosis. [...] The vomited matter was a whitish liquor similar to rice decoction, with albuminous flakes [...]. The secretion of urine had ceased entirely.[57]

This typical symptom of the blue skin was what doctors called cyanosis, later described in this chapter. Basing on the traits described, it is evident that the patients was not good, from here the two possible solutions were the death or the passage to another phase, in which one could hope that the patient was recovering, and this was the "reaction phase", in which

> by degrees the internal heat revived [...] the wrists became perceptible again. [...] the voice less faint and less deep; the vomits ceased, the alvine discharges diminished and became greenish-blue; the urine reappeared, the cyanosis disappeared; the physiognomy was recomposed, the eyes resumed their appearance.[58]

[57] *Ibidem*:9,13. Original text: L'occhio era aperto ed immobile, con la pupilla dilatata [...], la sclerotica, addivenuta per distaccamento trasparente, lascia vedere il brun colore della sottoposta coroidea. La voce fioca e sepolcrale [...]. La lingua [...] fredda e umida [...]. [...] dei polsi non ne scuopri sentore, [...] (il corpo del malato è) di un freddo marmoreo. [...] alla palma poi della mano e alla pianta del piede si presentava rugosa e raggrinzita [...]. Il colore n'era pure alterato, dappoichè si presentava diffusa da macchie livide più o meno estese: lo che costituiva il fenomeno della cianosi. [...] Le materie vomitate erano un liquore biancastro simile alla decozione di riso, con fiocchi albuminosi [...]. La secrezione dell'orina era cessata interamente.

[58] Marcolini, F.M. *Intorno al cholera cianico di Venezia nell'anno MDCCCXXXV. Annotazioni di M.F. Marcolini*. Milano: Italia, 1836:25,26. Original text: rianimarsi per gradi il calore interno [...] i polsi ritornano percettibili. [...] la voce meno fioca e meno profonda; cessano i vomiti, si minorano le scariche alvine e fannosi verdi-bilose; ricompaiono le orine, scompare la cianosi; ricomponesi la fisionomia, gli occhi riprendono il loro aspetto.

However, it often happened that the sick did not immediately pass to the healing phase just described, because the disease turned into what was called "heat state" (stadio di calore). During this time, a fever began to develop, to which were added other symptoms such as redness of the eyes and cheeks.

These stages represent the typical progression of cholera in the majority of individuals who contract the disease. However, the investigators also noted other differences. Another shared characteristic was the presence of some cholera variants or alterations in the nature of cholera. Marcolini, for instance, presented the cyanosis variant of cholera. Typically, this kind of variation was observed in the most extreme instances, where cholera initially presented with typical symptoms and later progressed to cyanosis. The characteristic symptoms of the condition were that "it rapidly deforms facial features, the hue and convexity of the eyes, it cadaverines the sick [...] it extinguishes the circulation almost completely, it alters the blood circulation.[59]". As a result of poor circulation, individuals experienced a discoloration of the extremities, namely turning blue. Additionally, Marcolini observed that the blood extracted from these patients was thick and dark, making it extremely difficult to remove from the body, even with the use of leeches[60].

Providing nourishment to those affected by cholera was crucial for replenishing depleted nutrients and fluids, sustaining energy levels, bolstering immune system activity, facilitating intestinal repair, and preventing more dehydration. Due to this rationale, the majority of physicians agreed on the imperative of providing patients with a selection of nourishing foods (please list some examples, indicating one or more). Nevertheless, most authors emphasised that it was not necessary or strongly advocated against feeding the sick during the cold stage. However, what was the cause? According to their statement, the reason for this was primarily due to the fact that the sick individual was often unable to ingest anything, and even if they were able to, they promptly regurgitated it. However, when examining the many symptoms of the algid stage mentioned earlier, the main emphasis was on

[59] *Ibidem*:20. Original text: deforma rapidamente i lineamenti del volto, la tinta ed il convesso degli occhi; cadaverizza gli ammalati […] estingue pressochè affatto la circolazione.
[60] *Ibidem*:25.

restoring water rather than providing nourishment. Administering fluids to address dehydration was seen more crucial than supplying nourishment.

2.3 The divergences among doctors

The primary focus of this section is to elucidate the nature of cholera, as medical professionals held divergent perspectives on this matter. It is important to note that most people believed that cholera was caused by miasmas, which is the hypothesised that the dissemination of the sickness was caused by toxic fumes emanating from unclean and decomposing matter in the surroundings. Furthermore, as previously demonstrated in chapter I, cholera, along with other illnesses, was introduced or transmitted by travellers, such as through their garments or merchandise.

Marcolini saw nocturnal cholera outbreaks[61], possibly due to increased humidity at night or the cramped living conditions of the impoverished population, which facilitated the transmission of the disease. In addition, Namias also held the belief that cholera was predominantly caused by miasmas, which are harmful vapours or "bad air" that come from decaying organic matter, inadequate sanitation, and various other environmental conditions. He ascribed the dissemination of cholera to these airborne miasmas instead of direct person-to-person transmission. Aligned with the miasma theory, Namias underscored the significance of environmental factors in the occurrence and dissemination of cholera. He identified conditions such as inadequate sanitation, excessive population density, and the presence of decomposing material as contributing to the formation of miasmas and, subsequently, the transmission of cholera. However, the physician Namias did not completely disregard the potential for cholera to be communicable. This was based on his studies involving rabbits, where he injected the blood of infected individuals into the rabbits' bodies and observed the subsequent outcomes[62]. Through these studies, he gained a clear understanding that cholera was indeed a contagious disease, however he only recognised the direct mode of transmission, although in actuality, the disease could also be spread indirectly. Gaspare Federigo, another doctor,

[61] Marcolini, F.M. *Intorno al cholera cianico di Venezia nell'anno MDCCCXXXV. Annotazioni di M.F. Marcolini*. Milano: Italia, 1836.
[62] To see more about the sperimentation on rabbits: Namias, Giacinto. *Storia naturale del còlera pel Prof. Giacinto Namias. Lettura fatta all'Ospedale civile di Venezia*. Firenze, Italia, 1867: 22 and following.

corroborated the notion that cholera was indeed a contagious illness. He posited that the transmission of cholera occurred through direct or indirect contact between individuals. He also affirms that

> the eastern cholera is transmitted and propagated like the plague for the immediate or mediated communication of infected diseases; this constitutes the essential and proper character of the contagious diseases, and makes it completely different from epidemic diseases, whose causes reside in the atmosphere.[63]

Nevertheless, Cholera was also seen as an epidemic because of its swift dissemination and elevated fatality rates. Giacomandrea Giacomini attributed the cholera pandemic to cosmic-telluric changes, suggesting a correlation between diseases, their variations, and atmospheric and geophysical processes[64]. Overall, it can be stated that during the initial outbreak of cholera, most doctors believed that diseases were caused by miasma, although a few began to dispute this notion. However, it will take several more years before the concept and identification of the bacterium "vibrio cholerae" as the cause of cholera is fully understood and explained in detail in chapter IV.

In the previous section of the chapter, the author discussed the different variants observed by several doctors throughout the pandemic, including cholerine and cyanosis cholera. In this section, we will focus on the variations that were individually documented or observed.

The initial instances of variants were documented in the book authored by Michelangelo Asson, in which he detailed the spasmodic, dry, adynamic, verminous condition, as well as typhoid cholera[65]. Regarding the spasmodic condition, individuals experienced the typical symptoms of vomiting and diarrhoea, although they were not very common. What made this condition unique was that it would

[63] Federigo, Gaspare. *Il contagio del cholera-morbus provato dalla scienza e dai fatti. Cenni del Dott. Gaspare Federigo*. Padova, Italia, seconda edizione, 1836:8. Original text: il cholera orientale si trasmette e si propaga come la peste per le comunicazioni mediate o immediate cogl'individui infetti; il che costituisce il carattere proprio ed essenziale dei morbi contagiosi, e lo fa differire pienamente dai morbi epidemici, le cui cagioni risiedono nell'atmosfera.
[64] Giacomini, Giacomandrea. *Sulla condizione essenziale del cholera morbus.* Padova, Italia: Coi tipo del seminario, 1936.
[65] Asson, Michelangelo. *Intorno alla prima invasione del cholera-morbus in Venezia. Osservazioni.* Milano: Italia, tipografia Lampato, 1836.

suddenly affect people without any warning signs, and it would be accompanied by intense overall pain, noticeable bluish discoloration of the skin, and muscle spasms that affected all parts of the body. The patient exhibited adynamic, characterised by a lack of muscular response despite experiencing intense interior pain. The presence of vermin in the body was attributed to changes in the gastro-enteric tube caused by the sickness[66]. The sole manifestation of this variation was the presence of worms in the contents expelled during vomiting or diarrhoea. Otherwise, the symptoms were identical to those of classical cholera.

Additionally, there was the presence of typhoid fever, which could manifest either immediately following the algid stage or as a result of an unsuccessful response. The sick individual did not have a genuine case of typhus, but exhibited symptoms that closely resembled it. These symptoms included severe physical weakness, excessive sleepiness, discoloration of the teeth, tongue, and blood, laboured breathing, and occasionally, a state of delirium prior to death, which commonly occurred if the individual was affected by this particular variation[67]. Namias was the sole individual to remark the presence of typhoid symptoms. In addition to the previously documented symptoms, he noted that the eyes and face appeared to be injected with redness[68]. In addition, Namias included several more potential variations that may occur during the reaction phase, including the complete, incomplete, adynamic, and irritative reactions. Regarding the first point, it was the typical response, which was also explained in the initial section of the chapter. In the second case, the reaction initially followed the usual pattern, but at a specific moment, the healing process ceased, leading the sick individual to experience a decline in the normal functioning of their body[69]. This decline, in most cases, resulted in the person's demise. In addition to the typical signs of a cholera reaction, such as inflammation of the digestive tract, the tongue exhibited redness, there was an intense thirst, and a

[66] *Ibidem.*
[67] Asson, Michelangelo. *Intorno alla prima invasione del cholera-morbus in Venezia. Osservazioni.* Milano: Italia, tipografia Lampato, 1836.
[68] Namias, Giacinto. *Cura del còlera pel Prof. Giacinto Namias. Lettura all'Ospedale civile di Venezia.* Firenze: Italia, 1867.
[69] *Ibidem.*

pronounced mental irritation[70]. What the doctors found common in these variations was that they were influenced by the general individual dispositions, which they referred to as the individual "temperament". If a person was in good physical and mental health before contracting cholera, there was a higher likelihood of normal healing. Conversely, if a person had poor health, there was a greater probability of their condition worsening during illness.

Now that we have illustrated the nature of cholera, including its developments and numerous stages, it is time to present the remedy for this disease. In this area, there were both conventional therapies and unconventional remedies that were not shared by all doctors. The doctors previously indicated regularly employed hot baths and clutches as cures, with the latter being a method used to warm the coldest areas of the sufferer. The treatment involved touching the sick individuals with woollen cloths or bare hands, which were coated with heated oil[71]. Another technique for warming individuals involved the use of mustard, which consisted of a poultice made from mustard, yeast, salt, and vinegar. The leeches were applied to the diseased areas, such as the legs, thighs, or abdomen. Additional techniques for maintaining the patient's warmth included placing sacks filled with heated sand or bricks under the feet, as well as positioning bottles of hot water under the armpits. It is important to exercise caution to ensure that these items are adequately warm without causing burns. Additionally, leeches were employed on the abdomen and head, along with the application of vesicants and bloodletting, as means to address circulatory issues. Regarding treatments for vomiting and diarrhoea, doctors commonly recommended infusions of aromatic herbs like chamomile, which not only had a calming effect on the patient but also included valerian and opium. Another option was laudanum or laudanum of Sydenham, a mixture of opium and liquor that acted as a sedative. Additional remedies included morphine, ipecacuanha to induce vomiting, and camphor, which acted as a diuretic to promote urination. Purgative and greasy enemas were administered to alleviate the

[70] *Ibidem.*
[71] Marcolini, F.M. *Intorno al cholera cianico di Venezia nell'anno MDCCCXXXV. Annotazioni di M.F. Marcolini*. Milano: Italia, 1836.

irritation produced by the potent diarrhoea. The drops included laudanum, ipecacuanha, or chamomile. Another crucial treatment for patient dehydration involved placing ice in their mouth. This allowed the cholera patients to stay hydrated without consuming excessive volumes of fluid, which could potentially induce or exacerbate vomiting. Oral administration of aromatic infusions was also provided in small quantities, for the same purpose.

Although it may appear that the doctors shared a unified perspective on the treatments, in reality, this was not the case. The initial point of contention arose from their disagreement on the practice of bloodletting. As previously mentioned, this technique was implemented with the intention of enhancing the circulatory system of cholera patients. However, doctors Namias, and Federigo have determined that it is ineffective. This is because, apart from the prodromal stage where circulation remains normal, the technique proves to be inadequate during the more severe stages of the disease. Obtaining blood samples proved challenging, and upon extraction, it became evident that the patient's condition typically deteriorated[72]. Another argument put out by Federigo was the futility of using clutches. According to him, in order to generate body heat, one should instead resort to methods such as mustard plasters, infusions of aromatic plants like laudanum or ammonia, or taking heated baths. Asson, Cortesi, Fario, and Pancrazio criticised the latter. Indeed, they stated that "there was no necessity to utilise the several equipment created for steam development, nor the hot bath, particularly due to the apprehension of a potentially lethal shock, which was required to be administered to the sick.[73]". The shock was caused by the act of relocating and submerging the sick individual in the bathtub.

[72] Namias, Giacinto. *Cura del còlera pel Prof. Giacinto Namias. Lettura all'Ospedale civile di Venezia.* Firenze: Italia, 1867 and Federigo, Gaspare. *Il contagio del cholera-morbus provato dalla scienza e dai fatti. Cenni del Dott. Gaspare Federigo*. Padova, Italia, seconda edizione, 1836.

[73] Asson, Michelangelo. *Intorno alla prima invasione del cholera-morbus in Venezia. Osservazioni.* Milano: Italia, tipografia Lampato, 1836: 67. Original text: Non ci ebbe mai il bisogno di mettere in opera le varie macchine inventate ad sviluppare il capore, né il bagno caldo, tanto più che si temeva fatale scossa, ch'era necessario imprimere all'ammalato a fine di trasportarvelo ed immergerlo.

Namias objected to the use of purgatives due to the significant loss of fluid experienced by individuals with chlorosis. This loss of fluid not only affects the blood volume, which becomes low and dense, but also hinders proper circulation and contributes to the patient's weakened state. Thus, it was crucial to regulate the evacuations and prioritise the restoration of circulation by employing clutches and mustard[74].

When encountering a novel disease, it is typical for there to be a state of perplexity regarding its characteristics and the methods used to treat it. Consequently, it is typical for physicians and authorities to rely on historical discoveries and teachings when addressing illnesses, such as cholera. An illustration of this can be found in the past when Hippocrates also documented a phenomenon known as cholera, with symptoms and treatment that closely resembled those recently reported by the authors of this section. Contrary to popular belief, Hippocrates did not attribute this disease to careful investigation. Instead, he referred to it as an imbalance of the bodily humours, using the term cholera derived from the Greek word 'χολή'[75], which signified bile. The sole individual who raised the inquiry of the potential identity between the cholera depicted by ancient societies and the contemporary cholera was the physician Namias[76], though without actively pursuing additional information.

[74] Namias, Giacinto. *Cura del còlera pel Prof. Giacinto Namias. Lettura all'Ospedale civile di Venezia.* Firenze: Italia, 1867.
[75] *DIZIONARIO GRECO ANTICO - Greco antico - Italiano*, last access 12 of June, available at: https://www.grecoantico.com/dizionario-greco-antico.php?lemma=COLH100&utm_content=cmp-true .
[76] Namias, Giacinto. *Storia naturale del còlera pel Prof. Giacinto Namias. Lettura fatta all'Ospedale civile di Venezia*. Firenze, Italia, 1867.

2.4 The strategies for preventing and combating cholera using hygienic measures

As mentioned in part 2.1, doctors recommend a healthy lifestyle as a preventive measure against cholera. This includes avoiding excessive indulgence and not fearing the disease, as it increases the likelihood of exposure to cholera. Clearly, these measures proved insufficient. Therefore, the health authorities resorted to employing alternative techniques of contraception, which were the same ones used during the epidemic. For instance, there was the practice of discreet kidnapping among the different methods of condoms used with the patients. These occurrences took place covertly in order to prevent the dissemination of apprehension regarding the novel ailment among the populace. Furthermore, he emphasised the importance of maintaining cleanliness in households and advocated for personal hygiene[77].

Patience and assistance, regarded as crucial factors for recovery, were considered significant by numerous authors, including family members and doctors. Due to this argument, it was imperative to provide compassionate treatment to the ill, offering assistance whenever required, but avoiding from any form of malevolence towards them. They were required to prioritise the cleanliness and hygiene of the sick individuals, taking into account all the bodily discharges they produced, and also maintain the cleanliness of the room to prevent the transmission of the miasma.

Before proceeding, it is important to note that during this time period, the initial outbreak of cholera occurred while Venice and its surrounding areas were under Austrian control. Therefore, although some decisions were made at the local level, as we have just observed, the overall preventive measures were determined by the central government in conjunction with the Venetian public authorities. Nevertheless, "the central government's intended structure of responsibilities stipulated

[77] Pelizzari, Giovanni. *Effetti sociali delle epidemie di colera. Il caso di studio di un capoluogo*. Estratto da "Memorie dell'Ateneo di Salò", 2025-2018:80. Original text: Il sistema delle responsabilità programmate dal governo centrale prevedeva che le azioni e le iniziative da adottare per la prevenzione e per gestire la crisi sanitaria dovessero essere affidate alle amministrazioni locali.

that local governments should be entrusted with the measures and efforts necessary to avoid and manage the health crisis.[78]".

Another important point to emphasise is that these measures were mostly derived from the existing medical knowledge of the era, which centred around miasmatic ideas. These theories held that diseases were transmitted by "bad air" or miasmas. Consequently, many of these safeguards were identical to those employed during previous pandemics, such as the plague. Quarantine and isolation were initially implemented through the establishment of quarantine stations or Lazarettos. Following the outbreak of the plague in 1347, several measures were implemented in the public health system over the years to address the challenges posed by this epidemic. One of these initiatives was the establishment of a permanent hospital. The responsibility for constructing the hospital building was assigned to the *Ufficio del Sal*, a governing body that oversaw the salt trade, which was one of the first and most profitable industries in the Venetian state. Therefore, in 1423, the Maggior Consiglio granted permission for the establishment of the initial lazaret. The name originates from the popularisation of the term Nazareth, referring to the island on which the structure was built: Santa Maria di Nazareth. The efficient spatial management in the lazaret facilitated the organisation and housing of the sick, aiming to mitigate the transmission of the disease. In 1468, a new lazaret was constructed on the island of St Erasmus, referred to as *Lazzaretto Nuovo* one to avoid any confusion with the lazaret completed in 1423, which became *Lazzaretto Vecchio*. The quarantines were enforced, named after the duration of forty days that individuals had to spend in isolation before resuming their regular activities[79].

Returning of the topic of cholera, individuals arriving by ship were required to undergo a period of isolation to prevent the spread of cholera. Isolation was implemented as a precautionary

[78] *Ibidem*:80. Original text: Il sistema delle responsabilità programmate dal governo centrale prevedeva che le azioni e le iniziative da adottare per la prevenzione e per gestire la crisi sanitaria dovessero essere affidate alle amministrazioni locali.
[79]Vanzan Marchini, Nelli-Elena. *Guardarsi da chi non si guarda. La Repubblica di Venezia e il controllo delle pandemie.* Verona, Italia: Cierre edizioni, 2022.

measure for individuals suspected of being infected with cholera in order to halt the spread of the disease. These individuals were either admitted to hospitals or lazarettos. Nevertheless, individuals did not consistently desire to be transported to medical facilities. In fact, they often preferred the comfort of their own houses and the proximity to their loved ones. Consequently, they organised schedules for doctors to visit them directly at their residences.

Public health authorities stressed the significance of maintaining cleanliness, both in personal hygiene and in households. Pelizzari provides practical examples, stating that public authorities mandated the prohibition of dumping and piling up garbage on public streets and squares. Additionally, they emphasised the need for regular maintenance and cleaning of city centres and streets, including the removal of manure near areas where people pass by[80]. Another preventive measure involved the expulsion of all itinerants and performers, perhaps due to their inherent status as travellers, which made them potential carriers of diseases due to their frequent interaction with individuals from many nations. In addition, there was contemplation of prohibiting gatherings of individuals[81]. Furthermore, religious services were closely monitored[82] to prevent the transmission of the disease among attendees. The burials were conducted during nighttime to minimise the number of persons present. The deceased were placed in coffins coated with tar and buried in exceptionally deep trenches[83].

In addition, the mobility of individuals between places that were impacted and those that were not was limited, with the implementation of checkpoints to monitor and regulate travel. Therefore, a purification method was implemented for both individuals and items, specifically for food, using "chlorine vapour derived from a solution of lime chloride and water[84]". During the plague, it was

[80] Pelizzari, Giovanni. *Effetti sociali delle epidemie di colera. Il caso di studio di un capoluogo*. Estratto da "Memorie dell'Ateneo di Salò", 2025-2018.
[81] Snowden, Frank M. *Epidemics and Society. From the Black Death to the Present*. New Haven and London: Yale University Press, 2019.
[82] Pelizzari, Giovanni. *Effetti sociali delle epidemie di colera. Il caso di studio di un capoluogo*. Estratto da "Memorie dell'Ateneo di Salò", 2025-2018.
[83] *Ibidem.*
[84] *Ibidem:* 62. Original text: vapori di cloro, ottenuti dalla soluzione di cloruro di calce in acqua.

common practice to thoroughly disinfect commodities or products that came from areas known to be diseased or suspected of being infected. To ensure compliance with the measures, the public authorities initiated a series of regular inspections accompanied by substantial fines for those who violated them.

Nevertheless, upon the conclusion of the initial cholera pandemic, the factors contributing to the spread and underlying cause of this disease remained elusive. Indeed, as demonstrated in this chapter, the majority of physicians attributed the occurrence of epidemics to the many cosmic-telluric fluctuations. However, the individual who had primarily grasped the concept of infection mechanisms was Namias, who conducted studies with rabbits. In order to have a deeper understanding of the true origin of cholera, it was imperative to await the contributions of Filippo Pacini, who successfully identified the cause in 1854, and Robert Koch, who subsequently isolated it in 1886. Due to the diverse ideas regarding the nature of cholera, the measures implemented to manage and prevent its spread were similar to those employed for other diseases, taking into account overall healthcare and precautions. However, were they effective? The answer is clearly negative. Despite implementing various sanitary measures, the disease continued to spread through contaminated faeces and vomit. This posed a significant risk as the disease could also contaminate the water supply, which was a valuable resource used for multiple purposes such as cleaning, drinking, washing, and cooking. From this, we can deduce that diffusion was not easily controlled. Measures such as ventilating rooms, maintaining cleanliness in houses and streets, and implementing quarantines were insufficient in containing cholera. While these measures may have contributed to the overall hygiene of the population, they were ineffective if individuals consumed or came into contact with water contaminated by the virus.

Therefore, by comparing the various observations and recollections of the doctors, as well as the different methods of condom usage in Venice, one can assert that there was a general lack of medical preparedness to confront the initial surge of cholera. This is not to undermine the wisdom of

the doctors, but rather to highlight the ignorance that accompanies encountering a new disease in a specific location. Without any prior experience or knowledge of the disease, it becomes challenging to comprehend and acquire the necessary expertise to combat it. Furthermore, considering the limited overall knowledge during that time, comprehending something novel becomes even more complex. Consequently, doctors and public authorities were compelled to rely on familiar methods, hoping that they would prove effective.

CHAPTER III

THE SOCIAL AND ECONOMIC REPERCUSSIONS OF THE OUTBREAK OF CHOLERA

Every existing entity has a requirement that stems from its genesis, consistency, and utility. Similarly, diseases have both an origin and a method of spreading. Nevertheless, the medical and scientific progress made in the 1800s was considerably less sophisticated in comparison to our current breakthroughs. This is a result of the ongoing process of evolution and exploration. It is highly probable that in the next few decades, there will be unexpected breakthroughs that surpass our current predictions. Hence, the comprehension of the historical period under investigation was inadequate to elucidate the explanations for the origin, progression, and aetiology of diseases. Consequently, the physicians of that time relied on their pre-existing knowledge and skills. In the second chapter, we observed how the many authors employed the medical teachings of Hippocrates, with their own comprehension, to elucidate their observations during the initial occurrence of cholera in 1835. In this chapter, Hippocrates' views will provide valuable insights into the sociocultural context in which diseases were treated.

3.1 Theological prospectives from the past

In ancient times, there was a belief that diseases were caused by divine punishment. This view was known as the "divine theory of disease," which suggested that all the problems on Earth were a result of human unhealthy activity. Snowden offers an illustration by referencing the biblical story in which Eve's consumption of the forbidden fruit leads to God banishing Adam and Eve from the idyllic paradise of Eden. As a consequence of their disobedience, they are afflicted with illness, laborious toil, painful childbearing, and ultimately mortality[85]. This incident illustrates the old warning that if individuals do not abstain from sin and lack faith in God's teachings, they will face punishment. Another perspective, known as the "demonic theory of disease," can be considered a variation of the divine theory of disease. Unlike the divine theory, this belief holds that there are individuals on Earth, such as witches, who are actually possessed by demons and intentionally spread illnesses to harm others[86]. The Hippocrates and Galen views, as discussed in chapter II, disrupted the progression of illness development. Hippocrates had a significant impact on medical science through his humoral hypothesis, which proposed that the human body consists of four humours: blood, phlegm, black bile, and yellow bile. The concept of health was perceived as a state of equilibrium among these bodily humours, whereas disease arose as a consequence of imbalances. In addition, he underscored the impact of environmental and lifestyle variables on health, including dietary choices, climate conditions, and living circumstances. Hippocrates espoused the belief that the human body possesses an innate capacity for self-healing, and medical practitioners should aid this process by bolstering the body's inherent mechanisms of healing. In addition, he made significant contributions to the field of medical ethics, as seen by his involvement in the development of the Hippocratic Oath. This oath emphasises important values such as maintaining secrecy, avoiding harm, and promoting ethical behaviour in medical practice. Galen endorsed the concept of miasma, which posits that disease is

[85] Snowden, Frank M. *Epidemics and Society. From the Black Death to the Present*. New Haven and London: Yale University Press, 2019.
[86] *Ibidem*.

caused by noxious air. This hypothesis suggested that ailments were attributed to “bad air” or vapours emitted from decaying substances and polluted surroundings. He held the belief that diseases might be transmitted by miasmas, which were associated with the imbalance of humours in the body. Therefore, the medications for cholera were derived from these two beliefs due to the limited knowledge and discoveries available at that time, prompting doctors to experiment with medicines that were already established. This is because there was a prevailing lack of knowledge in the medical sector. In fact, the identification of the actual cause of the ailment was not made until the late 19th century.

Nevertheless, the belief that disease was a divine retribution was not entirely discarded. This notion resurfaced during the HIV/AIDS epidemic, with a significant number of individuals attributing the illness to punishment for homosexuality[87].

[87] *Ibidem*.

3.2 Social reflection upon the arrival of cholera in Venice

Like any typical occurrence during the emergence of a novel disease, the arrival of cholera in Venice generated a state of perplexity, apprehension, and mass panic. Among many, it was seen as a dreadful ailment. Although it may not have caused as many fatalities as the bubonic plague, it nonetheless spread extensively and may be deemed responsible for a highly distressing and tragic demise. Truly, individuals perish in unsanitary conditions, amidst the presence of vomit and diarrhoea, following prolonged suffering during the ordeal[88]. Normally, someone afflicted with cholera, during the prelude stage, often disregarded their symptoms as they were not overtly severe. Consequently, it was not uncommon for someone to be in good health one day and succumb to the disease the next. This caused widespread worry and apprehension among the populace[89].

As previously stated in chapter II, the initial areas affected by the disease were characterised by poor sanitation, high population density, and a lack of emphasis on health and preventive measures. This was either due to negligence or the inability to afford critical resources. The disease particularly impacted heavily populated and economically disadvantaged regions of the city. The Jewish Ghetto in Venice was particularly susceptible to cholera outbreaks during this period, mostly because of its densely populated and unhygienic living circumstances. The Rialto district was also a concern, as it encompassed the bustling commercial centre of Venice, where markets and trade operations attracted a significant number of individuals, many of whom disregarded health precautions. Furthermore, a large number of individuals who engage in commerce reside in the vicinity of the Rialto region, particularly in the Fondaci, and a significant number of cholera cases were observed in individuals who had potential exposure to water, including paupers, sailors, and fishermen[90]. However, they fail

[88] Snowden, Frank M. *Epidemics and Society. From the Black Death to the Present*. New Haven and London: Yale University Press, 2019.
[89] Evans, Richard J. *Death in Hamburg. Society and Politics in the Cholera Years 1830-1910.* Oxford, New York: Clarendon Press, 1987.
[90] Evans, Richard J. *Epidemics and Revolutions: Cholera in Nineteenth-Century Europe*. Past & Present, 1988, No. 120, pp. 123-146, last access 12 of June 2024, available at: http://www.jstor.org/stable/650924 .

to acknowledge that the close proximity of people in this area may contribute to the transmission of the disease. Additional densely populated areas included Cannaregio, Dorsoduro, and Giudecca. Another factor to take into account is that in these locations, the majority of individuals belonged to the impoverished segment of society, comprising workers and those from the lower socioeconomic classes. The disparity in the spread of cholera between different locations may prompt inquiries about the contrasting living conditions experienced by individuals of lower socioeconomic status and those who are more affluent.

Upon the arrival of cholera in Venice, the event sparked widespread terror and anxiety across the whole populace, encompassing individuals from all backgrounds and social strata. Why is it the case? Consider a scenario where a new sickness emerges in a specific location. While the origin and symptoms of the disease are identified, the underlying reason remains unknown. Doctors are attempting to solve this mystery by drawing upon their knowledge of previous cases. However, even the doctors themselves were uncertain about the solution, leading to further panic, a widespread lack of confidence in the medical professionals, and subsequent propagation of the disease within the population[91]. The trust in doctors and authorities who allowed the practice of kidnapping diseased individuals or those suspected or reported to have cholera was naturally questioned. To such an extent that numerous individuals chose to self-administer treatment at home, remaining silent and thereby confronting a virtually inevitable demise[92]. In 1835, Venice, along with numerous other towns, confronted a substantial public health emergency during the cholera outbreak. In the midst of the widespread fear and despair, opportunistic charlatans, who deceitfully professed expertise in medicine or possessed supernatural abilities, took advantage of the circumstances to amass wealth or exert control. Impostors, masquerading as physicians or healers, would deceitfully provide their services to cholera patients, frequently peddling alleged remedies or preventative measures for

[91] Snowden, Frank M. *Epidemics and Society. From the Black Death to the Present*. New Haven and London: Yale University Press, 2019.
[92] *Ibidem*.

cholera, which were mostly inefficacious and occasionally detrimental. These could vary from herbal mixtures to "miracle" elixirs. They exploited the anxiety and limited scientific comprehension of the disease, offering expedient and effortless remedies. The existence of fraudsters underscores the more extensive problem of how crises can elicit both exemplary and deplorable behaviour in individuals. While numerous individuals exerted great effort to provide assistance and devise answers, some individuals exploited the circumstances for their own personal benefit[93].

The industrial revolution had a significant impact on society as it marked the shift from manual production to machine-based manufacturing. While it brought about advancements in science and technology, it also resulted in several negative consequences. Nevertheless, the substantial migration of individuals from rural areas to urban centres, driven by the prospect of improved economic conditions and employment prospects resulting from industrial progress, also gave rise to numerous adverse phenomena. One significant factor, as observed in chapter I, is that the migration of individuals serves as a primary means of disease transmission. Consequently, as people relocated from rural areas to urban centres, there was a potential for them to carry cholera with them. In addition, another factor to consider when large numbers of people migrate is the restricted availability of housing options. Only a few individuals were able to afford a house, flat, or room. The majority of the recent inhabitants had to contend with residing in densely populated districts or accommodations, where it is evident that sanitary conditions were not given priority. Consequently, they endured substandard living conditions and lacked access to adequate healthcare, particularly for the labour force. Furthermore, the social stratification of individuals into distinct groups resulting from the onset of the industrial revolution, which encompassed the industrial bourgeoisie and the working class, was intensified by the proliferation of cholera. As previously said, cholera thrived in unsanitary environments when preventative measures and healthcare practices were neglected. Consequently, the lower and working class were the initial demographic to be susceptible to contracting the sickness.

[93] Ruffié, Jacques and Sournia, Jean-Charles. *Le epidemie nella storia*. Translated by Anna Foa. Roma, Italia: Editori Riuniti, 1985.

"The poor could easily interpret the relative immunity of the bourgeoisie as evidence of exploitation, injustice or even a positive desire on the part of the rich to reduce the burden of poverty by killing off its main victims. [94]". The lower classes' awareness of this division and the susceptibility of the impoverished to illness compared to the affluent, along with the prevailing sense of hopelessness and apprehension, might render them highly compliant and readily adaptable. During times of societal crisis, the manipulation of false information as a means of governing, influencing, or controlling individuals was a prevalent and highly perilous tactic.

The utilisation of disinformation, in terms of fake news, is a well-recognised and commonly employed strategy, especially when individuals lack knowledge about the subject at hand or to gain a competitive edge in economic circumstances. An illustration of the latter could be exemplified by the dissemination of false information during a pandemic. Genoa disseminated false information alleging that if the plague had reached Marseille, the blame should not be placed on the health magistrate of Marseille, but rather on Livorno. The Genoese account falsely claimed that Livorno had neglected to inspect or notify the nearby ports, but in reality, Livorno had diligently adhered to the rules and successfully barred the contaminated ship from entering the port. The ultimate objective of the city of Genoa was to undermine the port of Livorno, as its rival, Marseille, had already been impacted by the plague and was deemed out of contention[95]. Another instance that illustrates the relationship between societal progress and fake news is the following:

> In 1836-1837, when cholera hit central Italy and especially the Kingdom of the Two Sicilies hard, it was in these states that revolutionary propaganda made use of the most shameless lies. In Sicily, the Bourbon government was accused of wanting to poison the Sicilian people, giving rise to a series of

[94] Evans, Richard J. *Past & Present*. Epidemics and Revolutions: Cholera in Nineteenth-Century Europe, 1988, No. 120, pp. 123-146, last access 12 of June 2024, available at: http://www.jstor.org/stable/650924 .
[95] Delogu, Giulia. *Inventing Public Health in the Early Modern Age: Venice and the Northern Adriatic*. Pavia, Italia: Ibis, 2022.

popular uprisings in numerous towns and cities on the island; dozens and dozens of innocent people were lynched by the enraged populace.[96]

Still, how did governments manage to persuade ordinary individuals of such an accusation? The primary symptoms of cholera are nausea, vomiting, abdominal discomfort, diarrhoea, paleness, trouble breathing, cold chills, headaches, difficulty seeing, and loss of consciousness. These symptoms were identical to those observed in cases of poisoning, leading many to initially speculate and concur that the government was formulating a method to eradicate the marginalised part of society. Another factor that could support this interpretation is the Malthusian model[97]. The Malthusian theory, which is well recognised, was formulated by Thomas R. Malthus, a renowned British economist and demographer. He focused on the impact of population expansion on society. The Malthusian concept stated that there was a discrepancy between population size and the availability of resources. The allocation of resources, following an arithmetic progression (2, 4, 6, 8....), would experience a significantly slower rate of increase compared to the population growth, which follows a geometric progression (2, 4, 8, 16...). As time progresses, the population will inevitably become excessively huge, causing a country's carrying capacity to be reached and making it unfeasible to provide food for the entire population. This would result in a decline in people's living standards, which could potentially result in societal catastrophes. Malthus proposed that the solution to the problem lies in preventing unregulated population expansion. Could the deliberate

[96]Pellizari, Giovanni. *Effetti sociali delle epidemie di colera. Il caso di studio di un capoluogo*. In: *Memorie dell'Ateneo di Salò*, Nuova Serie, 2015-2018: 57. Original text: Nel biennio 1836 – 1837, quando il colera colpì duramente il centro Italia e soprattutto il Regno delle due Sicilie, fu in questi stati che la propaganda rivoluzionaria si avvalse della più spudorata menzogna. In Sicilia il governo borbonico fu accusato di voler avvelenare il popolo siciliano, dando origine a una serie di sollevazioni popolari in numerosi comuni e città dell'isola; decine e decine di innocenti furono linciati dal popolo inferocito.

[97] Costabile, Lilia. *Malthus. Sviluppo e ristagno della produzione capitalistica*. Torino, Italia: Einaudi, 1980. Undoubtedly, other variables can impact population increase, extending beyond simple mathematical calculations. These causes include wars, epidemics, and diverse lifestyle choices. Each of these factors modifies and transforms the pattern of mortality and population growth, thereby impacting the pattern of population change and the availability of resources. In addition, this theory faced criticism from two main perspectives: the first being Marxist and the second being positivist. The primary issue, as stated by the former, is not in the proportion of resources to people, but rather in the uneven allocation of resources, resulting in unequal wealth distribution. There exists a disparity in the distribution of resources among individuals. The second perspective, known as positivism, relies on the premise that advancements in technology and science can provide new approaches to address resource shortages.

contamination of the population with a fictitious sickness be considered as a potential solution? It was actually perceived that such by many observers.

Fake news played a crucial influence during the 1835 cholera outbreak in Venice by influencing public response and making it more difficult to effectively manage the problem. The need of dependable information and the difficulties encountered by authorities in upholding public trust and collaboration in the midst of health catastrophes. Dissemination of inaccurate information on the disease's source, modes of transmission, and symptoms greatly intensified public anxiety. The widespread circulation of rumours attributing cholera to intentional poisoning or divine retribution resulted in heightened concern and a loss of trust among the community. "The poor all over Europe shared the same fears and identified the same enemy, for the simple reason that cholera struck the poor first. People could not understand how a disease that attacked only the lower classes could be anything but intentional.[98]". Therefore, the utilisation of false information has played a role in causing a substantial decline in the confidence placed in public health professionals and government authorities. Accusations of officials hiding the actual severity of the outbreak or mishandling the response contributed to popular doubt and opposition towards official instructions, such as quarantines and sanitary measures[99]. Neither of these examples specifically pertains to the city of Venice. However, they can still be used to comprehend the potential impact of fake news on the economic and social domains. It is widely acknowledged that diseases like cholera and plague were not confined to a single location, but rather had a global reach, inflicting harm upon societies worldwide[100].

[98] Delaporte, François. *Disease and Civilization. The Cholera in Paris, 1832.* Translated by Arthur Goldhammer. London, England: The MIT Press, 1986:50.
[99] Baldwin, Peter. *Contagion and the State in Europe. 1830-1930.* Cambridge, United Kingdom: Cambridge University Press, 2004.
[100] Another example of the use of fake news and the spread of false information regarding the poisoning of the poor people by the upper class can be also be found in: Delaporte, François. *Disease and Civilization. The Cholera in Paris, 1832.* Translated by Arthur Goldhammer. London, England: The MIT Press, 1986: 48,49.

Furthermore, when considering the social tensions generated by cholera, it is important to also analyse the ruling and aristocratic class. While it was first assumed that the impoverished classes were more susceptible to the disease and that the wealthy were immune, this assumption turned out to be false. Cholera, in reality, had severe impact on individuals from all social levels, without regard to gender, age, or income, including the affluent and privileged. Consequently, they also experienced shock and firmly believed that the disease was attributed to the lower socioeconomic level. As a result, the upper class considered them as a threat to society. They perceived them as unclean, impoverished individuals who harboured and propagated diseases within their households, subsequently transmitting them to the wider community[101]. Due to this rationale, and with the intention of avoiding the disease, a significant number of individuals belonging to the aristocratic class opted to depart from the urban area and relocate to rural regions.

Is it possible that doctors were intentionally prioritising the upper class and marginalising the poorer class? The likelihood of this occurrence was greater than zero. However, as mentioned earlier in this chapter, there is a tendency among people to seek explanations for all questions. In this case, one possible explanation could be the reason why the lower class was more affected by cholera compared to the upper class. Often, people begin to believe in things that are not true, such as the notion that cholera was a divine punishment or the need to find a scapegoat to comprehend the causes of certain events, as in the case of the cholera outbreak. Hence, it is plausible that individuals, particularly those from the lowest socioeconomic strata, began to perceive doctors as aligning themselves with the government to eliminate them, thereby exacerbating the prevailing distrust towards the entire medical profession[102].

[101] Snowden, Frank M. *Epidemics and Society. From the Black Death to the Present*. New Haven and London: Yale University Press, 2019.
[102] Delaporte, François. *Disease and Civilization. The Cholera in Paris, 1832.* Translated by Arthur Goldhammer. London, England: The MIT Press, 1986. And Cohn, Samuel K. *Epidemics. Hate and Compassion from the Plague of Athens to AIDS*. Oxford, United Kingdom: Oxford University Press, 2018.

Another factor contributing to the conflict between the aristocratic and governing classes was the implementation of preventive measures to suppress or eradicate political dissent. Given the tumultuous circumstances that the city of Venice experienced during the initial outbreak of cholera, it is unsurprising to learn of the authorities' misuse of their authority. Implementing health measures necessitated comprehensive monitoring of the population. This led to heightened governmental surveillance of individuals' movements and activities. Typically, when authorities employed social intervention and conventional health measures to contain the spread of cholera in the city, there was a possibility that they utilised this preventive approach to suppress political dissent without arousing suspicion[103]. It is crucial to note that the initial outbreak of cholera, as well as subsequent waves, took place during a time of considerable political turmoil in Europe, including Venice, which was under Austrian dominion. The Austrian authorities were determined to quash any nationalist and liberal movements that aimed to achieve independence or increased self-governance for Venice. Public health disasters such as cholera were therefore utilised to strengthen authority and quell resistance. However, the riots and rebellions were prominent features of the 19th century[104]. Indeed, it was designated as the "century of rebellion.[105]". However, it is also acknowledged that cholera did not fuel the riots, uprisings, and wars; rather, it was these events that facilitated the spread of the disease. Nevertheless, what if this situation constituted an inescapable cycle? With careful consideration, we can arrive at this solution.

[103] Tognotti E. *Lessons from the History of Quarantine, from Plague to Influenza A. Emerging Infectious Diseases.* 2013;19(2):254-259. doi:10.3201/eid1902.120312.

[104] It is important to note that the 19th century was characterised by political turmoil not only in Venice, but also throughout the rest of Italy and Europe. The objective was to confront the prevailing conservative and colonial governments. The revolutionary wave in Italy during the 1830s occurred within the broader context of the Risorgimento, a movement dedicated to the goal of Italian unification. Despite the occurrence of several uprisings and revolts during the century, these events were orchestrated by clandestine organisations, with the Carbonari being the most renowned secret society in Italy. Although there were no significant uprisings reported in Venice, as in other regions of Italy, it is certain that there were opportunities and attempts to coordinate resistance against the Austrian authorities. Despite the absence of significant events during this period, the sentiments of autonomy and consolidation persisted, reaching their peak in the significant and prosperous rebellion that took place between 1848 and 1849.

[105] Snowden, Frank M. *Epidemics and Society. From the Black Death to the Present*. New Haven and London: Yale University Press, 2019.

Individuals residing in conditions of squalor, neglecting their health and hygiene, are very susceptible to becoming carriers of filth and disease, such as cholera. Simultaneously, they were cognizant of the impoverished circumstances in which they resided and the limited opportunities available to them in contrast to others with greater economic advantages. For instance, even if an individual want to engage in personal hygiene or nourish oneself, they lacked the financial means or limited chances to accomplish these tasks. Consequently, crucial dynamics were established to generate dissatisfaction and repressed emotions of wrath among the populace. The intensification of these adverse emotions, along with the disease's fatal impact on nearby loved ones, the lack of complete comprehension of the condition, and the introduction of dread and panic, may potentially result in outbreaks of violence. This could serve as a means for those of average status to articulate their emotions of dissatisfaction and hopelessness. Nevertheless, the riots could serve as a means of transmitting disease, namely cholera, to other areas of the city, thereby impacting individuals who had previously experienced relatively minimal harm. Furthermore, "crowds attacked town halls and hospitals, killed doctors and mayors, and "liberated" afflicted neighbours, whom they triumphantly carried on their shoulders back to their homes[106]". To clarify, riots and civil disturbance have the potential to result in overcrowding, inadequate healthcare, and the interruption of vital services. The reaction to these uprisings introduced an additional level of intricacy to the revolutionary actions in Venice. The Austrian authorities capitalised on the public health crisis to enhance their grip on the populace, by imposing stringent quarantine measures, intensifying surveillance, and suppressing political activity, so preventing the spread of the illness. However, these approaches ultimately exacerbated dissatisfaction as they were ineffective in preventing the spread of cholera, rendering them futile. Nevertheless, despite the curtailment of personal liberty, these measures were

[106] Cohn, Samuel K. Epidemics. Hate and Compassion from the Plague of Athens to AIDS. Oxford, United Kingdom: Oxford University Press, 2018:531-532.

implemented to save individuals from the spread of disease and to shield the economy from the effects of quarantine[107].

[107] Baldwin, Peter. *Contagion and the State in Europe. 1830-1930.* Cambridge, United Kingdom: Cambridge University Press, 2004.

3.3 Economic reflection upon the arrival of cholera in Venice

The cholera epidemic that occurred in Venice from 1835 to 1837 had significant economic consequences in addition to being a major public health issue. Being a city that was formerly under Austrian dominion and strongly dependent on commerce and tourism, Venice saw substantial difficulties in tackling the epidemic while also handling its economic repercussions. As previously mentioned in chapter I, Venice experienced a fall in the early 19th century after reaching its pinnacle as a prominent naval force. After the Napoleonic Wars, Venice was placed under Austrian administration by the Congress of Vienna in 1815, thus becoming a component of the Lombardy-Venetia Kingdom. The city's economy has transitioned from a position of maritime trade domination to a more diverse, yet still delicate economic structure. While there is still a reliance on marine trade, the city has also incorporated tourism, crafts, and local trade, including activities on the mainland.

The onset of cholera necessitated a significant allocation of resources towards the development of healthcare infrastructure in order to effectively address the pandemic. Facilities such as temporary hospitals, isolation wards, and quarantine stations were set up to effectively handle the large number of patients. The city's healthcare infrastructure was insufficient to handle the demand, leading to the urgent need for increased spending on medical supplies, additional personnel, and the establishment of new healthcare facilities. Furthermore, as demonstrated in chapter II, despite the lack of comprehension regarding the connection between cholera and polluted water, there was a growing recognition of the necessity to enhance healthcare services. Hence, government intervention is necessary to enhance healthcare systems through measures like street and square cleaning, removal of waste near residential areas, improving housing conditions for the impoverished, and implementing strict controls on goods entering the city, including sanitization protocols for individuals and merchandise[108]. The implementation of these public works necessitated both monetary investment

[108] *Ibidem*.

and workforce, exacerbating the city's resource constraints. In order to halt the transmission of cholera, stringent quarantine protocols were implemented for ships, merchandise, and individuals arriving in Venice. Although essential for the well-being of the general population, these policies had a significant impact on commercial activities. Ships experienced delays or were denied entry, resulting in cargo deteriorating while in quarantine, causing substantial financial losses for merchants and traders. Furthermore, there were problems in local markets due to vendors falling ill or passing away, and buyers actively avoided crowded areas due to the fear of contracting the infection. The decrease in market activity impacted the availability and costs of necessary commodities, resulting in inflationary pressures and shortages. This further exacerbated the economic burden on the population, who persisted in opting for these preventive measures and persevering rather than succumbing to the disease[109].

Tourism was a significant source of revenue for the city. However, the outbreak of cholera caused a substantial decrease in the number of visitors due to the fear of infection, resulting in a reduction in tourism. The subsequent decline in earnings from tourism had a domino effect on hotels, restaurants, and other companies that depend on tourist expenditures.

The high fatality rate and morbidity resulting from cholera resulted in substantial deficits in the labour force. This issue was most pronounced in businesses that rely on physical labour, such as building, manufacturing, and dock work. The decrease in the available labour force resulted in a deceleration in economic activity and productivity. Furthermore, some individuals also opted to depart from the urban area in an effort to evade the illness[110]. As a result, with a smaller workforce, the remaining workers were able to command greater compensation. Although this provided

[109] Baldwin, Peter. *Contagion and the State in Europe. 1830-1930.* Cambridge, United Kingdom: Cambridge University Press, 2004.
[110] Ruffié, Jacques and Sournia, Jean-Charles. *Le epidemie nella storia*. Translated by Anna Foa. Roma, Italia: Editori Riuniti, 1985.

temporary advantages for certain workers, it exacerbated financial burdens for firms already grappling with decreased income, resulting in a challenging economic climate for employers.

Socioeconomic adversity and apprehension about the illness were factors that contributed to societal turmoil. Instances of food riots and protests over quarantine laws and perceived government inaction were frequent. This turmoil caused significant disruptions to economic activities and required greater spending to maintain public order.

An essential factor to take into account, both from an economic and social perspective, was the assistance and philanthropy provided to the lowest socioeconomic class[111]. Undoubtedly, although the ruling elite harboured some animosity towards the impoverished, whom they regarded as the bearers of illness, they also provided monetary assistance to them. The true motivation behind this act, whether it was driven by genuine compassion or simply an attempt to enhance their hygienic circumstances with the intention of mitigating the sickness, remains uncertain. Nevertheless, the social dimension remains a crucial factor to consider, given the economic crisis that ensued as a result of the disease, making any form of assistance highly appreciated. However, a question arises at this point: might it be that these benefactors were motivated to give charity in order to cleanse their sins and avoid being affected by cholera?

The cholera outbreak that affected Venice from 1835 to 1837 had profound social, economic, and political consequences, presenting difficulties for both the population and the governing bodies. The outbreak resulted in a significant mortality rate, profoundly affecting families and communities. The fear of infection resulted in social isolation, the stigmatisation of the sick, and heightened mistrust among individuals. The swift dissemination of cholera caused extensive alarm. The populace harboured apprehension towards both the ailment itself and the implemented strategies to manage it, such as quarantine and isolation. These measures, in turn, resulted in the city's economic stagnation

[111] Pellizari, Giovanni. *Effetti sociali delle epidemie di colera. Il caso di studio di un capoluogo*. In: *Memorie dell'Ateneo di Salò*, Nuova Serie, 2015-2018. Some other examples with benefactors were provided by the *Gazzetta privilegiata di Venezia*. Ottobre 1835. N. 226 and followings.

due to the curtailment of both human mobility and maritime activities. Furthermore, substantial resources were dedicated to public health initiatives, such as the creation of quarantine zones, hospitals, and sanitation endeavours. This put a significant burden on the city's financial resources. Nevertheless, these practices persisted due to the absence of alternative solutions to combat the condition at that particular period. This resulted in a disruption of social structure, characterised by heightened tensions and conflicts stemming from resource scarcity and dread of the disease. Additionally, there was a decline in confidence in the government and public health authorities. The lack of knowledge about a particular illness not only generates hysteria but also induces a condition of confusion among the community. Rather than seeking understanding and collaboration, the populace typically becomes divided into many factions, harbouring doubts and accusing one another of being responsible for the deaths of individuals. Thus, they are pitted against each other, exacerbating the confusion and avenues for disease transmission. The anxiety resulted in the identification of a scapegoat within society, as a means of addressing the responsibilities and spread of cholera. collaboration between different social classes was attempted through a charitable effort initiated by the rich class. This endeavour aimed to combat the spread of cholera and promote collaboration[112]. Nevertheless, the true motive behind the benefactors remains uncertain, therefore leaving room for many interpretations, as previously explained. Ultimately, the imperative to comprehend and counteract cholera prompted extensive medical and scientific investigation. Although it was eventually realised that these preventive methods were ineffective against cholera, the discoveries of influential individuals such as Filippo Pacini, John Snow, Max Joseph von Pettenkofer, Louis Pasteur, and Robert Koch, who will be discussed in the next chapter, will be necessary to develop the appropriate method for eradicating cholera.

[112] Ruffié, Jacques and Sournia, Jean-Charles. *Le epidemie nella storia*. Translated by Anna Foa. Roma, Italia: Editori Riuniti, 1985.

CHAPTER IV

FROM INDIVIDUAL DECISIONS TO A UNITY FRONT AGAINST DISEASES

Along with to the cholera outbreak in 1835, Venice encountered many waves of this disease during the 19th century, mirroring the overall pattern of cholera pandemics in Europe. Upon the arrival of the second pandemic in Venice, as well as in other parts of the continent, there was a realisation and subsequent dissemination of the understanding that individual states, republics, or empires were incapable of containing such a disease on their own, without considering the regulations of others. This is because each country has its own guidelines about quarantine. Put simply, the concept of requiring collaboration and uniform regulations throughout various regions of the continent began to gain traction. However, the identification of the origin of the disease and its subsequent eradication will have to wait until the end of the 19th century.

While this dissertation primarily examines the city of Venice, this section of the thesis aims to provide a broader perspective. It attempts to help readers see the significance of international collaboration in overcoming the outbreak of cholera. Therefore, this section of the dissertation will outline the progression of significant breakthroughs that have played a crucial role in the elimination of cholera. Prominent individuals such as Filippo Pacini, John Snow, Max Joseph von Pettenkofer, Louis Pasteur, and Robert Koch will be discussed. In the second half, it will focus on the development of international public health initiatives among countries in reaction to cholera outbreaks. This chapter is significant as it establishes the foundation for the ongoing sanitary collaboration with the World Health Organisation.

4.1 New discoveries

Before entering into international cooperation, it is necessary to elucidate the various discoveries made in the 19th century, as some of these were also deliberated upon during the sanitary conferences. Furthermore, the authors' knowledge contributes to the advancement of scientific and medical methodologies, leading to a revolutionary understanding. Thus, there was a re-evaluation of the historical medical concepts of Hippocrates and Galen, as discussed in chapter II, leading to a subsequent restructuring of the understanding presented in chapter III regarding the notion that diseases could be attributed to divine anger, serving as a form of punishment for individuals. The potential for novel breakthroughs in the medical-scientific domain was made feasible due to doctors shifting from conventional notions[113]. Indeed, the 19th century was characterised by several discoveries that not only challenged existing knowledge but also altered it, while nevertheless maintaining it as a fundamental reference. This feature will also be apparent in the conflict between those who believe in the spread of disease and those who do not.

Filippo Pacini (1812-1883) was the first significant person[114]. He was an Italian anatomist and pathologist. Pacini studied medicine at the University of Florence, where he developed an interest in anatomy and pathology. He discovered nerve endings in the skin, which are now known as Pacini's corpuscles. These are mechanoreceptors sensitive to vibration and pressure, contributing to our understanding of the sensory nervous system. However, as regards for this dissertation, the major work is *Osservazioni microscopiche e deduzioni patologiche sul cholera asiatico*. In order to create this work, he conducted experiments on death people, examining different parts of the bodies, examples of bodily substances include fluids and fragments from the intestines, stomachs, and colon,

[113] Delogu, Giulia. *Medicina e storia. L'uso del passato nella sanità pubblica tra Sette e Ottocento*. In Annali, Jahrbuch ISIG – 40, 2024/1.
[114] To see more information about the author: Zurlini, Fabiola. *Pacini Filippo*, in Dizionario Biografico degli italiani – Volume 80, 2014, Enciclopedia Treccani, last access 8 June 2024, https://www.treccani.it/enciclopedia/filippo-pacini_(Dizionario-Biografico)/ .

as well as materials expelled during vomiting and diarrhoea, and blood extracted from the hearts. Subsequently, he meticulously scrutinised every object under the microscope. Through his academic pursuits, he was able to provide a response to the discoveries made by the authors of chapter two, albeit without a definitive explanation. For instance, the blood exhibited a thick consistency as a result of the depletion of serum, while a lack of oxygen and inadequate removal of carbon dioxide caused the blood to have a black appearance. These factors subsequently resulted in impaired blood circulation and the condition of cyanosis. In addition, he discovered "vibrio" in the intestinal fluid. He observed that these microorganisms were extremely minute, "ranging from 0.0020 to 40 mm in length and 0.0005 to 7 mm in diameter.[115]". They were distributed throughout the fluid. Nevertheless, their abundance was noteworthy, given the huge quantities in which he discovered them. He attributed the sickness to a comma-shaped bacterium, which was eventually named *vibrio cholera*. He proceeded to describe a contagious disease as an organic substance that can be of animal or plant origin. This substance, when it develops in the body of a predisposed individual who can sustain it, triggers its reproduction and causes the disease[116]. Pacini observed that the sickness could spread both indirectly and directly, as Gaspare Federigo also mentioned in Chapter II. Furthermore, the disease had the ability to originate inside itself and could therefore transmit itself to multiple countries, even across long distances. Pacini's findings were submitted to the Florentine Academy, but they were not met with success, partially because of the prevailing miasma theory, which proposed that ailments were caused by noxious air or miasmas. However, Pacini's identification of the cholera bacterium was a noteworthy achievement in the advancement of bacteriology and the germ theory of disease. His findings facilitated further investigations and comprehension of bacterial pathogens.

[115] Pacini, Filippo. *Osservazioni microscopiche e deduzioni patologiche sul cholera asiatico*. Firenze, Italia: Tipografia di Federico Bencini, 1854:12. Last access 8 June 2024, available at: https://books.google.it/books?id=Kp_YoAEACAAJ&printsec=frontcover&redir_esc=y#v=onepage&q&f=false. Original text: una lunghezza di 0,0020 a 40mm, ed un diametro di 0,0005 a 7mm.
[116] *Ibidem.*

Continuing with another noteworthy figure in the battle against cholera, we have Jhon Snow (1813-1858). He was an English physician who played a leading role in advancing the study of epidemiology. Following his apprenticeship to a surgeon-apothecary at New Castle, Snow subsequently enrolled in the Hunterian School of Medicine in London[117]. He is renowned for his research on the transmission of Cholera. There are two editions of his book *On the mode of communication of cholera*, and the second edition, which is more advanced and comprehensive, will be used for the dissertation. John Snow rejected the belief that cholera was caused by a miasma and instead suggested that the disease was spread by tainted water. To illustrate this, he presented an initial case study involving two buildings affected by cholera in 1849 on Thomas Street. One building experienced a cholera outbreak, while the other did not. The sole distinguishing factor between the two buildings was that "In the former court the slops of dirty water poured down by the inhabitants into a channel in front of the houses got into the well from which they obtained their water. [118]". Similarly, Snow in 1854 noted the occurrence of cholera in the Soho district of London by examining the cases and constructing a map. Through this analysis, it was seen that all the places shared a common origin, namely the public water pump located on Broad Street. He found that the water contained contaminants. The water in question was the identical water that individuals utilised on a regular basis for essential activities such as drinking, laundering garments and food, and personal hygiene. This contamination was the primary cause of the cholera outbreak within the buildings. Upon concluding his study, he proposed certain hygienic precautions to be implemented, such as emphasising the utmost necessity of maintaining rigorous cleanliness when caring for cholera patients. This includes ensuring that hand-basins, water, and towels are readily available in every room. Water intended for consumption and food preparation must be free from contamination originating from cesspools, house-drains, or sewers. In the absence of water, it is necessary to subject

[117] To see more info about the author: Frerichs, Ralph. *John Snow.* In Encyclopaedia Britannica. 2024, last access 15 of June 2024, available at: https://www.britannica.com/biography/John-Snow-British-physician .
[118] Snow, John. *On the mode of communication of cholera*. Second edition, London, United Kingdom: John Churchill, New Burlington Street, 1855:23.

it to the process of boiling and filtration. The passage also implies that when there is a case of cholera or a communicable disease in crowded quarters, it is advisable to relocate healthy folks to a different flat[119]. Thanks to Snow's diligent efforts, he effectively persuaded the local authorities to detach the handle of the Broad Street pump, leading to a significant reduction in cholera cases. To address this problem, the Parliament approved the proposition for a fresh sewage system in 1858, entrusting the task to Joseph Bazalgette, the Chief Engineer of the Metropolitan Board of Works. He and his crew built a network of interconnecting sewers that transported waste eastward and discharged it into the Thames Estuary[120].

Max Joseph von Pettenkofer (1818-1901) was a prominent German chemist and hygienist who made significant advancements in the field of public health and hygiene. He pursued a medical education at the Ludwig Maximilian University of Munich, during which he cultivated a fascination with chemistry and cleanliness. In 1873, I served as a member of the commission responsible for studying cholera, making significant contributions to the field of cholera epidemiology. He disagreed with Koch, arguing that the bacillus of cholera was not as contagious as Koch had stated. In Germany, he was regarded as the progenitor of cleanliness[121], for his efforts in rescuing the city of Munich in 1854. He firmly believed that the key to disease prevention lay in practicing good hygiene, rather than just waiting for illnesses to occur and then seeking a cure. He advocated for the creation of a healthy environment by proper sanitation of the soil[122]. To substantiate this claim, he conducted extensive investigation and discovered that the sickness was caused by inadequate waste management practices and unrestricted accumulation of excrement in public areas. To address this matter and

[119] *Ibidem*.
[120] *The Great Stink – How the Victorians Trnaformed London to Solve the Problem of Waste*. In Historic England. Laste access on 10 of June 2024, available at: https://historicengland.org.uk/images-books/archive/collections/photographs/the-great-stink/#15d82855 .

[121] *The father of hygiene*, LMU Munich, 2018, last access 9 of June 2024, available at: https://www.lmu.de/en/newsroom/news-overview/news/the-father-of-hygiene.html .
[122] Wolfgang Gerhard Locher, *Max von Pettenkofer (1818–1901) as a pioneer of modern hygiene and preventive medicine*, in Environmental Health and Preventive Medicine 12, no. 6, 2007: 238–45, last access 9 of June, available at: https://doi.org/10.1007/bf02898030 .

effectively handle the circumstance, he devised a method to overcome the problem. Therefore, Pettenkofer suggested establishing a centralised urban water supply system to ensure the provision of uncontaminated drinking water for the residents[123]. His experiment proved to be highly reliable and is still being utilised in the city of Munich. However, he held the belief that cholera was not caused by the vibrio cholerae, as described in Pacini and Koch's works, but rather by non-biological factors such as soil type and the nature of the groundwater reservoir. He also believed that a clean lifestyle, including maintaining hygiene both outside and inside households, as well as personal hygiene, played a significant role in preventing cholera. Therefore, it can be argued that Pettenkofer's ideas were still connected to those of Hippocrates and Galen, especially on the concept of "bad air" [124]. He acknowledged and agreed with the notion that clean drinking water should not be underestimated, but he emphasised that it was not the primary cause for the spread of cholera. In his believes the cholera pathogen originating from India can be denoted as X, the substrate associated with location and season as Y, and the resultant cholera toxin resulting from the combination of both as Z. Cholera can only be caused by Z, not by either X or Y alone. He claimed that the characteristics of X, Y, and Z are not yet known, but it is likely that all three are organic and that at least X is a structured microorganism or organism. Within the human gut, X has the ability to sustain itself and perhaps reproduce. However, in the context of cholera, the human body just serves as a platform for the actions of Z. The production of Z within the body is only possible when Y is present[125]. The subsequent page will present a detailed explanation of Pettenkofer's perspective. In 1892, he consumed a cup of water tainted with cholera, resulting in merely experiencing a moderate case of diarrhoea[126].

[123] *The father of hygiene*, LMU Munich, 2018, last access 9 of June 2024, available at: https://www.lmu.de/en/newsroom/news-overview/news/the-father-of-hygiene.html .
[124] Refer to chapter II for the ideas and beliefs of Hippocrates and Galen.
[125] Howard-Jones, Norman. *The Scientific background of the International Sanitary Conferences, 1851–1938*. In WHO Chronicle, Geneva, November 1974., International Review of the Red Cross 15, no. 167, 1975:32, last access 9 of June 2024, available at: https://doi.org/10.1017/s0020860400018465 .
[126] Evans, Alfred S. *Pettenkofer Revisited. The life and Contributions of Max von Pettenkofer (1818-1901)*. In Yale Journal of biology and medicine 46, 1973:161-176, last access 9 of June, available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2591993/pdf/yjbm00158-0008.pdf .

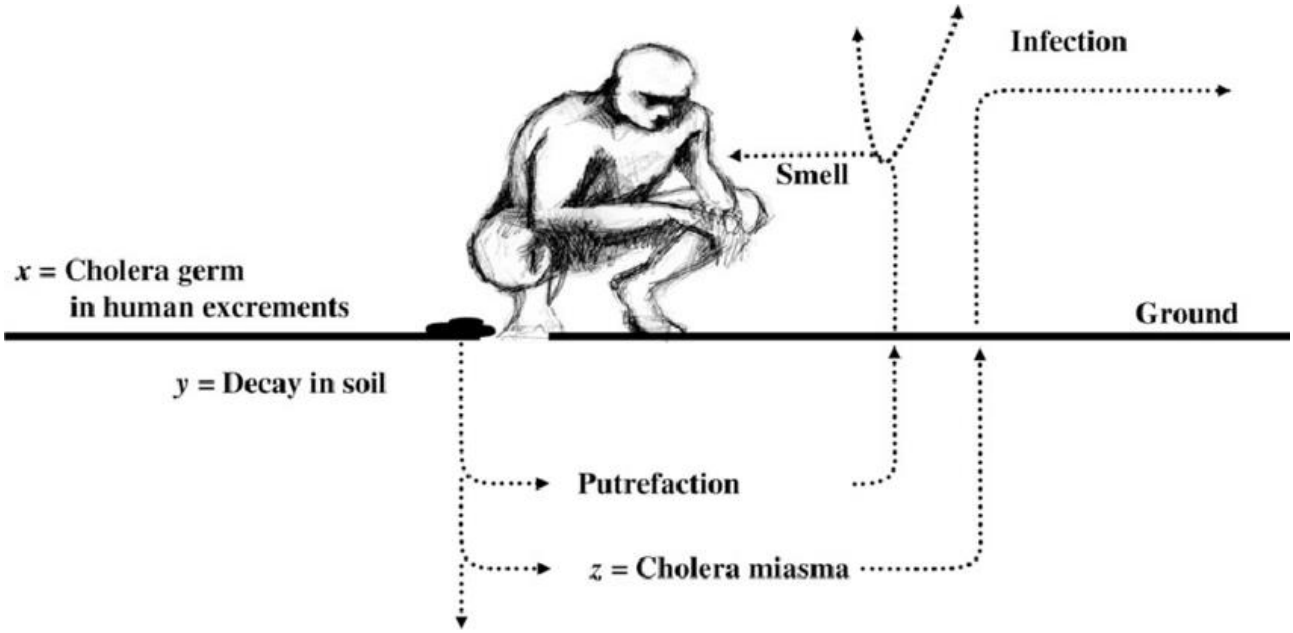

Figure 2 Depiction of Max von Pettenkofer's groundwater level theory.[127]

Louis Pasteur (1822-1895), a French chemist and pharmacologist, was another pioneer in the field of scientific discoveries. He completed his education at the École Normale Supérieure in Paris. He gained renown for his breakthroughs in the realm of microbiology, particularly in the study of fermentation. He demonstrated that fermentation is a biological process executed by microorganisms, and he further identified that distinct bacteria are responsible for different forms of fermentation. In addition, he implemented the use of vaccines and the techniques of sterilisation or pasteurisation, which involve the eradication of microorganisms[128]. Pasteur revolutionised the field of vaccination by proposing that it could be used to combat any disease caused by microorganisms. He also developed techniques to weaken the virulence of microbes, allowing for the use of live microbes in the production of preventive vaccines. These vaccines could be produced in laboratories and manufactured in large quantities to be distributed globally. Another significant feature is that he is

[127] *Epidemiologic Interactions, Complexity, and the Lonesome Death of Max von Pettenkofer* - Scientific Figure on ResearchGate. Last access 9 of June 2024, available from: https://www.researchgate.net/figure/Depiction-of-Max-von-Pettenkofers-groundwater-level-theory_fig1_5911503.

[128] To see more information about the author: Ulmann, Agness. *Louis Pasteur*. In Encyclopaedia Britannica, 2024, last access 15 of June 2024, available at: https://www.britannica.com/biography/Louis-Pasteur .

regarded as the founder of modern immunology, owing to his research on the germ hypothesis of disease. This event was a significant milestone in the scientific and medical domains, as it not only advanced scientific understanding but also enhanced public health, resulting in the preservation of numerous lives and the profound transformation of society. To accomplish this, he conducted experiments on chickens. Pasteur successfully isolated the bacteria accountable for chicken cholera and cultivated it in a controlled laboratory environment. Subsequently, he deliberately infected healthy chickens with the cultivated bacteria to gain insights into its functioning and ultimately develop a remedy or vaccine to avoid the illness[129]. Louis Pasteur successfully disproved the miasma idea, leading to progress in public health measures such as improved hygiene and vaccination programmes, resulting in a decrease in the transmission of infectious diseases.

Finally, Robert Koch (1843-1910) was a German physician and microbiologist. He held the position of director at the imperial office of hygiene and later served as a professor of hygiene at the institute of infectious diseases[130]. In 1883, Koch, along with two other medical colleagues named George Gaffky and Bernhard Fischer, conducted a journey in Egypt (Alexandria) and India (Calcutta) with the purpose of investigating bacteria. Throughout the mission, Koch regularly sent reports to the German Secretary of State, detailing all the discoveries made. The primary objective of the voyage was to ascertain the aetiology of the prevailing disease, cholera, which was rapidly increasing during the 19th century. The specific causative agent identified was the bacterium Vibrio cholerae. Following the study of deceased individuals in Egypt, it was found that a specific type of bacteria was consistently present in the intestinal lining of all the bodies. However, despite the unclear nature of whether the cause was causal or consequential[131], he conducted studies on animals in order to address

[129] Smith, Kendall A. *Louis Pasteur, the father of immunology?* In Frontiers in immunology, Sec. Immunological Memory – Volume 3, 2012, last access 9 of June 2024, available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3342039/pdf/fimmu-03-00068.pdf .

[130] To see other info about the author: Stevenson, Lloyd Grenfell. *Robert Koch*. In Encyclopaedia Britannica, 2024, last access 15 of June 2024, available at: https://www.britannica.com/biography/Robert-Koch .

[131] Howard-Jhones, Norman. *Robert Koch and the cholera vibrio: a centenary*. In Medical History, British Medical Journal,volume 288, 1984:379-381, last access 9 of June 2024, available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1444283/pdf/bmjcred00486-0049.pdf .

this subject. Subsequently, he relocated to Calcutta with the purpose of conducting further investigations and identifying the identical bacillus that was previously detected in Egypt. In 1884, he made the significant observation that the bacillus has a comma-like shape and is exclusively present in faecal matter resembling “rice water stools”. This type of stool, as described in chapter II, is characteristic of the algid state, rather than the initial evacuations that occur during the prelude stage[132]. While Kock’s commitment to comprehending and fighting cholera is significant, it is important to emphasise that Filippo Pacini was actually the first to discover the bacillus.

It was ultimately comprehended that Vibrio cholerae flourishes in hot and humid environments, namely in river water, and can proliferate rapidly in warm water. It has the ability to last on foodstuffs and is exclusively transferred by the act of ingesting contaminated food or item. The bacillus has the ability to endure for a maximum of 15 days on faeces and one week in regular soil dust. Contaminated garments and fabric are significant means of spreading infection. Person-to-person transmission typically happens indirectly through the contamination of food, clothing, bathroom and toilet facilities, and the presence of flies. To effectively combat the bacillus, it is crucial to adhere to rigorous personal hygiene practices, such as regularly washing one's hands. Utilising sand filtration can effectively hinder the infiltration of bacteria into water, hence facilitating the rapid eradication of the bacilli. Cholera outbreaks typically occur under warm and humid conditions, generally transmitted by contaminated water sources, inadequate sanitation systems, and close interpersonal interactions. Contaminated river water can also serve as a medium for the transmission of infections as it moves downstream.

The aforementioned prominent authors made substantial contributions to the study of infectious illnesses, including cholera, through their research. Their discoveries constituted a significant milestone that subsequently catalysed substantial advancements in medical and scientific fields during the ensuing centuries. Therefore, in the late 19th century, it became apparent that

[132] *Ibidem*.

diseases, specifically cholera, did not arise from miasma, as previously believed and as discussed in chapters two and three. Instead, it was understood that diseases are caused by viruses or bacteria, which reside in hosts and are transmitted through direct or indirect contact, such as through food and water. Indirect contact also revealed the importance of practicing meticulous personal hygiene and maintaining cleanliness in living areas and streets. However, the most crucial requirement was the implementation of sewerage systems in cities to ensure the filtration of water. This would enable people to access pure water that is free from contamination caused by excrement and waste, thus preventing the spread of disease.

Upon evaluating the authors' perspectives, it becomes evident that there were differences. Specifically, individuals like Pacini, Pasteur, and Koch supported the notion that cholera was a communicable illness, while others maintained the belief that cholera originated from miasma. Consequently, the two camps can be classified as contagionists and anti-contagionists. Upon evaluating the authors' perspectives, it becomes evident that there were differences in opinion. Specifically, individuals like Pacini, Pasteur, and Koch supported the notion that cholera was a communicable illness, whereas others maintained the belief that cholera originated from miasma. Consequently, the two camps can be categorised as contagionists and anti-contagionists. However, by examining the writers discussed in chapter two, it becomes evident that this divide had already occurred during the initial outbreak of cholera in 1835. Gaspare Federigo and Giacinto Namias were authors who studied cholera. Federigo believed that cholera was contagious, although he did not know the exact cause. Namias initially thought that cholera was contagious based on his experiments with rabbits, but later changed his mind and concluded that the disease was caused by miasma. The conflict between contagionists and anti-contagionists was resolved by the findings of Pasteur and Koch, who presented compelling evidence that particular microbes were responsible for diseases. This led to the gradual adoption of the germ hypothesis.

4.2 Path toward an integrated cooperation

The global spread of diseases throughout the 19th century had a significant influence on Venice and other locations. This prompted all states to evaluate the effectiveness of their existing techniques for preventing these diseases. It is important to mention that all states utilised quarantine restrictions as a preventive strategy, leading to substantial economic losses and stagnation. Following the initial cholera outbreak, the situation became highly precarious from both an economic and social perspective, mostly due to the lack of knowledge about the disease. Due to this, countries, including physicians, were unable to find a viable solution, exacerbating the crisis. In addition, numerous nations were of the opinion that there were more pressing concerns for France, leading them to see the necessity of international collaboration to address the cholera catastrophe. Nevertheless, some countries, like Austria, believed that cooperation was unnecessary due to insufficient awareness of the disease, making it impossible to establish specific guidelines for quarantine measures[133]. Additionally, there were still occasional outbreaks of plague, such as those in Malta and Egypt during the 1830s. Despite the tremendous economic losses and communal discontents and riots caused by cholera, as recounted in chapter III, the plague nonetheless instilled terror in society. Therefore, the concept of collaboration was discarded. Nevertheless, in light of the emergence of the second wave of cholera, states started to adopt the concept of establishing a cohesive coalition to collaboratively devise efficient and fair preventive strategies. However, due to the limited comprehension of cholera at that time, this idea was ignored. However, there was a change in circumstances in 1851.

This section of the chapter will outline many key International Sanitary Conferences that took place in the 19th century. These conferences laid the foundation for an efficient and effective

[133] Harrison, Mark, *Disease, diplomacy and international commerce: the origins of international sanitary regulation in the nineteenth century*, in Journal of Global History 1, no. 2, 2006: 197–217, last access 10 of June 2024, available at: https://doi.org/10.1017/s1740022806000131.

international collaboration in the field of public health, which continues to exist today through the World Health Organisation. However, attaining cooperation proved to be a challenging endeavour.

The first International Sanitary Conference was place in Paris in 1851, marking a significant milestone in international collaboration on matters of public health. The primary objective of the conference was to establish uniform quarantine protocols and enhance information dissemination regarding cholera outbreaks[134]. This would enable all nations to be aware of the spread of cholera, thereby reducing the challenges and inconveniences caused by varying approaches[135]. One plausible interpretation of this decision is that, during that era, Britain and France were the predominant economic powers. Consequently, they convened a conference to safeguard their economies[136]. This objective could only be achieved if all countries adhered to uniform guidelines and timeframes for quarantines, so as to prevent any detrimental impact on economies and trade. Although primarily motivated by the commercial and colonial interests of Britain and France, the drive for the management of quarantines can also be viewed as a means to foster peaceful cooperation between nations. By avoiding tensions that could lead to wars and further exacerbate the economic and medical situations, particularly with regards to the spread of cholera, Europe sought to promote stability and collaboration.

The International conference of 1851 lasted for a duration of less than six months and involved eleven states: Austria, Spain, Papal State, France, Great Britain, Greece, Russia, Kingdom of Sardinia, Kingdom of Tuscany, Ottoman Empire, Portugal, and the Kingdom of two Sicilies[137]. Each country

[134] *Ibidem*.
[135] *Ibidem.*
[136] It is important to emphasise that France and Britain were significant players during the 1850s. Thanks to the industrial revolution, the latter experienced significant growth both domestically and internationally. Additionally, the development of steam ships reduced journey times to reach colonies. As a result, quarantine procedures were perceived as time-consuming and unproductive. Regarding France, it also enhanced Mediterranean trade and commerce, shown by its interactions with Algeria.
[137] *Procès-verbaux de la Conférence sanitaire internationale ouverte à Paris le 27 juillet 1851*. Paris, France: Imprimiere Nationale, 1852:2, last access 9 of June 2024, available at: http://books.google.ie/books?id=wukTAAAAQAAJ&printsec=frontcover&dq=PROC%C3%88S+-+VERBAUX+DE+LA+CONF%C3%89RENCE+SANITAIRE+INTERNATIONALE+.&hl=&cd=3&source=gbs_api.

has dispatched two delegates: a diplomat to address commerce and political matters, and a physician to study the occurrence of cholera and plague. Although the intensity of the plague has diminished compared to the past, it still poses a threat. This, along with outbreaks of cholera, constitutes sufficient cause for concern and warrants the implementation of appropriate sanitary measures. The primary subjects addressed at the meeting were public health and freedom. Throughout a period of advanced civilization, frequent interactions, and swift connections, both matters require safeguarding against threats and liberation from limitations. The purpose of governments was to harmonise these two interests, opting to collaborate in order to address this challenging issue, demonstrating their dedication to the welfare of the people[138]. This statement serves as the introduction to the conference, but in reality, states place a high importance on protecting their economy and the welfare of their population. Likewise, it highlights their intention to decrease quarantine measures. Its results indicated that three out of the four Italian Powers (the Papal States, Kingdom of Tuscany and Kingdom of the two Sicilies), supported the implementation of quarantine measures to combat cholera. They considered epidemic to be insignificant, but importation was of the highest priority to them. The fourth, the Kingdom of Sardinia, was aligned with Austria, Britain, and France, who all agreed that cordons sanitaires and sea quarantine measures were ineffective in combating cholera[139]. Indeed, the first sanitary conference failed because each country was primarily concerned about potential economic losses resulting from the proposed measures. This was largely due to the lack of consensus on the nature of the illnesses. As mentioned earlier, there were two opposing viewpoints - contagionists and anti-contagionists - which led to disagreements without any clear resolution. It was widely recognised that further investigations into cholera were necessary before to making any

[138] *Procès-verbaux de la Conférence sanitaire internationale ouverte à Paris le 27 juillet 1851*. Paris, France: Imprimiere Nationale, 1852:2, last access 9 of June 2024, available at: http://books.google.ie/books?id=wukTAAAAQAAJ&printsec=frontcover&dq=PROC%C3%88S+-+VERBAUX+DE+LA+CONF%C3%89RENCE+SANITAIRE+INTERNATIONALE+.&hl=&cd=3&source=gbs_api.

[139] Howard-Jones, Norman. *The Scientific background of the International Sanitary Conferences, 1851–1938*. In WHO Chronicle, Geneva, November 1974., International Review of the Red Cross 15, no. 167, 1975:32, last access 9 of June 2024, available at: https://doi.org/10.1017/s0020860400018465 .

decisions. However, it was agreed upon that there should still be an international consensus on hygienic rules, as well as a focus on strengthening sanitary surveillance in Egypt and the Ottoman Empire.

The first international health conference highlighted the arduous task of achieving consensus among diverse nations, particularly due to the presence of conflicting viewpoints among participants. This challenge was made even more difficult by the absence of clear elucidation and numerous unresolved questions pertaining to the origins and transmission of diseases. Simultaneously, the conference served as an encouragement for people to recognise the indispensability of this knowledge, hence stimulating the promotion of research to acquire all the requisite solutions.

The overall results of the other conferences were nearly identical. It became evident that there were still numerous disputes on the mechanisms of cholera transmission. Significant advancements were achieved as a result of the findings of Snow and Pettenkofer. However, Pacini's contributions were not acknowledged. Nevertheless, there were numerous disagreements regarding the methods of dissemination. Nevertheless, it was necessary to emphasise some of the key aspects of the conferences. For example, the third coherence, which occurred in Constantinople in 1866 and lasted for seven months, led to an increase in the number of countries participating in the conferences. These countries included Belgium, Denmark, the Netherlands, Persia, Prussia, and Sweden/Norway, which were united at that time. America was also present at this meeting and will be present also to the subsequent conferences. Furthermore, the current focus has shifted exclusively to cholera, when in the past, discussions also encompassed the plague and other diseases. The fourth meeting, convened in Vienna in 1874, resulted in the establishment of a committee tasked with addressing global epidemics[140]. The committee concluded that land quarantines were ineffective. However, they did not

[140] Howard-Jones, Norman. *The Scientific background of the International Sanitary Conefernces, 1851-1938*. In WHO Chronicle, Geneva, 1974, International Review of the Red Cross 15, no. 167, 1975, last access 9 of June 2024, available at: https://doi.org/10.1017/s0020860400018465. For the names of the individuals selected for this committee, see page 39.

reach a definite resolution regarding sea quarantine measures due to disagreements on how to proceed. More precisely, the Northern countries were more inclined to abolish quarantine, whereas the Southern countries opted for implementing certain precautions. Therefore, another committee was established to address international quarantine regulations. This committee made a decision to establish a set of regulations that allowed for both the elimination and continuation of marine quarantine. This decision aimed to promote international peace[141].

The pivotal moment occurred during the seventh conference, which took place in Venice in 1892. Although Koch isolated the comma bacillus eight years earlier, other physicians disputed its role as the cause of the disease. Charles Scott Sherrington, a renowned neurophysiologist, conducted studies suggesting a potential correlation between the vibrio and cholera, but it was not considered the direct cause[142]. Another physician who fiercely opposed Koch was Pettenkofer. He persistently created works discussing the requirement of a very particular setting to cause an epidemic sickness[143]. One of the topics discussed at this meeting was the Suez Canal[144], specifically the protocols for crossing it in the event that a ship had cholera on board. Please locate information about the Suez Canal. The need for this measure arose from the fact that, following the passage of a contaminated ship through the canal, there was a concern that the disease could once again propagate over the continent. The British parliament's enactment of the Public Health (Shipping) Act in 1885 also contributed to this worry. It substituted quarantine measures. This legislation granted Medical Officers of Health at every port the authority to sanitise and sterilise certain locations as they saw fit in order to halt the transmission of contagious illnesses. In addition, they were given the authority to handle and remove contaminated bedding and transfer patients afflicted with highly contagious

[141] Howard-Jones, Norman. *The Scientific background of the International Sanitary Conefernces, 1851-1938*. In WHO Chronicle, Geneva, 1974, International Review of the Red Cross 15, no. 167, 1975, last access 9 of June 2024, available at: https://doi.org/10.1017/s0020860400018465.
[142] *Ibidem.*
[143] referring to the theories of X, Y, and Z.
[144] The Suez Canal is a man-made waterway in Egypt that connects the Mediterranean Sea to the Red Sea, allowing direct maritime passage between Europe and Asia without the need for lengthy navigation around Africa via the Cape of Good Hope.

diseases to hospitals in cases when they did not have appropriate housing or accommodations available[145]. Therefore, France suggested categorising the British ships as clean, suspect, or infected, and conducting a medical inspection before they could sail through the Canal in order to obtain certification[146].

Regarding the following conferences, like the one held in Dresden, America in 1893, the result was a transition from quarantine measures to a clear preference for sanitary inspections on both commodities and persons[147]. This approach was similar to what Britain had chosen in 1885. In addition, the countries entered into a convention to swiftly inform one another about cholera outbreaks and also agreed to only import second-hand clothing, bedding, and rags. Only individuals exhibiting symptoms of cholera could be subject to detainment while travelling by rail. The maritime quarantine procedures remained constant, although there were specific protocols in place for ships entering the Danube from the Black Sea. It was decided that ships not contaminated with cholera, arriving from a port with cholera outbreak, should stay at Sulina port for a period of 3 days. During each day, a medical examination would be conducted[148].

The tenth International Sanitary Conference was held in Venice in 1897, the peculiarity with this conference was the topic, which was plague and not cholera[149], probably because there were some outbreaks of this illness in Hong Kong (1894) and Bombay (1896), moreover there were the discovery of the plague bacillus by Alexandre Yersin (1863-1943) in Hong Kong. He was a disciple of Pasteur.

Regarding the eleventh meeting, which took place in Paris in 1903, one notable result was the recognition of the necessity for a permanent international health office. This office would be

[145] Hardy, Anne. Cholera, Quarantine and the English Preventive System, 1850–1895. In Medical History 37, no. 3, 1993: 250–69, last access 10 of June 2024, available at: https://doi.org/10.1017/s0025727300058440.

[146] Howard-Jones, Norman. *The Scientific background of the International Sanitary Conefernces, 1851-1938*. In WHO Chronicle, Geneva, 1974, International Review of the Red Cross 15, no. 167, 1975, last access 9 of June 2024, available at: https://doi.org/10.1017/s0020860400018465.

[147] *Ibidem.*

[148] *Ibidem.*

[149] *Ibidem.*

responsible for consolidating epidemiological information and distributing it to all states. The summit, which took place in Rome in 1907, was attended by twelve countries. The organisation, which we now refer to as the World Health Organisation or WHO, replaced it in 1950.

Another notable advancement occurred with the establishment of a "Health Organisation" under the auspices of the League of Nations following the conclusion of the First World War (1914-1918). The establishment of this new institution was prompted by the prevalence of diseases, such as typhus, which rapidly spread among soldiers throughout the war as a result of the deplorable living and dying conditions they endured.

The establishment of international cooperation bodies faced challenges due to divergent ideals among doctors, each striving to assert their own ideas. However, as medical-scientific knowledge advanced, a nearly unified front was formed, enabling the fulfilment of all emerging health needs.

CONCLUSION

The examination of Venice's historical response to cholera outbreaks, as detailed in this dissertation, underscores a multifaceted interaction of public health measures, social dynamics, economic repercussions, and the evolving medical understanding. The conclusions that I draw from this comprehensive analysis provide critical insights not only into the past but also into the contemporary and future management of infectious diseases. Upon analysing the resources procured or given on me by my thesis supervisor, I have come to the realisation that history has a propensity to repeat itself during the course of centuries, or even epochs.

Providing relevant background information, in the first chapter, about the city of Venice, such as its involvement in commerce and public health, is important for the thesis. Additionally, explaining the global spread of diseases helps the reader understand the connection between the main topics discussed in the subsequent chapters.

In response to the cholera epidemics, Venice established a range of public health measures, which mostly focused on cleanliness initiatives, quarantine protocols, and limitations on mobility. However, these measures were mostly ineffectual because the lack of comprehension by the physicians on how cholera is transmitted. The utilisation of strategies such as improving room ventilation, promoting personal and household cleanliness, and implementing quarantine protocols for humans and commodities failed to effectively tackle the fundamental problem of water pollution. This emphasises the crucial importance of precise scientific information in developing efficient disease management methods. The limitations of these methods were exacerbated by the socio-political circumstances of the era, which frequently impeded efficient responses, and often relied on past concepts, such as the ones from Hippocrates and Galen.

The cholera outbreak had significant socio-economic repercussions. Fear and stigma associated with the disease led to social isolation and mistrust, among the social classes, exacerbating the psychological toll on the population, such as the example in the Kingdom of the two Sicilies. Economically, the outbreaks disrupted trade and commerce, particularly in a city like Venice, which was heavily reliant on its maritime activities. The implementation of quarantine measures and limits on mobility had dual impact: it not only decreased economic activity, but also reduced public resources, since funds were redirected into healthcare projects, such as the creation of quarantine zones and hospitals.

One of the critical aspects highlighted by the Venice cholera outbreaks is the evolution of medical and scientific understanding. Early responses were characterised by a lack of knowledge about the disease's etymology and transmission. The gradual shift from attributing cholera to miasma or divine punishment to understanding its bacterial nature was pivotal. The contributions of scientists such as Filippo Pacini, who identified the cholera bacillus, and Robert Koch, who isolated it, but also Snow, Pettenkofer, and Pasteur were life-changing. These advancements laid the groundwork for modern bacteriology and highlighted the importance of scientific research in combating infectious diseases.

The international dimension of scientific collaboration, as seen in the various sanitary conferences held in the late 19th and early 20th centuries, underscores the importance of global cooperation in disease control. The establishment of permanent health organizations, eventually leading to the World Health Organization, was a significant outcome of these efforts. This historical perspective reinforces the need for robust international health frameworks to manage global health threats effectively.

The historical analysis of Venice's cholera outbreaks provides several lessons for contemporary public health.

Firstly, the critical importance of scientific research and accurate information in formulating effective public health strategies cannot be underestimated. Modern technology and scientific advancements offer unprecedented opportunities for disease surveillance, diagnosis, and treatment. However, the practice of formulating public health interventions based on scientific knowledge remains unchanged. This was also evident during the COVID-19 pandemic, where authorities, in waiting for a scientific response from physicians, implemented isolation and quarantine measures to address the health crisis, prior to providing individuals with the opportunity to develop immunity through vaccination.

Secondly, the importance of international cooperation and information sharing is paramount. Just as the cholera outbreaks led to the establishment of international health regulations and cooperation, contemporary global health challenges require collaborative efforts. The rapid spread of diseases in a globally connected world underscores the need for strong international health institutions and frameworks. Nevertheless, it is essential to emphasise that individuals must use caution about the dissemination of information. False information, as we have observed, has always been present. However, are there any contrasts between the present day and historical periods? The primary distinction, which I noted, is in the velocity at which false information propagates. In both ancient and modern times, information was transmitted through individuals, which occasionally resulted in delays when travels were lengthy and the information required time to reach its destination. However, nowadays, things are easier. Obtaining any type of information online just a mere second, although it is important to note that not all information found online is accurate. Therefore, in times of stress and panic surrounding a novel disease, the dissemination of false information can lead to widespread unrest and demonstrations, particularly while the origin and characteristics of the disease are still unclear. This was seen in the cases of both cholera and COVID-19.

Overall, the historical examination of Venice's response to cholera outbreaks reveals enduring lessons for public health. The interplay of public health measures, socio-economic impacts, and scientific advancements provides a comprehensive understanding of how societies can manage infectious diseases. While the context and specifics may differ, the fundamental principles of effective disease control remain relevant. Accurate scientific knowledge, integrated socio-economic policies, and international cooperation are crucial components of a robust public health strategy. As the world continues to face new and emerging health threats, these lessons from the past can inform and guide effective responses, ensuring better preparedness and resilience in the face of future pandemics.

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